Administration Guide

FortiEDR 5.1.0

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February 2024
FortiEDR 5.1.0 Administration Guide
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Change Log

Date	Change Description
January 2022	5.1 Initial release.
June 2022	Updated the following topics: • Loading a Server Certificate on page 256 • Predefined Policies on page 196
July 2022	• Added Oracle Linux 6.10 as a supported operating system in Installing FortiEDR on page 19. • Added link to Fortinet Support in several topics.
August 2022	Updated the following topics: • Installing FortiEDR on page 19 (*System requirements* section) • Step 2 – Defining or Importing an Organization on page 341
September 2022	Updated the following topics: • Installing the FortiEDR Central Manager and FortiEDR Aggregator on the Same Machine on page 383 • Installing FortiEDR Collectors on page 26 • Installing the FortiEDR Core on page 397
October 2022	Updated the following topics: • Uninstalling FortiEDR Collectors on page 50 • SAML IdP Configuration with Okta on page 274
February 2023	Updated the Playbook Policy Actions on page 92 topic.
July 2023	Updated Installing a FortiEDR Collector on Linux on page 41.
November 2023	Updated the following topics: • A FortiEDR Collector Does Not Display in the INVENTORY Tab on page 336 • Installing FortiEDR on page 19
January 2024	Updated the following topics: • Upgrading FortiEDR Components on page 52 • Uninstalling FortiEDR Collectors on page 50
February 2024	Updated Installing a FortiEDR Collector on Linux on page 41.

Introducing FortiEDR

This chapter describes the FortiEDR system components, FortiEDR technology and the workflow for protecting your organization using FortiEDR.

Introduction

FortiEDR provides multi-layered, post- and pre-infection protection that stops advanced malware in real time. FortiEDR recognizes that external threat actors cannot be prevented from infiltrating networks, and instead focuses on preventing the exfiltration and ransoming of critical data in the event of a cyber-attack. FortiEDR's unique virtual patching technique, which only blocks malicious outbound communications, enables emplyees to continue working as usual even when their devices are infected.

Execution Prevention

Next-Generation Anti-Virus (NGAV) is a signature-less approach that can detect and mitigate zero-day attacks. FortiEDR stops both known and unknown malware types using machine-learning-based NGAV, which filters out known malware variations. This blocks the execution of files that are identified as malicious or suspected to be malicious. For this policy, each file is analyzed to find evidence for malicious activity.

Data Exfiltration

Data exfiltration is the unauthorized transfer of sensitive information from a target’s network to a location that a threat actor controls.

FortiEDR is a realtime targeted-attack exfiltration prevention platform.

Threat actors only benefit when they actually succeed in stealing your data.

FortiEDR ensures that your data is not exfiltrated by threat actors, regardless of the methods that they use.

FortiEDR can prevent malicious exfiltration attempts of any kind of data, from any application, from any process, using any protocol or port.

FortiEDR becomes your last line of defense in case of a data exfiltration attempt. All malicious connections are blocked and precise details of the infected devices and their associated components are available for your review.

FortiEDR is a software-only solution that can be installed with your current standard equipment.

FortiEDR protects your data from exfiltration both On-Premises and Off-Premises.

Ransomware

Ransomware is malware used by attackers to infect a device, hijack files on that device and then lock them, via encryption, so that they cannot be accessed until the attacker decrypts and releases them. A successful ransomware attack represents the exploit of a greater security vulnerability in your environment. Paying the attacker is only a short-term solution that does not address the root of the problem, as it may likely lead to another attack that is even more malicious and more expensive than the previous one.

FortiEDR prevents, in real time, an attacker’s attempt to encrypt or modify data. FortiEDR then generates an alert that contains the information needed to initiate an investigation, so the root breach can be uncovered and fully remediated. Moreover, the end user can continue to work as usual even on an infected device.

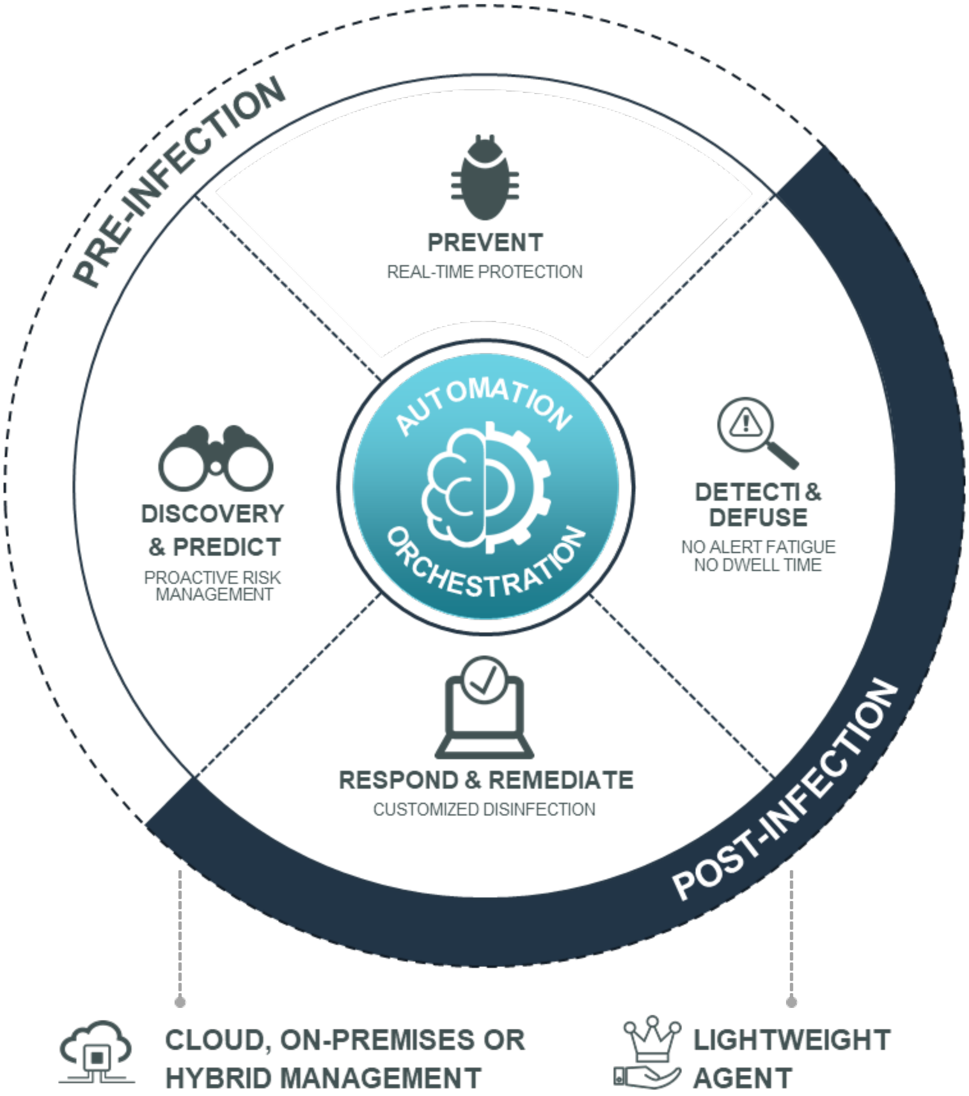
Threat Hunting

FortiEDR’s threat-hunting capabilities features a set of software tools and information sources focused on detecting, investigating, containing and mitigating suspicious activities on end-user devices.

FortiEDR provides post- and pre-infection endpoint protection management, while delivering high detection rates with realtime blocking and response capabilities when compared to traditional Endpoint Detection and Response (EDR) tools.

FortiEDR provides malware classification, displays Indicators of Compromise (IOCs) and delivers full attack-chain views – all while simultaneously enabling users to conduct further threat hunting, if and when needed.

FortiEDR Technology



When looking at how external threat actors operate, we recognize two important aspects. The first is that the threat actors use the network in order to exfiltrate data from an organization. Second, they try to remain as stealthy as possible in order to avoid existing security measures. This means that threat actors must establish outbound communications in a non-standard manner.

FortiEDR's technology prevents data exfiltration by identifying, in real time, malicious outgoing communications that were generated by external threat actors. Identification of malicious outgoing communications is the result of our research conducted on both operating system internals and malware operation methods.

Our research revealed that all legitimate outgoing communications must pass through the operating system. Thus, by monitoring the operating system internals it is possible to verify that a connection was established in a valid manner. FortiEDR gathers OS stack data, thread and process related data and conducts executable file analysis to determine the nature of the connection. Additionally, any type of threat attempting to bypass the FortiEDR driver is detected as the connection will not have the corresponding data from FortiEDR.

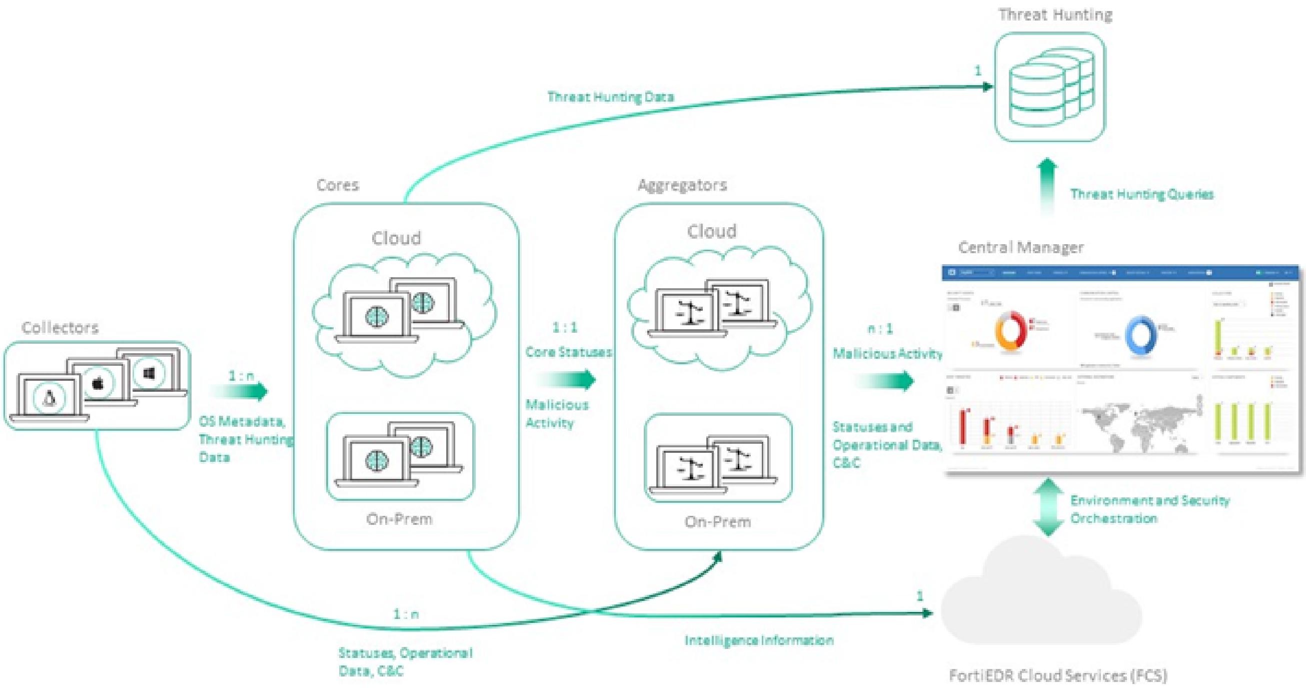
FortiEDR's technology prevents data exfiltration by identifying, in real time, malicious outgoing communications that were generated by external threat actors. Identification of malicious outgoing communications is the result of our research conducted on both operating system internals and malware operation methods.

FortiEDR Components

Overview

The FortiEDR platform is a distributed architecture that collects the connection establishment flow of your organization's communicating devices directly from each device's operating system internals. FortiEDR analyzes the flow of events that preceded the connection establishment and determines whether the connection establishment request was malicious. The system can enforce your organization's policy by blocking the connection establishment request in order to prevent exfiltration.

The FortiEDR platform is comprised of the following components:



FortiEDR Collector

The FortiEDR Collector is a brainless collector that resides on every communicating device in your enterprise, including desktops, laptops and servers.

The FortiEDR Collector resides deep inside the communicating device's operating system.

Upon every attempt made by the communicating device to establish a network connection, the FortiEDR Collector collects all required metadata and sends it to the FortiEDR Core (described below) signed by a FortiEDR digital signature.

The FortiEDR Collector then holds the establishment of this connection until authorization is received from the FortiEDR Core.

- **Pass**: Legitimate requests are allowed out of your network with extremely negligible latency.
- **Block**: Malicious exfiltration attempts are blocked.

If third-party software attempts to stop the FortiEDR Collector service, the system prompts for the registration password. This is the same password used when installing the Collector. If an incorrect password is supplied at the prompt, the message Access Denied displays on the Collector device. In this case, the FortiEDR Collector service is not stopped. For more details about the required password to supply in this situation, you may refer to Component Authentication on page 295.

A FortiEDR Collector should be installed on each communicating device in your organization. The same FortiEDR Collector can be installed on all Windows systems, Mac systems and Linux systems. The following are the connections established between the FortiEDR Collector and other FortiEDR components:

- To the FortiEDR Aggregator: The FortiEDR Collector initially sends registration information to the FortiEDR Aggregator via SSL and then it sends ongoing health and status information.
- From the FortiEDR Aggregator: The FortiEDR Collector receives its configuration from the FortiEDR Aggregator.
- To the FortiEDR Core: The FortiEDR Collector sends compressed operating system metadata to the FortiEDR Core and then ongoing health and status information.
- From the FortiEDR Core: The FortiEDR Collector receives connection establishment authorization or denial (blocking) from the FortiEDR Core.

Negligible Footprint

The FortiEDR Collector retains only a limited amount of metadata on the device in order to keep CPU usage to virtually zero and the storage requirements to a minimum. FortiEDR’s traffic consumption requirements are low since FortiEDR only processes the initial connection establishment. The amount of metadata sent to the FortiEDR Core is so minimal that the latency on the Core’s decision point is negligible. Additionally, FortiEDR uses message compression in order to further reduce the traffic sent to the network. You may refer to Installing FortiEDR on page 19 for the exact specifications of the system requirements.

Quick and Easy Installation

The FortiEDR Collector comes as a standard installer package that is easily installed via standard remote unattended deployment tools, such as Microsoft SCCM. No local configuration or reboot is required; however, a reboot of the system ensures that any malicious connections that were previously established before the installation are thwarted and tracked via FortiEDR after the reboot is complete. Upgrades can be performed remotely and are rarely needed, because all the brains of the FortiEDR system are in the FortiEDR Core.

Event Viewer

The Windows Event Viewer records whenever a FortiEDR Collector blocks communication from a device, as described in Event Viewer on page 134.

FortiEDR Core

The FortiEDR Core is the security policy enforcer and decision-maker. It determines whether a connection establishment request is legitimate or represents a malicious exfiltration attempt that must therefore be blocked.

FortiEDR collects OS stack data, thread and process-related data and conducts executable file analysis to determine the nature of every connection request, as follows.

- When working in prevention mode, all the connection establishment requests in your organization must be authorized by a FortiEDR Core, thus enabling it to block each outgoing connection establishment request that is malicious.
- When the FortiEDR Core receives a connection establishment request, it comes enriched with metadata collected by the FortiEDR Collector that describes the operating system activities that preceded it.
- The FortiEDR Core analyzes the flow of events that preceded the connection request and determines whether the connection request was malicious. The system then enforces your organization’s policy by blocking (or only logging) the connection request in order to prevent/log exfiltration.
- The collection of the flow of events that preceded the connection request enables FortiEDR to determine where the foul occurred.

One or more FortiEDR Cores are required, according to the size of your network based on deployment size (up to 50 FortiEDR Cores). Installing FortiEDR on page 19 for the exact specifications of the system requirements. The following are the connections established between the FortiEDR Core and other FortiEDR components:

- **To the FortiEDR Aggregator**: The FortiEDR Core sends registration information the first time it connects to the FortiEDR Aggregator and then sends events and ongoing health and status information.
- **From the FortiEDR Aggregator**: The FortiEDR Core receives its configuration from the FortiEDR Aggregator.

The FortiEDR Core is located on exit points from your organization. It only reviews FortiEDR Collector metadata; it does not see the outgoing traffic. It is a central Linux-based software-only entity that can run on any workstation or VM that is assigned with a static IP address.

FortiEDR Aggregator

The FortiEDR Aggregator is a software-only entity that acts as a proxy for the FortiEDR Central Manager and provides processing load handling services. All FortiEDR Collectors and FortiEDR Cores interact with the Aggregator for registration, configuration and monitoring purposes. The FortiEDR Aggregator aggregates this information for the FortiEDR Central Manager and distributes the configurations defined in the FortiEDR Central Manager to the FortiEDR Collectors and FortiEDR Cores.

Most deployments only require a single FortiEDR Aggregator that can be installed on the same server as the FortiEDR Central Manager. Additional FortiEDR Aggregators may be required for larger deployments of over 10,000 FortiEDR Collectors and can be installed on a different machine than the FortiEDR Central Manager.

FortiEDR Central Manager

The FortiEDR Central Manager is a software-only central web user interface and backend server for viewing and analyzing events and configuring the system. Chapters from Security Settings on page 54 to Forensics on page 204 describe the user interface of the FortiEDR Central Manager. The FortiEDR Central Manager is the only component that has a user interface. It enables you to:

- Control and configure FortiEDR system behavior
- Monitor and handle FortiEDR events
- Perform deep forensic analysis of security issues
- Monitor system status and health

FortiEDR Cloud Service

The FortiEDR Cloud Service (FCS) enriches and enhances system security by performing deep, thorough analysis and investigation about the classification of a security event. The FCS is a cloud-based, GDPR-compliant, software-only service that determines the exact classification of security events and acts accordingly based on that classification – all with a high degree of accuracy.

The FCS security event classification process is done via data enrichment and enhanced deep, thorough analysis and investigation, enabled by automated and manual processes. The enhanced processes may include (partial list) intelligence services, file analysis (static and dynamic), sandboxing, flow analysis via machine learning, commonalities analysis, crowdsourced data deduction and more.

Along with potential classification reassurance or reclassification, once connected, FCS can also enable several followed actions, which can be divided into two main activities:

- Tuning: Automated security event exception (allowlisting). After a triggered security event is reclassified as Safe, an automated cross-environment exception can be pushed downstream and expire the event, preventing it from triggering again. For more details, see Exception Manager on page 64
- Playbook Actions: All Playbook policy actions are based on the final determination of the FCS. For more details see Playbook Policies on page 89.

How Does FortiEDR Work?

1. **The FortiEDR Collector Collects OS Metadata**: A FortiEDR Collector runs on each communicating device in the organization and transparently collects OS metadata on the computing device.
2. **Communicating Device Makes a Connection Establishment Request**: When any connection establishment request is made on a device, the FortiEDR Collector sends a snapshot of the OS connection establishment to the FortiEDR Core, enriched with the collected OS metadata. Meanwhile, FortiEDR does not allow the connection request to be established.
3. **The FortiEDR Core Identifies Malicious Requests**: Using FortiEDR’s patented technology, the FortiEDR Core analyzes the collected OS metadata and enforces the policies.
4. **Pass or Block**: Only legitimate connections are allowed outbound communication. Malicious outbound connection attempts are blocked.
5. **Event Generation**: Each FortiEDR policy violation generates a realtime security event (alert) that is packaged with an abundance of device metadata describing the internals of the operating system leading up to the malicious connection establishment request. This security event is triggered by the FortiEDR Core and is viewable in the

FortiEDR Central Manager console. FortiEDR can also send email alerts and/or be integrated with any standard Security Information and Event Management (SIEM) solution via Syslog.

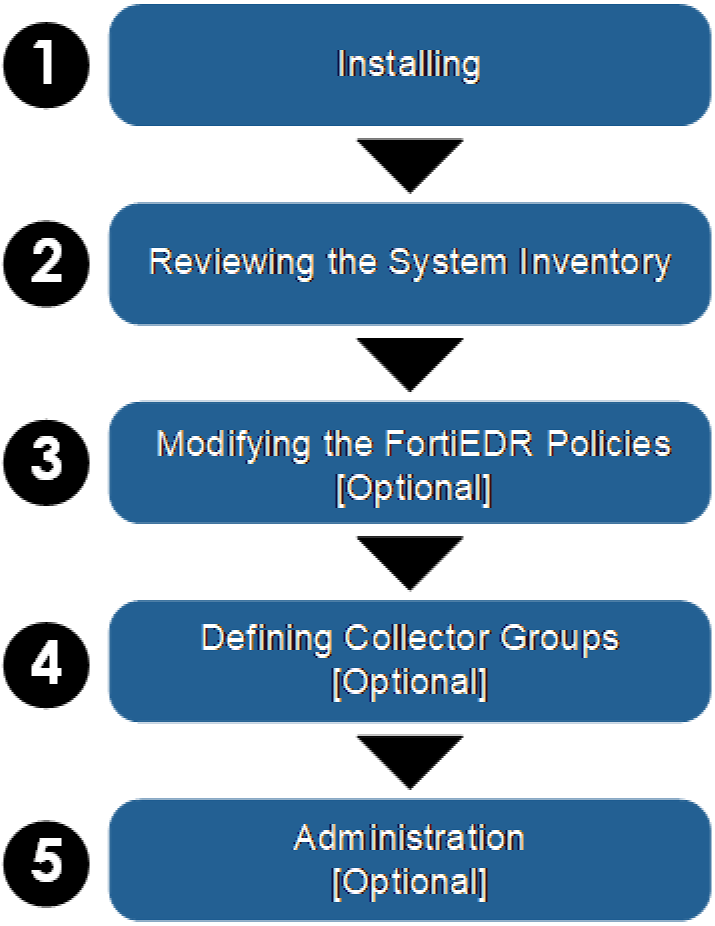
6. **Forensic Analysis**: The Forensic Analysis add-on enables the security team to use the various options provided by the FortiEDR Central Manager console to delve deeply into the actual security event and the internal stack data that led up to it.

Using FortiEDR - WorkFlow

The following is a general guideline for the general workflow of using FortiEDR and specifies which steps are optional.

Setup Workflow Overview

The following describes the workflow for getting FortiEDR up and running in your organization:

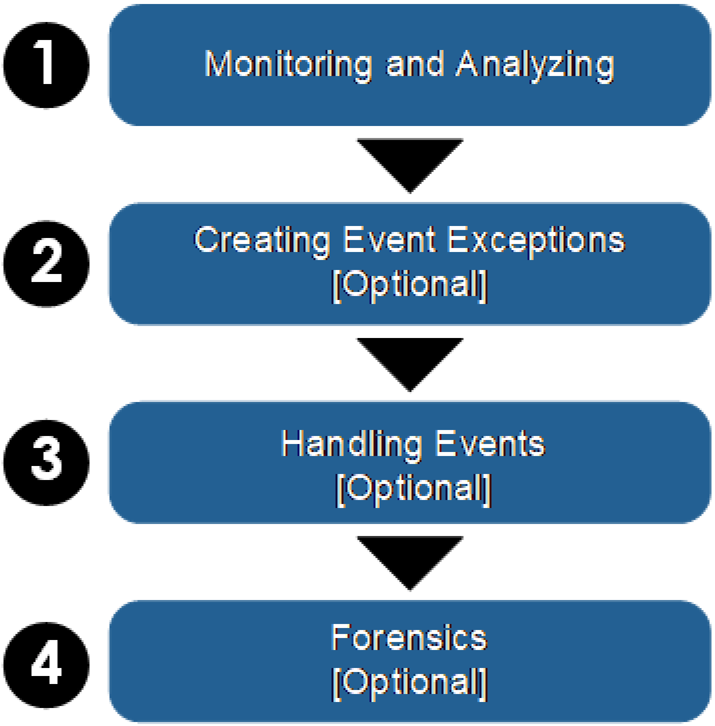

1
Installing
2
Reviewing the System Inventory
3
Modifying the FortiEDR Policies [Optional]
4
Defining Collector Groups [Optional]
5
Administration [Optional]

1. **Installing**: Install all FortiEDR components, as described in Installing FortiEDR on page 19 and Launching the FortiEDR Central Manager for the First Time on page 21.
2. **Reviewing the Inventory**: Review the health status and details of all the FortiEDR components in the Dashboard on page 121 and Inventory on page 99 FortiEDR Collectors are automatically assigned FortiEDR’s default policies.

3. **[Optional] Modifying the FortiEDR Policies**: By default, the FortiEDR policies are ready to log out-of-the-box. If needed, use the Security Settings on page 54 to modify the default policies for blocking and/or to create additional policies.
4. **[Optional] Defining Collector Groups**: By default, the FortiEDR default policies are assigned to a default Collector Group that contains all FortiEDR Collectors. Policies in FortiEDR are assigned per Collector Group. You can define additional Collector Groups in Inventory on page 99. You can then assign the required policy to each Collector Group (see Assigning a Security Policy to a Collector Group on page 61)
5. **[Optional] Administration**: The FortiEDR system installs with a single administrator user. This user can:
   - Create additional users of the FortiEDR Central Manager.
   - Define the recipients to receive email notifications of FortiEDR events.
   - Configure a SIEM to receive notifications of FortiEDR events via Syslog.

Ongoing Workflow Overview

The following is the workflow for monitoring and handling FortiEDR security events on an ongoing basis:


1
Monitoring and Analyzing
2
Creating Event Exceptions [Optional]
3
Handling Events [Optional]
4
Forensics [Optional]

- **Monitoring**: Monitor and analyze the events triggered by FortiEDR in the:
  - Dashboard on page 121
  - Event Viewer on page 134
  - Syslog on page 289
- **[Optional] Creating Event Exceptions**: FortiEDR precisely pinpoints interesting system events. However, if needed, you can create exceptions in order to stop certain events from being triggered for certain IP addresses, applications, protocols and so on. See Playbook Policies on page 89.
- **[Optional] Handling Events**: Mark security events that you have handled and optionally describe how they were handled. See Marking a Security Event as Handled/Unhandled on page 143.
- **[Optional] Forensics (page 153)**: This licensed add-on enables deep investigation into a security event, including the actual internals of the communicating devices' operating system.

Installing FortiEDR

This chapter describes how to install each of the FortiEDR components

Before You Start

Before you start the FortiEDR installation process, please make sure that:

- All devices, workstations, virtual machines and servers on which a FortiEDR component will be installed comply with the system requirements provided on Installing FortiEDR on page 19.
- You have read and selected the most suitable deployment option for you.
- FortiEDR Core, FortiEDR Aggregator and FortiEDR Central Manager use ports 555, 8081 and 443, respectively. Ensure that these ports are not blocked by your firewall product (if one is deployed).
  If the FortiEDR Aggregator and FortiEDR Central Manager are installed separately, port 8091 is used by the Aggregator to communicate with the Manager.
  As a security best practice, it is recommended to update the firewall rules so that they only have a narrow opening. For example:
  - Only open the TCP outbound port 555 to the Core IP address.
  - Only open the TCP outbound port 8081 to the Aggregator IP address.
  - Only open TCP outbound port 8091 to the Central Manager IP address to be accessed by the Aggregator when the Aggregator is installed on premise, while the Central Manager is in the Cloud.

The default deployment mode of FortiEDR backend components is in the cloud and is provided by Fortinet. Cloud components are installed for you by Fortinet.

If you require that the FortiEDR Threat Hunting Repository, Central Manager, Aggregator, or Core would be deployed on your organization’s premises (on-premises), see Appendix C, On-Premise Deployments in Appendix C – ON PREMISE DEPLOYMENTS on page 383.

System Requirements

Component	System Requirements
Processor	• The FortiEDR Collector runs on Intel or AMD x86 – both 32-bit and 64-bit and on Apple M1 (ARM) hardware. • FortiEDR Core, FortiEDR Aggregator and FortiEDR Central Manager run on Intel or AMD x86 64-bit. • FortiEDR is designed to use less than 1% CPU for the FortiEDR Collector. • FortiEDR Aggregator and Central Manager require a minimum of four CPUs. • FortiEDR Core requires a minimum of four CPUs. • FortiEDR Core running as a Jumpbox requires two CPUs.
Physical Memory	• FortiEDR Collector requires at least 60 MB of RAM. • FortiEDR Core requires at least 16 GB of RAM.

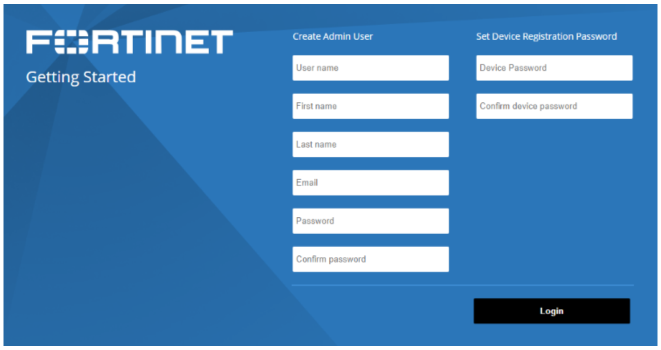
Component	System Requirements
	• FortiEDR Core running as a Jumpbox requires 4 GB of RAM. • FortiEDR Aggregator requires at least 16 GB of RAM. • FortiEDR Central Manager requires at least 16 GB of RAM.
Disk Space	• FortiEDR Collector installation requires at least 20 MB of disk space. • FortiEDR Core requires an SSD disk with at least 80 GB of disk space. For a Threat Hunting license, each 1k of Collectors, over and above the first 1k, require an additional 45 GB. • FortiEDR Core running as a Jumpbox requires 50 GB of disk space (non-SSD). • FortiEDR Aggregator installation and logs space requires at least 80 GB of disk space. • FortiEDR Central Manager installation and logs space requires at least 150 GB of disk space (SSD).
Threat Hunting Repository	• The number of required CPUs (Cores) depends on the number of seats and the required Threat Hunting data retention. A minimum of **16 CPUs** is required for a month's worth of retention with a default Collection profile for 4k FortiEDR Collectors. The addition of each 2k of Collectors requires an additional **6 CPUs**. • Disk Size: ◦ OS disk: 50 GB ◦ Requires an SSD disk - Minimum of **1.5 TB** of available space for a month's worth of retention with a default Collection profile for 4k FortiEDR Collectors. The addition of each 2k of Collectors requires an additional **1.1 TB**. ◦ Note that in the case of installing in Hyper-V: disk should be IDE • Minimum of **1.5 TB** of available space for a month's worth of retention with a default Collection profile for 4k FortiEDR Collectors. The addition of each 2k of Collectors requires an additional **1.1 TB**. • Memory: At least **32 GB** are required for a month's worth of retention with a default Threat Hunting data Collection profile for 4k FortiEDR Collectors. The addition of each 2k of Collectors requires an additional 6GB of memory. • For the specifications required for supporting more than 10k Collectors, please contact Fortinet Support.
Connectivity	• FortiEDR Core listens to communication on port 555. • FortiEDR Aggregator listens to communication on port 8081. • FortiEDR Central Manager listens to communication from the Aggregator on port 8091. • Browser connection to the FortiEDR Central Manager is via port 443. • FortiEDR Threat Hunting Repository listens to communication from the Core on port 32100, 32001 • FortiEDR Threat Hunting Repository listens to communication from the Central Manager on port 8095 • FortiEDR Core, FortiEDR Aggregator and FortiEDR Central Manager

Component	System Requirements
	components must be assigned a static IP address or domain name. The FortiEDR Aggregator and FortiEDR Central Manager can be installed on the same machine. • Network connectivity between all system components is required. • Allow up to 5 Mbps of additional network workload for each 1,000 Collectors.
Supported Operating Systems	The FortiEDR Collector can be installed on any of the following operating systems (both 32-bit and 64-bit versions): • Windows XP SP2/SP3, 7 SP1, 8, 8.1, 10, and 11. • Windows Server 2003 SP2, R2 SP2, 2008 SP2, 2008 R2 SP1, 2012, 2012 R2, 2016, 2019, and 2022. • MacOS Versions: El Capitan (10.11), Sierra (10.12), High Sierra (10.13), Mojave (10.14), Catalina (10.15), Big Sur (11), Monterey (12), and Sonoma (14). • Linux Versions: RedHat Enterprise Linux and CentOS 6.8+, 7.2+ and 8+, Ubuntu LTS 16.04.5+, 18.04 and 20.04 server, 64-bit, Oracle Linux 6.10, 7.7+, and 8.2+, Amazon Linux AMI 2 2018 and SUSE Linux Enterprise Server SLES v15. The complete list of supported Linux versions and kernels is updated regularly and can be provided upon request. • VDI Environments: VMware Horizons 6 and 7 and Citrix XenDesktop 7. • The FortiEDR Core, Repository Server, FortiEDR Aggregator and FortiEDR Central Manager components are supplied in ISO format, which includes a CentOS 7 image. FortiEDR Core, FortiEDR Aggregator and FortiEDR Central Manager can be installed on a virtual machine or a dedicated workstation or server.
Supported Browsers	The FortiEDR Central Manager console can be accessed using the Google Chrome, Firefox Mozilla, Microsoft Edge and Apple Safari browsers.

Launching the FortiEDR Central Manager for the First Time

The procedure below enables you to define passwords. No passwords are provided by Fortinet.

1. Use any standard Internet browser to connect securely (via https://) to the IP address and port of the machine on which the FortiEDR Central Manager is installed, as follows:
   a. https://<machine_IP_addess>/
   b. Default port is 443

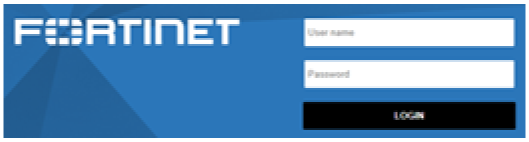
2. 

   Define the first administrator user to be allowed to log into the FortiEDR Manager by filling in the **First Name**, **Last Name**, **Email Address**, and D**efine administrator user name** fields.

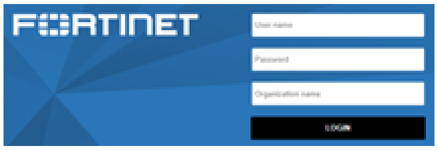
3. Enter and confirm the password to be used by this administrator user.
4. In the **DEVICE REGISTRATION PASSWORD** fields, enter and confirm the password to be used to install all FortiEDR Collectors, FortiEDR Aggregators and FortiEDR Cores. This same password must be used by all.

Write this password down in a good place. This password will be needed each time a FortiEDR component is installed.

5. Click the **LOGIN** button. The regular FortiEDR Central Manager Login page is then displayed, as shown below. The page that displays varies, depending on whether the FortiEDR system is set up as a single organization or multi organization system.



Login Page in a Single-organization System



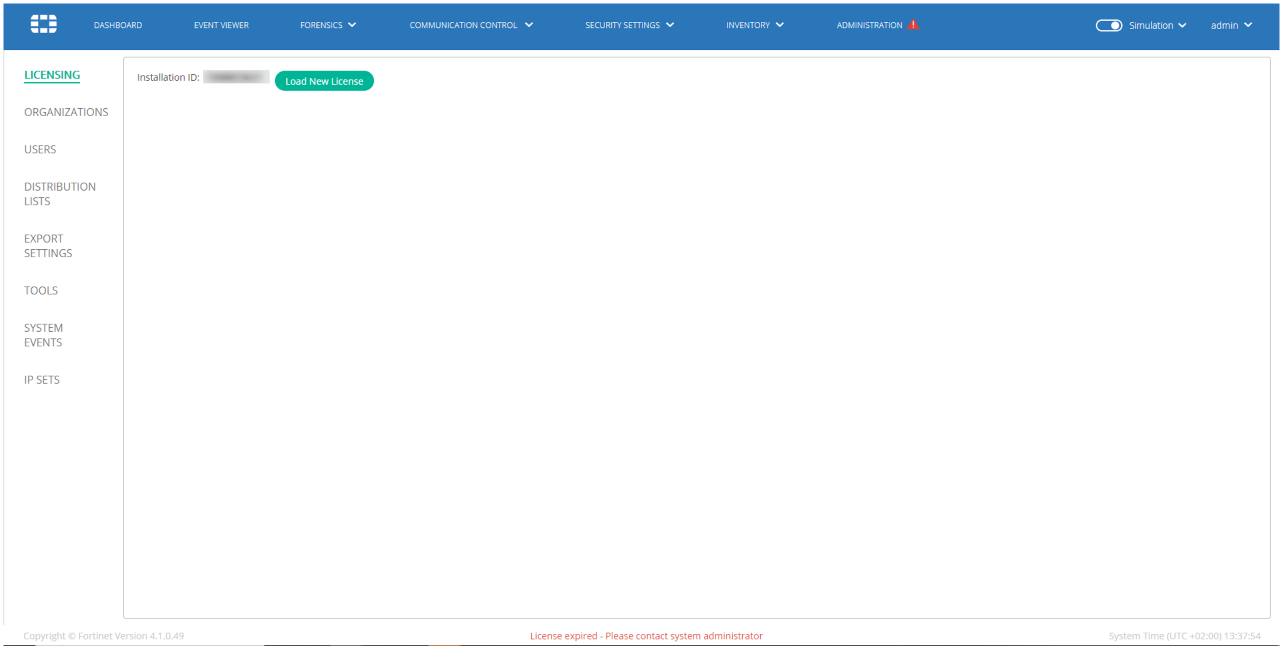
Login Page in a Multi-organization System

- The FortiEDR system can be set up as a single-organization or multi-organization system. In a multi-organization system, all users except an Administrator user must specify the organization in the Organization Name dropdown list. If a user is defined for an organization, then he/she can log in to that organization. Otherwise, he/she cannot.

  For more details about logging in to a multi-organization system, see Step 1 – Logging In to a Multi-organization System on page 340.

6. Enter the administrator user name and password you have just defined and click the **LOGIN** button. All fields are case sensitive. The following window displays automatically the first time you log into the FortiEDR Central

Manager:



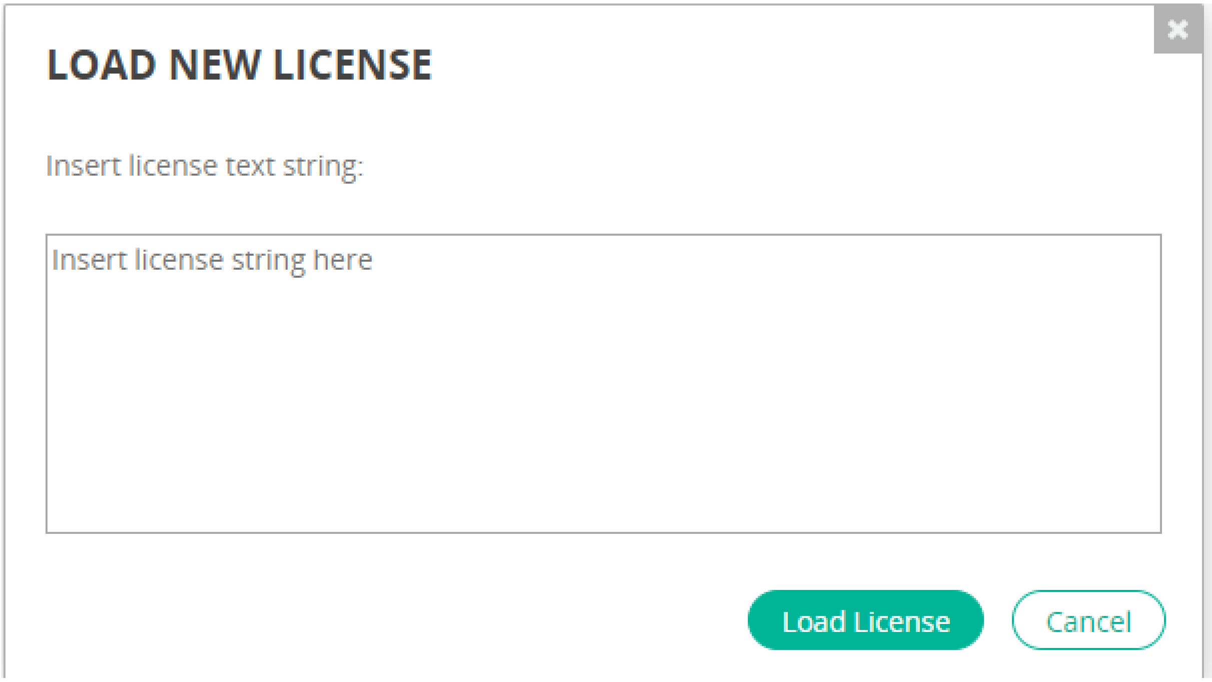
Installation ID: [redacted]

Copyright © Fortinet Version 4.1.0.49

License expired - Please contact system administrator

System Time (UTC +02:00) 13:37:54

7. Send the displayed Installation ID to FortiEDRAdmin@fortinet.com by email in order to receive a license string from Fortinet.
8. Click the Load New License button. The following window displays:

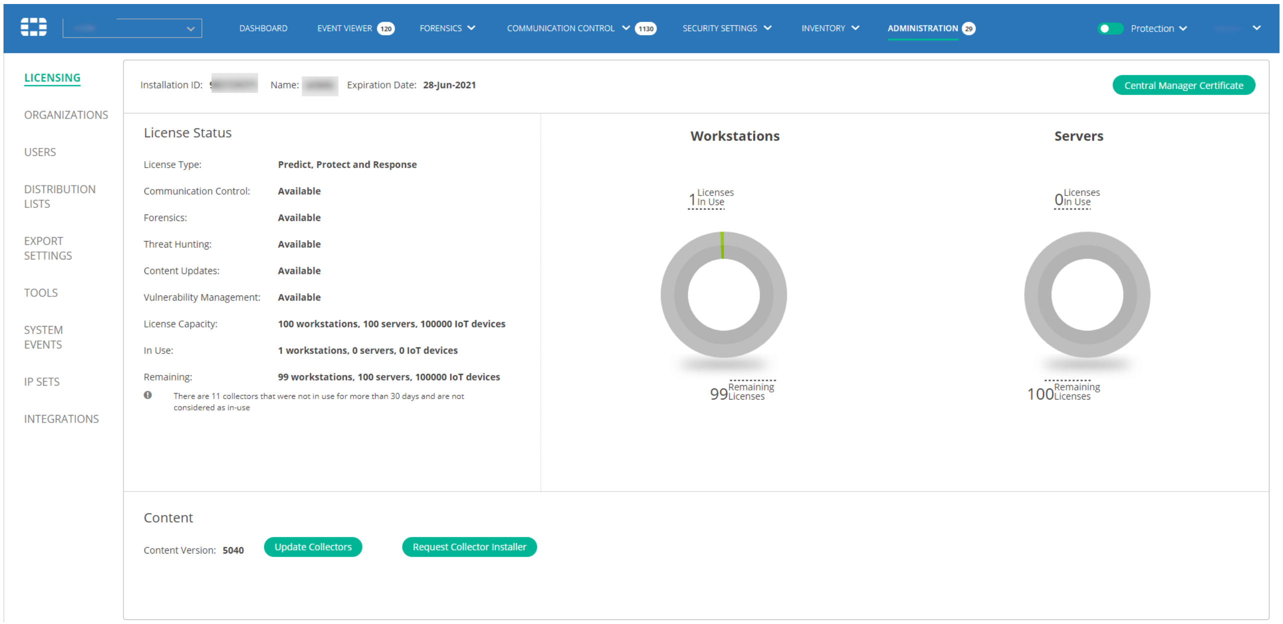


LOAD NEW LICENSE

Insert license text string:

Insert license string here

9. Copy/paste the license string that you received by email into the LOAD NEW LICENSE window and click the **Load License** button. The following displays showing the relevant licensed entitlements:



Installation ID: [redacted] Name: [redacted] Expiration Date: **28-Jun-2021**

License Status

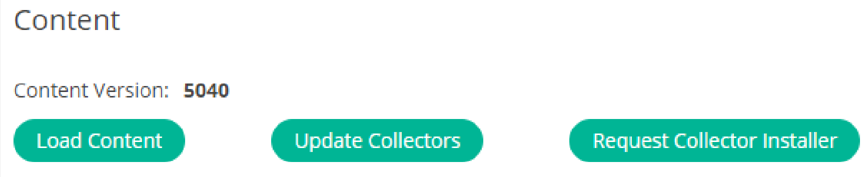
License Type:	**Predict, Protect and Response**
Communication Control:	**Available**
Forensics:	**Available**
Threat Hunting:	**Available**
Content Updates:	**Available**
Vulnerability Management:	**Available**
License Capacity:	**100 workstations, 100 servers, 100000 IoT devices**
In Use:	**1 workstations, 0 servers, 0 IoT devices**
Remaining:	**99 workstations, 100 servers, 100000 IoT devices**

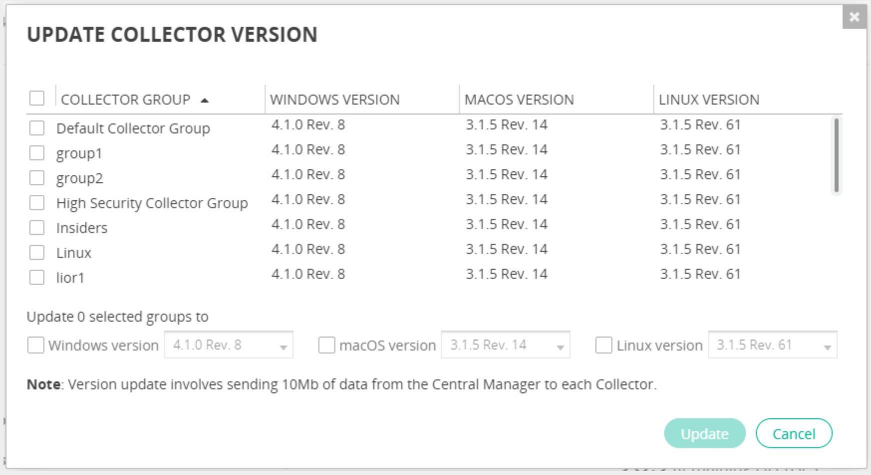
There are 11 collectors that were not in use for more than 30 days and are not considered as in-use

Content

Content Version: **5040**

Field	Description
Installation ID	Specifies the unique identifier that is automatically generated upon installation of the ForitEDR Management server. You may be asked to provide this ID and the **Name** field when contacting Fortinet for support.
Name	Specifies the name of the organization in a multi-organization FortiEDR system. For more details, see Multi-tenancy (Organizations) on page 338.
Expiration Date	Specifies when this license expires. Notifications will be sent to you beforehand.
License Type	Specifies whether the **Discover, Protect and Response** license, **Discover and Protect** license, or **Protect and Response** license was purchased. The license type defines the availability of the relevant add-ons.
Communication Control	Specifies the word **Available** if the Communication Control add-on is included in the license.
eXtended Detection	Specifies the word **Available**, when the **eXtended Detection** add-on is included in the license.
Forensics	Specifies the word **Available** if the Forensics add-on (described in Forensics on page 204 is included in the license.
Threat Hunting	Specifies the word **Available** if the Threat hunting add-on (described in Threat Hunting on page 222) is included in the license. It also specifies whether Repository add-ons have been purchased and how many have been.
Content Updates	Specifies the word **Available** if the **Content Updates** add-on is included in the license. This add-on enables you to automatically receive the latest FortiEDR policy rule and built-in exception updates.

<table>
<tr><th>Field</th><th>Description</th></tr>
<tr><td></td><td>
<p>The system arrives with the latest content pre-installed. There is no need to install content during the initial installation.</p>
<p>The Load Content button enables you to update content, as well as to update the Collector version on any existing Collector.</p>

<p>Content</p>
<p>Content Version: <b>5040</b></p>

<p>To load content updates on your FortiEDR system, click the Load Content button and then select the content file to load. In a multi-tenant environment, the Load Content button is available in Hoster View Hoster view .
If the content file contains a Collector update, you can update all Collectors with the new version at that time, or choose to do so later.</p>
<p>Click the Update Collectors button to update the version for all Collectors.</p>

<p>UPDATE COLLECTOR VERSION</p>
<table>
<tr><th>□ COLLECTOR GROUP ▲</th><th>WINDOWS VERSION</th><th>MACOS VERSION</th><th>LINUX VERSION</th></tr>
<tr><td>□ Default Collector Group</td><td>4.1.0 Rev. 8</td><td>3.1.5 Rev. 14</td><td>3.1.5 Rev. 61</td></tr>
<tr><td>□ group1</td><td>4.1.0 Rev. 8</td><td>3.1.5 Rev. 14</td><td>3.1.5 Rev. 61</td></tr>
<tr><td>□ group2</td><td>4.1.0 Rev. 8</td><td>3.1.5 Rev. 14</td><td>3.1.5 Rev. 61</td></tr>
<tr><td>□ High Security Collector Group</td><td>4.1.0 Rev. 8</td><td>3.1.5 Rev. 14</td><td>3.1.5 Rev. 61</td></tr>
<tr><td>□ Insiders</td><td>4.1.0 Rev. 8</td><td>3.1.5 Rev. 14</td><td>3.1.5 Rev. 61</td></tr>
<tr><td>□ Linux</td><td>4.1.0 Rev. 8</td><td>3.1.5 Rev. 14</td><td>3.1.5 Rev. 61</td></tr>
<tr><td>□ lior1</td><td>4.1.0 Rev. 8</td><td>3.1.5 Rev. 14</td><td>3.1.5 Rev. 61</td></tr>
</table>
<p>Update 0 selected groups to</p>
<p>□ Windows version 4.1.0 Rev. 8 □ macOS version 3.1.5 Rev. 14 □ Linux version 3.1.5 Rev. 61</p>
<p><b>Note</b>: Version update involves sending 10Mb of data from the Central Manager to each Collector.</p>

</td></tr>
<tr><td><b>Vulnerability Management</b></td><td>Specifies the word <b>Available</b> if the Vulnerability Management add-on (described in Administration on page 252) is included in the license.</td></tr>
<tr><td><b>License Capacity</b></td><td>Specifies the number of available licenses for protection by FortiEDR Collectors (for workstations and servers). Only the number of FortiEDR Collectors allowed by the license can register with the FortiEDR Central Manager. Additional FortiEDR Collectors are not registered with the FortiEDR Central Manager. In addition, the number of IoT devices specified under the License Capacity determines whether or not IoT Discovery is available (zero number).</td></tr>
</table>

Field	Description
In Use	Specifies the number of FortiEDR licenses for workstations and servers that are currently in use. In addition, it specifies the number of IoT devices detected in the system thus far.
Remaining	Specifies the number of FortiEDR licenses for workstations and servers that are still available for use.

Regarding questions about the number of licenses purchased, you may contact Fortinet Support.

The FortiEDR Central Manager Server and console are now fully operational.

Installing FortiEDR Collectors

Preparing for FortiEDR Collector Installation

The communicating device on which the FortiEDR Collector will be installed, must meet the following requirements:

- Complies with the requirements described in the System Requirements section on Installing FortiEDR on page 19.
- Has connectivity to a Local Area Network (for wired users) or a Wireless Network (for wireless users). If there is no connectivity, consult your IT support person.
- Has connectivity to the FortiEDR Core and the FortiEDR Aggregator. You can check this by browsing to the Core's IP address and the Aggregator's IP address. For problems connecting, see Troubleshooting on page 336.
- Has connectivity to the FortiEDR Reputation Server at `35.186.218.233`.
- If the FortiEDR Core is deployed on your organization's premises (on-premises) and you use a web proxy to filter requests, then before running the installer, set the system proxy to work with an HTTPS connection, as follows:
  - Edit the file **/etc/environment** to have a proxy address configuration, https_proxy or PAC address.

    For example: `https_proxy=https://192.168.0.2:443`

    (for PAC): `https_proxy=pac+http://192.168.200.100/sample.pac`, where the sample.pac file contains an HTTPS address of the proxy.
  - If the definitions of the system proxy are placed somewhere other than /etc/environment, then:
    - Copy the definitions to the file **/etc/environment**. Note that this affects all processes on the Linux system.
    - Define a specific environment variable for the FortiEDR Linux Collector with the **name nslo_https_proxy** at the file **/etc/environment**

      For example: `nslo_https_proxy=https://192.168.0.2:443`

      (for PAC): `nslo_https_proxy=pac+http://192.168.200.100/sample.pac`

  Note: For more details about installing a Core in a multi-organization environment, Core Registration on page 340.

  Note: You can get a Collector that is customized to your environment's settings, see Requesting and Obtaining a Collector Installer on page 256. If a custom Collector is used during the installation, all input fields such as Aggregator address and registration password are auto-filled.

Installing a FortiEDR Collector

Only the number of FortiEDR Collectors allowed by the license can register with the FortiEDR Central Manager.

Additional FortiEDR Collectors cannot register with the FortiEDR Central Manager.

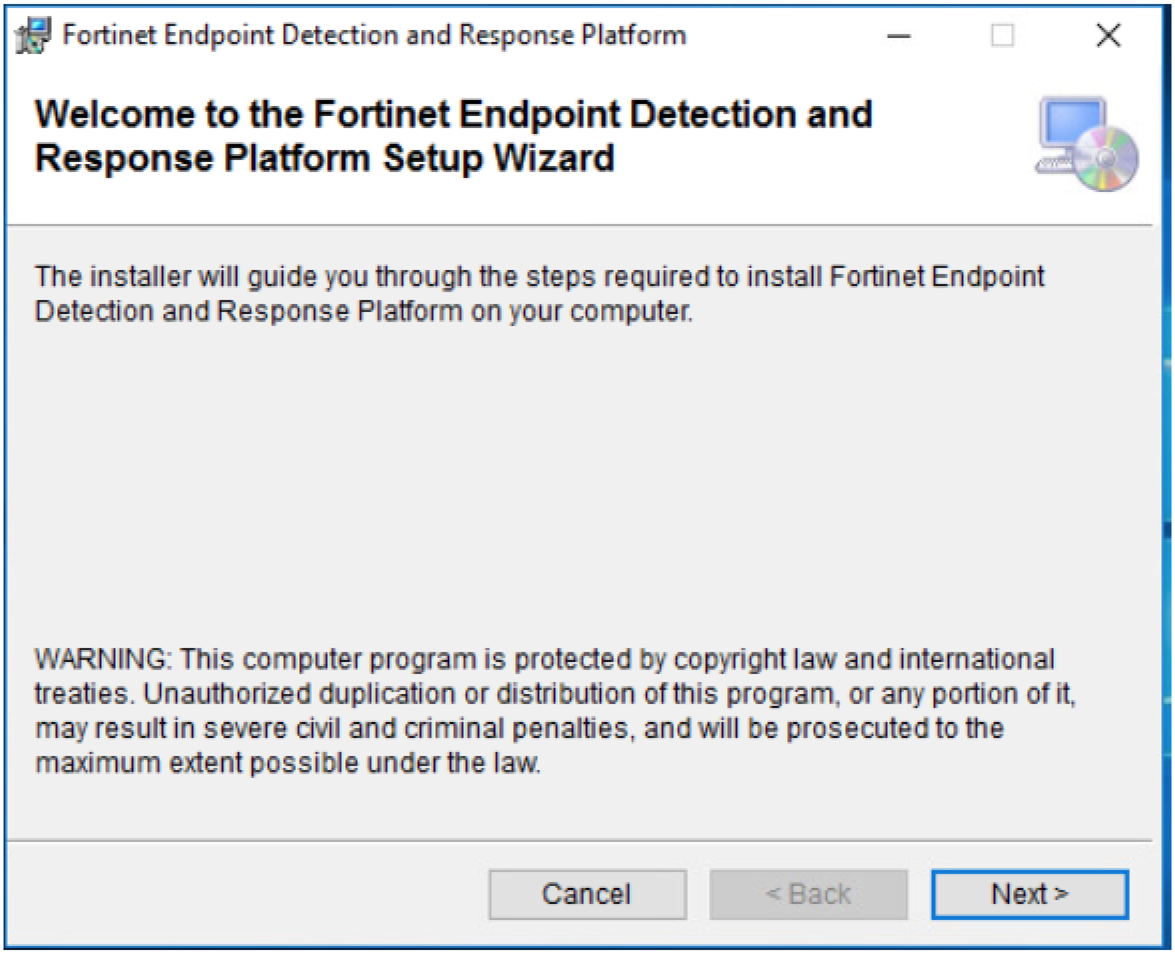
You can uninstall a FortiEDR Collector from a device and then delete it from the FortiEDR INVENTORY (Deleting a Collector Group/Collector on page 106) if you would like to add another FortiEDR Collector.

When a user attempts to uninstall the Collector from a Windows OS device, he/she must supply the registration password.

In order to stop the FortiEDR service from running on a Windows OS device, enter the following command:

C:\Program Files\Fortinet\FortiEDR\FortiEDRCollectorService.exe --stop and then provide the registration password in the pop-up windows.

Installing a FortiEDR Collector on Windows

1. Run the FortiEDR Collector installation file. Use the FortiEDRCollectorInstaller32.msi file if you are using a 32-bit operating system; or use the FortiEDRCollectorInstaller64.msi file if you are using a 64-bit operating system.
2. 

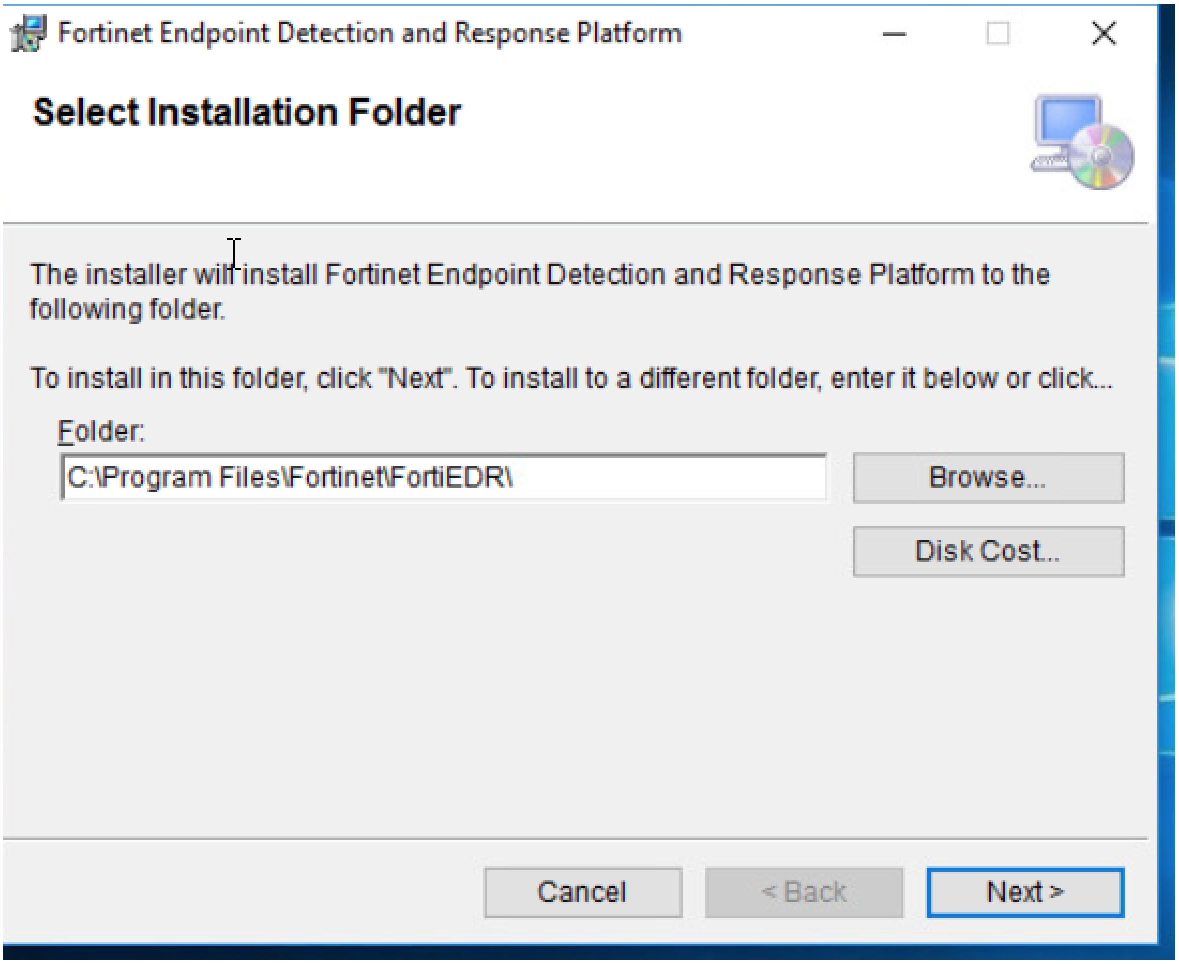
   Fortinet Endpoint Detection and Response Platform

   Welcome to the Fortinet Endpoint Detection and Response Platform Setup Wizard

   The installer will guide you through the steps required to install Fortinet Endpoint Detection and Response Platform on your computer.

   WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.

   Click **Next**.

3. 

Fortinet Endpoint Detection and Response Platform

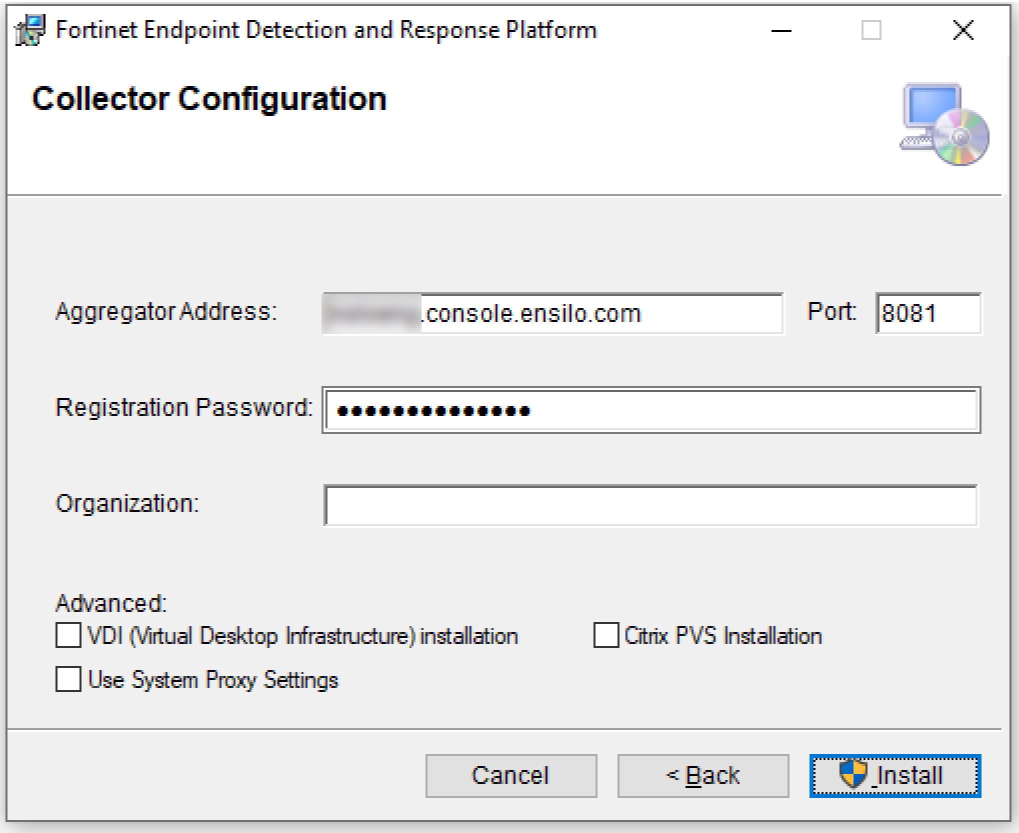
Select Installation Folder

The installer will install Fortinet Endpoint Detection and Response Platform to the following folder.

To install in this folder, click "Next". To install to a different folder, enter it below or click...

Folder: C:\Program Files\Fortinet\FortiEDR\

Leave the default FortiEDR Collector installation folder or change it as necessary. Click **Next**.

4. 

Aggregator Address: [redacted].console.ensilo.com Port: 8081

Registration Password: ••••••••••••••

Organization:

Advanced:

□ VDI (Virtual Desktop Infrastructure) installation □ Citrix PVS Installation

□ Use System Proxy Settings

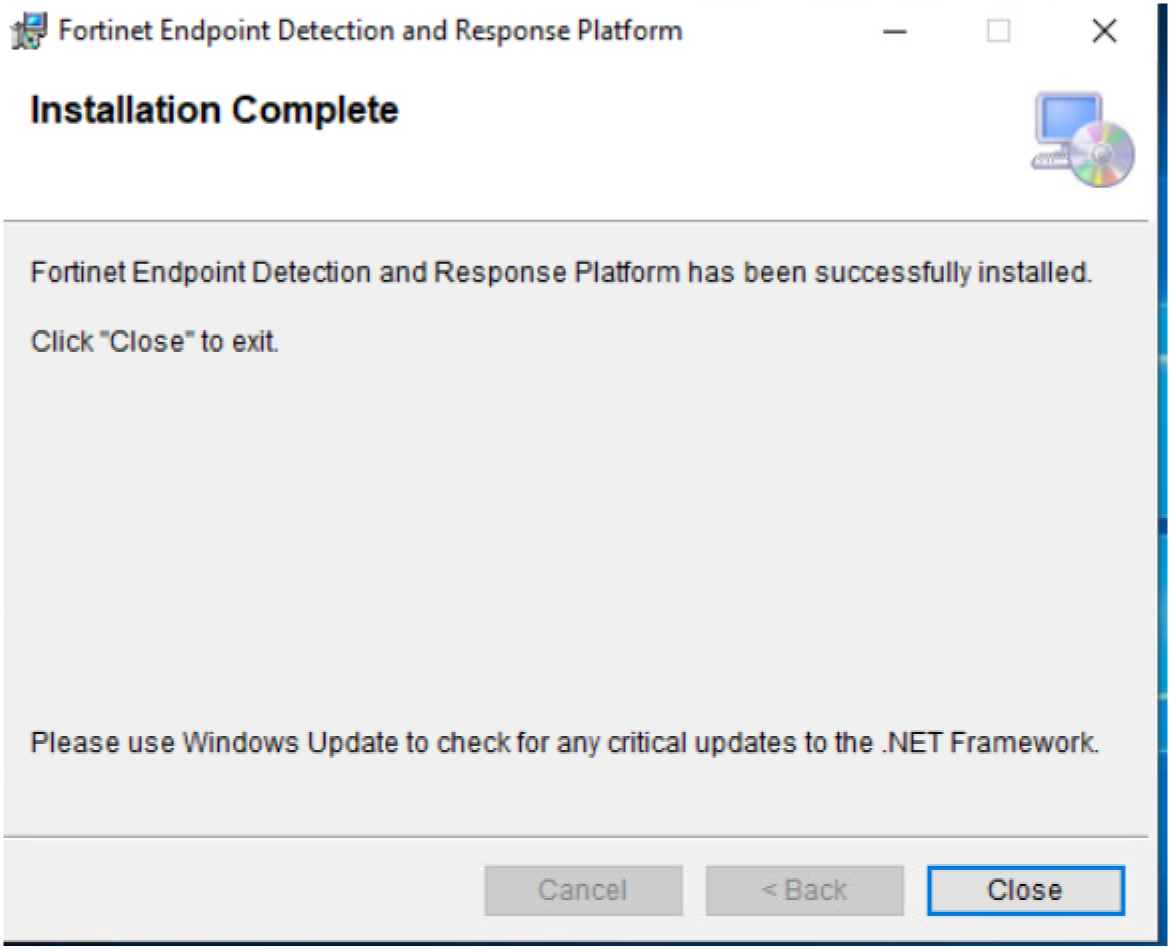
In the Aggregator Address field, specify the FortiEDR Aggregator domain name or IP address.

5. In the **Port** field, specify the FortiEDR Aggregator port (8081)

> When upgrading a FortiEDR Collector, the Aggregator address field can be left empty – in order to retain the previously defined Aggregator address.

6. In the **Registration Password** field, enter the device registration password that you defined, as described in Launching the FortiEDR Central Manager for the First Time on page 21.
7. For a multi-organization FortiEDR system, enter the name of the organization in the **Organization** field. For more details, see the Collector Registration on page 339.
8. If you are installing the Collector on a VDI environment, check the **VDI** checkbox. For more details, see Working with FortiEDR on VDI Environments on page 49.
9. If you use a web proxy to filter requests in this device's network, then check the **Use System Proxy Settings** checkbox. Note that Windows must be configured to use a proxy and tunneling must be allowed from the Collector to the Aggregator on port 8081 and from the Collector to the Core on port 555. (Run as Administrator: **netsh winhttp set proxy <proxy IP >**).
10. If you are installing the Collector on a Citrix PVS golden image, check the **Citrix PVS installation** checkbox.
11. Click **Next** twice to start the installation. Windows may possibly display a message requesting that you confirm the installation. Please do so.

12. After the installation of the FortiEDR Collector has been successfully completed, the following window displays:



Fortinet Endpoint Detection and Response Platform

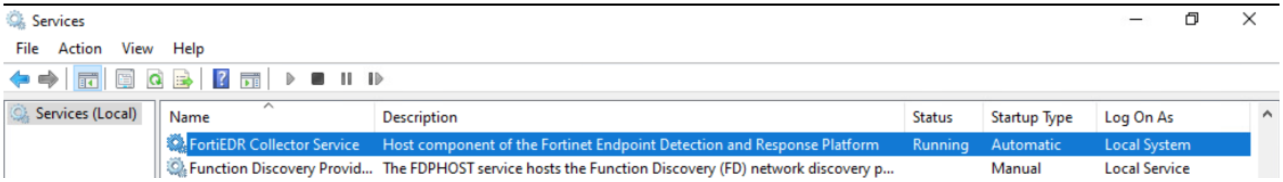
Installation Complete

Fortinet Endpoint Detection and Response Platform has been successfully installed.

Click "Close" to exit.

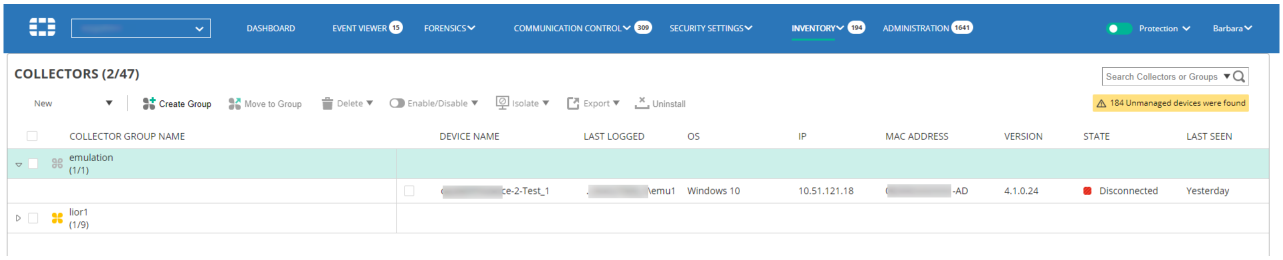
Please use Windows Update to check for any critical updates to the .NET Framework.

Check Windows Services to verify that the FortiEDR Collector Service is running, as shown below:



Name	Description	Status	Startup Type	Log On As
FortiEDR Collector Service	Host component of the Fortinet Endpoint Detection and Response Platform	Running	Automatic	Local System
Function Discovery Provid...	The FDPHOST service hosts the Function Discovery (FD) network discovery p...		Manual	Local Service

13. Verify that the FortiEDR Collector details are listed in the INVENTORY tab of the FortiEDR Central Manager console (see Inventory on page 99. Select the New filter to display a list of newly registered FortiEDR Collectors, as shown below:



COLLECTOR GROUP NAME	DEVICE NAME	LAST LOGGED	OS	IP	MAC ADDRESS	VERSION	STATE	LAST SEEN
emulation (1/1)								
	[redacted]ce-2-Test_1	[redacted]\emu1	Windows 10	10.51.121.18	[redacted]-AD	4.1.0.24	🟥 Disconnected	Yesterday
lior1 (1/9)								

Installing a FortiEDR Collector on a Mac Operating System

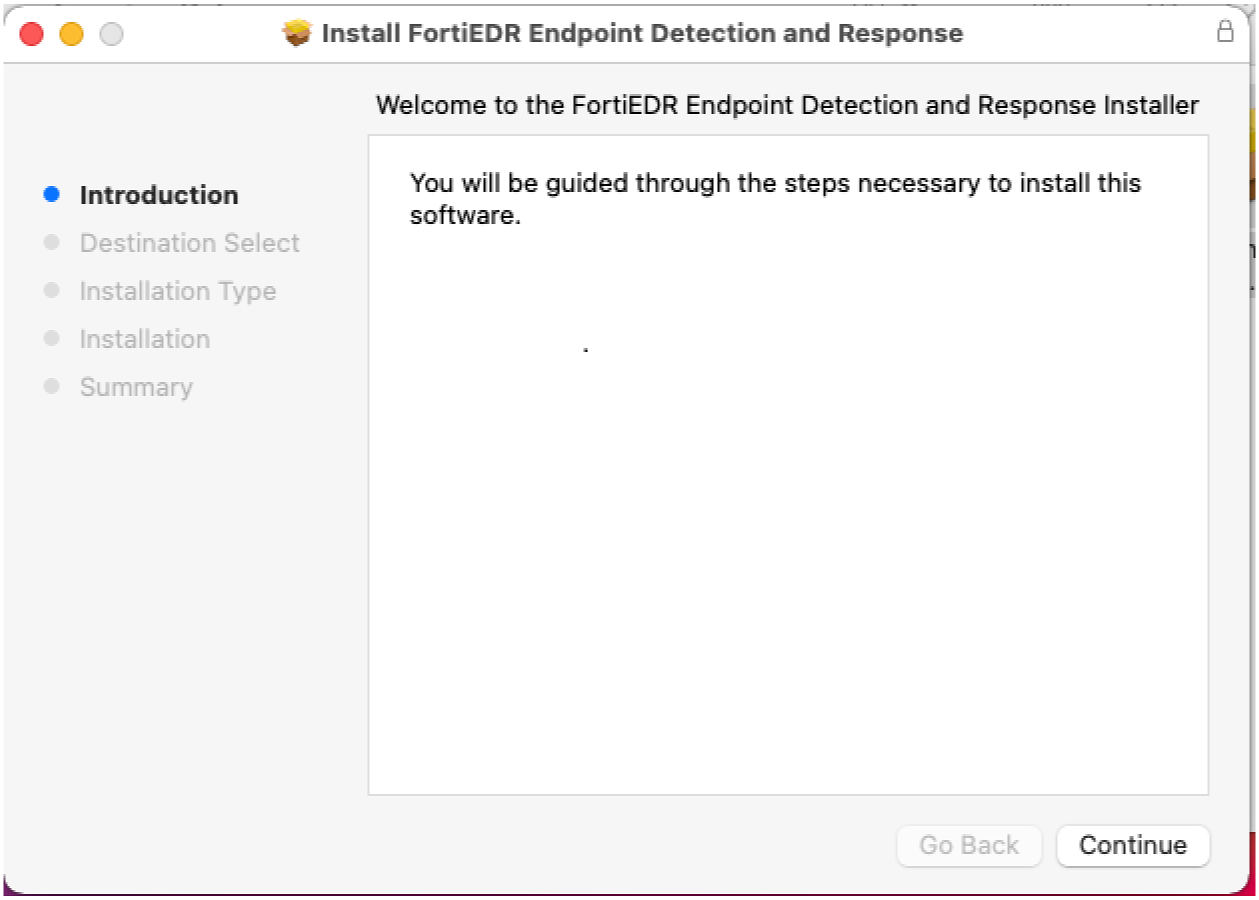
To install a FortiEDR Collector on a Mac operating system that is running with Big Sur (version 11) or above:

The process described below includes a description of how to allow the following upon first FortiEDR Collector installation:

- System Extensions
- Network Extensions
- Full Disk Access

IMPORTANT: Failure to add these permissions will result in incomplete protection.

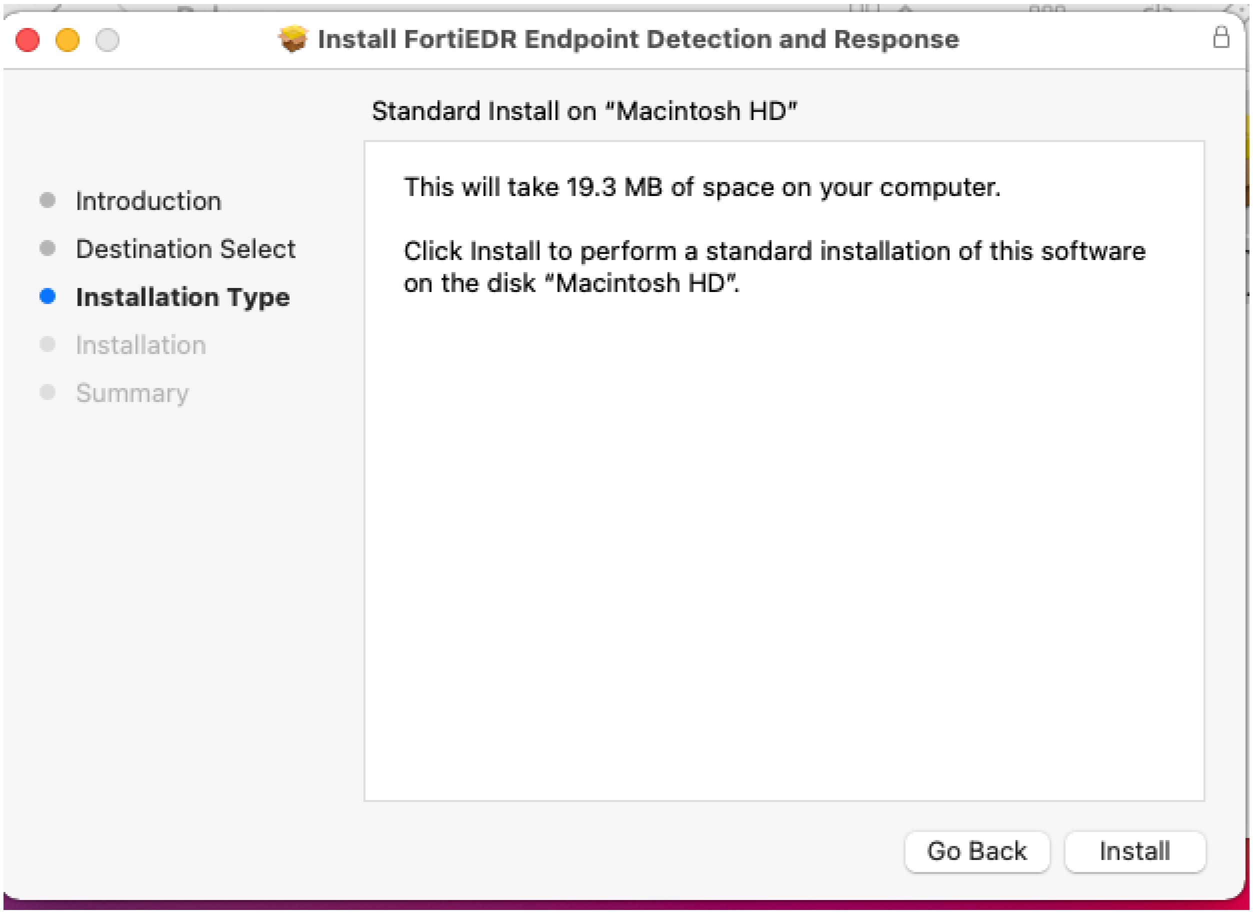
Deployment can also be managed using an MDM, such as Jamf.

1. Double-click the *.dmg file named **FortiEDRCollectorInstallerOSX_4.1.x.dmg**.
2. 

   Welcome to the FortiEDR Endpoint Detection and Response Installer

   You will be guided through the steps necessary to install this software.

   Click **Continue**.

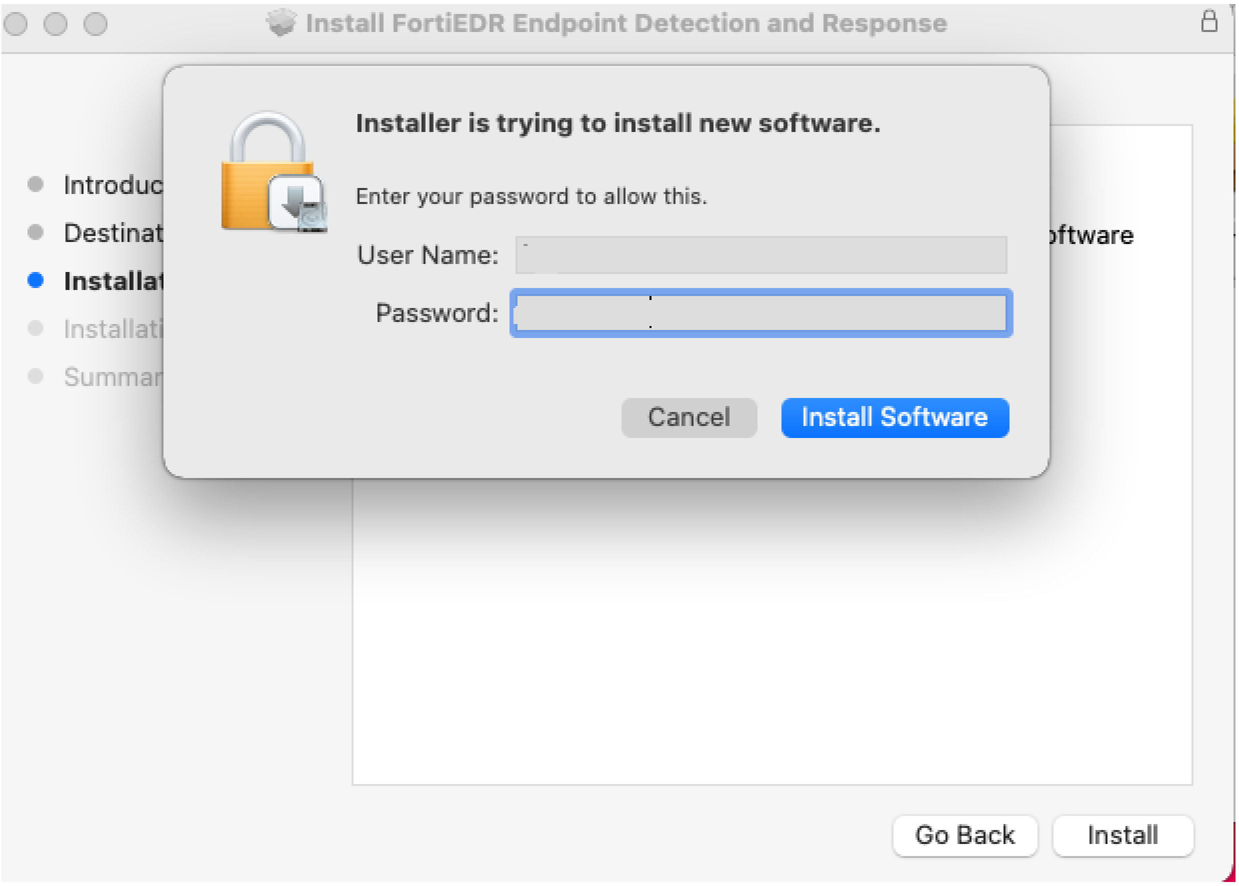
3. 

Standard Install on "Macintosh HD"

This will take 19.3 MB of space on your computer.

Click Install to perform a standard installation of this software on the disk "Macintosh HD".

Click **Install.** Enter the Mac password at the prompt.

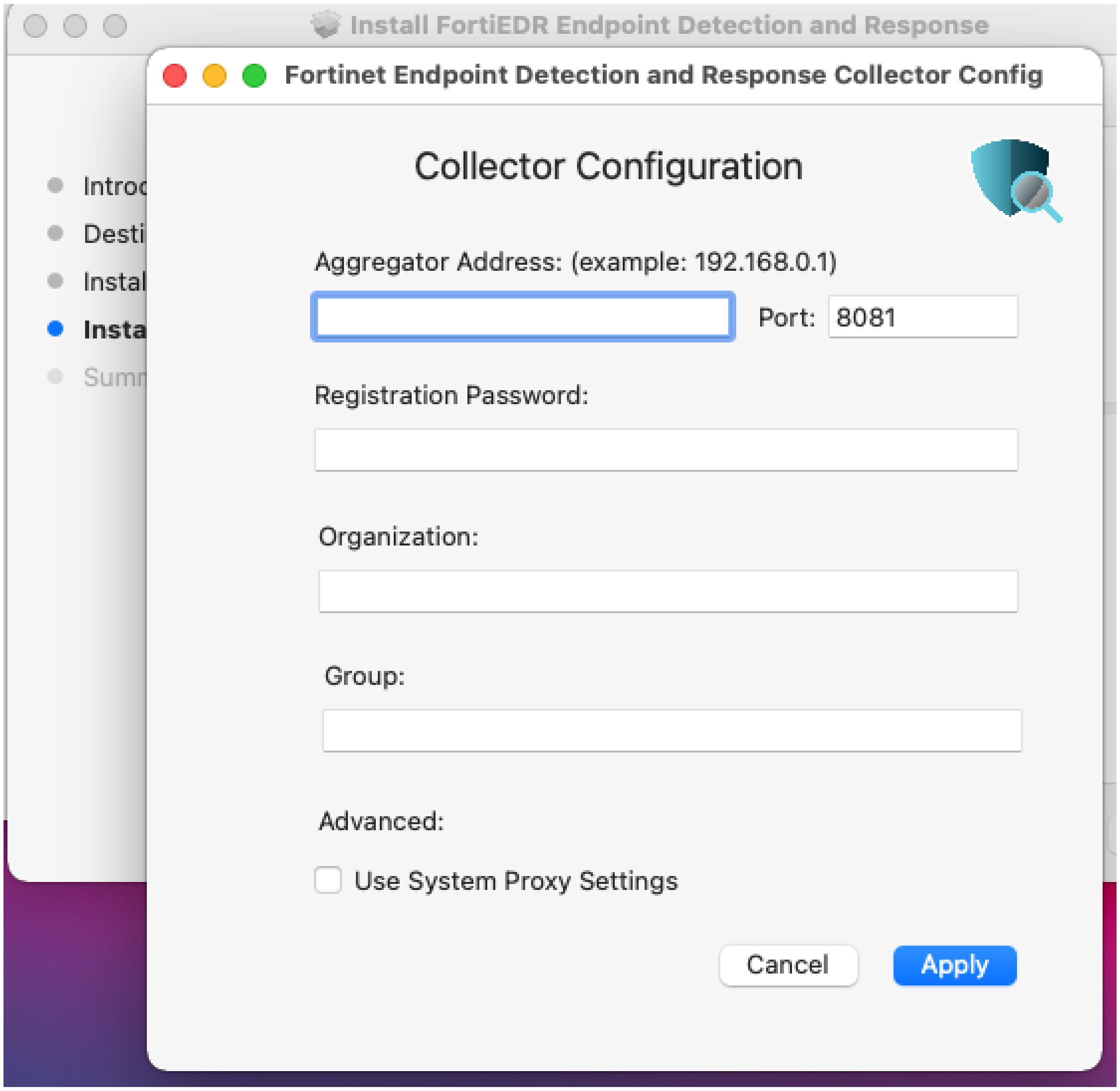


Installer is trying to install new software.

Enter your password to allow this.

User Name:

Password:

4. 
Install FortiEDR Endpoint Detection and Response
Introd
Desti
Instal
Insta
Sumr
Fortinet Endpoint Detection and Response Collector Config

Collector Configuration

Aggregator Address: (example: 192.168.0.1)

Port: 8081

Registration Password:

Organization:

Group:

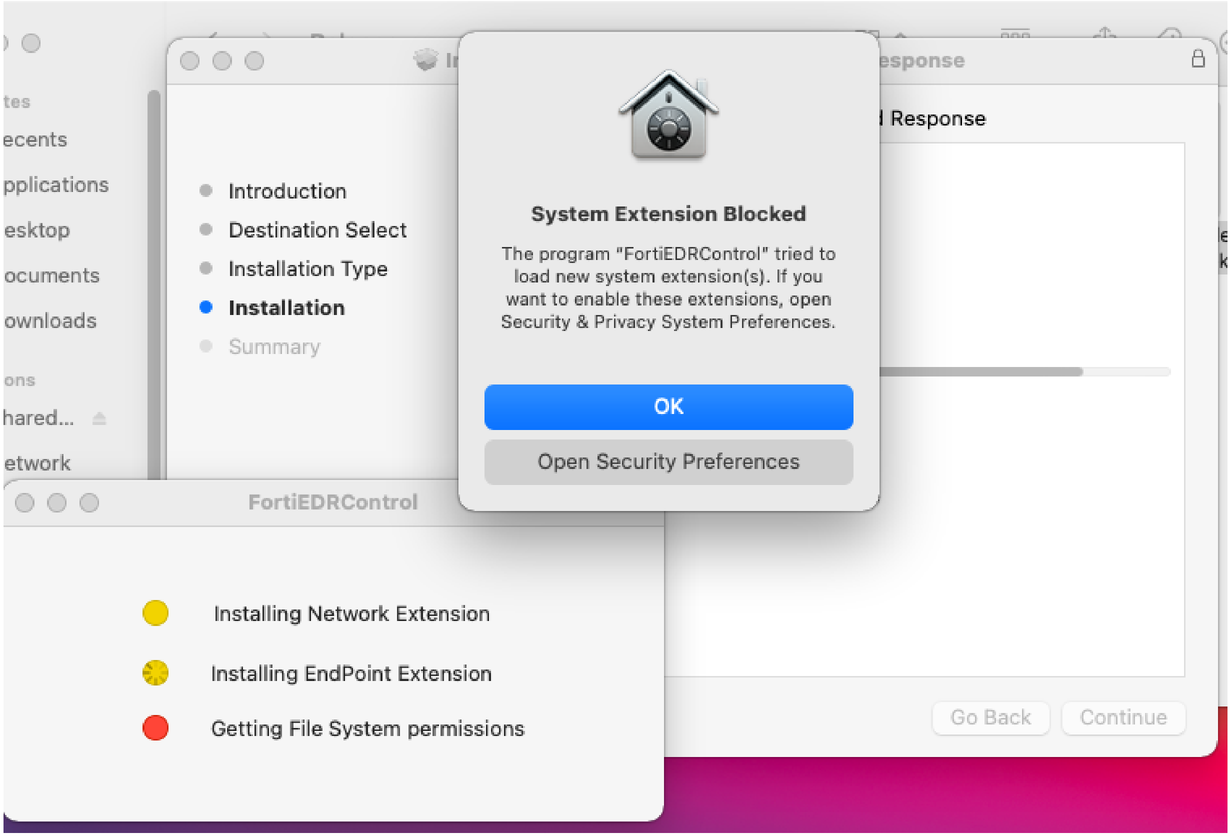
Advanced:

□ Use System Proxy Settings

In the Collector Conifguration page, specify the Aggregator's address and FortiEDR registration password. Optionally, you can select a desitination Organization and Collector Group and/or installation using a system proxy.

5. Click **Apply** to start the installation process.

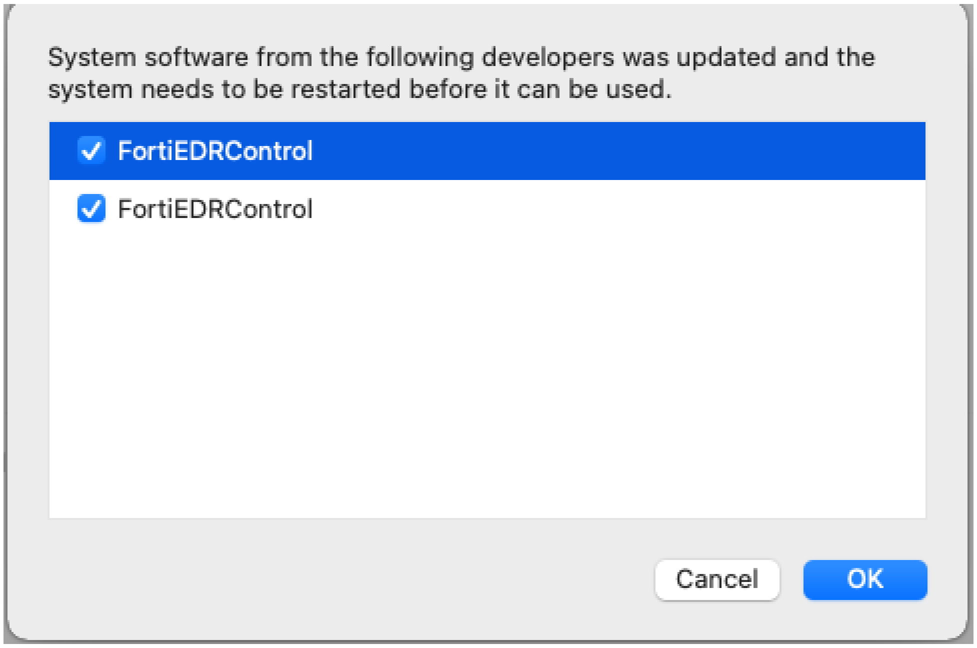
6. Perform the following during installation:
   a. Enable Network and System Extensions, shown below:



System Extension Blocked

The program "FortiEDRControl" tried to load new system extension(s). If you want to enable these extensions, open Security & Privacy System Preferences.

   i. Open Security Preferences.
   ii. Click the lock at the bottom of the window in order to make changes.
   iii. In the General tab, click **Details.**
   iv.



System software from the following developers was updated and the system needs to be restarted before it can be used.

☑ FortiEDRControl

☑ FortiEDRControl

Mark both checkboxes in order to allow FortiEDR to use Netword and System Extensions.

v. Click OK in the System Extension Blocked Window.

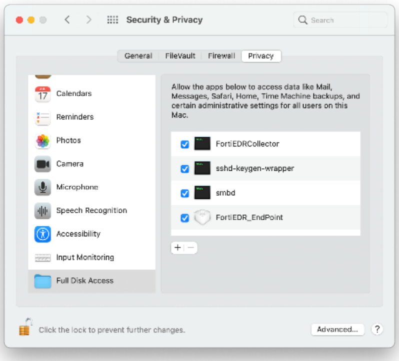
b. Enable Full Disk Access by performing the following:

i. Open Security Preferences.

ii. Click the lock at the bottom of the window in order to make changes.

iii. In the Privacy tab, select Full Disk Access from the left pane.

iv. Mark the checkboxes of both the FortiEDRCollector (FortiEDR in MacOS v11.3 and below) and the FortiEDR_EndPoint applications:



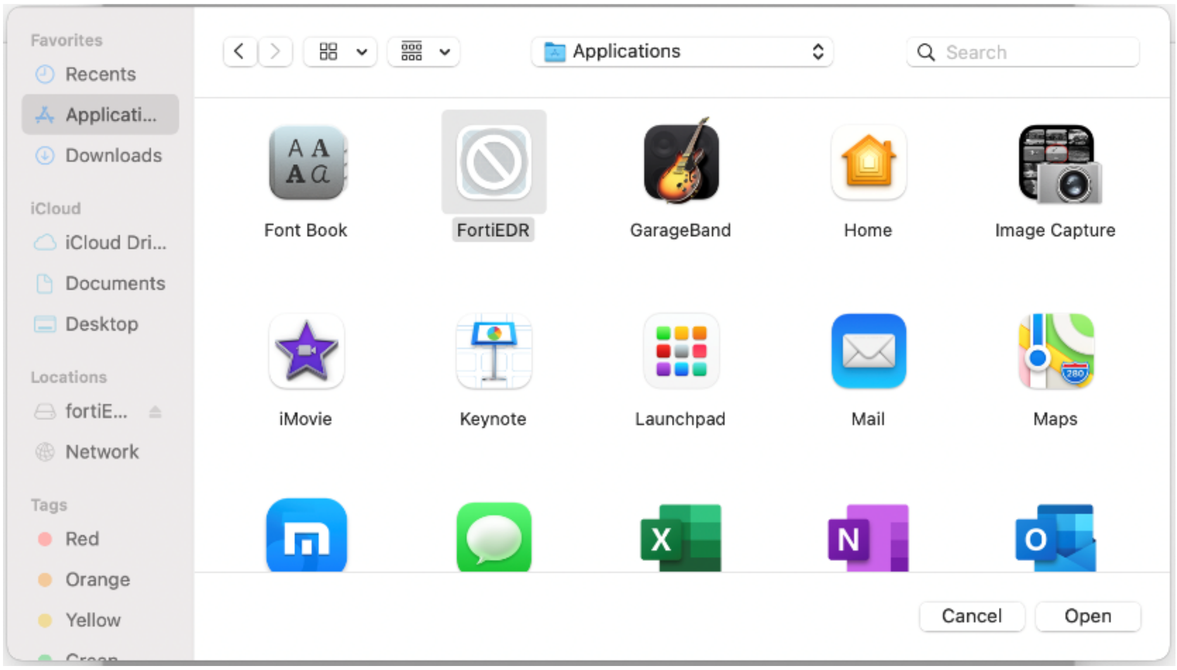
Allow the apps below to access data like Mail, Messages, Safari, Home, Time Machine backups, and certain administrative settings for all users on this Mac.

☑ FortiEDRCollector
☑ sshd-keygen-wrapper
☑ smbd
☑ FortiEDR_EndPoint

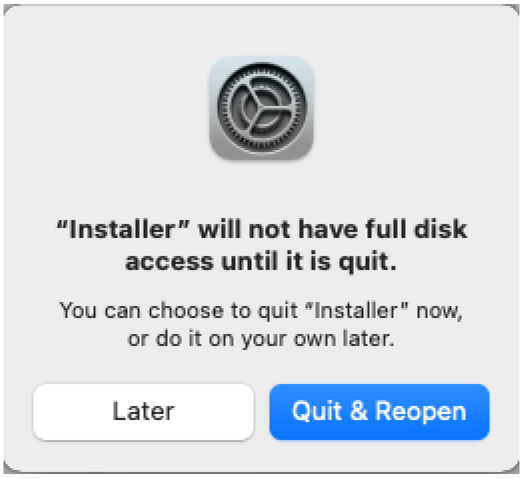
Click the lock to prevent further changes.

v. If that FortiEDR application does not display on this page, click the **+** button.

vi.



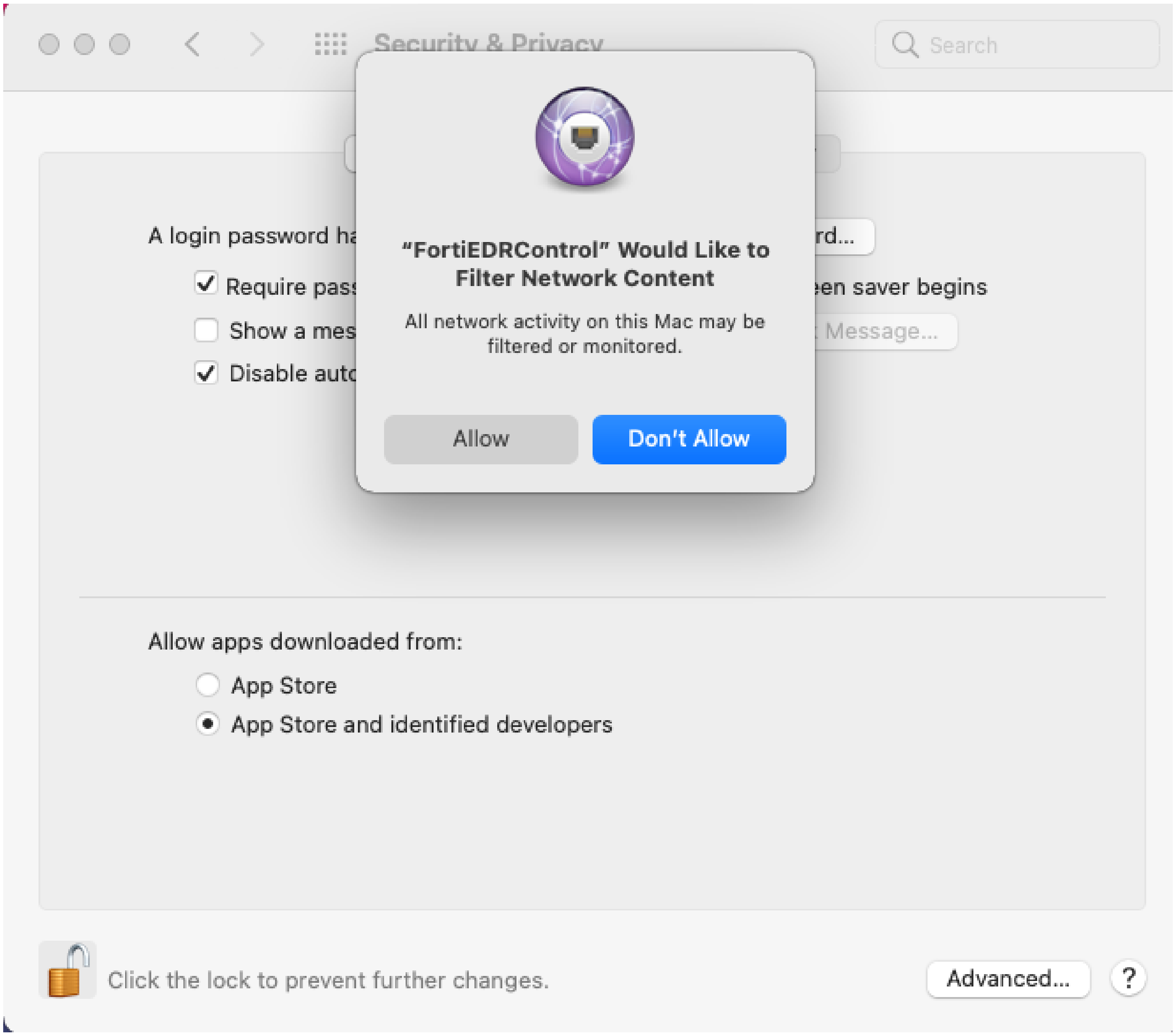
Click **Applications**, select FortiEDR and then click **Open**.

7. 

"Installer" will not have full disk access until it is quit.

You can choose to quit "Installer" now, or do it on your own later.

In the popup window, click **Later**.

8. 

"FortiEDRControl" Would Like to Filter Network Content

All network activity on this Mac may be filtered or monitored.

A login password ha

☑ Require pass … en saver begins

□ Show a mes

☑ Disable auto

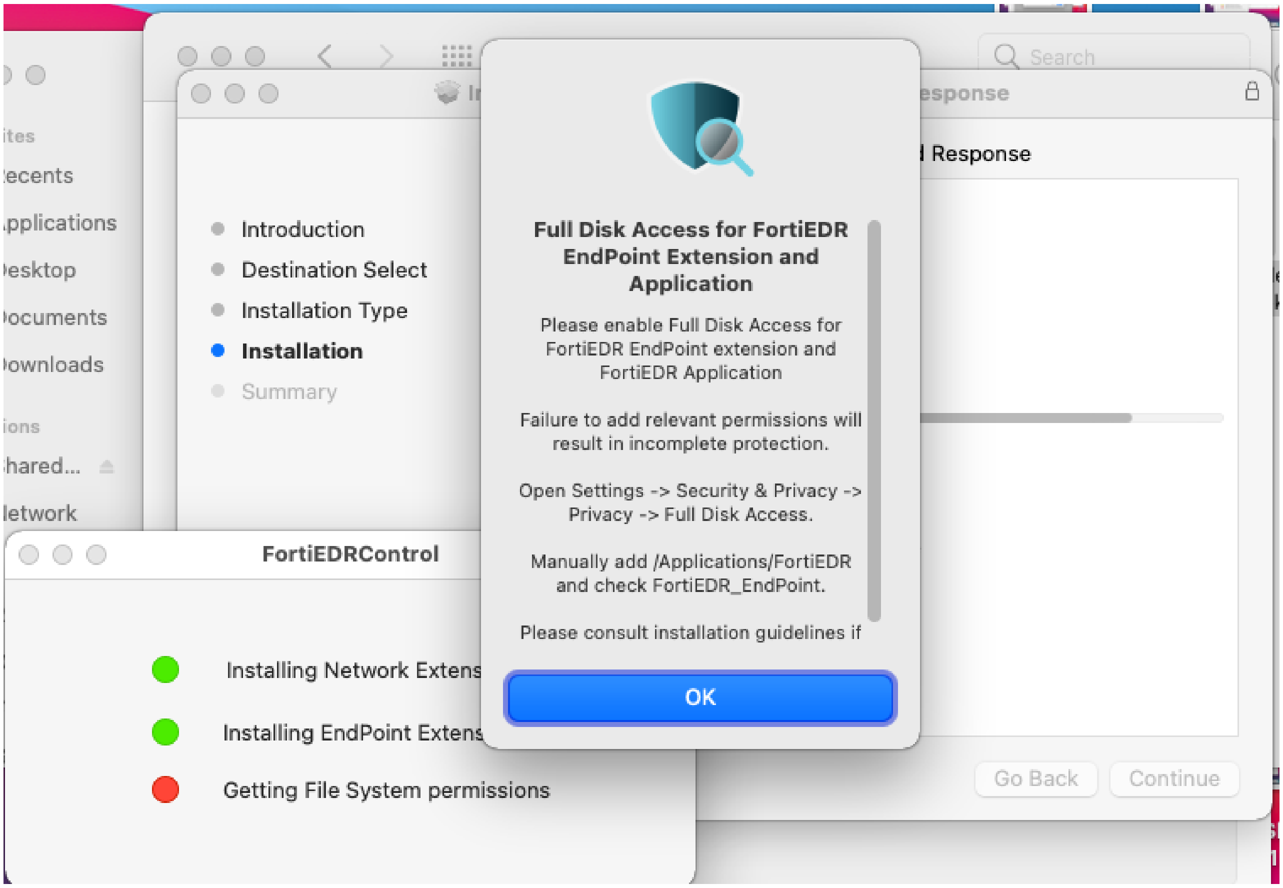
Allow apps downloaded from:

○ App Store

● App Store and identified developers

Click the lock to prevent further changes.

Click **Allow**.

9. 

Full Disk Access for FortiEDR EndPoint Extension and Application

Please enable Full Disk Access for FortiEDR EndPoint extension and FortiEDR Application

Failure to add relevant permissions will result in incomplete protection.

Open Settings -> Security & Privacy -> Privacy -> Full Disk Access.

Manually add /Applications/FortiEDR and check FortiEDR_EndPoint.

Please consult installation guidelines if

OK

Installing Network Extens

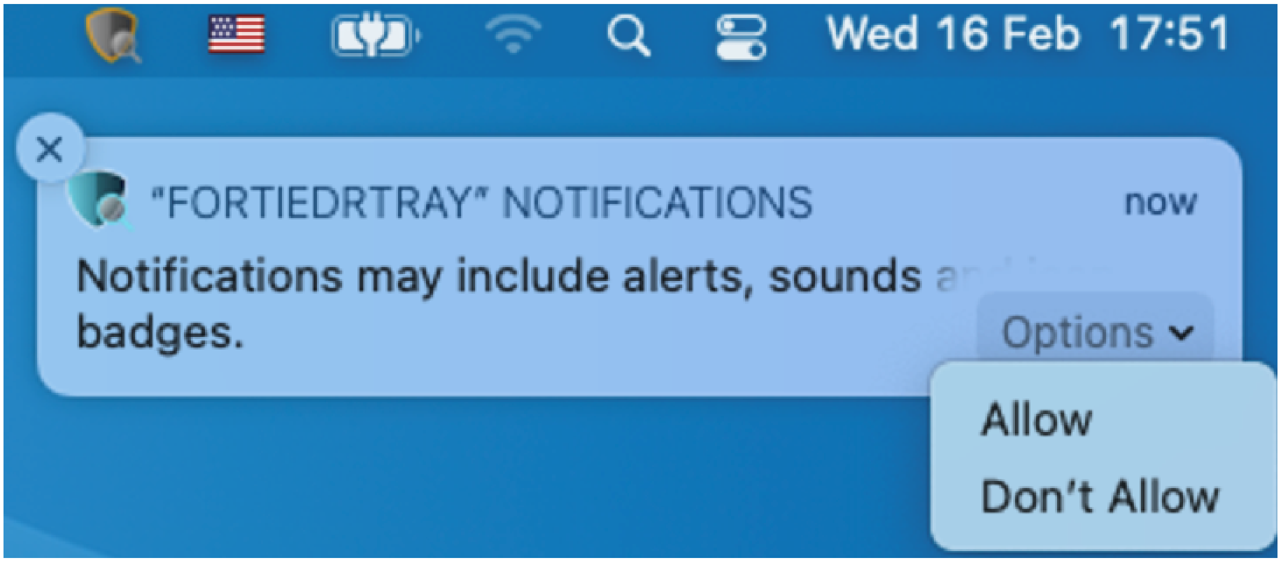
Installing EndPoint Extens

Getting File System permissions

Click **OK**.

10. Click **Close** to complete the process.

11. When prompted to allow **FORTIEDRTRAY** notifications, click **Allow**



"FORTIEDRTRAY" NOTIFICATIONS

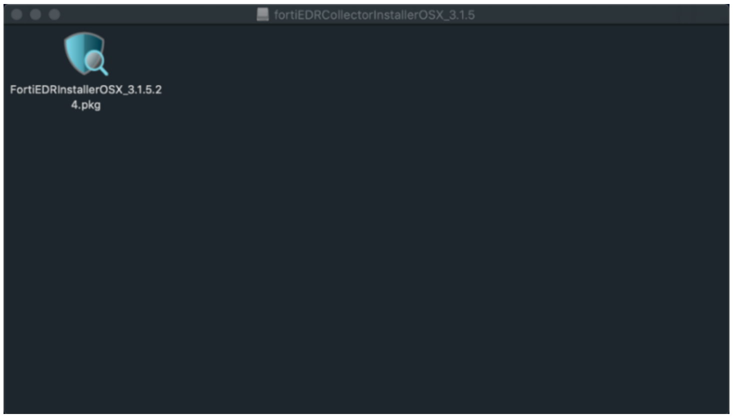
Notifications may include alerts, sounds a badges.

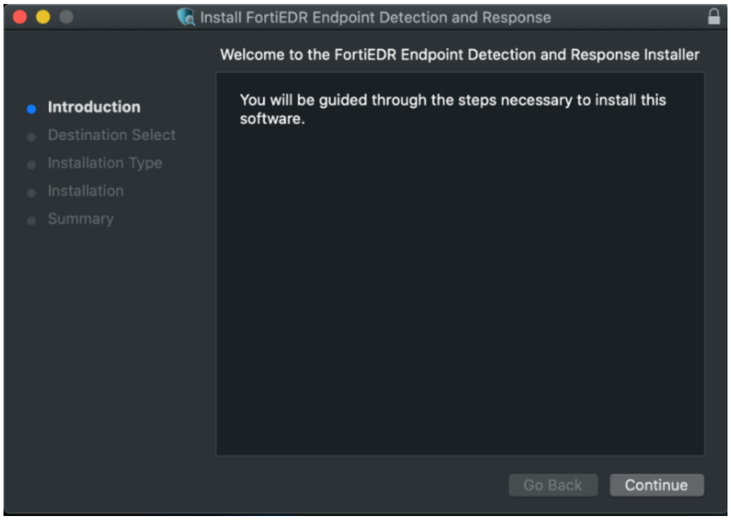
12. Reboot the device.

13. You can run the following command to check the status of the Collector:

```
/Applications/FortiEDR.app/fortiedr_collector.sh status
```

To install a FortiEDR Collector on a Mac- operating system with versions prior to Big Sur (11), such as Catalina or Mojave:

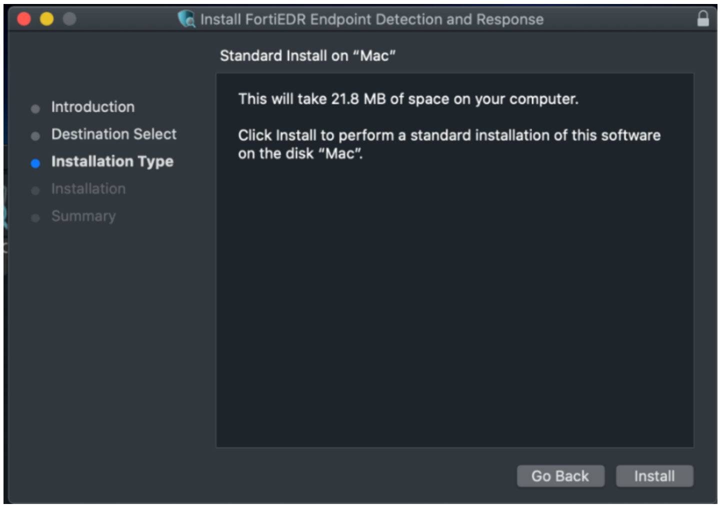
1. Double-click the *.dmg file named **FortiEDRCollectorInstallerOSX_1.3.0.xxx.dmg.**
2. 
fortiEDRCollectorInstallerOSX_3.1.5
FortiEDRInstallerOSX_3.1.5.2
4.pkg

   Double-click the *.pkg file **named FortiEDRCollectorInstallerOSX_1.3.0.xxx.pkg**
3. 

   Welcome to the FortiEDR Endpoint Detection and Response Installer

   You will be guided through the steps necessary to install this software.

   Click **Continue**
4. Select the destination disk and click **Continue**

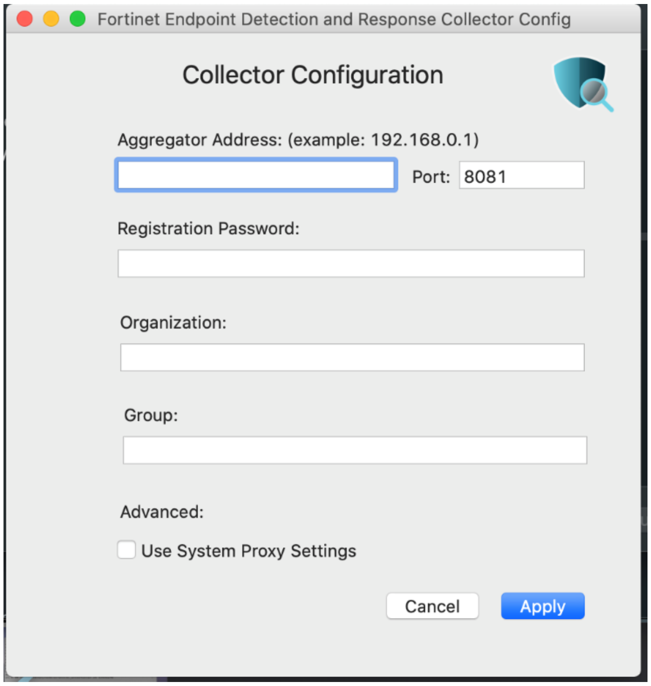
5. 

Standard Install on "Mac"

This will take 21.8 MB of space on your computer.

Click Install to perform a standard installation of this software on the disk "Mac".

Specify the installation location and click **Install**

6. 

Collector Configuration

Aggregator Address: (example: 192.168.0.1)

Port: 8081

Registration Password:

Organization:

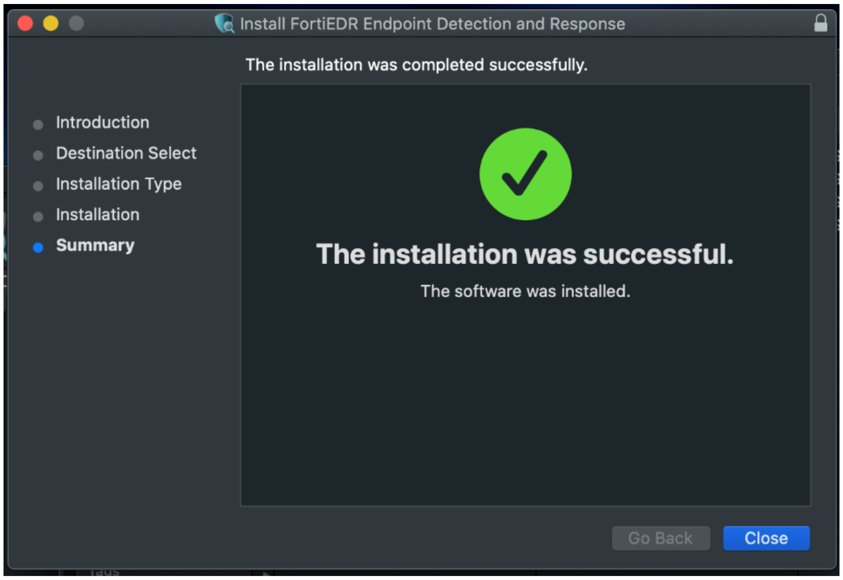
Group:

Advanced:

□ Use System Proxy Settings

In the **Aggregator Address** field, enter the IP address of the Aggregator in the first box and the port of the Aggregator in the adjacent (**Port**) box.

7. In the Registration Password field, enter the registration password as described in Launching the FortiEDR Central Manager for the First Time on page 21.
8. Leave the Organization field empty or for a multi-tenant setup, insert the organization to which this Collector belongs (as it appears under the **ADMINISTRATION > ORGANIZATIONS** tab of the FortiEDR Central Manager).
9. If you use a web proxy to filter requests in this device's network, then check the Use System Proxy Settings checkbox. Note that the MacOS must be configured to use a proxy and that the proxy must support HTTPS before installing the Collector (**System Preferences > Network > Advanced > Proxies**).
10. Click Apply.

11. 

The installation was completed successfully.

The installation was successful.

The software was installed.

Click **Close.**

Installing a FortiEDR Collector on Linux

To install a customized FortiEDR Collector on Linux:

1. Copy the custom Linux Collector installer zip file, **FortiEDRSilentInstall_5.1.0.195_envname_Tenant.zip** to the device. This file was downloaded from the provided link as described in Requesting and Obtaining a Collector Installer on page 256.
2. Unzip using the following command:

```
sudo unzip ./FortiEDRSilentInstall_5.1.0.195_envname_Tenant.zip
```

   If you don't have zip software on the device, install it using:

```
yum install zip
```

3. Extract the installer using the following command:

```
sudo gunzip ./FortiEDRSilentInstall_5.1.0.195_envname_Tenant.sh.gz
```

4. Change the installation script permission with the following command:

```
chmod 755 FortiEDRSilentInstall_5.1.0.195_envname_Tenant.sh
```

5. Run the following to execute the installation script:

```
sudo ./FortiEDRSilentInstall_5.1.0.195_envname_Tenant.sh
```

To install a non-customized FortiEDR Collector on Linux:

1. Run the FortiEDR Collector installation file for 64-bit servers using the following command:
   - CentOS/RHEL/Oracle/AMI:

     sudo yum install ./FortiEDRCollectorInstaller_%Linux_distribution%-%version_number%.x86_64.rpm

     For example, sudo yum install ./FortiEDRCollectorInstaller_CentOS6-3.1.0-74.x86_64.rpm.
   - Ubuntu:

     sudo apt-get install ./FortiEDRCollectorInstaller_Ubuntu-%version_number%.deb

     For example, sudo apt-get install ./FortiEDRCollectorInstaller_Ubuntu-3.1.0-74.deb.
   - SUSE Linux:

     rpm --import RPM-GPG-KEY.key

     The FortiEDR PGP key is included in the download link of the pre-populated installer, see theRequesting and Obtaining a Collector Installer on page 256.

     zypper install FortiEDRCollectorInstaller_%distribution% -%version_number%.rpm

     For example: zypper install FortiEDRCollectorInstaller_openSUSE15-4.5.0-88.x86_64.rpm
2. After the installation is completed, run the following:

   ```
   sudo /opt/FortiEDRCollector/scripts/fortiedrconfig.sh
   ```
3. Specify the FortiEDR Aggregator domain name or IP address.
4. Enter the FortiEDR Aggregator port information (usually 8081).
5. For a multi-tenant setup, enter the organization. Otherwise, leave the organization empty.
6. Enter Collector Group information or leave empty to be registered to the default Collector Group.
7. Enter the device registration password, described in Launching the FortiEDR Central Manager for the First Time on page 21.
8. At **the Do you want to connect via proxy (Y/N)?** prompt, type **Y** if your setup includes a web proxy. For more details see Installing FortiEDR Collectors on page 26.
9. 9 If your software distribution system does not allow the addition of specific parameters to the command, you can use the custom FortiEDR Collector installer, which can be accessed via the Central Manager Console using the required DNS or IP address and password that is already embedded inside. For more details, see Requesting and Obtaining a Collector Installer on page 256.

Note – Installation of the FortiEDR Linux Collector on a VM that is running other components of FortiEDR such as Core or Aggregator requires adding a special hidden configuration. Contact Fortinet Support for more assistance.

Automated FortiEDR Collector Deployment

Automated FortiEDR Collector Deployment on Windows

FortiEDR can be installed automatically via any software installation and distribution system.

To deploy a FortiEDR Collector via a command line:

1. Use the following command syntax:

   ```
   msiexec /i FortiEDRCollectorInstaller64.msi /qn AGG=10.0.0.1:8081 PWD=1234
   ```

   For example, to install a FortiEDR Collector on a 64-bit machine, connect it to a FortiEDR Aggregator on IP address 10.0.0.1 and use the device registration password 1234, enter the following command:

   ```
   msiexec /i FortiEDRCollectorInstaller64.msi /qn AGG=10.0.0.1:8081 PWD=1234
   ```

   You can specify which Collector Group to assign this Collector to by adding the DEFGROUP parameter. This parameter is optional. When you specify this parameter, the first time that this Collector registers with the system, it is automatically assigned to the Collector Group specified by the DEFGROUP parameter.

   For example, to install a FortiEDR Collector on a 64-bit machine, connect it to a FortiEDR Aggregator on IP address 10.0.0.1, use the device registration password 1234, use the DEFGROUP parameter and enter the following command:

   ```
   msiexec /i FortiEDRCollectorInstaller64.msi /qn AGG=10.0.0.1:8081 PWD=1234 DEFGROUP=server
   ```

   Note: The name of the Collector MSI file may be different.

   For Collectors version 3.0.0 and above, you can set a designated group and/or organization. To do so, enter the following command:

   ```
   ./CustomerBootstrapGenerator --aggregator [IP] --password '[PASSWORD]' --organization '
   [ORGANIZATION]' --group '[GROUP]' > CustomerBootstrap.js
   ```

2. Using web proxy can be configured for Collectors version 3.0.0 and above. To do so, append the parameter PROXY=1 to the command syntax shown above.
3. In general, a FortiEDR Collector does not require the device on which it is installed to reboot after its installation. However, in some cases, you may want to couple the installation of the FortiEDR Collector with a reboot of the device. To do so, append the parameter NEEDREBOOT=1 to the command syntax shown above.

   Collectors that are installed with this flag appear in the FortiEDR Central Manager as Pending Reboot (page 87) and will not start operating until the after the device is rebooted.

   Note:In general, rebooting the device after installing a FortiEDR Collector is good practice, but is not mandatory. Rebooting may prevent a threat actor from attempting to exfiltrate data on a previously existing connection that was established before installation of the FortiEDR Collector.
4. When installing on a Citrix PVS golden image, append the parameter **CITRIXPVS=1** to the command syntax shown above.
5. If your software distribution system does not allow the addition of specific parameters to the command, you can use the custom FortiEDR Collector installer, which can be accessed via the Central Manager Console using the required DNS or IP address and password that is already embedded inside. For more details see Requesting and Obtaining a Collector Installer on page 256.

Automated FortiEDR Collector Deployment on Mac

To deploy a custom FortiEDR macOS Collector via a command line:

1. Get a pre-populated customized Collector installer for macOS as described in Requesting and Obtaining a Collector Installer on page 256.
2. Run the following command in order to install using the specified settings:

   ```
   sudo installer -pkg <package path> -target /
   ```

   For example, if the package file is FortiEDRInstallerOSX_2.5.2.38.pkg, use the following command:

   ```
   sudo installer -pkg ./FortiEDRInstallerOSX_2.5.2.38.pkg -target /
   ```

To deploy a non-customized FortiEDR macOS Collector via a command line:

Run the following command line to generate the settings file:

```
./CustomBootstrapGenerator --aggregator [IP] --password [PASSWORD] > CustomerBootstrap.jsn
```

If the Aggregator port is different than 8081 (which is set by default), you can add the following:

```
./CustomBootstrapGenerator --aggregator [IP] --password [PASSWORD] --port 8083 >
CustomerBootstrap.jsn
```

The following are optional parameters that can be used with the custom installer generator:

- If the Collector should be part of a designated Collector Group, use --group ‘[GROUP]’.
- For a multi-tenant setup, the organization to which this device belongs to can be added using

  ```
  --organization ‘[ORGANIZATION]’
  ```

- If a web proxy is being used to filter requests in this device’s network, use

  ```
   --useProxy '1'
  ```

The following is an example that includes all optional parameters:

```
./CustomBootstrapGenerator --aggregator [IP] --password [PASSWORD] --useProxy '1' --organization
‘[ORGANIZATION]’ --group ‘[GROUP]’ > CustomerBootstrap.jsn
```

Automated FortiEDR macOS Collector deployment on Big Sur operating system devices with MDM

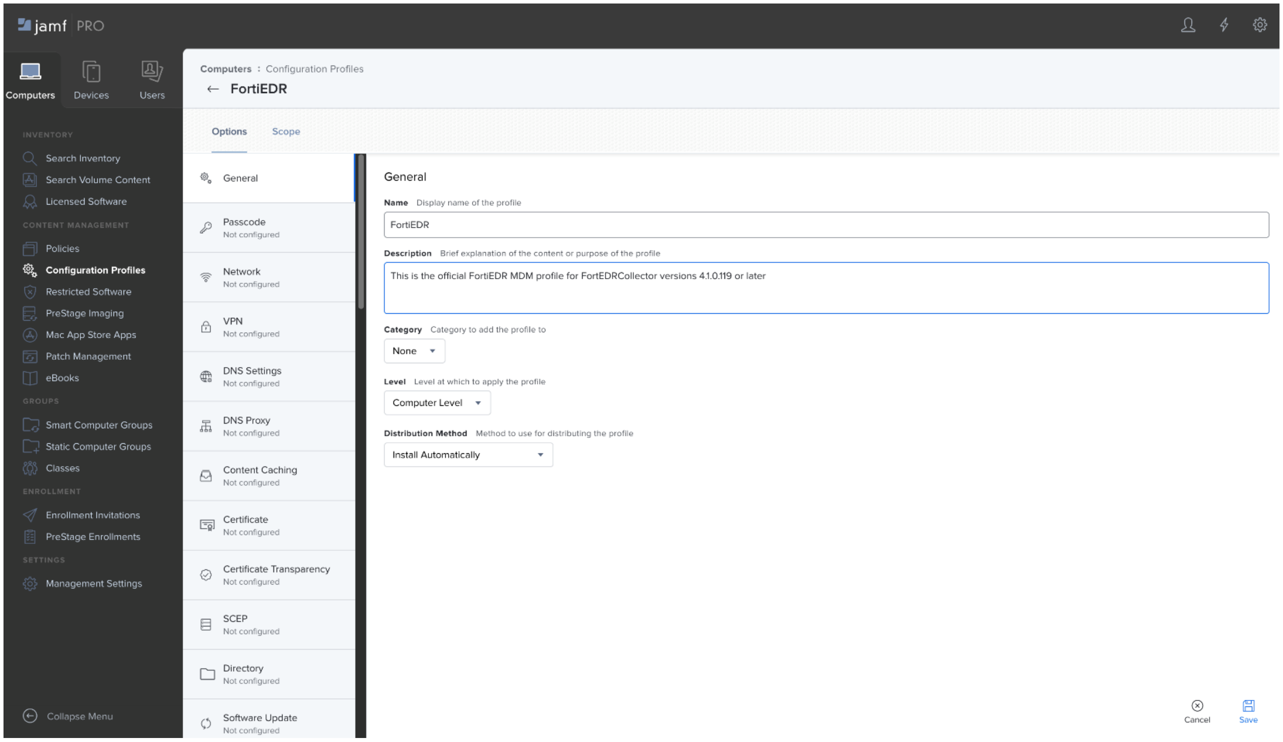
When distributed with MDM solutions such as Jamf, FortiEDR can be allowlisted with the following Team ID and Bundle ID identifiers:

- A97R6J3L29 com.ensilo.ftnt
- A97R6J3L29 com.ensilo.ftnt.sysext

Installing FortiEDR on Mac Big Sur Devices using Jamf PRO

To install FortiEDR on Mac Big Sur devices using Jamf PRO:

1. In jamf PRO, navigate to **Computers > Configuration Profiles > New**.
2. Create a configuration profile as shown in the screenshots below:



General

Name Display name of the profile

FortiEDR

Description Brief explanation of the content or purpose of the profile

This is the official FortiEDR MDM profile for FortEDRCollector versions 4.1.0.119 or later

Category Category to add the profile to

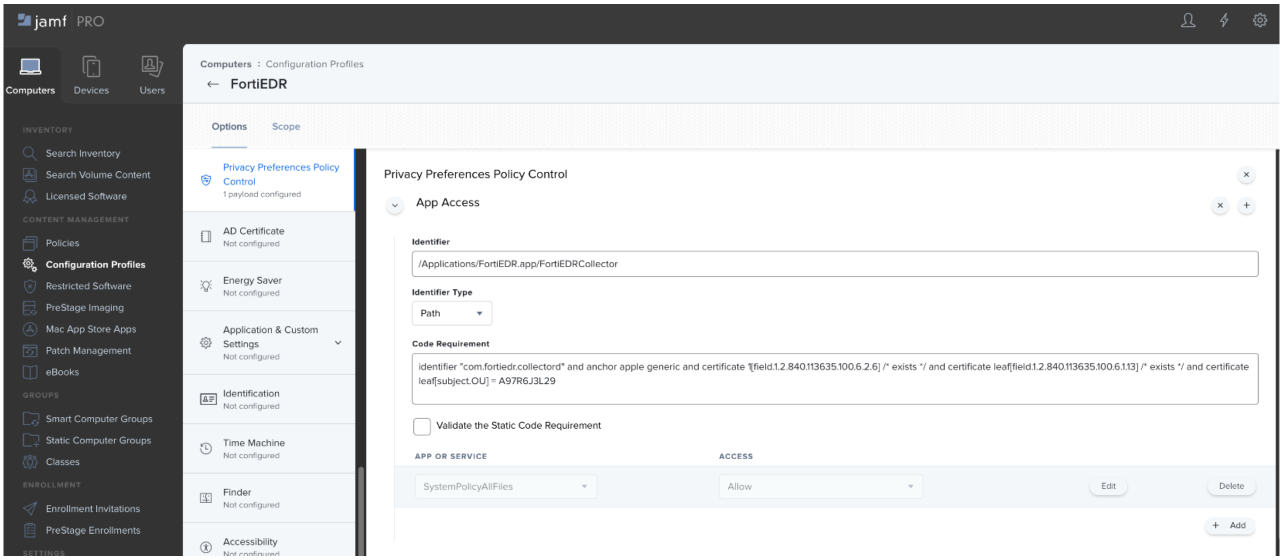
None

Level Level at which to apply the profile

Computer Level

Distribution Method Method to use for distributing the profile

Install Automatically



Privacy Preferences Policy Control

App Access

Identifier

/Applications/FortiEDR.app/FortiEDRCollector

Identifier Type

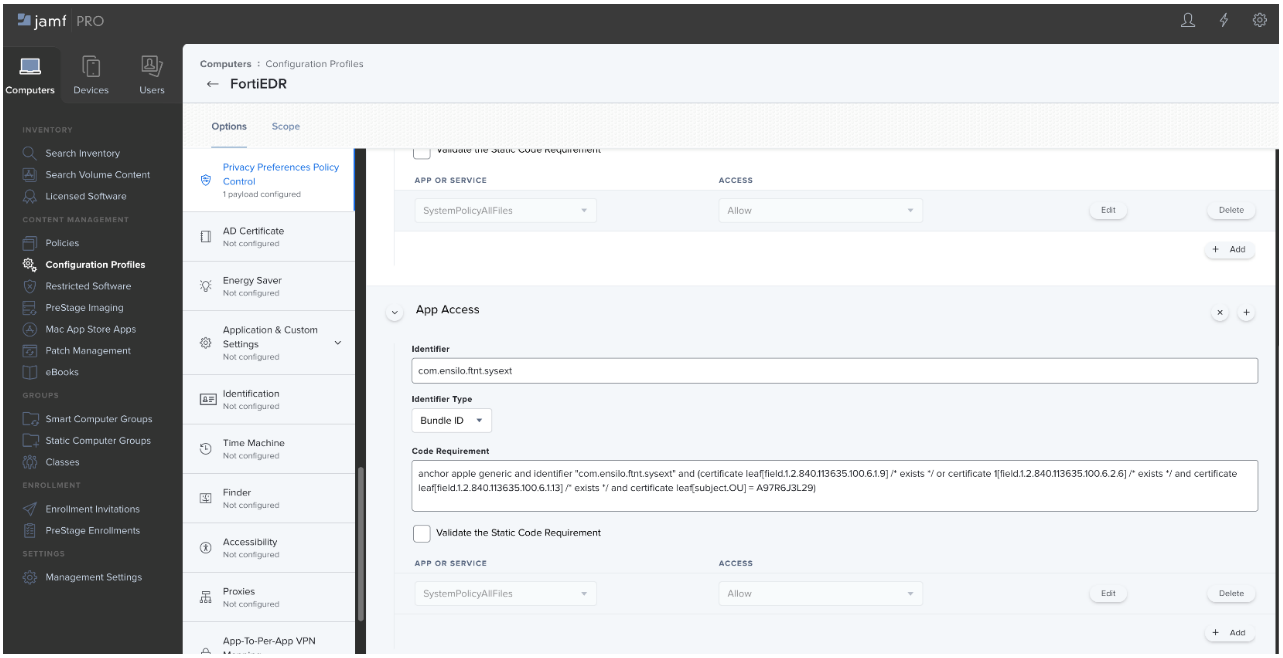
Path

Code Requirement

```
identifier "com.fortiedr.collectord" and anchor apple generic and certificate 1[field.1.2.840.113635.100.6.2.6] /* exists */ and certificate leaf[field.1.2.840.113635.100.6.1.13] /* exists */ and certificate leaf[subject.OU] = A97R6J3L29
```

□ Validate the Static Code Requirement

APP OR SERVICE	ACCESS
SystemPolicyAllFiles	Allow



APP OR SERVICE	ACCESS
SystemPolicyAllFiles	Allow

App Access

Identifier

com.ensilo.ftnt.sysext

Identifier Type

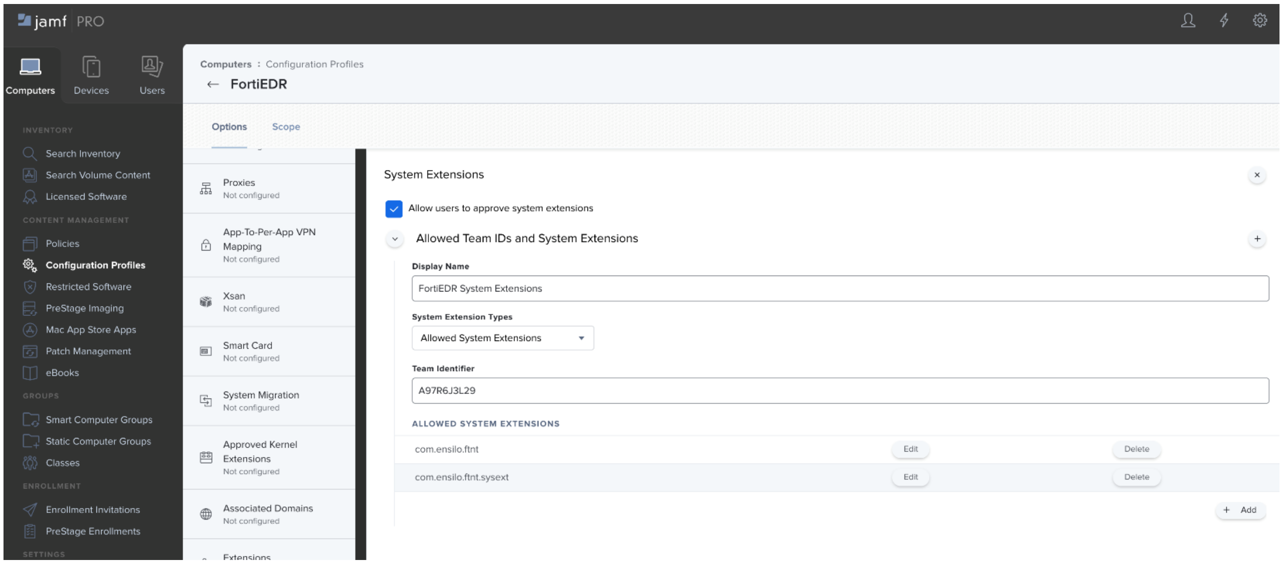
Bundle ID

Code Requirement

```
anchor apple generic and identifier "com.ensilo.ftnt.sysext" and (certificate leaf[field.1.2.840.113635.100.6.1.9] /* exists */ or certificate 1[field.1.2.840.113635.100.6.2.6] /* exists */ and certificate leaf[field.1.2.840.113635.100.6.1.13] /* exists */ and certificate leaf[subject.OU] = A97R6J3L29)
```

□ Validate the Static Code Requirement

APP OR SERVICE	ACCESS
SystemPolicyAllFiles	Allow



Computers : Configuration Profiles

← FortiEDR

System Extensions

☑ Allow users to approve system extensions

Allowed Team IDs and System Extensions

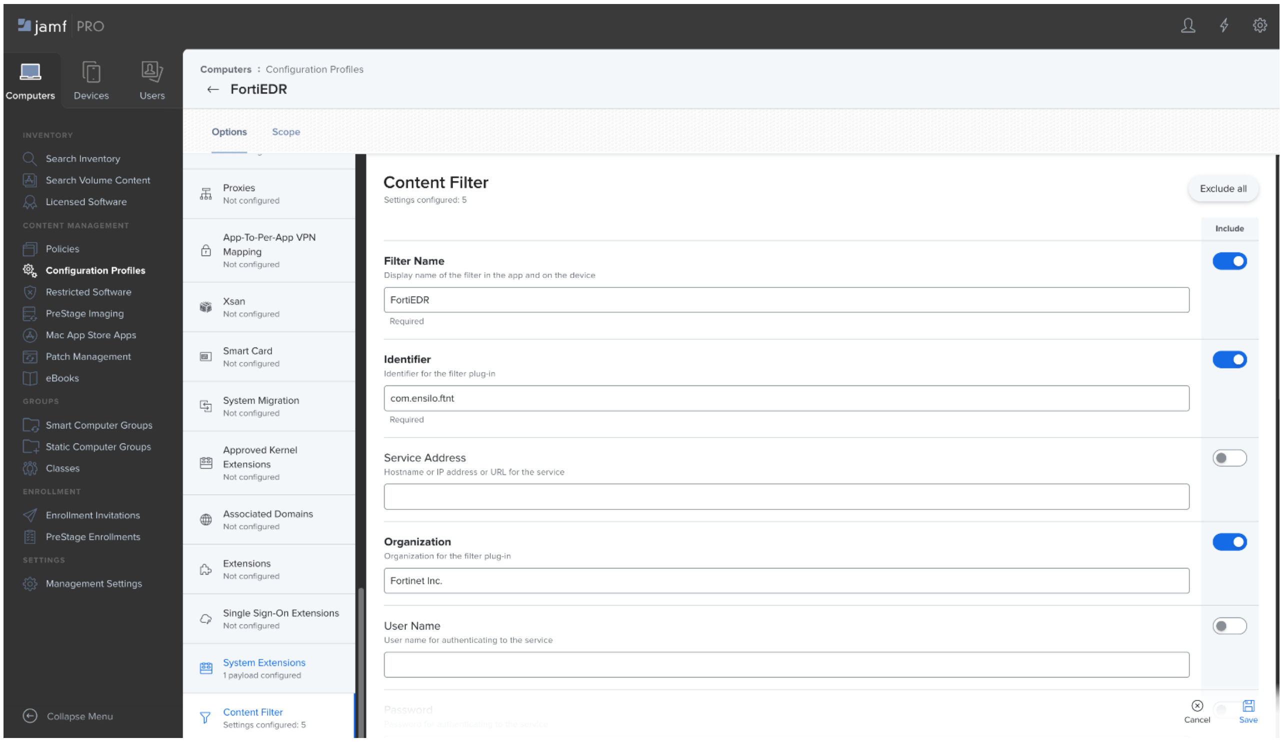
Display Name: FortiEDR System Extensions

System Extension Types: Allowed System Extensions

Team Identifier: A97R6J3L29

ALLOWED SYSTEM EXTENSIONS

- com.ensilo.ftnt
- com.ensilo.ftnt.sysext



Computers : Configuration Profiles

← FortiEDR

Content Filter

Settings configured: 5

Filter Name ●
Display name of the filter in the app and on the device
FortiEDR
Required

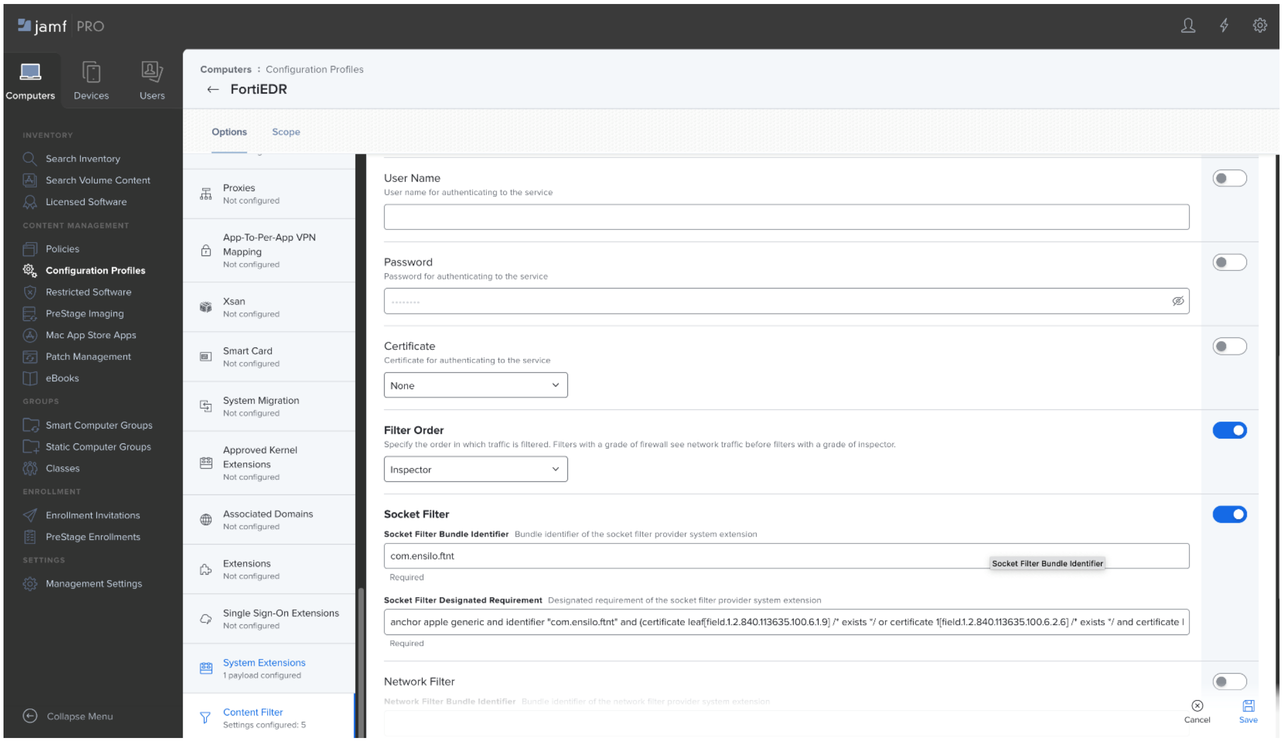
Identifier ●
Identifier for the filter plug-in
com.ensilo.ftnt
Required

Service Address ○
Hostname or IP address or URL for the service

Organization ●
Organization for the filter plug-in
Fortinet Inc.

User Name ○
User name for authenticating to the service

Password



User Name
User name for authenticating to the service

Password
Password for authenticating to the service

Certificate
Certificate for authenticating to the service
None

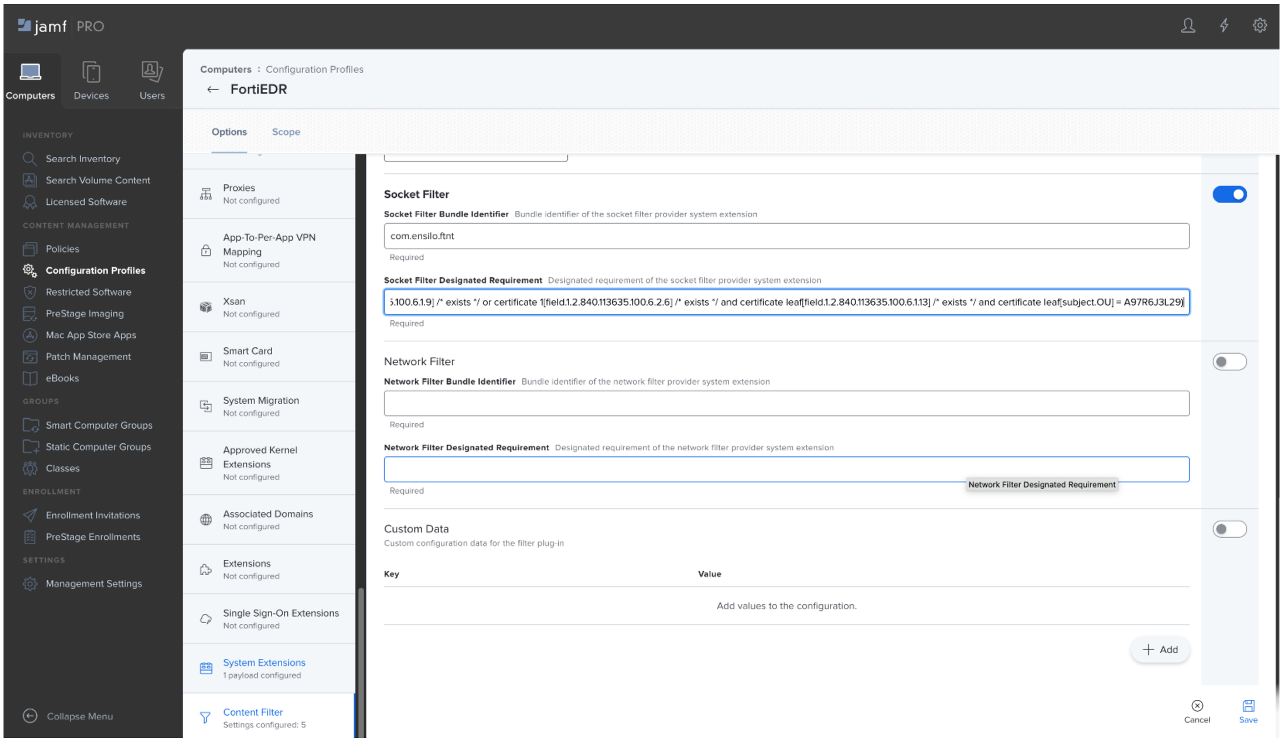
Filter Order
Specify the order in which traffic is filtered. Filters with a grade of firewall see network traffic before filters with a grade of inspector.
Inspector

Socket Filter

Socket Filter Bundle Identifier Bundle identifier of the socket filter provider system extension
com.ensilo.ftnt
Required

Socket Filter Designated Requirement Designated requirement of the socket filter provider system extension
anchor apple generic and identifier "com.ensilo.ftnt" and (certificate leaf[field.1.2.840.113635.100.6.1.9] /* exists */ or certificate 1[field.1.2.840.113635.100.6.2.6] /* exists */ and certificate l
Required

Network Filter
Network Filter Bundle Identifier Bundle identifier of the network filter provider system extension



Socket Filter

Socket Filter Bundle Identifier Bundle identifier of the socket filter provider system extension
com.ensilo.ftnt
Required

Socket Filter Designated Requirement Designated requirement of the socket filter provider system extension
5.100.6.1.9] /* exists */ or certificate 1[field.1.2.840.113635.100.6.2.6] /* exists */ and certificate leaf[field.1.2.840.113635.100.6.1.13] /* exists */ and certificate leaf[subject.OU] = A97R6J3L29)
Required

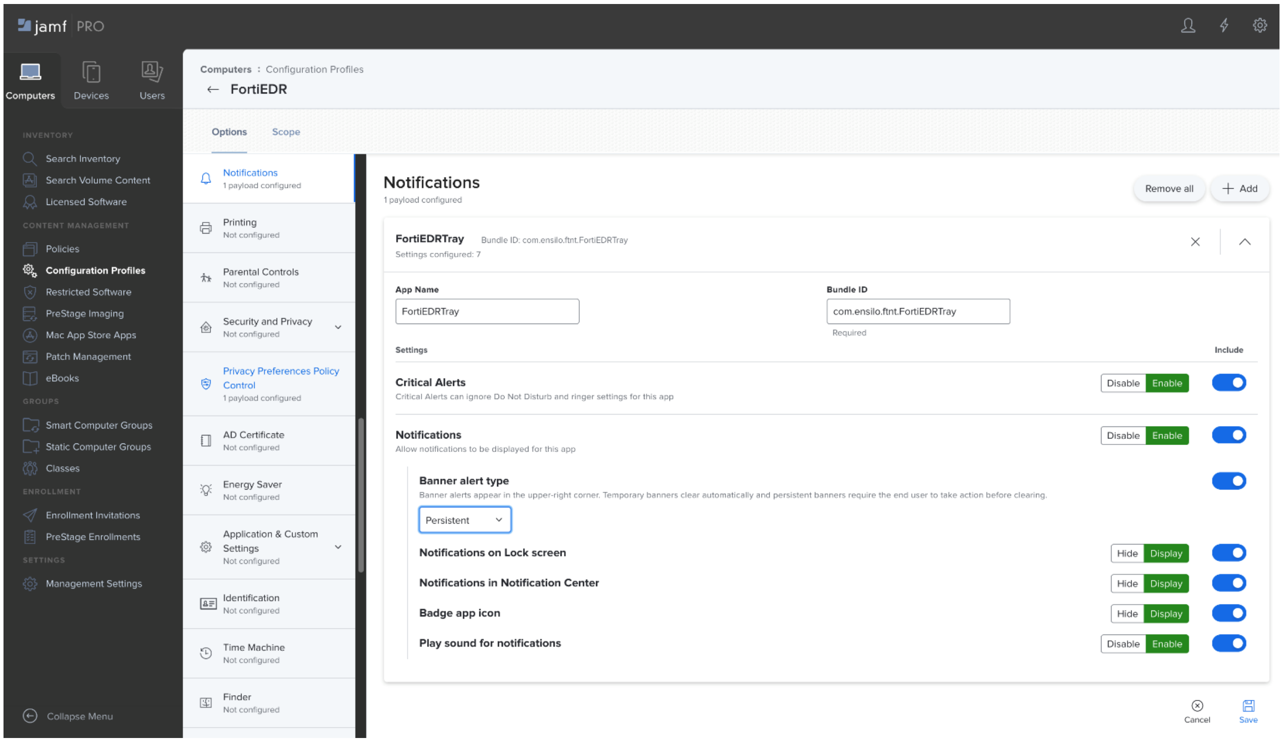
Network Filter

Network Filter Bundle Identifier Bundle identifier of the network filter provider system extension
Required

Network Filter Designated Requirement Designated requirement of the network filter provider system extension
Required

Custom Data
Custom configuration data for the filter plug-in

Key	Value
Add values to the configuration.	



← FortiEDR

Notifications 1 payload configured

Privacy Preferences Policy Control 1 payload configured

Notifications
1 payload configured

FortiEDRTray Bundle ID: com.ensilo.ftnt.FortiEDRTray
Settings configured: 7

App Name: FortiEDRTray

Bundle ID: com.ensilo.ftnt.FortiEDRTray (Required)

Settings		Include
Critical Alerts Critical Alerts can ignore Do Not Disturb and ringer settings for this app	Disable [✓ Enable]	●
Notifications Allow notifications to be displayed for this app	Disable [✓ Enable]	●
Banner alert type Banner alerts appear in the upper-right corner. Temporary banners clear automatically and persistent banners require the end user to take action before clearing. Persistent		●
Notifications on Lock screen	Hide [✓ Display]	●
Notifications in Notification Center	Hide [✓ Display]	●
Badge app icon	Hide [✓ Display]	●
Play sound for notifications	Disable [✓ Enable]	●

A sample Jamf profile for upload can be provided upon request.

Working with FortiEDR on VDI Environments

The FortiEDR Collector must only be installed on the master image (not on a clone) of the VMware Horizon or Citrix XenDesktop in order to ensure that the virtual environment is protected. On Citrix, it is also recommended to install the Collector on the Windows servers that run the entire Citrix platform.

When installing the Collector, set the VDI-designated installation flag. To do so, append the parameter **VDI=1** to the command syntax shown above or check the **VDI** checkbox in the installation wizard, as shown in Installing FortiEDR Collectors on page 26.

When installing on a Citrix PVS golden image, append an additional parameter **CITRIXPVS=1** to the command syntax shown above.

After the Collector is successfully installed and running on the golden image and before the image is being cloned, the FortiEDR Collector configuration must be erased such so that cloned images will not show up as the same Collector on the Central Manager console. To do that so, run the following command as an administrator:

```
FortiEDRCollectorService.exe --stop --clean
```

In VDI installations where VDI pools are used, there is no need to generate Collector groups in the user interface. Any newly generated virtual desktop is automatically assigned to the default VDI Collectors group. Upon first user login to the virtual desktop, FortiEDR automatically generates a Collector group that corresponds with the respective pool name, as specified in VMware Horizon. Any Collector that is installed on a virtual desktop that is part of this pool is automatically assigned from the default VDI Collectors group to the corresponding Collector group, regardless of whether the pool definition in VMware is *dedicated* or *floating*. In effect, Collector groups in the FortiEDR user interface are a copy of the virtual machines' pool on VMware Horizon or Citrix.

Any newly created Collector group is automatically assigned to an out-of-the-box predefined policy. This mechanism ensures that any newly created virtual machine is automatically and immediately protected by a unique instance of the FortiEDR Collector.

IMPORTANT: When using FortiEDR automatic updates to Collectors via the Central Manager, make sure to update the master image too. Otherwise, every time that a new environment is created from the master image, an automatic update is performed, which can overload network traffic.

Uninstalling FortiEDR Collectors

You can uninstall a FortiEDR Collector using the following methods:

- From the Central Manager *INVENTORY* > *Collectors* page

  This method is recommended for Windows, Linux, and macOS 10.11 to 10.15.

  For macOS 11 or later, due to a macOS design limitation, this method does not remove the FortiEDR Collector system extension, which can only be uninstalled using an MDM solution.

- Through the operating system's application management (for example, Add or Remove Programs on Windows)
- Using dedicated FortiEDR scripts

The following section describes how to uninstall a FortiEDR Collector with Fortinet scripts.

Windows

Uninstall the Collector by running either of the following commands as administrator. Replace ***REGPWD*** with the registration password used for the installation, which is available in Component Authentication on page 295.

- `msiexec.exe /x GUID /qn UPWD=REGPWD RMCONFIG=1 /l*vx log.txt`

  Replace ***GUID*** with the FortiEDR uninstallation product key, which can be found by following the steps below:

  a. Select *Start* >> *Run*.

  b. Type `regedit` to open the *Registry Editor* window.

  c. Navigate to `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\`.

  d. Expand the *Uninstall* subkeys in the left-hand pane and search for "FortiEDR" to locate the subkey for FortiEDR.

  e. Open the FortiEDR subkey and copy the *UninstallString* value in the right pane, for example, *{01C88AE6-6782-4798-81C6-954E0D14FCF5}*.

  f. Close the *Registry Editor* window.

- `msiexec /x FortiEDRCollectorInstaller_X.msi /qn UPWD=REGPWD RMCONFIG=1`

  You must run this command from same directory as the msi installer. Or you can replace the msi filename with the full path to the msi file, such as `C:\Users\Allen\Desktop\FortiEDRCollectorInstaller64_4.1.0.491.msi`, which allows you to run the command anywhere.

macOS

To uninstall the Collector on macOS with versions prior to Big Sur (11), such as Catalina or Mojave:

```
sudo /Library/FortiEDR/fortiedr_uninstaller.sh 'REGISTRATION PASSWORD'
```

It is good practice to use REGISTRATION PASSWORD wrapped with single quotes so that it is interpreted correctly by the shell. For example,

```
sudo /Library/FortiEDR/fortiedr_uninstaller.sh '!EPdzv30break'
```

To uninstall the Collector on macOS with Big Sur (version 11) or above:

```
/Applications/FortiEDR.app/fortiedr_uninstaller.sh 'REGISTRATION PASSWORD'
```

Linux

Uninstalling a Linux Collector removes all configuration files. You must reconfigure all settings after installing a new Linux Collector.

If you are uninstalling a non-customized Linux Collector installer and would like to retain the configuration for later use, Fortinet recommends that you upgrade the Linux Collector instead of uninstalling the current Collector and re-installing a new one. However, you cannot perform an upgrade on a custom Linux Collector.

To uninstall a Collector on Linux:

1. Check the status of the Collector using the following command:

   ```
   /opt/FortiEDRCollector/control.sh --status
   ```

   The Collector should be stopped before running the uninstall command.
2. If the status is not stopped, stop the Collector using the following command:

   ```
    /opt/FortiEDRCollector/control.sh --stop <registration password>
   ```

   For example:

   ```
   / opt/FortiEDRCollector/control.sh --stop 12345678
   ```

3. Uninstall the Collector using the following command:
    - CentOS, RHEL, Oracle, AMI, SLES:

        -
          ```
          yum remove <package name>
          ```

          OR

        -
          ```
          rpm -qa | grep fortiedr | xargs rpm -e
          ```
    - Ubuntu:

      ```
      sudo dpkg --purge fortiedrcollectorinstaller
      ```

Upgrading FortiEDR Components

If your FortiEDR Threat Hunting Repository, Central Manager, Aggregator or Core are deployed on your organization’s premises (on-premises), see to Appendix C – ON PREMISE DEPLOYMENTS on page 383

Upgrading the Collector

After a Collector has been installed in the system, you can upgrade it using one of the following methods:

- Using the Load Content option, see Content Updates in step 9 of Launching the FortiEDR Central Manager for the First Time on page 21
- As described in the procedure below.

You can use whichever method you prefer.

To upgrade the Collector manually (not via the user interface):

Windows

1. Copy the `FortiEDRCollectorInstallaler32_x.x.x.xxx.msi` or `FortiEDRCollectorInstallaler64_x.x.x.xxx.msi` file (as appropriate) to the Collector machine. For example, `FortiEDRCollectorInstallaler32_2.0.0.330.msi` or `FortiEDRCollectorInstallaler64_2.0.0.330.msi`.
2. Double-click the `FortiEDRCollectorInstallaler32_x.x.x.xxx.msi` or `FortiEDRCollectorInstallaler64_x.x.x.xxx.msi` file and follow the displayed instructions.

Linux

You can only manually upgrade non-customized Linux Collectors. For custom Linux Collectors, you must first uninstall the current Collector and then install a new one, which requires reconfiguration.

To upgrade a non-customized Collector on Linux:

1. Check the status of the Collector using the following command:

   ```
   /opt/FortiEDRCollector/control.sh --status
   ```

   The Collector should be stopped before running the upgrade command.
2. If the status is not stopped, stop the Collector using the following command:

   ```
    /opt/FortiEDRCollector/control.sh --stop <registration password>
   ```

   For example:

   ```
   / opt/FortiEDRCollector/control.sh --stop 12345678
   ```

3. Copy the installer file to the Collector machine (either `FortiEDRCollectorInstaller_Linux_distribution-version_number.x86_64.rpm` or `FortiEDRCollectorInstaller_Ubuntuversion_number.deb`).
4. Upgrade the Collector using the following command:
   - CentOS/RHEL/Oracle/AMI:

     ```
     sudo yum install FortiEDRCollectorInstaller_Linux_distribution-version_number.x86_64.rpm
     ```

   - Ubuntu:

     ```
     Ubuntu: Run sudo apt install FortiEDRCollectorInstaller_Ubuntu-version_number.deb
     ```

   - SLES:

     ```
     zypper install FortiEDRCollectorInstaller_distribution-version_number.rpm
     ```

5. Enter `y` when asked if you want to upgrade.
6. After the upgrade is complete, start the Collector using the following command:

   ```
   /opt/FortiEDRCollector/control.sh --start
   ```

Security Settings

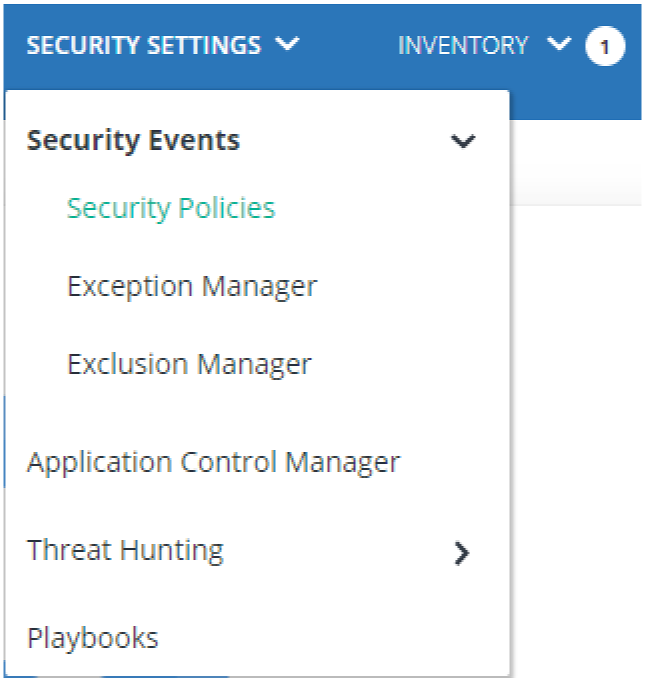
This chapter describes FortiEDR security policies and Playbook policies for defining, monitoring and handling FortiEDR security.

Security Events

FortiEDR Security Policies

The most powerful proprietary feature of the FortiEDR platform is its predefined and configurable security policies.

To access the FortiEDR Security Policies page, click the down arrow next to **SECURITY SETTINGS > Security Events > Security Policies**.

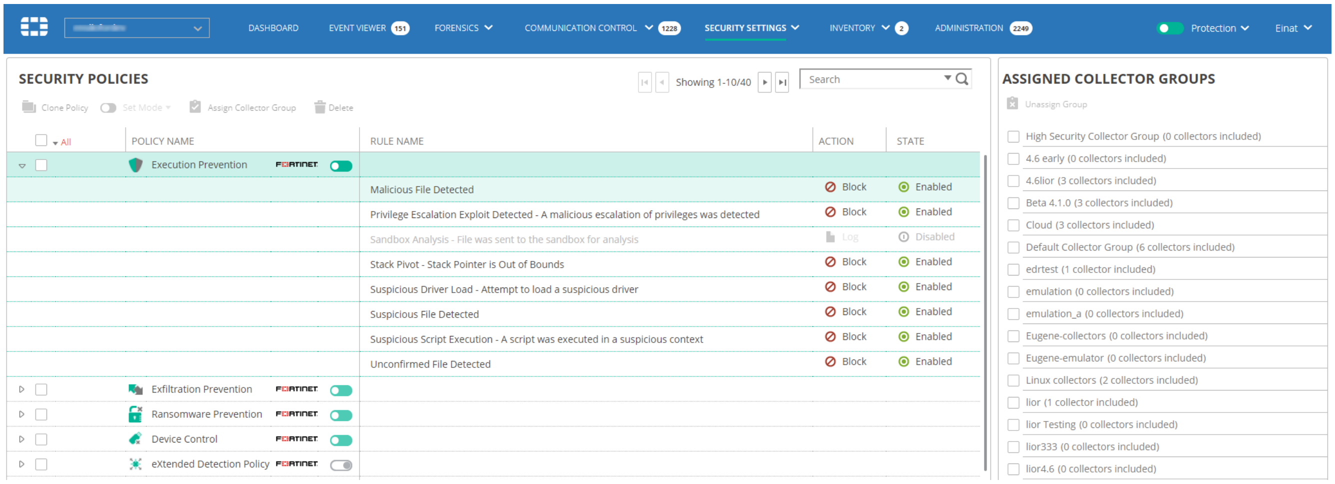


Out-of-the-box Policies

FortiEDR provides the following out-of-the-box policies:

- **Execution Prevention**: This policy blocks the execution of files that are identified as malicious or suspected to be malicious. For this policy, each file is analyzed to find evidence for malicious activity. One of the following rules is triggered, based on the analysis result:
    - **Most Likely a Malicious File**: A Malicious File Execution rule is triggered with a critical severity. By default, the file is blocked.

  - **Probably a Malicious File**: A Suspicious File Execution rule is triggered with a high severity. By default, the file is blocked.
  - **Show Evidence of Malicious File**: An Unresolved file rule is triggered with a medium severity. By default, the file is logged, but is not blocked.
- **Exfiltration Prevention**: This policy enables FortiEDR to distinguish which connection establishment requests are malicious ones.
- **Ransomware Prevention**: This policy enables FortiEDR to detect and block malware that prevents or limits users from accessing their own system.
- **Application Control**: This policy enables FortiEDR to block user-defined applications from running, so that they do not launch. Blocklist management is done on the Application Control Manager page, see page 57 for more details.
- **Device Control**: This policy enables FortiEDR to detect and block the usage of USB devices, such as USB mass storage devices. In this policy, detection is based on the device type. This feature is a license-dependent and requires the Vulnerability Management add-on (meaning License Type that is either Discover and Protect or Discover, Protect and Response.
- **eXtended Detection Policy**: This policy provides visibility into data across multiple security systems and identifies abnormal or malicious activity by applying analytics and correlating data from various systems. This policy requires that you configure an XDR source connector in the **ADMINISTRATION > INTEGRATIONS** section. This feature is a license-dependent add-on. You may contact Fortinet Support for more information.
  Note: The Extended Detection policy provides detection features (meaning that events are logged and displayed in the Event Viewer). No blocking options are provided. The exceptions and forensics options are not available in the Event Viewer for security events triggered by the Extended Detection policy.
- **Note:** You will receive one or all policies, depending on your FortiEDR license.



SECURITY POLICIES

☐ All	POLICY NAME	RULE NAME	ACTION	STATE
☐	Execution Prevention FORTINET			
		Malicious File Detected	Block	Enabled
		Privilege Escalation Exploit Detected - A malicious escalation of privileges was detected	Block	Enabled
		Sandbox Analysis - File was sent to the sandbox for analysis	Log	Disabled
		Stack Pivot - Stack Pointer is Out of Bounds	Block	Enabled
		Suspicious Driver Load - Attempt to load a suspicious driver	Block	Enabled
		Suspicious File Detected	Block	Enabled
		Suspicious Script Execution - A script was executed in a suspicious context	Block	Enabled
		Unconfirmed File Detected	Block	Enabled
☐	Exfiltration Prevention FORTINET			
☐	Ransomware Prevention FORTINET			
☐	Device Control FORTINET			
☐	eXtended Detection Policy FORTINET			

ASSIGNED COLLECTOR GROUPS

- ☐ High Security Collector Group (0 collectors included)
- ☐ 4.6 early (0 collectors included)
- ☐ 4.6lior (3 collectors included)
- ☐ Beta 4.1.0 (3 collectors included)
- ☐ Cloud (3 collectors included)
- ☐ Default Collector Group (6 collectors included)
- ☐ edrtest (1 collector included)
- ☐ emulation (0 collectors included)
- ☐ emulation_a (0 collectors included)
- ☐ Eugene-collectors (0 collectors included)
- ☐ Eugene-emulator (0 collectors included)
- ☐ Linux collectors (2 collectors included)
- ☐ lior (1 collector included)
- ☐ lior Testing (0 collectors included)
- ☐ lior333 (0 collectors included)
- ☐ lior4.6 (0 collectors included)

FortiEDR security policies come with multiple highly intelligent rules that enforce them.

The Exfiltration Prevention, Ransomware Prevention, Application Control, Device Control, Execution Prevention and eXtended Detection security policies can run simultaneously.

When multiple security policies are used, they do not generate duplicate security events:

- Exfiltration Prevention rule violation is detected when there is a connection establishment attempt.
- Ransomware rule violation is detected when there is an attempt to lock files or access their data (for example, by encrypting the data).
- Execution Prevention rule violation is detected when a malicious file is being executed by the user or by the operation system.
- Device Control rule violation is detected when there is an attempt to use a USB device, such as a mass storage device. It is supported on Windows devices only.
- Application Control rule violation is detected when there is an execution attempt of an application that is included in the blocklist.
- An Extended Detection rule violation is detected when malicious activity is identified across network, endpoints and cloud.

Thus, these security policies detect rule violations at different places and points in time in the operating system. Device control and Application Control security events are displayed under dedicated **Device Control** or **Application Control** filters in the Events page and are not listed as part of the **All** filter.

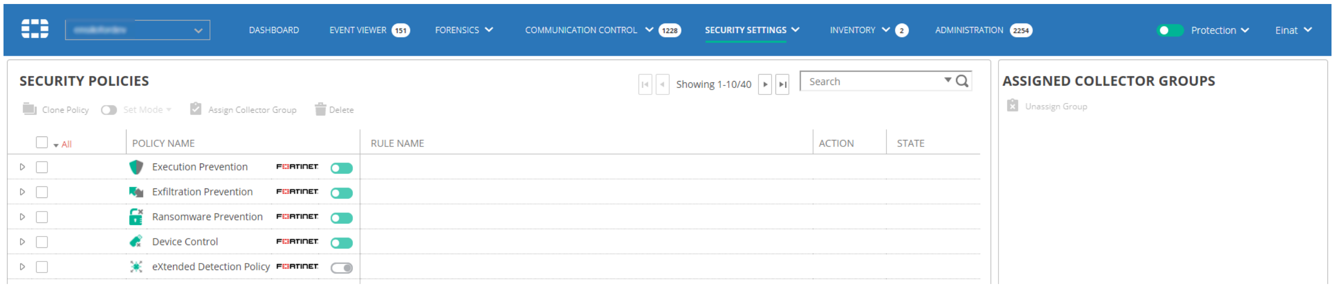
Protection or Simulation Mode

During an initial acquaintance period or at any time, you can decide that FortiEDR acts as either of the following:

- **Protection:** FortiEDR enforces its active exfiltration prevention policy that blocks all connections that violate the relevant FortiEDR security policy rules.
- **Simulation (Notification Only):** FortiEDR *only* issues an alert (described below) for all connections that violate any rule in the FortiEDR security policy. In this mode, FortiEDR does not block exfiltration. FortiEDR comes out-of-the-box set to this mode.

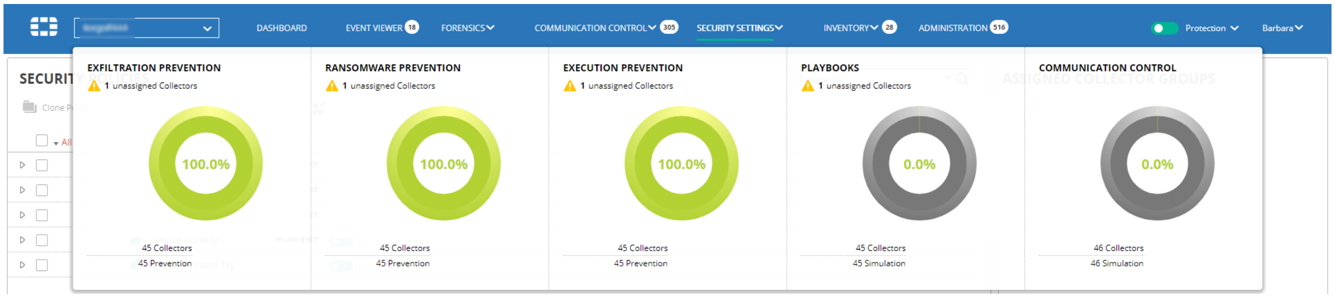
  Note: If you have purchased a Content add-on license, policy rules and built-in exceptions are periodically automatically added or updated by Fortinet. When a new security policy is added, an indicator number displays on the **SECURITY SETTINGS** tab.

Use the **Protection/Simulation** slider at the far right of the window to enable the applicable mode, as shown below:



All	POLICY NAME	RULE NAME	ACTION	STATE
▷ □	Execution Prevention FORTINET			
▷ □	Exfiltration Prevention FORTINET			
▷ □	Ransomware Prevention FORTINET			
▷ □	Device Control FORTINET			
▷ □	eXtended Detection Policy FORTINET			

You can click the down arrow next to the **Protection/Simulation** slider to see an at-a-glance view of the system’s various security policies and their impact on the Collectors in the system.



EXFILTRATION PREVENTION
⚠ 1 unassigned Collectors
100.0%
45 Collectors
45 Prevention

RANSOMWARE PREVENTION
⚠ 1 unassigned Collectors
100.0%
45 Collectors
45 Prevention

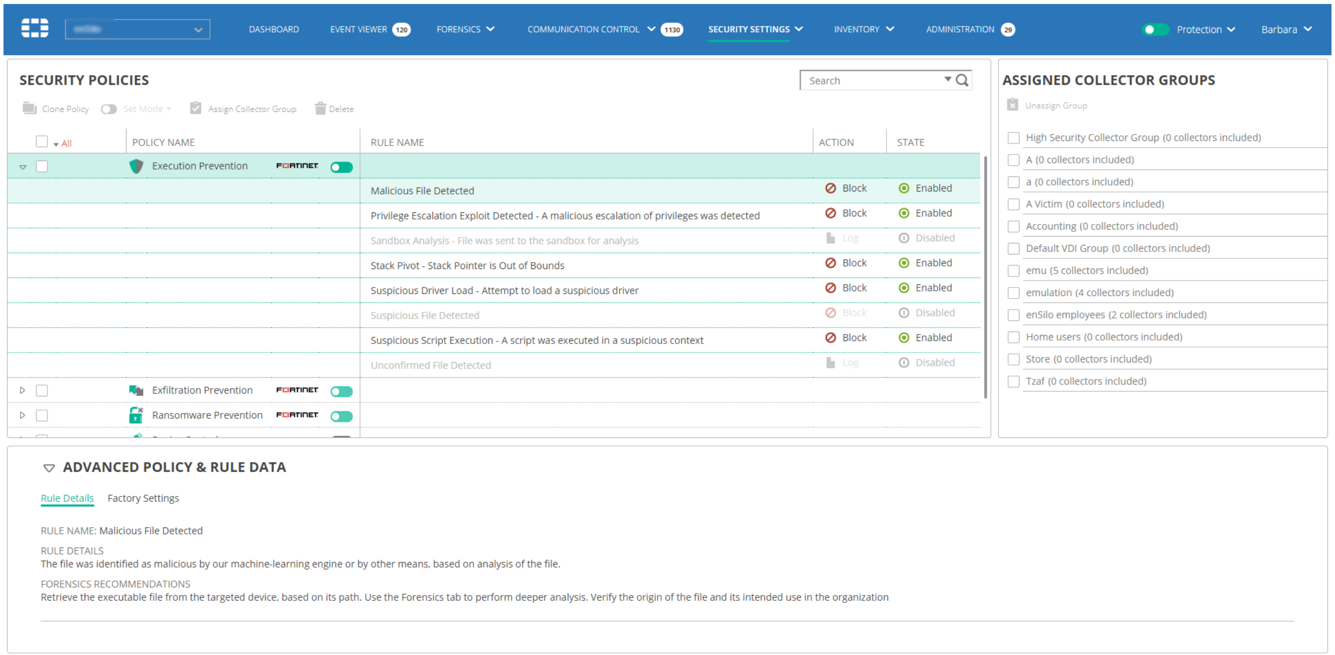
EXECUTION PREVENTION
⚠ 1 unassigned Collectors
100.0%
45 Collectors
45 Prevention

PLAYBOOKS
⚠ 1 unassigned Collectors
0.0%
45 Collectors
45 Simulation

COMMUNICATION CONTROL
0.0%
46 Collectors
46 Simulation

Security Policies Page

The **SECURITY POLICIES** page displays a row for each security policy. Each policy row can be expanded to show the rules that it contains, as shown below. To access this page, click the down arrow next to **SECURITY SETTINGS** and then select **Security Policies**.



SECURITY POLICIES

All	POLICY NAME	RULE NAME	ACTION	STATE
▽ □	Execution Prevention FORTINET			
		Malicious File Detected	Block	Enabled
		Privilege Escalation Exploit Detected - A malicious escalation of privileges was detected	Block	Enabled
		Sandbox Analysis - File was sent to the sandbox for analysis	Log	Disabled
		Stack Pivot - Stack Pointer is Out of Bounds	Block	Enabled
		Suspicious Driver Load - Attempt to load a suspicious driver	Block	Enabled
		Suspicious File Detected	Block	Disabled
		Suspicious Script Execution - A script was executed in a suspicious context	Block	Enabled
		Unconfirmed File Detected	Log	Disabled
▷ □	Exfiltration Prevention FORTINET			
▷ □	Ransomware Prevention FORTINET			

ASSIGNED COLLECTOR GROUPS

- □ High Security Collector Group (0 collectors included)
- □ A (0 collectors included)
- □ a (0 collectors included)
- □ A Victim (0 collectors included)
- □ Accounting (0 collectors included)
- □ Default VDI Group (0 collectors included)
- □ emu (5 collectors included)
- □ emulation (4 collectors included)
- □ enSilo employees (2 collectors included)
- □ Home users (0 collectors included)
- □ Store (0 collectors included)
- □ Tzaf (0 collectors included)

ADVANCED POLICY & RULE DATA

Rule Details   Factory Settings

RULE NAME: Malicious File Detected

RULE DETAILS
The file was identified as malicious by our machine-learning engine or by other means, based on analysis of the file.

FORENSICS RECOMMENDATIONS
Retrieve the executable file from the targeted device, based on its path. Use the Forensics tab to perform deeper analysis. Verify the origin of the file and its intended use in the organization

FortiEDR is provided out-of-the-box with several predefined security policies (depending on your license), ready for you to get started. By default, all policies are set to Simulation mode (meaning that they only log and do not block) and show the FORTINET logo. This page also enables you to define additional policies.

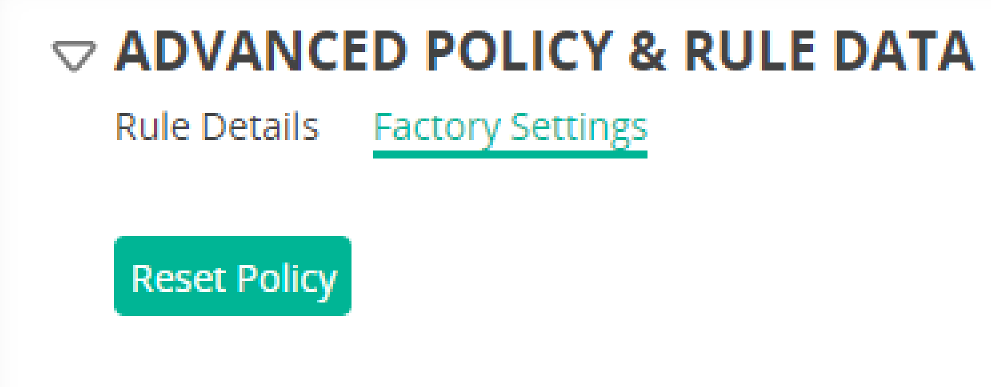
Security Policy	Icon
Exfiltration Prevention	⇄
Ransomware Prevention	🔓
Execution Prevention	🛡
Device Control Policies	🔌

Security Policy	Icon
Application Control Policies	✱
Extended Detection	✱

The following information is defined per security policy:

Information Field	Description
Policy Name	The policy name appears in the left most column. The policy name is defined when the policy is created. The name of the **Default Policy** cannot be changed.
Rule Name	FortiEDR's proprietary rules come predefined and are the primary component of FortiEDR's proprietary security solution. This column displays a short description for the purpose of this rule. **Note :** You can expand the **ADVANCED POLICY & RULES DATA** area at the bottom left of the window to display a more detailed description of what the rule does and how it works.
Action	Specifies the action that is enforced when this rule is violated. You can change this field, as follows: • **Block** ⊘ Block: When this policy is set to **Prevention** mode (Setting a Security Policy's Prevention or Simulation Mode on page 59), the exfiltration attempt is blocked and a blocking event is generated. When this policy is set to **Simulation** mode, the outgoing connection attempt is NOT blocked and a simulated-blocking event is generated (this indicates that FortiEDR ***would have*** blocked the exfiltration if the policy had been set to Prevention mode). • **Log** Log : The event is only logged regardless of whether the policy is set to Prevention or Simulation mode. The outgoing connection attempt is not blocked.
State	(Enabled/Disabled) This option enables you to disable/enable this rule. FortiEDR's rules have been created as a result of extensive expertise and experience. Therefore, we do not recommend disabling any of them.

To reset a FortiEDR security policy to its out-of-the-box settings, click the Reset Policy button in the **ADVANCED POLICY & RULE DATA** section, as shown below:



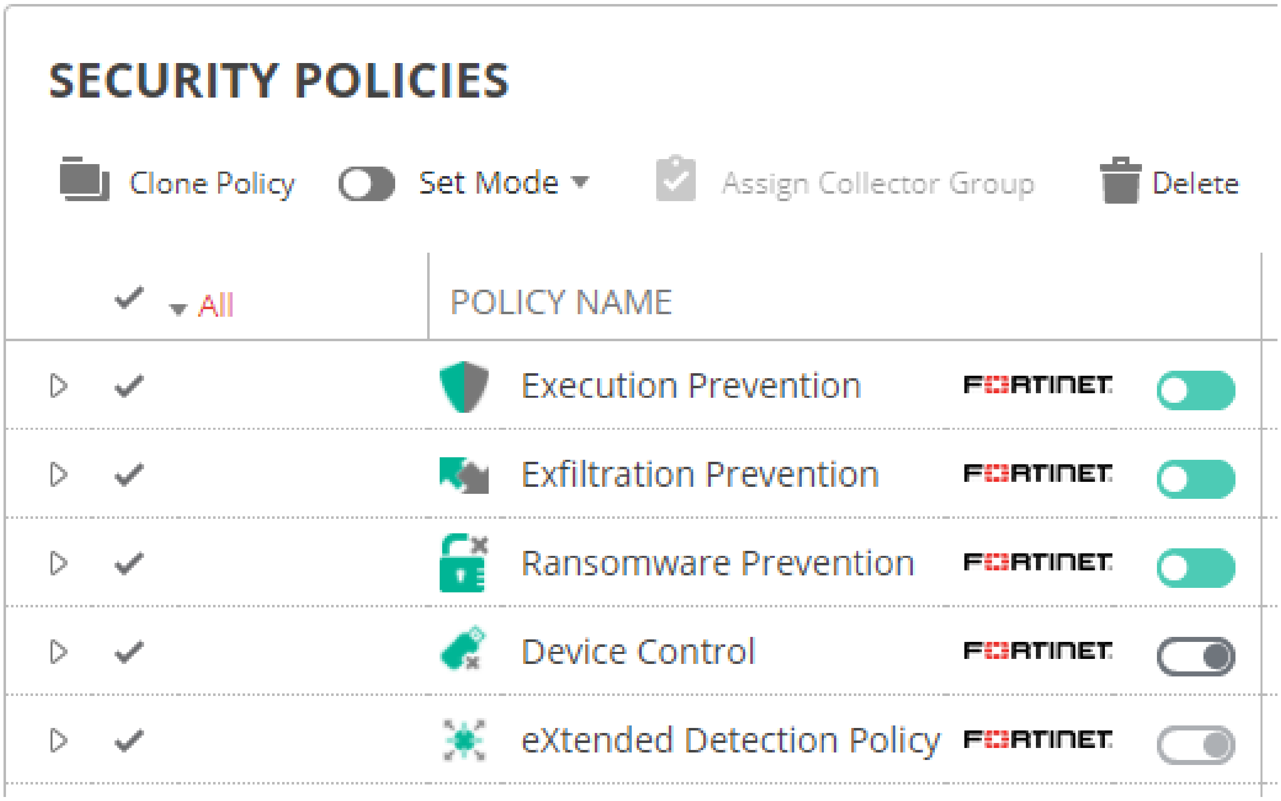
Setting a Security Policy’s Prevention or Simulation Mode

Each FortiEDR security policy can be set to operate in one of the following modes:

- **Prevention**: FortiEDR enforces its active prevention policy that blocks all activity that violates relevant rules in the FortiEDR security policy.
- **Simulation/Notification Only**: FortiEDR logs and alerts only violations of FortiEDR security policy. The events are shown in the FortiEDR Central Manager. In this mode, FortiEDR does not block malicious activity. This is the default mode of all FortiEDR security policies out of the box. You can decide to use this mode during an initial acquaintance period or at any time.

To set a security policy to Prevention or Simulation mode:

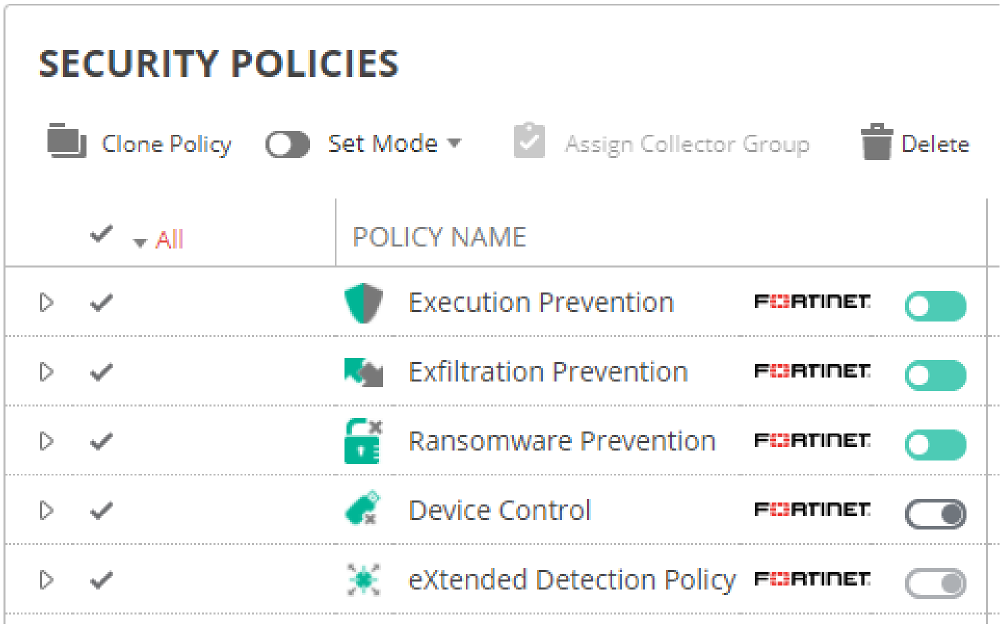
1. 1 Select the checkbox of the security policy to be configured. Alternatively, you can select the top-left checkbox to configure all security policies at once.



✓ All	POLICY NAME		
✓	Execution Prevention	FORTINET	●
✓	Exfiltration Prevention	FORTINET	●
✓	Ransomware Prevention	FORTINET	●
✓	Device Control	FORTINET	○
✓	eXtended Detection Policy	FORTINET	○

2. You can now either:
   a. Set mode : Click the **Set Mode** button and select either Prevention or Simulation, as shown above.
   b. ●: Move the slider to the left for Prevention or to the right for Simulation.

You can also set all FortiEDR policies to Simulation mode at once by moving the slider at the top-left corner to Simulation, as shown below:



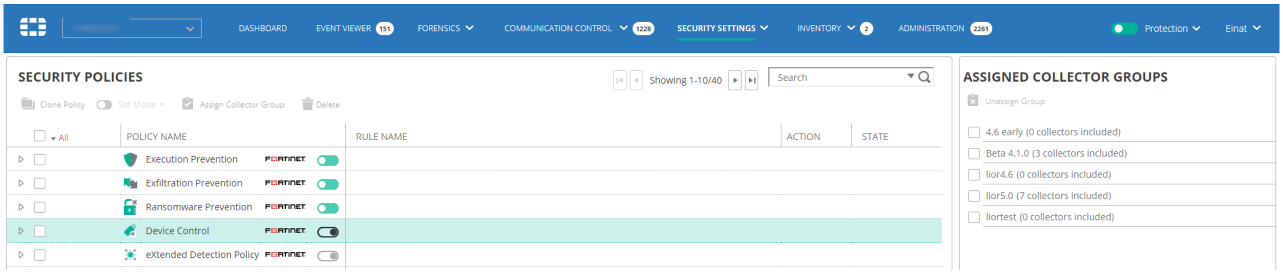
✓ All	POLICY NAME		
✓	Execution Prevention	FORTINET	●
✓	Exfiltration Prevention	FORTINET	●
✓	Ransomware Prevention	FORTINET	●
✓	Device Control	FORTINET	○
✓	eXtended Detection Policy	FORTINET	○

Creating a New Security Policy

A new security policy can be created by cloning an existing policy, as described below. New security policies are only needed if you are going to assign different policies to different Collector Groups. Otherwise, you can simply modify one of the default policies that are provided out-of-the-box and apply it to all FortiEDR Collectors by default. Modifications made on one security policy do not affect any other policies.

To create a new security policy:

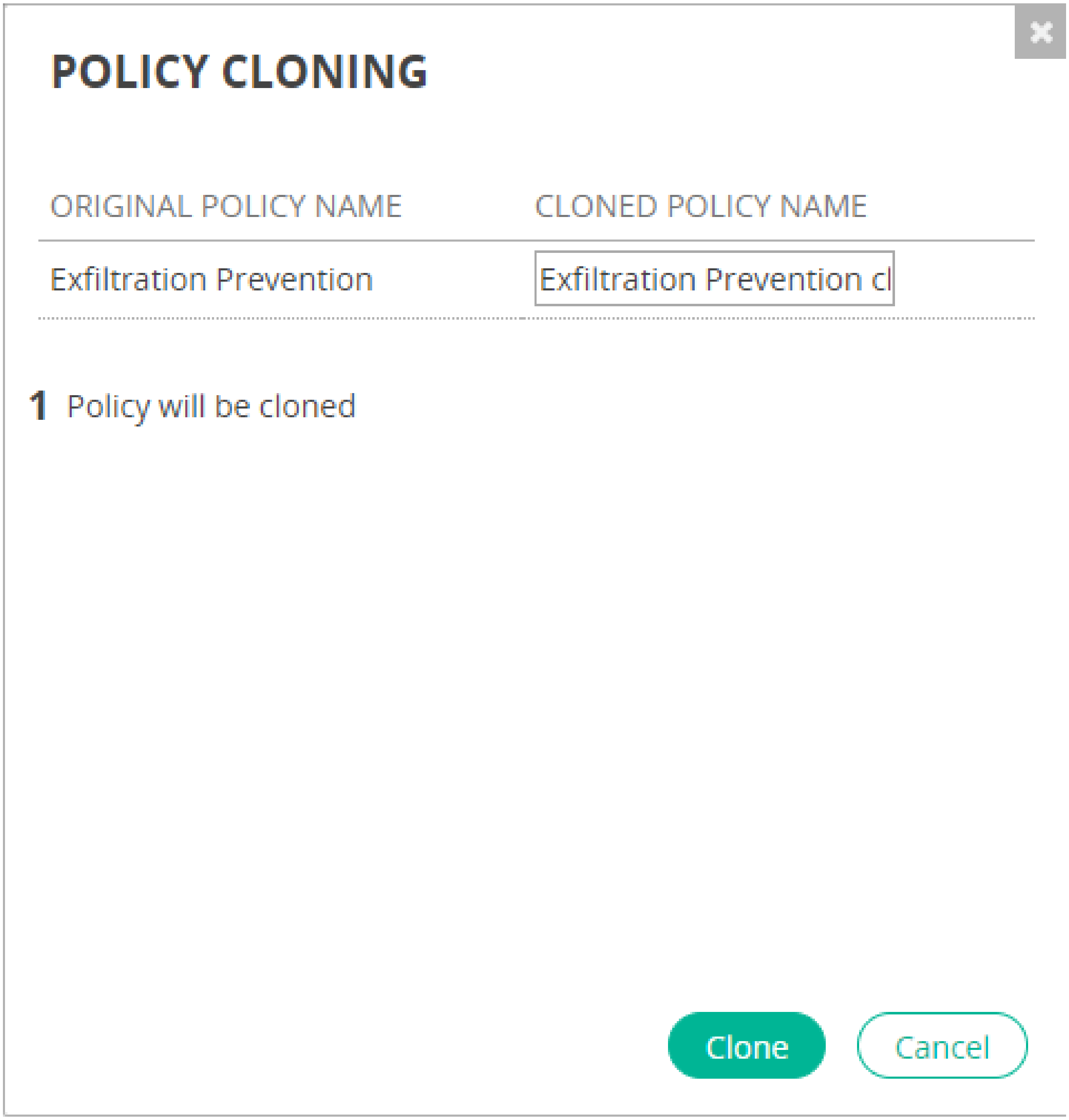
1. In the **SECURITY POLICIES** page, check the checkbox of the security policy to be cloned. The buttons at the top of the window then become active.



□ All	POLICY NAME			RULE NAME	ACTION	STATE
□	Execution Prevention	FORTINET	●			
□	Exfiltration Prevention	FORTINET	●			
□	Ransomware Prevention	FORTINET	●			
□	Device Control	FORTINET	○			
□	eXtended Detection Policy	FORTINET	○			

- □ 4.6 early (0 collectors included)
- □ Beta 4.1.0 (3 collectors included)
- □ lior4.6 (0 collectors included)
- □ lior5.0 (7 collectors included)
- □ liortest (0 collectors included)

2. Select the Clone Policy button. The following window displays:



POLICY CLONING

ORIGINAL POLICY NAME	CLONED POLICY NAME
Exfiltration Prevention	Exfiltration Prevention cl

1 Policy will be cloned

3. Specify the name of the new security policy and click the **Clone** button.
4. If needed, assign the security policy to the required Collector Group so that it protects all the FortiEDR Collectors in that group, as described in Assigning a Security Policy to a Collector Group on page 61.

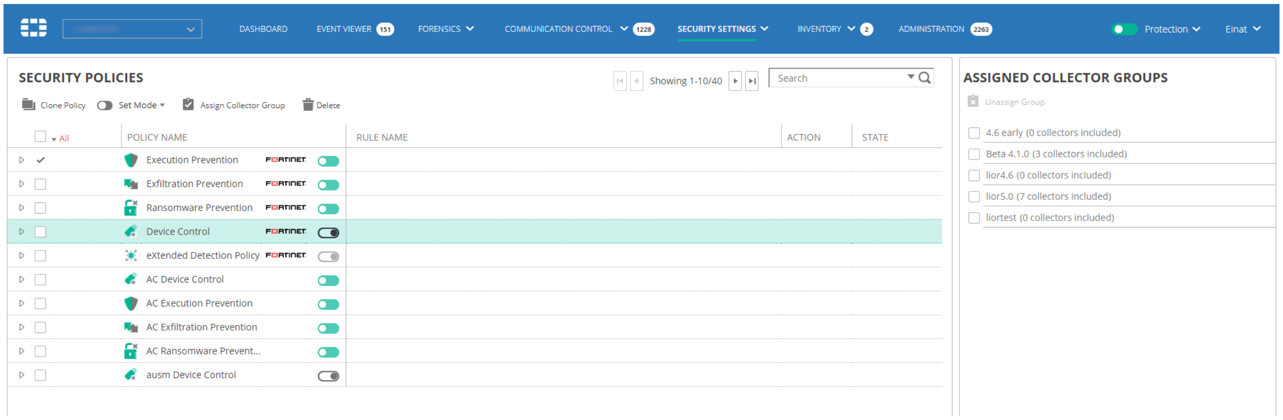
Assigning a Security Policy to a Collector Group

By default, a security policy protects the FortiEDR Collectors that belong to that Collector Group. A security policy can be assigned to more than one Collector Group. Multiple security policies can be assigned to each Collector Group.

It is not recommended to assign multiple security policies that have the same or overlapping rules to a Collector Group, as this means that the same security events will be triggered in response to both policies, producing duplicated events.

Refer to Defining a New Collector Group on page 104 for a description of how to define a new Collector Group in the **INVENTORY** tab.

1. 1 In the SECURITY POLICIES page, select the name of the security policy to be assigned by clicking its checkbox.



SECURITY POLICIES

All	POLICY NAME			RULE NAME	ACTION	STATE
✓	Execution Prevention	FORTINET	●			
□	Exfiltration Prevention	FORTINET	●			
□	Ransomware Prevention	FORTINET	●			
□	Device Control	FORTINET	○			
□	eXtended Detection Policy	FORTINET	○			
□	AC Device Control		●			
□	AC Execution Prevention		●			
□	AC Exfiltration Prevention		●			
□	AC Ransomware Prevent...		●			
□	ausm Device Control		○			

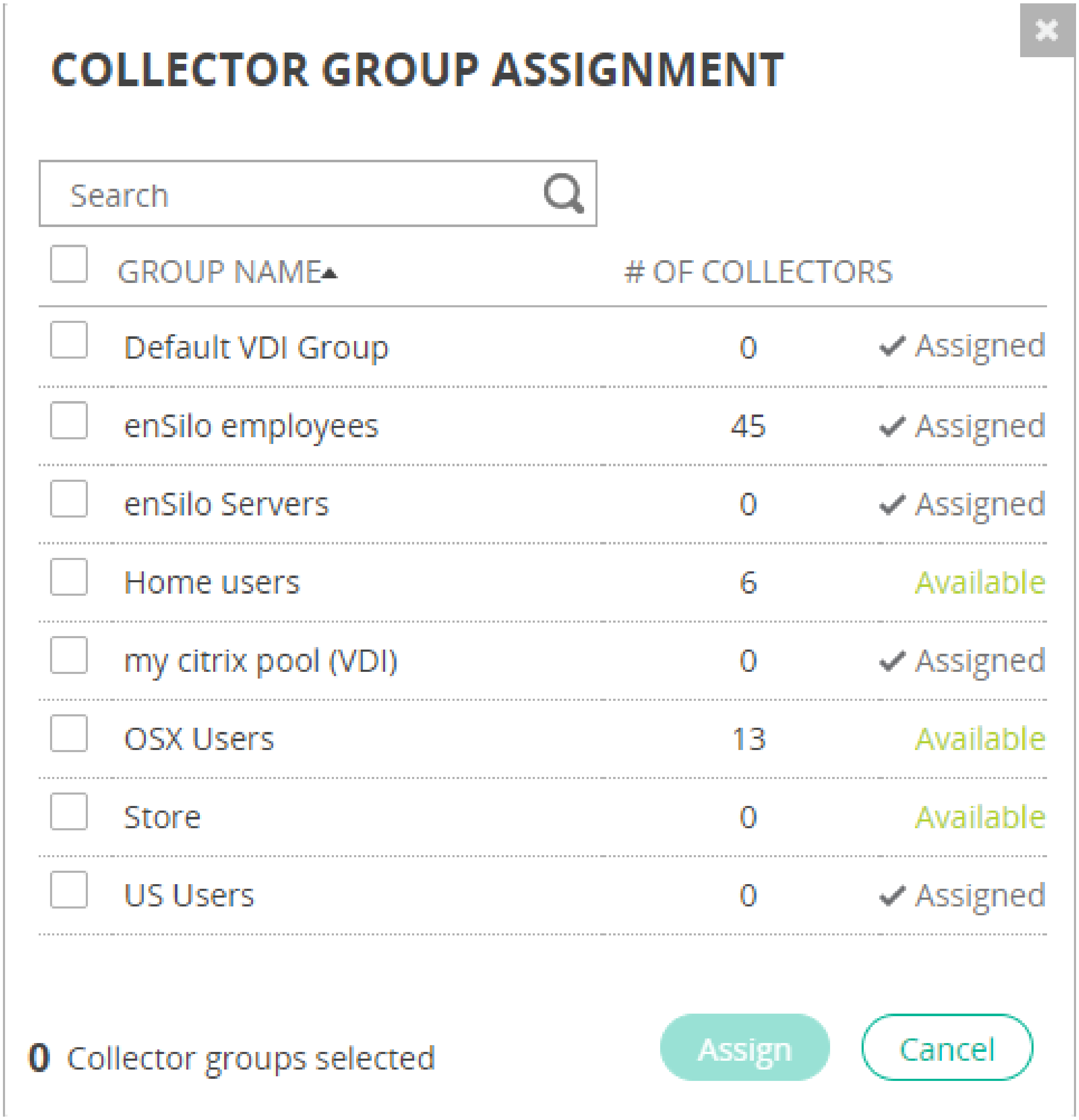
ASSIGNED COLLECTOR GROUPS

- □ 4.6 early (0 collectors included)
- □ Beta 4.1.0 (3 collectors included)
- □ lior4.6 (0 collectors included)
- □ lior5.0 (7 collectors included)
- □ liortest (0 collectors included)

2. 2 The right side of the window displays the Collector Groups to which this policy is assigned.

   Click the Assign Collector Group toolbar button, which displays the following window in which you can select the

Collector Groups to which to assign this policy.



COLLECTOR GROUP ASSIGNMENT

Search

□	GROUP NAME▲	# OF COLLECTORS	
□	Default VDI Group	0	✓ Assigned
□	enSilo employees	45	✓ Assigned
□	enSilo Servers	0	✓ Assigned
□	Home users	6	Available
□	my citrix pool (VDI)	0	✓ Assigned
□	OSX Users	13	Available
□	Store	0	Available
□	US Users	0	✓ Assigned

0 Collector groups selected

The **ASSIGNED COLLECTORS GROUPS** area lists all the Collector Groups that have been assigned a security policy to protect them. You can also simply drag-and-drop a Collector Group from this list onto a policy in the left pane of this window to assign the Collector Group to be protected by that policy.

Deleting a Security Policy

Select the policy’s checkbox and then click the Delete button.

Note: The Exfiltration Prevention, Ransomware Prevention, Device Control, Application Control, eXtended Detection and Execution Prevention FortiEDR security policies provided out-of-the-box (FORTINET) cannot be deleted.

Exception Manager

Exceptions enable you to limit the enforcement of a rule, meaning to create a white list for a specific flow of events that was used to establish a connection request or perform a specific operation.

An exception can be made for a Collector Group (several specific ones or for all) and a destination IP (a specific one, IP-set or all). The event is then no longer triggered for that specific Collector Group or destination IP. This exception can be added on part or the entire set of rules and the process that triggered this event.

When an exception is defined, it results in one or more exception pairs. An exception pair specifies the rule that was violated, and the process on which the violation occurred, including its entire location path. For example, the following shows several examples of exception pairs:

- Rule – File encryptor with Process – c:\users\root\Desktop\ransom\RnsmTOX.exe
- Rule – Process hollowing with Process – c:\users\root\AppData\Local\hipmiav.exe

An exception that applies to a security event can result in the creation of several exception pairs. Each exception is associated with a specific process path. You determine whether the exception pair can run from the event-specific path or whether to apply the exception for this process so that it can run from any path.

If the exception pair includes more than one process, you can include the other processes too, as well as determine whether they can run from the event-specific path or from any path.

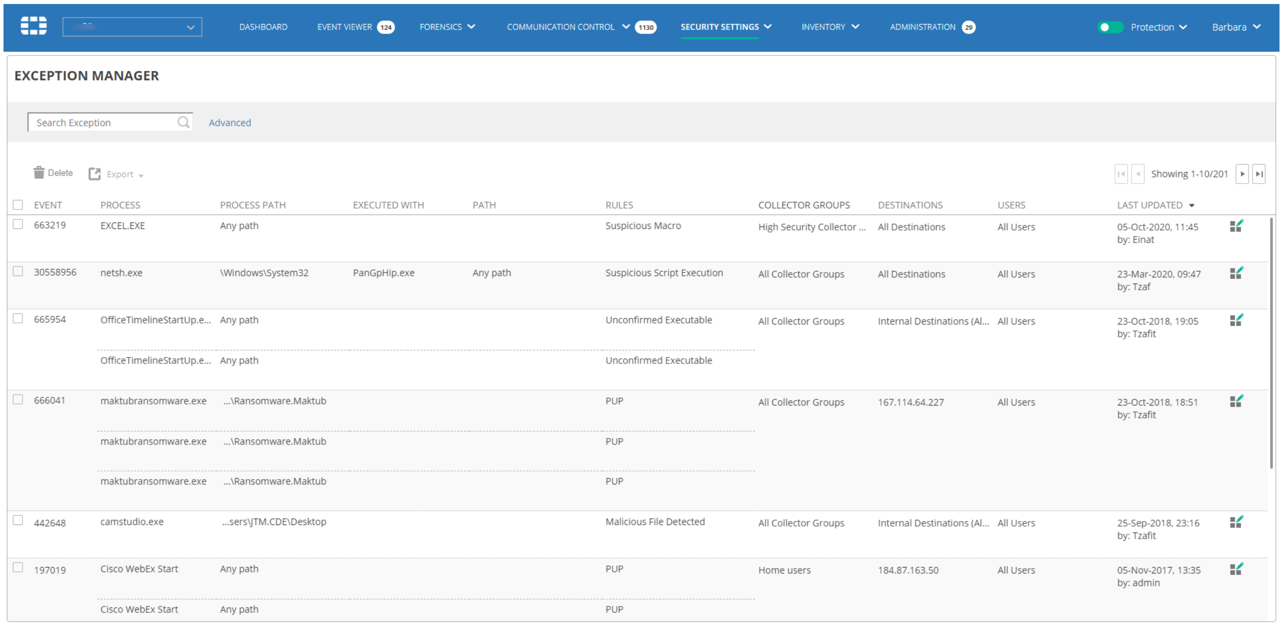
Any exception that you define applies to all policies.

Exceptions are created in the Event Viewer, as described onDefining Security Event Exceptions on page 147

Note – FCS may push an automated exception in cases where extended analysis and investigation of a security event leads to its reclassification as Safe. This prevents the security event from triggering again.
In such cases, the security event is moved under archived events and the exception that was set is added in the Exception Manager with FortiEDRCloudServices as the handling user.

To manage exceptions:

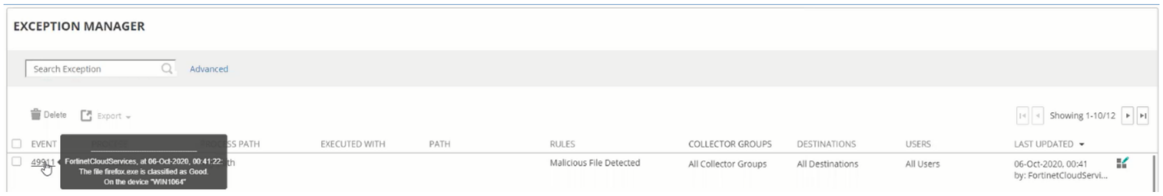
1. Select **SECURITY SETTINGS > Security Events > Exception Manager**. Alternatively, in the **EVENT VIEWER** page, click the Exception Manager button. The following window displays, showing the list of previously created exceptions:



EXCEPTION MANAGER

EVENT	PROCESS	PROCESS PATH	EXECUTED WITH	PATH	RULES	COLLECTOR GROUPS	DESTINATIONS	USERS	LAST UPDATED
663219	EXCEL.EXE	Any path			Suspicious Macro	High Security Collector ...	All Destinations	All Users	05-Oct-2020, 11:45 by: Einat
30558956	netsh.exe	\Windows\System32	PanGpHip.exe	Any path	Suspicious Script Execution	All Collector Groups	All Destinations	All Users	23-Mar-2020, 09:47 by: Tzaf
665954	OfficeTimelineStartUp.e...	Any path			Unconfirmed Executable	All Collector Groups	Internal Destinations (Al...	All Users	23-Oct-2018, 19:05 by: Tzafit
	OfficeTimelineStartUp.e...	Any path			Unconfirmed Executable				
666041	maktubransomware.exe	...\Ransomware.Maktub			PUP	All Collector Groups	167.114.64.227	All Users	23-Oct-2018, 18:51 by: Tzafit
	maktubransomware.exe	...\Ransomware.Maktub			PUP				
	maktubransomware.exe	...\Ransomware.Maktub			PUP				
442648	camstudio.exe	...sers\JTM.CDE\Desktop			Malicious File Detected	All Collector Groups	Internal Destinations (Al...	All Users	25-Sep-2018, 23:16 by: Tzafit
197019	Cisco WebEx Start	Any path			PUP	Home users	184.87.163.50	All Users	05-Nov-2017, 13:35 by: admin
	Cisco WebEx Start	Any path			PUP				

Tip – If the exception includes a free-text comment, you can hover over the Event ID in the Exception Manager to display it.

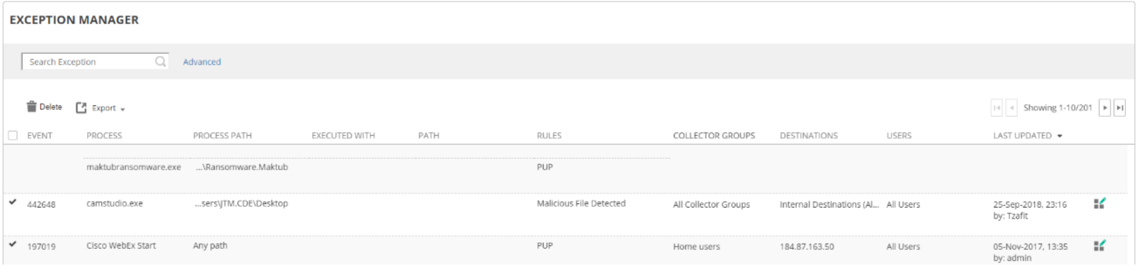


EXCEPTION MANAGER

EVENT	PROCESS	PROCESS PATH	EXECUTED WITH	PATH	RULES	COLLECTOR GROUPS	DESTINATIONS	USERS	LAST UPDATED
49911		th			Malicious File Detected	All Collector Groups	All Destinations	All Users	06-Oct-2020, 00:41 by: FortinetCloudServi...

FortinetCloudServices, at 06-Oct-2020, 00:41:22:
The file firefox.exe is classified as Good.
On the device "WIN1064"

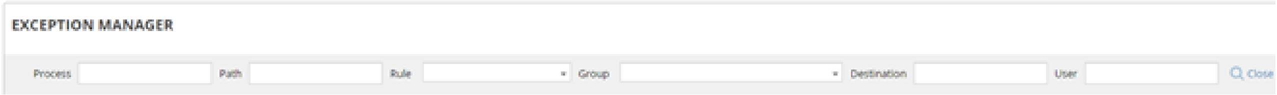
Tip – You can delete one or more exceptions simultaneously by selecting the checkbox at the beginning of its row and then clicking the Delete button.



EXCEPTION MANAGER

EVENT	PROCESS	PROCESS PATH	EXECUTED WITH	PATH	RULES	COLLECTOR GROUPS	DESTINATIONS	USERS	LAST UPDATED
	maktubransomware.exe	...\Ransomware.Maktub			PUP				
✓ 442648	camstudio.exe	...sers\JTM.CDE\Desktop			Malicious File Detected	All Collector Groups	Internal Destinations (Al...	All Users	25-Sep-2018, 23:16 by: Tzafit
✓ 197019	Cisco WebEx Start	Any path			PUP	Home users	184.87.163.50	All Users	05-Nov-2017, 13:35 by: admin

2. To filter the exception list, click the **Advanced** button. The window displays various filter boxes at the top of the window, which you can use to filter the list by specific criteria.

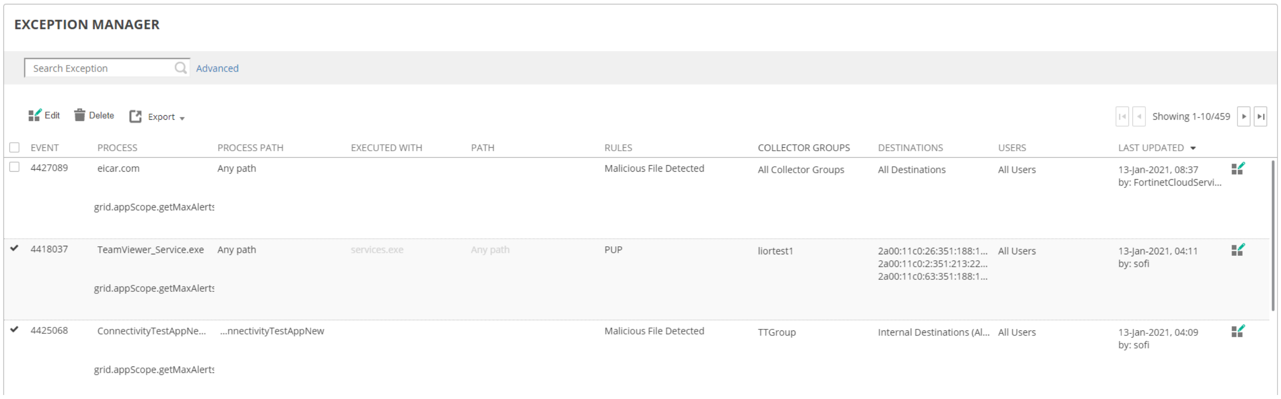


Click the **Basic search** button to access the standard search options.

Click the **Edit Exception** button in an exception row to edit that exception. For more details, see Editing Security Event Exceptions on Editing Security Event Exceptions on page 161.

Click the **Delete** button in an exception row to delete that exception.

Changes can be made on multiple exceptions at the same time by checking the Exceptions that you would like to edit and then clicking on the Edit tool, as shown below:

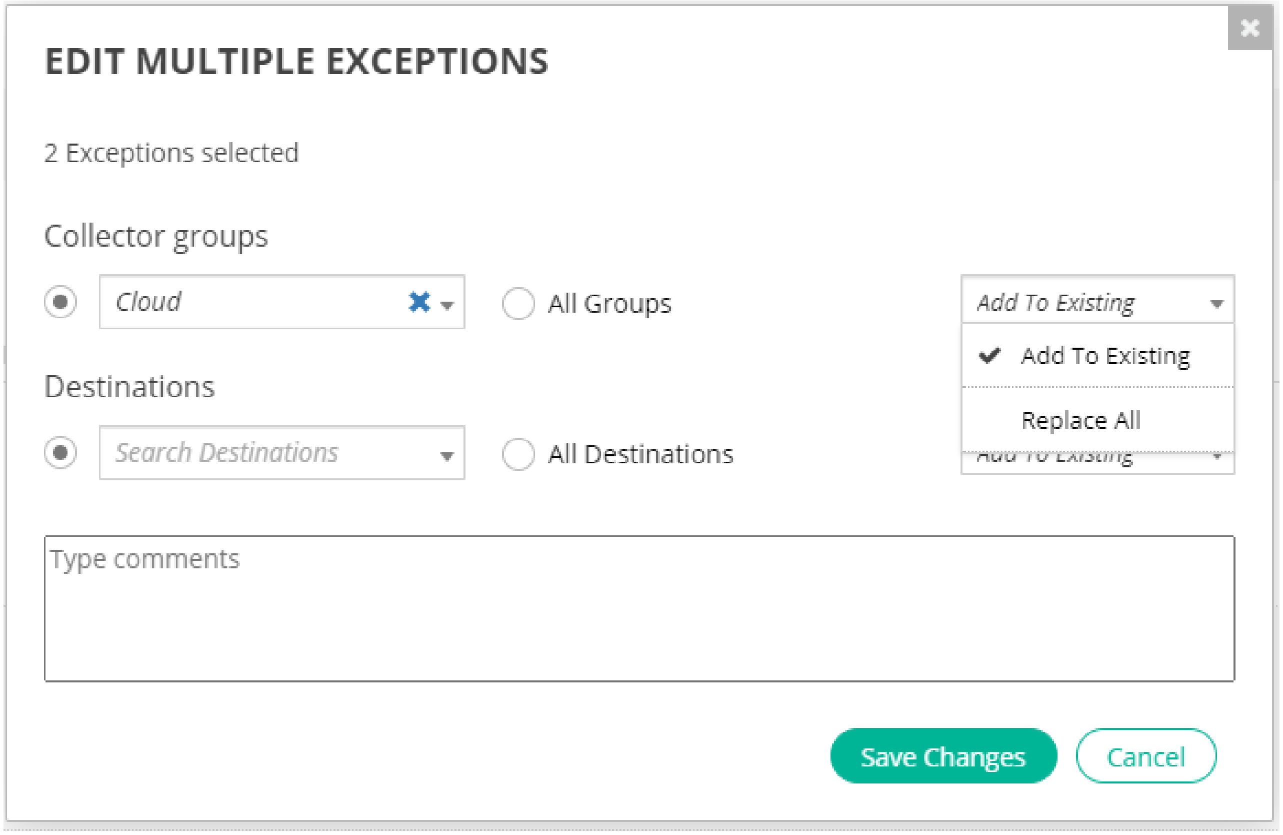


EXCEPTION MANAGER

Search Exception | Advanced

☐	EVENT	PROCESS	PROCESS PATH	EXECUTED WITH	PATH	RULES	COLLECTOR GROUPS	DESTINATIONS	USERS	LAST UPDATED
☐	4427089	eicar.com grid.appScope.getMaxAlerts	Any path			Malicious File Detected	All Collector Groups	All Destinations	All Users	13-Jan-2021, 08:37 by: FortinetCloudServi...
✓	4418037	TeamViewer_Service.exe grid.appScope.getMaxAlerts	Any path	services.exe	Any path	PUP	liortest1	2a00:11c0:26:351:188:1... 2a00:11c0:2:351:213:22... 2a00:11c0:63:351:188:1...	All Users	13-Jan-2021, 04:11 by: sofi
✓	4425068	ConnectivityTestAppNe... grid.appScope.getMaxAlerts	...nnectivityTestAppNew			Malicious File Detected	TTGroup	Internal Destinations (Al...	All Users	13-Jan-2021, 04:09 by: sofi

The following window displays in the which you can choose to add new Collector Groups in addition to existing ones or to replace all Collector Groups with the new Collector Group values that you select:



EDIT MULTIPLE EXCEPTIONS

2 Exceptions selected

Collector groups

● Cloud ○ All Groups — Add To Existing

✓ Add To Existing

Replace All

Destinations

● Search Destinations ○ All Destinations

Type comments

This same procedure can be used to edit the IP sets of the destination addresses of the selected exceptions.

Exclusion Manager

The Exclusion Manager enables you to define which processes or files are excluded from Security Policies monitoring. Two types of exclusions can be defined in the Exclusion Manager:

- **Process Exclusions**: This type of exclusion specifies that FortiEDR does not inspect the actions that are performed by specific processes, so that these processes do not trigger security events. The processes that are excluded are identified by the attributes of the processes, according to your definitions.

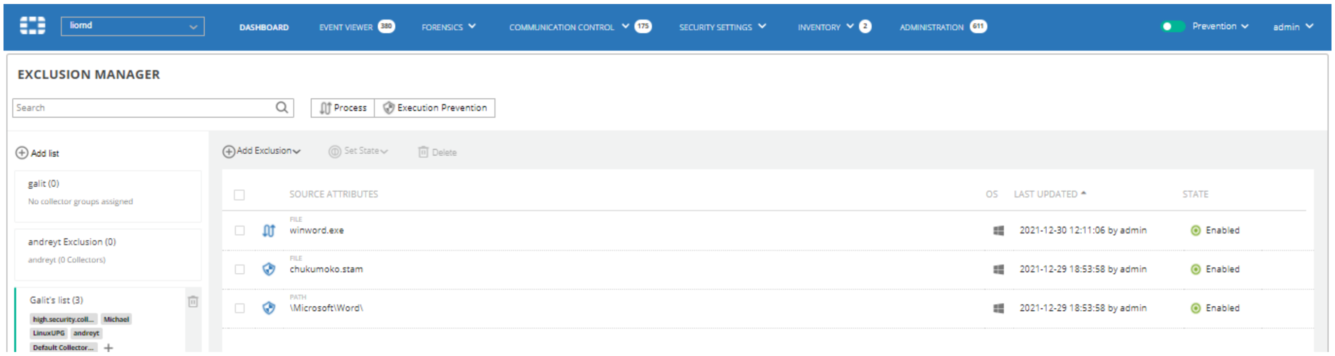
There may be various reasons for excluding a process in this manner. For example, when a process's performance/functionality is affected by FortiEDR's inspection, but the customer knows that this process is good/safe (this example is relevant, even when the process does not trigger security events). Therefore, in this case, the exclusion will specify that FortiEDR no longer inspects the specified processes.

Please note that adding this type of exclusion excludes this process from being monitored by all FortiEDR features and all activities of this process are ignored.

- **Execution Prevention Exclusions**: The Execution Prevention policy inspects/scans files and then blocks their execution if they are identified as malicious or suspected to be malicious. Execution Prevention Exclusions specify that FortiEDR does not apply the Execution Prevention policy inspection, which analyzes files in order to find evidence of malicious activity, as described in Security Settings on page 54. The files that are excluded are identified by the attributes of the files that are the target of the Execution Prevention actions, according to your definitions.

To manage exclusions:

Select **SECURITY SETTINGS > Security Events > Exclusion Manager**. The following window displays, showing the list of previously created exclusions:



	SOURCE ATTRIBUTES	OS	LAST UPDATED	STATE
□	FILE winword.exe		2021-12-30 12:11:06 by admin	Enabled
□	FILE chukumoko.stam		2021-12-29 18:53:58 by admin	Enabled
□	PATH \Microsoft\Word\		2021-12-29 18:53:58 by admin	Enabled

The list of exclusions in the Collection Exclusions page contains the following columns:

Column	Description
Checkbox	Enables you to select multiple rows.
Icon	Represents the type of exclusion • - Process • - Execution Prevention
SOURCE ATTRIBUTES	Specifies the attributes that were defined in order to identify the Process/File, as described in Defining Exclusions on page 69
OS	Specifies the operating system to which theis exclusion applies. Currently, only Windows is supported.
LAST UPDATED	Specifies when this exclusion was last updated and by whom.
STATE	Specifies whether this exclusion is enabled or disabled.
✎ 🗑	Edit and delete excursion tools.

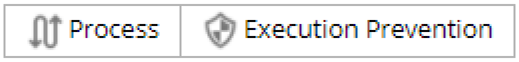
The following actions can be performed in the Collection Exclusions page:

- Filtering on page 68
- Defining Exclusion Lists on page 68
- Defining Exclusions on page 69

Filtering

To filter the Exclusion List names and their content, simply enter text in the **Search** field. Afterwards, only the Exclusion Lists that match the provided text are displayed showing only the relevant exclusions.

To filter the list of exclusions by type, click one of the following options:



Defining Exclusion Lists

An Exclusion List contains a list of exclusions. You can assign Collector Groups to an Exclusion List in order to specify that the exclusions in the Exclusion List apply to the Collectors in the Collector Groups assigned to it. Exclusion Lists enable you to logically organize, categorize and group exclusions based on the type of activity data they are to exclude.

For example, let's say that you want to collect network activity data for your system, but a specific application generates quite a bit of uninteresting logistical network activity that you do not want to collect. In this case, you can define an Exclusion List named after that application that contains one or more exclusions that relate specifically to the network activity generated by that application. Exclusion Lists can be organized anyway you see fit. For example, you can create an Exclusion List for security products, a different one for PDF documents, a different one for HR-related software and so on.

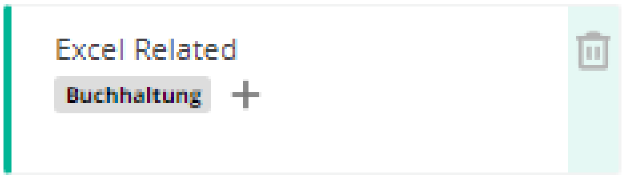
FortiEDR comes with a default General Exclusion List that includes important exclusions. The exclusions in this group are not editable.

Adding an Exclusion List

To define an Exclusion List:

1. Click the **+ Add List** option and provide a name to create a new Exclusion List.
2. Add (define) the exclusions of this Exclusion List (as described on the following page). Each exclusion that you add belongs to a specific Exclusion List.
3. Assign Collector Groups to this Exclusion List (as described below) in order to determine to which Collector Groups these exclusions apply. A Collector Group can be assigned to multiple Exclusion Lists.

Assigning a Collector Group to an Exclusion List



You can perform the following operations on an Exclusion List:

Operation	Description
Assign a Collector Group:	Click the **+** button in the Exclusion List to which to assign a Collector Group. Then, select the Collectors groups to which to assign this list and approve it. Note that a Collector Group can be assigned to multiple Exclusion Lists.
Unassign a Collector Group	Click the **+** button and uncheck the Collector Group to be removed from an Exclusion List.
Delete Exclusions List	Click on the Delete 🗑 button. Note that all Exclusions in this list will be removed and will no longer be applied to the assigned Collector groups.

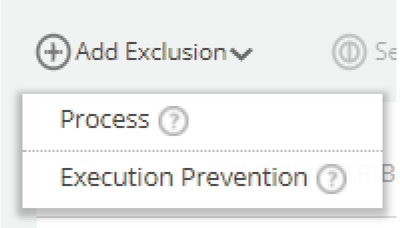
Defining Exclusions

All exclusions must belong to an Exclusion List. Select an Exclusion List on the left to display the exclusions that are defined in it.

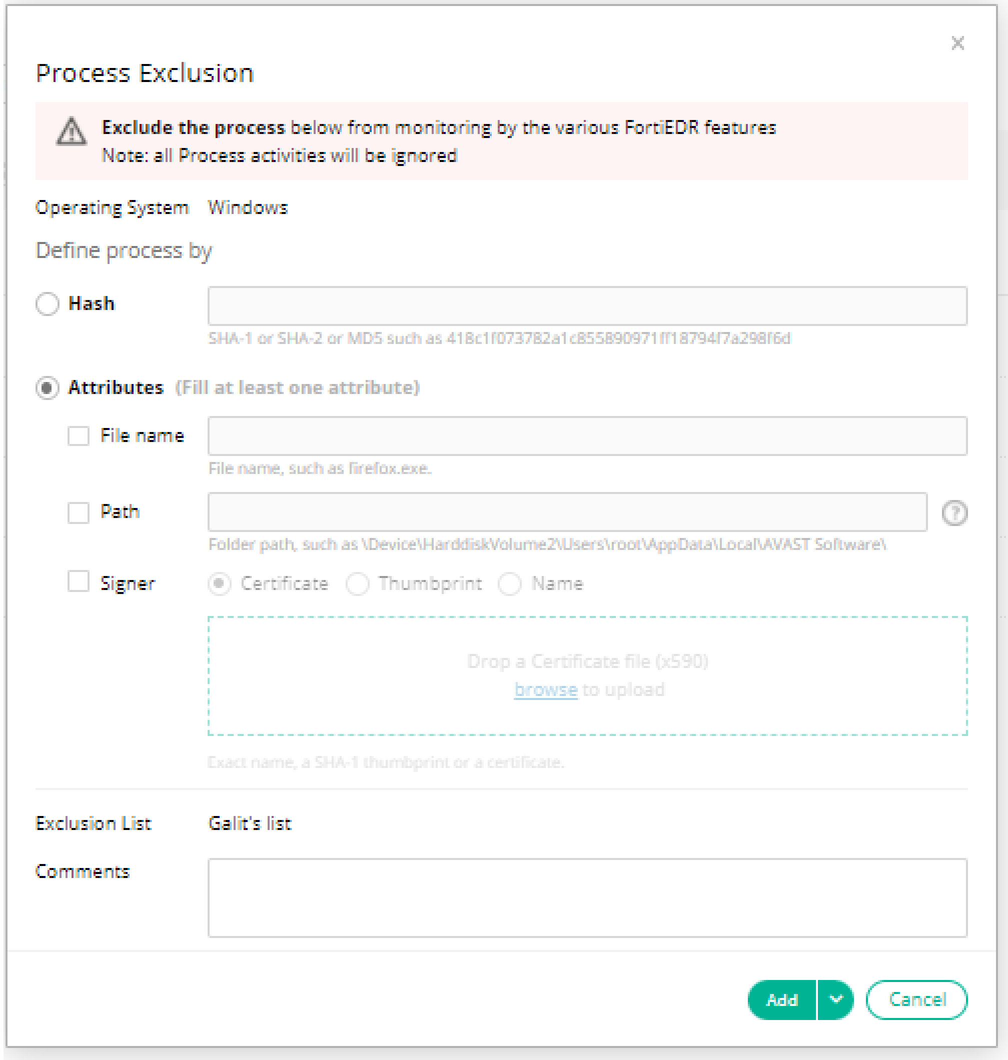
The following describes how to define a Process Exclusion and then how to define an Execution Prevention Exclusion.

Adding a Process Exclusion

1. In the left pane, click the Exclusion List to which to add the exclusion.
2. In the right pane, click the **+ Add Exclusion** button. The following displays providing a choice of the two types of exclusions that you can define.



3. Select **Process**. The following displays:



Process Exclusion

Exclude the process below from monitoring by the various FortiEDR features
Note: all Process activities will be ignored

Operating System Windows

Define process by

○ **Hash**

SHA-1 or SHA-2 or MD5 such as 418c1f073782a1c855890971ff18794f7a298f6d

● **Attributes** (Fill at least one attribute)

□ File name

File name, such as firefox.exe.

□ Path

Folder path, such as \Device\HarddiskVolume2\Users\root\AppData\Local\AVAST Software\

□ Signer ● Certificate ○ Thumbprint ○ Name

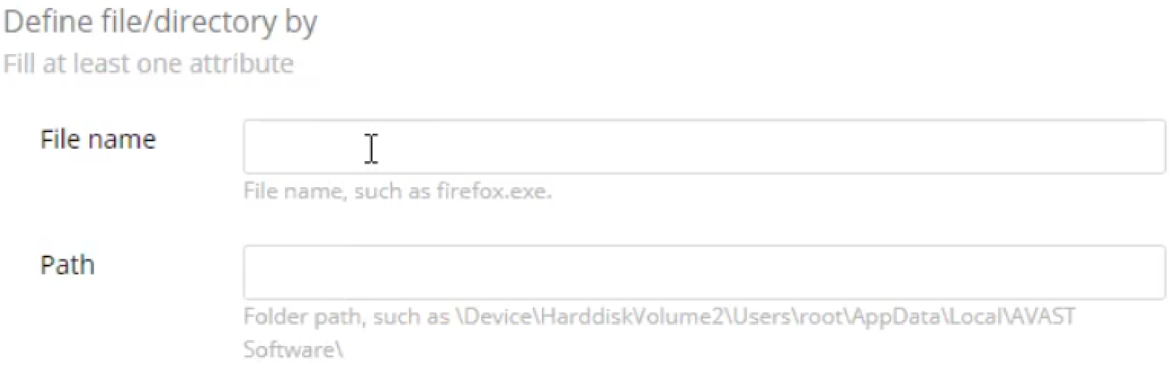
Drop a Certificate file (x590)
browse to upload

Exact name, a SHA-1 thumbprint or a certificate.

Exclusion List Galit's list

Comments

4. The **Operating system** dropdown menu, specifies **Windows**, which is currently the only operating system supported for exclusions.
5. Define the processes to be excluded using one of the following options: **Hash** or any combination of **File Name / Path / Signer**, as follows:
   - **Hash**: Mark the Hash radio button and specify the Hash that uniquely identifies this process.
   - **File Name / Path / Signer**: Mark the **Attributes** radio button and check at least one of the File Name / Path / Signer fields checkboxes and fill the relevant values, as follows:
     - Specify the file and/or directory to be excluded by filling in the **File name** field, the **Path** field or both. If you fill in both fields, then that file is only excluded in that path. If you only fill in the **File name** field, then that file is excluded wherever it appears.



Define file/directory by

Fill at least one attribute

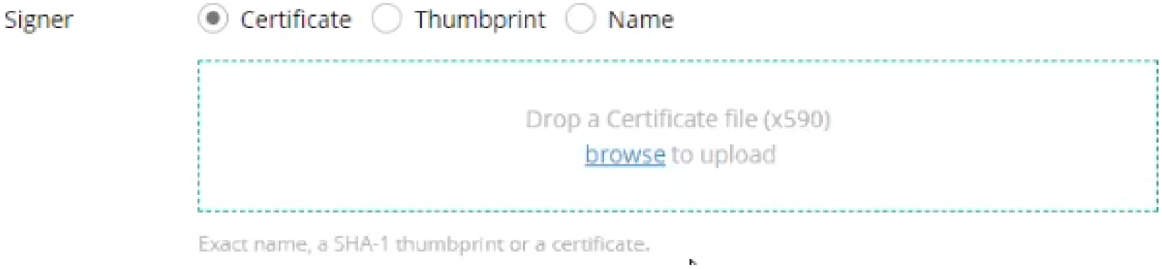
File name

File name, such as firefox.exe.

Path

Folder path, such as \Device\HarddiskVolume2\Users\root\AppData\Local\AVAST Software\

If you select **Signer**, then either upload the Signer’s Certificate, provide its thumbprint or provide the Signer’s name.

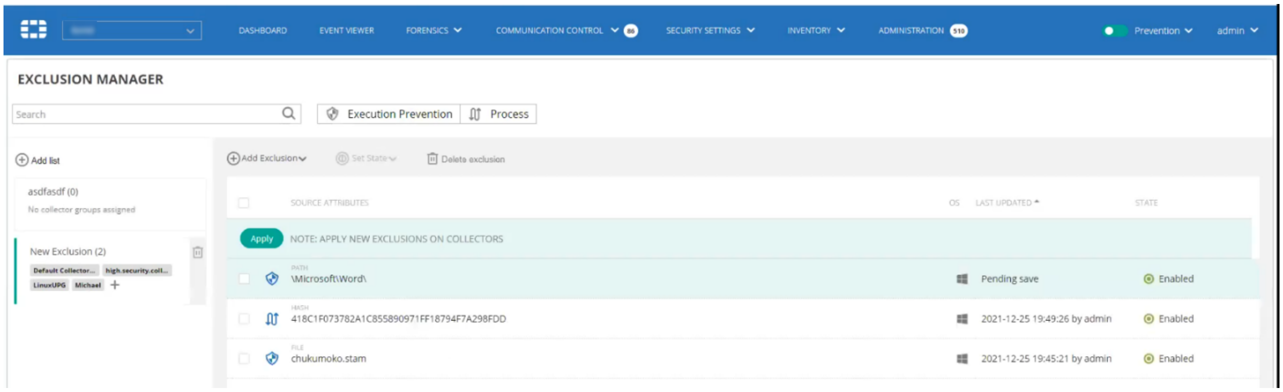


Signer ● Certificate ○ Thumbprint ○ Name

Drop a Certificate file (x590)
browse to upload

Exact name, a SHA-1 thumbprint or a certificate.

6. The **Exclusion List** field specifies the Exclusion List that was selected, when the **Add Exclusion** option was selected. This field is not editable.
7. Click the **Add** button. This new exclusion is then listed in the **Exclusion Manager** page, as shown below:



asdfasdf (0)
No collector groups assigned

New Exclusion (2)
Default Collector... high.security.coll... LinuxUPG Michael

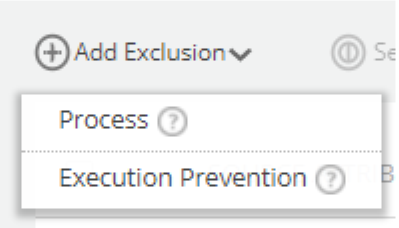
NOTE: APPLY NEW EXCLUSIONS ON COLLECTORS

SOURCE ATTRIBUTES	OS	LAST UPDATED	STATE
PATH \Microsoft\Word\		Pending save	Enabled
HASH 418C1F073782A1C855890971FF18794F7A298FDD		2021-12-25 19:49:26 by admin	Enabled
FILE chukumoko.stam		2021-12-25 19:45:21 by admin	Enabled

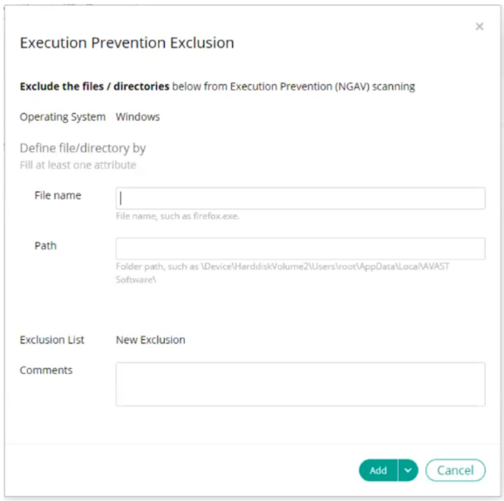
8. The newly defined exclusions appear with a green background and the words **Pending save** appear in their **LAST UPDATED** column. To define that these exclusions take effect, you must click the Apply button and then click the Save button in the window that pops up. Their **LAST UPDATED** column then shows the timestamp when they were saved.

Adding an Execution Prevention Exclusion

1. In the left pane, click the Exclusion List to which to add the exclusion.
2. In the right pane, click the **+ Add Exclusion** button. The following displays providing a choice of the two types of exclusions that you can define.



3. Select **Execution Prevention**. The following displays:



Execution Prevention Exclusion

Exclude the files / directories below from Execution Prevention (NGAV) scanning

Operating System Windows

Define file/directory by
Fill at least one attribute

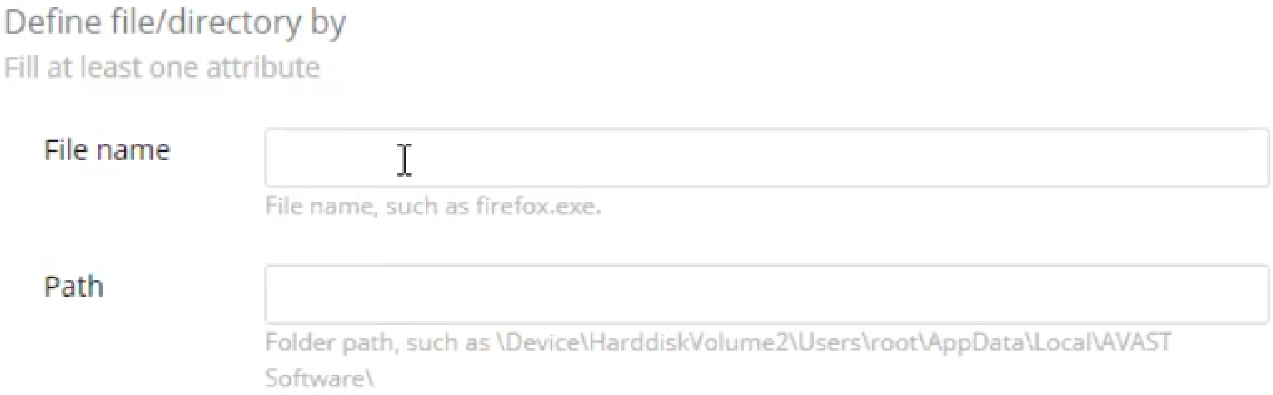
File name
File name, such as firefox.exe.

Path
Folder path, such as \Device\HarddiskVolume2\Users\root\AppData\Local\AVAST Software\

Exclusion List New Exclusion

Comments

4. The **Operating system** dropdown menu, specifies **Windows**, which is currently the only operating system supported for exclusion prevention. Specify the file and/or directory to be excluded by filling in the **File name** field, the **Path** field or both. If you fill in both fields, then that file is only excluded in that path. If you only fill in the **File name** field, then that file is excluded wherever it appears.



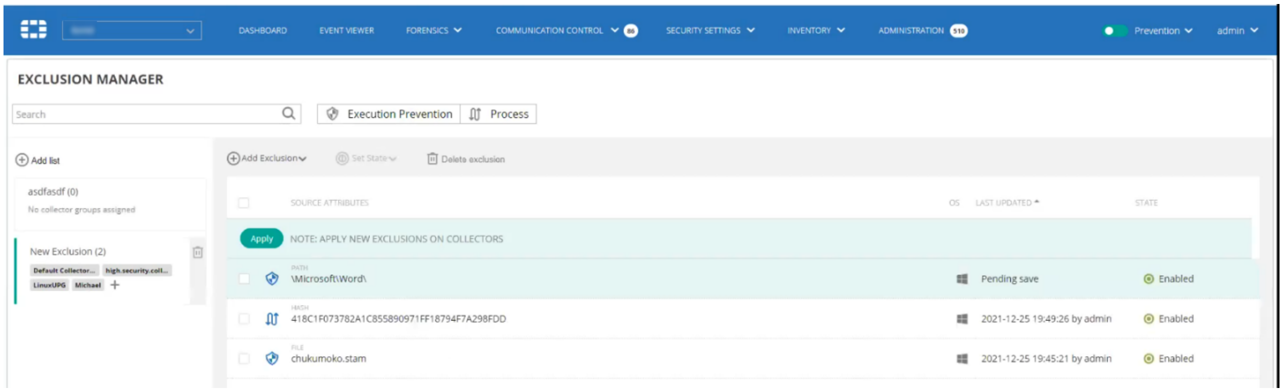
Define file/directory by
Fill at least one attribute

File name
File name, such as firefox.exe.

Path
Folder path, such as \Device\HarddiskVolume2\Users\root\AppData\Local\AVAST Software\

5. The **Exclusion List** field specifies the Exclusion List that was selected, when the **Add Exclusion** option was selected. This field is not editable.

6. Click the Add button. This new exclusion is then listed in the Exclusion Manager page, as shown below:



EXCLUSION MANAGER

asdfasdf (0)
No collector groups assigned

New Exclusion (2)
Default Collector... high.security.coll... LinuxUPG Michael

NOTE: APPLY NEW EXCLUSIONS ON COLLECTORS

SOURCE ATTRIBUTES	OS	LAST UPDATED	STATE
PATH \Microsoft\Word\		Pending save	Enabled
HASH 418C1F073782A1C855890971FF18794F7A298FDD		2021-12-25 19:49:26 by admin	Enabled
FILE chukumoko.stam		2021-12-25 19:45:21 by admin	Enabled

7. The newly defined exclusion appears with a green background and the words **Pending save** appear in its **LAST UPDATED** column. To define that these exclusions take effect, you must click the **Apply** button and then click the **Save** button in the window that pops up. Their **LAST UPDATED** column then shows the timestamp when they were saved.

Setting the State of an Exclusion

The **Set State** button enables you to enable or disable the selected exclusion(s). By default, an exclusion is enabled.

For changing the state of multiple Exclusions, check the checkboxes of all relevant exclusions and then select the state from the **Set State** dropdown under the toolbar.

Deleting an Exclusion

The **Delete** Exclusion button enables you to delete the selected exclusion(s).

To delete multiple Exclusions, check the checkboxes of all relevant exclusions and then select the **Delete** option in the toolbar.

Application Control Manager

The Application Control policy enables FortiEDR to block pre-defined applications from running, so that it does not launch. It enables limiting the usage of non-desired applications on specific collector groups.

Note – This differs from Application Communication Control (described on page 126), which enables you to control which applications can communicate outside of the organization, but does not stop them from launching.

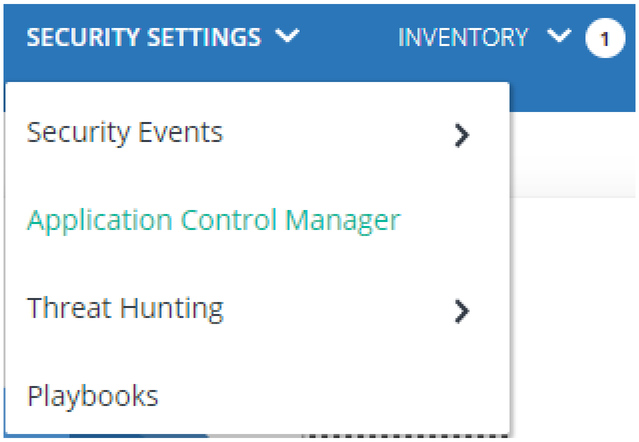
This section describes how to define the applications to be blocked by adding them in the Application Control Manager. In addition, applications can be added to the list of applications to be blocked by adding them from the Forensics window (as described in Stack View on page 209) and the Threat Hunting window (as described in Threat Hunting on page 80). These applications are then listed in the Application Control Manager.

In general, in order to block applications so that they are not launched

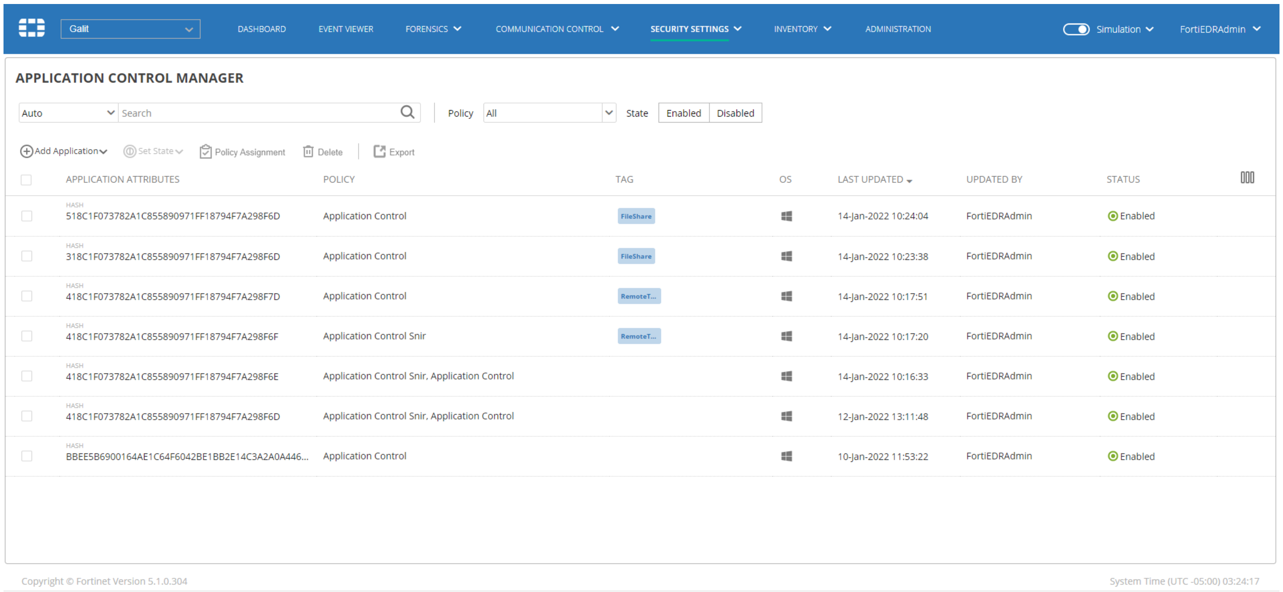
- The applications must be added to the Application Control Policy
- Collector groups must be assigned to this policy
- The blocklist rule must be enabled on the Application Control Policy.

To add applications to the blocklist:

1. Select **SECURITY SETTINGS > Application Control**.



The following window displays, showing the list of all the applications that have been defined to be blocked by the Application Control policies. A row appears for each application to be blocked.



APPLICATION CONTROL MANAGER

Auto | Search | Policy: All | State: Enabled / Disabled

□	APPLICATION ATTRIBUTES	POLICY	TAG	OS	LAST UPDATED	UPDATED BY	STATUS
□	HASH 518C1F073782A1C855890971FF18794F7A298F6D	Application Control	FileShare	⊞	14-Jan-2022 10:24:04	FortiEDRAdmin	Enabled
□	HASH 318C1F073782A1C855890971FF18794F7A298F6D	Application Control	FileShare	⊞	14-Jan-2022 10:23:38	FortiEDRAdmin	Enabled
□	HASH 418C1F073782A1C855890971FF18794F7A298F7D	Application Control	RemoteT...	⊞	14-Jan-2022 10:17:51	FortiEDRAdmin	Enabled
□	HASH 418C1F073782A1C855890971FF18794F7A298F6F	Application Control Snir	RemoteT...	⊞	14-Jan-2022 10:17:20	FortiEDRAdmin	Enabled
□	HASH 418C1F073782A1C855890971FF18794F7A298F6E	Application Control Snir, Application Control		⊞	14-Jan-2022 10:16:33	FortiEDRAdmin	Enabled
□	HASH 418C1F073782A1C855890971FF18794F7A298F6D	Application Control Snir, Application Control		⊞	12-Jan-2022 13:11:48	FortiEDRAdmin	Enabled
□	HASH BBEE5B6900164AE1C64F6042BE1BB2E14C3A2A0A446...	Application Control		⊞	10-Jan-2022 11:53:22	FortiEDRAdmin	Enabled

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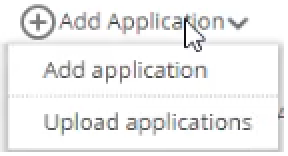
System Time (UTC -05:00) 03:24:17

2. You can then perform any of the following actions:
   a. Adding Application(s) to Be Blocked on page 75
   b. Exporting the List of Applications to Be Blocked on page 78
   c. Enabling/Disabling Application Blocking on page 78
   d. Changing the Policy under Which the Application Is Blocked on page 79
   e. Searching and Filtering Applications on page 80
   f. Editing an Application by selecting the Edit button on the right side of that Application’s row.
   g. Deleting an Application by selecting the Delete Application option at the top of the window or selecting the Delete button on the right side of that Application’s row.

Adding Application(s) to Be Blocked

To add an application(s) to be blocked:

1. Click the **+ Add Application** option. The following displays:



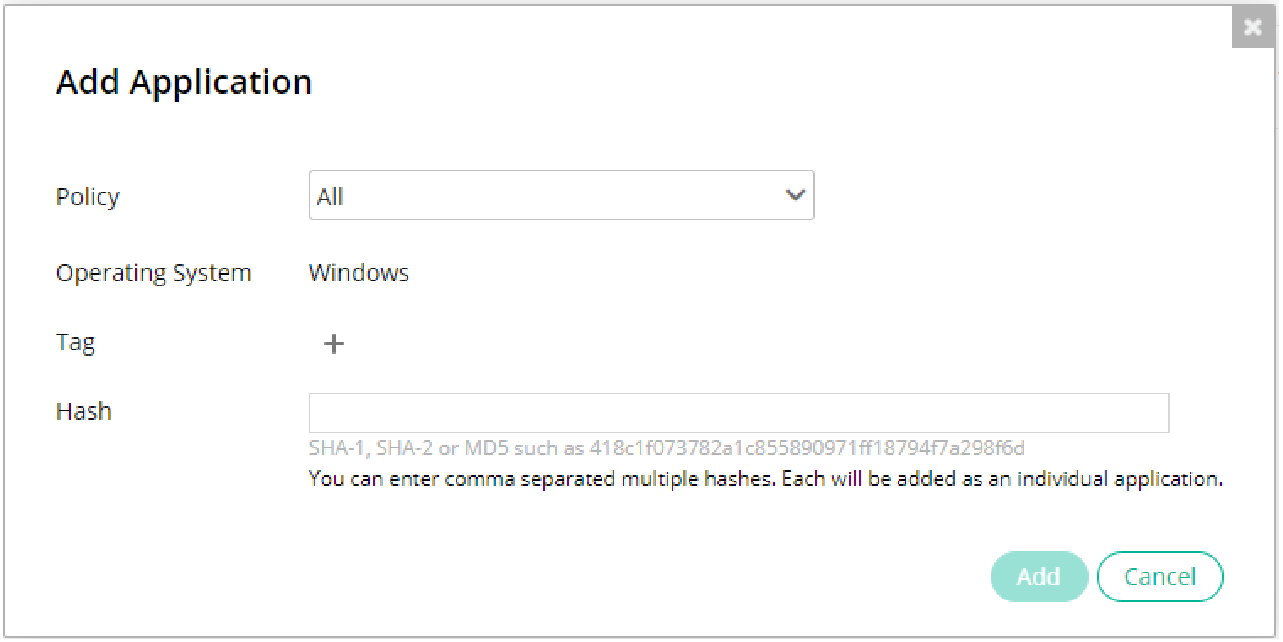
This dropdown menu provides two options for adding applications to be blocked:

- Manually Adding an Application(s) to Be Blocked on page 75
- Uploading Application(s) to Be Blocked on page 77

Manually Adding an Application(s) to Be Blocked

To manually add an application to be blocked:

1. Select the **Add application** option from the drop-down menu. The following displays:



Add Application

Policy: All

Operating System: Windows

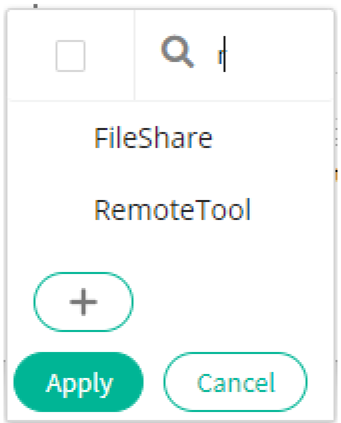
Tag: +

Hash:

SHA-1, SHA-2 or MD5 such as 418c1f073782a1c855890971ff18794f7a298f6d

You can enter comma separated multiple hashes. Each will be added as an individual application.

2. From the **Policy** dropdown menu, select one or more of the **Application Control** policies in which to block this application or select the **All** option to specify that this application is to be blocked by all Application Control type policies. FortiEDR is provided out-of-the-box with a single Application Control type policy and you can clone it in order to create additional Application Control type policies as needed, as described in page 45.
3. You can optionally use the **Tag** field in order to classify this application. Tags can be helpful for classifying and filtering long lists of applications. In the **Tag** field, click + to specify the tag to be added to the application. You can assign a previously defined tag or define a new tag.

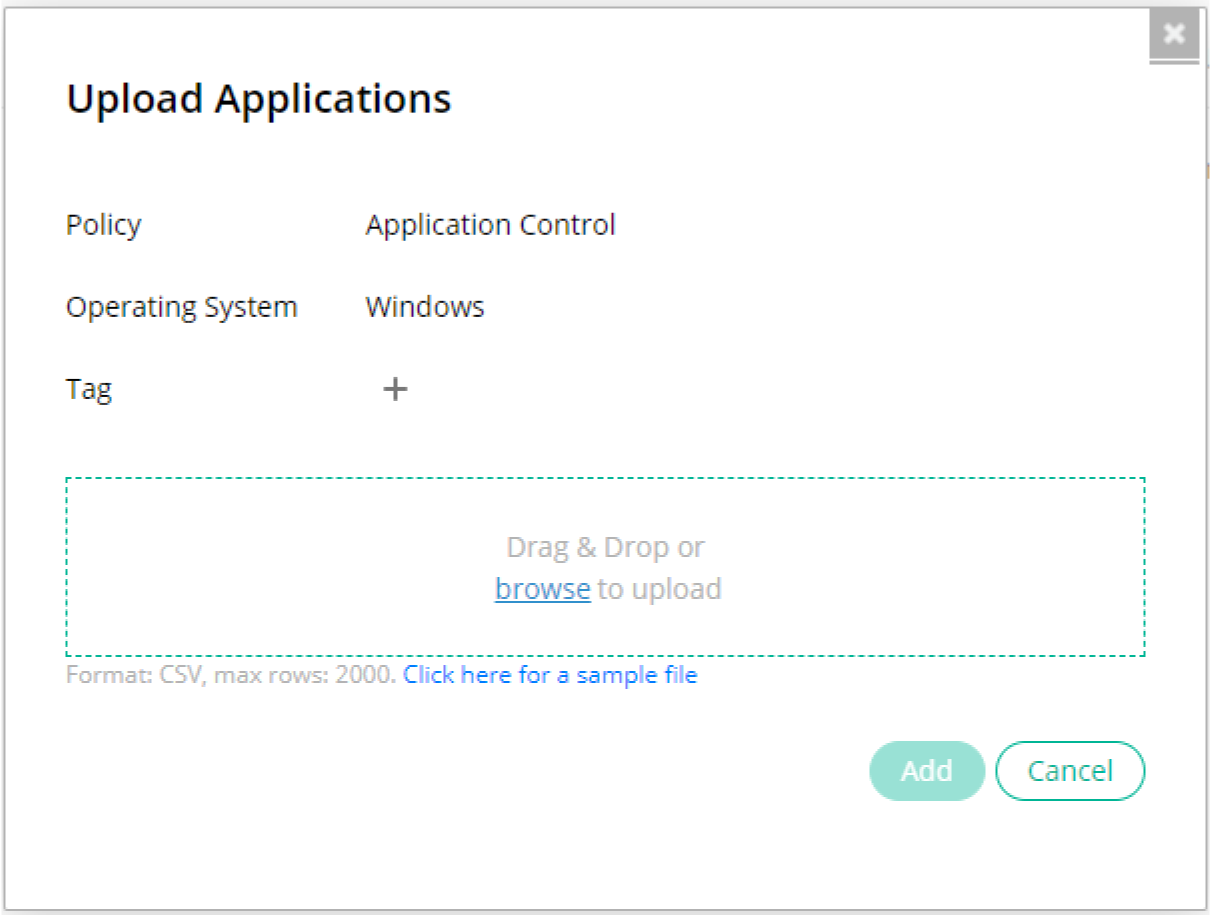


4. In the Hash field, enter the hash of one or more applications. Each hash is the unique identifier of an individual application. If you enter multiple hashes, then they must be comma separated. Supported hash formats are specified under the field.
5. Click the Add button. The Application Control Manager then lists a row for each hash value (application) entered in the Hash field.
   When a Collector Group is assigned to the application control policy (specify above), then all the applications with these hashes are blocked and cannot be launched.

Uploading Application(s) to Be Blocked

To upload a list of applications to be blocked from a file:

1. Select the Upload applications option. The following displays:



Upload Applications

Policy: Application Control

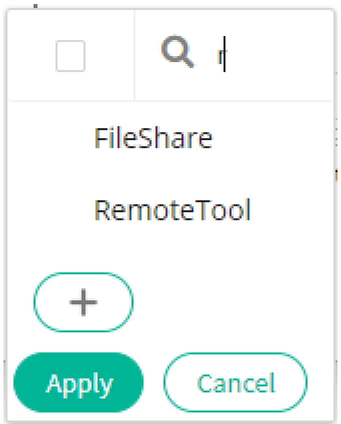
Operating System: Windows

Tag: +

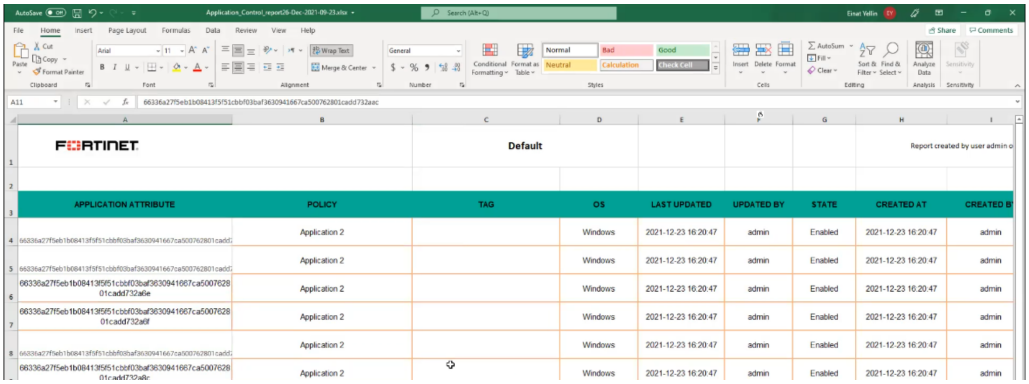
Drag & Drop or browse to upload

Format: CSV, max rows: 2000. Click here for a sample file

2. From the **Policy** dropdown menu, select one or more of the **Application Control** policies in which to block the applications specified in the file to be uploaded.
3. You can optionally use the **Tag** field in order to classify this application. Tags can be helpful for classifying and filtering long lists of applications. In the **Tag** field, click to specify the tag to be added to the application. You can assign a previously defined tag or define a new tag.



4. In the bottommost field of this window, select the CSV file that contains the list of applications to be blocked. This file should be a CSV file with hashes on the leftmost column. A sample file can be downloaded from this window. Alternatively, you can use the same file as can be exported, as described in Exporting the List of Applications to Be Blocked on page 78.



Application_Control_report26-Dec-2021-09-23.xlsx

A11 — 66336a27f5eb1b08413f5f51cbbf03baf3630941667ca500762801cadd732aac

FORTINET — Default — Report created by user admin o

APPLICATION ATTRIBUTE	POLICY	TAG	OS	LAST UPDATED	UPDATED BY	STATE	CREATED AT	CREATED B
66336a27f5eb1b08413f5f51cbbf03baf3630941667ca500762801cadd	Application 2		Windows	2021-12-23 16:20:47	admin	Enabled	2021-12-23 16:20:47	admin
66336a27f5eb1b08413f5f51cbbf03baf3630941667ca500762801cadd	Application 2		Windows	2021-12-23 16:20:47	admin	Enabled	2021-12-23 16:20:47	admin
66336a27f5eb1b08413f5f51cbbf03baf3630941667ca5007628 01cadd732a6e	Application 2		Windows	2021-12-23 16:20:47	admin	Enabled	2021-12-23 16:20:47	admin
66336a27f5eb1b08413f5f51cbbf03baf3630941667ca5007628 01cadd732a6f	Application 2		Windows	2021-12-23 16:20:47	admin	Enabled	2021-12-23 16:20:47	admin
66336a27f5eb1b08413f5f51cbbf03baf3630941667ca500762801cadd	Application 2		Windows	2021-12-23 16:20:47	admin	Enabled	2021-12-23 16:20:47	admin
66336a27f5eb1b08413f5f51cbbf03baf3630941667ca5007628 01cadd732a8c	Application 2		Windows	2021-12-23 16:20:47	admin	Enabled	2021-12-23 16:20:47	admin

5. Click the **Add** button. The Application Control Manager then lists a row for each application in uploaded file. When a Collector Group is assigned to the Application Control policy (specify above), then all the applications with these hashes will be blocked and will not be launched.

Exporting the List of Applications to Be Blocked

To export the list of FortiEDR applications to be blocked:

Use the Export button to export an Excel file.

Enabling/Disabling Application Blocking

If you wish to disable the blocking of all the applications that are under a specific policy, we recommend simply disabling the blocklist rule of that policy. Alternatively, in order to temporarily block only specific applications, then we recommend enabling/disabling each application separately. If an application need no longer be on the blocklist, then we recommend deleting it using the Delete button in the right-most column or in the toolbar.

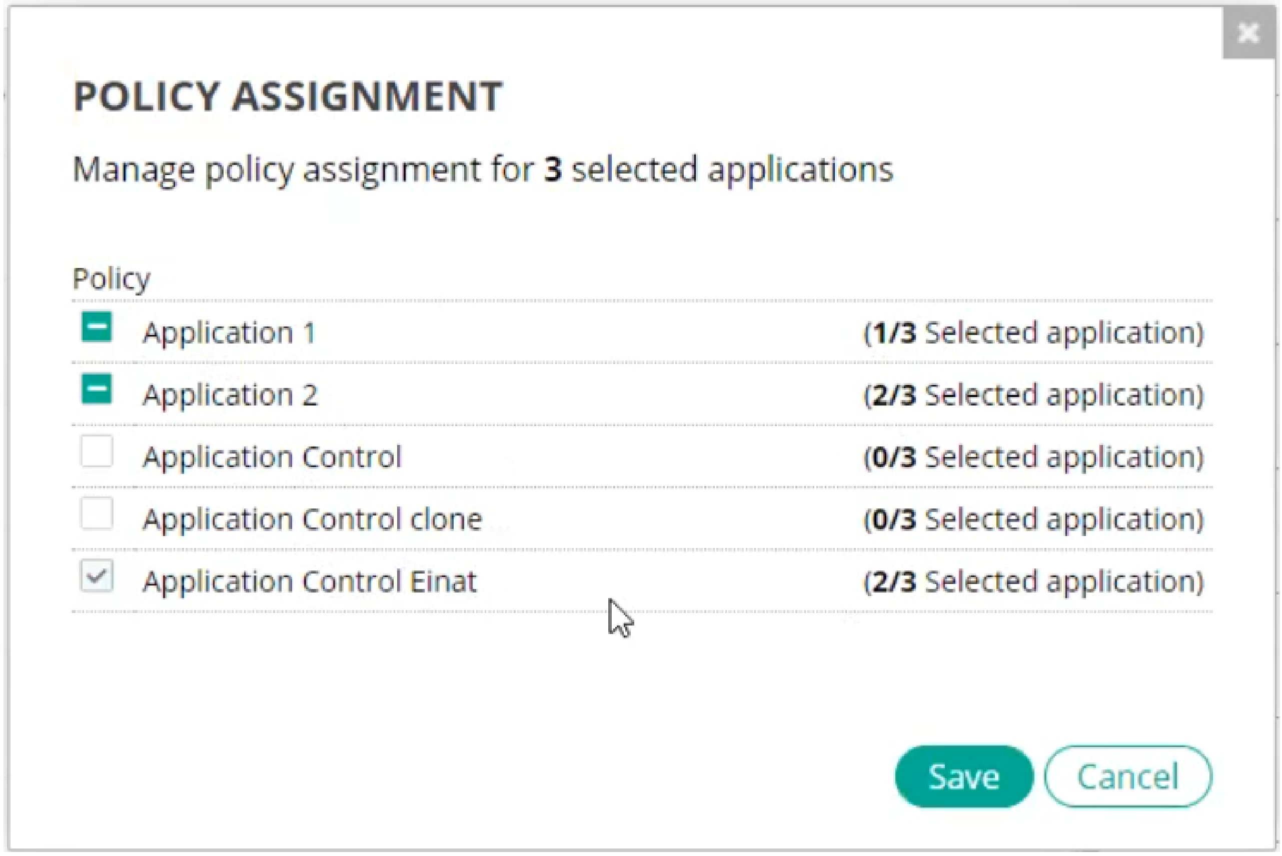
To enable/disable the blocking of specific applications

1. Select **SECURITY SETTINGS > Application Control** to display the Application Control Manager. Each row represents an application to be blocked.
2. In the **STATUS** column on the right, toggle the value between **Enabled** and **Disabled.** Alternatively, you can check the checkboxes of the desired application rows, and then select the **Enabled** or the **Disabled** option from the **Set State** dropdown.

Changing the Policy under Which the Application Is Blocked

To change the policy that blocks an application:

1. Select **SECURITY SETTINGS > Application Control Manager** to display the Application Control Manager. Each row represents an application to be blocked.
2. In the Application Control Manager window, check the checkboxes of the desired application rows, and then select the Policy Assignment option. The following displays.



POLICY ASSIGNMENT

Manage policy assignment for **3** selected applications

Policy

⊟ Application 1 (**1/3** Selected application)

⊟ Application 2 (**2/3** Selected application)

□ Application Control (**0/3** Selected application)

□ Application Control clone (**0/3** Selected application)

☑ Application Control Einat (**2/3** Selected application)

The policies that have a checkbox ☑ to their left have already been assigned all the selected applications. The policies that have a green minus sign ⊟ to their left have already been assigned some of the applications. The right side of the window indicates how many of the applications that you selected in the Application Control Manager window have been assigned to that policy. The policies that have an empty box to their left were not assigned any of the selected applications.

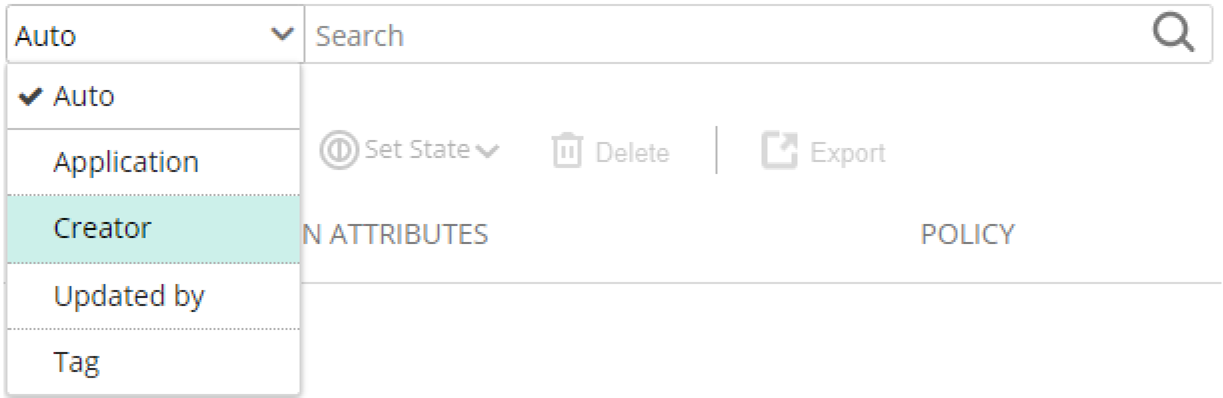
3. In the Policy Assignment window, check (or uncheck) the checkboxes of the policies that should block the currently selected applications.
4. Click the **Save** button.

Note – Alternatively, in order to modify the policy to which a specific application is assigned, select the Edit ✎ button in the Application Control Manager window in the right side of that application's row.

Searching and Filtering Applications

To filter the list of applications defined in the Application Control Manager, use the fields at the top of the window, as follows:

1. Enter text in the **Search** field. By default, the **Auto** option is selected, which specifies that the search is performed on the most relevant fields and then the list is filtered accordingly. Alternatively, from this dropdown menu, you can select the column that is searched, as follows:



2. Select the relevant policy from the Policy field.
3. In the State field, select Enabled or Disabled.

Threat Hunting

FortiEDR's threat-hunting capabilities features a set of software tools and information sources focused on detecting, investigating, containing and mitigating suspicious activities on end-user devices. To set up Threat Hunting in FortiEDR, configure the following:

- Collection Profiles on page 80
- Collection Exclusions on page 82

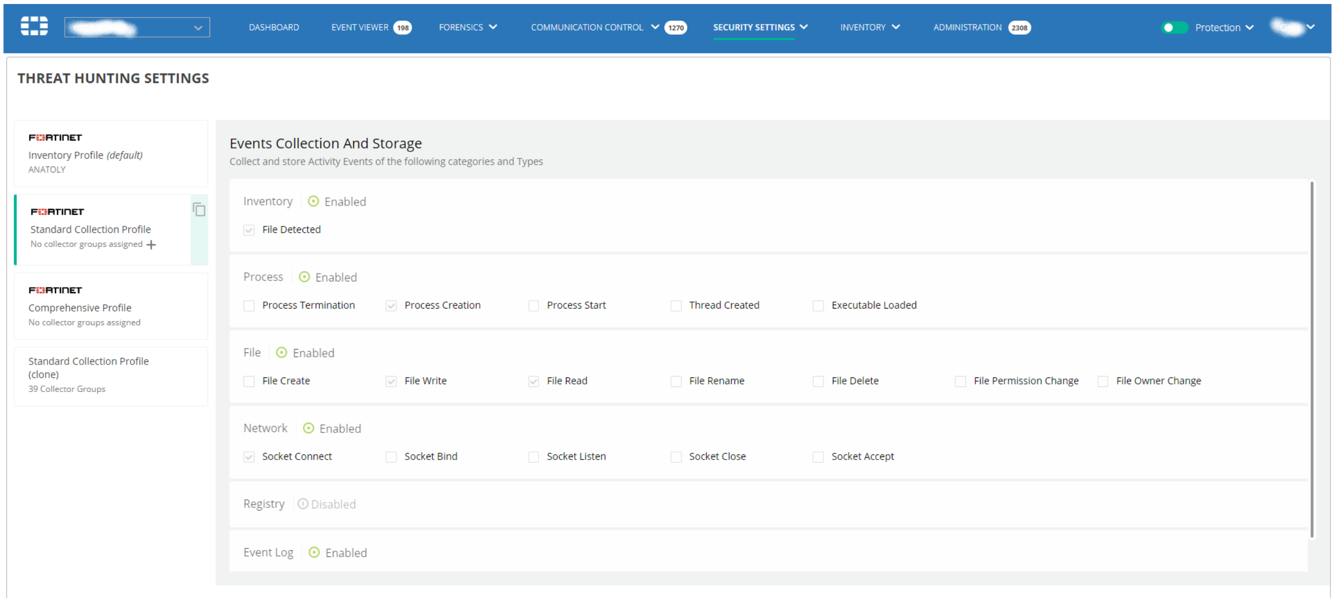
Collection Profiles

Note: Threat Hunting Settings is a license-dependent add-on. You may contact Fortinet Support for more information.

Threat Hunting Collection Profiles control the type of activity data that is collected for the Threat Hunting feature (which is described in Threat Hunting on page 222). Activity data that is collected is stored on the Repository server.

To access Threat Hunting settings, select **SECURITY SETTINGS > Threat Hunting Setting > Collection Profiles**.

The following page displays:



THREAT HUNTING SETTINGS

FORTINET
Inventory Profile *(default)*
ANATOLY

FORTINET
Standard Collection Profile
No collector groups assigned +

FORTINET
Comprehensive Profile
No collector groups assigned

Standard Collection Profile (clone)
39 Collector Groups

Events Collection And Storage
Collect and store Activity Events of the following categories and Types

Inventory ○ Enabled
☑ File Detected

Process ○ Enabled
□ Process Termination ☑ Process Creation □ Process Start □ Thread Created □ Executable Loaded

File ○ Enabled
□ File Create ☑ File Write ☑ File Read □ File Rename □ File Delete □ File Permission Change □ File Owner Change

Network ○ Enabled
☑ Socket Connect □ Socket Bind □ Socket Listen □ Socket Close □ Socket Accept

Registry ○ Disabled

Event Log ○ Enabled

The left side of the **Threat Hunting Settings** page shows a list of Profiles. A Profile defines the activity event categories and actions to be collected. FortiEDR comes with several predefined default Profiles, which cannot be modified.

In addition to the pre-defined Profiles, you can define your own custom Profiles by cloning an existing Profile.

The pane on the right side of the page lists all activity event categories and their associated actions. These categories are the same as those described on Threat Hunting on page 222

Selecting a Profile on the left displays the categories and actions defined for that Profile in the right pane.

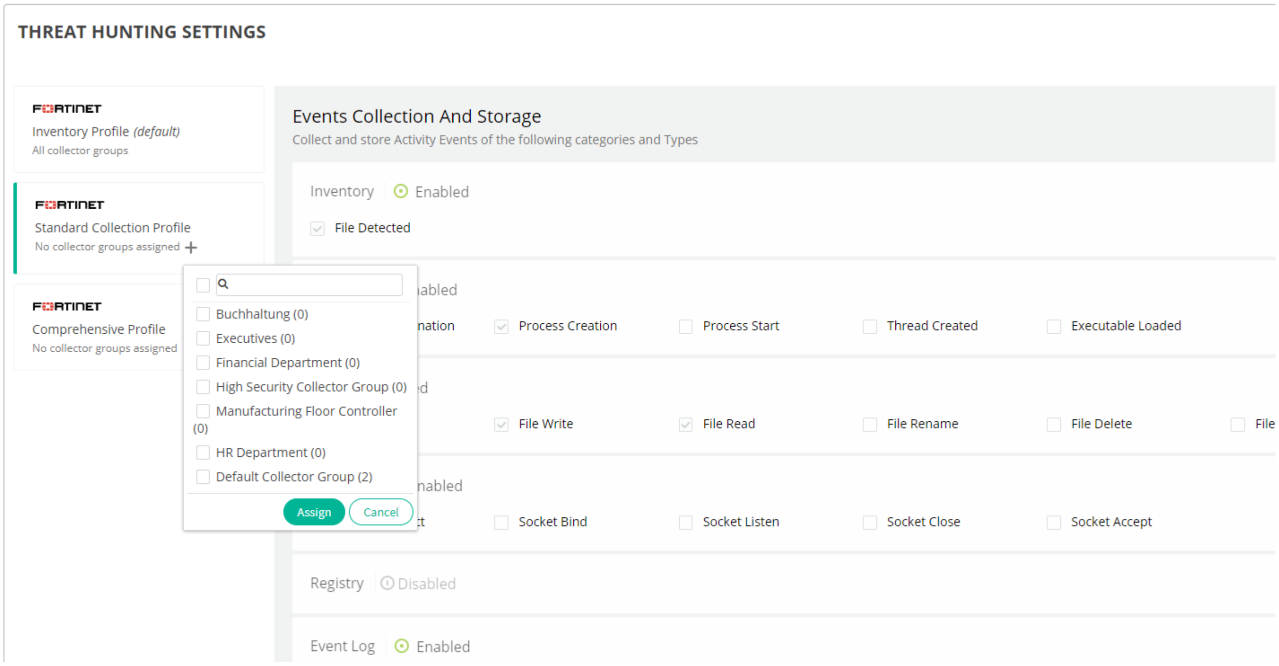
Check the checkboxes of the actions for which FortiEDR will collect activity data.

Assigning a Collector Group to a Profile

Profiles are assigned to Collector Groups. Only a single Profile can be assigned to each Collector Group. New Collector Groups are automatically assigned to the default Inventory Scan Fortinet Profile, which is the first Profile listed in the Profiles pane.

To assign a Collector Group to a Profile:

1. In the Profiles pane, click the **+** button of the Profile to which to assign a Collector Group. The following displays showing the list of all Collector Groups:



THREAT HUNTING SETTINGS

FORTINET
Inventory Profile *(default)*
All collector groups

FORTINET
Standard Collection Profile
No collector groups assigned +

FORTINET
Comprehensive Profile
No collector groups assigned

□ 🔍
□ Buchhaltung (0)
□ Executives (0)
□ Financial Department (0)
□ High Security Collector Group (0)
□ Manufacturing Floor Controller (0)
□ HR Department (0)
□ Default Collector Group (2)

Assign Cancel

Events Collection And Storage
Collect and store Activity Events of the following categories and Types

Inventory ● Enabled
☑ File Detected

abled
nation ☑ Process Creation □ Process Start □ Thread Created □ Executable Loaded

d
☑ File Write ☑ File Read □ File Rename □ File Delete □ File

nabled
t □ Socket Bind □ Socket Listen □ Socket Close □ Socket Accept

Registry ○ Disabled

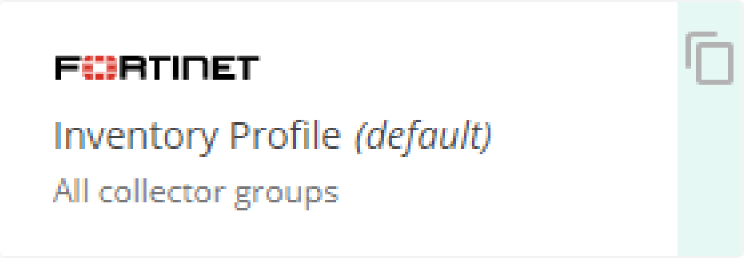
Event Log ● Enabled

2. Select the checkbox(s) of the Collector Group(s) to assign to the Profile.
3. Click **Assign**. A message is displayed indicating that the selected groups are currently assigned to another Profile and they will be reassigned and asking for you approval. Please approve.

Creating/Cloning a Profile

In order to create a new Profile, you must first clone an existing Profile and then customize the clone.

1. Click the **Clone** icon that appears on the right of the Profile to be cloned.



FORTINET
Inventory Profile *(default)*
All collector groups

2. Enter the name of the new Profile.
3. On the right side, enable the activity events to be collected and disable the activity events that should not be collected.
4. Click **Save**.
5. Assign the Collector Group(s) on which to apply the newly created Profile.

Collection Exclusions

Exclusions are needed for reducing the amount of Threat Hunting data that is collected and by doing so prolonging the data retention. The less data that is collected, the longer it will be stored in the databases.

Exclusions enable you to define certain types of activity events to be excluded from being collected by Threat Hunting data (even though should be collected according to the Threat Hunting Collection Profile assigned to a Collector group, which was described in Collection Profiles on page 80). For example, if you know that a certain process is legitimate, but it creates many activity events that are not relevant to your Threat Hunting investigation, you can use the Collection Exclusions to define that these activities are not collected.

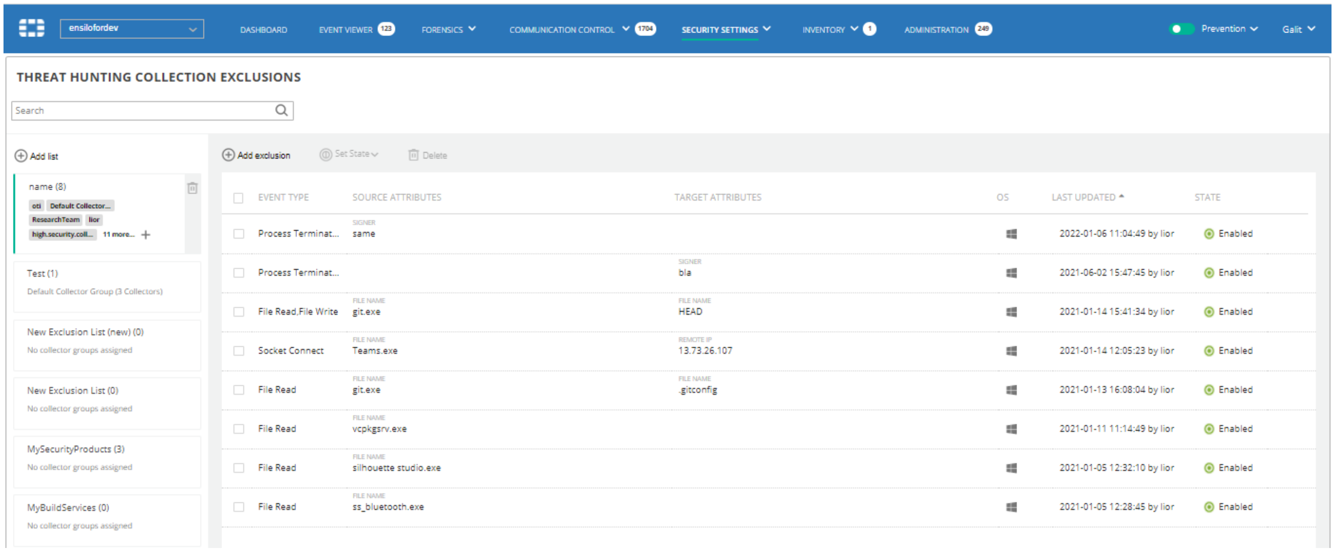
The Collection Exclusions enables you to define and manage exclusion lists and the exclusions that they contain.

Note – Exclusions are different than security event exceptions, as follows:

- Exclusions define which activity events should be collected. They are exclusions to the Threat Hunting Profile.
- Security event exceptions are defined after a particular security event has occurred. They are an exception to the assigned Security Policy

To access the Collection Exclusions, select **SECURITY SETTINGS > Threat Hunting > Collection Exclusions.**

The Collection Exclusions page contains the following areas:



THREAT HUNTING COLLECTION EXCLUSIONS

name (8)
oti | Default Collector... | ResearchTeam | lior | high.security.coll... | 11 more...

Test (1)
Default Collector Group (3 Collectors)

New Exclusion List (new) (0)
No collector groups assigned

New Exclusion List (0)
No collector groups assigned

MySecurityProducts (3)
No collector groups assigned

MyBuildServices (0)
No collector groups assigned

□	EVENT TYPE	SOURCE ATTRIBUTES	TARGET ATTRIBUTES	OS	LAST UPDATED ▲	STATE
□	Process Terminat...	SIGNER same		⊞	2022-01-06 11:04:49 by lior	● Enabled
□	Process Terminat...		SIGNER bla	⊞	2021-06-02 15:47:45 by lior	● Enabled
□	File Read,File Write	FILE NAME git.exe	FILE NAME HEAD	⊞	2021-01-14 15:41:34 by lior	● Enabled
□	Socket Connect	FILE NAME Teams.exe	REMOTE IP 13.73.26.107	⊞	2021-01-14 12:05:23 by lior	● Enabled
□	File Read	FILE NAME git.exe	FILE NAME .gitconfig	⊞	2021-01-13 16:08:04 by lior	● Enabled
□	File Read	FILE NAME vcpkgsrv.exe		⊞	2021-01-11 11:14:49 by lior	● Enabled
□	File Read	FILE NAME silhouette studio.exe		⊞	2021-01-05 12:32:10 by lior	● Enabled
□	File Read	FILE NAME ss_bluetooth.exe		⊞	2021-01-05 12:28:45 by lior	● Enabled

Filters

To filter the Collection Exclusion list names and its content, simply enter text in the **Search** field. Afterwards, only the Exclusion lists that match the provided text are displayed showing only the relevant exclusions.

Defining Collection Exclusion Lists

A Collection Exclusion List contains a list of exclusions. You can assign Collector Groups to an Exclusion List in order to specify that the exclusions in the Exclusion List apply to the Collectors in the Collector Groups assigned to it. Exclusion Lists enable you to logically organize, categorize and group exclusions based on the type of activity data they are to exclude.

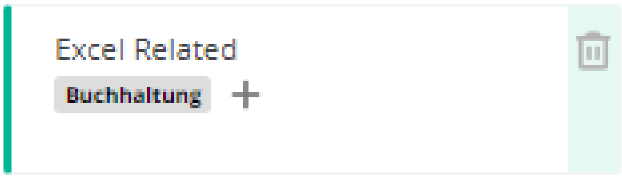
For example, let’s say that you want to collect network activity data for your system, but a specific application generates quite a bit of uninteresting logistical network activity that you do not want to collect. In this case, you can define an Exclusion List named after that application that contains one or more exclusions that relate specifically to the network activity generated by that application. Exclusion Lists can be organized anyway you see fit. For example, you can create an Exclusion List for security products, a different one for PDF documents, a different one for HR-related software and so on.

Adding an Exclusion List

To define an Exclusion List:

1. Click the **+ Add List** option and provide a name to create a new Exclusion List.
2. Add (define) the exclusions of this Exclusion List (as described on the following page). Each exclusion that you add belongs to a specific Exclusion List.
3. Assign Collector Groups to this Exclusion List (as described below) in order to determine to which Collector Groups these exclusions apply. A Collector Group can be assigned to multiple Exclusion Lists.

Assigning a Collector Group to an Exclusion List



Excel Related

Buchhaltung +

You can perform the following operations on an Exclusion List:

Operation	Description
Assign a Collector Group:	Click the **+** button in the Exclusion List to which to assign a Collector Group. Then, select the Collectors groups to which to assign this list and approve it. Note that a Collector Group can be assigned to multiple Exclusion Lists.
Unassign a Collector Group	Click the **+** button and uncheck the Collector Group to be removed from an Exclusion List.
Delete Exclusions List	Click on the Delete 🗑 button. Note that all Exclusions in this list will be removed and will no longer be applied to the assigned Collector groups.

Defining Collection Exclusions

All exclusions must belong to an Exclusion List. Select an Exclusion List on the left to display the exclusions that are defined in it.

Exclusions can be defined for a

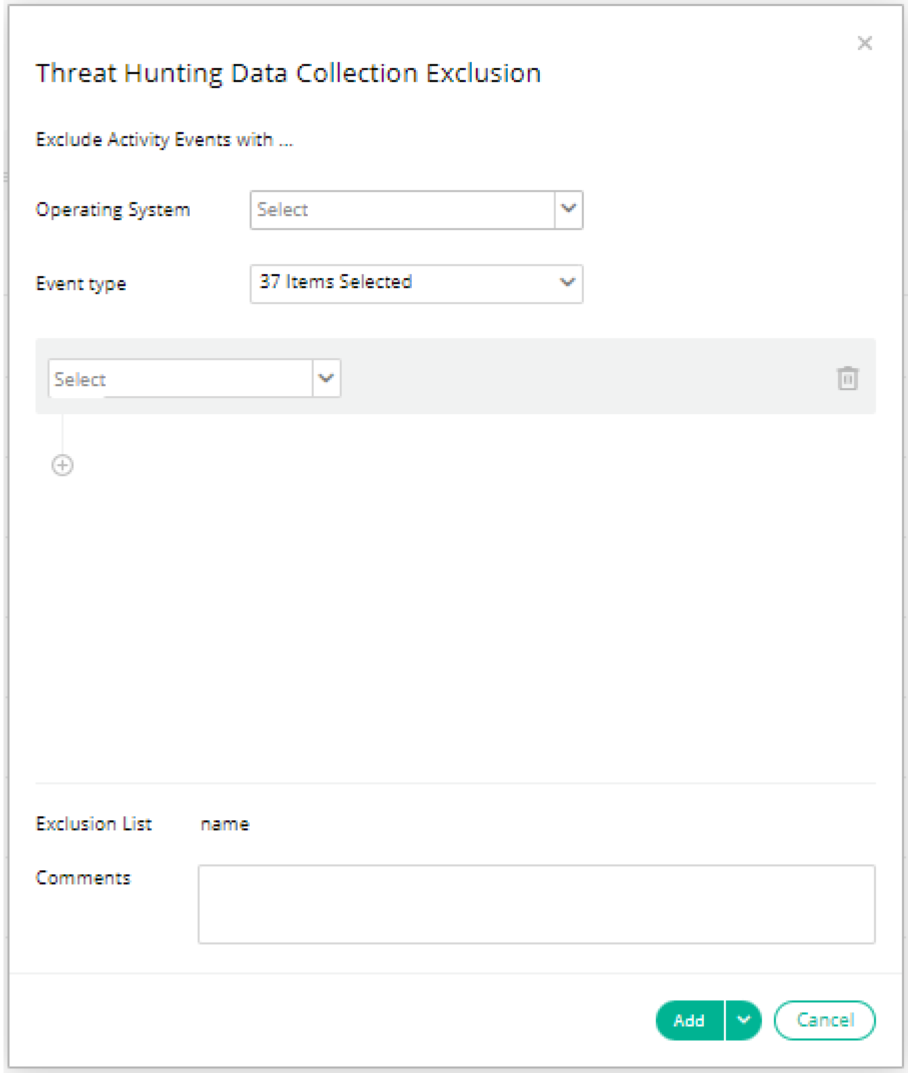
- **Source (process)** – Which is identified by a source attribute, such as a Signer.
- **Type/Action** – Activity event types, as described in Threat Hunting on page 222.
- **Target** – Which is identified by a target attribute, such as IP & Port

Exclusion can include all of these three or any combination. However, defining an exclusion that only contains a Type is not valid, because this kind of exclusion should be defined in a Threat Hunting Profile.

For example, you can define to exclude activity events of a specific Type that have a specific source and a specific target or to exclude (for example) activity events that have a specific source and any activity or target.

Adding an Exclusion

1. In the left pane, click the Exclusion List to which to add the exclusion.
2. In the right pane, click the **+ Add Exclusion** button. The following displays:



Threat Hunting Data Collection Exclusion

Exclude Activity Events with ...

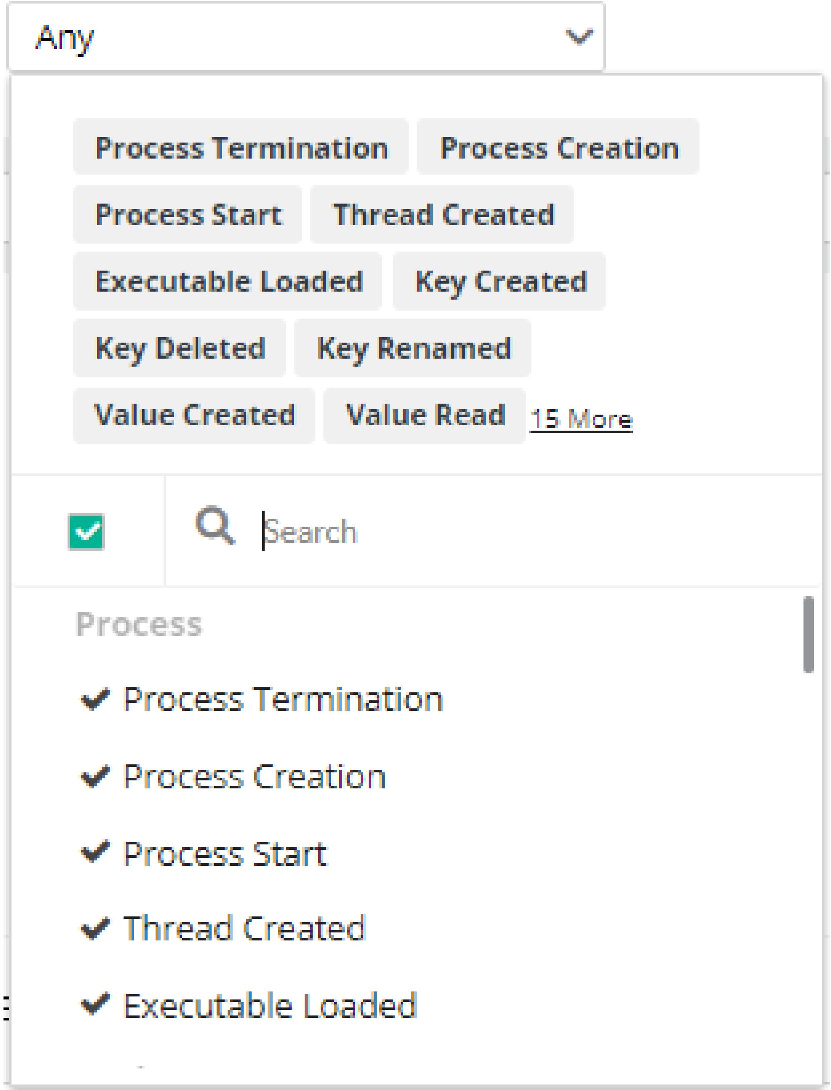
Operating System: Select

Event type: 37 Items Selected

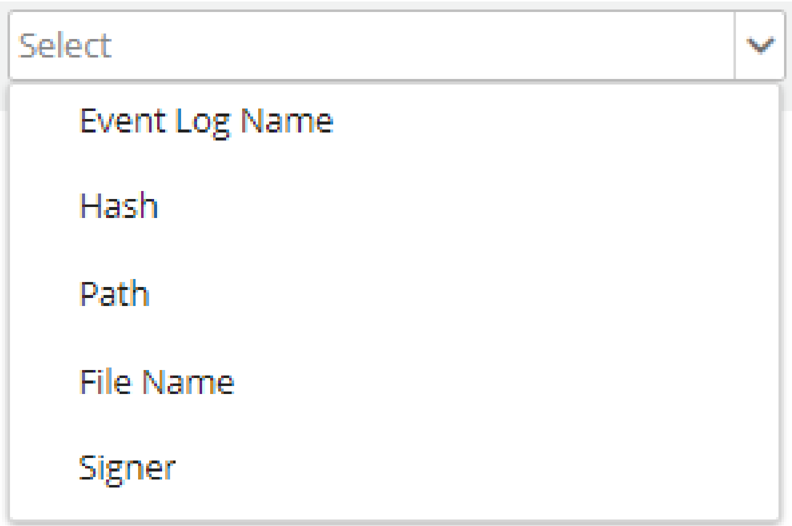
Exclusion List: name

Comments

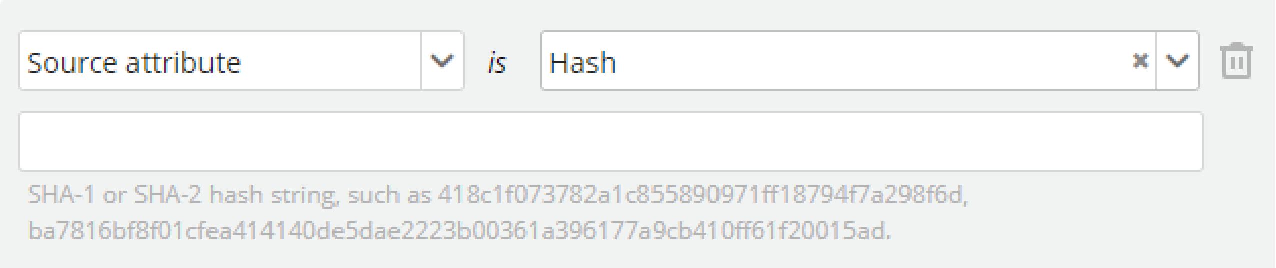
3. From the Operating system dropdown menu, select either Linux or Windows.
4. To define that an exclusion includes a specific Activity Event Type, select the type of action(s) to exclude from the displayed dropdown list. Alternatively, select the Any option (the default option), which means that you are not specifying a specific action type.
   All action types to be collected are listed according to Category. You can select one or more actions from a single Category. Actions cannot be selected from different categories. For example, you can select the Process Termination and the Process Start options from the Process Category in the same exclusion. However, you cannot select the Key Created option together and the Thread Created options in the same exclusion – to do this you must create two different exclusions.



5. To define that an exclusion includes a **Source** attribute condition, from the **Select** box, select **Source attribute**, which can be identified by file name, path, hash and signer for Source Process or Event Log Name for event log related activity events, as shown below:

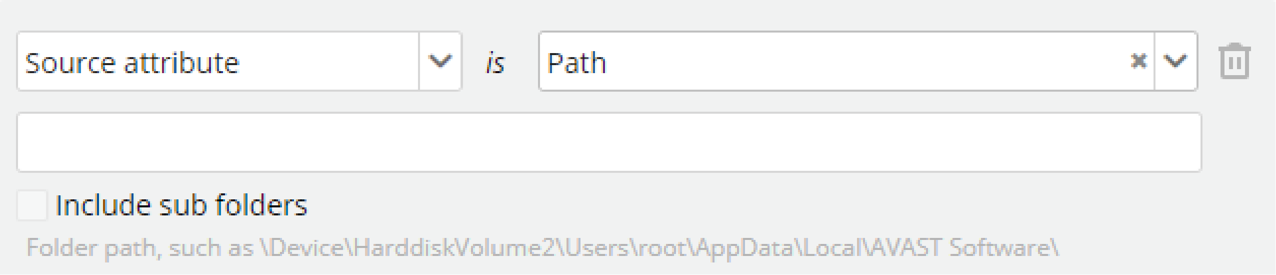


If you select **Hash**, then specify the hash, as shown below:


Source attribute *is* Hash

SHA-1 or SHA-2 hash string, such as 418c1f073782a1c855890971ff18794f7a298f6d, ba7816bf8f01cfea414140de5dae2223b00361a396177a9cb410ff61f20015ad.

If you select **Path**, then specify the **Path**, as shown below. A path can include wild cards. If you wish to include sub-folders as well, check the **Select sub folders** checkbox.

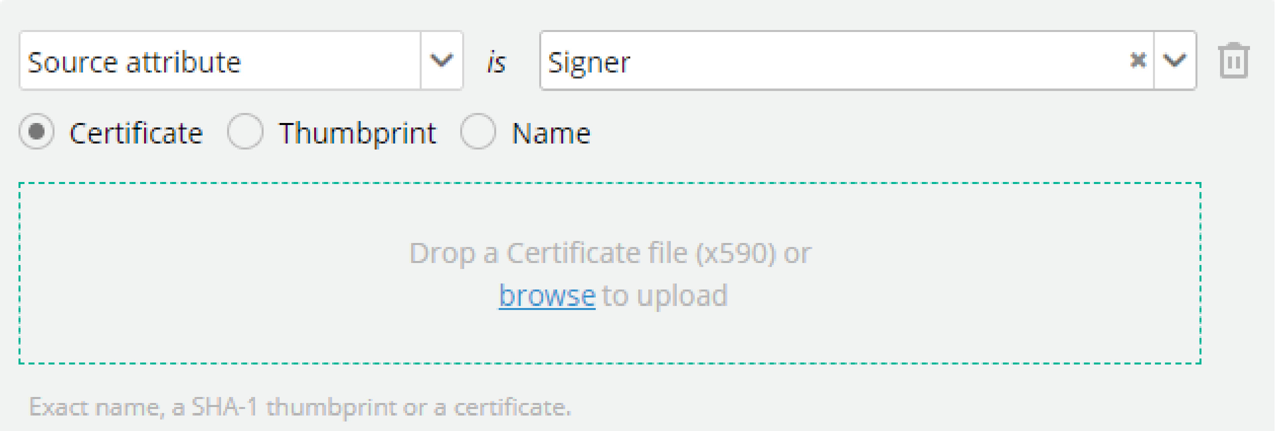

Source attribute *is* Path

□ Include sub folders

Folder path, such as \Device\HarddiskVolume2\Users\root\AppData\Local\AVAST Software\

If you select File Name, then enter the file name.

If you select Signer, then either upload the Signer’s Certificate, provide its thumbprint or provide the Signer’s name.



Source attribute is Signer

● Certificate ○ Thumbprint ○ Name

Drop a Certificate file (x590) or
browse to upload

Exact name, a SHA-1 thumbprint or a certificate.

6. To define that an exclusion includes a **Target** attribute condition, click the **+** button. From the **Select** box, select the **Target Attribute** and then define the target criteria, as described below:

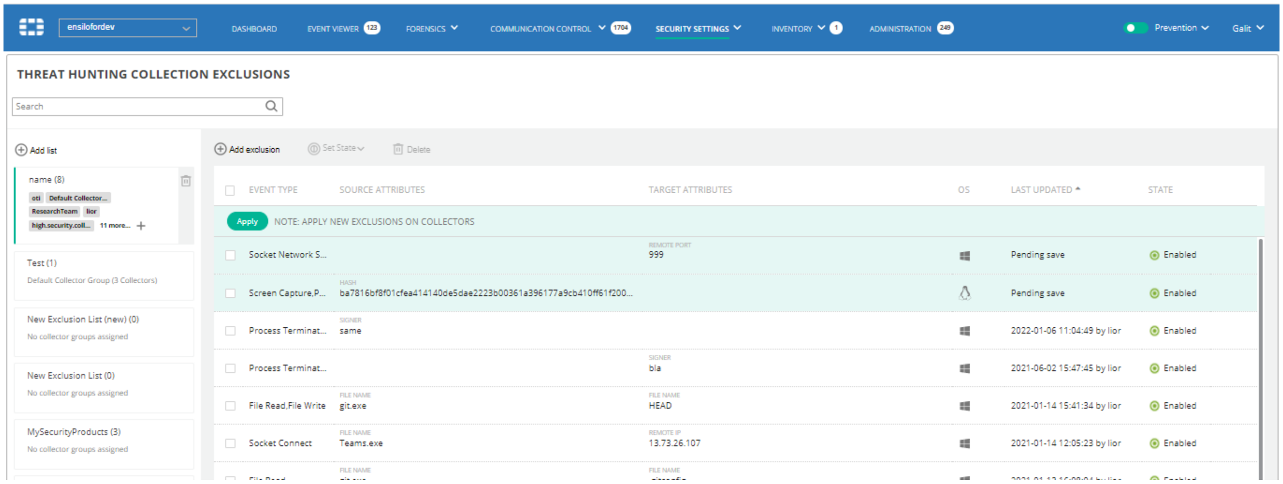
   Targets can be identified by various criteria, depending on the selected Activity Event Category.

   - A process Category event is identified by hash, path, file name or Signer.
   - A network Category event is identified by network-related properties, such as a remote IP and port.
   - A registry Category event is identified by a registry key path, value name, value type or value size.
   - An Event log Category event is identified by the Event Log ID.

     When defining an exclusion that contains multiple conditions, an AND relationship exists between the conditions.

     Note: If an OR relationship is needed between the conditions that you define, simply create another exclusion.

7. Click the **Add** button. This new exclusion is then listed in the Collection Exclusions page, as shown below:



THREAT HUNTING COLLECTION EXCLUSIONS

name (8)
oti Default Collector... ResearchTeam lior high.security.coll... 11 more...

Test (1)
Default Collector Group (3 Collectors)

New Exclusion List (new) (0)
No collector groups assigned

New Exclusion List (0)
No collector groups assigned

MySecurityProducts (3)
No collector groups assigned

NOTE: APPLY NEW EXCLUSIONS ON COLLECTORS

EVENT TYPE	SOURCE ATTRIBUTES	TARGET ATTRIBUTES	OS	LAST UPDATED	STATE
Socket Network S...		REMOTE PORT 999		Pending save	Enabled
Screen Capture,P...	HASH ba7816bf8f01cfea414140de5dae2223b00361a396177a9cb410ff61f200...			Pending save	Enabled
Process Terminat...	SIGNER same			2022-01-06 11:04:49 by lior	Enabled
Process Terminat...		SIGNER bla		2021-06-02 15:47:45 by lior	Enabled
File Read,File Write	FILE NAME git.exe	FILE NAME HEAD		2021-01-14 15:41:34 by lior	Enabled
Socket Connect	FILE NAME Teams.exe	REMOTE IP 13.73.26.107		2021-01-14 12:05:23 by lior	Enabled

8. The newly defined exclusions appear with a green background and the words **Pending save** appear in their **LAST UPDATED** column. To define that these exclusions take effect, you must click the Apply button and then click the Save button in the window that pops up. Their **LAST UPDATED** column then shows the timestamp when they were saved.

Setting the State of an Exclusion

The Set State button enables you to enable or disable the selected exclusion(s). By default, an exclusion is enabled.

Deleting an Exclusion

The Delete button enables you to delete the selected exclusion(s).

To delete multiple exclusions, check the requested exclusions checkboxes and choose Delete in the toolbar.

Playbook Policies

The FortiEDR Playbooks feature determines which automatic actions are triggered, based on the classification of a security event. Playbook policies enable administrators to preconfigure the action(s) to be automatically executed according to a security event's classification. Typically, Playbook policies only need be configured once, and can be modified thereafter, if needed. FortiEDR classifies each security event into one of five Categories.

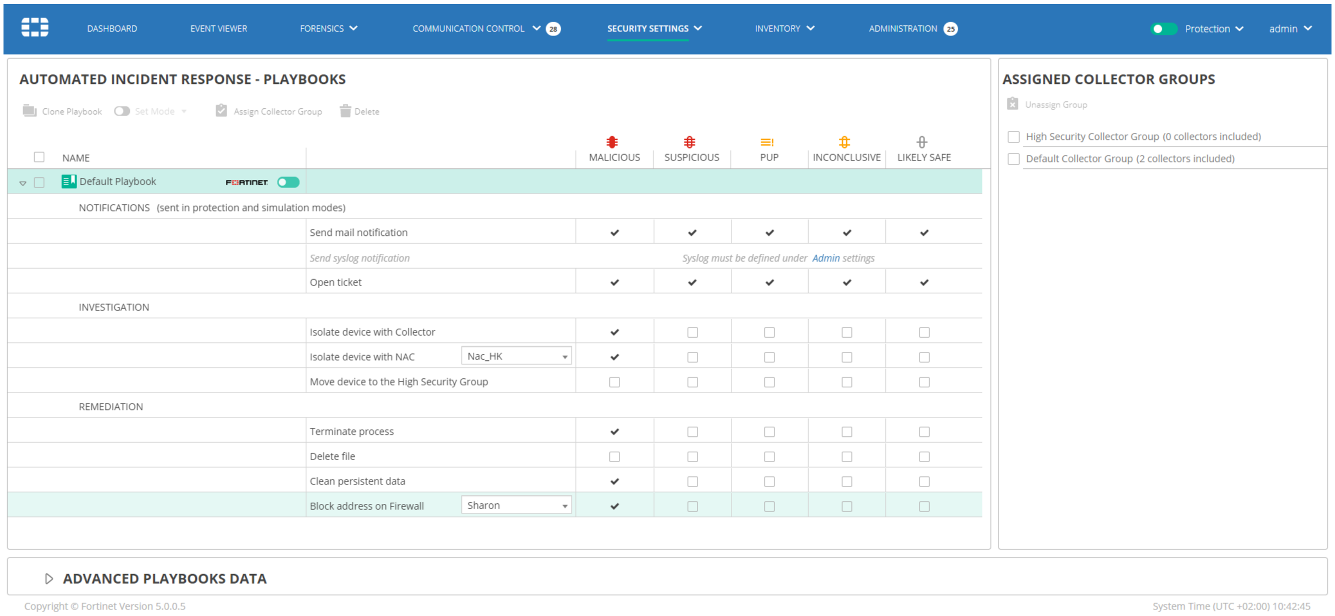
FortiEDR provides the following Playbook policy out of the box:

- **Default Playbook**: This Playbook policy specifies the default actions for the Collector Groups assigned to the policy. By default, all Collector Groups are assigned to this policy.

Automated Incident Response - Playbooks Page

The **AUTOMATED INCIDENT RESPONSE – PLAYBOOKS** page displays a row for each Playbook policy. To access this page,select **SECURITY SETTINGS > Playbooks**.

Each Playbook policy row can be expanded to show the actions that it contains, as shown below:



AUTOMATED INCIDENT RESPONSE - PLAYBOOKS

NAME		MALICIOUS	SUSPICIOUS	PUP	INCONCLUSIVE	LIKELY SAFE
Default Playbook FORTINET						
NOTIFICATIONS (sent in protection and simulation modes)						
	Send mail notification	✓	✓	✓	✓	✓
	Send syslog notification	*Syslog must be defined under Admin settings*				
	Open ticket	✓	✓	✓	✓	✓
INVESTIGATION						
	Isolate device with Collector	✓	□	□	□	□
	Isolate device with NAC Nac_HK	✓	□	□	□	□
	Move device to the High Security Group	□	□	□	□	□
REMEDIATION						
	Terminate process	✓	□	□	□	□
	Delete file	□	□	□	□	□
	Clean persistent data	✓	□	□	□	□
	Block address on Firewall Sharon	✓	□	□	□	□

ASSIGNED COLLECTOR GROUPS

□ High Security Collector Group (0 collectors included)

□ Default Collector Group (2 collectors included)

ADVANCED PLAYBOOKS DATA

Copyright © Fortinet Version 5.0.0.5

System Time (UTC +02:00) 10:42:45

You can drill down in a Playbook policy row to view the actions for that policy by clicking the icon.

Note: There are more options and actions than those shown above that can be added to a Playbook policy, such as the blocking of a malicious IP address. You may consult Fortinet Support about how to add them.

Note: Automatic Incident Response Playbook features can also be triggered by extended detection events when follow-up actions are configured for the Collector Group of a device on which the event triggered. This enables the system to follow up upon the detection of such an event and execute a sequence of actions, such as to block an address on a firewall or to isolate the device in which part of the event occurred.

Assigned Collector Groups

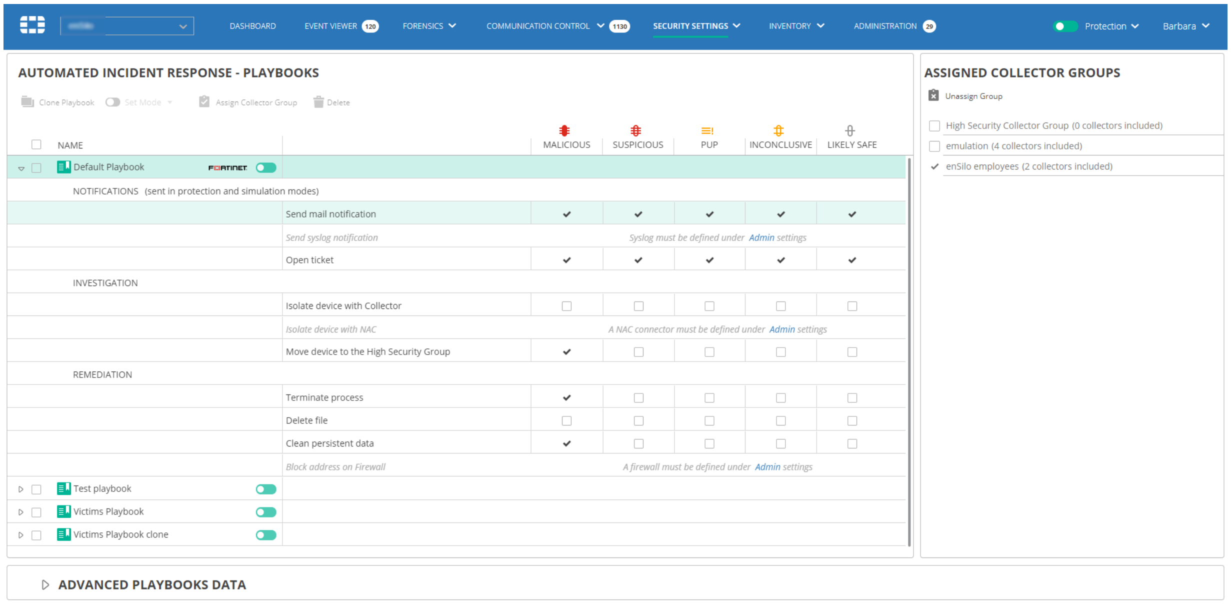
The Assigned Collector Groups pane on the right lists the various Collector Groups in the system. By default, all Collector Groups are assigned to the Default Playbook policy. You can reassign one or more Collector Groups to different Playbook policies, if preferred.

Note: When upgrading your FortiEDR system, all existing Collector Groups are automatically assigned to the Default Playbook policy.

Cloning a Playbook Policy

Cloning a Playbook policy unassigns the policy from one Collector Group and then reassigns it to a different Collector Group. A Collector Group can only be assigned to one Playbook policy.

1. In the AUTOMATED INCIDENT RESPONSE - PLAYBOOKS page, select the Playbook policy row that you want to clone in the Playbook Policies list.
2. Do one of the following:
   a. Select the checkbox(es) of the Collector Group(s) in the Assigned Collector Groups pane that you want to assign to the cloned Playbook policy. Then, click the Unassign Group button in the Assigned Collector Groups pane.



AUTOMATED INCIDENT RESPONSE - PLAYBOOKS

NAME		MALICIOUS	SUSPICIOUS	PUP	INCONCLUSIVE	LIKELY SAFE
Default Playbook FORTINET						
NOTIFICATIONS (sent in protection and simulation modes)						
	Send mail notification	✓	✓	✓	✓	✓
	Send syslog notification	*Syslog must be defined under Admin settings*				
	Open ticket	✓	✓	✓	✓	✓
INVESTIGATION						
	Isolate device with Collector	□	□	□	□	□
	Isolate device with NAC	*A NAC connector must be defined under Admin settings*				
	Move device to the High Security Group	✓	□	□	□	□
REMEDIATION						
	Terminate process	✓	□	□	□	□
	Delete file	□	□	□	□	□
	Clean persistent data	✓	□	□	□	□
	Block address on Firewall	*A firewall must be defined under Admin settings*				
Test playbook						
Victims Playbook						
Victims Playbook clone						

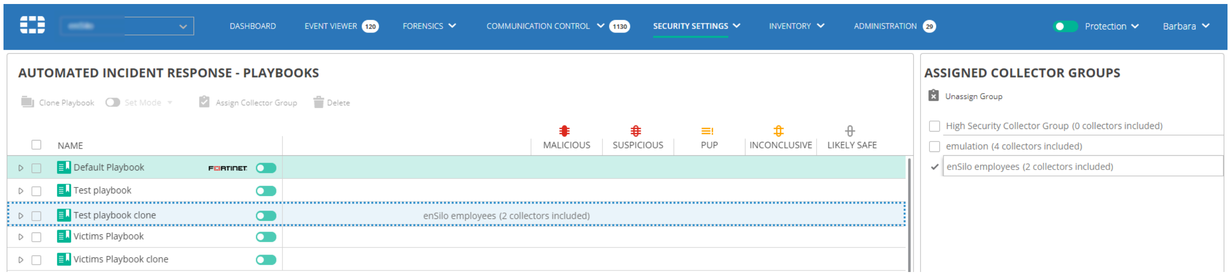
ADVANCED PLAYBOOKS DATA

ASSIGNED COLLECTOR GROUPS

Unassign Group

- □ High Security Collector Group (0 collectors included)
- □ emulation (4 collectors included)
- ✓ enSilo employees (2 collectors included)

   b. Click the Collector Group in the Assigned Collector Groups pane that you want to assign to the cloned Playbook policy. Then, drag the Collector Group onto the cloned Playbook policy in the Playbook Policies list, as shown below:



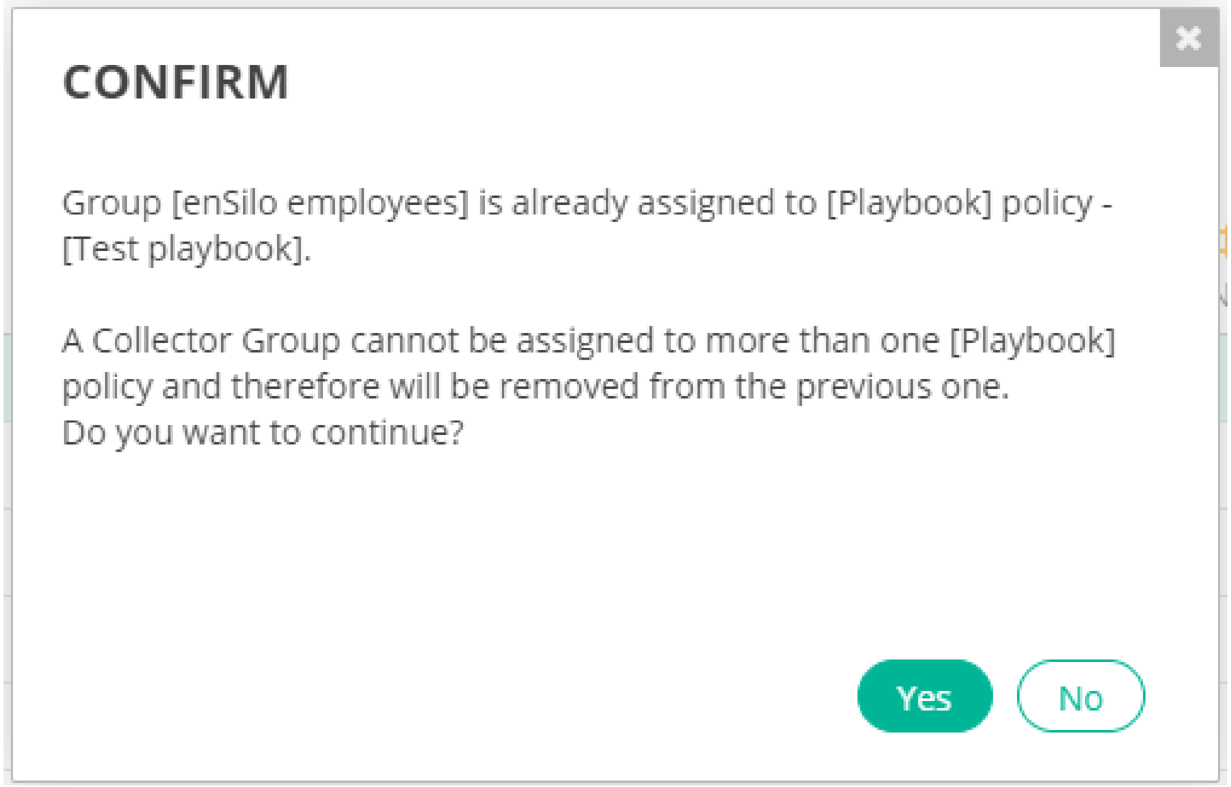
AUTOMATED INCIDENT RESPONSE - PLAYBOOKS

NAME	MALICIOUS	SUSPICIOUS	PUP	INCONCLUSIVE	LIKELY SAFE
Default Playbook FORTINET					
Test playbook					
Test playbook clone	enSilo employees (2 collectors included)				
Victims Playbook					
Victims Playbook clone					

ASSIGNED COLLECTOR GROUPS

- □ High Security Collector Group (0 collectors included)
- □ emulation (4 collectors included)
- ✓ enSilo employees (2 collectors included)

The following message displays.



CONFIRM

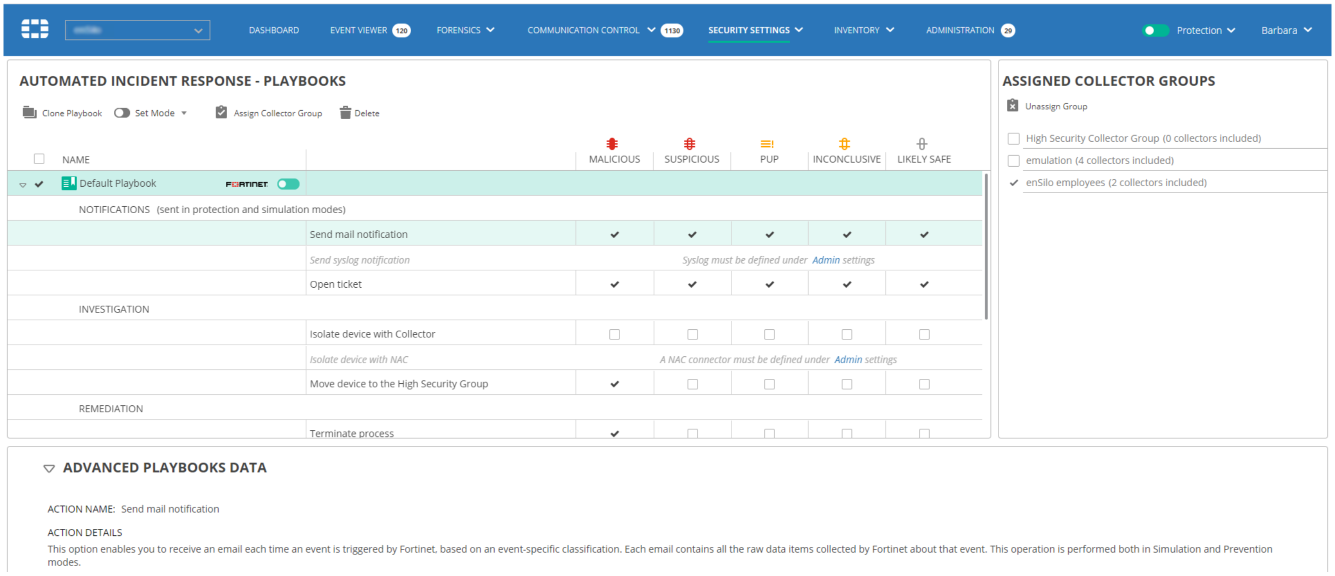
Group [enSilo employees] is already assigned to [Playbook] policy - [Test playbook].

A Collector Group cannot be assigned to more than one [Playbook] policy and therefore will be removed from the previous one.
Do you want to continue?

Click **Yes**.

Advanced Playbooks Data

The Advanced Playbooks Data area at the bottom of the **AUTOMATED INCIDENT RESPONSE – PLAYBOOKS** page displays more details about the action selected in the Playbook Policy list.



AUTOMATED INCIDENT RESPONSE - PLAYBOOKS

NAME		MALICIOUS	SUSPICIOUS	PUP	INCONCLUSIVE	LIKELY SAFE
Default Playbook FORTINET						
NOTIFICATIONS (sent in protection and simulation modes)						
	Send mail notification	✓	✓	✓	✓	✓
	Send syslog notification	*Syslog must be defined under Admin settings*				
	Open ticket	✓	✓	✓	✓	✓
INVESTIGATION						
	Isolate device with Collector	□	□	□	□	□
	Isolate device with NAC	*A NAC connector must be defined under Admin settings*				
	Move device to the High Security Group	✓	□	□	□	□
REMEDIATION						
	Terminate process	✓	□	□	□	□

ASSIGNED COLLECTOR GROUPS

- □ High Security Collector Group (0 collectors included)
- □ emulation (4 collectors included)
- ✓ enSilo employees (2 collectors included)

ADVANCED PLAYBOOKS DATA

ACTION NAME: Send mail notification

ACTION DETAILS

This option enables you to receive an email each time an event is triggered by Fortinet, based on an event-specific classification. Each email contains all the raw data items collected by Fortinet about that event. This operation is performed both in Simulation and Prevention modes.

Playbook Policy Actions

Playbook policy actions are divided into the following types:

- Notifications on page 92
- Investigation on page 93
- Remediation on page 95
- Custom on page 97

Each of these Categories contains different types of actions that can be performed when a security event is triggered.

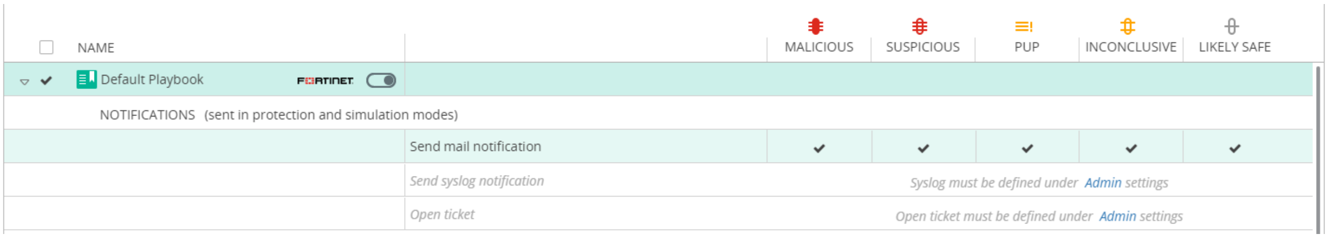
Notifications

Notification actions send a notification when a relevant security event is triggered. These actions are implemented in both FortiEDR modes (Simulation and Prevention).

Notifications can be one of the following types:

- Emails
- Syslog
- Open Ticket

Each row under Notifications corresponds to a single type of notification (mail [email] notification, Syslog notification or Open Ticket notification). In the Notifications area, you configure each notification type to indicate whether or not it is to automatically send the relevant notification, once triggered by a security event. By default, the Default Playbook policy is set to Simulation mode, and only email notifications are automatically enabled, as shown below:

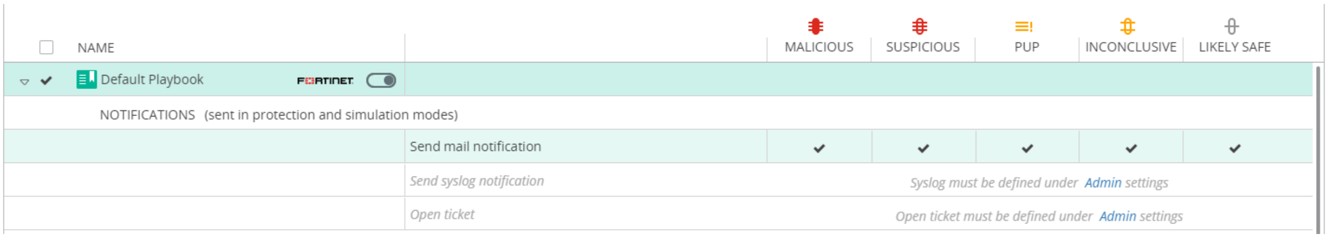


NAME		MALICIOUS	SUSPICIOUS	PUP	INCONCLUSIVE	LIKELY SAFE
Default Playbook FORTINET						
NOTIFICATIONS (sent in protection and simulation modes)						
	Send mail notification	✓	✓	✓	✓	✓
	Send syslog notification	*Syslog must be defined under Admin settings*				
	Open ticket	*Open ticket must be defined under Admin settings*				

Note: Notification actions must be enabled in order to be implemented by a Playbook policy. If notifications are disabled, they are not implemented by the Playbook policy, even if that policy is configured to send notifications. For more details see SMTP on page 288.

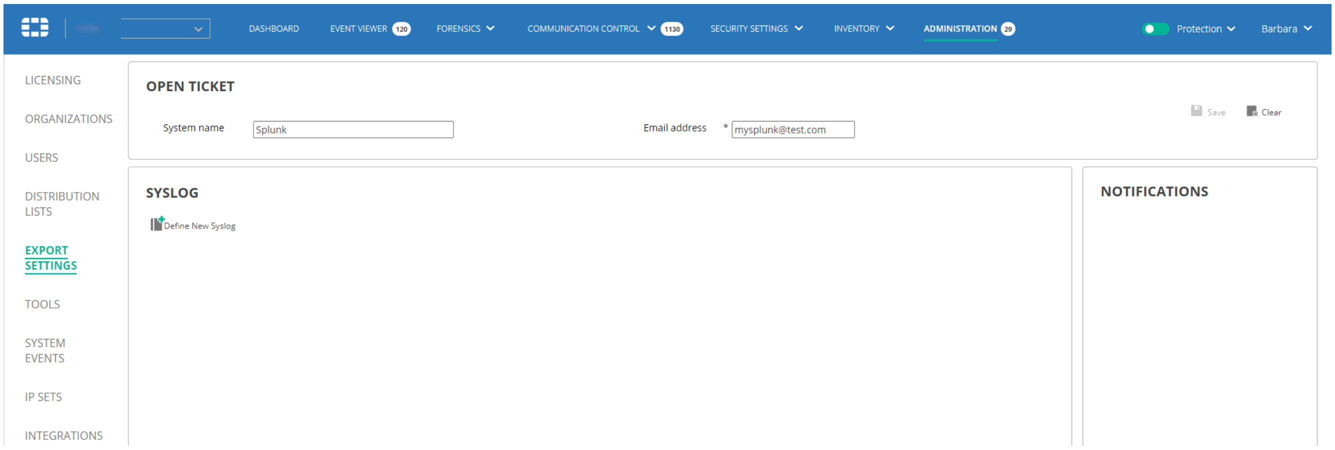
The **Malicious, Suspicious, PUP, Inconclusive** and **Likely Safe** columns correspond to the possible classifications for a security event. When a checkmark ✔ appears in one of these columns, it means that a notification of the specified type is sent when an event is triggered that has that classification. Notifications are sent for all security events except those classified as **Likely Safe**. For example, the figure below shows that an email notification is sent whenever a Malicious, Suspicious, PUP or Inconclusive security event is triggered. **Syslog** and **Open Ticket** notifications work in the same way as Email notifications. For more details about classifications, see Events Pane on page 138.

SMTP, Syslog and Open Ticket must already be configured in order to send their respective notifications. If their settings are not already configured, the relevant row in the Notifications list displays a message indicating that you must first configure it, as shown below:



□ NAME		MALICIOUS	SUSPICIOUS	PUP	INCONCLUSIVE	LIKELY SAFE
▽ ✓ Default Playbook FORTINET						
NOTIFICATIONS (sent in protection and simulation modes)						
	Send mail notification	✓	✓	✓	✓	✓
	Send syslog notification	*Syslog must be defined under Admin settings*				
	Open ticket	*Open ticket must be defined under Admin settings*				

Note: The word Admin in each of these messages is a link that when clicked, jumps to the relevant place in the user interface to configure it. For example, when you click Admin in any of these messages, the following window displays in which you can configure the relevant settings.



OPEN TICKET

System name: Splunk

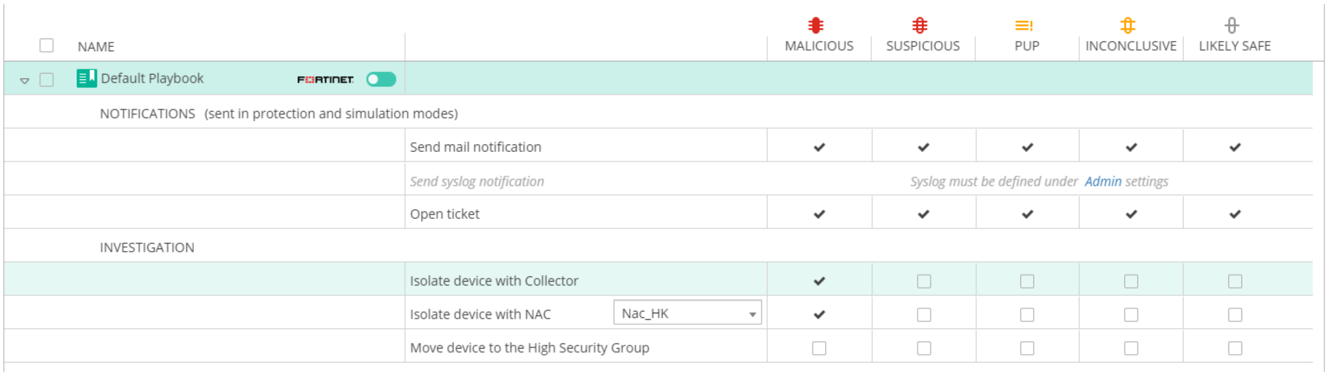
Email address *: mysplunk@test.com

SYSLOG

NOTIFICATIONS

Investigation

Investigation actions enable you to isolate a device or assign it to a high-security Collector Group, in order to further investigate the relevant device’s activity.



□ NAME		MALICIOUS	SUSPICIOUS	PUP	INCONCLUSIVE	LIKELY SAFE
□ Default Playbook FURTINET						
NOTIFICATIONS (sent in protection and simulation modes)						
	Send mail notification	✓	✓	✓	✓	✓
	Send syslog notification		*Syslog must be defined under Admin settings*			
	Open ticket	✓	✓	✓	✓	✓
INVESTIGATION						
	Isolate device with Collector	✓	□	□	□	□
	Isolate device with NAC Nac_HK	✓	□	□	□	□
	Move device to the High Security Group	□	□	□	□	□

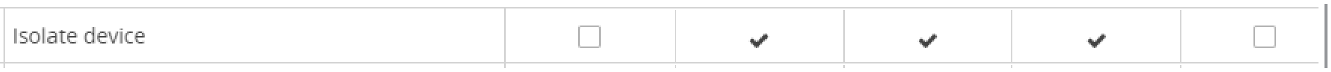
Investigation actions can be one of the following types:

- Isolate Device with Collector on page 94
- Isolate Device with NAC on page 95
- Move Device to High Security Group on page 95

Isolate Device with Collector

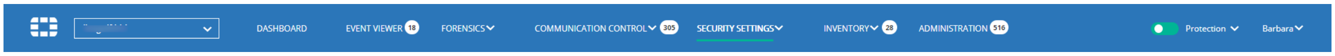
This action blocks the communication to/from the affected Collector. This action only applies for endpoint Collectors. For example, if the Playbook policy is configured to isolate the device for a malicious event, then whenever a maliciously classified security event is triggered from a device, then that device is isolated (blocked) from communicating with the outside world (for both sending and receiving). This means, for example, that applications that communicate with the outside world, such as Google Chrome, Firefox and so on, will be blocked for outgoing communications.

A checkmark ✓ in a classification column here means that the device is automatically isolated when a security event is triggered with that classification.



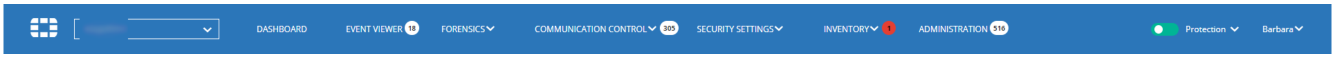
Isolate device	□	✓	✓	✓	□

Note: The tab bar at the top of the window may display a white circle(s) with a number inside the circle to indicate that new security events have not been read by the user. The number represents the number of new registered devices.

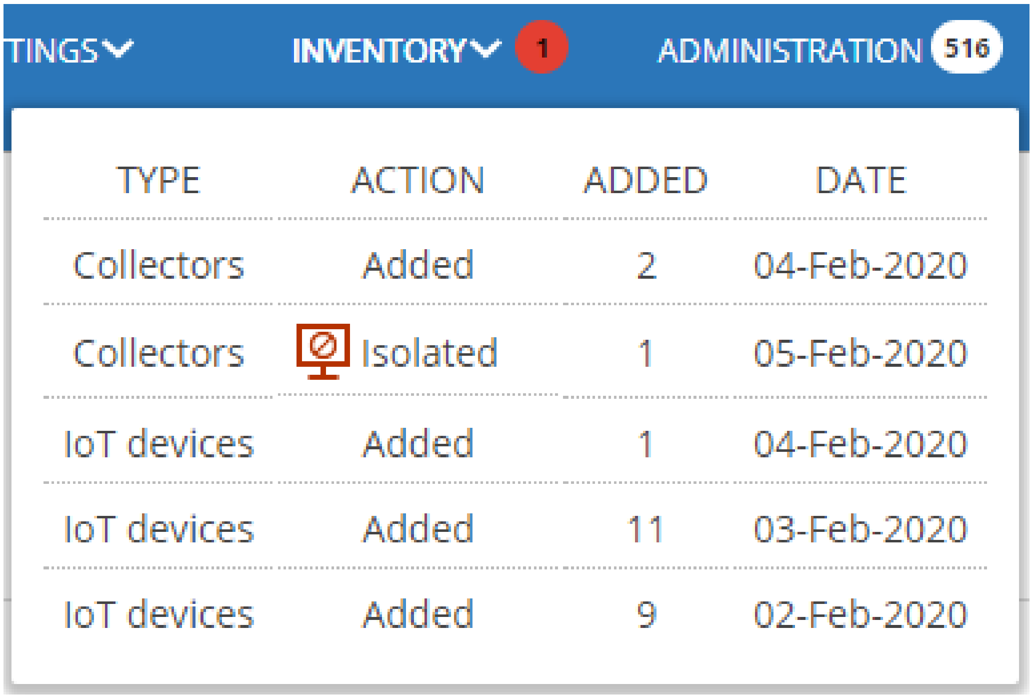


When the circle is white, it means that there are no isolated devices and the number inside the circle represents the number of new registered devices in the last three days.

When the circle is red, it indicates that there are one or more isolated devices. In this case, the number inside the circle indicates only the number of isolated devices.



You can hover over the number to see the list of new registered devices and isolated devices. Each row shows the number of devices added, by day.



TYPE	ACTION	ADDED	DATE
Collectors	Added	2	04-Feb-2020
Collectors	Isolated	1	05-Feb-2020
IoT devices	Added	1	04-Feb-2020
IoT devices	Added	11	03-Feb-2020
IoT devices	Added	9	02-Feb-2020

Isolate Device with NAC

This action blocks the communication to/from the affected device by disabling this host on an external Network Access Control system. A NAC connector must already be configured in order to perform this action. For details about how to configure NAC connectors, see Network Access Control (NAC) Integration on page 318.

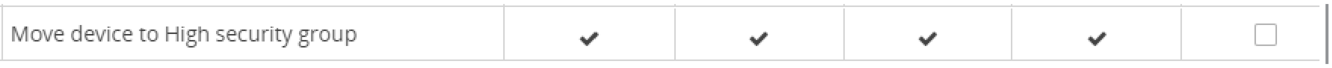
In the dropdown menu next to the action, you can specify which NAC to use for disabling the host or select all of them.

Note: Unlike devices that are isolated using the FortiEDR Collector for which there is an isolation indication on Inventory tab and un-isolation is available, devices that were isolated using an external system such as a NAC are not indicated as such on the FortiEDR Console and un-isolation is only possible on the external NAC system.

Move Device to High Security Group

FortiEDR provides two default Collector Groups: the Default Collector Group and the High Security Collector Group. Both of these default Collector Groups are initially assigned to the Default Playbook policy, and cannot be deleted.

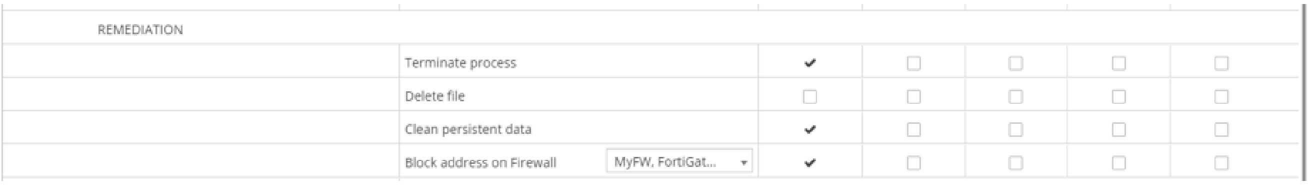
A checkmark ✓ in a classification column here means that the device is automatically moved (assigned) to the High Security Collector Group when a security event is triggered that has that classification. This feature is useful when you want to mark Collectors that triggered malicious events.



Move device to High security group	✓	✓	✓	✓	□

Remediation

Remediation actions enable you to remediate a situation in the FortiEDR system, should malware be detected on a device.



REMEDIATION						
	Terminate process	✓	□	□	□	□
	Delete file	□	□	□	□	□
	Clean persistent data	✓	□	□	□	□
	Block address on Firewall MyFW, FortiGat... ▾	✓	□	□	□	□

Remediation actions can be one of the following types:

- Terminate Process on page 96
- Delete File on page 96
- Clean Persistent Data on page 96
- Block Address on Firewall on page 96

Terminate Process

This action terminates the affected process. It does not guarantee that the affected process will not attempt to execute again. This action can also be performed manually using the Forensics add-on, as described on Remediating a Device Upon Malware Detection on page 212

A checkmark ✓ in a classification column here means that the affected process is automatically terminated on the device when a security event is triggered that has that classification.

Delete File

This action ensures that the file does not attempt to exfiltrate data again, as the file is permanently removed from the device. This action can also be performed manually using the Forensics add-on, as described on Remediating a Device Upon Malware Detection on page 212

A checkmark ✓ in a classification column here means that the affected file is automatically removed on the device when a security event is triggered that has that classification.

Clean Persistent Data

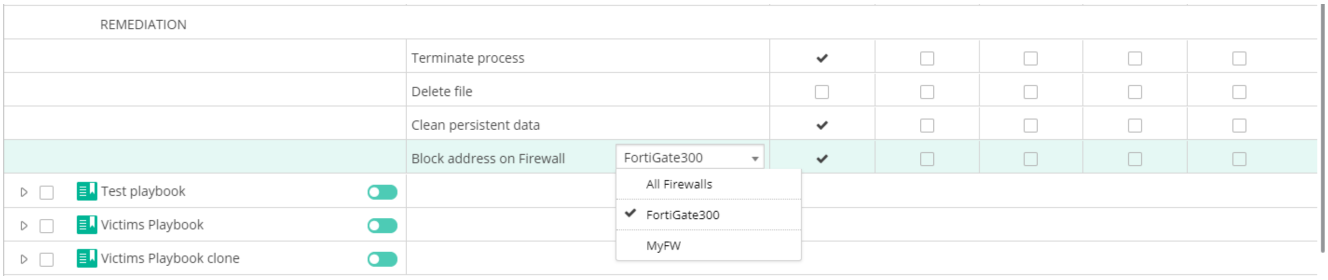
This action cleans the registry keys in Windows. This action can also be performed manually using the Forensics add-on, as described on Remediating a Device Upon Malware Detection on page 212.

A checkmark ✓ in a classification column here means that the affected registry key is automatically cleaned on the device when a security event is triggered that has that classification.

Block Address on Firewall

This action ensures that connections to remote malicious addresses that are associated with the security event are blocked. A Firewall Connector must already be configured in order to perform this action. For details about how to configure firewall connectors, see Firewall Integration on Firewall Integration on page 311.

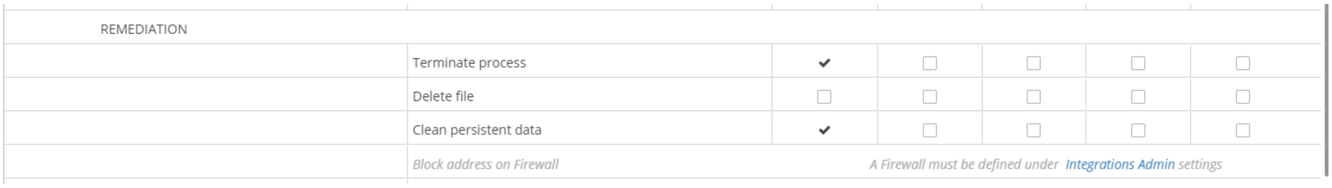
In the dropdown menu next to the action, you can specify which firewalls are used to perform the blocking or select all of them, as shown below:



REMEDIATION							
	Terminate process		✓	□	□	□	□
	Delete file		□	□	□	□	□
	Clean persistent data		✓	□	□	□	□
	Block address on Firewall	FortiGate300	✓	□	□	□	□
▷ □ Test playbook		All Firewalls					
▷ □ Victims Playbook		✓ FortiGate300					
▷ □ Victims Playbook clone		MyFW					

A checkmark ✓ in a Classification column means that communication with the affected destination is automatically blocked when a security event is triggered that has that classification.

The firewall must already be configured in order to add malicious destinations to blocked addresses. If its settings are not already configured, the relevant row in the Remediation list displays a message indicating that you must first configure it, as shown below:

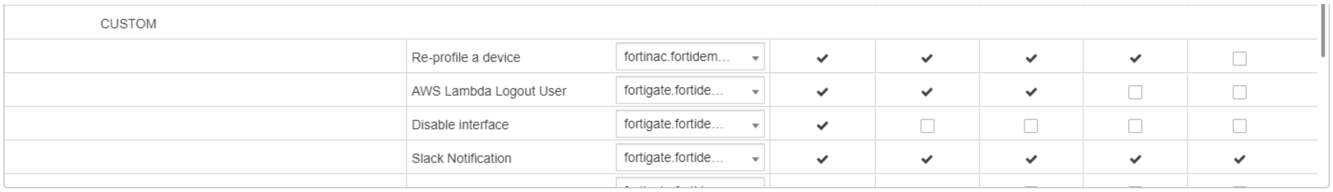


REMEDIATION						
	Terminate process	✓	□	□	□	□
	Delete file	□	□	□	□	□
	Clean persistent data	✓	□	□	□	□
	Block address on Firewall	*A Firewall must be defined under Integrations Admin settings*				

Note: Clicking the Integration Admin link in this message jumps to the relevant place in the user interface to configure it (in the Integration page under the Admin tab).

Custom

Custom actions enable you to automatically trigger an incident response in a third-party system as the result of a security event detected by FortiEDR, according to the Custom Integration connector (and its actions) that you define.



CUSTOM							
	Re-profile a device	fortinac.fortidem...	✓	✓	✓	✓	□
	AWS Lambda Logout User	fortigate.fortide...	✓	✓	✓	□	□
	Disable interface	fortigate.fortide...	✓	□	□	□	□
	Slack Notification	fortigate.fortide...	✓	✓	✓	✓	✓

The **CUSTOM** section of the Playbook page lists the actions that have been defined for Custom Integration Connectors, as described on Custom Integration on page 328.

Note: This list appears empty appears until at least one Custom Integration Connector has been defined.

A checkmark ✓ in a classification column here means that the defined action is triggered in the third-party system when a security event is triggered that has that classification.

Other Options in the Playbooks Tab

You can perform the following operations using the toolbar at the top of the tab:

- **Clone Playbook**: Clones a Playbook policy, as described on Playbook Policies on page 89.
- **Set Mode**: Changes the mode of the Playbook policy. This process is similar to that for setting the mode for a standard security policy, which is described on Setting a Security Policy’s Prevention or Simulation Mode on page 59

- **Assign Collector Group**: Assigns a Playbook policy to a Collector Group. This process is similar to that for assigning a standard security policy to a Collector Group, which is described on Assigning a Security Policy to a Collector Group on page 61.
- **Delete**: Deletes a cloned Playbook policy. Default Playbook policies cannot be deleted.

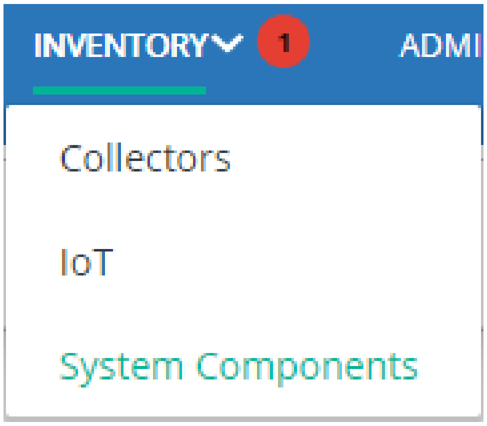
Note: The default Playbook policy (named Default Playbook) is mandatory and cannot be deleted.

Inventory

This chapter describes the FortiEDR Inventory, which enables you to monitor the health of FortiEDR components and to create Collector Groups.

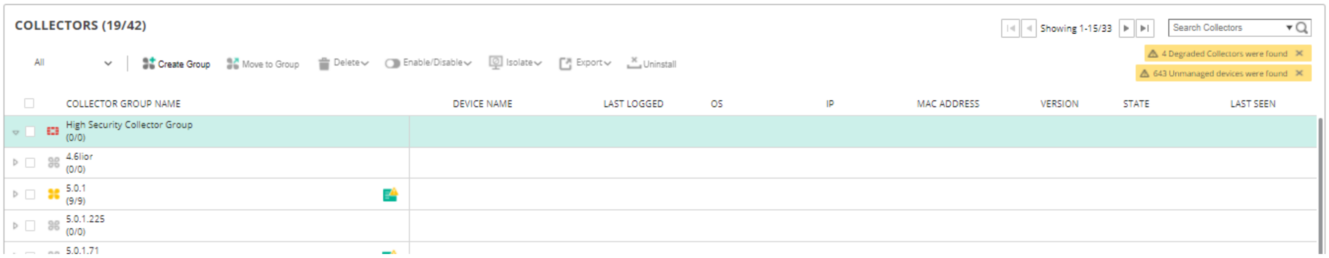
Introducing the Inventory

The **INVENTORY** tab displays separate pages for **COLLECTORS**, **IoT (devices)** and **System Components** (AGGREGATORS, CORES and REPOSITORIES). Click the down arrow next to **INVENTORY** and then select the relevant option to access its page, as shown below.



This view enables you to monitor system health and to define Collector Groups. If you have a large system with thousands of FortiEDR Collectors, it may take a few moments to populate this window.

By default, the **INVENTORY** tab and its various pages are filtered to display all the FortiEDR components that are degraded, except for FortiEDR Collectors, which are filtered to see all Collectors, regardless of their state.



COLLECTORS (19/42)

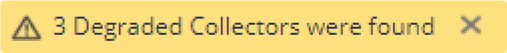
Showing 1-15/33

4 Degraded Collectors were found

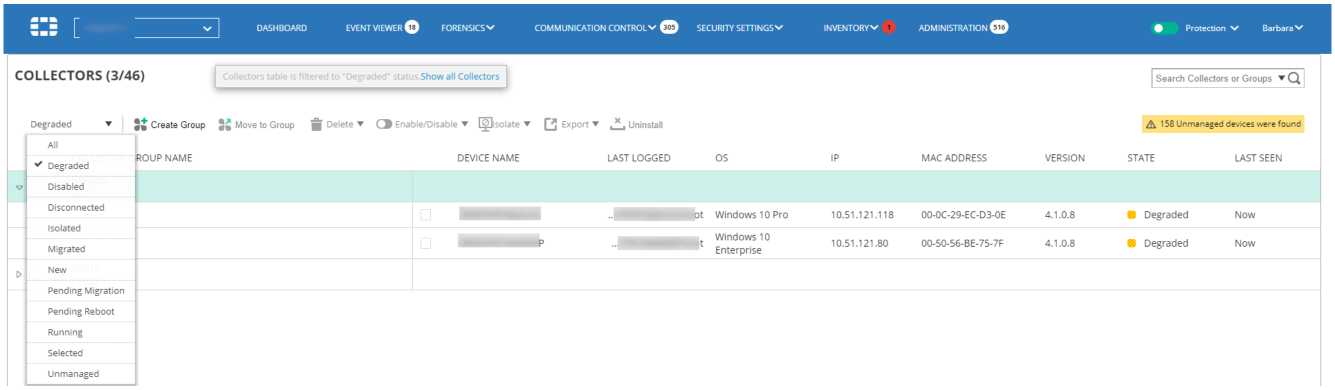
643 Unmanaged devices were found

COLLECTOR GROUP NAME	DEVICE NAME	LAST LOGGED	OS	IP	MAC ADDRESS	VERSION	STATE	LAST SEEN
High Security Collector Group (0/0)								
4.6lior (0/0)								
5.0.1 (9/9)								
5.0.1.225 (0/0)								
5.0.1.71								

If there are Collectors in the Degraded state, the following indication appears at the right top corner, which you can click to filter the view to only show the Collectors in the Degraded state.


3 Degraded Collectors were found

You can select to display all Collectors that are in one of the specific states (**New, Running, Disabled, Degraded, Disconnected, Isolated, Selected, Pending Reboot, Migrated, Pending Migration or Unmanaged**) using the dropdown menu at the top left of the window, as shown below:



COLLECTORS (3/46)

Collectors table is filtered to "Degraded" status.Show all Collectors

Degraded ▾

- All
- ✓ Degraded
- Disabled
- Disconnected
- Isolated
- Migrated
- New
- Pending Migration
- Pending Reboot
- Running
- Selected
- Unmanaged

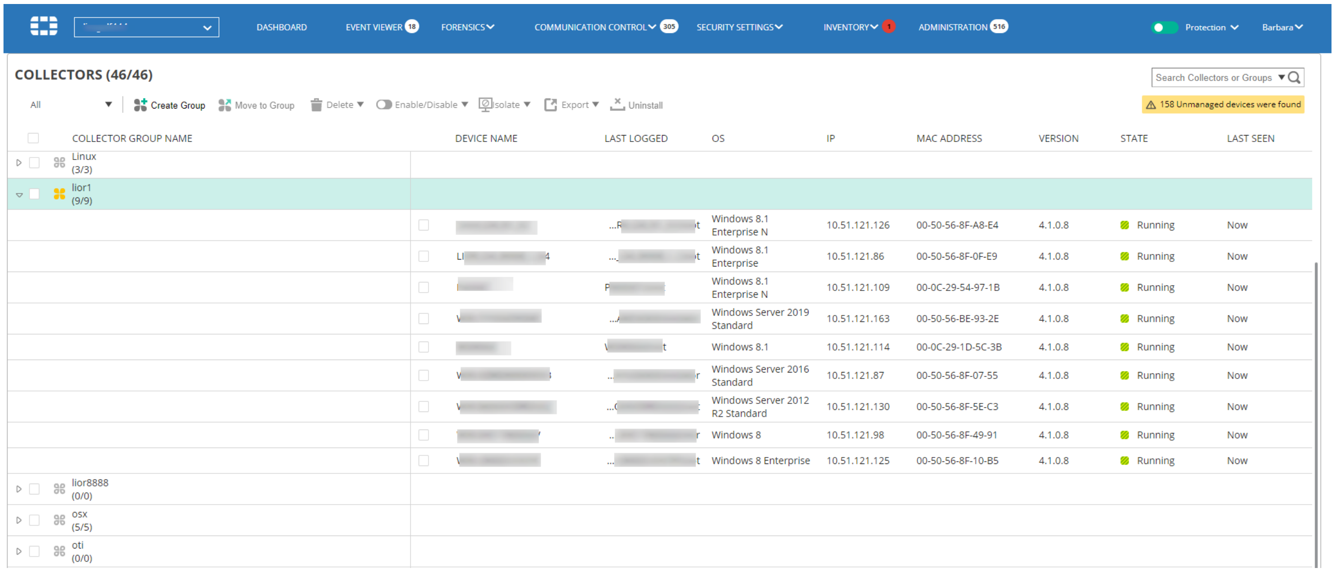
ROUP NAME		DEVICE NAME	LAST LOGGED	OS	IP	MAC ADDRESS	VERSION	STATE	LAST SEEN
	□	[redacted]	..[redacted]ot	Windows 10 Pro	10.51.121.118	00-0C-29-EC-D3-0E	4.1.0.8	Degraded	Now
	□	[redacted]P	..[redacted]t	Windows 10 Enterprise	10.51.121.80	00-50-56-BE-75-7F	4.1.0.8	Degraded	Now

When a new FortiEDR Collector registers, an indicator displays on the **INVENTORY** tab.

The X/Y numbers in the **Collector Group Name** column indicate the following:

- **X** indicates the number of Collectors, based on the filter option selected (New, Running, Disabled, Degraded, Disconnected, Selected or Pending Reboot), as described on the preceding page.
- **Y** indicates the total number of Collectors in the Collector Group to which the Collector belongs.

For example, the figure below shows 11/11, which means that there are 9 Collectors that are Running in a Collector Group containing **9** Collectors.



COLLECTORS (46/46)

COLLECTOR GROUP NAME		DEVICE NAME	LAST LOGGED	OS	IP	MAC ADDRESS	VERSION	STATE	LAST SEEN
Linux (3/3)									
lior1 (9/9)									
	□	[redacted]	...[redacted]t	Windows 8.1 Enterprise N	10.51.121.126	00-50-56-8F-A8-E4	4.1.0.8	Running	Now
	□	[redacted]4	...[redacted]t	Windows 8.1 Enterprise	10.51.121.86	00-50-56-8F-0F-E9	4.1.0.8	Running	Now
	□	[redacted]	[redacted]	Windows 8.1 Enterprise N	10.51.121.109	00-0C-29-54-97-1B	4.1.0.8	Running	Now
	□	[redacted]	...[redacted]	Windows Server 2019 Standard	10.51.121.163	00-50-56-BE-93-2E	4.1.0.8	Running	Now
	□	[redacted]	[redacted]t	Windows 8.1	10.51.121.114	00-0C-29-1D-5C-3B	4.1.0.8	Running	Now
	□	[redacted]	..[redacted]r	Windows Server 2016 Standard	10.51.121.87	00-50-56-8F-07-55	4.1.0.8	Running	Now
	□	[redacted]	...[redacted]	Windows Server 2012 R2 Standard	10.51.121.130	00-50-56-8F-5E-C3	4.1.0.8	Running	Now
	□	[redacted]	..[redacted]r	Windows 8	10.51.121.98	00-50-56-8F-49-91	4.1.0.8	Running	Now
	□	[redacted]	...[redacted]t	Windows 8 Enterprise	10.51.121.125	00-50-56-8F-10-B5	4.1.0.8	Running	Now
lior8888 (0/0)									
osx (5/5)									
oti (0/0)									

To export the list of FortiEDR components:

- Use the Export ▾ button and select Excel or PDF.

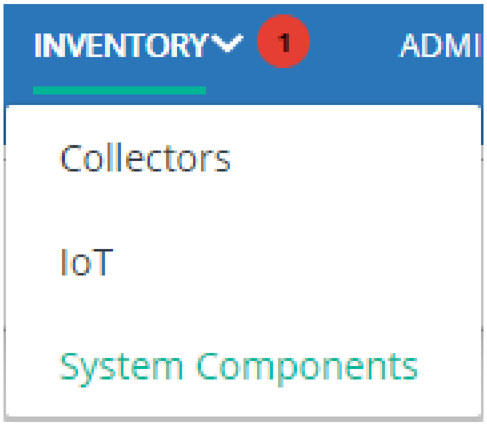
Uninstalling a Collector

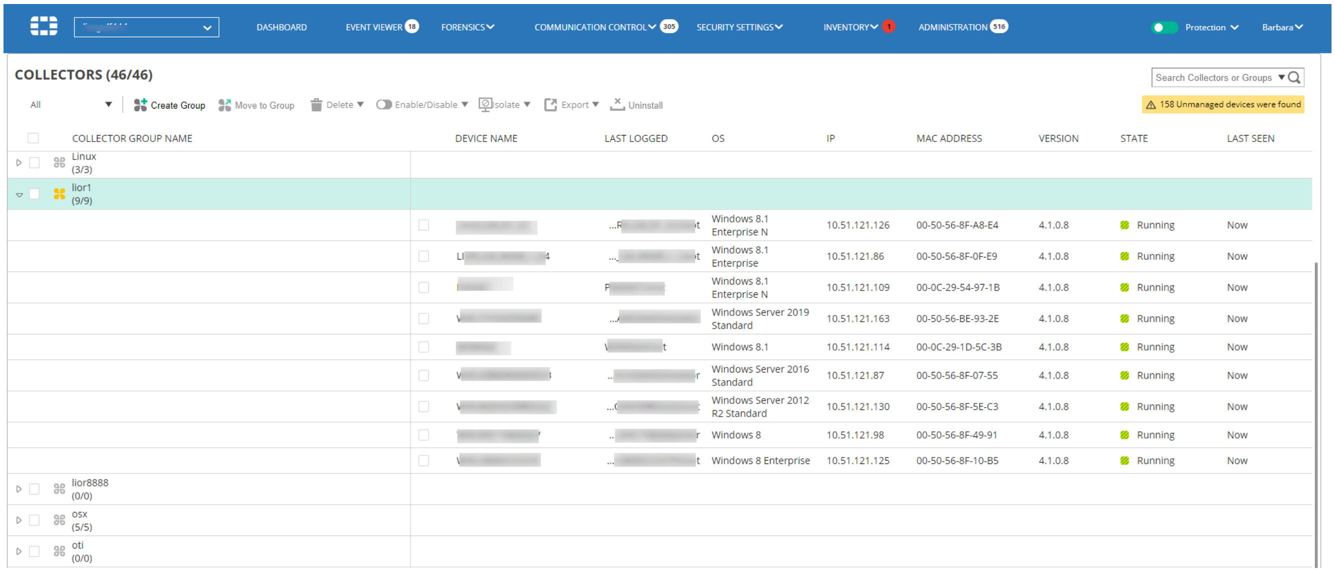
Use the Uninstall button to uninstall a Collector from a device. Use caution when using this option, as a Collector cannot be reinstalled after removal using the FortiEDR user interface. Therefore, it is recommended to disable a Collector using the **Enable/Disable** option rather than uninstalling it.

Collectors

The **COLLECTORS** page displays a list of the previously defined Collector Groups, which can be expanded to show the FortiEDR Collectors that each contains. Additional Collector Groups can be defined by you, as described on Defining a New Collector Group on page 104. FortiEDR Collectors automatically register with the system after installation. By default, each FortiEDR Collector is added to the Collector Group called **All**. You can move any Collector to another Collector Group, as described on Assigning Collectors to a Collector Group on page 105.

To access this page, click the down arrow next to **INVENTORY** and then select **Collectors**, as shown below.





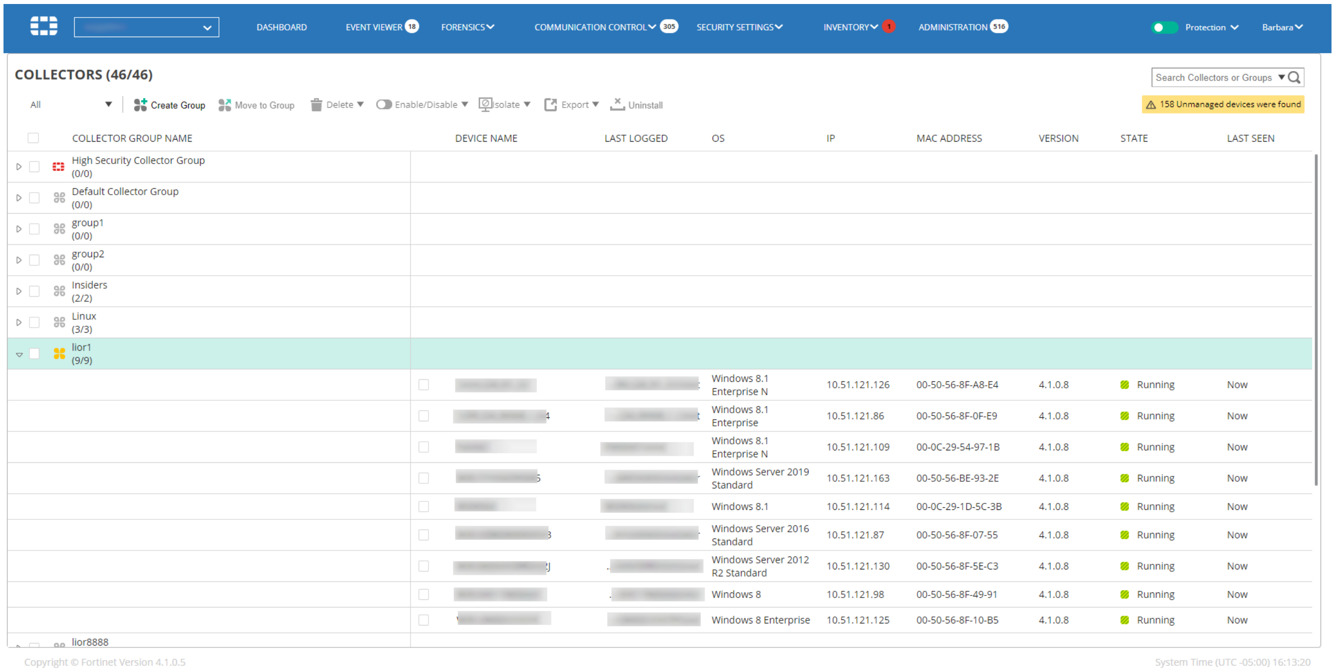
COLLECTORS (46/46)

⚠ 158 Unmanaged devices were found

COLLECTOR GROUP NAME	DEVICE NAME	LAST LOGGED	OS	IP	MAC ADDRESS	VERSION	STATE	LAST SEEN
Linux (3/3)								
lior1 (9/9)								
	[redacted]	...R[redacted]t	Windows 8.1 Enterprise N	10.51.121.126	00-50-56-8F-A8-E4	4.1.0.8	Running	Now
	LI[redacted]4	..._[redacted]t	Windows 8.1 Enterprise	10.51.121.86	00-50-56-8F-0F-E9	4.1.0.8	Running	Now
	[redacted]	P[redacted]	Windows 8.1 Enterprise N	10.51.121.109	00-0C-29-54-97-1B	4.1.0.8	Running	Now
	V[redacted]	...A[redacted]	Windows Server 2019 Standard	10.51.121.163	00-50-56-BE-93-2E	4.1.0.8	Running	Now
	[redacted]	V[redacted]t	Windows 8.1	10.51.121.114	00-0C-29-1D-5C-3B	4.1.0.8	Running	Now
	V[redacted]	...[redacted]r	Windows Server 2016 Standard	10.51.121.87	00-50-56-8F-07-55	4.1.0.8	Running	Now
	V[redacted]	...C[redacted]	Windows Server 2012 R2 Standard	10.51.121.130	00-50-56-8F-5E-C3	4.1.0.8	Running	Now
	[redacted]	..[redacted]r	Windows 8	10.51.121.98	00-50-56-8F-49-91	4.1.0.8	Running	Now
	V[redacted]	...[redacted]t	Windows 8 Enterprise	10.51.121.125	00-50-56-8F-10-B5	4.1.0.8	Running	Now
lior8888 (0/0)								
osx (5/5)								
oti (0/0)								

The default Collector Group (to which new Collectors are automatically added) is marked with a yellow group icon . You can change to a different default Collector Group by clicking the group icon of another Collector Group.

Click ▷ to expand the list and display the FortiEDR Collectors that the Collector Group contains.



COLLECTORS (46/46)

⚠ 158 Unmanaged devices were found

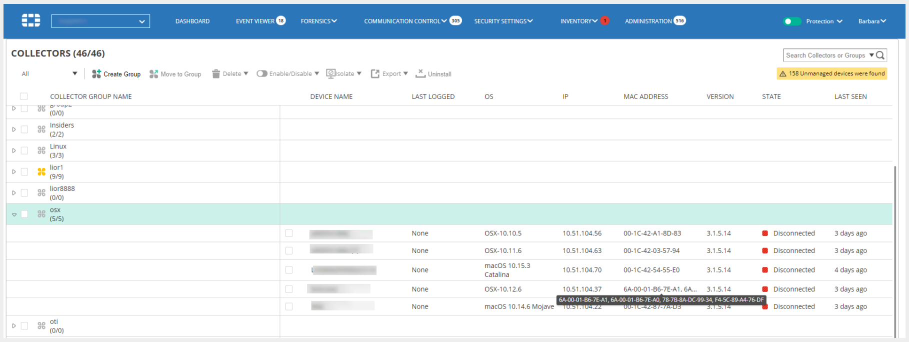
COLLECTOR GROUP NAME	DEVICE NAME	LAST LOGGED	OS	IP	MAC ADDRESS	VERSION	STATE	LAST SEEN
High Security Collector Group (0/0)								
Default Collector Group (0/0)								
group1 (0/0)								
group2 (0/0)								
Insiders (2/2)								
Linux (3/3)								
lior1 (9/9)								
	[redacted]	[redacted]	Windows 8.1 Enterprise N	10.51.121.126	00-50-56-8F-A8-E4	4.1.0.8	Running	Now
	[redacted]	[redacted]	Windows 8.1 Enterprise	10.51.121.86	00-50-56-8F-0F-E9	4.1.0.8	Running	Now
	[redacted]	[redacted]	Windows 8.1 Enterprise N	10.51.121.109	00-0C-29-54-97-1B	4.1.0.8	Running	Now
	[redacted]	[redacted]	Windows Server 2019 Standard	10.51.121.163	00-50-56-BE-93-2E	4.1.0.8	Running	Now
	[redacted]	[redacted]	Windows 8.1	10.51.121.114	00-0C-29-1D-5C-3B	4.1.0.8	Running	Now
	[redacted]	[redacted]	Windows Server 2016 Standard	10.51.121.87	00-50-56-8F-07-55	4.1.0.8	Running	Now
	[redacted]	[redacted]	Windows Server 2012 R2 Standard	10.51.121.130	00-50-56-8F-5E-C3	4.1.0.8	Running	Now
	[redacted]	[redacted]	Windows 8	10.51.121.98	00-50-56-8F-49-91	4.1.0.8	Running	Now
	[redacted]	[redacted]	Windows 8 Enterprise	10.51.121.125	00-50-56-8F-10-B5	4.1.0.8	Running	Now
lior8888								

Copyright © Fortinet Version 4.1.0.5

System Time (UTC -05:00) 16:13:20

The following information is provided for each Collector:

Information Field	Description
Checkbox	Check this checkbox to select the Collector. You can then use one of the buttons at the top left of the window, such as the Delete button
Collector Group Name	Specifies the name of the Collector Group to which the Collector is assigned.
Device Name	Specifies the device name taken from the communicating device on which the FortiEDR Collector is installed.
Last Logged	Specifies the last user that logged into the device on which the Collector is installed. It shows the domain of the computer/username. If this device has not been logged into, then this column is blank. In addition, if the Collector is not V3.0.0.0 or above, then this column is empty and the events from this Collector will not contain the user from which the security event was triggered.
OS	Specifies the operating system of the communicating device on which the FortiEDR Collector is installed.
IP	Specifies the IP address of the communicating device on which the FortiEDR Collector is installed.
MAC Address	Specifies the physical address of the device. If a device has multiple MAC addresses, three dots (…) display. You can hover over the MAC Address to display the value (or values, in case of multiple MAC addresses) in a tooltip.

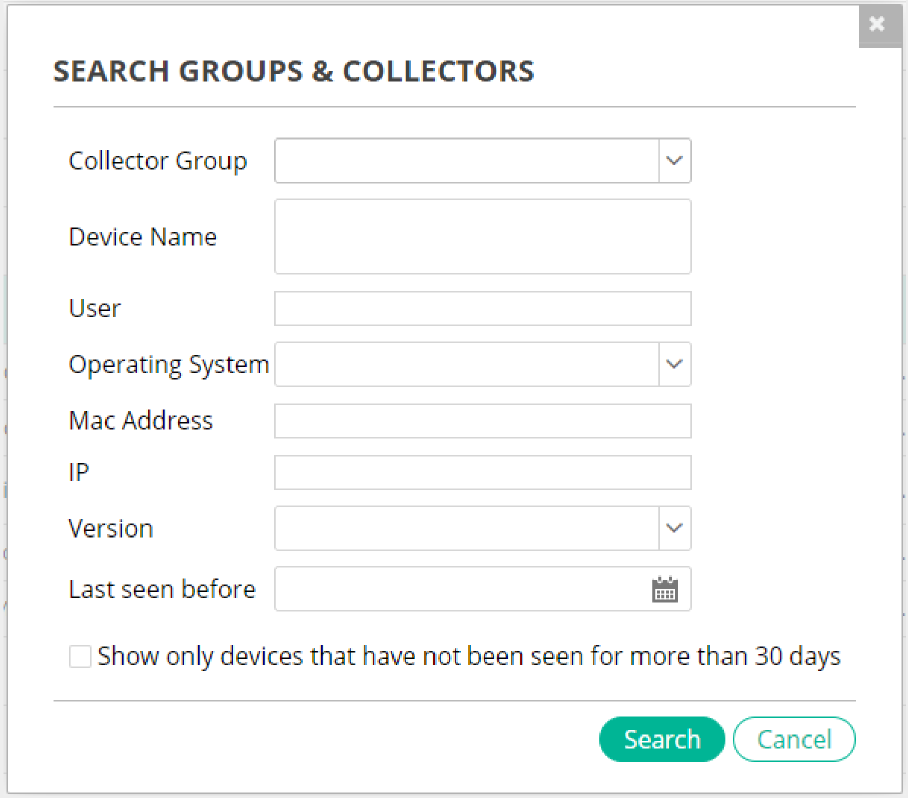
Information Field	Description
	
Version	Specifies the version of the FortiEDR Collectors installed on the communicating device.
State	Specifies the current state of the FortiEDR Collector. Hovering over the STATE value pops up the last time the STATE was changed. Possible value for STATE are as follows:
Running	The FortiEDR Collector is up and all is well.
Running (Autonomously)	The core is temporarily inaccessible. Therefore, policy enforcement is performed by the FortiEDR Collector.
Disconnected	The device is offline, powered down or is not connected to the FortiEDR Aggregator.
Disconnected (Expired)	The device has not been connected for 30 or more consecutive days. Collectors in this state are not counted for licensing purposes. **Note:** To see the list of Collectors in this state, click the down arrow in the Search box at the top right of the window to display the following window:

COLLECTORS (46/46)

⚠ 158 Unmanaged devices were found

COLLECTOR GROUP NAME	DEVICE NAME	LAST LOGGED	OS	IP	MAC ADDRESS	VERSION	STATE	LAST SEEN
group2 (0/0)								
Insiders (2/2)								
Linux (3/3)								
lior1 (9/9)								
lior8888 (0/0)								
osx (5/5)								
	[redacted]	None	OSX-10.10.5	10.51.104.56	00-1C-42-A1-8D-83	3.1.5.14	🟥 Disconnected	3 days ago
	[redacted]	None	OSX-10.11.6	10.51.104.63	00-1C-42-03-57-94	3.1.5.14	🟥 Disconnected	3 days ago
	[redacted]	None	macOS 10.15.3 Catalina	10.51.104.70	00-1C-42-54-55-E0	3.1.5.14	🟥 Disconnected	4 days ago
	[redacted]	None	OSX-10.12.6	10.51.104.37	6A-00-01-B6-7E-A1, 6A...	3.1.5.14	🟥 Disconnected	3 days ago
	[redacted]	None	macOS 10.14.6 Mojave	10.51.104.22	00-1C-42-87-7A-D3	3.1.5.14	🟥 Disconnected	3 days ago
oti (0/0)								

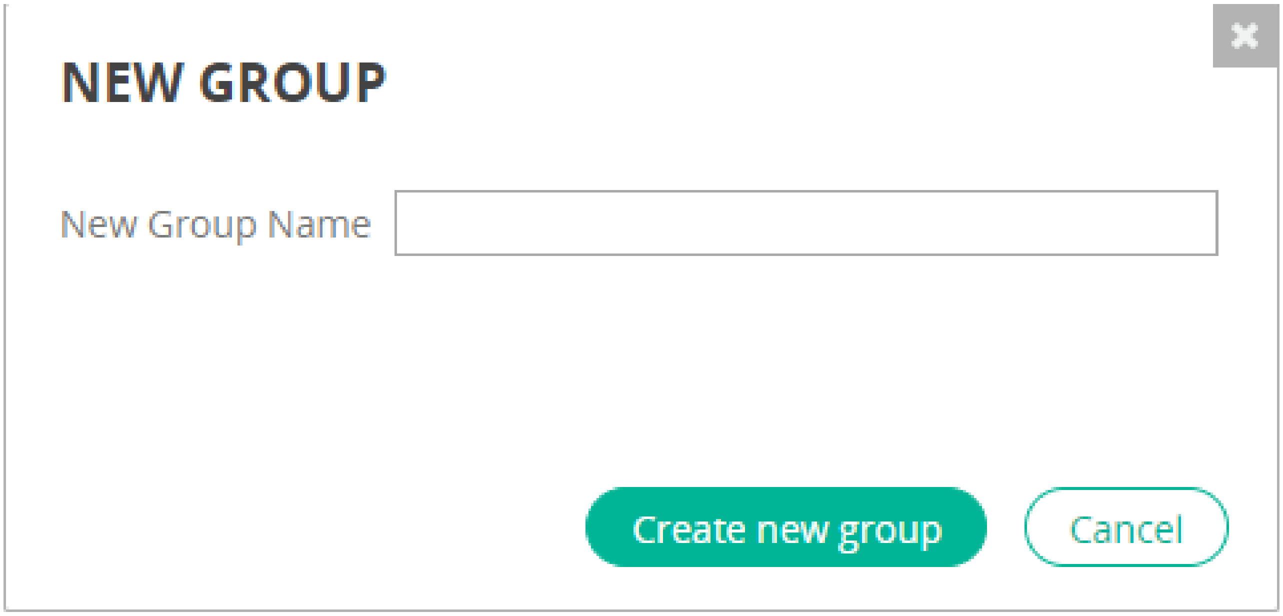
6A-00-01-B6-7E-A1, 6A-00-01-B6-7E-A0, 78-7B-8A-DC-99-34, F4-5C-89-A4-76-DF

Information Field	Description
	 SEARCH GROUPS & COLLECTORS Collector Group Device Name User Operating System Mac Address IP Version Last seen before □ Show only devices that have not been seen for more than 30 days Search Cancel Then, check the Show only devices that have not been seen for more than 30 days checkbox, and click the Search button. The Collectors area then displays only devices in the Disconnected (Expired) state.
Pending Reboot	After the FortiEDR Collector is installed, you may want some devices to be rebooted before the FortiEDR Collector can start running. This status means that the FortiEDR Collector is ready to run after this device is rebooted. The reboot is performed in the usual manner on the device itself.
Disabled	Specifies that this FortiEDR Collector was disabled in the FortiEDR Central Manager. This feature is not yet available in version 1.2.
Degraded	Specifies that the FortiEDR Collector is prevented from performing to its full capacity (for example, due to lack of resources on the device on which it is installed or compatibility issues).
Last Seen	Counts the number of days passed from the last time this Collector communicated with the Core.

Defining a New Collector Group

Creating multiple Collector Groups enables you to assign different FortiEDR policies to different FortiEDR Collectors, which means to different end user groups. In addition, it enables data segmentation in FortiEDR and reports according to user groups. For example, you may want to assign a more permissive policy to the CEO of your organization.

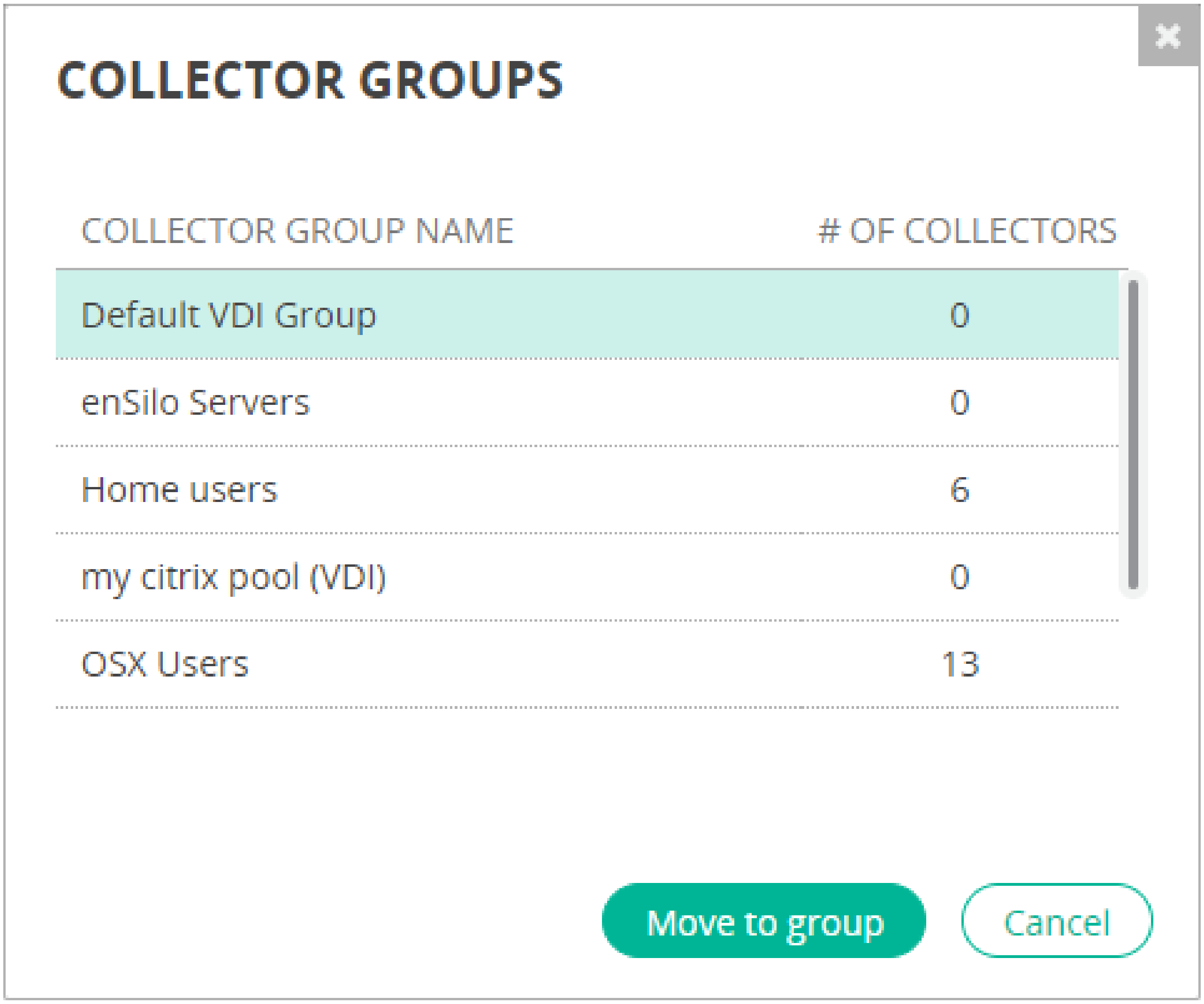
1. Click the Create group button. The following window displays:



2. Enter any name for this group and click the **Create new group** button.

Assigning Collectors to a Collector Group

1. In the **COLLECTORS** page, select the checkboxes of the FortiEDR Collectors to be moved to a different group.
2. Select the Move to group button. The following window displays showing the names of the current Collector Groups and how many Collectors each contains:



COLLECTOR GROUPS

COLLECTOR GROUP NAME	# OF COLLECTORS
Default VDI Group	0
enSilo Servers	0
Home users	6
my citrix pool (VDI)	0
OSX Users	13

3. Select the Collector Group to which to move the selected Collectors.
4. Click the **Move to group** button.

Deleting a Collector Group/Collector

Deleting a Collector Group simply means that you are deleting a logical grouping of Collectors. These Collectors then become available to be selected in the default Collector Group. The Collector Group assigned as the default Collector Group cannot be deleted.

Deleting a Collector only deletes it from the FortiEDR Central Manager's console. If the FortiEDR Collector is not uninstalled on the device, it will automatically reappear in the FortiEDR Central Manager's COLLECTOR list.

To delete a Collector Group/Collector:

- Select the Collector Group's/Collector's checkbox and then click the 🗑 Delete button.

Enabling/Disabling a Collector

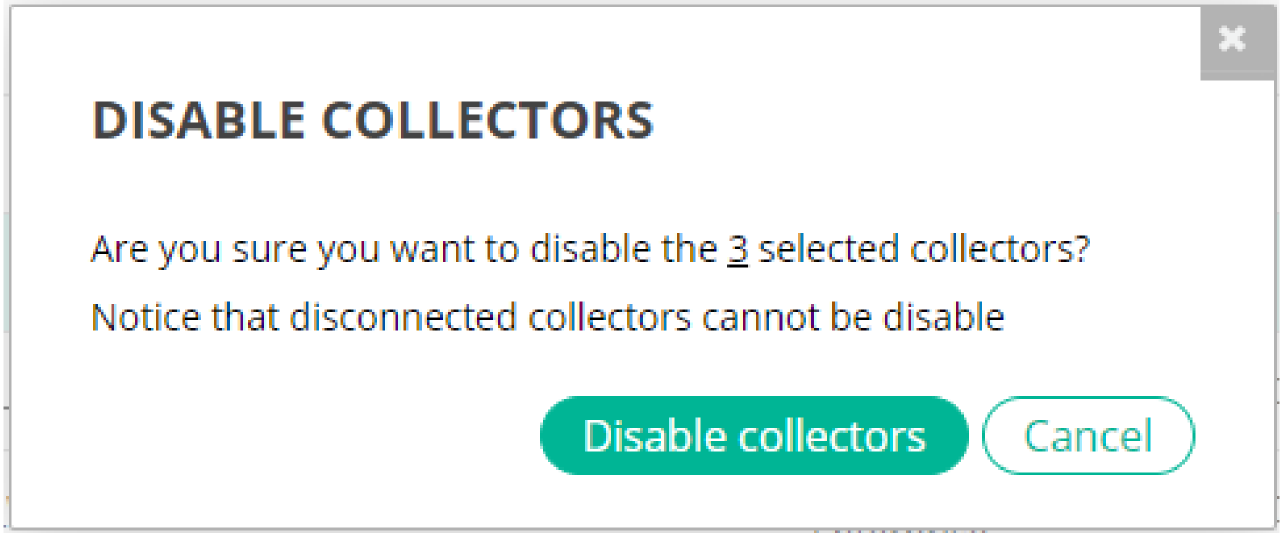
You can enable or disable one or more Collectors simultaneously.

To enable one or more Collectors simultaneously:

1. In the **COLLECTORS** page, select the checkboxes of the FortiEDR Collectors to be enabled. All selected Collectors must be in a Disabled (▨) state.
2. Click the down arrow on the Enable/Disable ▾ button and select **Enable**. This button is only enabled when one or more Collectors are selected.

To disable one or more Collectors simultaneously:

1. In the **COLLECTORS** page, select the checkboxes of the FortiEDR Collectors to be disabled. All selected Collectors must be in a **Running** (🟩) state.
2. 2 Click the down arrow on the Enable/Disable ▾ button and select **Disable**. This button is only enabled when one or more Collectors are selected. A confirmation message displays:



DISABLE COLLECTORS

Are you sure you want to disable the 3 selected collectors?

Notice that disconnected collectors cannot be disable

3. 3 Click **Disable collectors**.

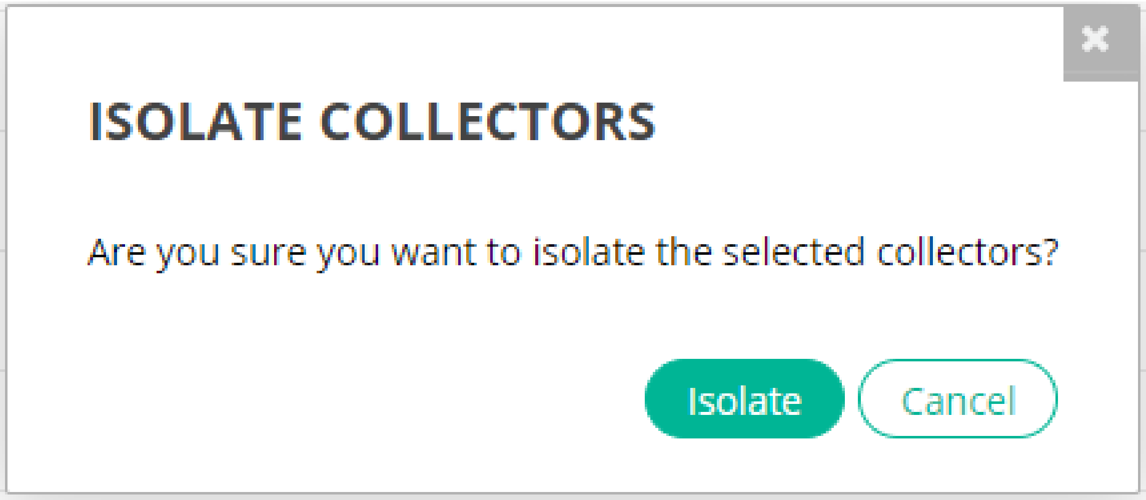
Device Isolation

An isolated device is one that is blocked from communicating with the outside world (for both sending and receiving). A device can be isolated manually, as described below. For more details see Investigation on page 93

Note: Isolation mode takes effect upon any attempt to establish a network session after isolation mode has been initiated. Connections that were established before device isolation was initiated remain intact. The same applies for Communication Control denial configuration changes. Note that both Isolation mode and Communication Control denial do not apply on incoming RDP connections and ICMP connections.

To isolate a device:

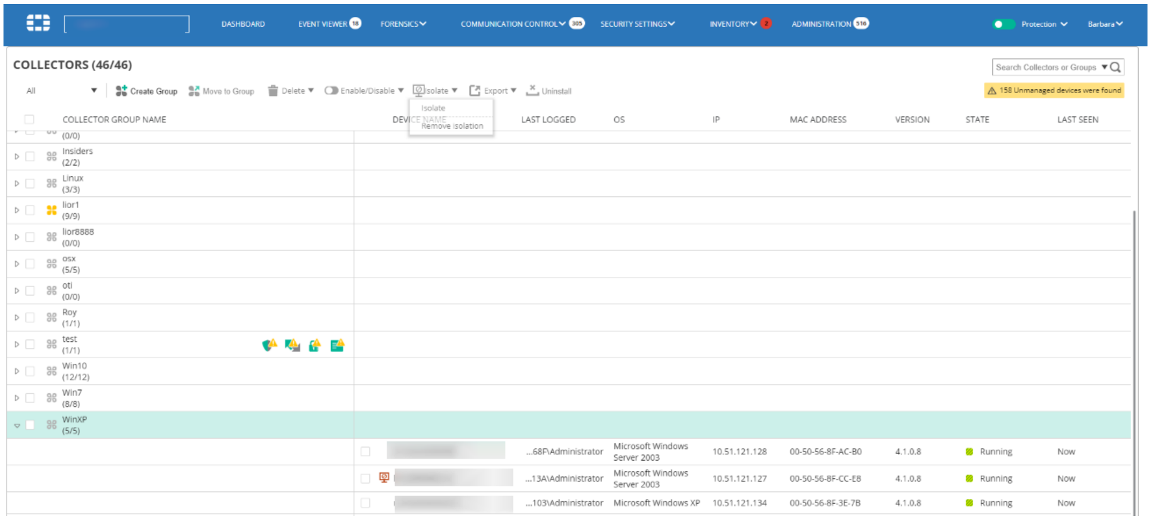
1. In the **COLLECTORS** page, select the checkbox(es) of the FortiEDR Collector(s) that you want to isolate.
2. Click the down arrow on the Isolate ▾ button and select **Isolate**.
   The following window displays



ISOLATE COLLECTORS

Are you sure you want to isolate the selected collectors?

3. Click the **Isolate** button. A red icon appears next to the relevant Collector to indicate that the Collector has been isolated, as shown below:



COLLECTORS (46/46)

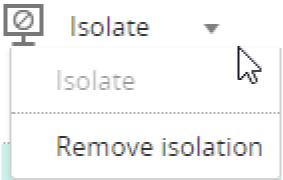
⚠ 158 Unmanaged devices were found

COLLECTOR GROUP NAME	DEVICE NAME	LAST LOGGED	OS	IP	MAC ADDRESS	VERSION	STATE	LAST SEEN
(0/0)								
Insiders (2/2)								
Linux (3/3)								
lior1 (9/9)								
lior8888 (0/0)								
osx (5/5)								
oti (0/0)								
Roy (1/1)								
test (1/1)								
Win10 (12/12)								
Win7 (8/8)								
WinXP (5/5)								
	[redacted]	...68F\Administrator	Microsoft Windows Server 2003	10.51.121.128	00-50-56-8F-AC-B0	4.1.0.8	Running	Now
	[redacted]	...13A\Administrator	Microsoft Windows Server 2003	10.51.121.127	00-50-56-8F-CC-E8	4.1.0.8	Running	Now
	[redacted]	...103\Administrator	Microsoft Windows XP	10.51.121.134	00-50-56-8F-3E-7B	4.1.0.8	Running	Now

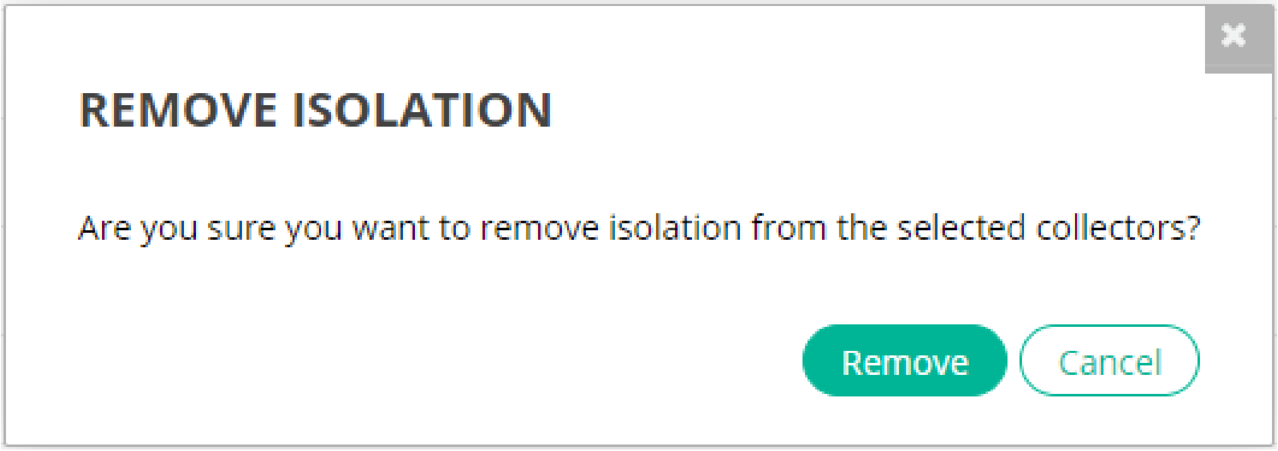
To remove isolation from a device:

1. 1 In the **COLLECTORS** page, select the checkbox(es) of the FortiEDR Collector(s) whose isolation you want to remove.

2. Click the down arrow on the Isolate ▾ button and select **Remove isolation**, as shown below.



The following window displays:



REMOVE ISOLATION

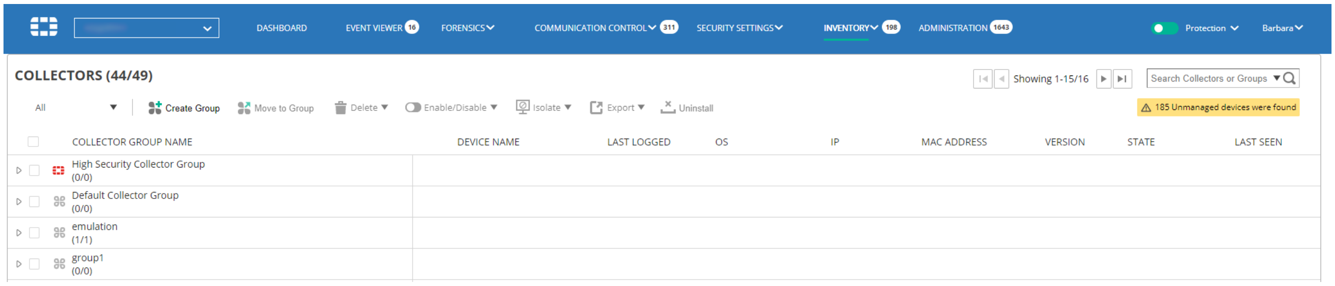
Are you sure you want to remove isolation from the selected collectors?

3. Click the **Remove** button.

Unmanaged Devices

The **COLLECTORS** page also indicates the number of unmanaged devices found in the system at the top right of the page, meaning those non-IoT devices on which no Collector is installed.

Important: Unmanaged devices are not protected in the system. Therefore, it is recommended that you either install a Collector on each such device or remove it from your network.

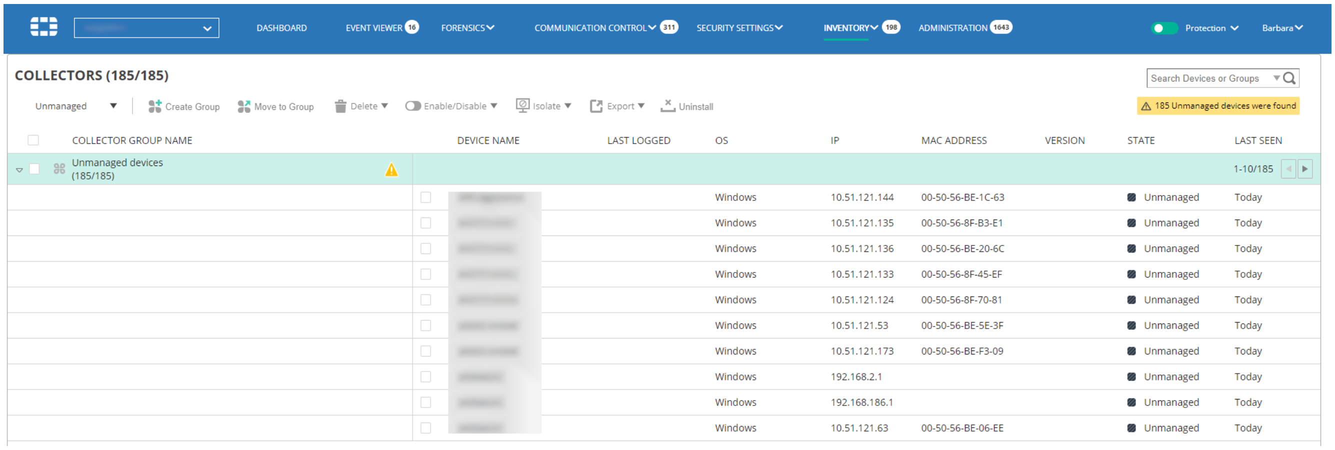


COLLECTORS (44/49)

⚠ 185 Unmanaged devices were found

COLLECTOR GROUP NAME	DEVICE NAME	LAST LOGGED	OS	IP	MAC ADDRESS	VERSION	STATE	LAST SEEN
High Security Collector Group (0/0)								
Default Collector Group (0/0)								
emulation (1/1)								
group1 (0/0)								

To view the list of unmanaged devices, select **Unmanaged** in the filter at the top left of the page.



COLLECTORS (185/185)

185 Unmanaged devices were found

COLLECTOR GROUP NAME	DEVICE NAME	LAST LOGGED	OS	IP	MAC ADDRESS	VERSION	STATE	LAST SEEN
Unmanaged devices (185/185)								1-10/185
	[redacted]		Windows	10.51.121.144	00-50-56-BE-1C-63		Unmanaged	Today
	[redacted]		Windows	10.51.121.135	00-50-56-8F-B3-E1		Unmanaged	Today
	[redacted]		Windows	10.51.121.136	00-50-56-BE-20-6C		Unmanaged	Today
	[redacted]		Windows	10.51.121.133	00-50-56-8F-45-EF		Unmanaged	Today
	[redacted]		Windows	10.51.121.124	00-50-56-8F-70-81		Unmanaged	Today
	[redacted]		Windows	10.51.121.53	00-50-56-BE-5E-3F		Unmanaged	Today
	[redacted]		Windows	10.51.121.173	00-50-56-BE-F3-09		Unmanaged	Today
	[redacted]		Windows	192.168.2.1			Unmanaged	Today
	[redacted]		Windows	192.168.186.1			Unmanaged	Today
	[redacted]		Windows	10.51.121.63	00-50-56-BE-06-EE		Unmanaged	Today

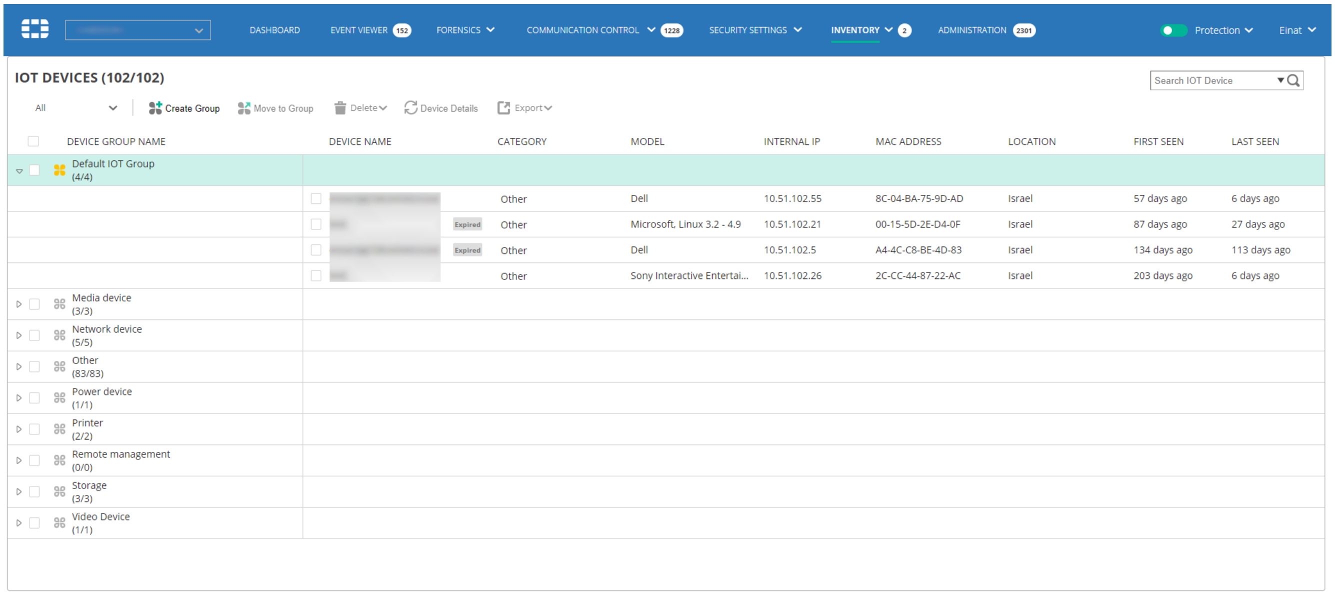
None of the action buttons at the top of the window are available for unmanaged devices, as there is no Collector installed on these devices.

IoT Devices

The **IOT DEVICES** page lists the non-workstation devices, such as printers, cameras and so on, that are part of your network. To access this page, click the down arrow next to **INVENTORY** and then select **IoT**.

This option is only available to users who have purchased the **Discover and Protect** or the **Discover, Protect and Response** license.

FortiEDR provides you with visibility to any device in your network, including those on which FortiEDR components are not installed. IoTs are proactively discovered from existing FortiEDR Collectors. For more details, see IoT Device Discovery on page 300.



IOT DEVICES (102/102)

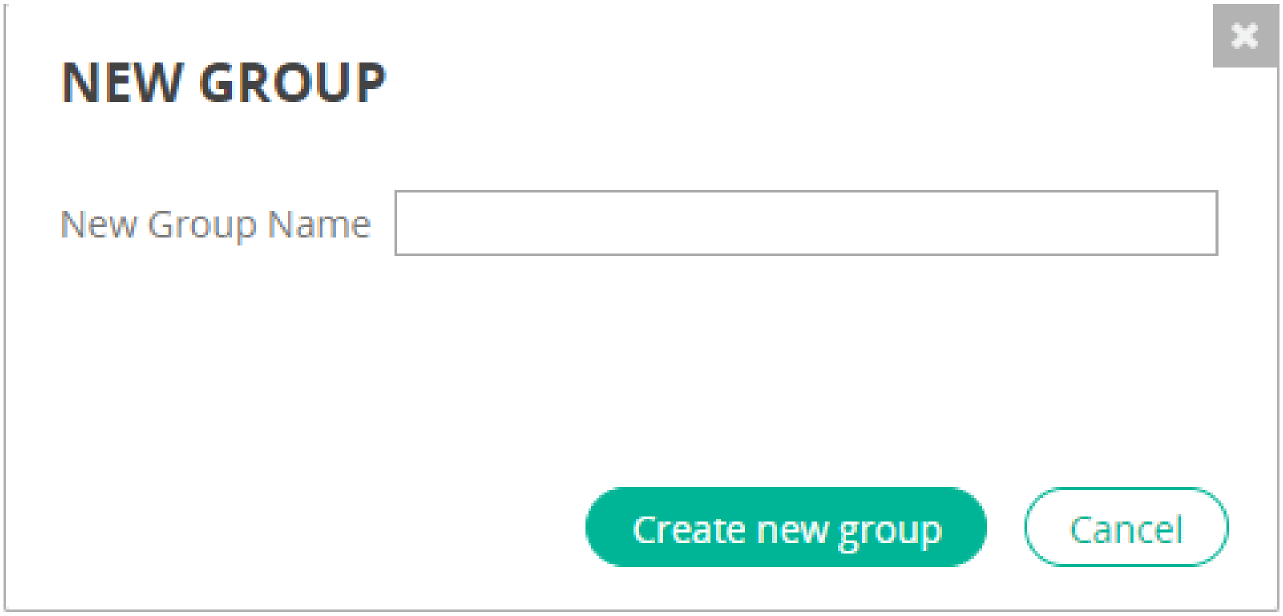
DEVICE GROUP NAME	DEVICE NAME	CATEGORY	MODEL	INTERNAL IP	MAC ADDRESS	LOCATION	FIRST SEEN	LAST SEEN
Default IOT Group (4/4)								
	[redacted]	Other	Dell	10.51.102.55	8C-04-BA-75-9D-AD	Israel	57 days ago	6 days ago
	[redacted] Expired	Other	Microsoft, Linux 3.2 - 4.9	10.51.102.21	00-15-5D-2E-D4-0F	Israel	87 days ago	27 days ago
	[redacted] Expired	Other	Dell	10.51.102.5	A4-4C-C8-BE-4D-83	Israel	134 days ago	113 days ago
	[redacted]	Other	Sony Interactive Entertai...	10.51.102.26	2C-CC-44-87-22-AC	Israel	203 days ago	6 days ago
Media device (3/3)								
Network device (5/5)								
Other (83/83)								
Power device (1/1)								
Printer (2/2)								
Remote management (0/0)								
Storage (3/3)								
Video Device (1/1)								

This page provides all the collected information about each discovered device, including its name, Category (device type), model number, internal IP address, MAC address, the physical location where the device was detected (based on its external IP address) and when it was first and last seen. FortiEDR presents all the information it collected for each device. Information that was not available for a device is marked as N/A in that device's row in the table. The New indication indicates that the device was discovered within the last three days. The Expired indication indicates that the device has not been seen for more than one week.

The default IoT Group to which new IoT devices are automatically added is marked with a yellow group icon. You can change to a different default IoT Group by clicking the group icon of another IoT Group. Alternatively, you can use Category-based grouping, where each new IoT device is automatically added to the group that represents its Category (for example, network devices, cameras, printers and so on).

Defining a New IoT Group

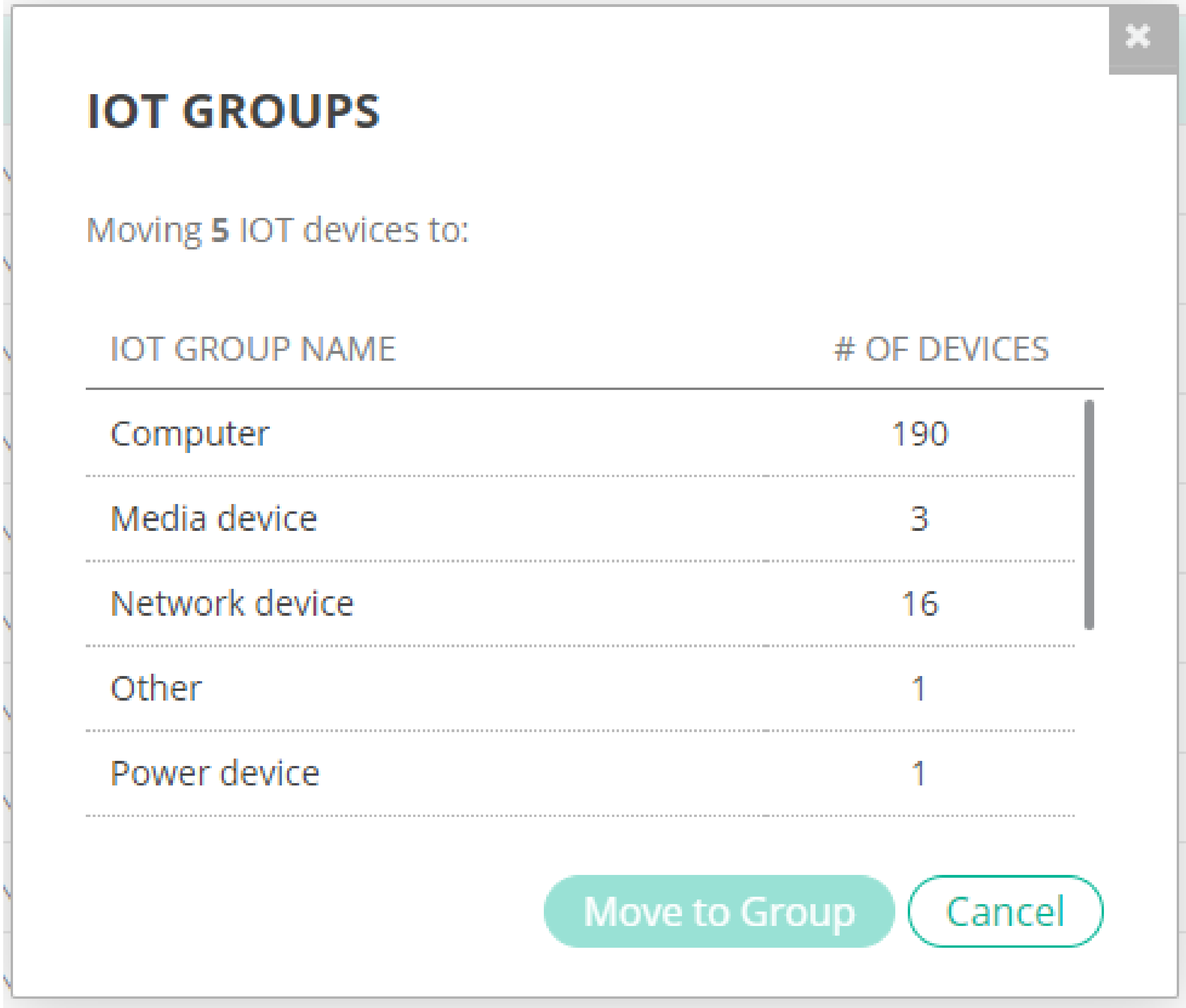
1. Click the Create group button. The following window displays:



2. Enter any name for this group and click the Create new group button.

Assigning Devices to an IoT Group

1. In the **IOT DEVICES** page, select the checkboxes of the IoT devices to be moved to a different group.
2. Select the Move to group button. The following window displays showing the names of the current IoT Groups and how many devices each contains:



IOT GROUPS

Moving **5** IOT devices to:

IOT GROUP NAME	# OF DEVICES
Computer	190
Media device	3
Network device	16
Other	1
Power device	1

3. Select the IoT Group to which to move the selected devices.
4. Click the **Move to group** button.

Deleting an IoT Device/IoT Group

Deleting an IoT Group simply means that you are deleting a logical grouping of IoT devices. These devices then become available to be selected in the default IoT Group. The IoT Group assigned as the default IoT Group cannot be deleted.

Deleting an IoT device deletes it from the FortiEDR Central Manager's console. However, if the device is still connected to your network, it will re-appear following the next network scan.

To delete an IoT device/IoT Group:

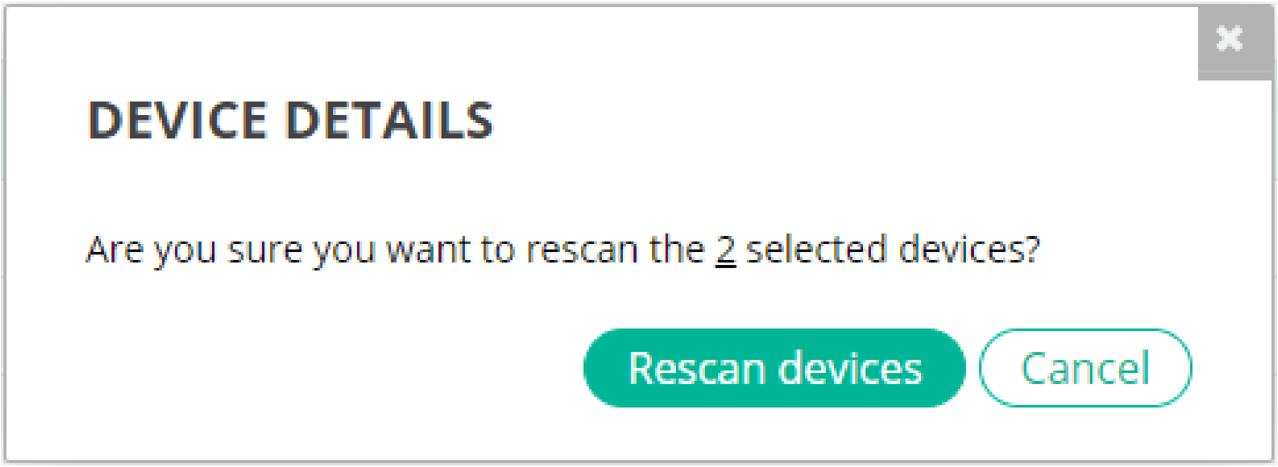
- Select the IoT Group's/IoT device's checkbox and then click the 🗑 Delete button.

Refreshing IoT Device Data

You can run a scan for a specific IoT device to recollect data for that device.

To rescan an IoT device(s):

1. Select the IoT device's checkbox for the device(s) that you want to scan and then click the Device Details button. A confirmation window displays.



DEVICE DETAILS

Are you sure you want to rescan the 2 selected devices?

2. Click the **Rescan devices** button.

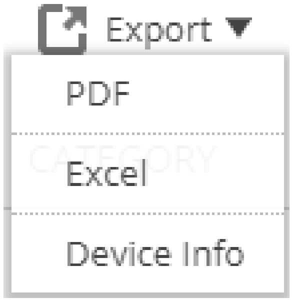
Exporting IoT Information

To export the list of IoT devices:

- Use the Export ▼ button and select Excel or PDF.

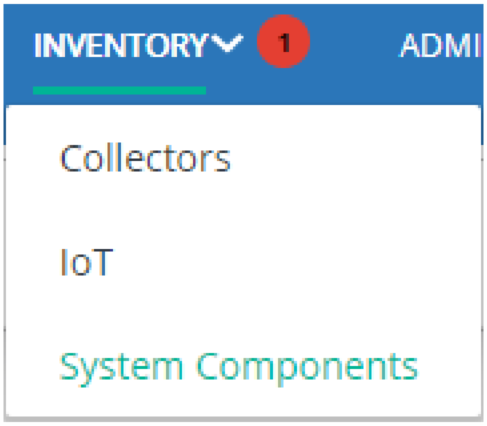
To export details for an IoT device:

- Check the checkbox of the device of interest and then select Device Info under the **Export** button. You can only export details for one device at a time. This report exports all collected data for the IoT device of interest, including additional data beyond what is presented in the user interface.

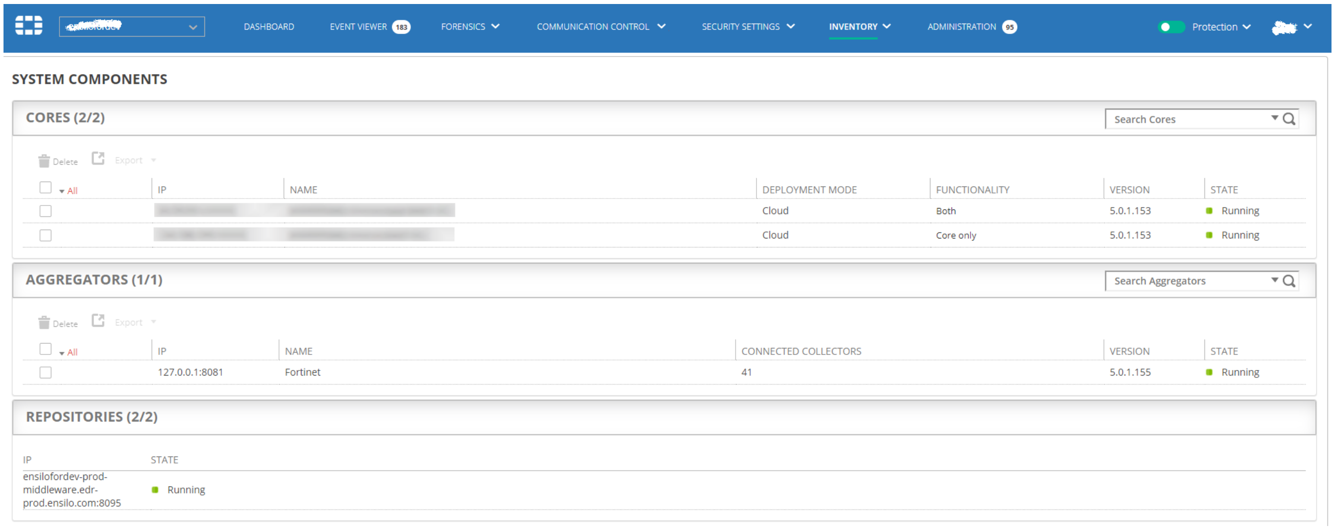


System Components

The **SYSTEM COMPONENTS** page lists the FortiEDR Aggregators, Cores and Repositories. To access this page, click the down arrow next to **INVENTORY** and then select **System Components**, as shown below.



The following displays:



SYSTEM COMPONENTS

CORES (2/2)

□ All	IP	NAME	DEPLOYMENT MODE	FUNCTIONALITY	VERSION	STATE
□	[redacted]	[redacted]	Cloud	Both	5.0.1.153	🟩 Running
□	[redacted]	[redacted]	Cloud	Core only	5.0.1.153	🟩 Running

AGGREGATORS (1/1)

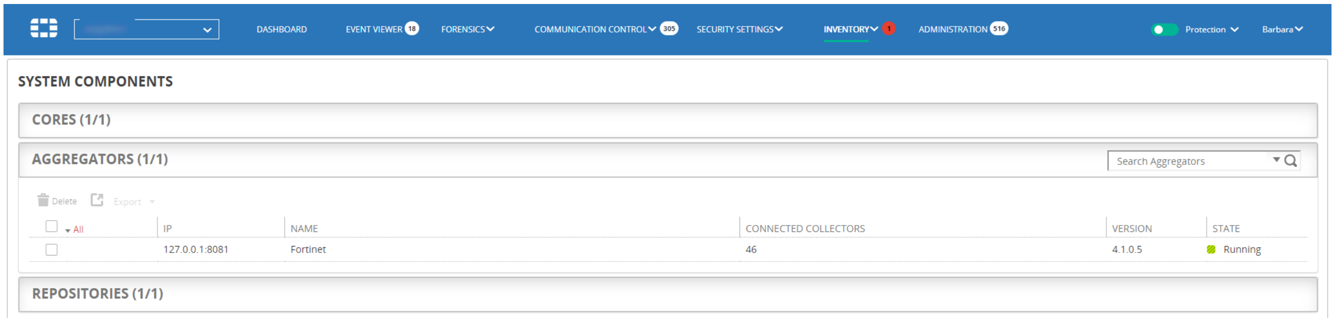
□ All	IP	NAME	CONNECTED COLLECTORS	VERSION	STATE
□	127.0.0.1:8081	Fortinet	41	5.0.1.155	🟩 Running

REPOSITORIES (2/2)

IP	STATE
ensilofordev-prod-middleware.edr-prod.ensilo.com:8095	🟩 Running

Aggregators

The **AGGREGATORS** area lists the FortiEDR Aggregators.



SYSTEM COMPONENTS

CORES (1/1)

AGGREGATORS (1/1) Search Aggregators

□ All	IP	NAME	CONNECTED COLLECTORS	VERSION	STATE
□	127.0.0.1:8081	Fortinet	46	4.1.0.5	Running

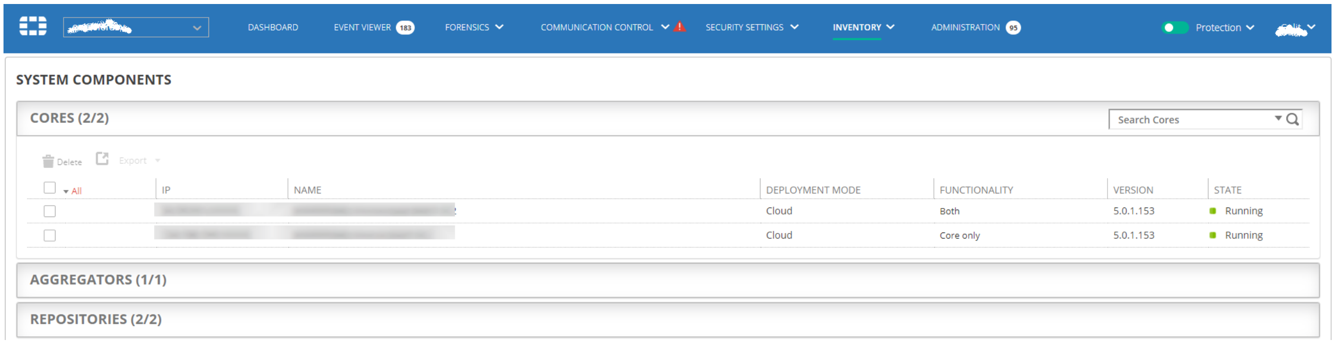
REPOSITORIES (1/1)

Click ▷ to expand the list. The following information is provided for each FortiEDR Aggregator:

Information Field	Description
Checkbox	Check this checkbox to select the Aggregator. You can then use one of the buttons at the top left of the window, such as the **Delete** button
IP	Specifies the IP address of the communicating device on which the FortiEDR Aggregator is installed.
Name	Specifies the Aggregator name entered during installation
Connected Collectors	Specifies the number of FortiEDR Collectors that have been configured to operate with this Aggregator.
Version	Specifies the version of the Aggregator software.
State	Specifies the current state of the FortiEDR Aggregator.

Cores

The **CORES** area lists the FortiEDR Cores.



SYSTEM COMPONENTS

CORES (2/2) Search Cores

□ All	IP	NAME	DEPLOYMENT MODE	FUNCTIONALITY	VERSION	STATE
□	[redacted]	[redacted]	Cloud	Both	5.0.1.153	Running
□	[redacted]	[redacted]	Cloud	Core only	5.0.1.153	Running

AGGREGATORS (1/1)

REPOSITORIES (2/2)

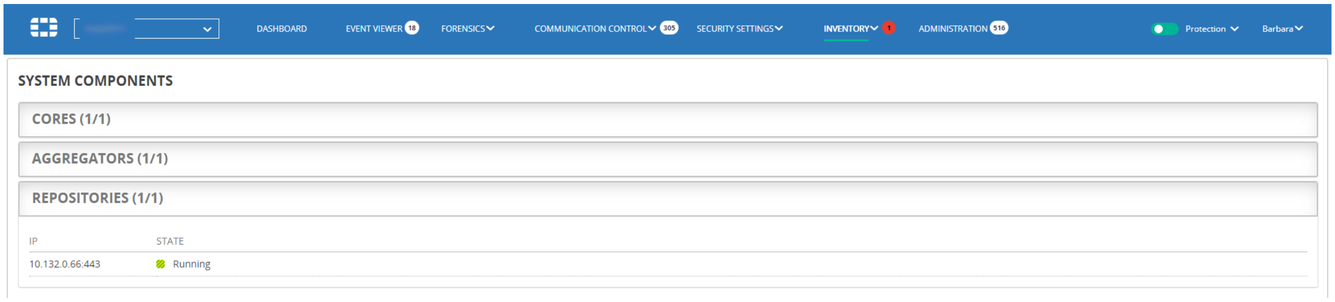
Click ▷ to expand the list. The following information is provided for each FortiEDR Core:

Information Field	Description
Checkbox	Check this checkbox to select the Core. You can then use one of the buttons at the top left of the window, such as the **Delete** button

Information Field	Description
Organization	Specifies the name of the organization in a multi-organization FortiEDR environment. In a single-organization FortiEDR system, this column does not appear.
IP	Specifies the IP address of the communicating device on which the FortiEDR Core is installed.
Name	Specifies the FortiEDR Core name entered during installation
Deployment Mode	Specifies whether the FortiEDR Core is physically deployed on your organization's premises (On-Premise) or in the cloud provided by Fortinet (Cloud). The following deployment options are available. • Cloud • On-premise
Functionality	Specifies the core's functionality and enables you to modify it by selecting one of the following options: • **Core only** – Specifies that the system provides basic FortiEDR Core functionality: events processing, communication control handling, activity events proxy to the Repository and so on. • **JumpBox** – Specifies that the FortiEDR Core is used by the Central Manager (the central web user interface) as a JumpBox, while the JumpBox connects to the LDAP, sandbox or to the products. No basic Core functionalities are provided. **Note**: The JumpBox can also be used in the Cloud, not only when the Core is on-premise. • **Both** – Provides both **Core** and **JumpBox** functionality, as described above. **Note**:It is not mandatory to have a Core with JumpBox functionality. However, removing JumpBox functionality (by selecting the Core only option) may affect previously defined connectors, thus causing them to be nonfunctional. In this case, an appropriate message is displayed.
Version	Specifies the version of the FortiEDR Core.
State	Specifies the current state of the FortiEDR Core.

Repositories

The **REPOSITORIES** area shows details about the FortiEDR Threat Hunting Repository server.



SYSTEM COMPONENTS

CORES (1/1)

AGGREGATORS (1/1)

REPOSITORIES (1/1)

IP	STATE
10.132.0.66:443	🟩 Running

Click ▷ to expand the list. The following information is provided for each FortiEDR Repository:

- **IP**: Specifies the IP and port address of the communicating device on which the FortiEDR Repository is installed.
- **STATE**: Specifies the current state of the FortiEDR Repository.

Exporting Logs

Exporting Logs

The Export Logs feature enables you to retrieve technical information from the FortiEDR devices deployed in the organization, such as from Collectors, Cores, Aggregators and the Management server. The retrievable technical content describes the activities of each FortiEDR device. Typically, the technical content contains logs and statistical information. The retrieved technical content is password-protected. The password is enCrypted.

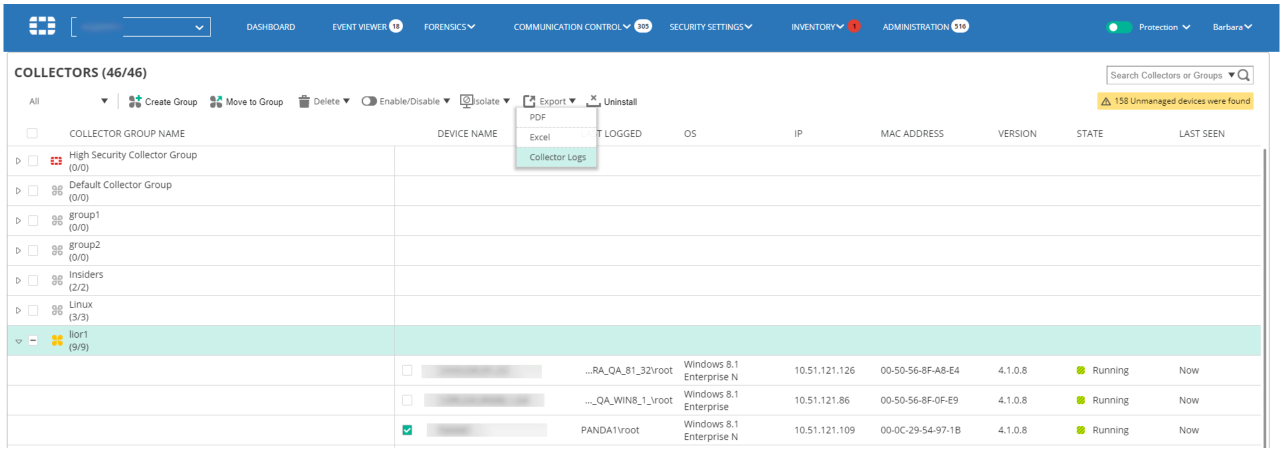
Logs only need to be retrieved when Fortinet technical support requests that you provide them. There is no need for you to analyze the data contained in the FortiEDR logs. You can retrieve logs for the following:

- Exporting Logs for Collectors on page 117
- Exporting Logs for Cores on page 118
- Exporting Logs for Aggregators on page 119

Exporting Logs for Collectors

To export Collector logs:

1. In the **COLLECTORS** page, select the checkboxes of the FortiEDR Collectors for which you want to export logs.

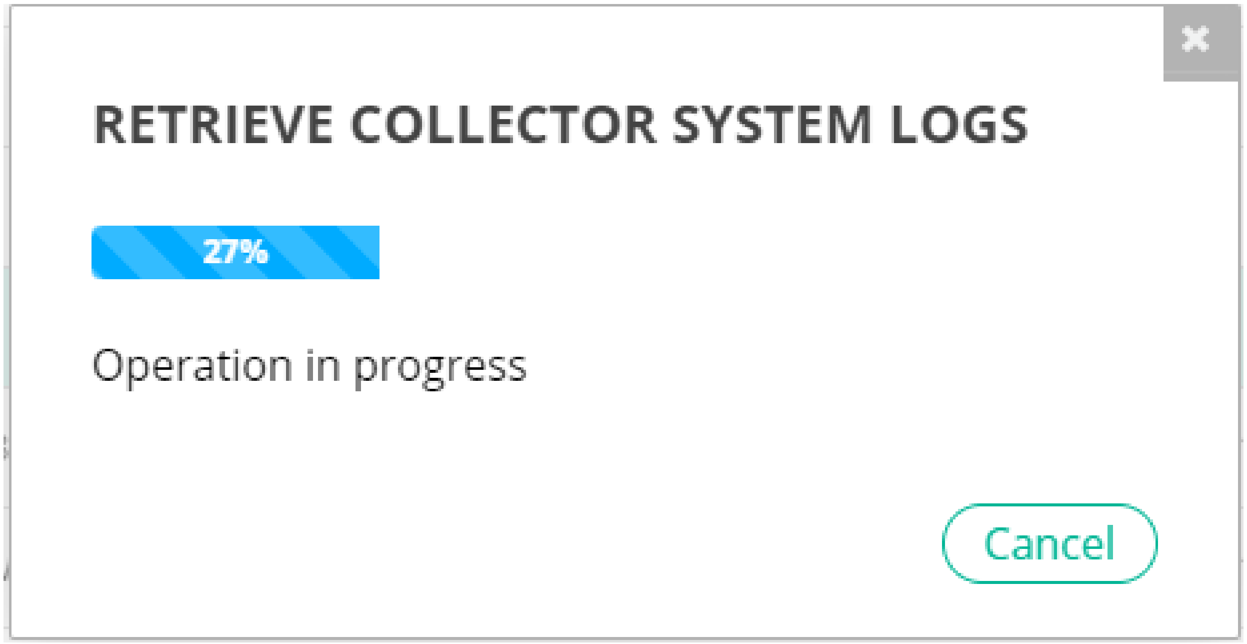


COLLECTORS (46/46)

⚠ 158 Unmanaged devices were found

	COLLECTOR GROUP NAME	DEVICE NAME	LAST LOGGED	OS	IP	MAC ADDRESS	VERSION	STATE	LAST SEEN
▷ □	High Security Collector Group (0/0)								
▷ □	Default Collector Group (0/0)								
▷ □	group1 (0/0)								
▷ □	group2 (0/0)								
▷ □	Insiders (2/2)								
▷ □	Linux (3/3)								
▽ ⊟	lior1 (9/9)								
		□ [redacted]	...RA_QA_81_32\root	Windows 8.1 Enterprise N	10.51.121.126	00-50-56-8F-A8-E4	4.1.0.8	▨ Running	Now
		□ [redacted]	..._QA_WIN8_1_\root	Windows 8.1 Enterprise	10.51.121.86	00-50-56-8F-0F-E9	4.1.0.8	▨ Running	Now
		☑ [redacted]	PANDA1\root	Windows 8.1 Enterprise N	10.51.121.109	00-0C-29-54-97-1B	4.1.0.8	▨ Running	Now

2. Click the down arrow on the **Export** dropdown menu and select **Collector Logs**.
A progress window displays, showing the status of the Collector log retrieval process:

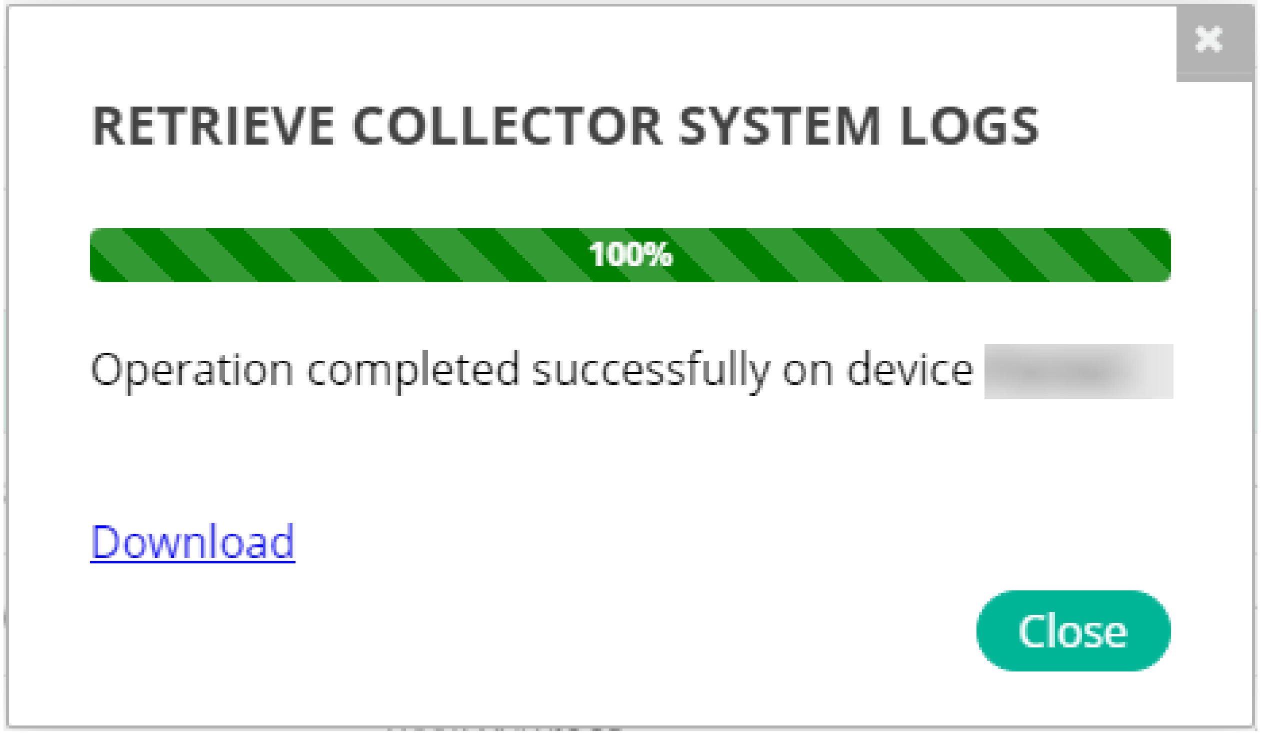


RETRIEVE COLLECTOR SYSTEM LOGS

27%

Operation in progress

After the retrieval process completes, the following window displays:



RETRIEVE COLLECTOR SYSTEM LOGS

100%

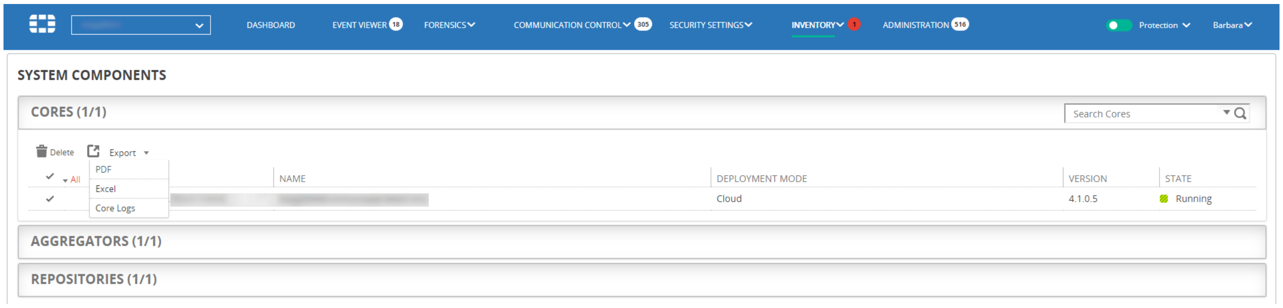
Operation completed successfully on device [redacted]

3. Click the **Download** link to automatically send the retrieved logs to Fortinet technical support.

Exporting Logs for Cores

1. In the **SYSTEM COMPONENTS** page, select the checkboxes of the FortiEDR Cores for which you want to export logs.

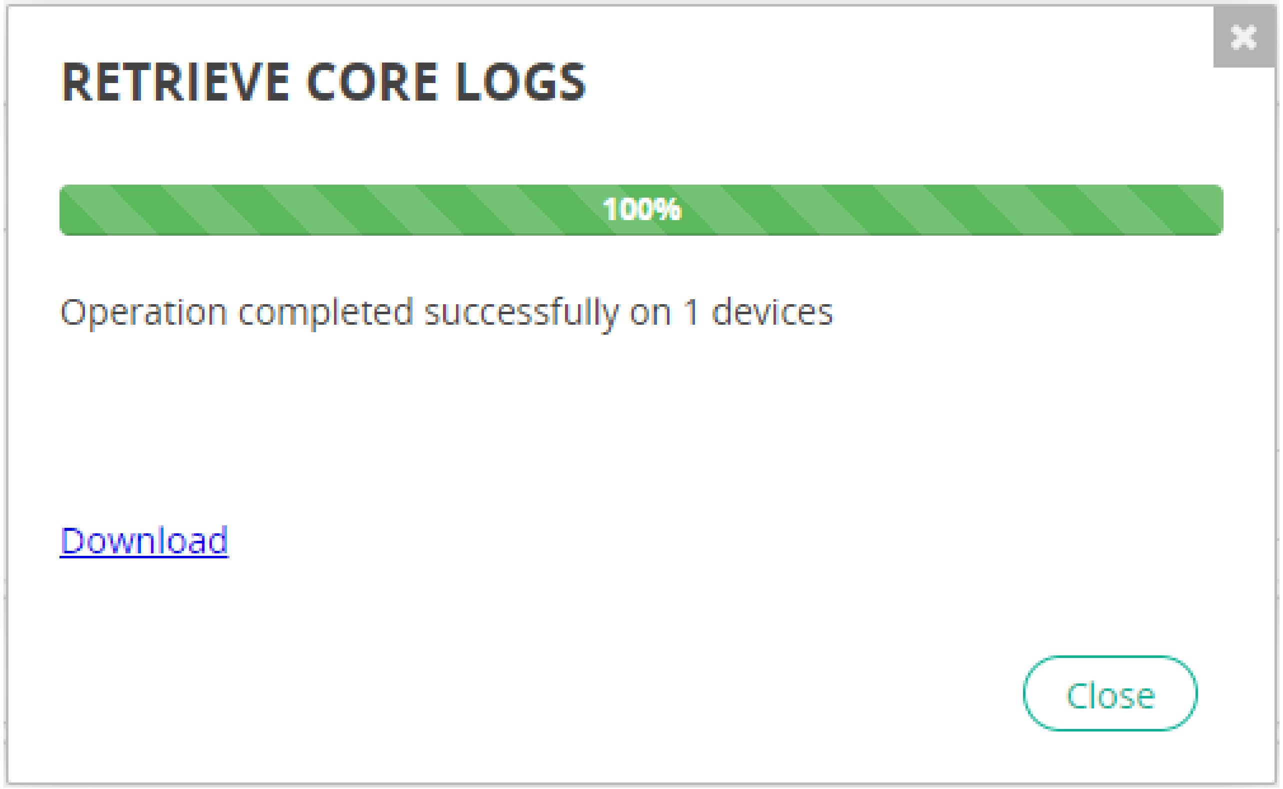
2. Click the down arrow on the **Export** dropdown menu and select **Core Logs.**



	NAME	DEPLOYMENT MODE	VERSION	STATE
[redacted]	[redacted]	Cloud	4.1.0.5	Running

A progress window displays, showing the status of the log retrieval process:

After the retrieval process completes, the following window displays:



RETRIEVE CORE LOGS

100%

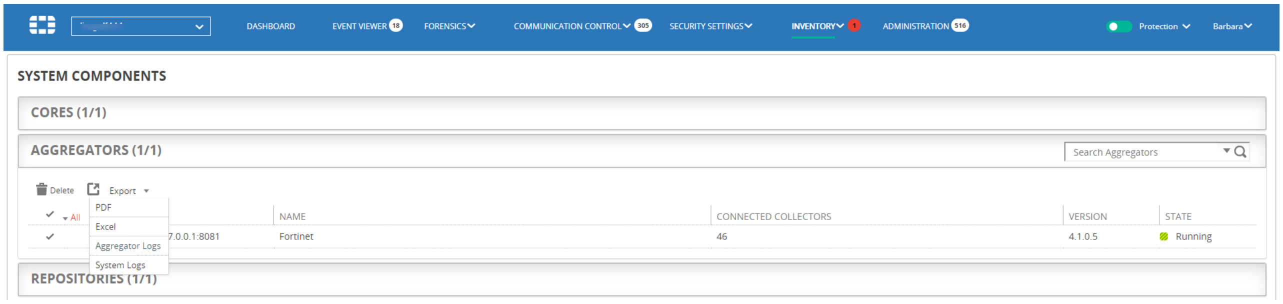
Operation completed successfully on 1 devices

3. 3 Click the **Download** link to automatically send the retrieved logs to Fortinet technical support.

Exporting Logs for Aggregators

1. In the **SYSTEM COMPONENTS** page, select the checkboxes of the FortiEDR Aggregator for which you want to export logs.

2. Click the down arrow on the **Export** dropdown menu and select one of the following options:



✓ All		NAME	CONNECTED COLLECTORS	VERSION	STATE
✓	7.0.0.1:8081	Fortinet	46	4.1.0.5	Running

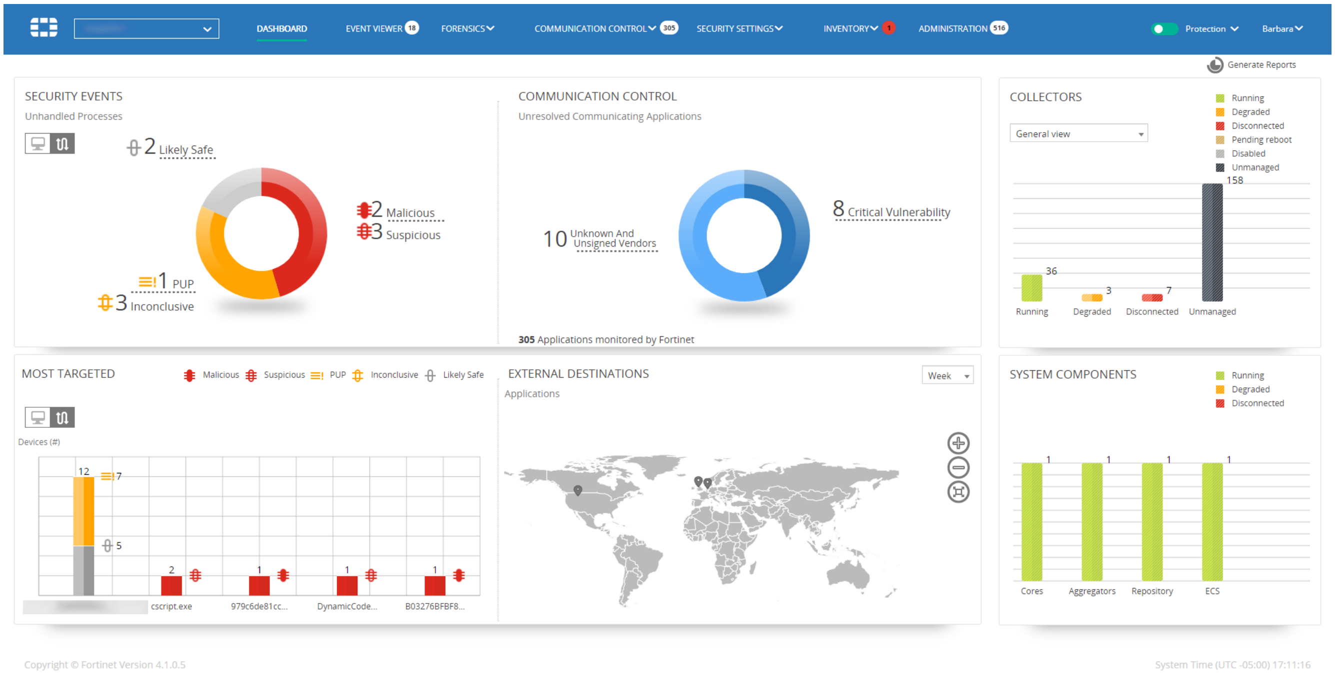
   a. **Aggregator Logs**: Exports the log for the selected Aggregator(s).
   b. **System Logs**: Exports the logs of the central Manager.
      A progress window displays.
      After the retrieval process completes, a window displays.
      Click the **Download** link to automatically send the retrieved logs to Fortinet technical support.

Dashboard

This chapter describes the FortiEDR DASHBOARD for monitoring security events.

Introduction

The FortiEDR Dashboard provides a visual overview of the FortiEDR protection of your organization. It provides an at-a-glance view of the current security events and system health. The Dashboard is automatically displayed after installation or when you click the **DASHBOARD** tab.



Note: The system time is displayed in all pages at the bottom right of the status bar. It represents the local FortiEDR server time. For example, if the FortiEDR server is located in London, and you log in from Los Angeles, USA, then the time shown is the current time in London, and not the current time in Los Angeles.

System Time (UTC +03:00) 10:17:49

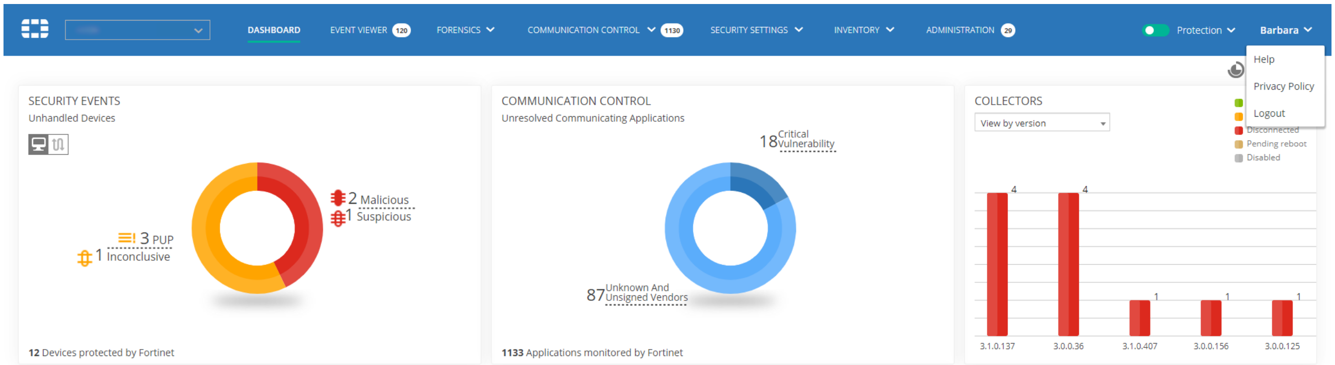
The Dashboard enables you to display two different slices or views of the data collected by FortiEDR:

- **Device View** : This view presents information by device, and represents all the security events detected on a given device.
- **Process View** : This view presents information by process, and represents all the security events detected for a given process.

Click the applicable view button at the top left of the window to display that view in the **DASHBOARD** tab.

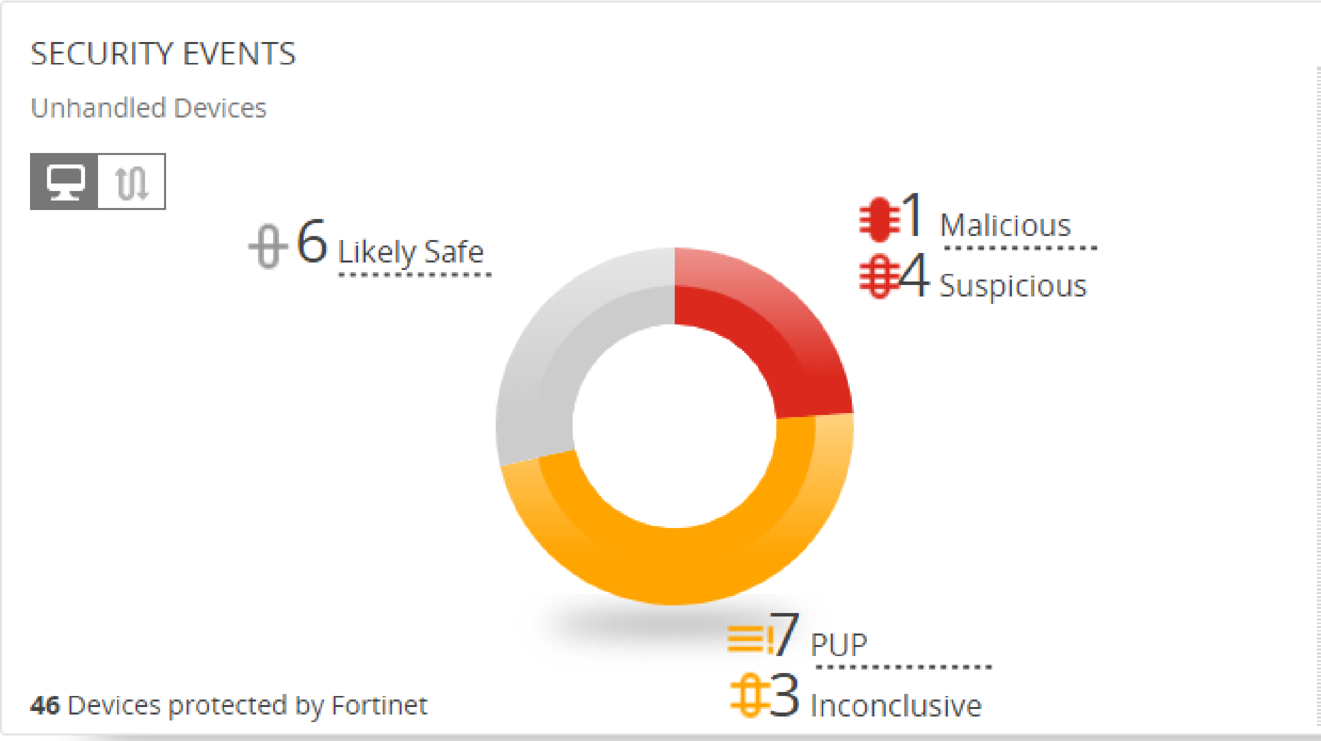
The information presented in the Dashboard represents an aggregation of events. For more details, you may refer to the Event Aggregation on page 135. FortiEDR aggregates security events in both the Device view and the Process view in the Dashboard.

Use the **Logged-in User** dropdown list at the top-right of the window to access the following options:

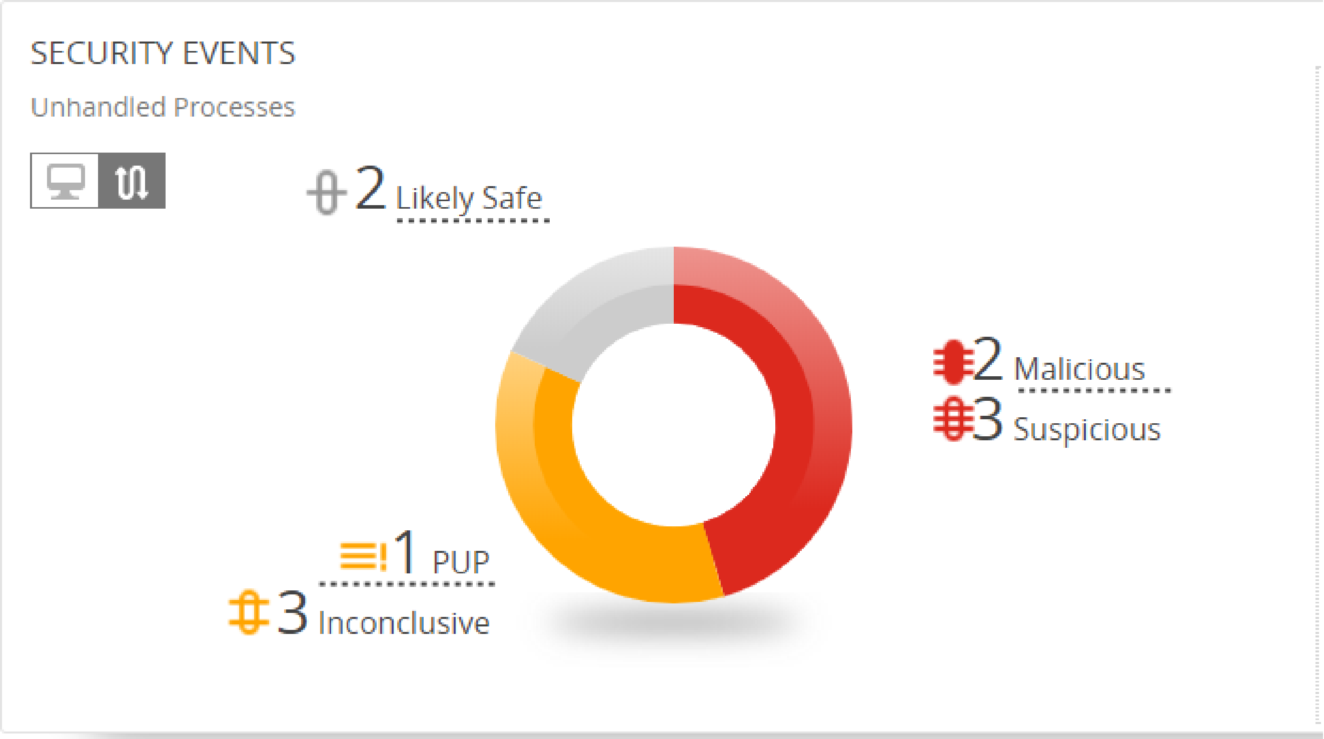


- **Help**: Enables you to download the latest version of the *FortiEDR Installation and Administration Guide.*
- **Privacy Policy**: Downloads the FortiEDR privacy policy.
- **Logout**: Exits the FortiEDR application.

Security Events Chart



The **SECURITY EVENTS** chart for the Device view shows the number of protected devices in the system at the bottom of the pane.



The **SECURITY EVENTS** chart shows the number and classification of the FortiEDR security events that have not yet been handled. The chart is color-coded according to security event classification:

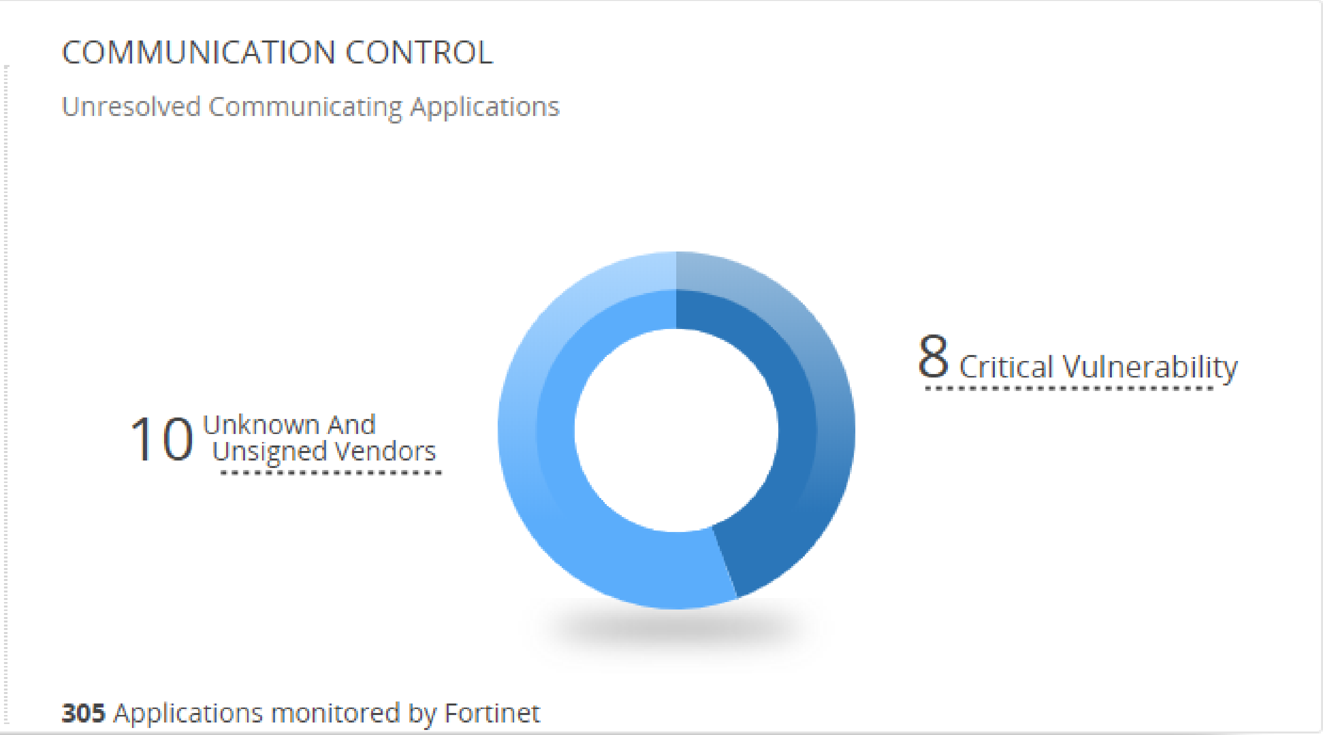
- **Red**: Critical
- **Yellow**: High
- **Grey**: Medium

Click this chart to drill down to the Event Viewer, which shows a filtered chart listing the unhandled security events (Marking a Security Event as Handled/Unhandled on page 143) according to the classification (color) that you clicked in this chart.

Each security event that is detected by the FortiEDR system is initially marked as unread and unhandled. Multiple users may be using the FortiEDR Central Manager in parallel. The **Unread** and **Unhandled** statuses enable users to keep track of whether anyone has read and handled the message.

Communication Control Chart

The **COMMUNICATION CONTROL** chart displays a breakdown of the applications with an Unresolved status detected in your organization.


COMMUNICATION CONTROL
Unresolved Communicating Applications
10 Unknown And Unsigned Vendors
8 Critical Vulnerability
305 Applications monitored by Fortinet

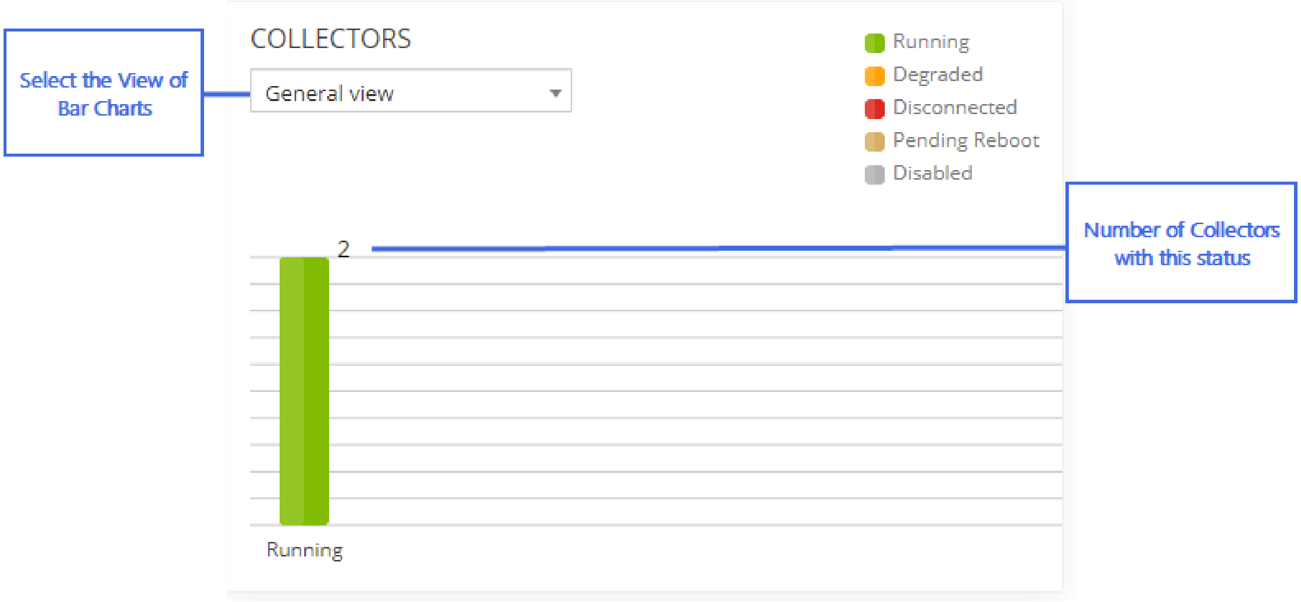
Click a box in the chart to drill down to the Communication Control.

Collectors Chart

The **COLLECTORS** chart provides an overview of FortiEDR Collectors. When in operating system view, each bar in this chart represents a different operating system: Windows, Windows Server and MacOS. In addition, when in General View mode, the window shows the number of unmanaged devices in the system.

The bar chart is color-coded and numbered to indicate the distribution of statuses among the components within the operating system group.

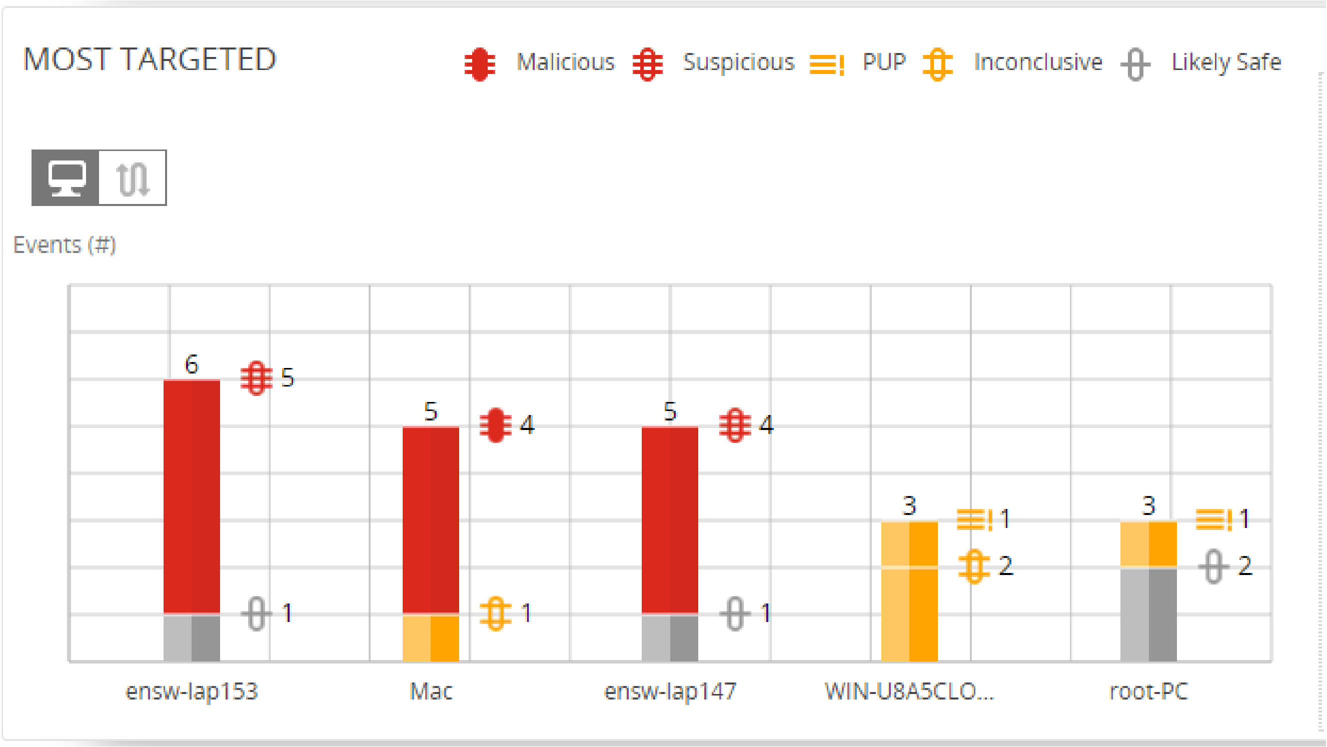
Each bar chart indicates the Version or the Operating System of that component, according to the option that you selected in the **View By** dropdown menu.



Click this chart to drill down to the relevant Inventory on page 99, which shows a filtered chart listing the Collectors with the selected Version or Operating System.

Disconnected status may indicate that the device on which the FortiEDR Collector is installed is simply powered down or disconnected from the network. It does not necessarily mean that there is a problem with that FortiEDR Collector or that device.

Most Targeted Charts

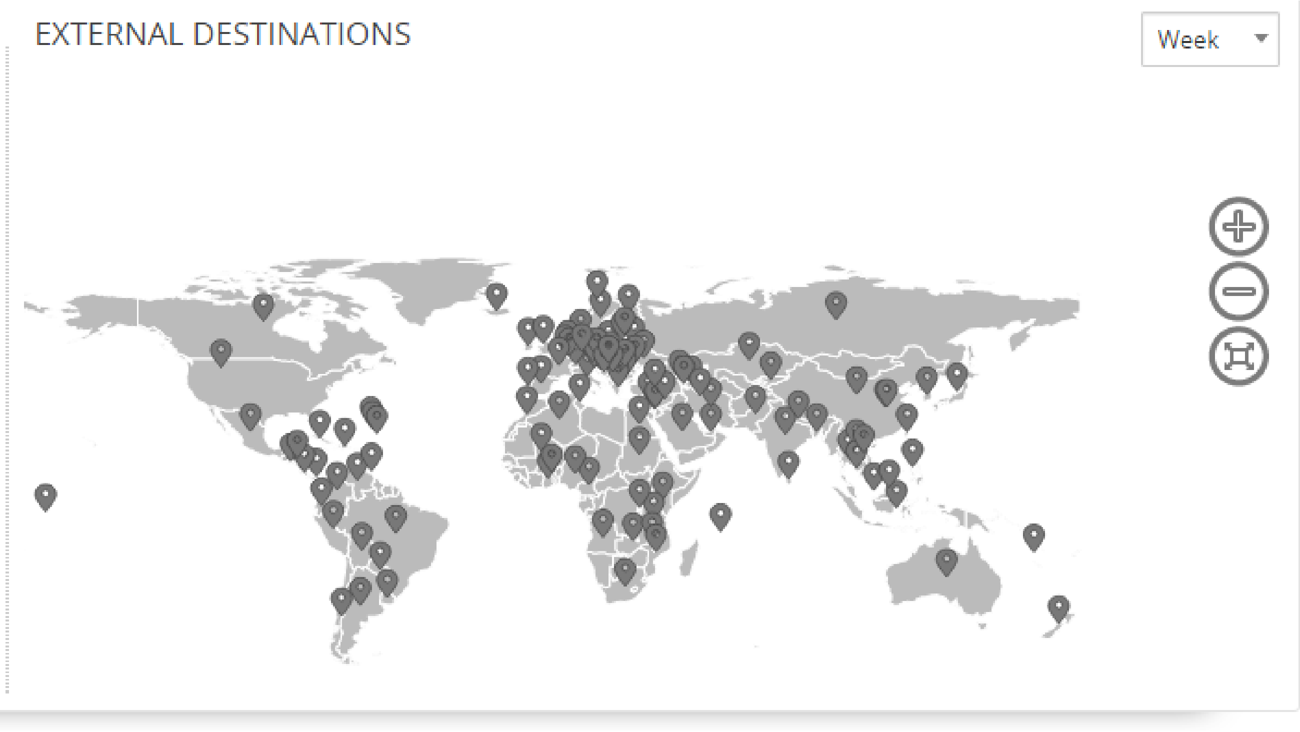


The **MOST TARGETED** chart displays the history of the most-infected and targeted processes, applications and devices. This chart is color-coded according to the classification of the attacks. The information is displayed per last day, last week or last month, according to your selection.

Click this chart to drill down to the Event Viewer on page 134, which shows a filtered chart listing the security events for the selected process or device.

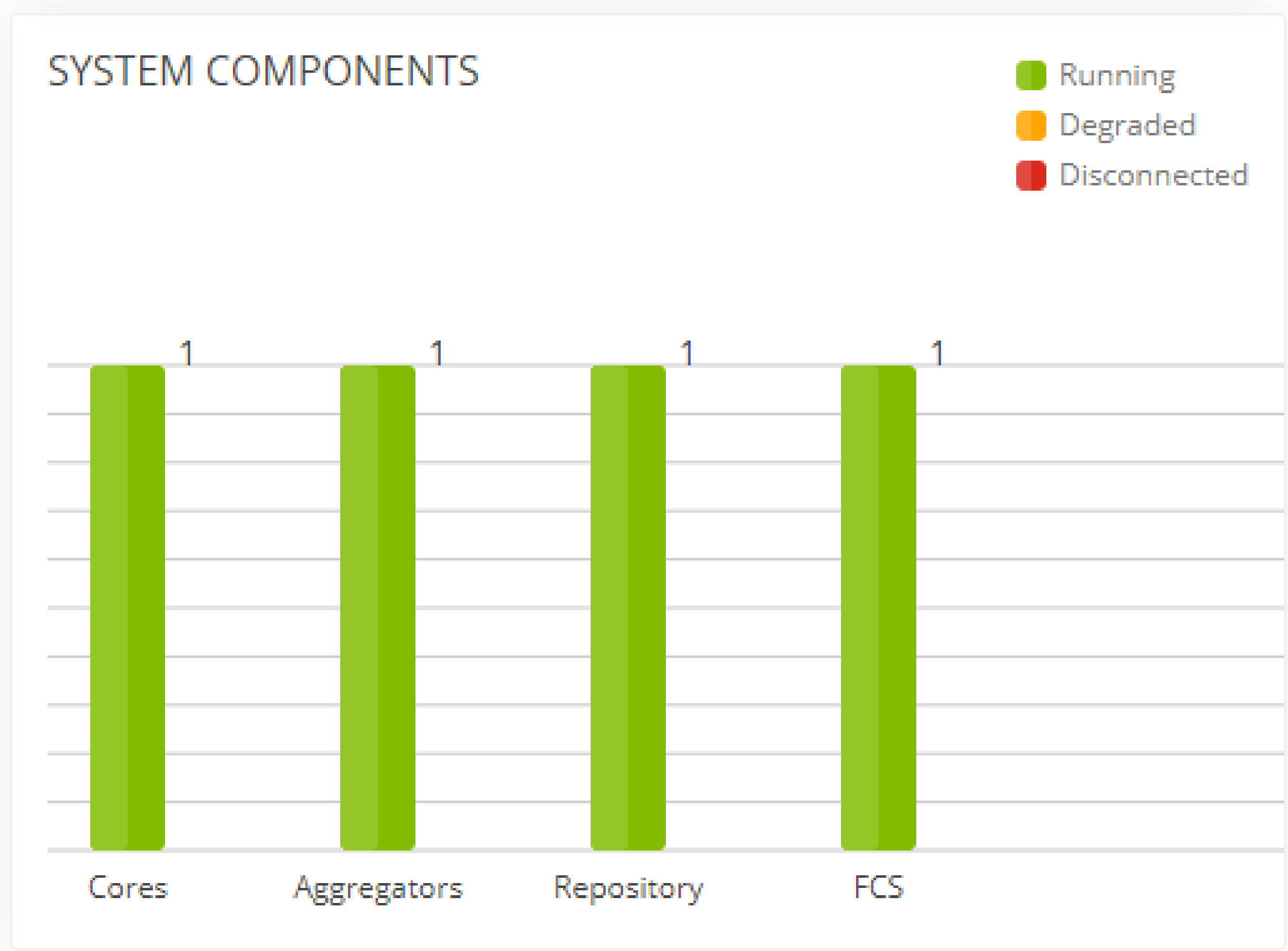
External Destinations

The EXTERNAL DESTINATIONS map displays the locations of the destinations for the security event for the past day, week or month. Select the timeframe for displaying data in the dropdown menu at the top of the pane.



EXTERNAL DESTINATIONS
Week

System Components

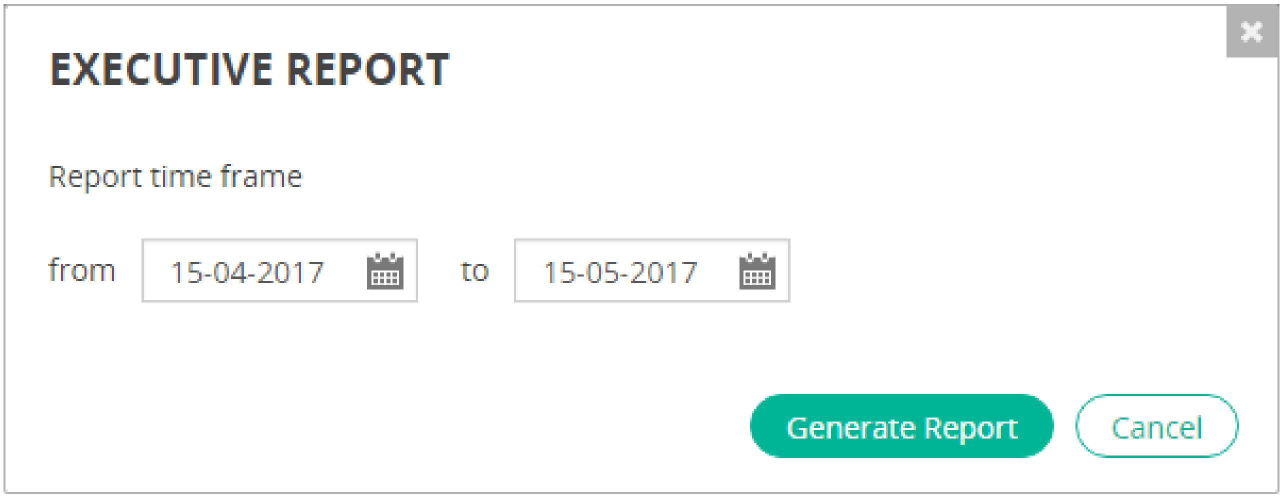


The **SYSTEM COMPONENTS** chart shows the status of the Cores, Aggregators, Threat Hunting Repository and FCS.

Executive Summary Report

The Executive Summary report provides a comprehensive summary describing security events and system health.

1. 1 Click the Generate Reports button at the top-right of the Dashboard window. The following window displays:

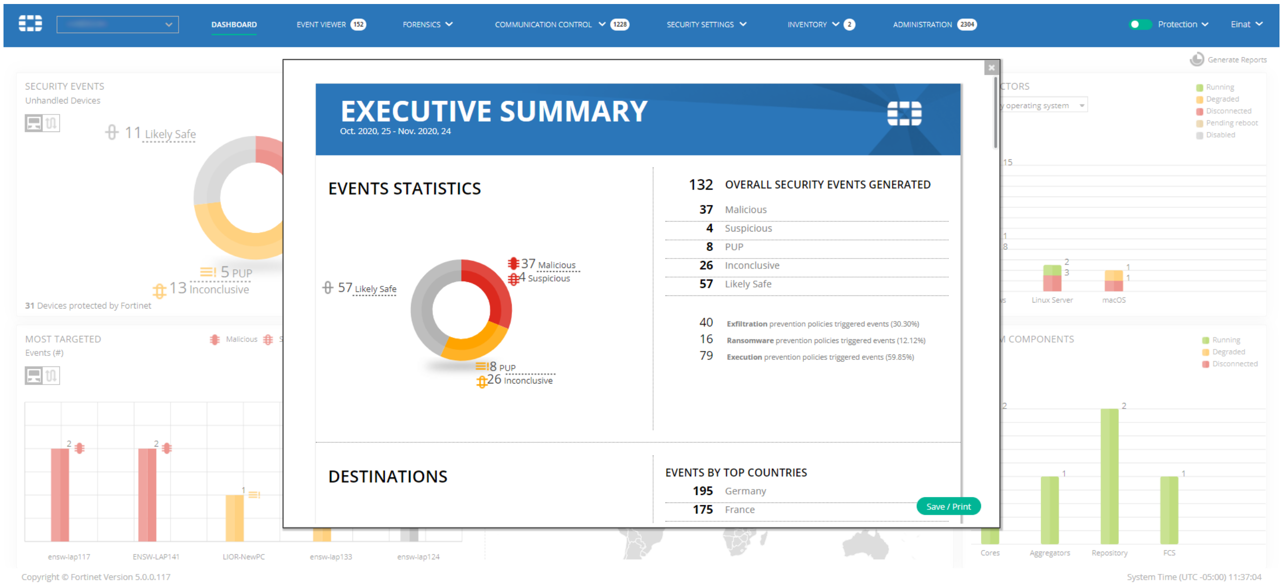


EXECUTIVE REPORT

Report time frame

from 15-04-2017 to 15-05-2017

2. Specify the timeframe for the report in the **From/To** fields. The default period for the report is one month.
3. Click **Generate Report**. The report opens in a pop-up window.



EXECUTIVE SUMMARY
Oct. 2020, 25 - Nov. 2020, 24

EVENTS STATISTICS

132	OVERALL SECURITY EVENTS GENERATED
37	Malicious
4	Suspicious
8	PUP
26	Inconclusive
57	Likely Safe

40	**Exfiltration** prevention policies triggered events (30.30%)
16	**Ransomware** prevention policies triggered events (12.12%)
79	**Execution** prevention policies triggered events (59.85%)

DESTINATIONS

EVENTS BY TOP COUNTRIES

195	Germany
175	France

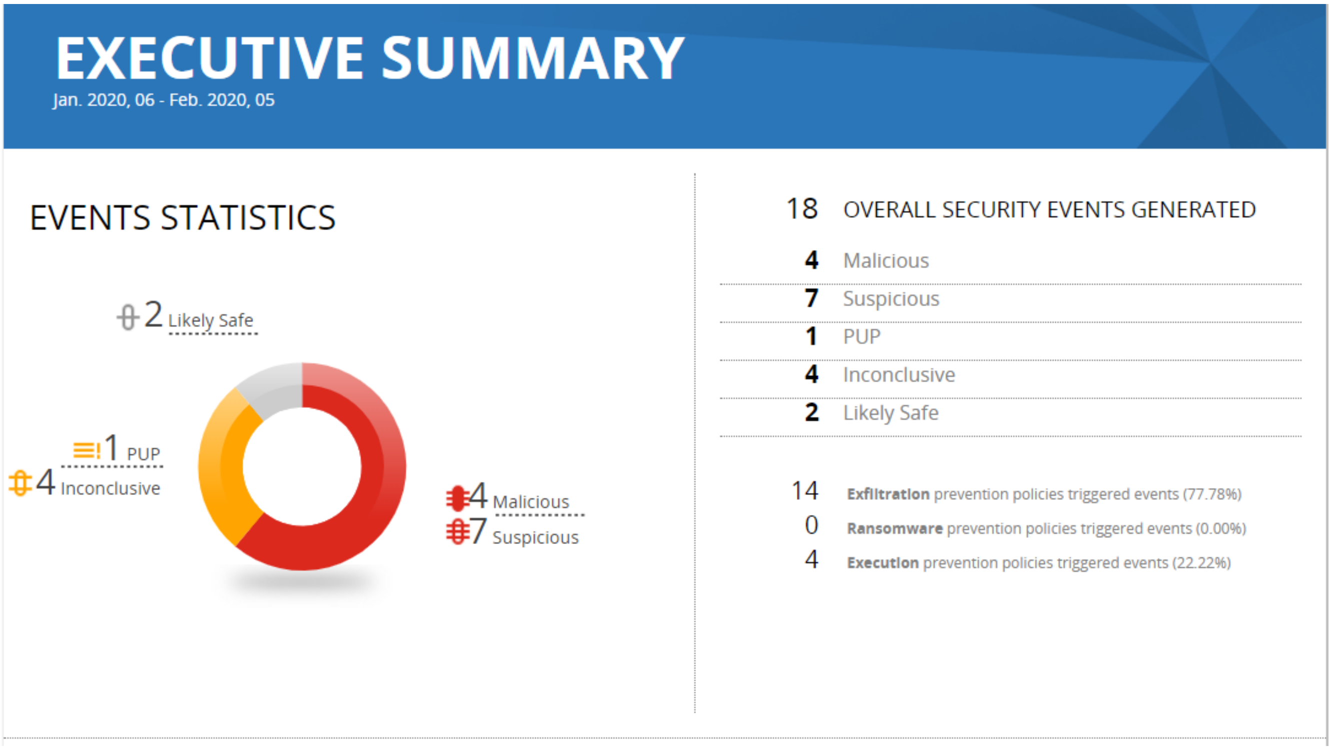
4. 4 Click **Save/Print** to save or print the report.

   The report presents several sections of information, as follows:

   - Event Statistics on page 130
   - Destinations on page 130
   - Most-targeted Devices on page 131
   - Most-targeted Processes on page 131
   - Communication Control on page 132
   - System Components on page 132
   - License Status on page 133

Event Statistics

The Event Statistics section of the Executive Summary report displays a breakdown of the security events created during the timeframe of the report. Security events are classified by classification. The total number and percentage of events triggered by the Exfiltration and Ransomware policies are also displayed. For more details, seeEvent Viewer on page 134.



EXECUTIVE SUMMARY
Jan. 2020, 06 - Feb. 2020, 05

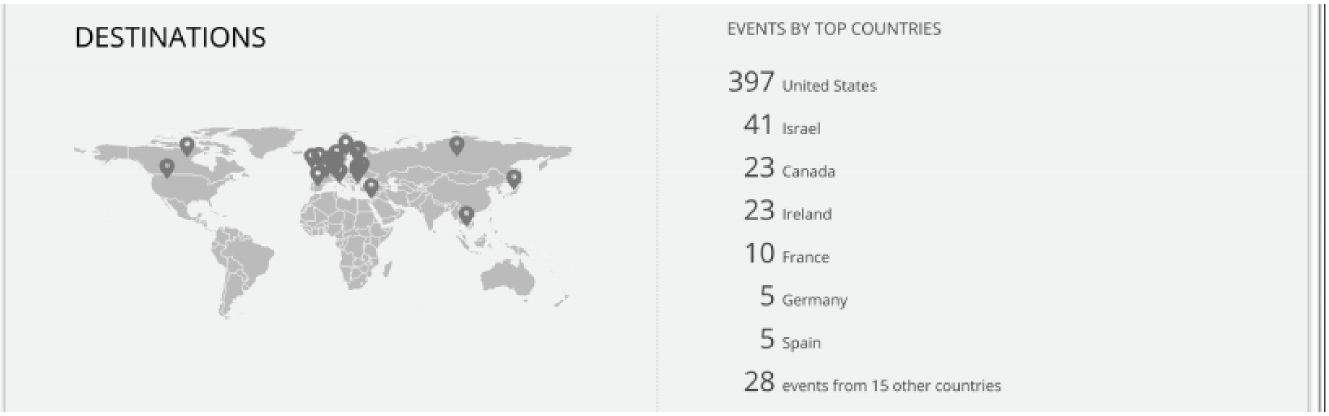
EVENTS STATISTICS

18	OVERALL SECURITY EVENTS GENERATED
4	Malicious
7	Suspicious
1	PUP
4	Inconclusive
2	Likely Safe

14	**Exfiltration** prevention policies triggered events (77.78%)
0	**Ransomware** prevention policies triggered events (0.00%)
4	**Execution** prevention policies triggered events (22.22%)

Destinations

The Destination section of the Executive Summary report displays a map of all the destinations for the security events triggered during the timeframe of the report. The names of the top seven countries with the most security events are shown. There is a pin on the map for each represented country. For more details, see External Destinations on page 126.



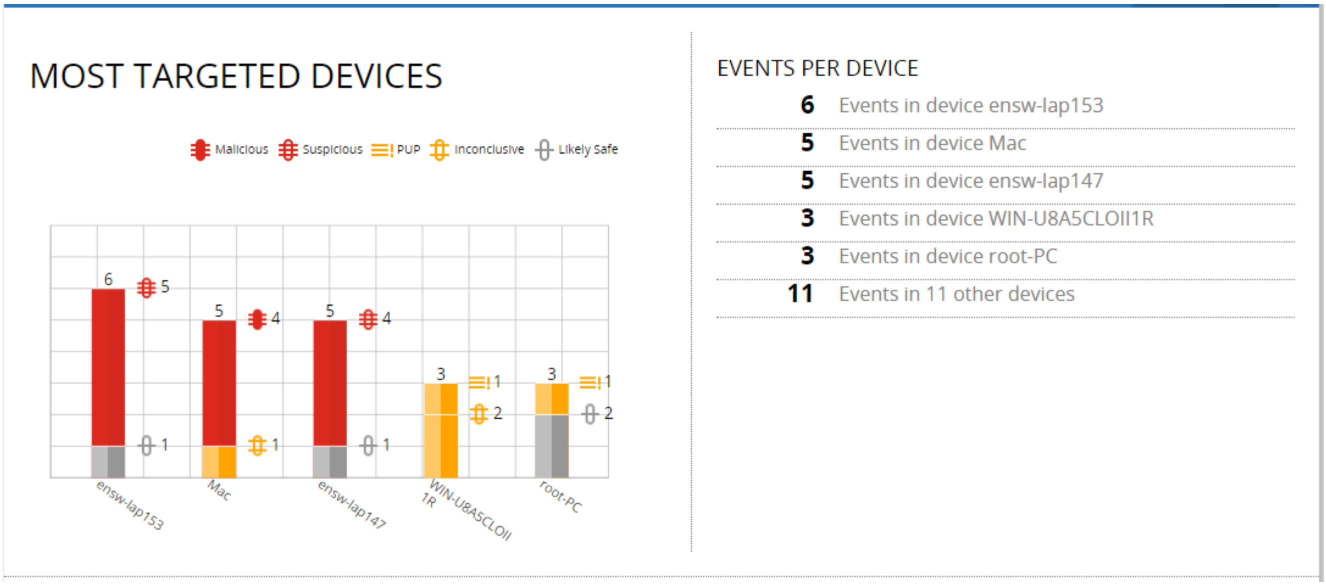
DESTINATIONS

EVENTS BY TOP COUNTRIES

397	United States
41	Israel
23	Canada
23	Ireland
10	France
5	Germany
5	Spain
28	events from 15 other countries

Most-targeted Devices

The Most Targeted Devices section of the Executive Summary report displays all the security events in the system during the timeframe of the report. A breakdown for the top-five most-targeted devices is shown. For more details, see the Most Targeted Charts on page 126.

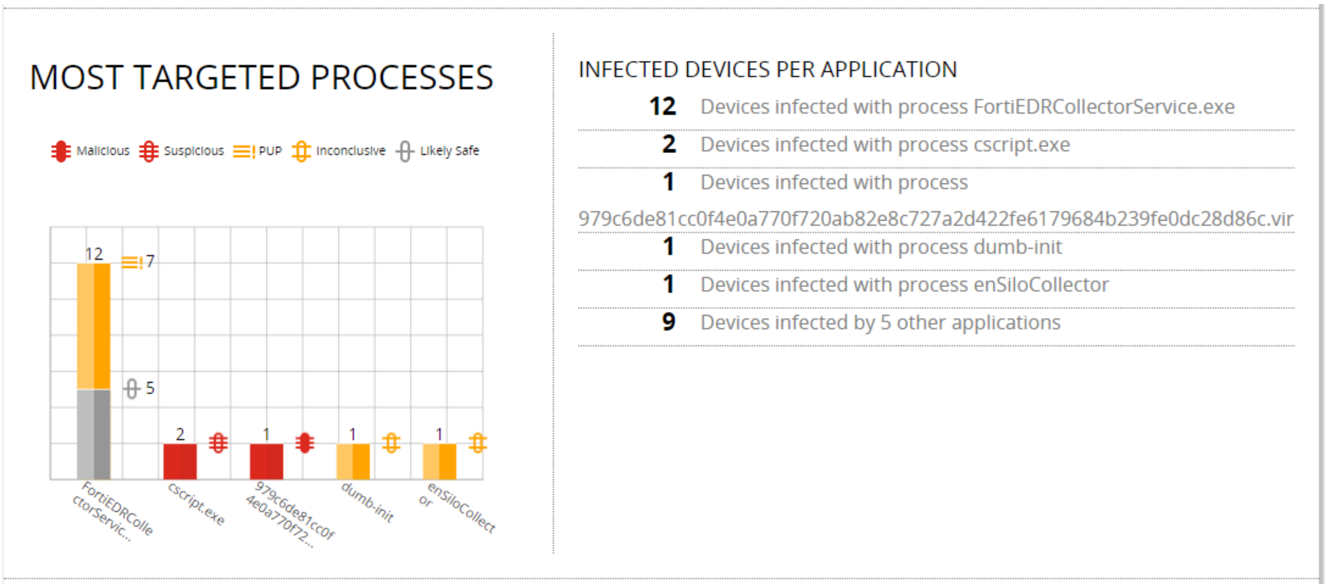


EVENTS PER DEVICE

6	Events in device ensw-lap153
5	Events in device Mac
5	Events in device ensw-lap147
3	Events in device WIN-U8A5CLOII1R
3	Events in device root-PC
11	Events in 11 other devices

Most-targeted Processes

The Most Targeted Processes section of the Executive Summary report displays all the security events in the system during the timeframe of the report. A breakdown for the top-five most-targeted processes is shown. For more details, see the Most Targeted Charts on page 126.

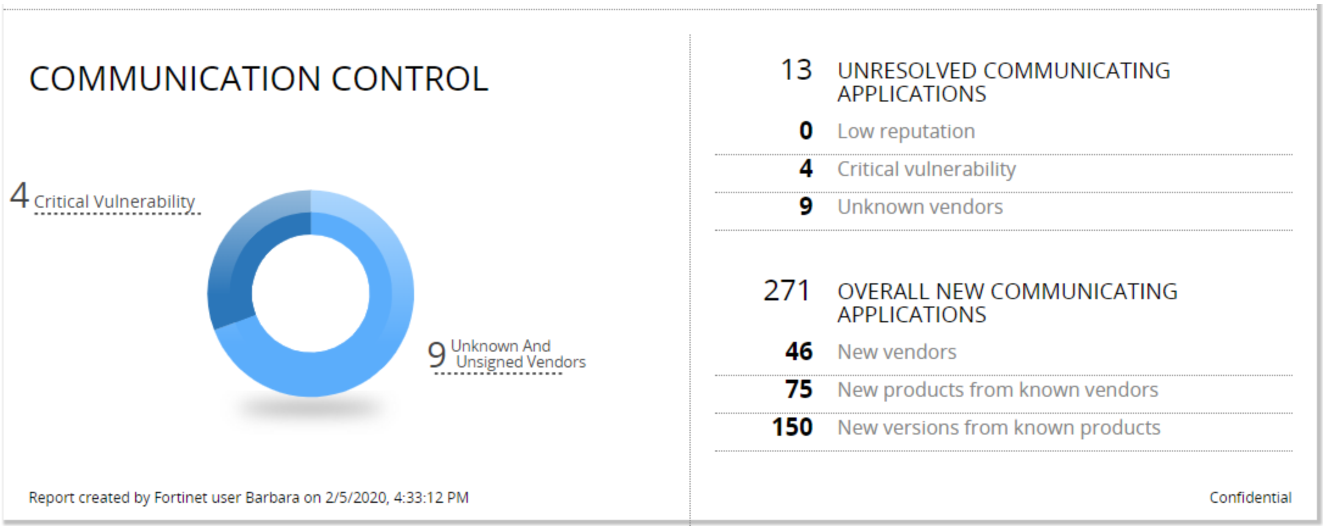


INFECTED DEVICES PER APPLICATION

12	Devices infected with process FortiEDRCollectorService.exe
2	Devices infected with process cscript.exe
1	Devices infected with process 979c6de81cc0f4e0a770f720ab82e8c727a2d422fe6179684b239fe0dc28d86c.vir
1	Devices infected with process dumb-init
1	Devices infected with process enSiloCollector
9	Devices infected by 5 other applications

Communication Control

The Communication Control section of the Executive Summary report displays the number of applications detected for the first time during the timeframe of the report. In addition, it shows how many of these applications have suspicious characteristics, such as low reputation or critical vulnerabilities. For more details, see Communication Control on page 175.



COMMUNICATION CONTROL

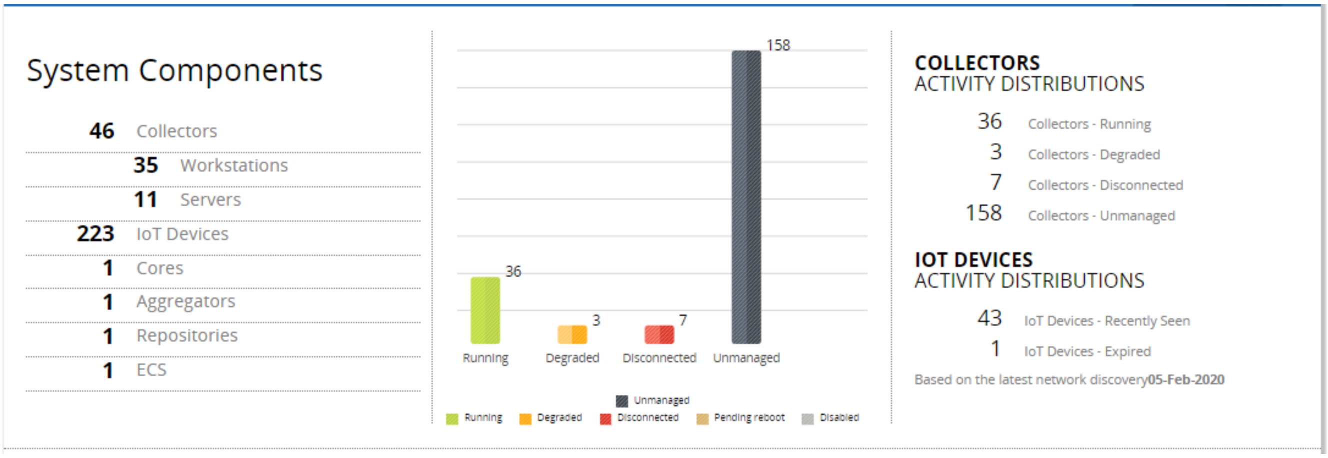
13	UNRESOLVED COMMUNICATING APPLICATIONS
0	Low reputation
4	Critical vulnerability
9	Unknown vendors
271	OVERALL NEW COMMUNICATING APPLICATIONS
46	New vendors
75	New products from known vendors
150	New versions from known products

Report created by Fortinet user Barbara on 2/5/2020, 4:33:12 PM

Confidential

System Components

The System Components section of the Executive Summary report displays a bar chart showing the Collectors in the system by their state. In addition, it shows a breakdown of the components in the system, the number of detected IoT devices and the number of unmanaged devices (non-IoT devices on which no Collector is installed). For more details, see the FortiEDR Components on page 13. For more details about IoT devices, see IoT Devices on page 110. For more details about unmanaged devices, Unmanaged Devices on page 109.



System Components

46	Collectors
35	Workstations
11	Servers
223	IoT Devices
1	Cores
1	Aggregators
1	Repositories
1	ECS

COLLECTORS
ACTIVITY DISTRIBUTIONS

36	Collectors - Running
3	Collectors - Degraded
7	Collectors - Disconnected
158	Collectors - Unmanaged

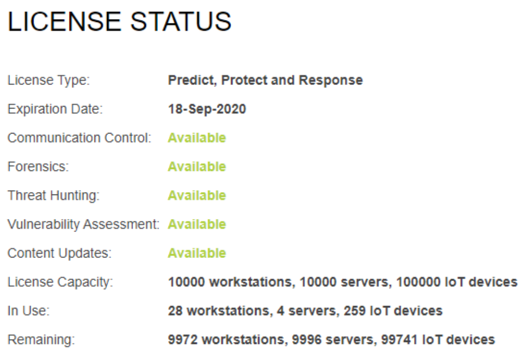
IOT DEVICES
ACTIVITY DISTRIBUTIONS

43	IoT Devices - Recently Seen
1	IoT Devices - Expired

Based on the latest network discovery**05-Feb-2020**

License Status

The License Status section of the Executive Summary report displays a summary of license-related information. For more details, see Licensing on page 252.



LICENSE STATUS

License Type:	**Predict, Protect and Response**
Expiration Date:	**18-Sep-2020**
Communication Control:	**Available**
Forensics:	**Available**
Threat Hunting:	**Available**
Vulnerability Assessment:	**Available**
Content Updates:	**Available**
License Capacity:	**10000 workstations, 10000 servers, 100000 IoT devices**
In Use:	**28 workstations, 4 servers, 259 IoT devices**
Remaining:	**9972 workstations, 9996 servers, 99741 IoT devices**

Event Viewer

This chapter describes the FortiEDR Event Viewer for monitoring and handling security events.

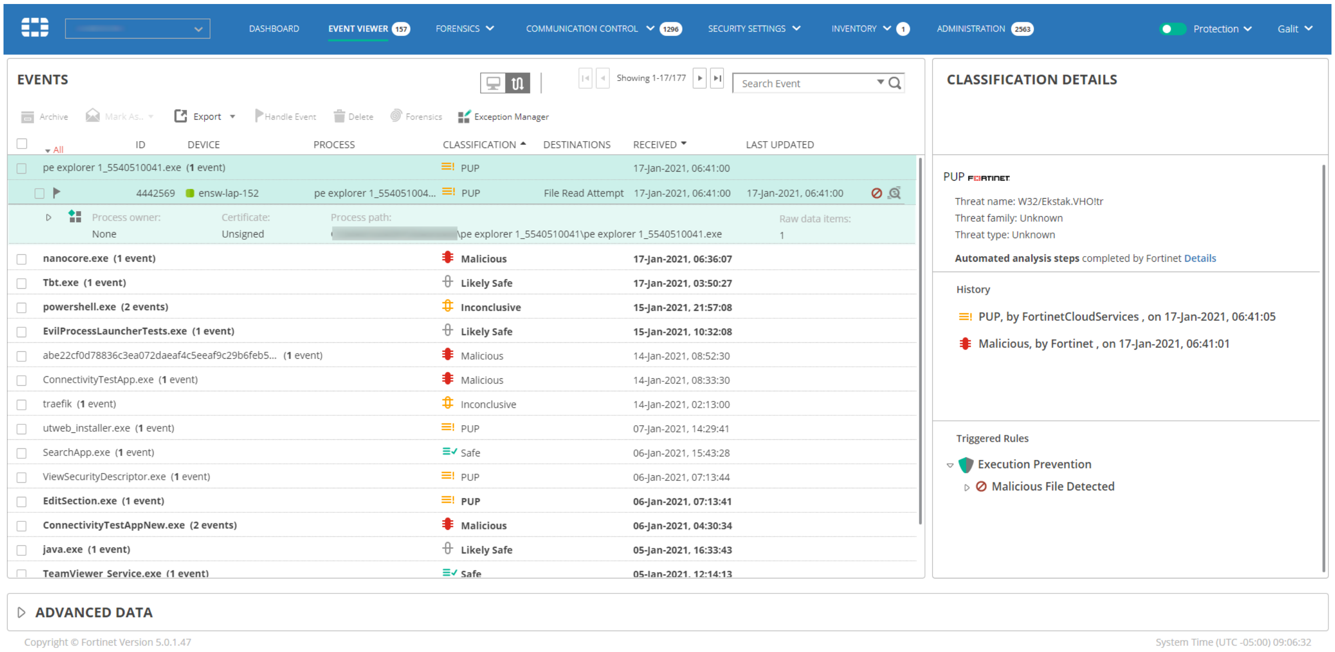
Introducing the Event Viewer

Upon connection establishment attempt, each FortiEDR Collectors sends relevant metadata to the FortiEDR Core, which sends it on to the FortiEDR Aggregator so that it can be displayed in the FortiEDR Central Manager Event Viewer. The Event Viewer enables you to view, investigate and acknowledge handling of each such security event. A row is displayed for each event.

The Event Viewer enables you to display two different slices or views of the event data collected by FortiEDR:

- **Device View**: This view presents information by device, and shows all the security events detected on a given device.
- **Process View**: This view presents information by process, and shows all the security events detected for a given process.

Click the applicable view button at the top center of the window to display that view.



EVENTS

All	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED
pe explorer 1_5540510041.exe (1 event)				PUP		17-Jan-2021, 06:41:00	
	4442569	ensw-lap-152	pe explorer 1_554051004...	PUP	File Read Attempt	17-Jan-2021, 06:41:00	17-Jan-2021, 06:41:00
Process owner: None		Certificate: Unsigned	Process path: [redacted]\pe explorer 1_5540510041\pe explorer 1_5540510041.exe				Raw data items: 1
nanocore.exe (1 event)				Malicious		17-Jan-2021, 06:36:07	
Tbt.exe (1 event)				Likely Safe		17-Jan-2021, 03:50:27	
powershell.exe (2 events)				Inconclusive		15-Jan-2021, 21:57:08	
EvilProcessLauncherTests.exe (1 event)				Likely Safe		15-Jan-2021, 10:32:08	
abe22cf0d78836c3ea072daeaf4c5eeaf9c29b6feb5... (1 event)				Malicious		14-Jan-2021, 08:52:30	
ConnectivityTestApp.exe (1 event)				Malicious		14-Jan-2021, 08:33:30	
traefik (1 event)				Inconclusive		14-Jan-2021, 02:13:00	
utweb_installer.exe (1 event)				PUP		07-Jan-2021, 14:29:41	
SearchApp.exe (1 event)				Safe		06-Jan-2021, 15:43:28	
ViewSecurityDescriptor.exe (1 event)				PUP		06-Jan-2021, 07:13:44	
EditSection.exe (1 event)				PUP		06-Jan-2021, 07:13:41	
ConnectivityTestAppNew.exe (2 events)				Malicious		06-Jan-2021, 04:30:34	
java.exe (1 event)				Likely Safe		05-Jan-2021, 16:33:43	
TeamViewer Service.exe (1 event)				Safe		05-Jan-2021, 12:14:13	

CLASSIFICATION DETAILS

PUP FORTINET

Threat name: W32/Ekstak.VHO!tr
Threat family: Unknown
Threat type: Unknown

Automated analysis steps completed by Fortinet Details

History

PUP, by FortinetCloudServices , on 17-Jan-2021, 06:41:05

Malicious, by Fortinet , on 17-Jan-2021, 06:41:01

Triggered Rules

Execution Prevention
Malicious File Detected

ADVANCED DATA

Copyright © Fortinet Version 5.0.1.47

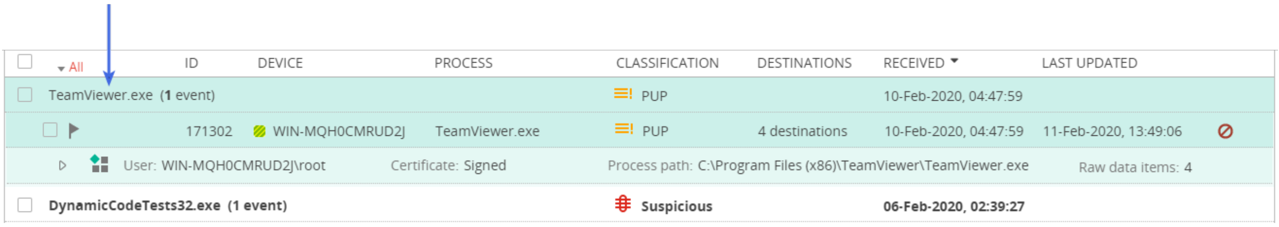
System Time (UTC -05:00) 09:06:32

Note: Security events that were triggered by Saved Queries appear slightly different in the Event Viewer, as Event Viewer on page 134

Event Aggregation

For convenience and easier navigation, FortiEDR aggregates security events in both the Device view and the Process view in the Event Viewer, as follows:

- Each primary-level row represents a device/process.



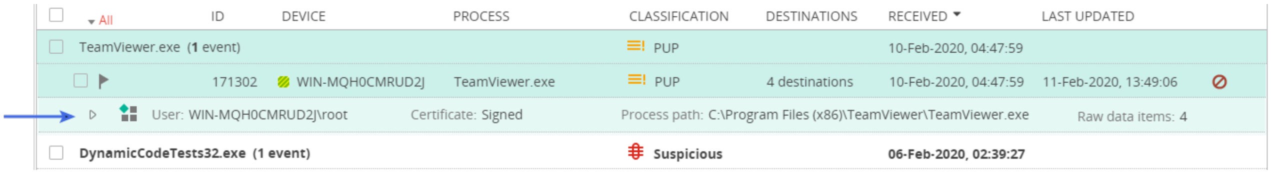
□ ▾ All	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED ▾	LAST UPDATED	
□ TeamViewer.exe (**1** event)				PUP		10-Feb-2020, 04:47:59		
□ ⚑	171302	WIN-MQH0CMRUD2J	TeamViewer.exe	PUP	4 destinations	10-Feb-2020, 04:47:59	11-Feb-2020, 13:49:06	⊘
▷ User: WIN-MQH0CMRUD2J\root		Certificate: Signed		Process path: C:\Program Files (x86)\TeamViewer\TeamViewer.exe			Raw data items: 4	
□ **DynamicCodeTests32.exe (1 event)**				**Suspicious**		**06-Feb-2020, 02:39:27**		

Note: The All filter also displays expired security events.

- You can drill down on a device/process to display the security events for that device/process. Each security event row is marked with a flag ⚑ indicator.

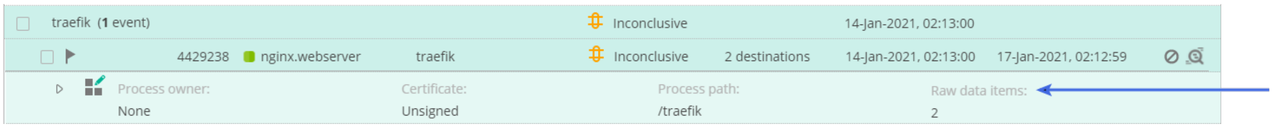
  In the Process view, the Destinations column indicates the number of destinations to which the process attempted to connect. If only one destination was accessed, its IP address is shown. If more than one destination was accessed, the number of destination IPs is shown in the Destinations column.

  In the Process view, the Device column indicates the number of devices the malware attempted to attack. If only one device was attacked, its device name is shown. If more than one device was attacked, the number of devices is shown in the Device column.

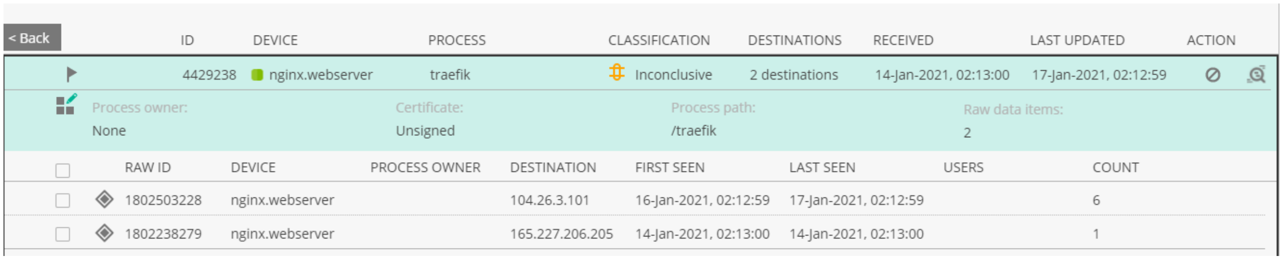


□ ▾ All	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED ▾	LAST UPDATED	
□ TeamViewer.exe (**1** event)				PUP		10-Feb-2020, 04:47:59		
□ ⚑	171302	WIN-MQH0CMRUD2J	TeamViewer.exe	PUP	4 destinations	10-Feb-2020, 04:47:59	11-Feb-2020, 13:49:06	⊘
▷ User: WIN-MQH0CMRUD2J\root		Certificate: Signed		Process path: C:\Program Files (x86)\TeamViewer\TeamViewer.exe			Raw data items: 4	
□ **DynamicCodeTests32.exe (1 event)**				**Suspicious**		**06-Feb-2020, 02:39:27**		

- You can drill down further in a security event row to view the raw data items for that event by clicking on the ▷ icon. Raw data items display the relevant information collected by FortiEDR from the device. For example, if a specific process was connecting to 500 destinations, then 500 raw data item rows display for that security event. For example, in the figure below, the security event comprises 2 raw data items, coming from different devices and going to different destinations. You can click the < Back icon to return to the aggregated security event view.



□ traefik (**1** event)				Inconclusive		14-Jan-2021, 02:13:00	
□ ⚑	4429238	nginx.webserver	traefik	Inconclusive	2 destinations	14-Jan-2021, 02:13:00	17-Jan-2021, 02:12:59
▷ Process owner: None		Certificate: Unsigned		Process path: /traefik		Raw data items: 2	



< Back	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED	ACTION
⚑	4429238	nginx.webserver	traefik	Inconclusive	2 destinations	14-Jan-2021, 02:13:00	17-Jan-2021, 02:12:59	⊘
Process owner: None		Certificate: Unsigned		Process path: /traefik		Raw data items: 2		

□	RAW ID	DEVICE	PROCESS OWNER	DESTINATION	FIRST SEEN	LAST SEEN	USERS	COUNT
□	1802503228	nginx.webserver		104.26.3.101	16-Jan-2021, 02:12:59	17-Jan-2021, 02:12:59		6
□	1802238279	nginx.webserver		165.227.206.205	14-Jan-2021, 02:13:00	14-Jan-2021, 02:13:00		1

Examine the data in both the Device view and the Process view to identify the source of a problem. In this way, you can determine whether the issue is organization-wide or if only specific devices are infected.

A security event is triggered when one or more rules in a policy are violated. For example, let’s assume that people in your organization using the Adobe PDF application modified this application to meet their individual needs, and that FortiEDR detected this as malware that appeared on 1,000 devices in the organization. In this case, when the same security event occurs on multiple devices for the same process, you see the following in the Event Viewer:

- In the Device view, you see 1,000 aggregation security events, each with one security event under it.
- In the Process view, you see one security event aggregation named **adobe.exe**. Under it, there is one security event for the **adobe.exe** process. That security event shows the number 1000 in the **Devices** column and 1,000 raw data items.

The Event Viewer is divided into the following areas of information:

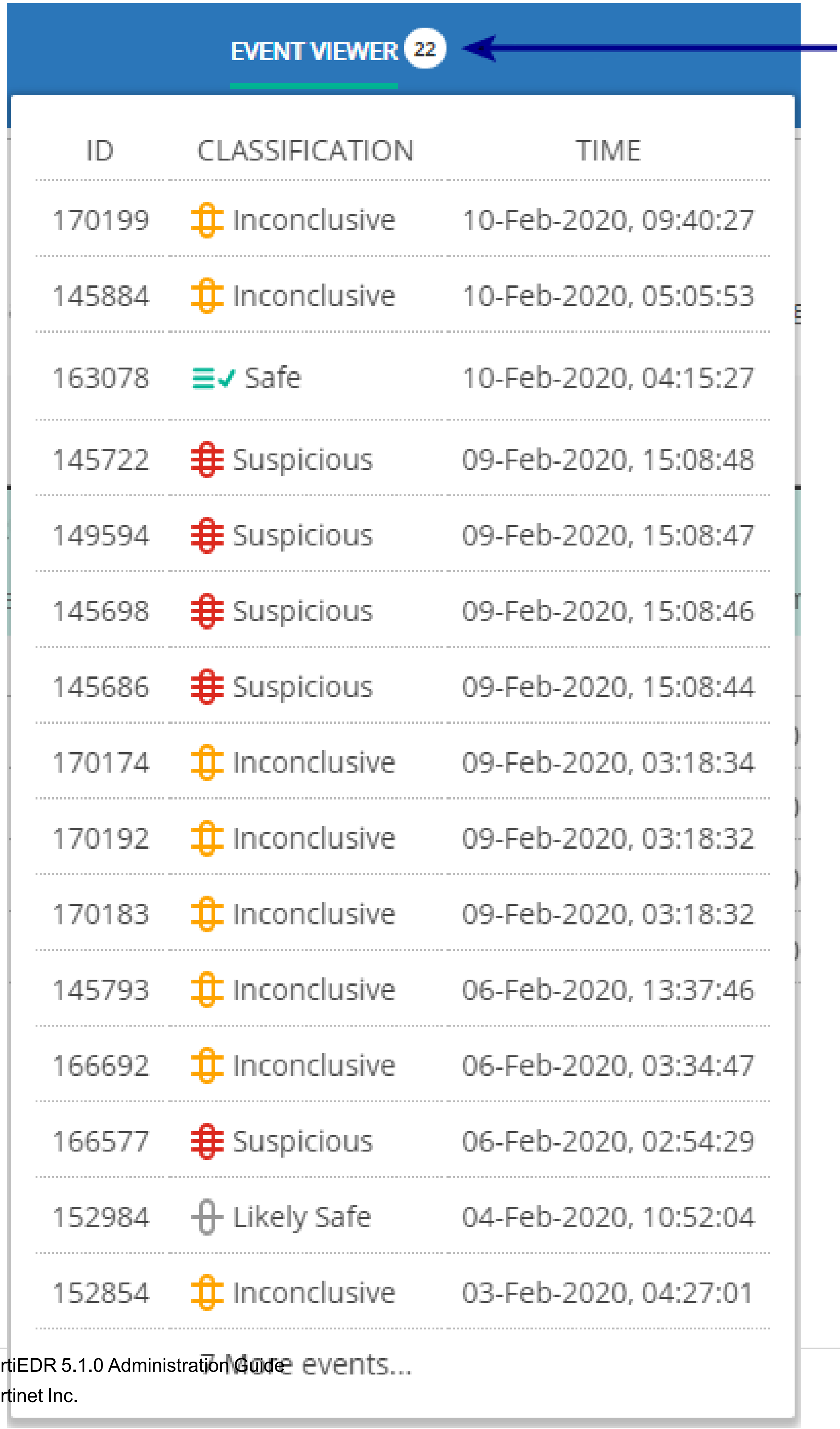
- Events Pane on page 138
- Advanced Data on page 141
- Classification Details on page 168

The following actions can be performed in the Event Viewe:

- Marking a Security Event as Handled/Unhandled on page 143
- Manually Changing the Classification of a Security Event on page 145
- Marking a Security Event as Read/Unread on page 163
- Viewing Relevant Activity Events on page 163
- Viewing Expired Security Events on page 163
- Viewing Application Control Security Events on page 164
- Viewing Device Control Security Events on page 165
- Other Options in the Event Viewer on page 166

When a new security event is generated by FortiEDR, an indicator number displays or is incremented.

Hovering over this number indicates the number of new unread security events, shown below:



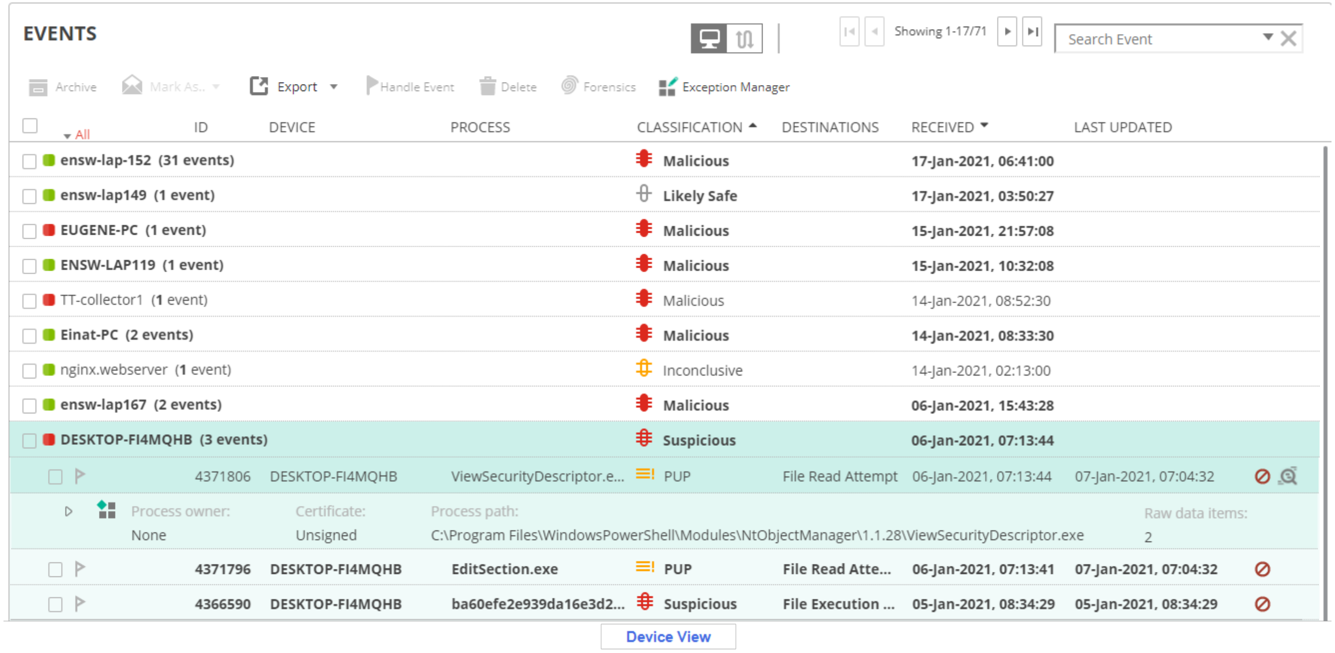
ID	CLASSIFICATION	TIME
170199	Inconclusive	10-Feb-2020, 09:40:27
145884	Inconclusive	10-Feb-2020, 05:05:53
163078	Safe	10-Feb-2020, 04:15:27
145722	Suspicious	09-Feb-2020, 15:08:48
149594	Suspicious	09-Feb-2020, 15:08:47
145698	Suspicious	09-Feb-2020, 15:08:46
145686	Suspicious	09-Feb-2020, 15:08:44
170174	Inconclusive	09-Feb-2020, 03:18:34
170192	Inconclusive	09-Feb-2020, 03:18:32
170183	Inconclusive	09-Feb-2020, 03:18:32
145793	Inconclusive	06-Feb-2020, 13:37:46
166692	Inconclusive	06-Feb-2020, 03:34:47
166577	Suspicious	06-Feb-2020, 02:54:29
152984	Likely Safe	04-Feb-2020, 10:52:04
152854	Inconclusive	03-Feb-2020, 04:27:01

7 More events...

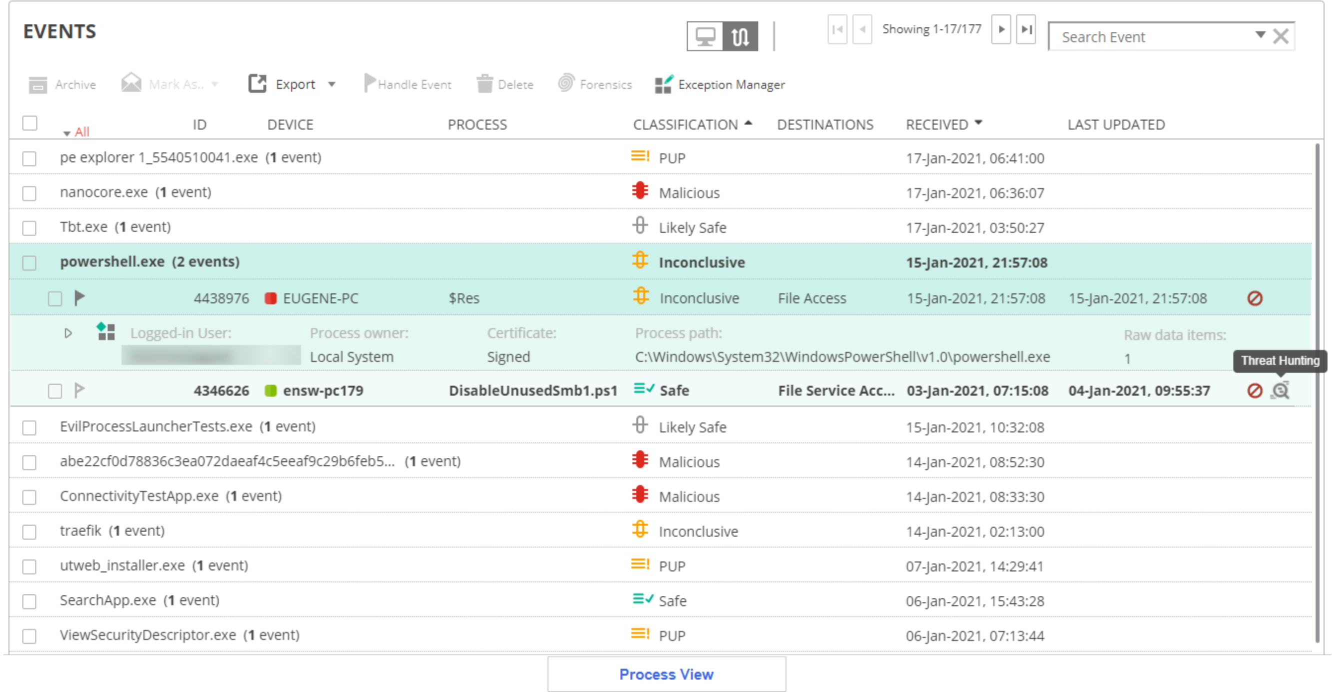
In some cases, **Updated** displays next to the number of new unread security events indicator. Updated means that FortiEDR originally classified one of the unread events, but that classification was later changed by the user. After more data for this security event was received, FortiEDR overrode the manual classification of the event by the user and changed the classification for the event again, based on the newly received data.

Events Pane

Clicking a security event expands it to show more details and enables the buttons at the top of the window. The following information is provided for each security event:



□ All	ID	DEVICE	PROCESS	CLASSIFICATION ▲	DESTINATIONS	RECEIVED ▼	LAST UPDATED
□ 🟩 **ensw-lap-152 (31 events)**				**Malicious**		**17-Jan-2021, 06:41:00**	
□ 🟩 **ensw-lap149 (1 event)**				**Likely Safe**		**17-Jan-2021, 03:50:27**	
□ 🟥 **EUGENE-PC (1 event)**				**Malicious**		**15-Jan-2021, 21:57:08**	
□ 🟩 **ENSW-LAP119 (1 event)**				**Malicious**		**15-Jan-2021, 10:32:08**	
□ 🟥 TT-collector1 (**1** event)				Malicious		14-Jan-2021, 08:52:30	
□ 🟩 **Einat-PC (2 events)**				**Malicious**		**14-Jan-2021, 08:33:30**	
□ 🟩 nginx.webserver (**1** event)				Inconclusive		14-Jan-2021, 02:13:00	
□ 🟩 **ensw-lap167 (2 events)**				**Malicious**		**06-Jan-2021, 15:43:28**	
□ 🟥 **DESKTOP-FI4MQHB (3 events)**				**Suspicious**		**06-Jan-2021, 07:13:44**	
□	4371806	DESKTOP-FI4MQHB	ViewSecurityDescriptor.e...	PUP	File Read Attempt	06-Jan-2021, 07:13:44	07-Jan-2021, 07:04:32
▷	Process owner: None	Certificate: Unsigned	Process path: C:\Program Files\WindowsPowerShell\Modules\NtObjectManager\1.1.28\ViewSecurityDescriptor.exe				Raw data items: 2
□	**4371796**	**DESKTOP-FI4MQHB**	**EditSection.exe**	**PUP**	**File Read Atte...**	**06-Jan-2021, 07:13:41**	**07-Jan-2021, 07:04:32**
□	**4366590**	**DESKTOP-FI4MQHB**	**ba60efe2e939da16e3d2...**	**Suspicious**	**File Execution ...**	**05-Jan-2021, 08:34:29**	**05-Jan-2021, 08:34:29**



EVENTS

Showing 1-17/177 | Search Event

□ All	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED
□ pe explorer 1_5540510041.exe (1 event)				PUP		17-Jan-2021, 06:41:00	
□ nanocore.exe (1 event)				Malicious		17-Jan-2021, 06:36:07	
□ Tbt.exe (1 event)				Likely Safe		17-Jan-2021, 03:50:27	
□ **powershell.exe (2 events)**				**Inconclusive**		**15-Jan-2021, 21:57:08**	
□ ⚑	4438976	🟥 EUGENE-PC	$Res	Inconclusive	File Access	15-Jan-2021, 21:57:08	15-Jan-2021, 21:57:08
□ ⚑	**4346626**	🟩 **ensw-pc179**	**DisableUnusedSmb1.ps1**	**Safe**	**File Service Acc...**	**03-Jan-2021, 07:15:08**	**04-Jan-2021, 09:55:37**
□ EvilProcessLauncherTests.exe (1 event)				Likely Safe		15-Jan-2021, 10:32:08	
□ abe22cf0d78836c3ea072daeaf4c5eeaf9c29b6feb5... (1 event)				Malicious		14-Jan-2021, 08:52:30	
□ ConnectivityTestApp.exe (1 event)				Malicious		14-Jan-2021, 08:33:30	
□ traefik (1 event)				Inconclusive		14-Jan-2021, 02:13:00	
□ utweb_installer.exe (1 event)				PUP		07-Jan-2021, 14:29:41	
□ SearchApp.exe (1 event)				Safe		06-Jan-2021, 15:43:28	
□ ViewSecurityDescriptor.exe (1 event)				PUP		06-Jan-2021, 07:13:44	

Logged-in User: [redacted]
Process owner: Local System
Certificate: Signed
Process path: C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe
Raw data items: 1

Note: The Extended Detection policy provides detection features (meaning that events are logged and displayed in the Event Viewer). No protection (blocking) features are provided. The exceptions and forensics options are not available in the Event Viewer for security events triggered by the Extended Detection policy, because these events were not collected by a FortiEDR Collector.

Information Field	Description
View Indicator	Indicates the view context for the security event aggregation. 🖥 displays for a device and ⇅ displays for a process.
Handled/Not Handled ⚑	Specifies whether any FortiEDR Central Manager user handled this security event, as described on Marking a Security Event as Handled/Unhandled on page 143
ID	Specifies an automatically assigned unique identifier for each security event generated by FortiEDR. This identifier is particularly useful for security event tracking purposes when monitoring security events using an external system, such as a SIEM.
Device	Specifies the device name on which the security event has occurred
Process	Specifies the process that is infected. This is not necessarily the process that made the connection establishment request (such as Firefox, which might be being controlled by the infected application). If the security event was triggered by a script, then the script name is specified.

Information Field	Description
Classification	Specifies how malicious the security event is, if at all. Classifications are initially determined by FortiEDR. They can be changed either automatically as the result of additional post-processing, deep, thorough analysis and investigation by the FortiEDR Cloud Service (FCS) or manually. The FCS is a cloud-based, software-only service that determines the exact classification of security events and acts accordingly based on that classification – all with a high degree of accuracy. All Playbook policy actions are based on the final determination of the FCS. For more details, see Playbook Policies on page 89. Classifications are: • Malicious • Suspicious • Inconclusive • Likely Safe • PUP (Potentially Unwanted Program) • Safe
Destinations	Specifies the IP address to which the malicious entity requested to establish a connection.
Received	Specifies the first time that this security event was triggered. For aggregations, the earliest received time is displayed.
Last Updated	Specifies the last time that the security event was triggered. For aggregations, the most-recent time is displayed.
Action	Specifies the action that was enforced: • **Block** ⊘ : The exfiltration attempt was blocked and this blocking event was generated. • **Simulated Block** ⊘ : The policy that protected this device was set to **Simulation** mode. Therefore, the exfiltration attempt was **NOT** blocked and this blocking event was generated. FortiEDR would have blocked this exfiltration security event if the policy had been set to **Prevention** mode. • **Log** 🗎 . The security event was only logged and was not blocked.

For raw data items, the following information is available:

Information	Description
Device	Specifies the device name on which the security event has occurred.
First Seen	The Event Viewer aggregates the occurrences of the same security events into a single row when it represents the same attack on the same device. This timestamp specifies the first time this security event occurred. The row of this security event pops to the top of the list in the Event Viewer each time it occurs again. **Note**:If a change is made to the FortiEDR policy used by a specific FortiEDR Collector, then the security events before and after that change are not aggregated together.

Information	Description
Last Seen	Specifies the most recent time this same security event occurred. See FIRST SEEN described above.
Destinations	Specifies the external address for connection attempt security events.
Process Owner	Specifies the user who ran the process that triggered the security event.
Process Type	Specifies whether the infected process is 32-bit or 64-bit.
Use	Specifies the domain of the computer/user of the device.
Certificate	Specifies whether the process or application have a certificate – **Signed** or **Unsigned**. You may refer to http://en.wikipedia.org/wiki/Authorization_certificate for general information about the subject.
Process Path	Specifies the path of the infected process.
Count	Specifies the number of occurrences of the same raw event on the same device.

Advanced Data

The **ADVANCED DATA** area displays a graphic representation of what occurred that led to the security event. This information shows operating system metadata that occurred immediately preceding and at the time the connection establishment request was issued.

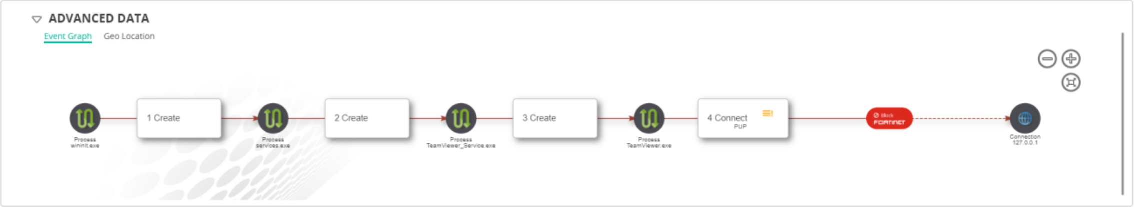
The **ADVANCED DATA** area contains three tabs.

- Event Graph on page 141
- Geo Location on page 142
- Automated Analysis on page 142

Note: The events graph tabs are always available. The other two tabs may be missing when there is no data available for the security event.

Event Graph

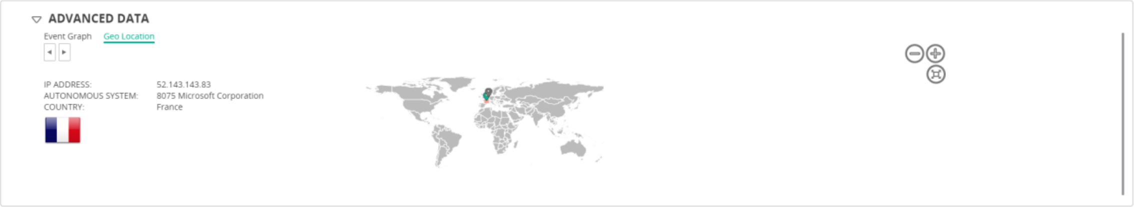
In addition to textual information that is displayed (described above), the Event Graph tab provides an image depicting the flow of operating system events that led up to the connection establishment request or the attempt to lock data. The picture is shown as a timeline from left to right (meaning that the left process happened before the others). A circle can represent an operating system entity such as a process, a thread, a service, a file and so on. The white boxes represent the operation that was done between the operating system entities, such as create, open, inject, connect and so on. Typically, the last circle (rightmost) is a connection establishment request or a file access. Each white box has a number attached to it, representing the sequence of operations, and also the rules that were violated during that operation, along with the worst classification associated with that operation.



You can zoom in and zoom out using the ⊖ ⊕ buttons at the top right. The ⊡ button fits the picture to the size of the window.

Geo Location

The Geo Location tab displays a world map showing the locations of the destinations of the security event and indicating the country by its flag.



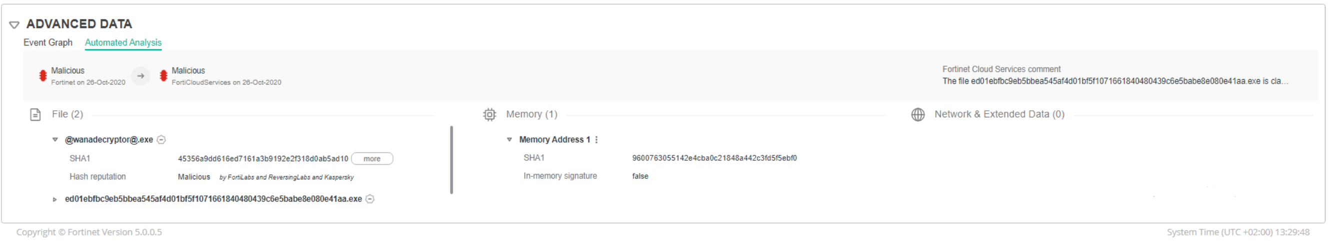
IP ADDRESS: 52.143.143.83
AUTONOMOUS SYSTEM: 8075 Microsoft Corporation
COUNTRY: France

An abundance of additional investigative tools and information are provided by FortiEDR's Forensic add-on (page 153).

You can zoom in and zoom out using the ⊖ ⊕ buttons at the top right. The ⊡ button fits the picture to the size of the window.

Automated Analysis

The **Automated Analysis** tab provides additional information about the investigation done automatically on Fortinet Cloud Services (FCS) per the security event to help you understand FortiEDR's rationale when classifying an item with a specific classification.



Malicious
Fortinet on 26-Oct-2020
→
Malicious
FortiCloudServices on 26-Oct-2020

Fortinet Cloud Services comment
The file ed01ebfbc9eb5bbea545af4d01bf5f1071661840480439c6e5babe8e080e41aa.exe is cla...

File (2)

▾ @wanadecryptor@.exe
SHA1 45356a9dd616ed7161a3b9192e2f318d0ab5ad10 more
Hash reputation Malicious *by FortiLabs and ReversingLabs and Kaspersky*

▸ ed01ebfbc9eb5bbea545af4d01bf5f1071661840480439c6e5babe8e080e41aa.exe

Memory (1)

▾ Memory Address 1
SHA1 9600763055142e4cba0c21848a442c3fd5f5ebf0
In-memory signature false

Network & Extended Data (0)

Copyright © Fortinet Version 5.0.0.5

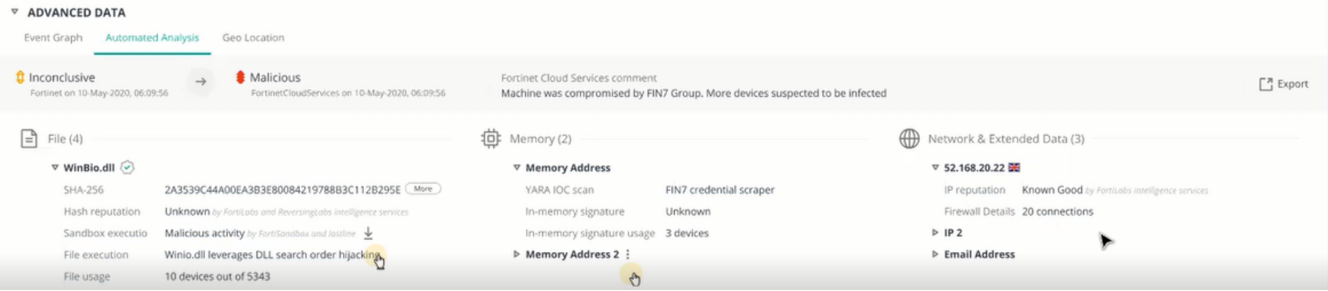
System Time (UTC +02:00) 13:29:48

The classification history of a security event is presented in the Classification Details area (see page 129) and shows the chronology for classifying a security event, as well as the automatic investigation and remediation actions performed by FortiEDR for that event.

The information shown in the **Automated Analysis** tab supplements this analysis, providing even more information about how and why a given security event was classified as it was. This tab shows the actions that were performed for the analysis plus a categorized summary of what was analyzed. For example, the analyzed files, memory segments, the IP address involved in the communication, the email address associated with the security event and so on. A Fortinet Cloud Services comment is available at the top of this area that summarizes the analysis verdict and conclusion in text.

For example, the following shows a security event that was initially classified as Inconclusive by FortiEDR Core, but after FCS automatic analysis was reclassified as Malicious. In this case, four files were analyzed. You can click the name of the file to display more details about it, including its metadata along with several properties of the file (signature, certificate, hash and so on).

You can click the down arrow next to an item to view all the investigation actions performed and analysis results related to that item.



ADVANCED DATA

Event Graph | Automated Analysis | Geo Location

Inconclusive
Fortinet on 10-May-2020, 06:09:56
→
Malicious
FortinetCloudServices on 10-May-2020, 06:09:56

Fortinet Cloud Services comment
Machine was compromised by FIN7 Group. More devices suspected to be infected

Export

File (4)

WinBio.dll

SHA-256	2A3539C44A00EA3B3E80084219788B3C112B295E More
Hash reputation	Unknown by FortiLabs and ReversingLabs intelligence services
Sandbox executio	Malicious activity by FortiSandbox and Jastline
File execution	Winio.dll leverages DLL search order hijacking
File usage	10 devices out of 5343

Memory (2)

Memory Address

YARA IOC scan	FIN7 credential scraper
In-memory signature	Unknown
In-memory signature usage	3 devices

Memory Address 2

Network & Extended Data (3)

52.168.20.22

IP reputation	Known Good by FortiLabs intelligence services
Firewall Details	20 connections

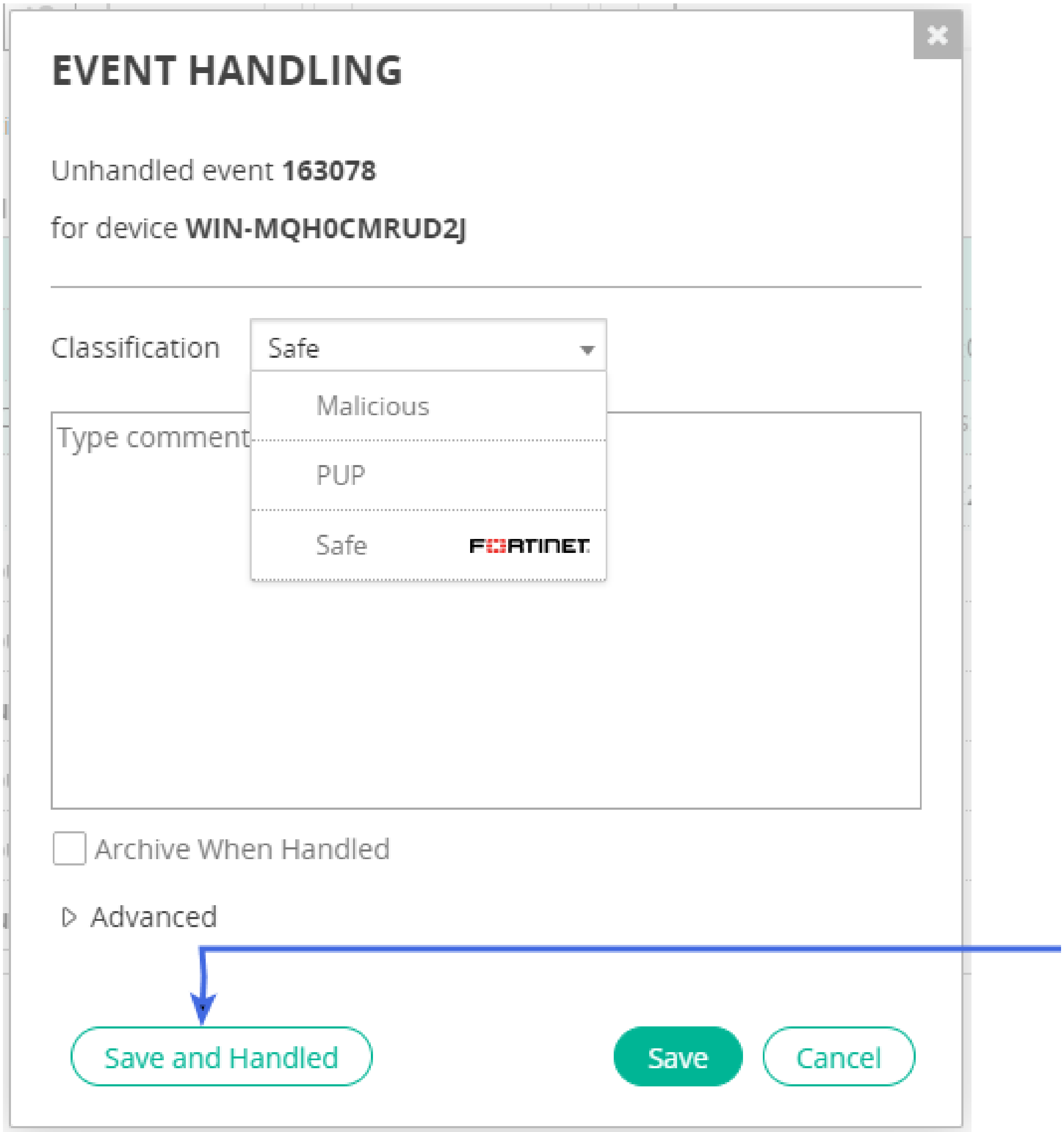
IP 2

Email Address

Marking a Security Event as Handled/Unhandled

The following describes how to specify that you have handled a security event. When any FortiEDR Central Manager user marks a security event as **Handled**, all users see it as having been handled.

1. Select the rule’s checkbox and then click the ⚑ Handle event button or just click the flag icon of the security event row. The Event Handling window displays.
   Note: If an exception was already defined for this security event, then the words event includes exceptions are displayed at the top of the Event Handling window.
2. In the **Classification** dropdown list, change the classification for the security event, if needed. For more details,Manually Changing the Classification of a Security Event on page 145
3. In the comments box, use free text to describe how you handled the security event.
4. Click the **Save as Handled** button. The flag icon next to the security event changes from dark gray ⚑ to light gray ⚐ to indicate to all users that it has been handled.



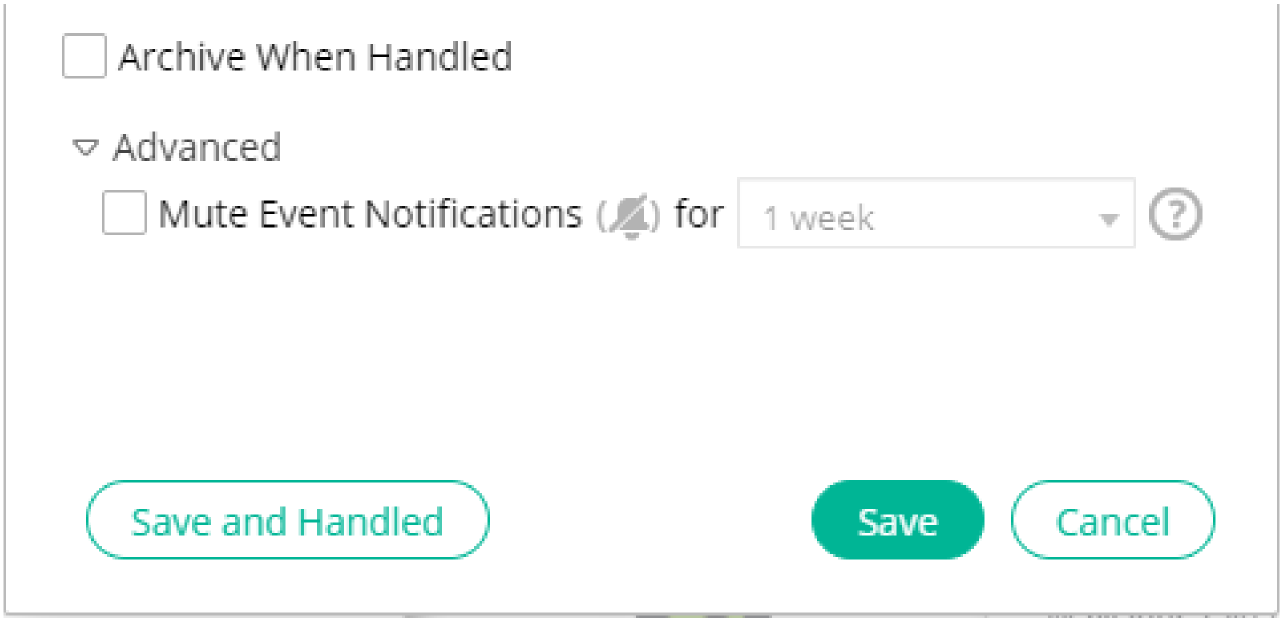
EVENT HANDLING

Unhandled event **163078**

for device **WIN-MQH0CMRUD2J**

Classification: Safe

5. [**Optional**] Check the **Archive When Handled** checkbox to archive the security event after handling it. When you select this option, the security event is marked both as handled and as archived.
6. [**Optional**] Click the arrow to the left of Advanced to display the **Mute events notification** field. Select this checkbox if you want to mute the notifications for this security event. In addition, specify how long to mute the security event notifications. Notifications can be muted for **1 Week, 1 Month, 1 Year** or **Permanently**. When checked, you will not receive notifications whenever this security event is triggered. When using this option, click the **Save as Handled** button, which indicates that the security event has been both handled and saved.



□ Archive When Handled

Advanced

□ Mute Event Notifications (🔕) for 1 week

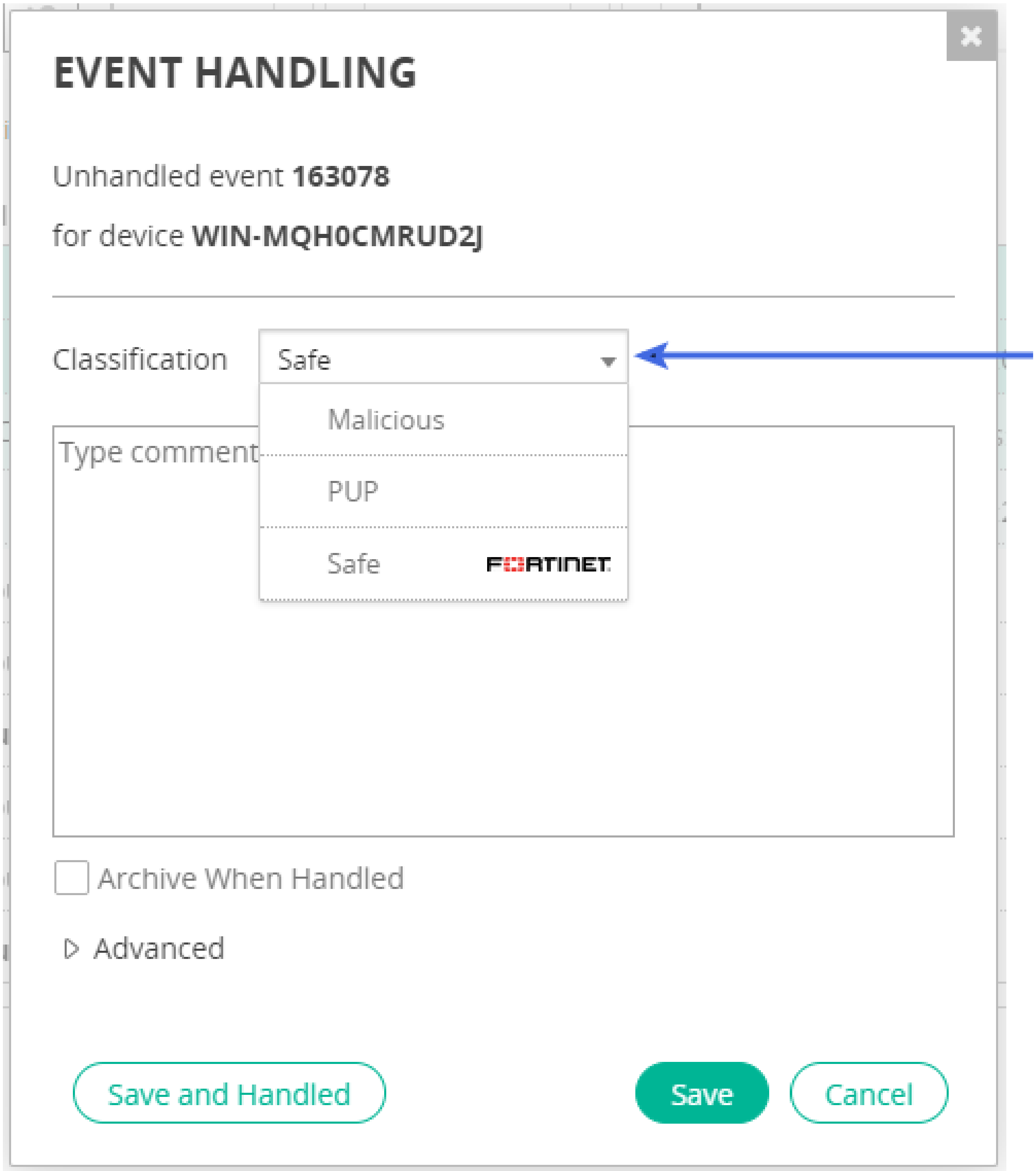
Note: Security events with muted event notifications are indicated by the 🔕 icon in the Event Viewer.

Manually Changing the Classification of a Security Event

You can manually change the classification of a security event, if needed.

1. Select the rule’s checkbox and then click the Handle event button or just click the flag icon of the security event row. The Event Handling window displays.

2. In the **Classification** dropdown list, change the classification for the security event, as needed.



EVENT HANDLING

Unhandled event **163078**

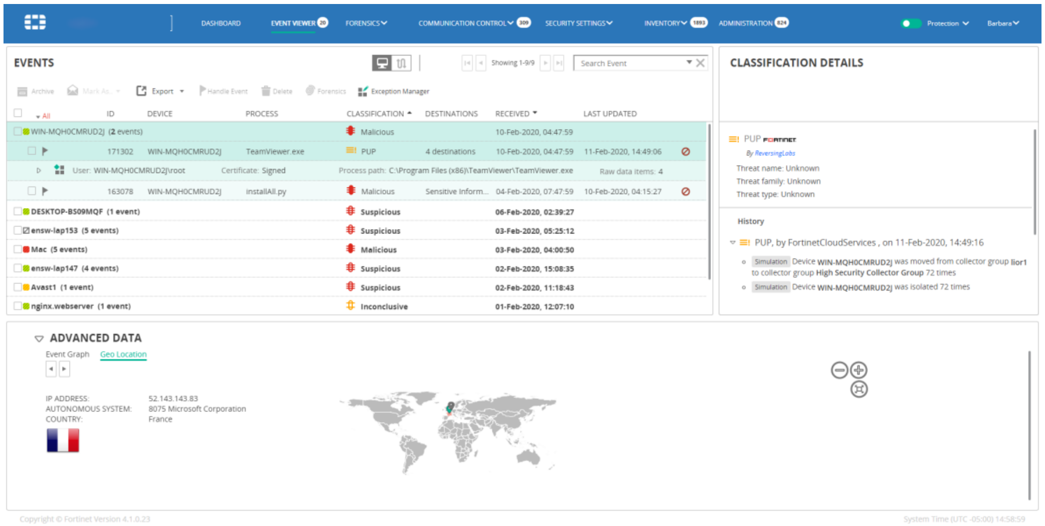
for device **WIN-MQH0CMRUD2J**

Classification: Safe

3. Click the Save

4. [Optional] Click the Save and Handled button to mark the security event as handled after saving the event.

After changing the classification of a security event, the Classification Details area displays the history of any actions (Playbook policy-related actions and others) that were made automatically by FortiEDR, as shown below. For Playbook policy actions, the timestamp shows when the action was performed, as defined in the Playbook policy. For more details about Playbook policy actions, see Playbook Policies on page 89.



EVENTS

All	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED
WIN-MQH0CMRUD2J (2 events)				Malicious		10-Feb-2020, 04:47:59	
	171302	WIN-MQH0CMRUD2J	TeamViewer.exe	PUP	4 destinations	10-Feb-2020, 04:47:59	11-Feb-2020, 14:49:06
User: WIN-MQH0CMRUD2J\root			Certificate: Signed	Process path: C:\Program Files (x86)\TeamViewer\TeamViewer.exe			Raw data items: 4
	163078	WIN-MQH0CMRUD2J	installAll.py	Malicious	Sensitive Inform...	04-Feb-2020, 07:47:59	10-Feb-2020, 04:15:27
DESKTOP-BS09MQF (1 event)				Suspicious		06-Feb-2020, 02:39:27	
ensw-lap153 (5 events)				Suspicious		03-Feb-2020, 05:25:12	
Mac (5 events)				Malicious		03-Feb-2020, 04:00:50	
ensw-lap147 (4 events)				Suspicious		02-Feb-2020, 15:08:35	
Avast1 (1 event)				Suspicious		02-Feb-2020, 11:18:43	
nginx.webserver (1 event)				Inconclusive		01-Feb-2020, 12:07:10	

CLASSIFICATION DETAILS

PUP FORTINET
By ReversingLabs
Threat name: Unknown
Threat family: Unknown
Threat type: Unknown

History

PUP, by FortinetCloudServices , on 11-Feb-2020, 14:49:16

- Simulation Device WIN-MQH0CMRUD2J was moved from collector group lior1 to collector group High Security Collector Group 72 times
- Simulation Device WIN-MQH0CMRUD2J was isolated 72 times

ADVANCED DATA

IP ADDRESS: 52.143.143.83
AUTONOMOUS SYSTEM: 8075 Microsoft Corporation
COUNTRY: France

Copyright © Fortinet Version 4.1.0.23
System Time (UTC -05:00) 14:58:59

When the Fortinet logo appears next to an entry in the CLASSIFICATION DETAILS area, it indicates that the security event was automatically classified by FortiEDR. Security events that are manually classified do not display the Fortinet logo.

Note: Notifications for security events are not shown in the Classification Details area.

Defining Security Event Exceptions

The following describes how to create a new exception and how to edit an existing one.

Exceptions enable you to limit the enforcement of a rule, meaning to create a white list for a specific flow of security events that was used to establish a connection request or perform a specific operation.

FortiEDR exception management is highly flexible and provides various options that enable you to define pinpointed, granular exceptions.

Details describing how to edit an existing exception are described in Editing Security Event Exceptions on page 161. You can access the Exception Manager by clicking the Exception Manager button at the top of the Events pane or by selecting **SECURITY SETTINGS > Exception Manager**. Additional options for managing exceptions are provided in the **SECURITY SETTINGS** tab, as described in Exception Manager on page 64.

An exception that applies to a security event can result in the creation of several exception pairs.

An exception pair specifies the rule that was violated and the **process** on which the violation occurred, including or excluding its entire location path. For more details, see Playbook Policies on page 89

Note: After an exception is defined for a security event, **new identical** events are not triggered.

Security events that occurred in the past appear with an icon to indicate that an exception has been defined for them, even though at the time they were triggered, the exception did not exist. This

icon on past security events serves as an indication to you that there is no need to create an exception for it, since one was already created (but after the event occurred).
In cases where an exception was defined for the security event but it does not fully cover all the existing occurrences or raw data items of this event, a slightly different icon is displayed, as described and shown below.

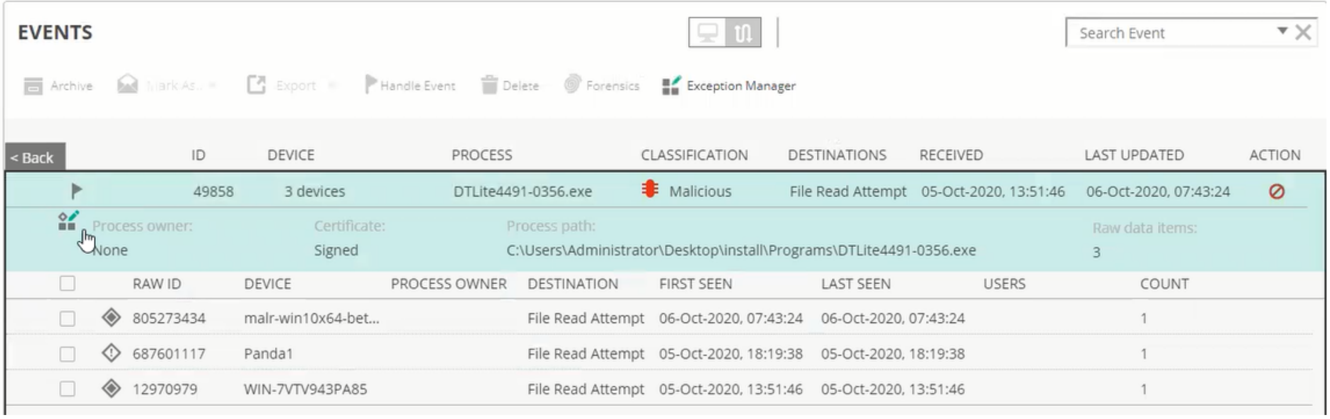
Note: When defining an exception for Listen on Port Attempt events, listening on 0.0.0.0 means listening on all interfaces. In such cases, you should use All Destinations.

Defining the Scope of an Exception

When defining an exception, it is important not to make it too broad or too narrow in scope, so that it properly identifies and *catches* the data items that you want.

If an exception does not cover all the raw data items for a security event, the icon displays for that exception. This can happen, for example if the exception was defined only on part of the collector groups and the security event occurred on devices that are not part of the collector groups on which the exception was set.

In addition, the raw data items comprising a security event distinguish between data items that are covered (◈) and not covered (◇) by the exception, based on the exception's current definition.

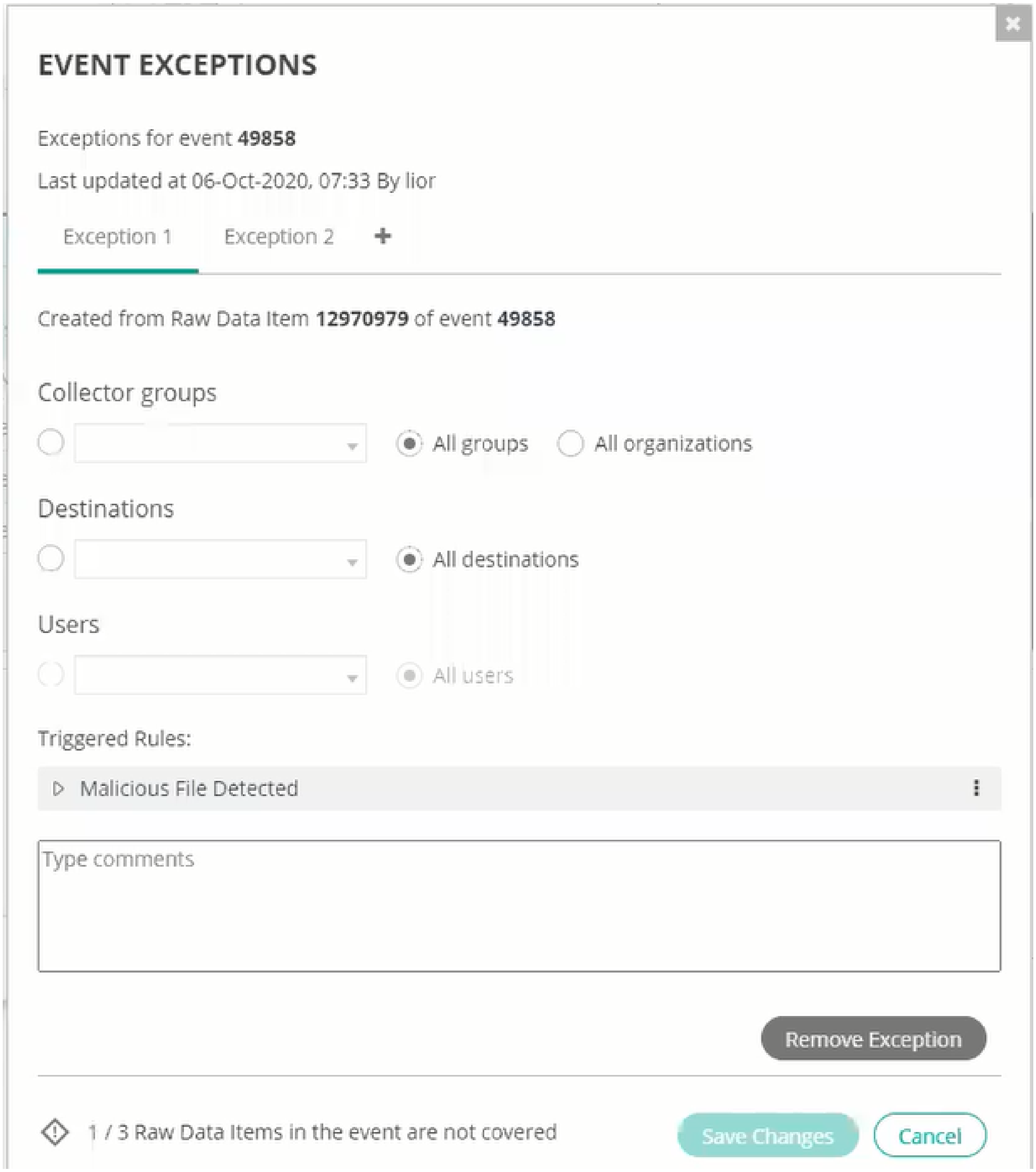


ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED	ACTION
49858	3 devices	DTLite4491-0356.exe	Malicious	File Read Attempt	05-Oct-2020, 13:51:46	06-Oct-2020, 07:43:24	⊘

Process owner: None
Certificate: Signed
Process path: C:\Users\Administrator\Desktop\install\Programs\DTLite4491-0356.exe
Raw data items: 3

	RAW ID	DEVICE	PROCESS OWNER	DESTINATION	FIRST SEEN	LAST SEEN	USERS	COUNT
□ ◈	805273434	malr-win10x64-bet...		File Read Attempt	06-Oct-2020, 07:43:24	06-Oct-2020, 07:43:24		1
□ ◇	687601117	Panda1		File Read Attempt	05-Oct-2020, 18:19:38	05-Oct-2020, 18:19:38		1
□ ◈	12970979	WIN-7VTV943PA85		File Read Attempt	05-Oct-2020, 13:51:46	05-Oct-2020, 13:51:46		1

For example, if you see that the current exception is too narrow and excludes a raw data item that you want to include in the exception, you can click the ◇ icon and then modify and broaden the exception sufficiently so that it will also include that raw data item. When you click the ◇ icon, the *Event Exceptions* window automatically opens and displays the existing exception which can be broadened. Alternatively, you can click the **+** icon to create another exception that will include the non-covered raw data item. Clicking the **+** icon after the exception is opened using the covered icon next to the raw data item opens a new exception from the perspective of that raw data item, meaning that it includes all the data that is relevant for that raw data item, as shown below:



EVENT EXCEPTIONS

Exceptions for event **49858**

Last updated at 06-Oct-2020, 07:33 By lior

Exception 1 | Exception 2 | +

Created from Raw Data Item **12970979** of event **49858**

Collector groups

○ ● All groups ○ All organizations

Destinations

○ ● All destinations

Users

○ ● All users

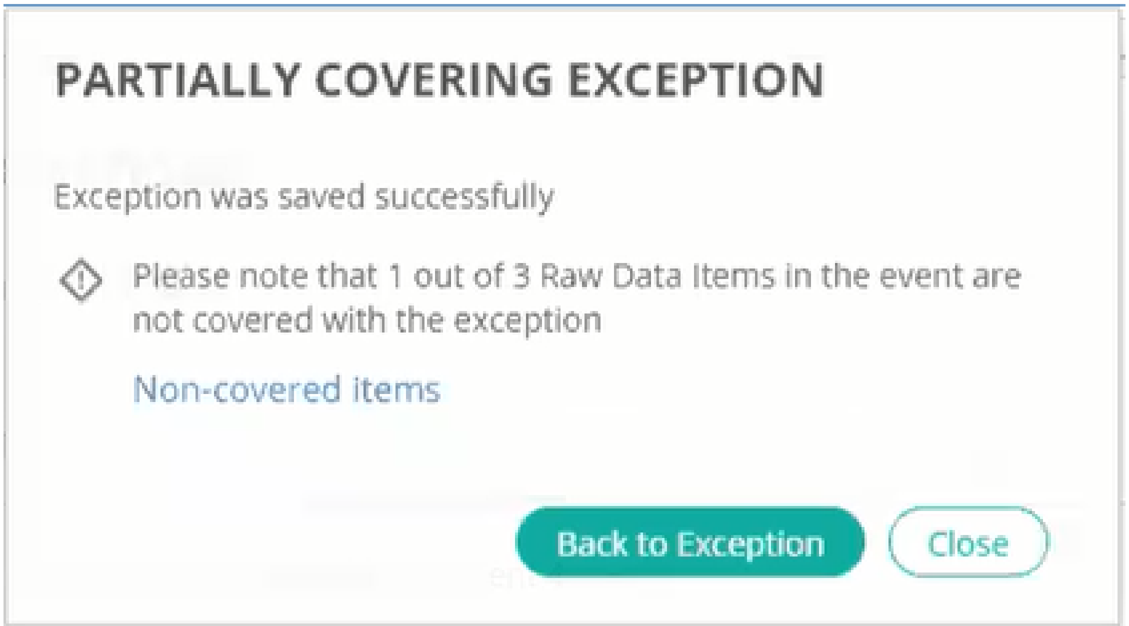
Triggered Rules:

▷ Malicious File Detected

Type comments

1 / 3 Raw Data Items in the event are not covered

In addition, when saving an exception, if the exception does not cover all raw data items for a security event, a message such as the following displays.



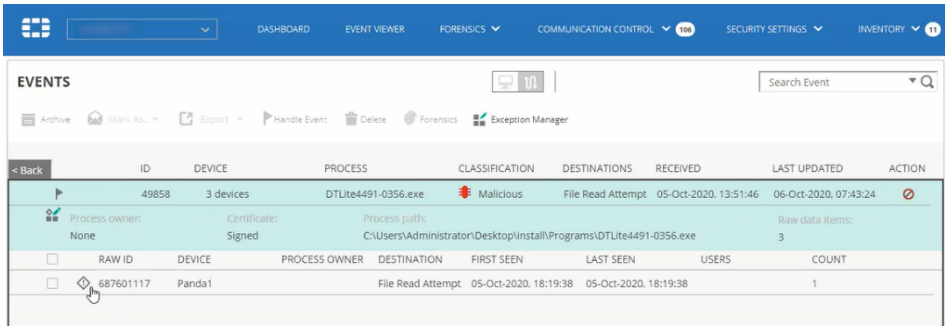
PARTIALLY COVERING EXCEPTION

Exception was saved successfully

Please note that 1 out of 3 Raw Data Items in the event are not covered with the exception

Non-covered items

You can click the **Non-covered items** link in this message to open the Event Viewer in a new window, and display only not-covered raw data items, as shown below:



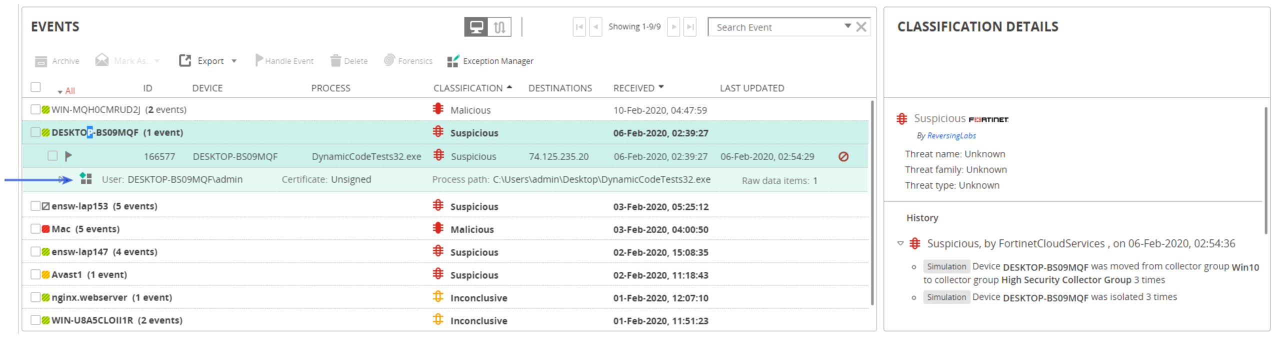
ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED	ACTION
49858	3 devices	DTLite4491-0356.exe	Malicious	File Read Attempt	05-Oct-2020, 13:51:46	06-Oct-2020, 07:43:24	⊘

Process owner: None   Certificate: Signed   Process path: C:\Users\Administrator\Desktop\install\Programs\DTLite4491-0356.exe   Raw data items: 3

□	RAW ID	DEVICE	PROCESS OWNER	DESTINATION	FIRST SEEN	LAST SEEN	USERS	COUNT
□	687601117	Panda1		File Read Attempt	05-Oct-2020, 18:19:38	05-Oct-2020, 18:19:38		1

Defining a Security Event as an Exception

1. Click the security event row to be defined as an exception.



□	▾ All	ID	DEVICE	PROCESS	CLASSIFICATION ▴	DESTINATIONS	RECEIVED ▾	LAST UPDATED	
□	WIN-MQH0CMRUD2J (2 events)				Malicious		10-Feb-2020, 04:47:59		
□	**DESKTOP-BS09MQF (1 event)**				**Suspicious**		**06-Feb-2020, 02:39:27**		
□		166577	DESKTOP-BS09MQF	DynamicCodeTests32.exe	Suspicious	74.125.235.20	06-Feb-2020, 02:39:27	06-Feb-2020, 02:54:29	⊘
	User: DESKTOP-BS09MQF\admin		Certificate: Unsigned		Process path: C:\Users\admin\Desktop\DynamicCodeTests32.exe			Raw data items: 1	
□	**ensw-lap153 (5 events)**				**Suspicious**		**03-Feb-2020, 05:25:12**		
□	**Mac (5 events)**				**Malicious**		**03-Feb-2020, 04:00:50**		
□	**ensw-lap147 (4 events)**				**Suspicious**		**02-Feb-2020, 15:08:35**		
□	**Avast1 (1 event)**				**Suspicious**		**02-Feb-2020, 11:18:43**		
□	**nginx.webserver (1 event)**				**Inconclusive**		**01-Feb-2020, 12:07:10**		
□	**WIN-U8A5CLOII1R (2 events)**				**Inconclusive**		**01-Feb-2020, 11:51:23**		

CLASSIFICATION DETAILS

Suspicious FORTINET

By ReversingLabs

Threat name: Unknown

Threat family: Unknown

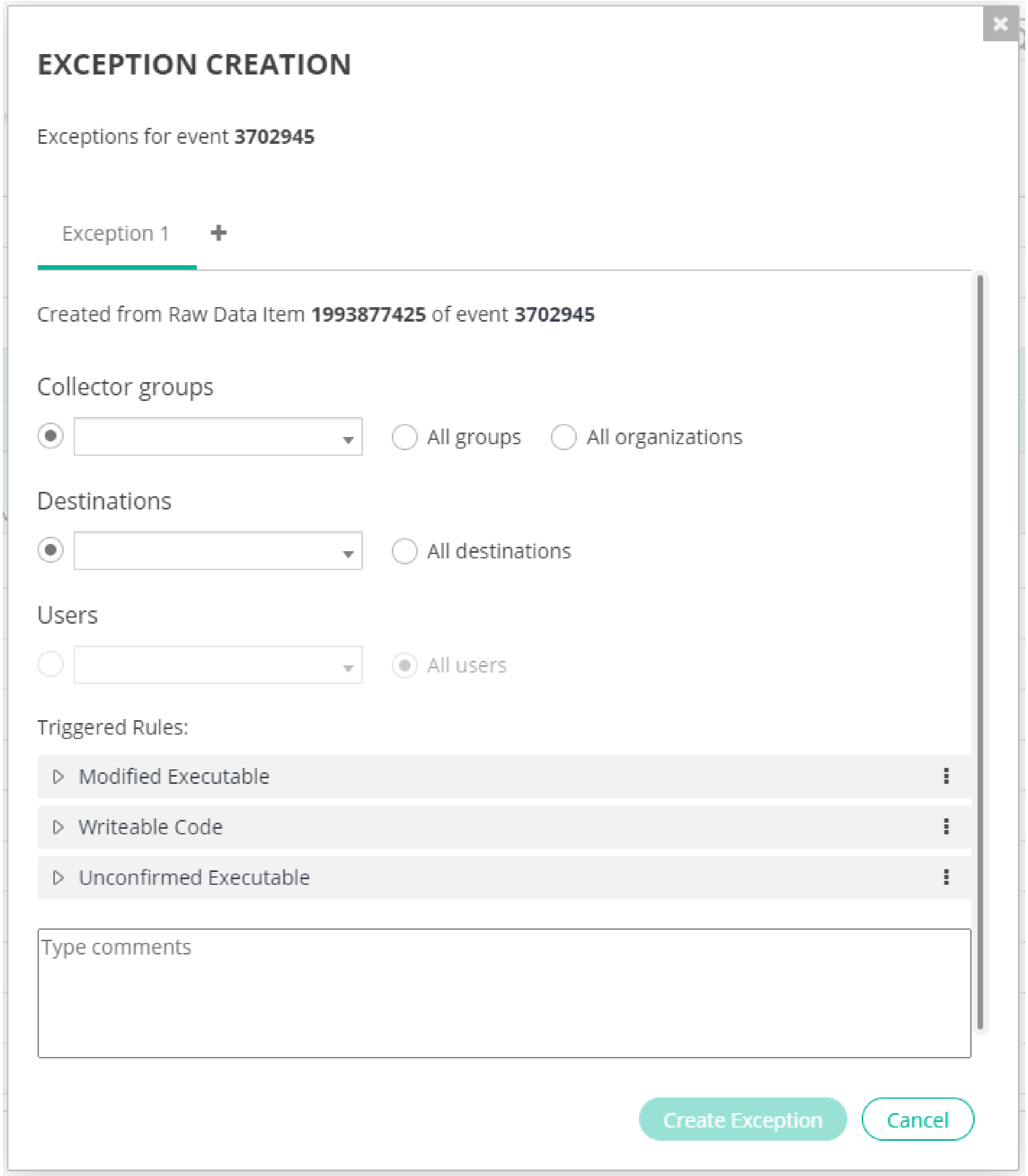
Threat type: Unknown

History

Suspicious, by FortinetCloudServices , on 06-Feb-2020, 02:54:36

- Simulation Device **DESKTOP-BS09MQF** was moved from collector group **Win10** to collector group **High Security Collector Group** 3 times
- Simulation Device **DESKTOP-BS09MQF** was isolated 3 times

2. Click the **Create Exception** button. The following window displays:



EXCEPTION CREATION

Exceptions for event **3702945**

Exception 1 +

Created from Raw Data Item **1993877425** of event **3702945**

Collector groups

● ○ All groups ○ All organizations

Destinations

● ○ All destinations

Users

○ ● All users

Triggered Rules:

- ▷ Modified Executable
- ▷ Writeable Code
- ▷ Unconfirmed Executable

Type comments

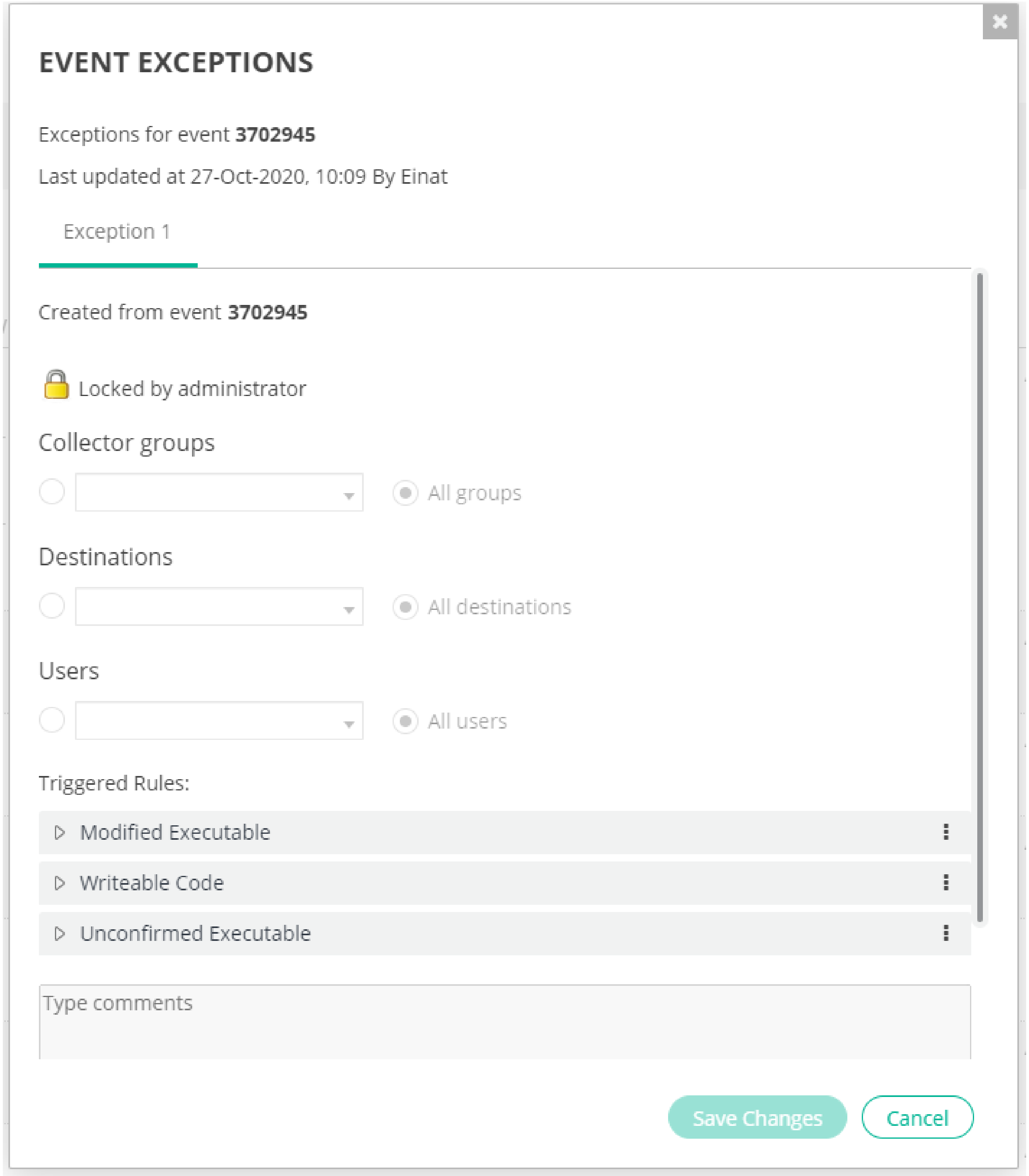
3. 3 Specify whether this exception applies to all the Collector Groups or only to the Collectors in the same Collector Group as the one for which this security event was triggered.

   Note: The All groups and Collector groups options only apply to the current organization in which the security event occurred.

For a multi-organization FortiEDR system, an Administrator can also specify whether the exception applies to all organizations. The All organizations option applies the exception to all organizations, regardless of whether or not the security event already occurred.

If an Administrator wants to define an exception that applies to one or more, but not all organizations, then he/she must define the exception separately for each organization.

Exceptions defined by an Administrator (Hoster) that apply to all organizations display as *Locked by the administrator* to other users, and cannot be changed by a user other than the Administrator who created it, as shown below:



EVENT EXCEPTIONS

Exceptions for event **3702945**

Last updated at 27-Oct-2020, 10:09 By Einat

Exception 1

Created from event **3702945**

Locked by administrator

Collector groups

○ ● All groups

Destinations

○ ● All destinations

Users

○ ● All users

Triggered Rules:

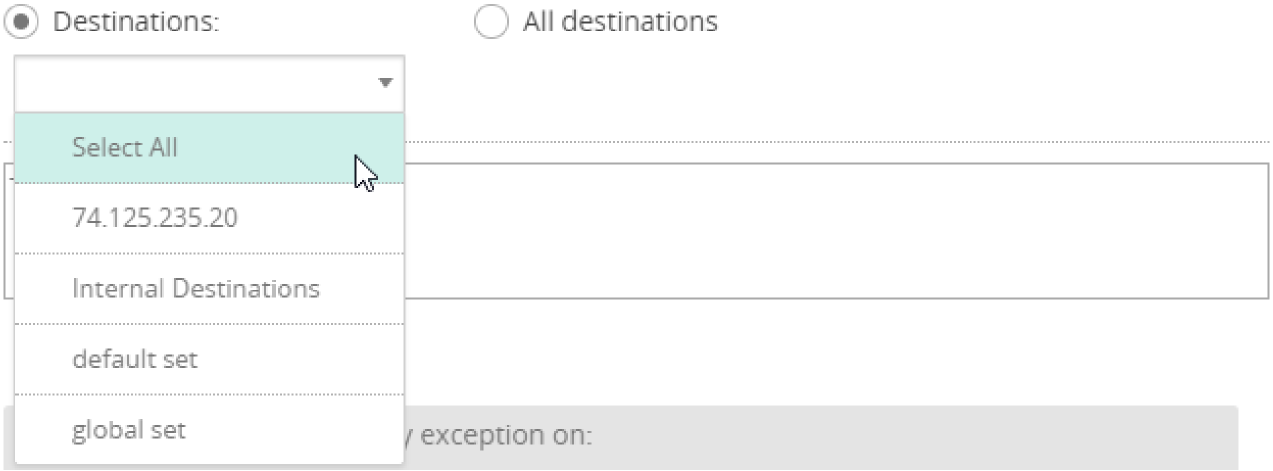
- Modified Executable
- Writeable Code
- Unconfirmed Executable

Type comments

Note: The All organizations option does not display for Local Administrators or regular users. Only an Administrator can set the All organizations option.

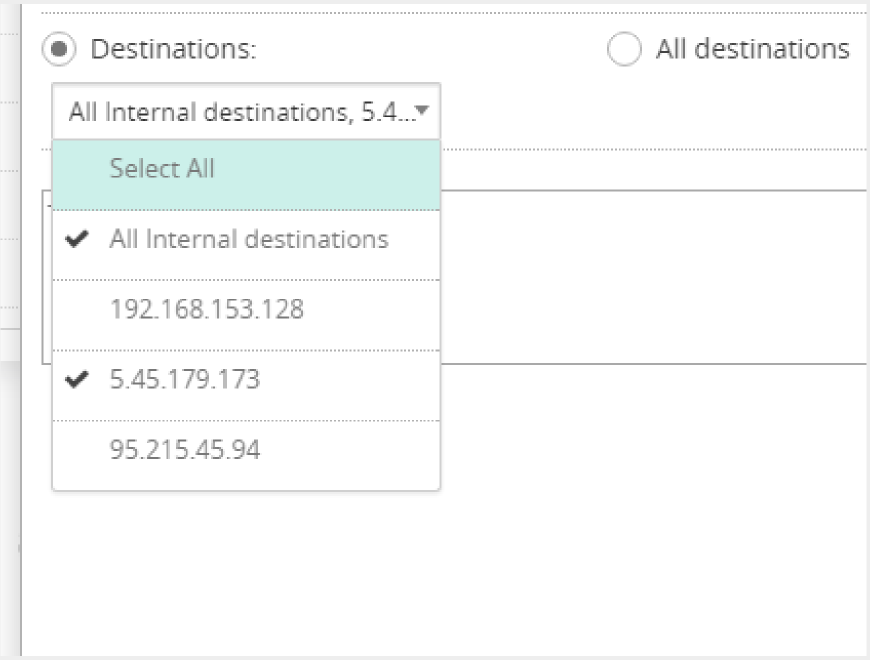
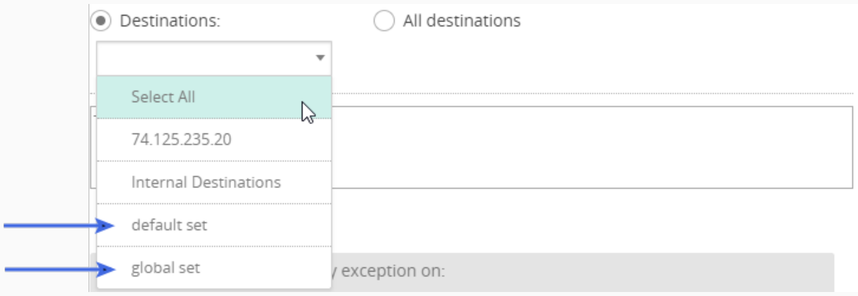
Exceptions can only be defined for Collector Groups. If you would like to define an exception for a specific Collector, then create a Collector Group that only contains that Collector.

4. Specify whether this exception applies to all Destinations or only to specific destinations. The Ips listed in the dropdown menu are those Ips that generated connections for this security event. Use the dropdown menu to select the specific Ips to exclude that were triggered on this security event, which can be either internal or external.

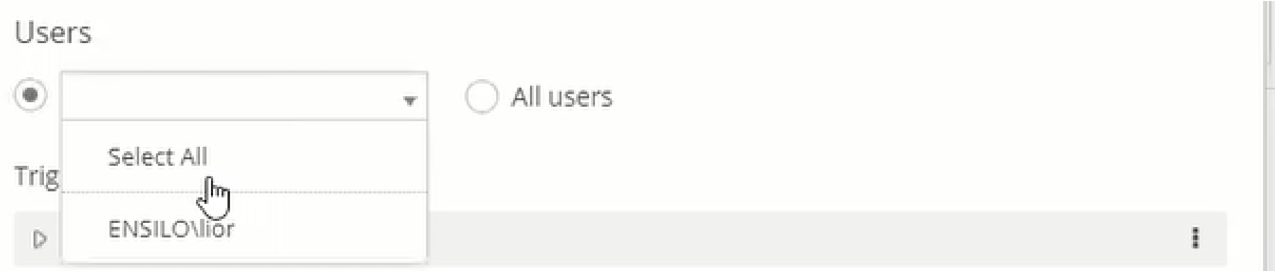


To apply the exception to a specific destination(s), select from the following options:

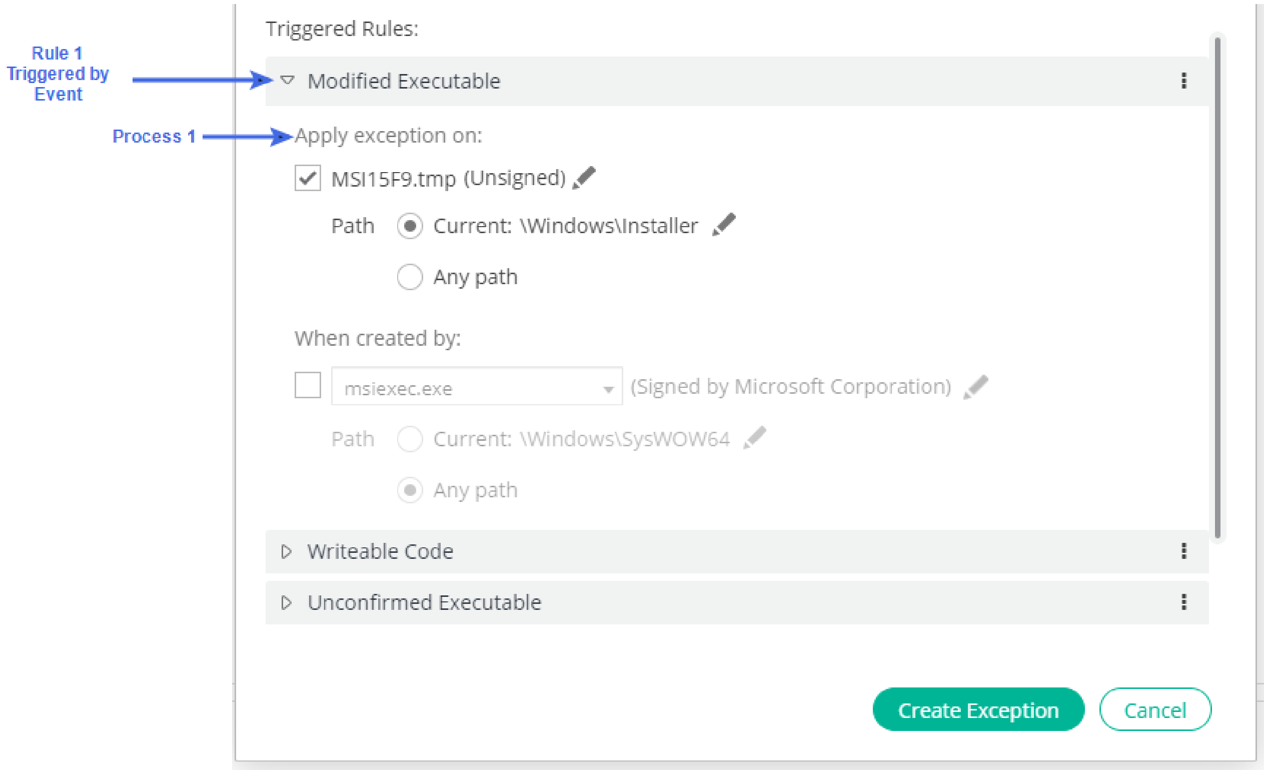
Option	Description
Select All	Applies the exception on all destinations that were seen as part of this security event. If there will be an identical violation (the same set of rules will be violated on this process) but the connection attempt will be to a different IP, than the security event will be triggered. To exclude this security event completely from being triggered in the future you can select the All Destinations radio button.
Internal Destinations	Applies the exception on all internal destinations. Internal destinations are internal IP addresses that are defined in TCP/IP standard definitions for internal networks. These IP addresses include the following: • Loopback addresses: 127.X.X.X, 0:0:0:0:0:0:0:1 and 0:0:0:0:0:FFFF:7f • 10.0.0.0 –10.255.255.255 • 192.168.0.0–192.168.255.255 • 169.254.0.0–169.254.255.255 • 172.16.0.0 - 172.31.255.255 • IPV6: fc00:: – fd00:: :: or fe80 This option is useful when an application is allowed for use within the organization, but you do not want it to be used for external communications. Using this option enables the application to communicate internally without triggering alerts. However, the application might still trigger alerts when attempting to connect to an external IP.
<IP Address>	Applies the exception to the selected IP address. You can select multiple IP addresses.

Option	Description
	 Destinations: All destinations All Internal destinations, 5.4... Select All ✓ All Internal destinations 192.168.153.128 ✓ 5.45.179.173 95.215.45.94
<IP Set>	An IP set defines a set of Ips to be included or excluded from a security event. When you select an IP set here, it means that an exception is applied only to a device that has one of the Ips specified in the IP set. IP sets can only be defined by an Administrator, as described in IP Sets on page 308.  Destinations: All destinations Select All 74.125.235.20 Internal Destinations default set global set exception on:

5. Specify whether this exception applies to all users or to a specific user.



6. In the **Triggered Rules** area, specify the path on which to apply the exception. You can select either the **Current Path** or **Any Path**. By default, all options are set to **Any Path**. In this context, the path indicates the entire path of the [folder name] in which the process's file is located. The **Current Path** is the path used in this security event, as displayed in the window. When you select **Any Path**, the process triggers the exception no matter from where it is running.



Rule 1 Triggered by Event

Process 1

Triggered Rules:

▽ Modified Executable

Apply exception on:

☑ MSI15F9.tmp (Unsigned)

Path ● Current: \Windows\Installer

○ Any path

When created by:

☐ msiexec.exe (Signed by Microsoft Corporation)

Path ○ Current: \Windows\SysWOW64

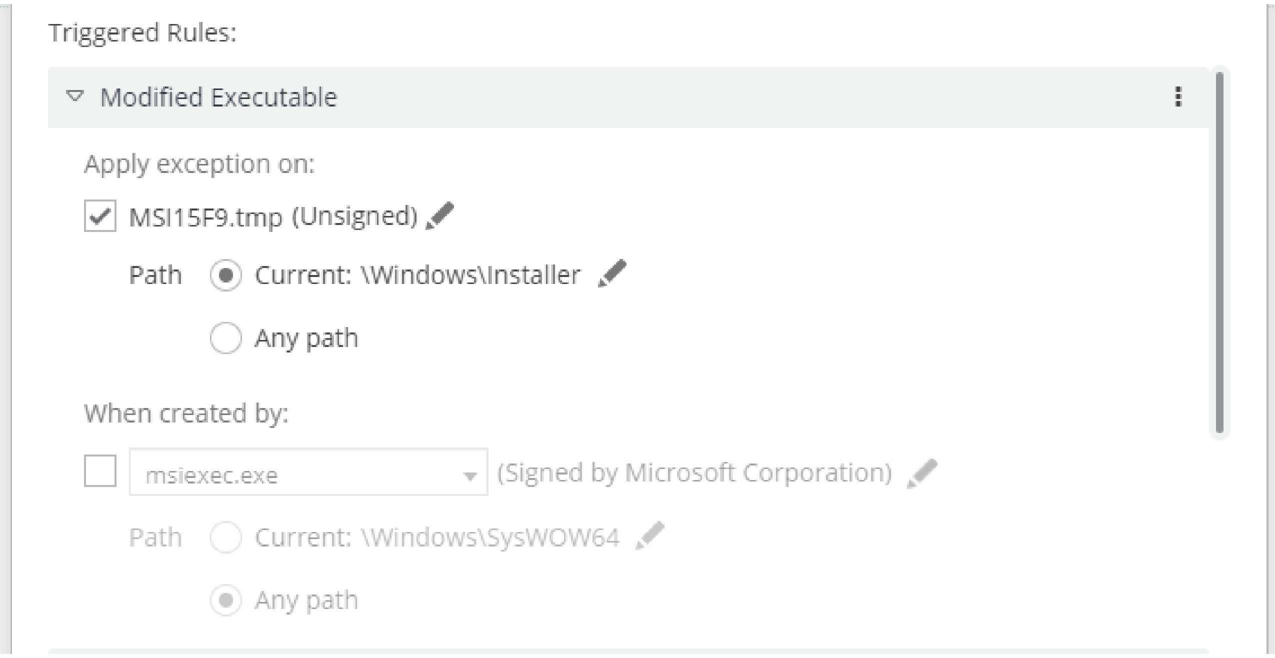
● Any path

▷ Writeable Code

▷ Unconfirmed Executable

You can define an exception so that a security event is triggered, based on a complex set of conditions. For example, you can define an exception so that a security event is triggered when a specific process (B) is executed by another process (A). For example, you can limit an exception so that it applies only when process B is executed by process A, or every time that process B is executed.

You can also define an exception that specifies that an exception is triggered only when one of the two process triggers is running, as shown below:



Triggered Rules:

▽ Modified Executable

Apply exception on:

☑ MSI15F9.tmp (Unsigned)

Path ● Current: \Windows\Installer

○ Any path

When created by:

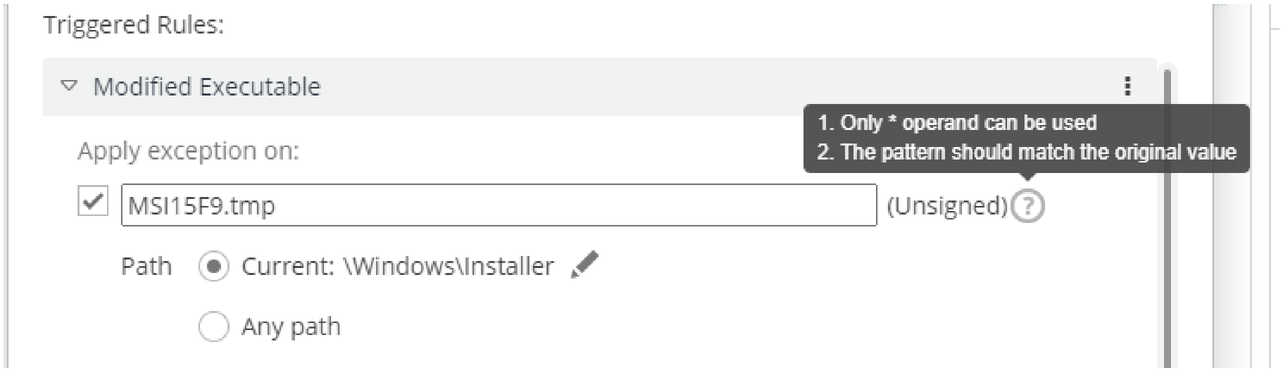
☐ msiexec.exe (Signed by Microsoft Corporation)

Path ○ Current: \Windows\SysWOW64

● Any path

You can also define an exception specifying that it is triggered only when both processes are running.

You can click the Help ? button to view relevant help information, as shown below:



Triggered Rules:

▽ Modified Executable ⋮

1. Only * operand can be used
2. The pattern should match the original value

Apply exception on:

☑ MSI15F9.tmp (Unsigned) ?

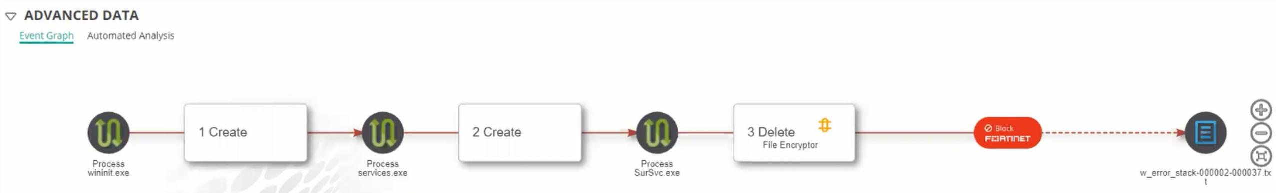
Path ● Current: \Windows\Installer

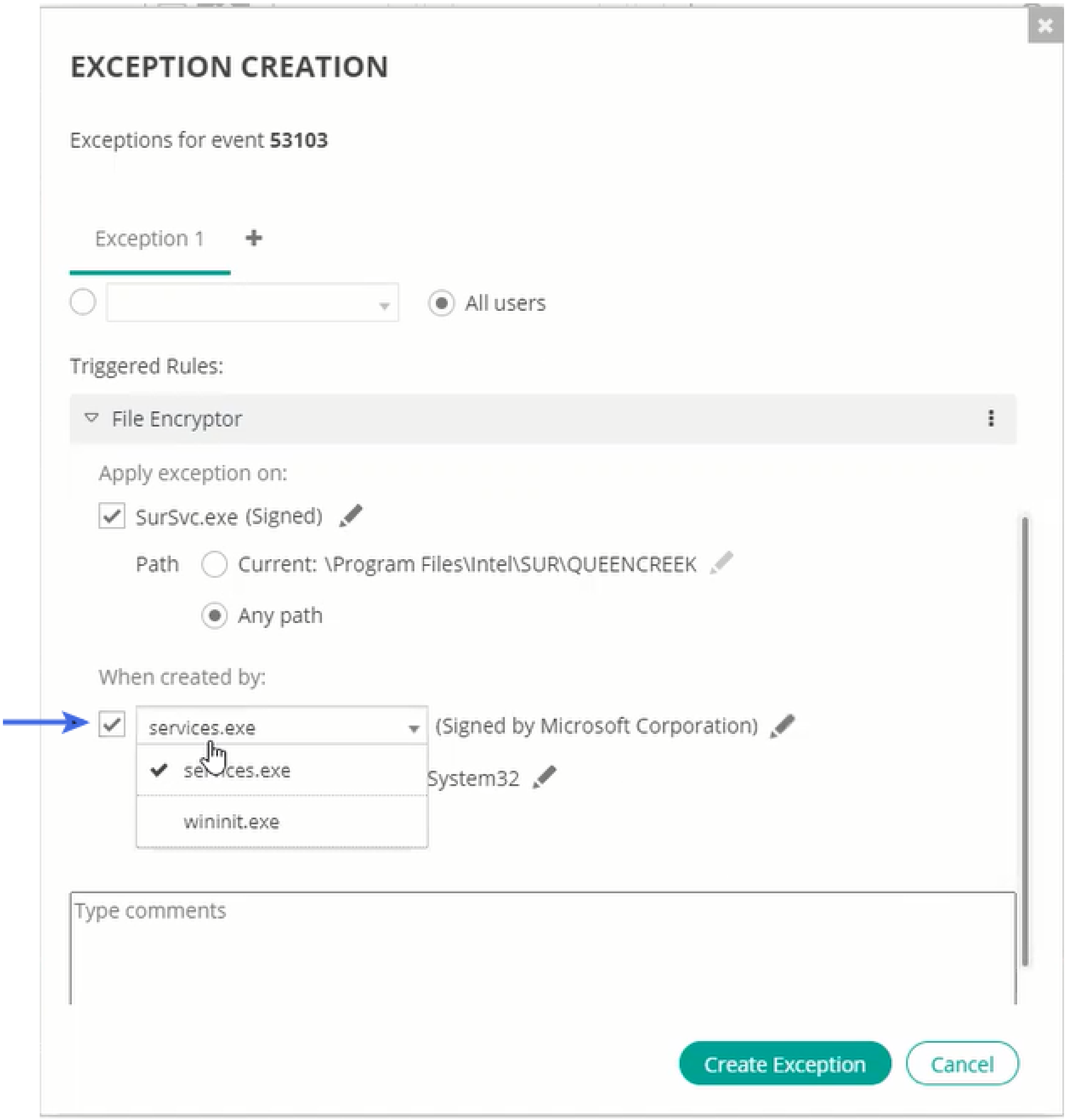
○ Any path

FortiEDR enables you any to specify any of the processes in a security event's stack when defining an exception.

Let's look at an example in more detail. Let's say that you want to define an exception that allows the **SurSvc.exe** executable to run, but only when it is created from the **services.exe** executable. Therefore, in order to define this exception, you would select **the SurSvc.exe** process in the **Apply exception** on field and select the **services.exe** process in the **When created by** field. Based on this security event's ancestry chain, **wininit.exe**, which is the grandparent of **the SurSvc.exe** executable, would not be selected in the **When created by** field.

Note that the immediate parent of the **SurSvc.exe** executable is **services.exe** and that it is therefore listed at the top of **the When created by** field dropdown list and that the SurSvc.exe executable's grandparent is **wininit.exe**, which is listed at the bottom of the list. The order in which the processes run in a security event chain is always maintained. This means that the oldest ancestor is shown at the bottom of the list of processes in this window and the immediate parent is at the top.





EXCEPTION CREATION

Exceptions for event **53103**

Exception 1 +

○ ● All users

Triggered Rules:

File Encryptor

Apply exception on:

☑ SurSvc.exe (Signed)

Path ○ Current: \Program Files\Intel\SUR\QUEENCREEK

● Any path

When created by:

☑ services.exe (Signed by Microsoft Corporation)

✓ services.exe

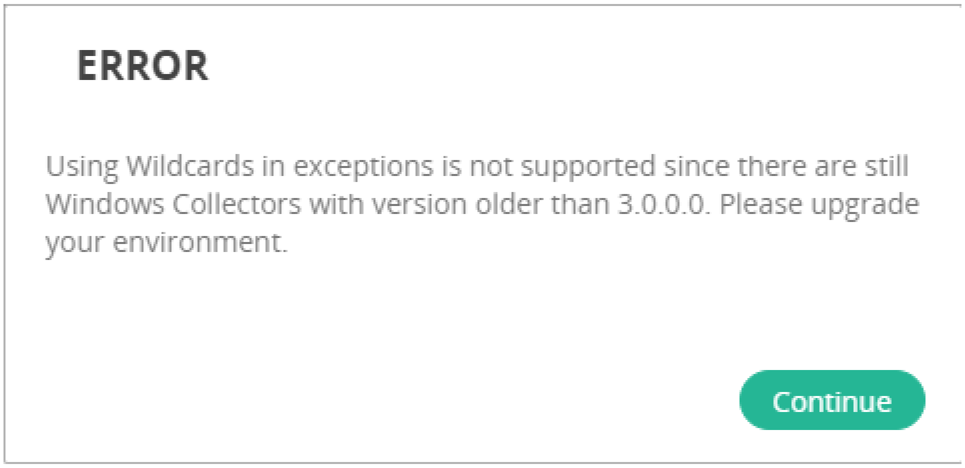
wininit.exe

System32

Type comments

You can edit the process path and file name. Wildcards can be used for this purpose.

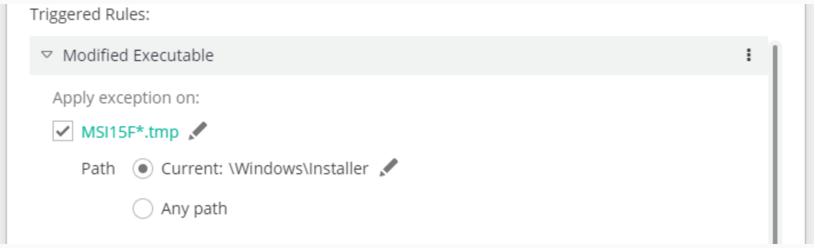
Note: To use wildcards as part of a process path or file name definition, all Collectors must be V3.0.0.0 or above. If you attempt to use wildcards with older Collectors, the following error message displays:



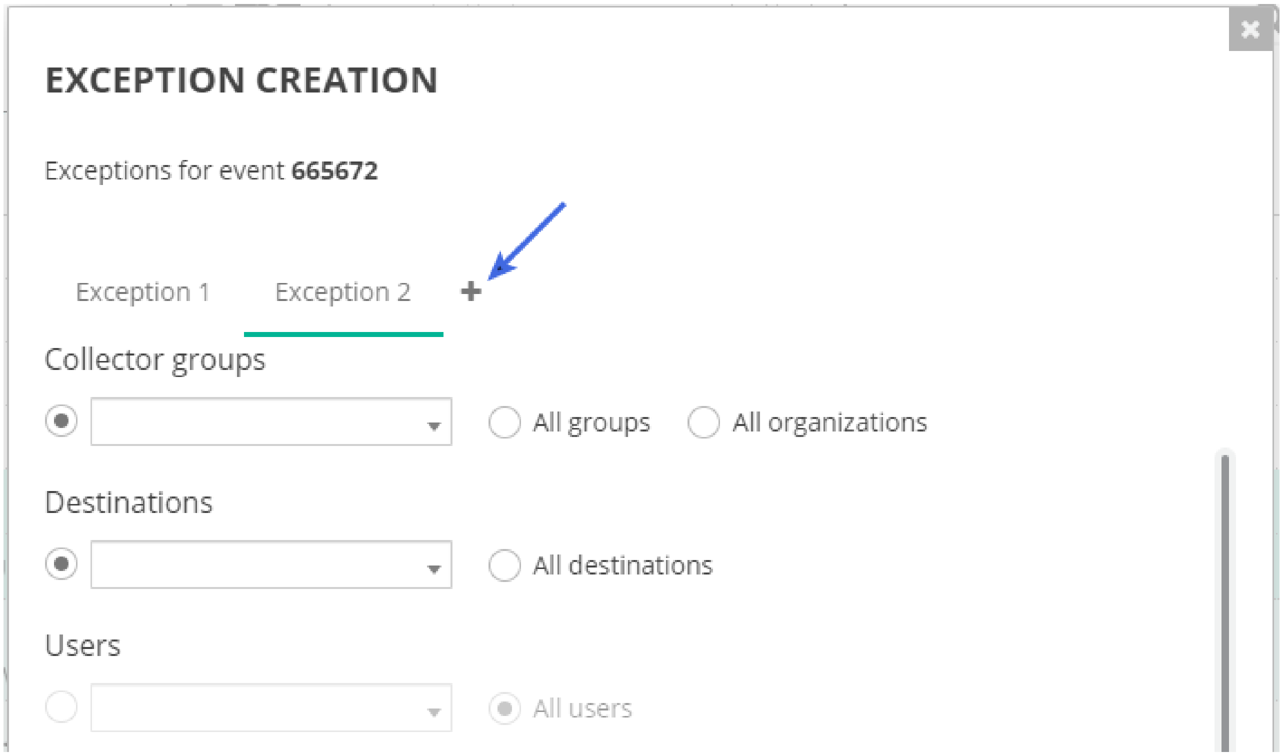
ERROR

Using Wildcards in exceptions is not supported since there are still Windows Collectors with version older than 3.0.0.0. Please upgrade your environment.

You can only edit the process path or file name when selecting the Current Path option. To do so, click the adjacent Edit ✎ button, and then edit the process/file name as needed. When doing so, the following conditions apply:

Field	Condition
Path	• Only an asterisk (*) character(s) can be added. • Do not change the displayed path. Otherwise, it will no longer match. However, you can replace a piece of the string with an asterisk (*). • Only a single asterisk character (*) is permitted between two consecutive path separators (/). • The number of separators (/) in the displayed path must remain the same.
File Name	• Only an asterisk (*) character(s) can be added. • Do not change the file name. Otherwise, it will no longer match. However, you can replace a piece of the string with an asterisk (*). • Only a single asterisk character (*) is permitted. When a wildcard is used as part of the process path or file name definition, the entry displays in green, as shown below:  Triggered Rules: ▿ Modified Executable Apply exception on: ☑ MSI15F*.tmp ✎ Path ● Current: \Windows\Installer ✎ ○ Any path

7. [Optional] Enter any comments in the Comments box.
8. Click the **Create Exception** button.
9. [Optional] You can define another exception for this same security event by clicking the **plus** + button at the top of the window. Then, define the exception in the same manner as described above in steps **1–8**.



EXCEPTION CREATION

Exceptions for event **665672**

Exception 1 | Exception 2 | +

Collector groups

● ▾ ○ All groups ○ All organizations

Destinations

● ▾ ○ All destinations

Users

○ ▾ ● All users

Note: If this exception was created previously, the Remove Exception button appears enabling you to delete the exception.

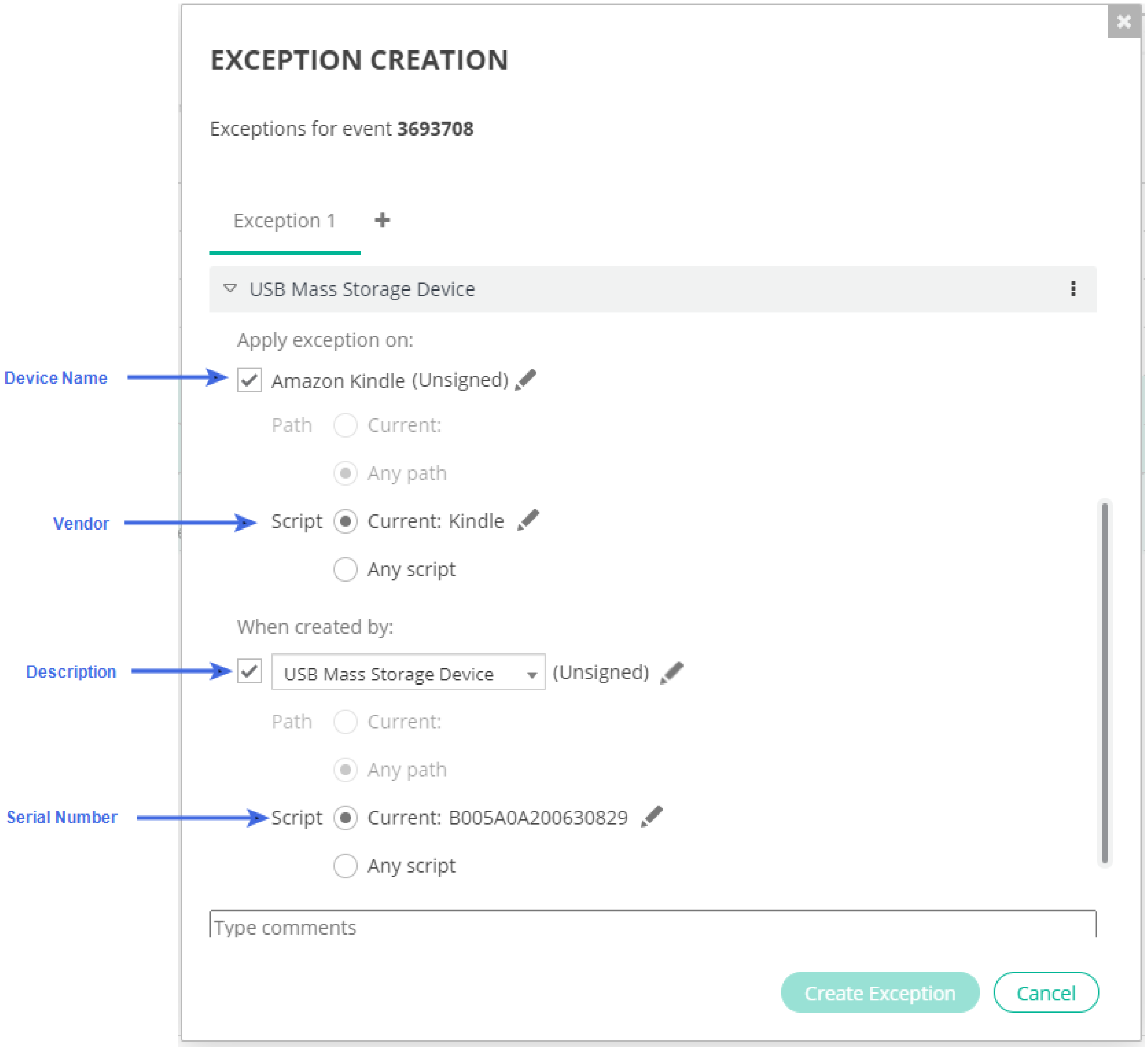
Device Control Exceptions

Note – Device Control capabilities are license-dependent. You may contact Fortinet Support for more information.

Exceptions on device control security events are similar to other exceptions, with several additional capabilities that enable you to set the exception on a device name, description, serial number or a combination, as follows:

- The USB device’s description is specified under the **Process Name** field.
- The device’s serial number is listed in order to exclude a specific USB device with the designated serial number.
- The device’s name is specified under the second **Process Name**.

For example:



EXCEPTION CREATION

Exceptions for event **3693708**

Exception 1 +

USB Mass Storage Device

Apply exception on:

☑ Amazon Kindle (Unsigned)

Path ○ Current:

● Any path

Script ● Current: Kindle

○ Any script

When created by:

☑ USB Mass Storage Device (Unsigned)

Path ○ Current:

● Any path

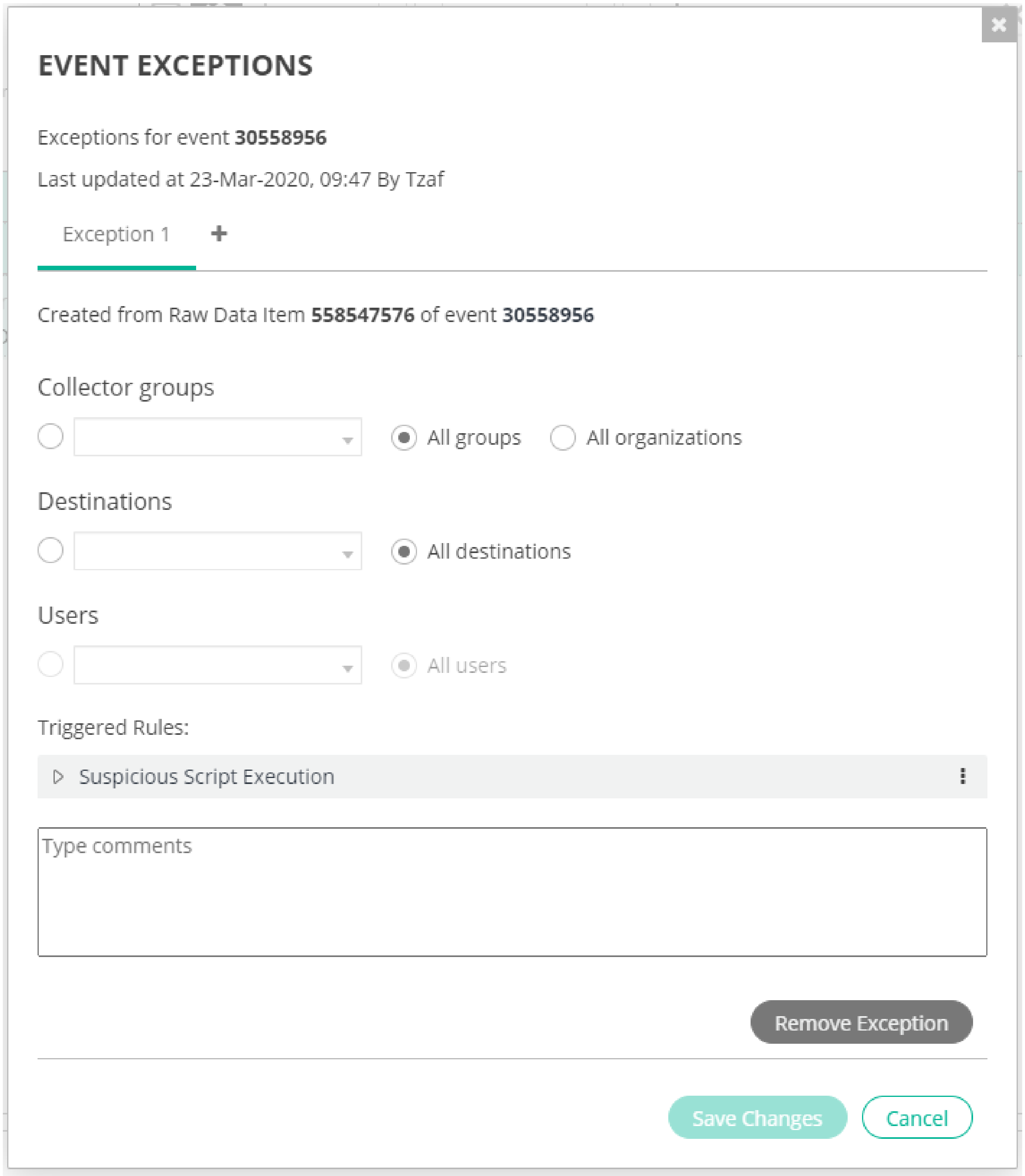
Script ● Current: B005A0A200630829

○ Any script

Type comments

Editing Security Event Exceptions

1. Click the **Edit Exception** button in the security event row for the exception you want to modify. The following window displays:



EVENT EXCEPTIONS

Exceptions for event **30558956**

Last updated at 23-Mar-2020, 09:47 By Tzaf

Created from Raw Data Item **558547576** of event **30558956**

Collector groups

○ ● All groups ○ All organizations

Destinations

○ ● All destinations

Users

○ ● All users

Triggered Rules:

▷ Suspicious Script Execution

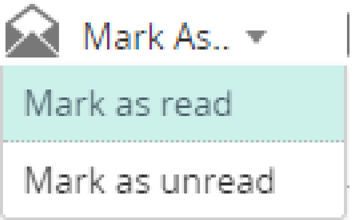
2. Modify the Collector Groups, Destinations and Users to which the exception applies and the pairs of rules and processes that operate together to define an exception in the **Triggered Rules** area, as needed. For more details, see Defining a Security Event as an Exception on page 150.
   For a multi-organization FortiEDR system, an Administrator can also specify whether the exception applies to all organizations. The **All organizations** option applies the exception to all organizations, regardless of whether or not the security event already occurred.

3. Click the **Save Changes** button.

Marking a Security Event as Read/Unread

The following describes how to specify that you have viewed a security event. This does not mean that the security event has been handled (Marking a Security Event as Handled/Unhandled on page 143). When any FortiEDR Central Manager user marks a security event as Read, all users see it as having been read. Unread security events are displayed bold.

To mark a security event as having been viewed:



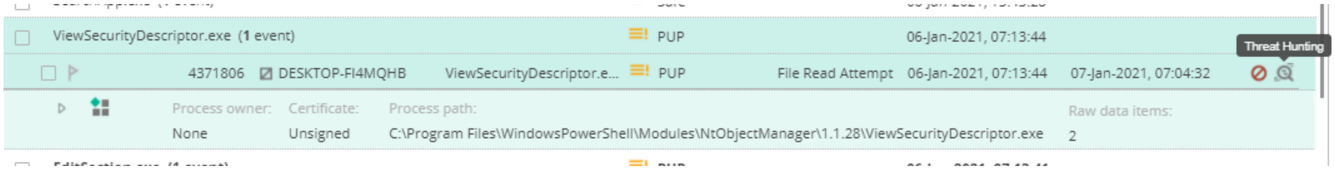
- Select the rule’s checkbox and then click the **Mark As** button and then select **Mark as read**. The security event row text is no longer displayed bold.

Viewing Relevant Activity Events

Security events may have related Activity events that can be viewed in the Threat Hunting tab.

To view the related Activity event of a Security Event in the Event Viewer –

- Click on the **Threat Hunting** icon that is displayed when you hover over the event, as shown below. The Threat Hunting window is then displayed.



ViewSecurityDescriptor.exe (1 event) PUP 06-Jan-2021, 07:13:44

4371806 DESKTOP-FI4MQHB ViewSecurityDescriptor.e... PUP File Read Attempt 06-Jan-2021, 07:13:44 07-Jan-2021, 07:04:32

Process owner: None

Certificate: Unsigned

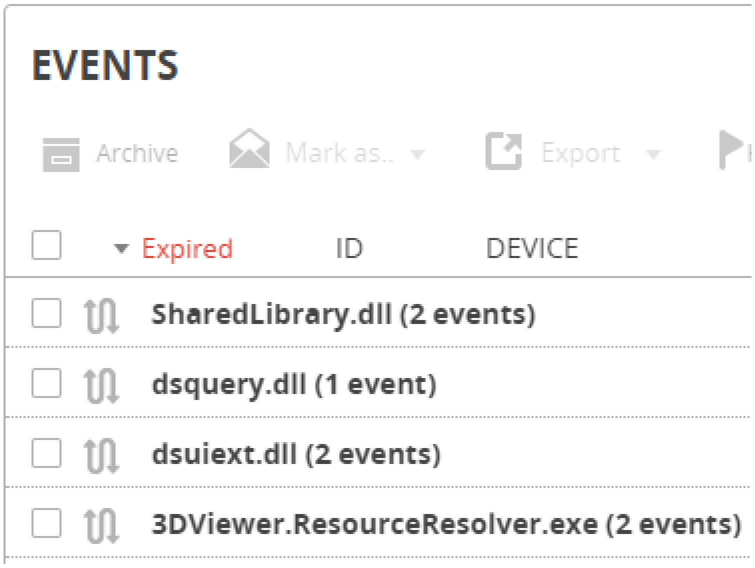
Process path: C:\Program Files\WindowsPowerShell\Modules\NtObjectManager\1.1.28\ViewSecurityDescriptor.exe

Raw data items: 2

Viewing Expired Security Events

Security events in the Event Viewer can be filtered to show only expired events. Expired security events are events that the system has determined as safe. As such, these security events are only triggered once and then saved internally in the system. There is no need to define an exception for them. Expired security events cannot be handled in the system in any way, such as marking them as read/unread, defining an exception for them and so on.

Expired security events can only occur when a Collector is connected to the Core, and do not occur when a Collector works autonomously.

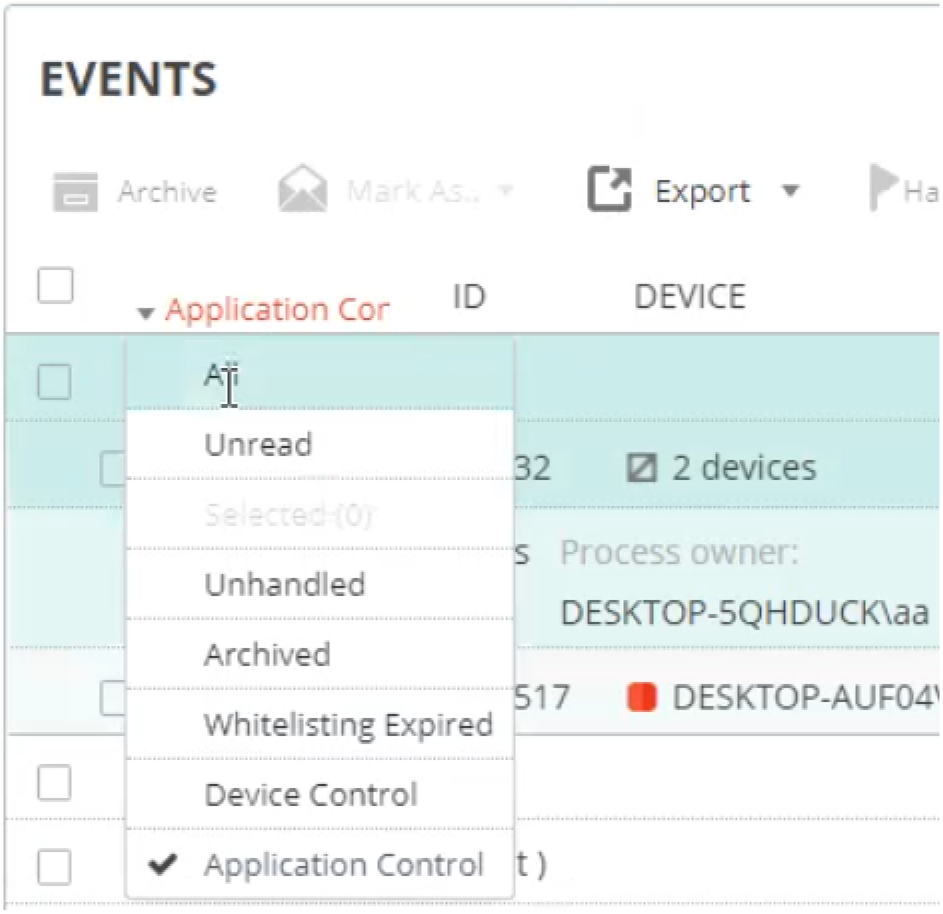


EVENTS

□	Expired	ID	DEVICE
□	SharedLibrary.dll (2 events)		
□	dsquery.dll (1 event)		
□	dsuiext.dll (2 events)		
□	3DViewer.ResourceResolver.exe (2 events)		

Viewing Application Control Security Events

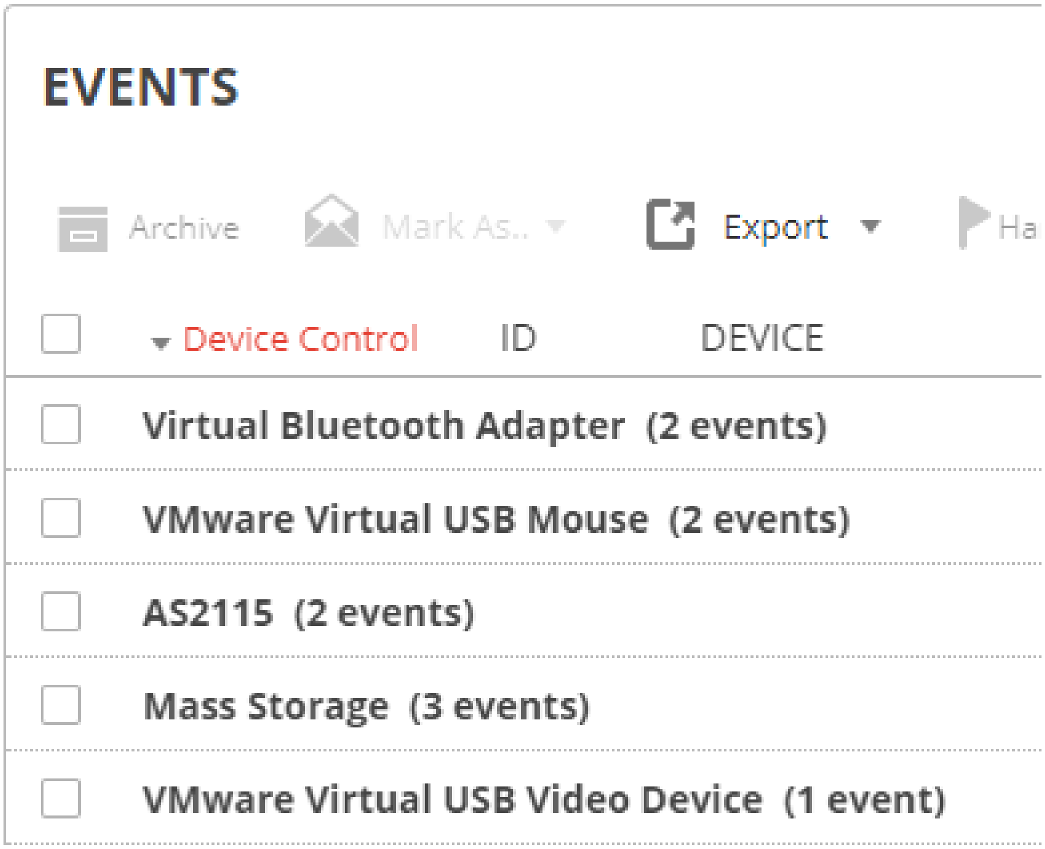
Security events in the Event Viewer can be filtered to show only Application Control security events. Application control security events are events that were triggered on rules that are part of the Application Control policy. Such events do not necessarily mean that there was malicious activity but indicate an attempt to execute an application that is listed in the user-defined blocklist. These security events are displayed separately from other security events. Defining an exception for them can be done in a similar manner as for other security events. The exception specifies which applications are blocked by its hash.



Viewing Device Control Security Events

Note – Device Control capabilities are license-dependent. You may contact Fortinet Support for more information.

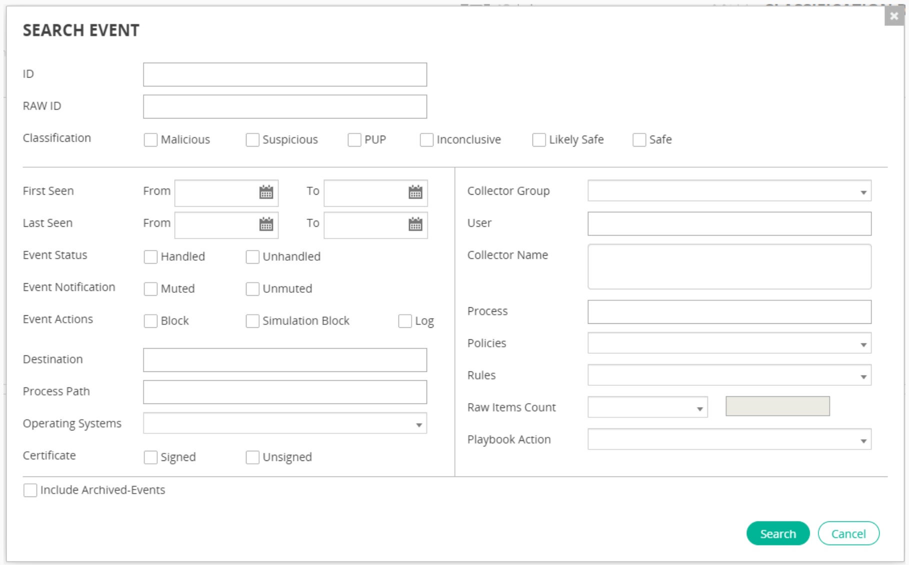
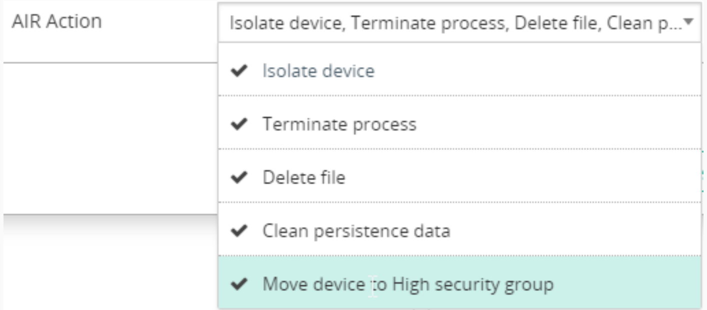
Security events in the Event Viewer can be filtered to show device control security events. Device control security events are events that were triggered on rules that are part of the Device Control policy. Such events do not necessarily mean that there was malicious activity but indicate USB peripheral access. These security events are displayed separately from other security events. Defining an exception for them can be done in a similar manner as for other security events. The exception can be set on the device name, vendor, serial number or a combination.



☐	Device Control	ID	DEVICE
☐	Virtual Bluetooth Adapter (2 events)		
☐	VMware Virtual USB Mouse (2 events)		
☐	AS2115 (2 events)		
☐	Mass Storage (3 events)		
☐	VMware Virtual USB Video Device (1 event)		

Other Options in the Event Viewer

Option	Description
Sorting Events	Click any column name to sort security events. For example, you may want to sort by Process and Collector in order to see the history of everything that happened to that process on that device.
Searching For Events	Click the down arrow in the **Search Event** field to display a variety of search options Search Event ▾ 🔍. When the Event Viewer display is filtered by a search, the **Search Event** field displays the words **Multiple search** Multiple search ▾ ✕ . Click the ✕ to redisplay all the security events (unfiltered).

Option	Description
	 **SEARCH EVENT** ID RAW ID Classification □ Malicious □ Suspicious □ PUP □ Inconclusive □ Likely Safe □ Safe First Seen From To Last Seen From To Event Status □ Handled □ Unhandled Event Notification □ Muted □ Unmuted Event Actions □ Block □ Simulation Block □ Log Destination Process Path Operating Systems Certificate □ Signed □ Unsigned Collector Group User Collector Name Process Policies Rules Raw Items Count Playbook Action □ Include Archived-Events Search Cancel **Note** – The User field refers to the employee's username on the computer and on the FortiEDR Manager. You can select one or more action types in the AIR Action dropdown list.  AIR Action: Isolate device, Terminate process, Delete file, Clean p... ✓ Isolate device ✓ Terminate process ✓ Delete file ✓ Clean persistence data ✓ Move device to High security group
Exporting Events	Click the Export button to export the selected security events to Excel or PDF.
Archiving Events	Click the button Archive to archive the selected security events. These security events are not deleted. You can display them using the **Search** option (described above) and selecting the Included **Archived Events** option. **Note** – To unarchive a security event, click the Unarchive button, and then confirm the unarchive action in the window that displays.
Deleting Events	Click the Delete button to completely delete a security event from the FortiEDR system.

Option	Description
	Note – A deleted security event cannot be restored or retrieved. Unless you are having storage capacity issues, we highly recommend just hiding security events and not deleting them.
Forensics	The optional FortiEDR Forensics add-on enables you to perform deep analysis of security events, as described on Forensics on page 204.
Exception Manager	Click the Exception Manager button to access the Exception Manager, as described on Exception Manager on page 64.

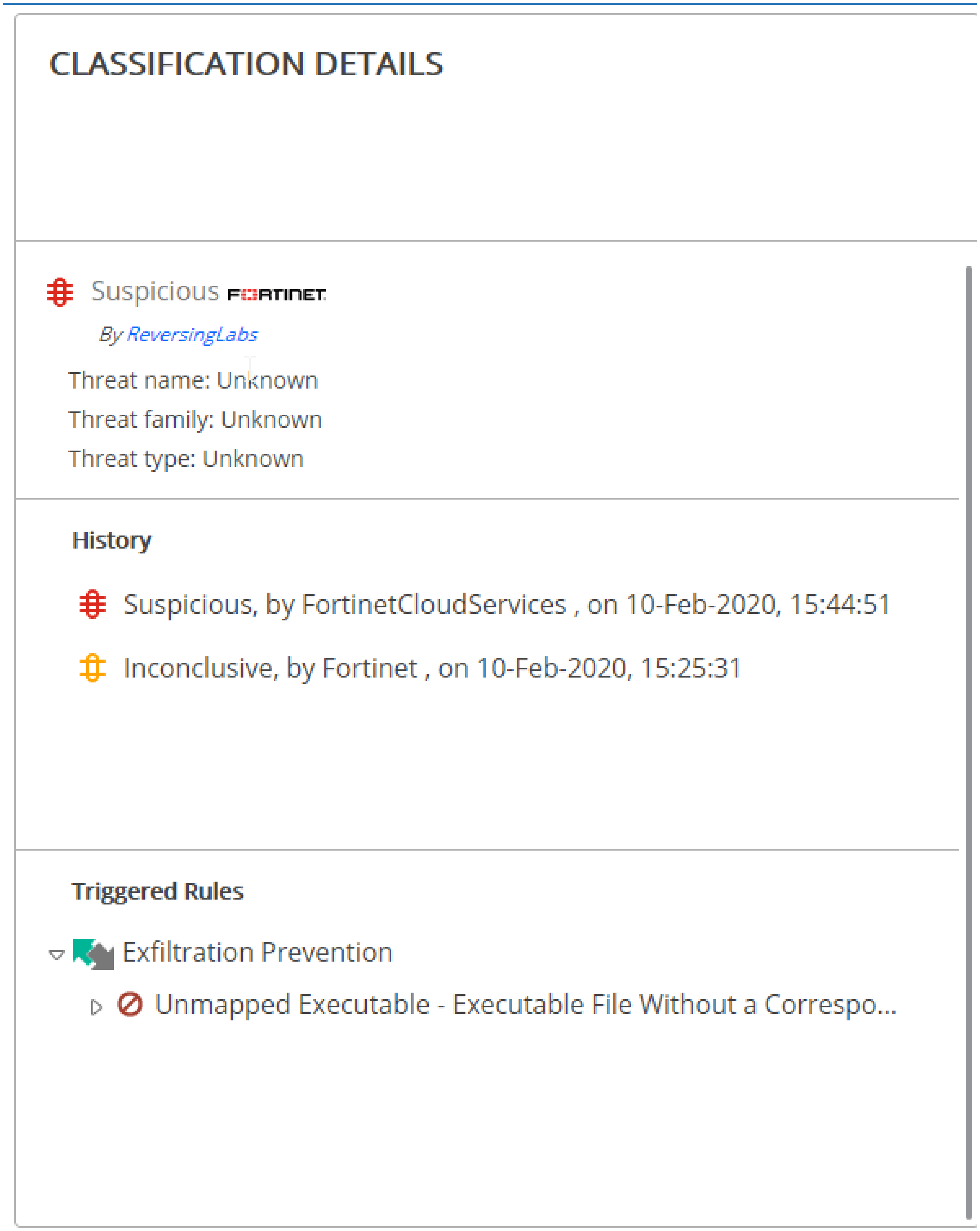
Classification Details

The Classification Details area displays the classification, policy and rules assigned to the FortiEDR Collector that triggered this security event.

Click the **History** down arrow to display the classification history of a security event. The classification history shows the chronology for classifying the security event, and the actions performed by FortiEDR for that event. This area also displays relevant details when the FortiEDR Cloud Service (FCS) reclassifies a security event after its initial classification by the Core.

All FortiEDR actions are based on the final classification of a security event by the FCS. The FCS is a cloud-based, software only service that determines the exact classification of security events and acts accordingly based on that classification – all with a high degree of accuracy. All Playbook policy actions are based on the final determination of the FCS.For more details, see Playbook Policies on page 89.

For example, the following example shows that the security event was reclassified by the FCS and given a notification status of Suspicious at 15:44:51.



CLASSIFICATION DETAILS

Suspicious FORTINET

By ReversingLabs

Threat name: Unknown

Threat family: Unknown

Threat type: Unknown

History

Suspicious, by FortinetCloudServices , on 10-Feb-2020, 15:44:51

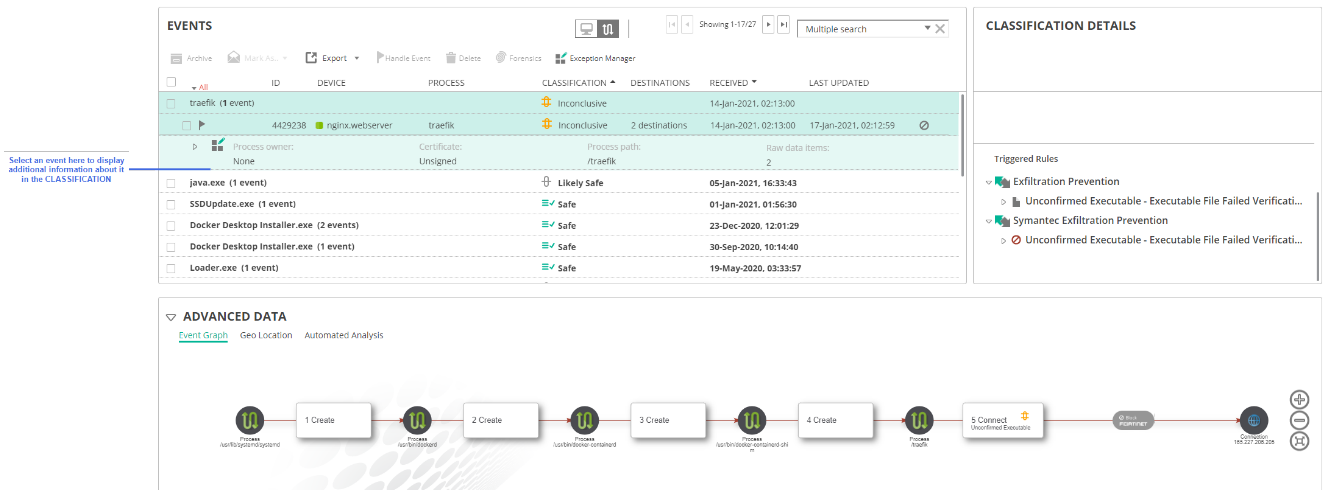
Inconclusive, by Fortinet , on 10-Feb-2020, 15:25:31

Triggered Rules

Exfiltration Prevention

Unmapped Executable - Executable File Without a Correspo...

In the Triggered Rules area, only rules that were violated are displayed. The rule’s configured Action is displayed for each rule, as defined in POLICIES. The Action that was actually executed is displayed in the action column of the EVENTS pane of this window. The Action taken is determined by the rule with the highest priority.



Select an event here to display additional information about it in the CLASSIFICATION

EVENTS

Showing 1-17/27 | Multiple search

Archive | Mark As.. | Export | Handle Event | Delete | Forensics | Exception Manager

☐	All	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED
☐	traefik (1 event)				Inconclusive		14-Jan-2021, 02:13:00	
☐		4429238	nginx.webserver	traefik	Inconclusive	2 destinations	14-Jan-2021, 02:13:00	17-Jan-2021, 02:12:59
	Process owner: None			Certificate: Unsigned	Process path: /traefik		Raw data items: 2	
☐	java.exe (1 event)				Likely Safe		05-Jan-2021, 16:33:43	
☐	SSDUpdate.exe (1 event)				Safe		01-Jan-2021, 01:56:30	
☐	Docker Desktop Installer.exe (2 events)				Safe		23-Dec-2020, 12:01:29	
☐	Docker Desktop Installer.exe (1 event)				Safe		30-Sep-2020, 10:14:40	
☐	Loader.exe (1 event)				Safe		19-May-2020, 03:33:57	

CLASSIFICATION DETAILS

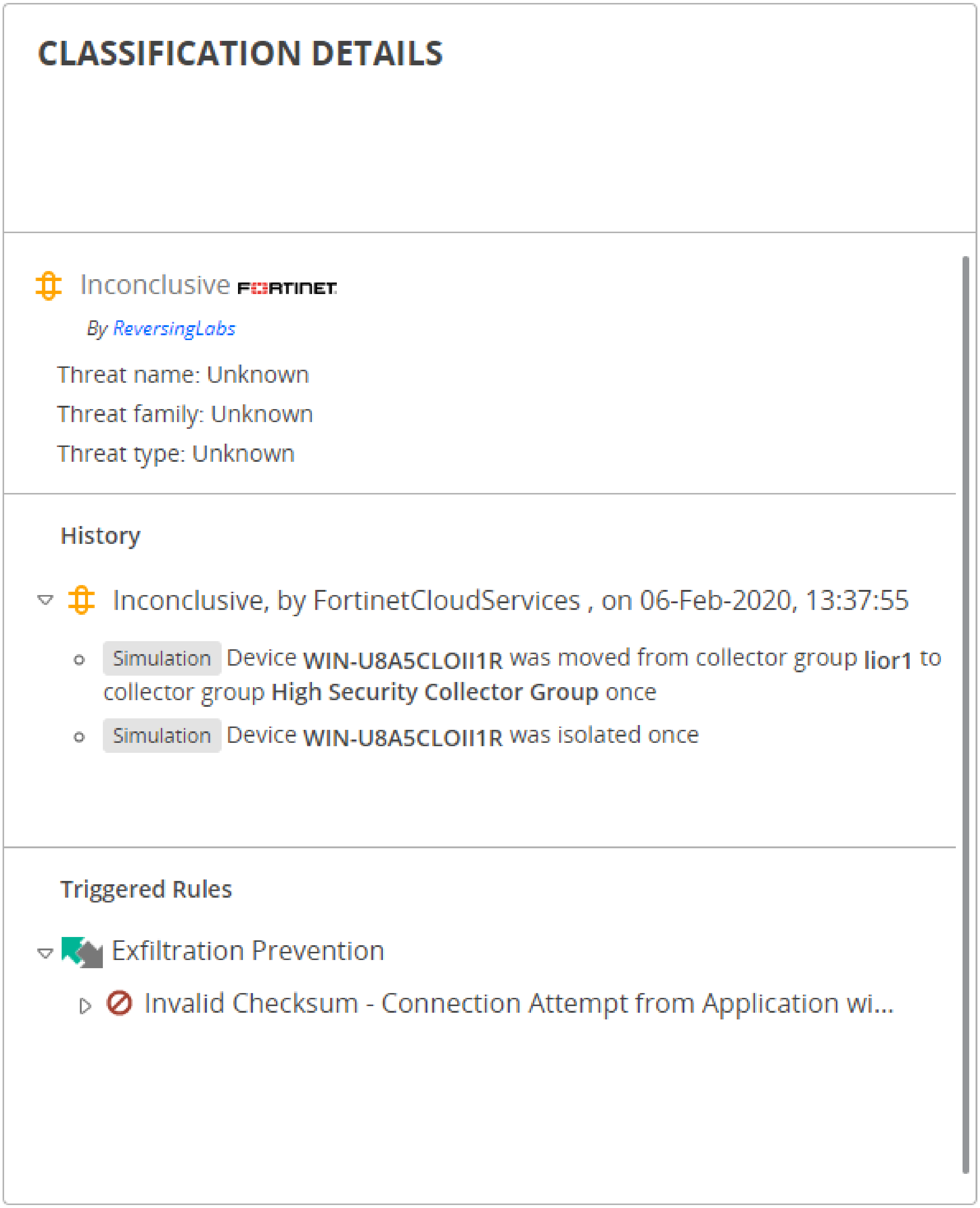
Triggered Rules

- Exfiltration Prevention
  - Unconfirmed Executable - Executable File Failed Verificati...
- Symantec Exfiltration Prevention
  - Unconfirmed Executable - Executable File Failed Verificati...

ADVANCED DATA

Event Graph | Geo Location | Automated Analysis

Each entry in the CLASSIFICATION DETAILS area displays the threat name, threat family and threat type. If threat intelligence data is available for the threat, it displays as well.



CLASSIFICATION DETAILS

Inconclusive FORTINET

By ReversingLabs

Threat name: Unknown

Threat family: Unknown

Threat type: Unknown

History

Inconclusive, by FortinetCloudServices , on 06-Feb-2020, 13:37:55

- Simulation Device **WIN-U8A5CLOII1R** was moved from collector group **lior1** to collector group **High Security Collector Group** once
- Simulation Device **WIN-U8A5CLOII1R** was isolated once

Triggered Rules

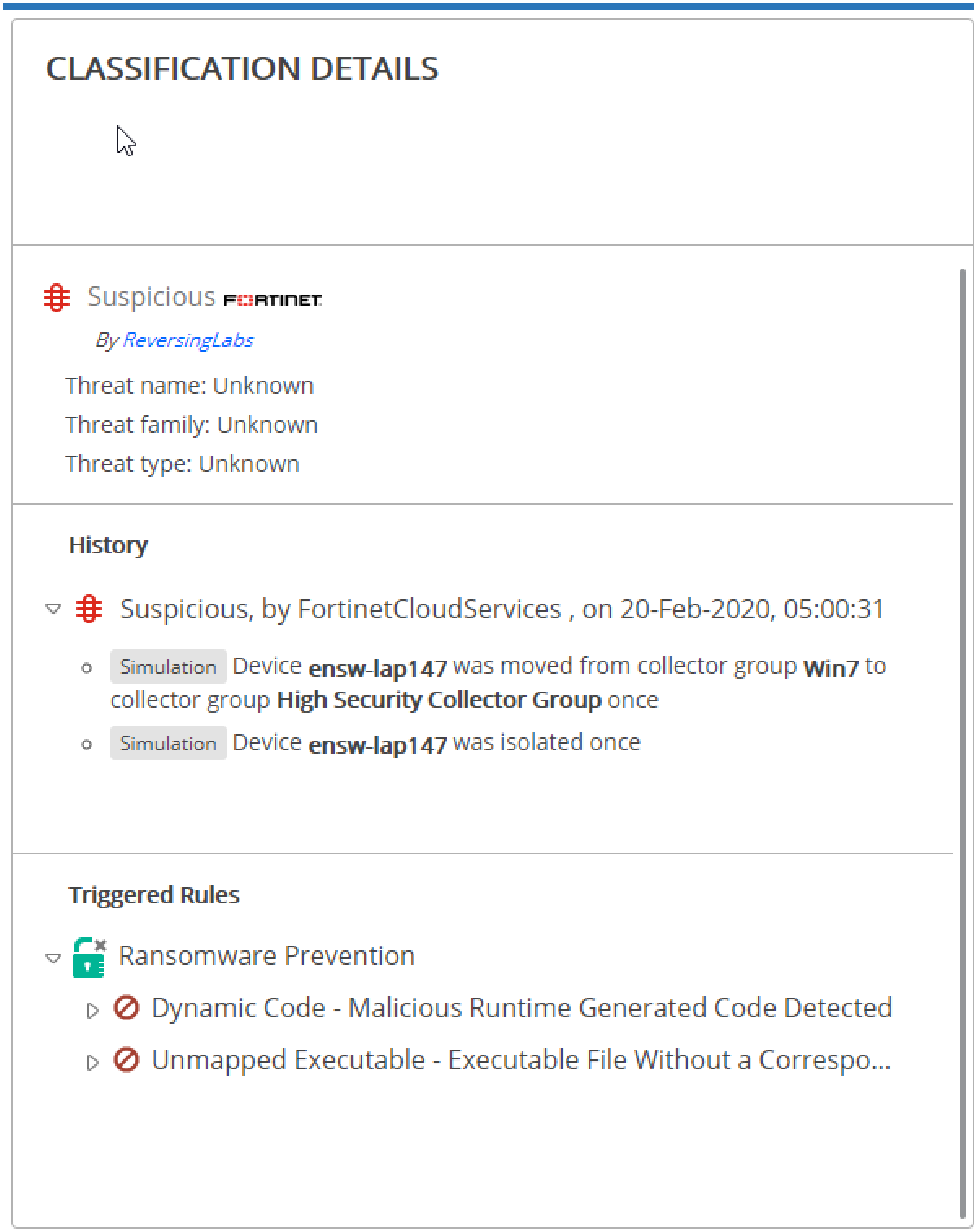
Exfiltration Prevention

Invalid Checksum - Connection Attempt from Application wi...

When the Fortinet logo appears next to an entry in the CLASSIFICATION DETAILS area, it indicates that the security event classification is the one that was automatically added by FortiEDR. Security events that were manually classified do not display the Fortinet logo.

Contact Fortinet Support for more details about the third-party tool used by Fortinet for the classification process.

Note that when the Playbook policy that relates to a security event is set to Simulation mode, then the event action is documented in the Event Viewer, but is not performed. Such security events display (simulation) in the History section of the Classification Details area, as shown below:



CLASSIFICATION DETAILS

Suspicious FORTINET

By ReversingLabs

Threat name: Unknown

Threat family: Unknown

Threat type: Unknown

History

Suspicious, by FortinetCloudServices , on 20-Feb-2020, 05:00:31

- Simulation Device **ensw-lap147** was moved from collector group **Win7** to collector group **High Security Collector Group** once
- Simulation Device **ensw-lap147** was isolated once

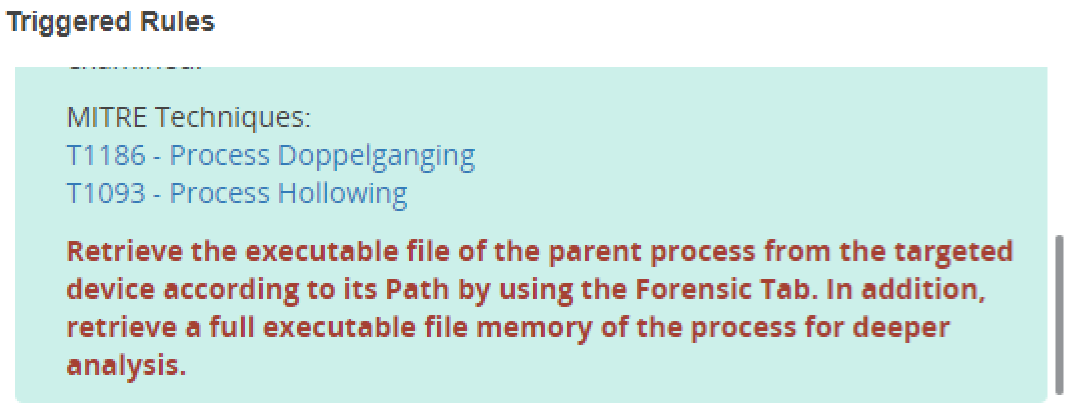
Triggered Rules

Ransomware Prevention

- Dynamic Code - Malicious Runtime Generated Code Detected
- Unmapped Executable - Executable File Without a Correspo...

Note – Notification actions are not shown in the Event Viewer, but Investigation and Remediation actions are. For more details, see Playbook Policy Actions on page 92.

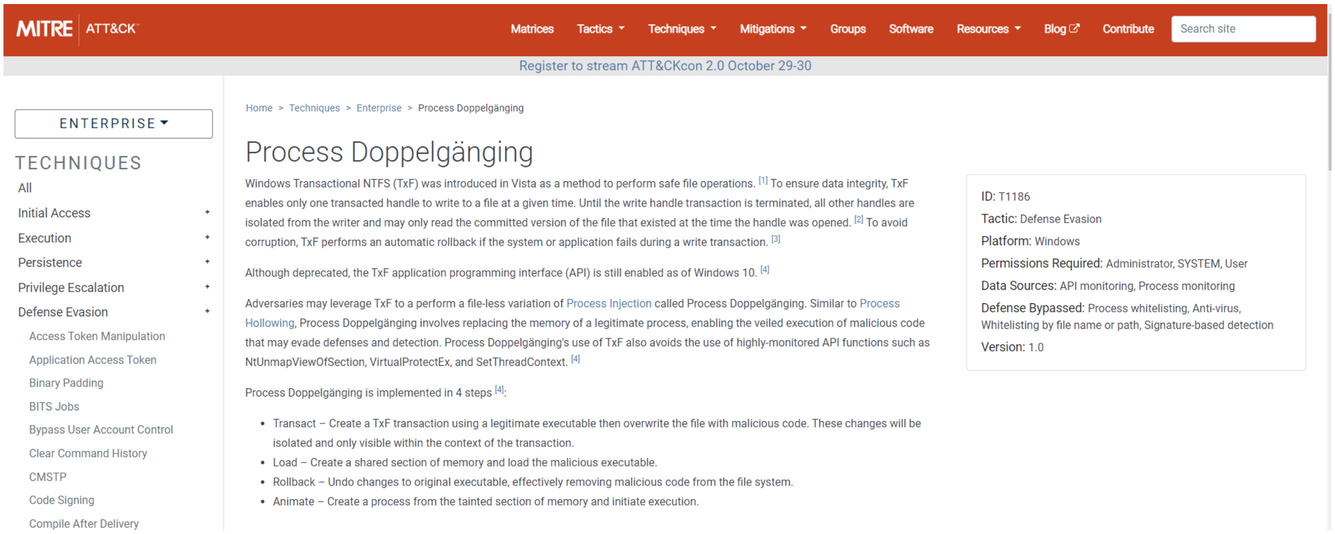
When expanding triggered rules, you can see the techniques that were used in this security event, based on the MITRE ATT&CK common techniques scheme. Clicking the technique opens the MITRE web page, providing additional details, as shown below.



Triggered Rules

MITRE Techniques:
T1186 - Process Doppelganging
T1093 - Process Hollowing

Retrieve the executable file of the parent process from the targeted device according to its Path by using the Forensic Tab. In addition, retrieve a full executable file memory of the process for deeper analysis.



Process Doppelgänging

Windows Transactional NTFS (TxF) was introduced in Vista as a method to perform safe file operations. [1] To ensure data integrity, TxF enables only one transacted handle to write to a file at a given time. Until the write handle transaction is terminated, all other handles are isolated from the writer and may only read the committed version of the file that existed at the time the handle was opened. [2] To avoid corruption, TxF performs an automatic rollback if the system or application fails during a write transaction. [3]

Although deprecated, the TxF application programming interface (API) is still enabled as of Windows 10. [4]

Adversaries may leverage TxF to a perform a file-less variation of Process Injection called Process Doppelgänging. Similar to Process Hollowing, Process Doppelgänging involves replacing the memory of a legitimate process, enabling the veiled execution of malicious code that may evade defenses and detection. Process Doppelgänging's use of TxF also avoids the use of highly-monitored API functions such as NtUnmapViewOfSection, VirtualProtectEx, and SetThreadContext. [4]

Process Doppelgänging is implemented in 4 steps [4]:

- Transact – Create a TxF transaction using a legitimate executable then overwrite the file with malicious code. These changes will be isolated and only visible within the context of the transaction.
- Load – Create a shared section of memory and load the malicious executable.
- Rollback – Undo changes to original executable, effectively removing malicious code from the file system.
- Animate – Create a process from the tainted section of memory and initiate execution.

ID: T1186
Tactic: Defense Evasion
Platform: Windows
Permissions Required: Administrator, SYSTEM, User
Data Sources: API monitoring, Process monitoring
Defense Bypassed: Process whitelisting, Anti-virus, Whitelisting by file name or path, Signature-based detection
Version: 1.0

Communication Control

This chapter describes the FortiEDR COMMUNICATION CONTROL mechanism for monitoring and handling non disguised security events.

Application Communication Control - How Does it Work?

FortiEDR provides visibility into any communicating application in your organization, enabling you to control which applications can communicate outside of the organization.

After FortiEDR installation, the system automatically maps all applications in your network that communicate externally. After that, you then decide which of these applications to allow to communicate externally when used by a legitimate user in your organization (allowlist). After the allowlist of communicating applications is defined, only applications in the allowlist can communicate externally. If an attacker abuses an application in the allowlist, FortiEDR's patented technology (Exfiltration and Ransomware prevention policies) blocks the communication and displays a security event in the **EVENTS** tab.

FortiEDR Communication Control uses a set of policies that contain recommendations about whether an application should be approved or denied from communicating outside your organization.

These policies can be configured as a next-generation firewall in order to automatically block communications of potentially unwanted applications. For example, applications with a known bad reputation or that are distributed by questionable vendors.

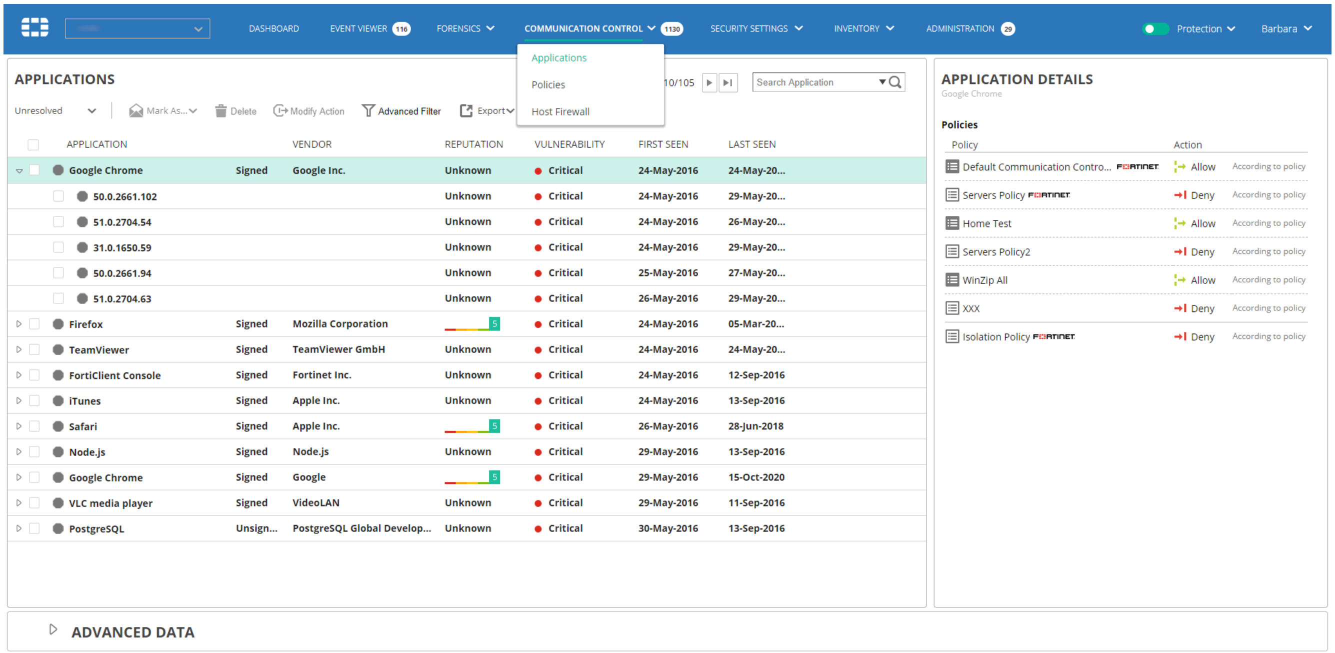
Moreover, FortiEDR Communication Control provides data and tools for efficient vulnerability assessment and control. Virtual patching is made possible with Communication Control policies that can be configured to automatically block connections from vulnerable applications.

FortiEDR's Communication Control mechanism provides the following key advantages:

Mechanism	Description
Realtime Proactive Risk Mitigation	Attack surface reduction using risk-based proactive policies that are based on application CVE and rating data.
Avoids Productivity Inhibitors	Non-authorized applications can still execute. Only their outgoing communication is prevented.
Manageability	Reduces the scope of the problem, which means that Security/IT needs to handle only applications that communicate externally.
Frictionless Application Control	Reduces users' requests from Security/IT to approve applications.

Introducing Communication Control

The Communication Control tab identifies all the communicating applications detected in your organization. To access this page, click the down arrow next to **COMMUNICATION CONTROL** and then select **Applications**.



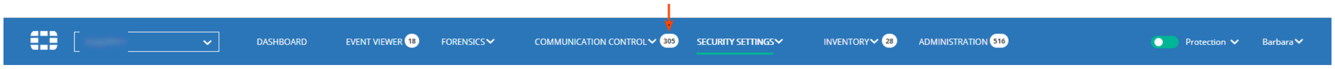
APPLICATION		VENDOR	REPUTATION	VULNERABILITY	FIRST SEEN	LAST SEEN
Google Chrome	Signed	Google Inc.	Unknown	● Critical	24-May-2016	24-May-20...
50.0.2661.102			Unknown	● Critical	24-May-2016	29-May-20...
51.0.2704.54			Unknown	● Critical	24-May-2016	26-May-20...
31.0.1650.59			Unknown	● Critical	24-May-2016	29-May-20...
50.0.2661.94			Unknown	● Critical	25-May-2016	27-May-20...
51.0.2704.63			Unknown	● Critical	26-May-2016	29-May-20...
Firefox	Signed	Mozilla Corporation	5	● Critical	24-May-2016	05-Mar-20...
TeamViewer	Signed	TeamViewer GmbH	Unknown	● Critical	24-May-2016	24-May-20...
FortiClient Console	Signed	Fortinet Inc.	Unknown	● Critical	24-May-2016	12-Sep-2016
iTunes	Signed	Apple Inc.	Unknown	● Critical	24-May-2016	13-Sep-2016
Safari	Signed	Apple Inc.	5	● Critical	26-May-2016	28-Jun-2018
Node.js	Signed	Node.js	Unknown	● Critical	29-May-2016	13-Sep-2016
Google Chrome	Signed	Google	5	● Critical	29-May-2016	15-Oct-2020
VLC media player	Signed	VideoLAN	Unknown	● Critical	29-May-2016	11-Sep-2016
PostgreSQL	Unsign...	PostgreSQL Global Develop...	Unknown	● Critical	30-May-2016	13-Sep-2016

APPLICATION DETAILS
Google Chrome

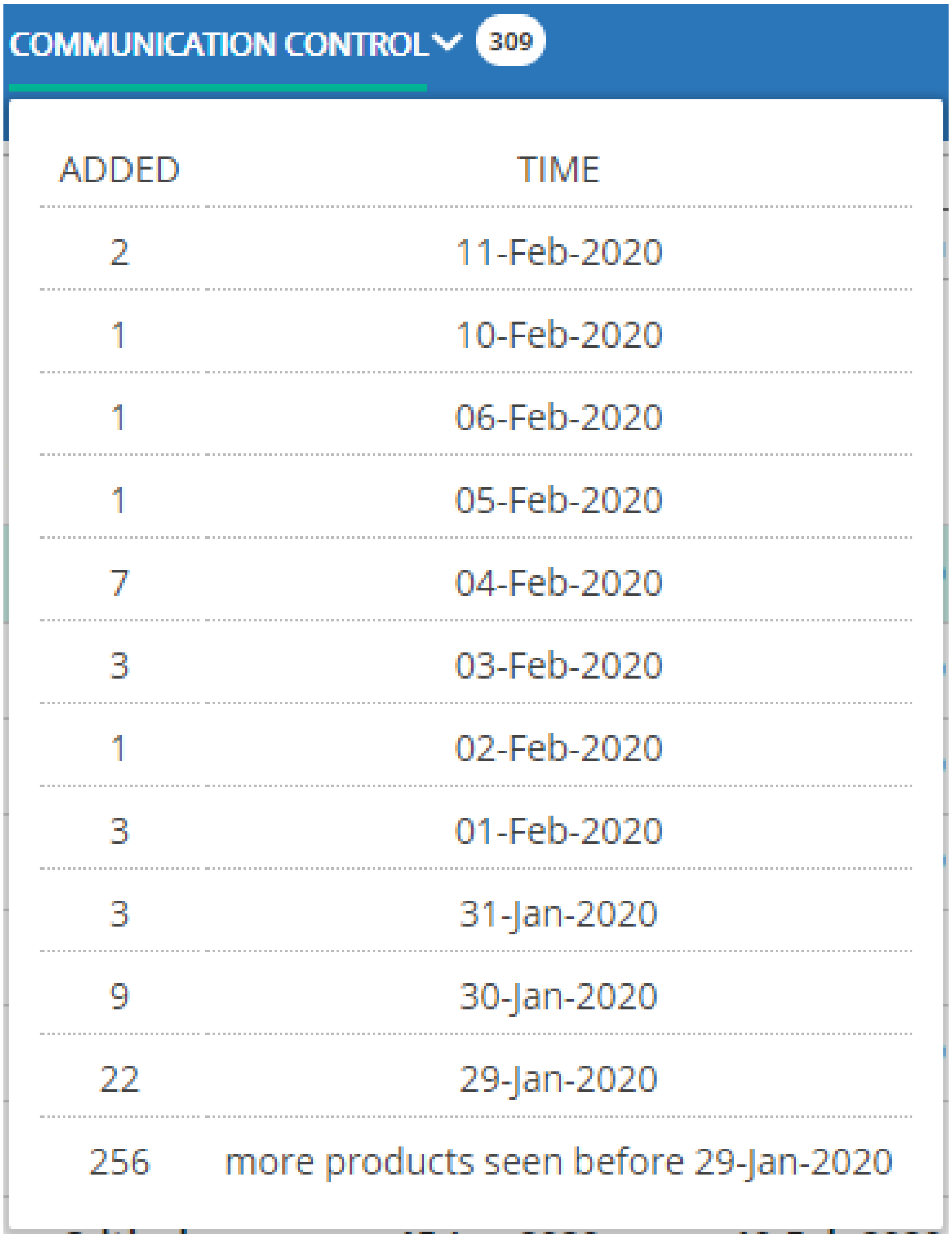
Policies

Policy	Action	
Default Communication Contro... FORTINET	Allow	According to policy
Servers Policy FORTINET	Deny	According to policy
Home Test	Allow	According to policy
Servers Policy2	Deny	According to policy
WinZip All	Allow	According to policy
XXX	Deny	According to policy
Isolation Policy FORTINET	Deny	According to policy

Note – The tab bar at the top of the window may display a white circle(s) with a number inside the circle to indicate that new applications. The number represents the number of new applications.



You can hover over the number to see the list of new products. Each row shows the number of new products, by day.



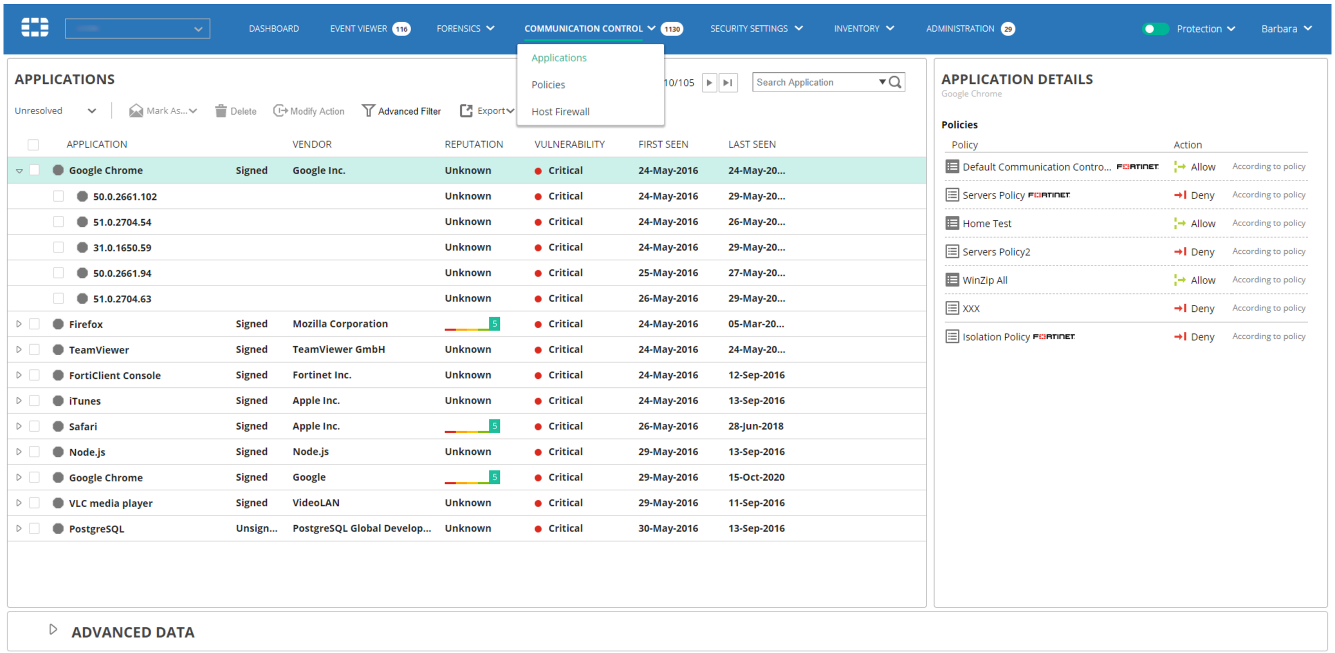
ADDED	TIME
2	11-Feb-2020
1	10-Feb-2020
1	06-Feb-2020
1	05-Feb-2020
7	04-Feb-2020
3	03-Feb-2020
1	02-Feb-2020
3	01-Feb-2020
3	31-Jan-2020
9	30-Jan-2020
22	29-Jan-2020
256	more products seen before 29-Jan-2020

The Communication Control tab contains two main pages:

- Applications on page 177
- Policies on page 194

Applications

The APPLICATIONS page lists all communicating applications detected in your organization that have ever attempted to communicate. By default, applications are sorted according to their first-seen indicator, placing new applications at the top. To access this page, click the down arrow next to COMMUNICATION CONTROL and then select Applications.



APPLICATIONS

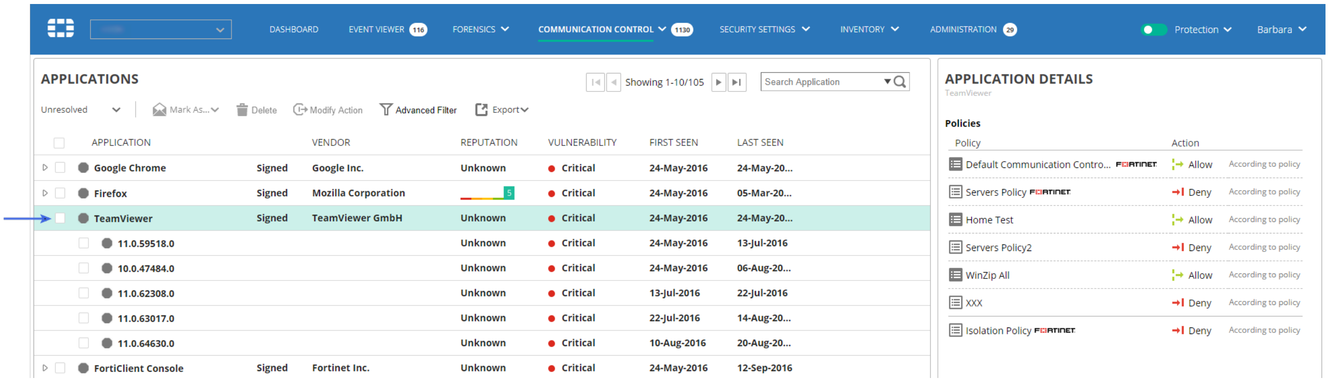
	APPLICATION		VENDOR	REPUTATION	VULNERABILITY	FIRST SEEN	LAST SEEN
▽ □	Google Chrome	Signed	Google Inc.	Unknown	● Critical	24-May-2016	24-May-20...
□	50.0.2661.102			Unknown	● Critical	24-May-2016	29-May-20...
□	51.0.2704.54			Unknown	● Critical	24-May-2016	26-May-20...
□	31.0.1650.59			Unknown	● Critical	24-May-2016	29-May-20...
□	50.0.2661.94			Unknown	● Critical	25-May-2016	27-May-20...
□	51.0.2704.63			Unknown	● Critical	26-May-2016	29-May-20...
▷ □	Firefox	Signed	Mozilla Corporation	5	● Critical	24-May-2016	05-Mar-20...
▷ □	TeamViewer	Signed	TeamViewer GmbH	Unknown	● Critical	24-May-2016	24-May-20...
▷ □	FortiClient Console	Signed	Fortinet Inc.	Unknown	● Critical	24-May-2016	12-Sep-2016
▷ □	iTunes	Signed	Apple Inc.	Unknown	● Critical	24-May-2016	13-Sep-2016
▷ □	Safari	Signed	Apple Inc.	5	● Critical	26-May-2016	28-Jun-2018
▷ □	Node.js	Signed	Node.js	Unknown	● Critical	29-May-2016	13-Sep-2016
▷ □	Google Chrome	Signed	Google	5	● Critical	29-May-2016	15-Oct-2020
▷ □	VLC media player	Signed	VideoLAN	Unknown	● Critical	29-May-2016	11-Sep-2016
▷ □	PostgreSQL	Unsign...	PostgreSQL Global Develop...	Unknown	● Critical	30-May-2016	13-Sep-2016

APPLICATION DETAILS
Google Chrome

Policies

Policy	Action	
Default Communication Contro... FORTINET	Allow	According to policy
Servers Policy FORTINET	Deny	According to policy
Home Test	Allow	According to policy
Servers Policy2	Deny	According to policy
WinZip All	Allow	According to policy
XXX	Deny	According to policy
Isolation Policy FORTINET	Deny	According to policy

Information is organized hierarchically in a two-level tree. The first (top) level specifies the name of the application. The second level specifies the application version. For example, the figure below shows five versions for the TeamViewer application.



APPLICATIONS

	APPLICATION		VENDOR	REPUTATION	VULNERABILITY	FIRST SEEN	LAST SEEN
▷ □	Google Chrome	Signed	Google Inc.	Unknown	● Critical	24-May-2016	24-May-20...
▷ □	Firefox	Signed	Mozilla Corporation	5	● Critical	24-May-2016	05-Mar-20...
□	TeamViewer	Signed	TeamViewer GmbH	Unknown	● Critical	24-May-2016	24-May-20...
□	11.0.59518.0			Unknown	● Critical	24-May-2016	13-Jul-2016
□	10.0.47484.0			Unknown	● Critical	24-May-2016	06-Aug-20...
□	11.0.62308.0			Unknown	● Critical	13-Jul-2016	22-Jul-2016
□	11.0.63017.0			Unknown	● Critical	22-Jul-2016	14-Aug-20...
□	11.0.64630.0			Unknown	● Critical	10-Aug-2016	20-Aug-20...
▷ □	FortiClient Console	Signed	Fortinet Inc.	Unknown	● Critical	24-May-2016	12-Sep-2016

APPLICATION DETAILS
TeamViewer

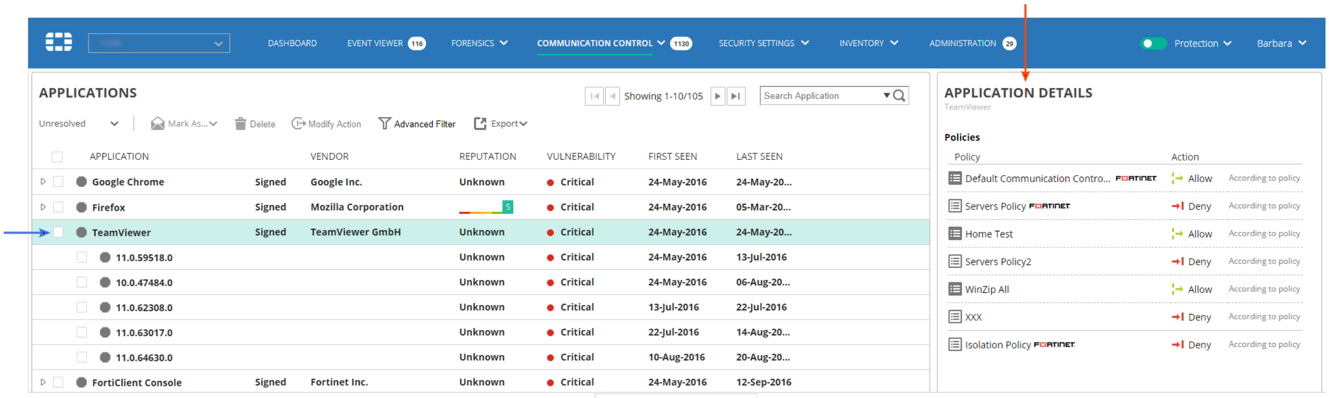
Policies

Policy	Action	
Default Communication Contro... FORTINET	Allow	According to policy
Servers Policy FORTINET	Deny	According to policy
Home Test	Allow	According to policy
Servers Policy2	Deny	According to policy
WinZip All	Allow	According to policy
XXX	Deny	According to policy
Isolation Policy FORTINET	Deny	According to policy

The following information displays for each application in the application list:

- Selection checkbox
- Resolving status icon
- Signed/Unsigned indication
- **Application/Version**: The name of the application/version.
- **Vendor**: The application’s vendor and certificate details.
- **Reputation**: The reputation score of the application. For more details, Reputation Score on page 179
- **Vulnerability**: The highest CVE vulnerability score for the application. For more details, see Vulnerability on page 180
- **First Seen**: The date and time when the application was first seen in the organization.
- **Last Seen**: The date and time of the last connection of this application.

The Application Details area of the window on the right displays policy-related details for the entity (application or version) selected in the application list. This area displays the policy action (Allow or Deny) for each communication control policy.



APPLICATIONS

APPLICATION		VENDOR	REPUTATION	VULNERABILITY	FIRST SEEN	LAST SEEN
Google Chrome	Signed	Google Inc.	Unknown	● Critical	24-May-2016	24-May-20...
Firefox	Signed	Mozilla Corporation	5	● Critical	24-May-2016	05-Mar-20...
TeamViewer	Signed	TeamViewer GmbH	Unknown	● Critical	24-May-2016	24-May-20...
11.0.59518.0			Unknown	● Critical	24-May-2016	13-Jul-2016
10.0.47484.0			Unknown	● Critical	24-May-2016	06-Aug-20...
11.0.62308.0			Unknown	● Critical	13-Jul-2016	22-Jul-2016
11.0.63017.0			Unknown	● Critical	22-Jul-2016	14-Aug-20...
11.0.64630.0			Unknown	● Critical	10-Aug-2016	20-Aug-20...
FortiClient Console	Signed	Fortinet Inc.	Unknown	● Critical	24-May-2016	12-Sep-2016

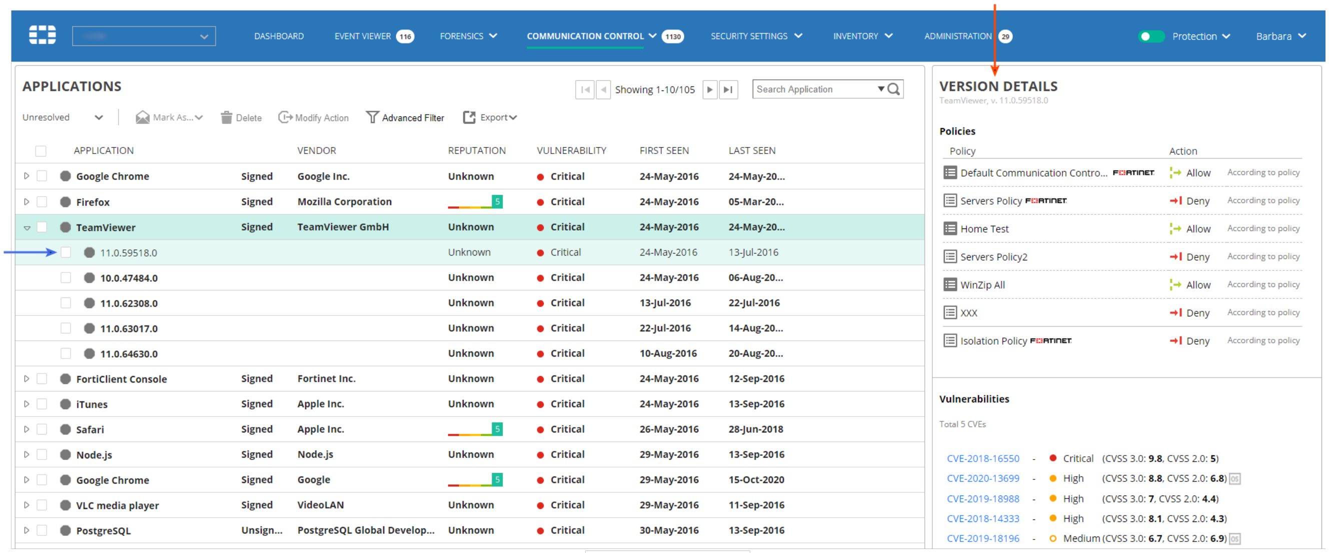
APPLICATION DETAILS

TeamViewer

Policies

Policy	Action	
Default Communication Contro... FORTINET	Allow	According to policy
Servers Policy FORTINET	Deny	According to policy
Home Test	Allow	According to policy
Servers Policy2	Deny	According to policy
WinZip All	Allow	According to policy
XXX	Deny	According to policy
Isolation Policy FORTINET	Deny	According to policy

Application Details



APPLICATIONS

APPLICATION		VENDOR	REPUTATION	VULNERABILITY	FIRST SEEN	LAST SEEN
Google Chrome	Signed	Google Inc.	Unknown	● Critical	24-May-2016	24-May-20...
Firefox	Signed	Mozilla Corporation	5	● Critical	24-May-2016	05-Mar-20...
TeamViewer	Signed	TeamViewer GmbH	Unknown	● Critical	24-May-2016	24-May-20...
11.0.59518.0			Unknown	● Critical	24-May-2016	13-Jul-2016
10.0.47484.0			Unknown	● Critical	24-May-2016	06-Aug-20...
11.0.62308.0			Unknown	● Critical	13-Jul-2016	22-Jul-2016
11.0.63017.0			Unknown	● Critical	22-Jul-2016	14-Aug-20...
11.0.64630.0			Unknown	● Critical	10-Aug-2016	20-Aug-20...
FortiClient Console	Signed	Fortinet Inc.	Unknown	● Critical	24-May-2016	12-Sep-2016
iTunes	Signed	Apple Inc.	Unknown	● Critical	24-May-2016	13-Sep-2016
Safari	Signed	Apple Inc.	5	● Critical	26-May-2016	28-Jun-2018
Node.js	Signed	Node.js	Unknown	● Critical	29-May-2016	13-Sep-2016
Google Chrome	Signed	Google	5	● Critical	29-May-2016	15-Oct-2020
VLC media player	Signed	VideoLAN	Unknown	● Critical	29-May-2016	11-Sep-2016
PostgreSQL	Unsign...	PostgreSQL Global Develop...	Unknown	● Critical	30-May-2016	13-Sep-2016

VERSION DETAILS

TeamViewer, v. 11.0.59518.0

Policies

Policy	Action	
Default Communication Contro... FORTINET	Allow	According to policy
Servers Policy FORTINET	Deny	According to policy
Home Test	Allow	According to policy
Servers Policy2	Deny	According to policy
WinZip All	Allow	According to policy
XXX	Deny	According to policy
Isolation Policy FORTINET	Deny	According to policy

Vulnerabilities

Total 5 CVEs

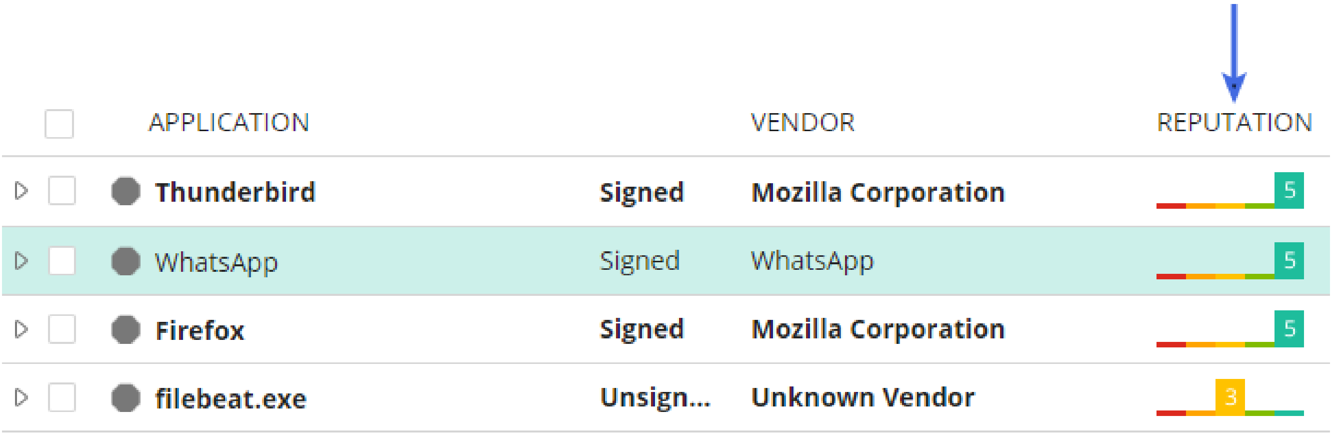
CVE-2018-16550 - ● Critical (CVSS 3.0: **9.8**, CVSS 2.0: **5**)
CVE-2020-13699 - ● High (CVSS 3.0: **8.8**, CVSS 2.0: **6.8**) OS
CVE-2019-18988 - ● High (CVSS 3.0: **7**, CVSS 2.0: **4.4**)
CVE-2018-14333 - ● High (CVSS 3.0: **8.1**, CVSS 2.0: **4.3**)
CVE-2019-18196 - ○ Medium (CVSS 3.0: **6.7**, CVSS 2.0: **6.9**) OS

Version Details

The Advanced Data area at the bottom of the window presents statistics about the selected application/version in the application list. For more details, see Advanced Data on page 188.

Reputation Score

Each application in the APPLICATIONS page shows a Reputation indicator. Reputation scores are determined by a third-party service, and are based on the hash (signature) of the file.



□	APPLICATION		VENDOR	REPUTATION
□	Thunderbird	Signed	Mozilla Corporation	5
□	WhatsApp	Signed	WhatsApp	5
□	Firefox	Signed	Mozilla Corporation	5
□	filebeat.exe	Unsign...	Unknown Vendor	3

Reputation scores use the following range to indicate the reputation for an application:

Reputation Score	Reputation Description
1	Known as bad
2	Assumed as bad
3	Unclear, indication a contradiction or inability to determine the reputation
4	Assumed as good
5	Known as good

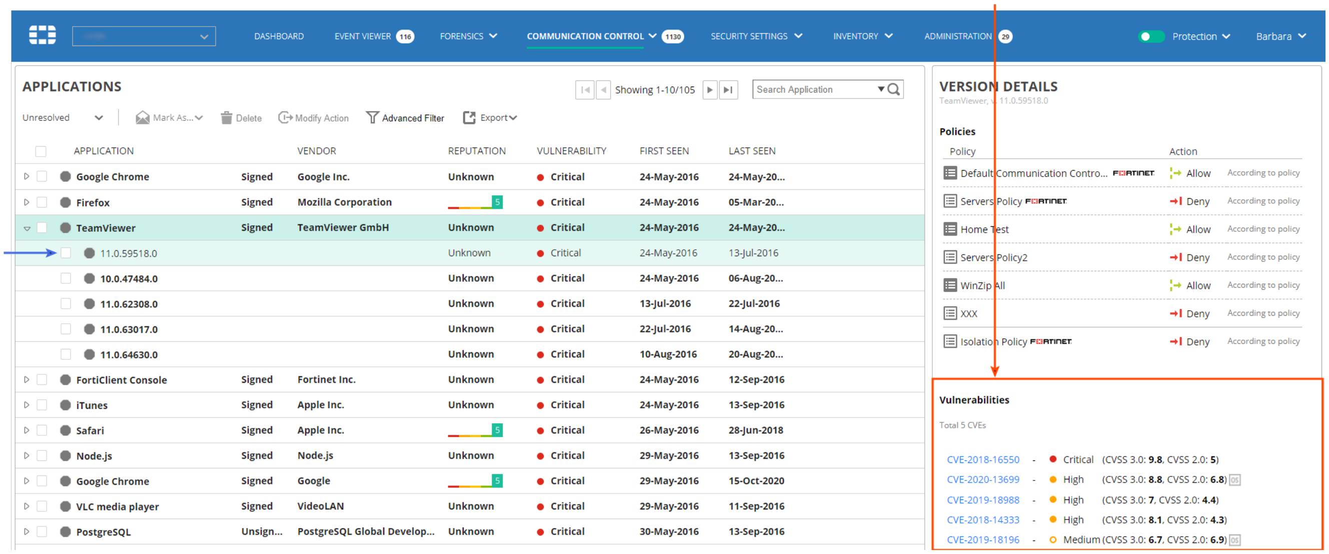
The Reputation indicator displays Unknown if the reputation score is unknown.

Vulnerability

This option is only available to users who have purchased the **Discover and Protect** license or the **Discover, Protect and Response** license.

Each application in the application list also shows a vulnerability score.

FortiEDR categorizes applications/versions based on the Common Vulnerability Scoring System (CVSS) CVE scheme, which is commonly used worldwide. FortiEDR's vulnerability scoring system provides a useful tool for vulnerability assessment, and enables you to review the weaknesses detected in your environment that could be exploited by attackers before they actually occur. Vulnerability assessment can be used together with virtual patching to block applications with known critical vulnerabilities, so that they cannot connect, until the system is patched for the CVEs listed.



APPLICATIONS

Showing 1-10/105

APPLICATION		VENDOR	REPUTATION	VULNERABILITY	FIRST SEEN	LAST SEEN
Google Chrome	Signed	Google Inc.	Unknown	● Critical	24-May-2016	24-May-20...
Firefox	Signed	Mozilla Corporation	5	● Critical	24-May-2016	05-Mar-20...
TeamViewer	Signed	TeamViewer GmbH	Unknown	● Critical	24-May-2016	24-May-20...
11.0.59518.0			Unknown	● Critical	24-May-2016	13-Jul-2016
10.0.47484.0			Unknown	● Critical	24-May-2016	06-Aug-20...
11.0.62308.0			Unknown	● Critical	13-Jul-2016	22-Jul-2016
11.0.63017.0			Unknown	● Critical	22-Jul-2016	14-Aug-20...
11.0.64630.0			Unknown	● Critical	10-Aug-2016	20-Aug-20...
FortiClient Console	Signed	Fortinet Inc.	Unknown	● Critical	24-May-2016	12-Sep-2016
iTunes	Signed	Apple Inc.	Unknown	● Critical	24-May-2016	13-Sep-2016
Safari	Signed	Apple Inc.	5	● Critical	26-May-2016	28-Jun-2018
Node.js	Signed	Node.js	Unknown	● Critical	29-May-2016	13-Sep-2016
Google Chrome	Signed	Google	5	● Critical	29-May-2016	15-Oct-2020
VLC media player	Signed	VideoLAN	Unknown	● Critical	29-May-2016	11-Sep-2016
PostgreSQL	Unsign...	PostgreSQL Global Develop...	Unknown	● Critical	30-May-2016	13-Sep-2016

VERSION DETAILS

TeamViewer, v. 11.0.59518.0

Policies

Policy	Action	
Default Communication Contro... FORTINET	Allow	According to policy
Servers Policy FORTINET	Deny	According to policy
Home Test	Allow	According to policy
Servers Policy2	Deny	According to policy
WinZip All	Allow	According to policy
XXX	Deny	According to policy
Isolation Policy FORTINET	Deny	According to policy

Vulnerabilities

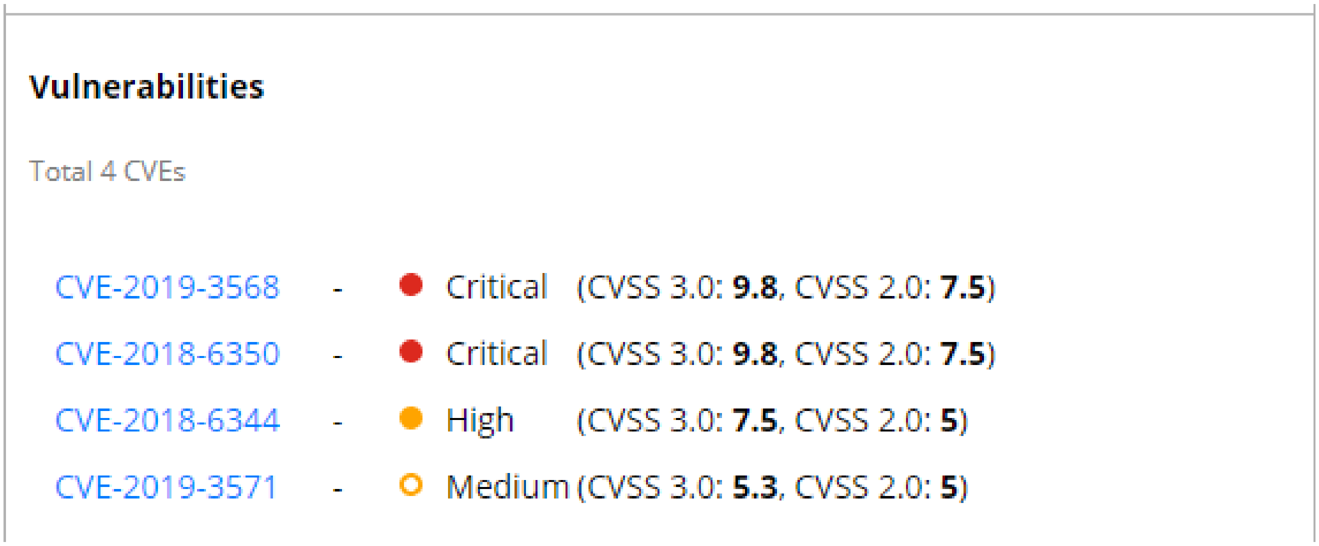
Total 5 CVEs

CVE-2018-16550 - ● Critical (CVSS 3.0: **9.8**, CVSS 2.0: **5**)
CVE-2020-13699 - ● High (CVSS 3.0: **8.8**, CVSS 2.0: **6.8**) OS
CVE-2019-18988 - ● High (CVSS 3.0: **7**, CVSS 2.0: **4.4**)
CVE-2018-14333 - ● High (CVSS 3.0: **8.1**, CVSS 2.0: **4.3**)
CVE-2019-18196 - ○ Medium (CVSS 3.0: **6.7**, CVSS 2.0: **6.9**) OS

FortiEDR categories vulnerabilities into the following categories based on National Vulnerability Database (NVD) severity ratings:

- Unknown
- Low
- Medium
- High
- Critical

The Vulnerabilities area at the bottom right of the window lists the CVE-identified vulnerabilities for the selected application/version. Each CVE row includes the CVE identifier, the FortiEDR-assigned vulnerability Category and the CVSS vulnerability scores.



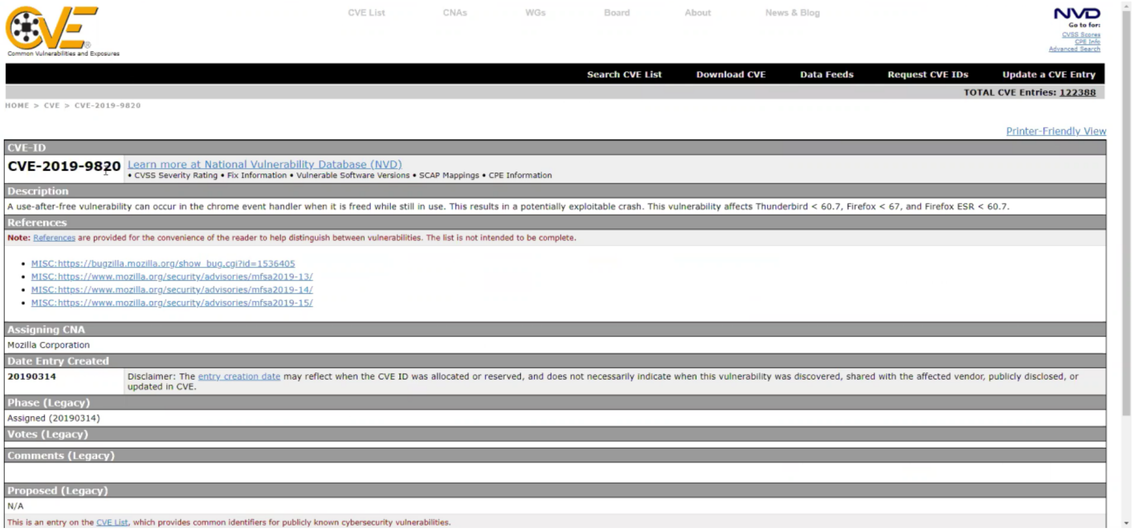
Vulnerabilities

Total 4 CVEs

CVE-2019-3568 - ● Critical (CVSS 3.0: **9.8**, CVSS 2.0: **7.5**)
CVE-2018-6350 - ● Critical (CVSS 3.0: **9.8**, CVSS 2.0: **7.5**)
CVE-2018-6344 - ● High (CVSS 3.0: **7.5**, CVSS 2.0: **5**)
CVE-2019-3571 - ○ Medium (CVSS 3.0: **5.3**, CVSS 2.0: **5**)

Note – CVSS scoring utilizes two systems: CVSS 3.0, the most recent, and CVSS 2.0, its predecessor. FortiEDR vulnerability information presents both CVSS 3.0 and CVSS 2.0 scores.

You can click a CVE identifier link to view more details about that vulnerability in your browser, including the type of vulnerability, the application(s) it affects, the version(s) it affects and so on.



TOTAL CVE Entries: 122388

CVE-ID

CVE-2019-9820 Learn more at National Vulnerability Database (NVD)
• CVSS Severity Rating • Fix Information • Vulnerable Software Versions • SCAP Mappings • CPE Information

Description

A use-after-free vulnerability can occur in the chrome event handler when it is freed while still in use. This results in a potentially exploitable crash. This vulnerability affects Thunderbird < 60.7, Firefox < 67, and Firefox ESR < 60.7.

References

Note: References are provided for the convenience of the reader to help distinguish between vulnerabilities. The list is not intended to be complete.

- MISC:https://bugzilla.mozilla.org/show_bug.cgi?id=1536405
- MISC:https://www.mozilla.org/security/advisories/mfsa2019-13/
- MISC:https://www.mozilla.org/security/advisories/mfsa2019-14/
- MISC:https://www.mozilla.org/security/advisories/mfsa2019-15/

Assigning CNA

Mozilla Corporation

Date Entry Created

20190314 Disclaimer: The entry creation date may reflect when the CVE ID was allocated or reserved, and does not necessarily indicate when this vulnerability was discovered, shared with the affected vendor, publicly disclosed, or updated in CVE.

Phase (Legacy)

Assigned (20190314)

Votes (Legacy)

Comments (Legacy)

Proposed (Legacy)

N/A

This is an entry on the CVE List, which provides common identifiers for publicly known cybersecurity vulnerabilities.

After a vulnerability is detected in your system, you can decide the type of the action needed to address it. Typically, it is recommended to upgrade to a newer version of the application, meaning one that does not have the identified vulnerability. Alternatively, virtual patching can be applied with vulnerability-based policy that is configured to block communication of any application with known critical vulnerability. For more details, see Policies on page 194. The information presented in the Advanced Data area of the window also provides useful information to help protect against vulnerabilities. For more details, Advanced Data on page 188.

Resolved vs. Unresolved Applications

By default, all new applications have an Unresolved status. Unresolved means that either FortiEDR or the user have not examined the application to ensure that it is safe. Applications with the Unresolved status are indicated by the ● icon in the application list.

FortiEDR automatically resolves an application as safe by checking the application’s characteristics. For example, checking the application’s reputation and vulnerabilities to ensure that it does not have a bad reputation or critical vulnerabilities. Applications that meet these criteria are automatically changed to the Resolved status by FortiEDR. Applications with the Resolved status are indicated by the ✓ icon in the application list. Applications can also be changed to the Resolved status by the user, as described onResolved vs. Unresolved Applications on page 182

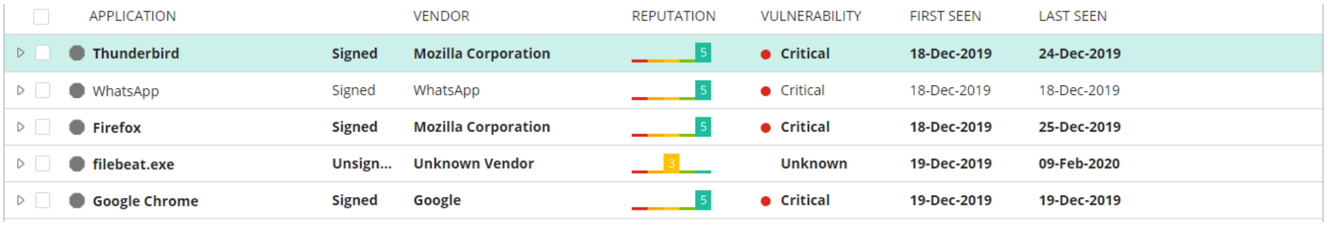
Sorting the Application List

The application list can be sorted alphabetically by product, vendor, reputation score, vulnerability or arrival time (first seen or last seen). By default, the list is sorted by arrival time, with the most recent communication at the top.

Marking an Entry as Read/Unread

The following describes how to specify that you have viewed an entity in the application list. You can mark applications or versions as read/unread.

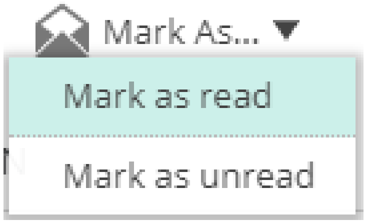
The first time that an application/version is detected in the application list, it is shown in **bold**. **Bold** indicates that the item is unread (see below).



□	APPLICATION		VENDOR	REPUTATION	VULNERABILITY	FIRST SEEN	LAST SEEN
▷ □	● **Thunderbird**	**Signed**	**Mozilla Corporation**	5	● **Critical**	**18-Dec-2019**	**24-Dec-2019**
▷ □	● WhatsApp	Signed	WhatsApp	5	● Critical	18-Dec-2019	18-Dec-2019
▷ □	● **Firefox**	**Signed**	**Mozilla Corporation**	5	● **Critical**	**18-Dec-2019**	**25-Dec-2019**
▷ □	● **filebeat.exe**	**Unsign...**	**Unknown Vendor**	3	**Unknown**	**19-Dec-2019**	**09-Feb-2020**
▷ □	● **Google Chrome**	**Signed**	**Google**	5	● **Critical**	**19-Dec-2019**	**19-Dec-2019**

To mark an entity as read:

Select the entity’s (application or version) checkbox and then click the down arrow on the Mark As... ▼ button and select **Mark as read**. The text no longer displays in bold.

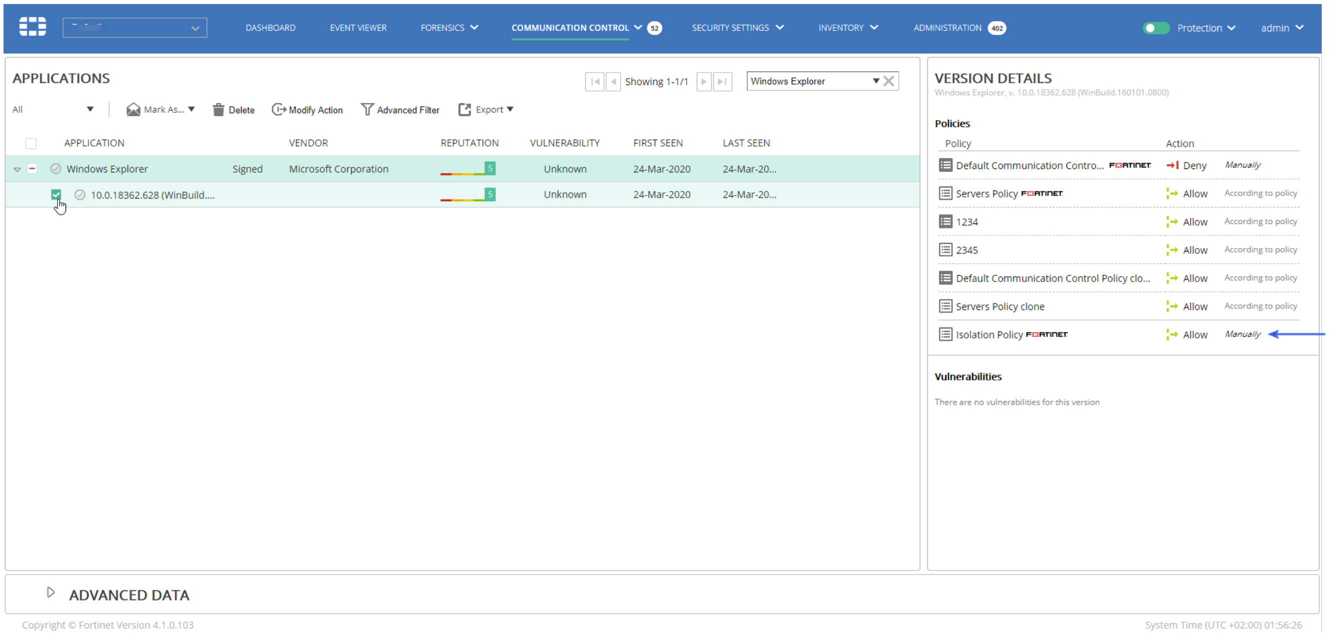


Note – If you mark an application version as read, all lower levels in the version hierarchy for that application are also marked as read.

Modifying a Policy Action

The following describes how to apply a different action to an application/version other than that specified in the current policy for that application/version. In this case, the application/version is excluded from the current action defined in the policy (Allow or Deny).

When modifying a policy action in this manner, the Application/Version Details area displays **Manually** to indicate that the action was modified manually, and is excluded from the action defined in the policy.



APPLICATIONS

	APPLICATION		VENDOR	REPUTATION	VULNERABILITY	FIRST SEEN	LAST SEEN
☐	Windows Explorer	Signed	Microsoft Corporation	5	Unknown	24-Mar-2020	24-Mar-20...
☑	10.0.18362.628 (WinBuild....			5	Unknown	24-Mar-2020	24-Mar-20...

VERSION DETAILS

Windows Explorer, v. 10.0.18362.628 (WinBuild.160101.0800)

Policies

Policy	Action	
Default Communication Contro... FORTINET	Deny	*Manually*
Servers Policy FORTINET	Allow	According to policy
1234	Allow	According to policy
2345	Allow	According to policy
Default Communication Control Policy clo...	Allow	According to policy
Servers Policy clone	Allow	According to policy
Isolation Policy FORTINET	Allow	*Manually*

Vulnerabilities

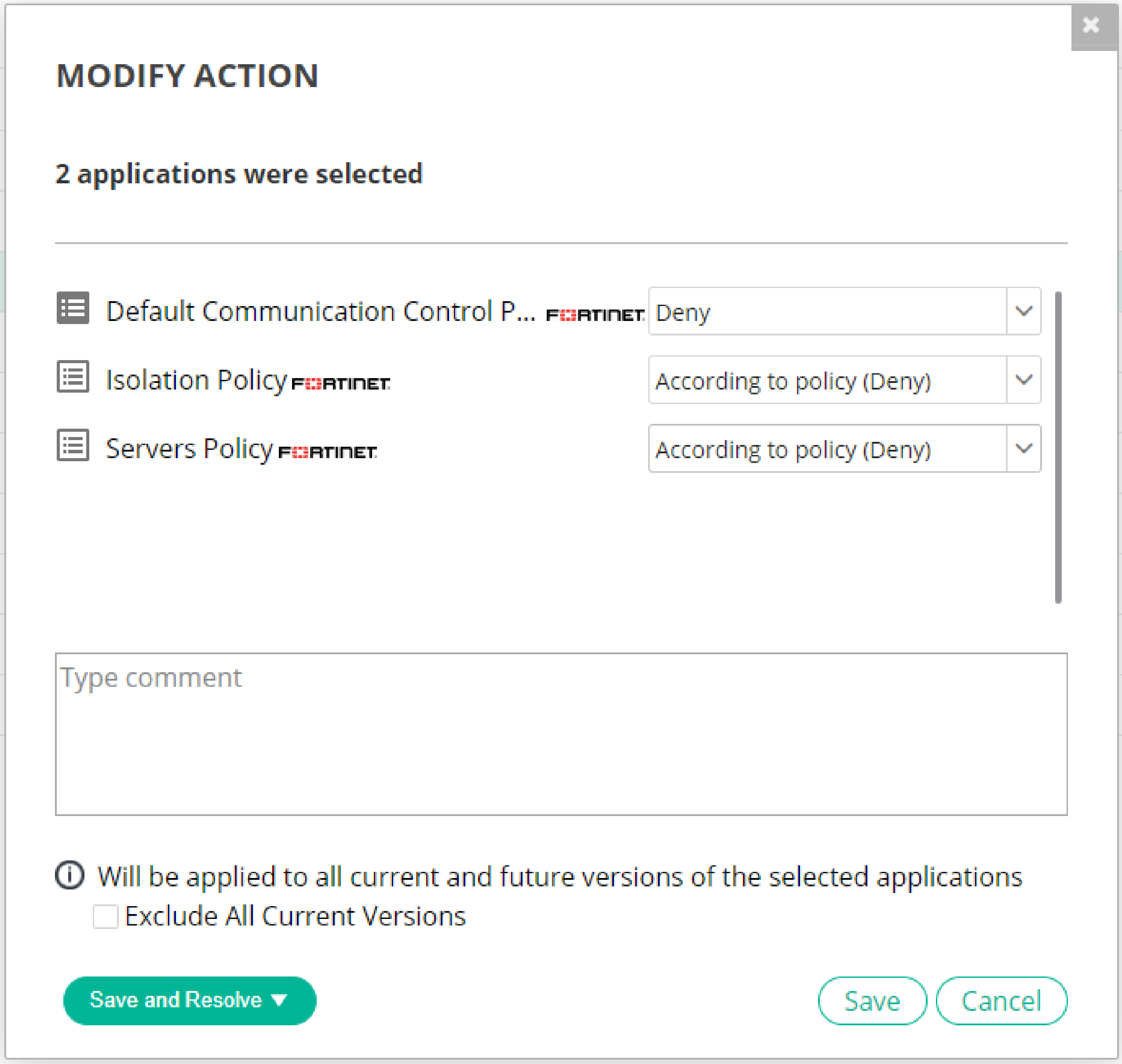
There are no vulnerabilities for this version

Copyright © Fortinet Version 4.1.0.103

System Time (UTC +02:00) 01:56:26

To modify a policy action:

1. Select the application/version checkbox and then click the Modify action button. The Modify Action window displays.



MODIFY ACTION

2 applications were selected

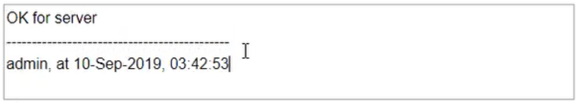
Default Communication Control P... FORTINET	Deny
Isolation Policy FORTINET	According to policy (Deny)
Servers Policy FORTINET	According to policy (Deny)

Type comment

Will be applied to all current and future versions of the selected applications

□ Exclude All Current Versions

2. In the dropdown list on the right of the policy row whose action you want to change, click the down arrow and then select the action to apply to the selected entity. You can change the action for one or more policies.
3. [Optional] In the Comment field, enter a free-text comment describing the action change. By default, the date and time when the policy action was changed automatically displays.

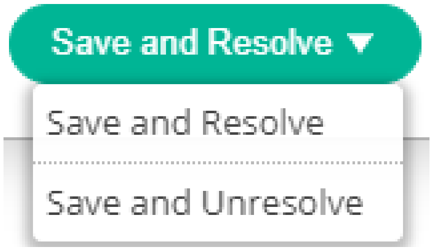


OK for server
----
admin, at 10-Sep-2019, 03:42:53

4. [Optional] Check the Exclude All Current Versions checkbox if you want to exclude existing application versions from the decision. In this case, the new communication control decision only applies to a future version of the

product. The application of the policy action change applies for current versions of the application. When this checkbox is not selected, the change is applied to all versions of the application.

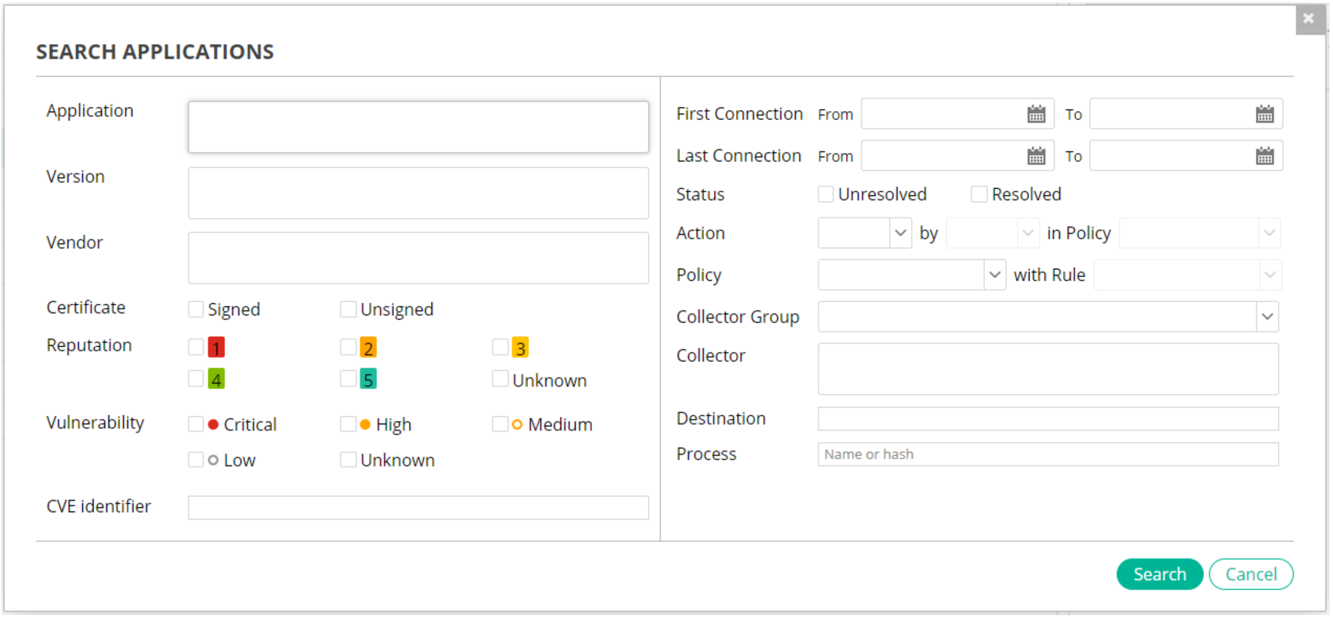
5. Click the arrow next to the button to save the new communication control decision for the selected application(s).



When any FortiEDR Central Manager user marks an application/version as **Resolved**, all users see it as having been resolved. You can also mark an application/version as resolved using the ✓ icon in its row in the application list.

Searching the Application List

You can use the field to perform an advanced search. Click the down arrow to open the Search Applications window, in which you specify your search criteria.



SEARCH APPLICATIONS

Application

Version

Vendor

Certificate □ Signed □ Unsigned

Reputation □ 1 □ 2 □ 3 □ 4 □ 5 □ Unknown

Vulnerability □ ● Critical □ ● High □ ○ Medium □ ○ Low □ Unknown

CVE identifier

First Connection From To

Last Connection From To

Status □ Unresolved □ Resolved

Action by in Policy

Policy with Rule

Collector Group

Collector

Destination

Process Name or hash

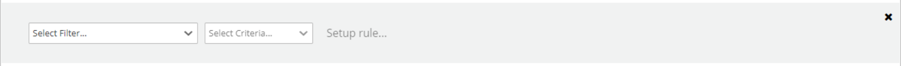
You can filter the application list by the following criteria:

Filter	Criteria
Application	Filters by application name
Version	Filters by version. This is a free-text field.
Vendor	Filters by vendor name.
Certificate	Filters by signed or unsigned certificate.

Filter	Criteria
Reputation	Filters by reputation score. Check the checkbox(es) for the reputation score(s) of interest.
Vulnerability	Filters by vulnerability score.
CVE Identifier	Filters by exact match of the vulnerability identifier, using the following format – CVE-YYYY-nnnn.
First Connection / Last Connection	Filters by the specified date range when the first/last connection of the application was detected in the system.
Status	Filters by status (Resolved, Unresolved,).
Action	Filters by action.
In Policy	Filters by policy. If you specify a specific action in the Action field, then you can only select from policies with that specific action.
Policy	Filters by a specific policy.
With Rule	Filters by a specific policy predefined rule.
Collector Group	Filters by the Collector Group used to communicate. This means that a device(s) in the specified Collector Group was used to communicate.
Collector	Filters by the Collector (device) used to communicate.
Destination	Filters by the Collector destination (IP address).
Process (Name/Hash)	Filters by the process name or hash value.

Other Options in the Application Pane

Option	Function
All ▼	Click the down arrow in the All ▼ button and then select an option in the dropdown list to filter the application list accordingly. You can filter the list by:
All	Lists all applications for the organization.
Unreolved	Lists applications that have not been resolved by either the user or FortiEDR. Applications with this status are indicated by the ● icon in the application list. This is the default filter.
Resolved	Lists applications that have been resolved by either the user or FortiEDR. Applications with this status are indicated by the ✓ icon in the application list.
Unknown Vendors	Lists applications whose for which the vendor is not known in the system.
Low Reputation	Lists applications with a low reputation score.
Critical CVE	Lists applications with a Critical CVE score.

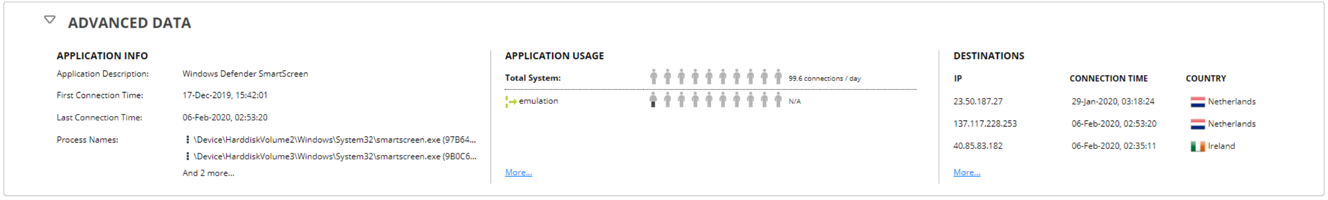
Option	Function
Unread	Lists applications that have not yet been viewed in the application list.
Mark As... ▼	Click the down arrow on the Mark As... ▼ button and then select **Mark as read** or **Mark as unread**. For more details, you may refer to the Marking an Entry as Read/Unread on page 182.
Delete	Click to delete the entity selected in the application list. Note that if the deleted entity attempts external communication again, it will be added back to the application list. In this case, any action defined in the policy for this entity must be redefined.
Modify action	Click the button to change the current policy action to be applied for the selected entity, as described onModifying a Policy Action on page 183
Advanced filter	Click the advanced filter to review applications by suspicious characteristics, such as existing vulnerabilities or reputation score. This filter can be used to set up policy rules. See Policy Rules on page 198. 
Export ▼	Click the down arrow in the Export ▼ button and select the format for exporting data. You can select **PDF, Excel or JSON.**
Search Application	Use the **Search Application** field to perform an advanced search, as described in Searching the Application List on page 186.

Advanced Data

The Advanced Data area presents statistics about the selected entity in the application list. The information that displays varies, depending on the entity selected (application or version).

Application Advanced Data

When an application is selected in the application list, the Advanced Data area displays the following information for it:



ADVANCED DATA

APPLICATION INFO

Application Description: Windows Defender SmartScreen

First Connection Time: 17-Dec-2019, 15:42:01

Last Connection Time: 06-Feb-2020, 02:53:20

Process Names: \Device\HarddiskVolume2\Windows\System32\smartscreen.exe (97B64...
\Device\HarddiskVolume3\Windows\System32\smartscreen.exe (9B0C6...
And 2 more...

APPLICATION USAGE

Total System: 99.6 connections / day

emulation N/A

More...

DESTINATIONS

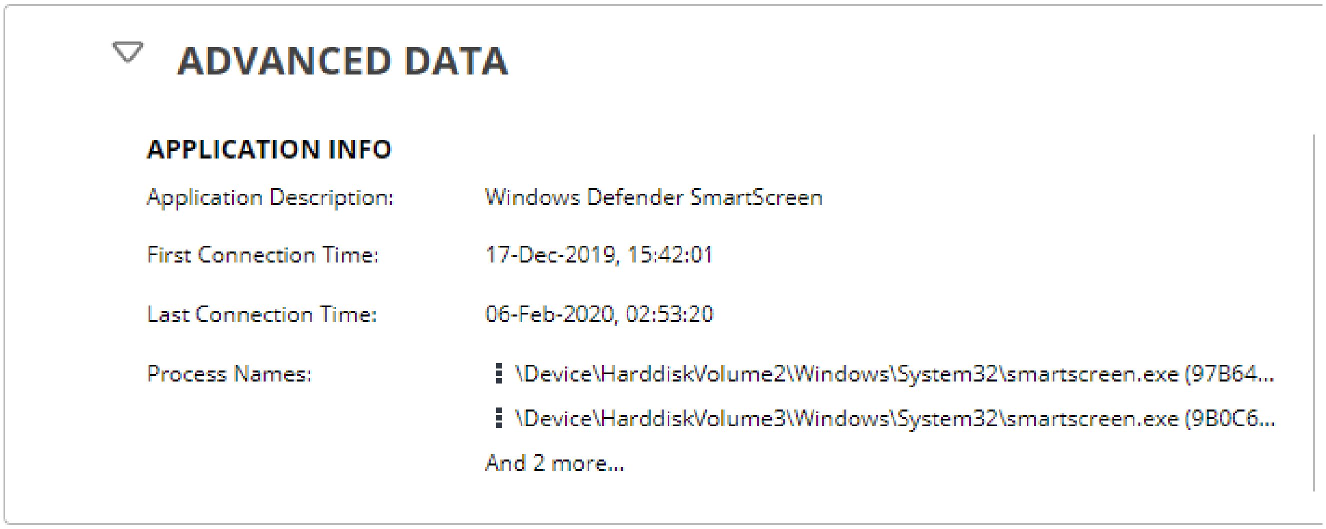
IP	CONNECTION TIME	COUNTRY
23.50.187.27	29-Jan-2020, 03:18:24	Netherlands
137.117.228.253	06-Feb-2020, 02:53:20	Netherlands
40.85.83.182	06-Feb-2020, 02:35:11	Ireland

More...

- Application Information on page 189
- Application Usage on page 190
- Destinations on page 191

Application Information

The Application Information area displays summary information about the selected application.



ADVANCED DATA

APPLICATION INFO

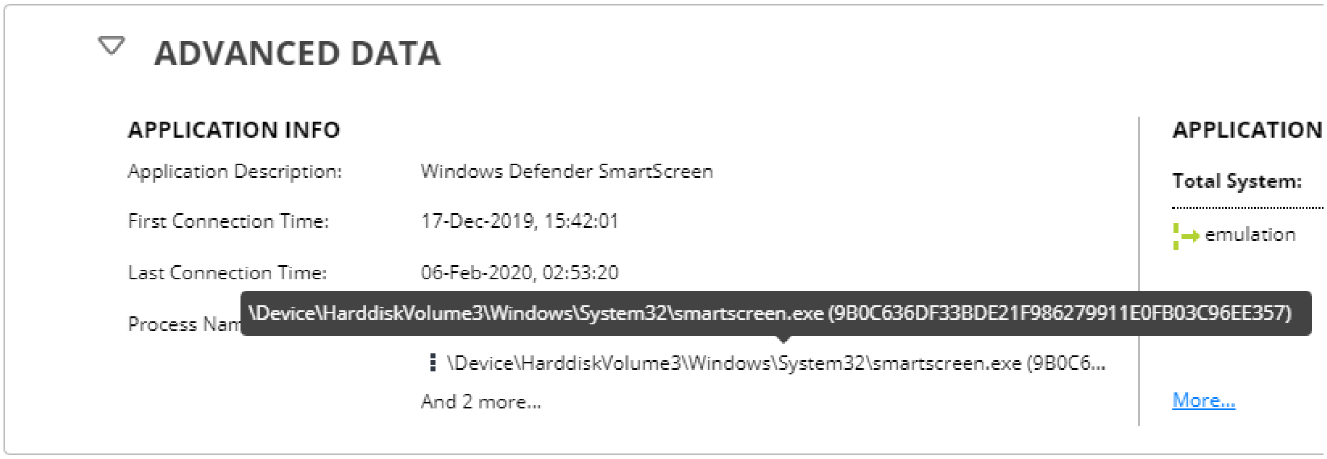
Application Description: Windows Defender SmartScreen

First Connection Time: 17-Dec-2019, 15:42:01

Last Connection Time: 06-Feb-2020, 02:53:20

Process Names: \Device\HarddiskVolume2\Windows\System32\smartscreen.exe (97B64...
\Device\HarddiskVolume3\Windows\System32\smartscreen.exe (9B0C6...
And 2 more...

In the **Process names** field, a separate row appears for each application that shares the same vendor, product and version properties. The **Process names** field displays the full file path for each such application.



ADVANCED DATA

APPLICATION INFO

Application Description: Windows Defender SmartScreen

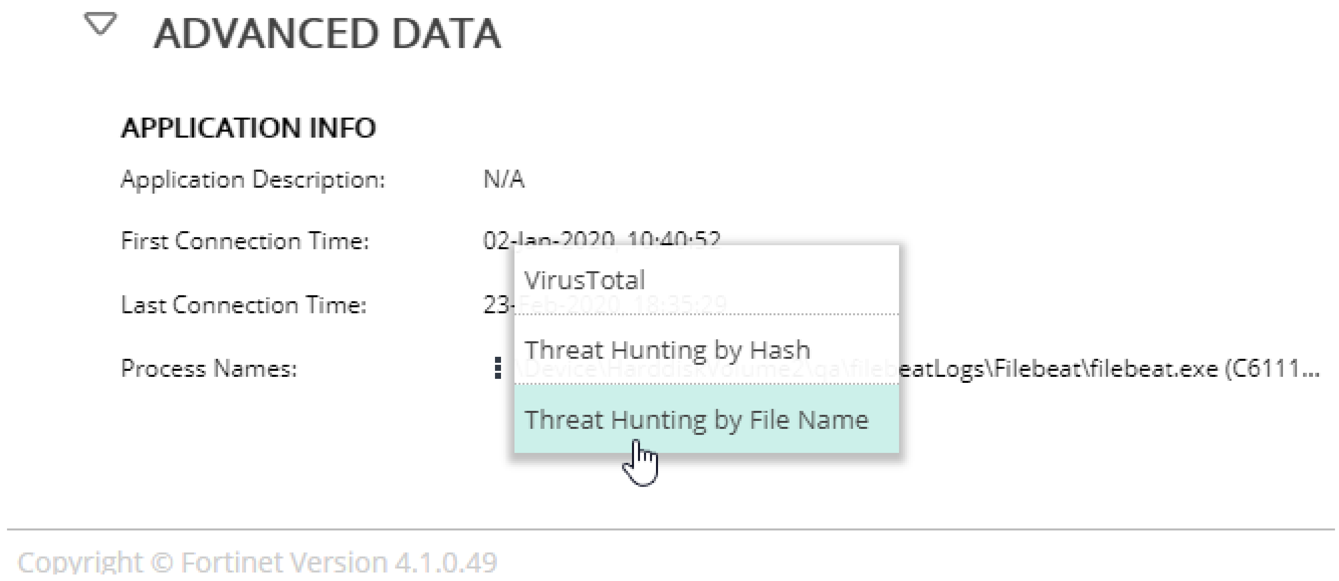
First Connection Time: 17-Dec-2019, 15:42:01

Last Connection Time: 06-Feb-2020, 02:53:20

Process Nam \Device\HarddiskVolume3\Windows\System32\smartscreen.exe (9B0C636DF33BDE21F986279911E0FB03C96EE357)

\Device\HarddiskVolume3\Windows\System32\smartscreen.exe (9B0C6...
And 2 more...

You can click the three dots next to the **Process names** field to navigate to the Threat Hunting window for that process name or hash, or to explore the hash in VirusTotal, as shown below:



ADVANCED DATA

APPLICATION INFO

Application Description: N/A

First Connection Time: 02-Jan-2020 10:40:52

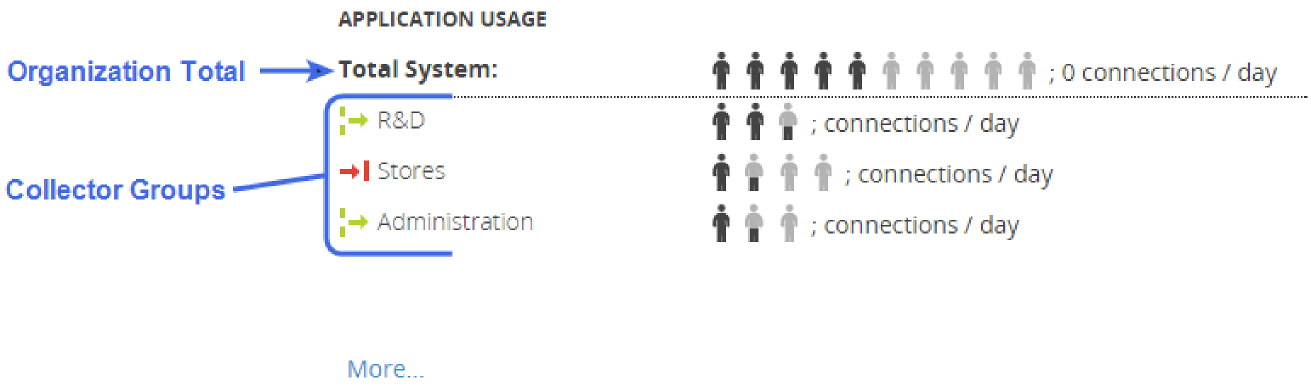
Last Connection Time: 23-Feb-2020 18:35:29

Process Names: \Device\HarddiskVolume2\ga\filebeatLogs\Filebeat\filebeat.exe (C6111...

Copyright © Fortinet Version 4.1.0.49

Application Usage

The Application Usage area displays details about usage of the selected application.



APPLICATION USAGE

Total System: ; 0 connections / day

R&D ; connections / day

Stores ; connections / day

Administration ; connections / day

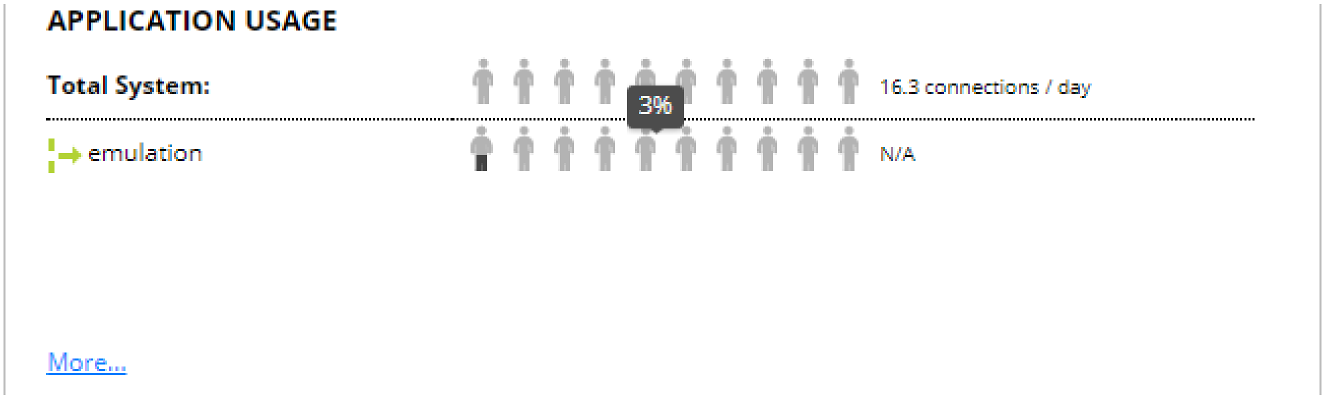
More...

This area shows the number of connections (communication sessions) per day. The top line shows the total number of devices within the organization on which the selected application is installed.

Each row below the underline represents a different Collector Group, and shows the number of devices in the organization in that Collector Group.

Each person icon represents 10% of the total devices in the organization/Collector Group. Black icons represent devices that communicate externally using the selected application, and gray icons represent devices that did not communicate externally using the application.

You can hover over the people icons to see the percentage of devices that communicate externally per day using the selected application. For example, the figure below shows that only 3% of the devices in the organization have the selected application installed.



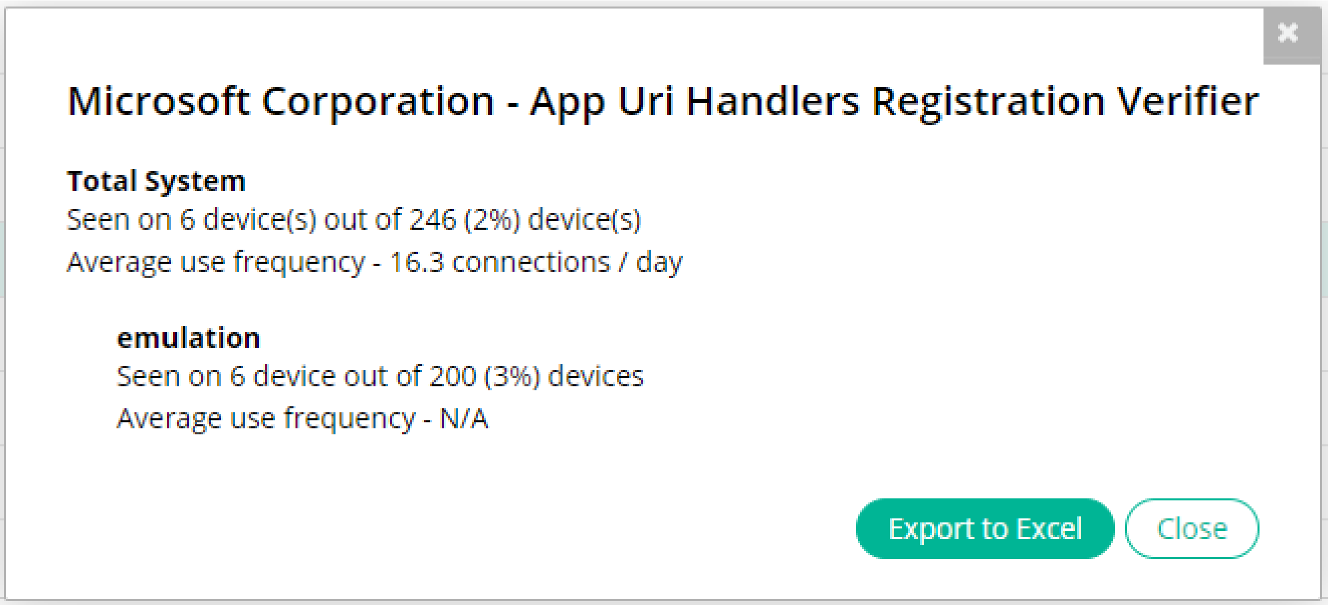
APPLICATION USAGE

Total System: 16.3 connections / day

emulation N/A

More...

Click the **More…** link to open the following window, in which you can view additional details about the selected application.



Microsoft Corporation - App Uri Handlers Registration Verifier

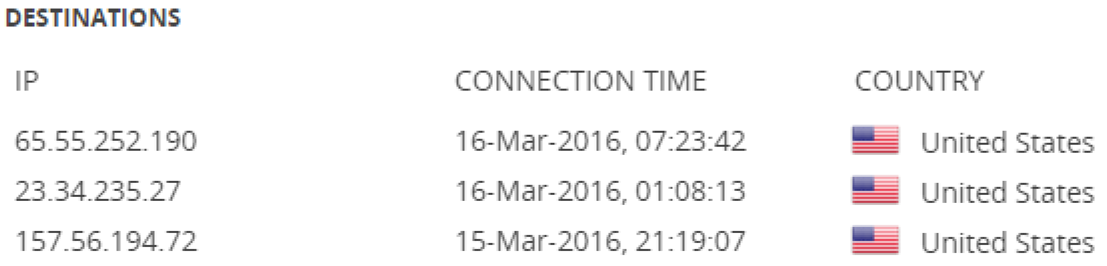
Total System
Seen on 6 device(s) out of 246 (2%) device(s)
Average use frequency - 16.3 connections / day

emulation
Seen on 6 device out of 200 (3%) devices
Average use frequency - N/A

Click the **Export to Excel** button in this window to export application usage information to Excel.

Destinations

The Destinations area shows the destinations to which the selected application communicated (Allowed) or attempted to communicate (Denied).

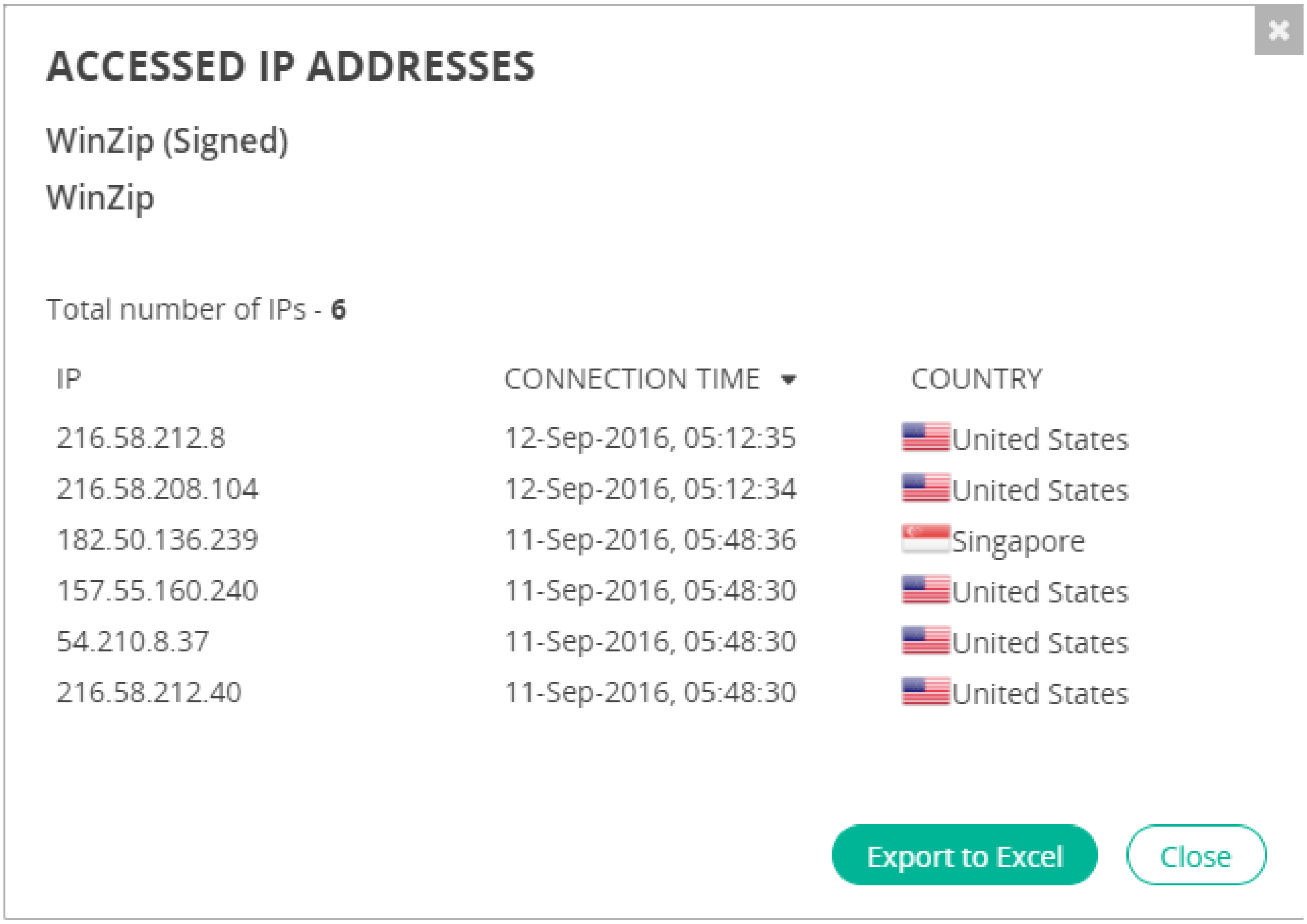


DESTINATIONS

IP	CONNECTION TIME	COUNTRY
65.55.252.190	16-Mar-2016, 07:23:42	United States
23.34.235.27	16-Mar-2016, 01:08:13	United States
157.56.194.72	15-Mar-2016, 21:19:07	United States

Each row shows the IP address, connection time and country of the destination.

By default, this area displays the five most-recent destinations. Click the **More…** link to open the following window, which displays the last 50 destinations.



ACCESSED IP ADDRESSES

WinZip (Signed)

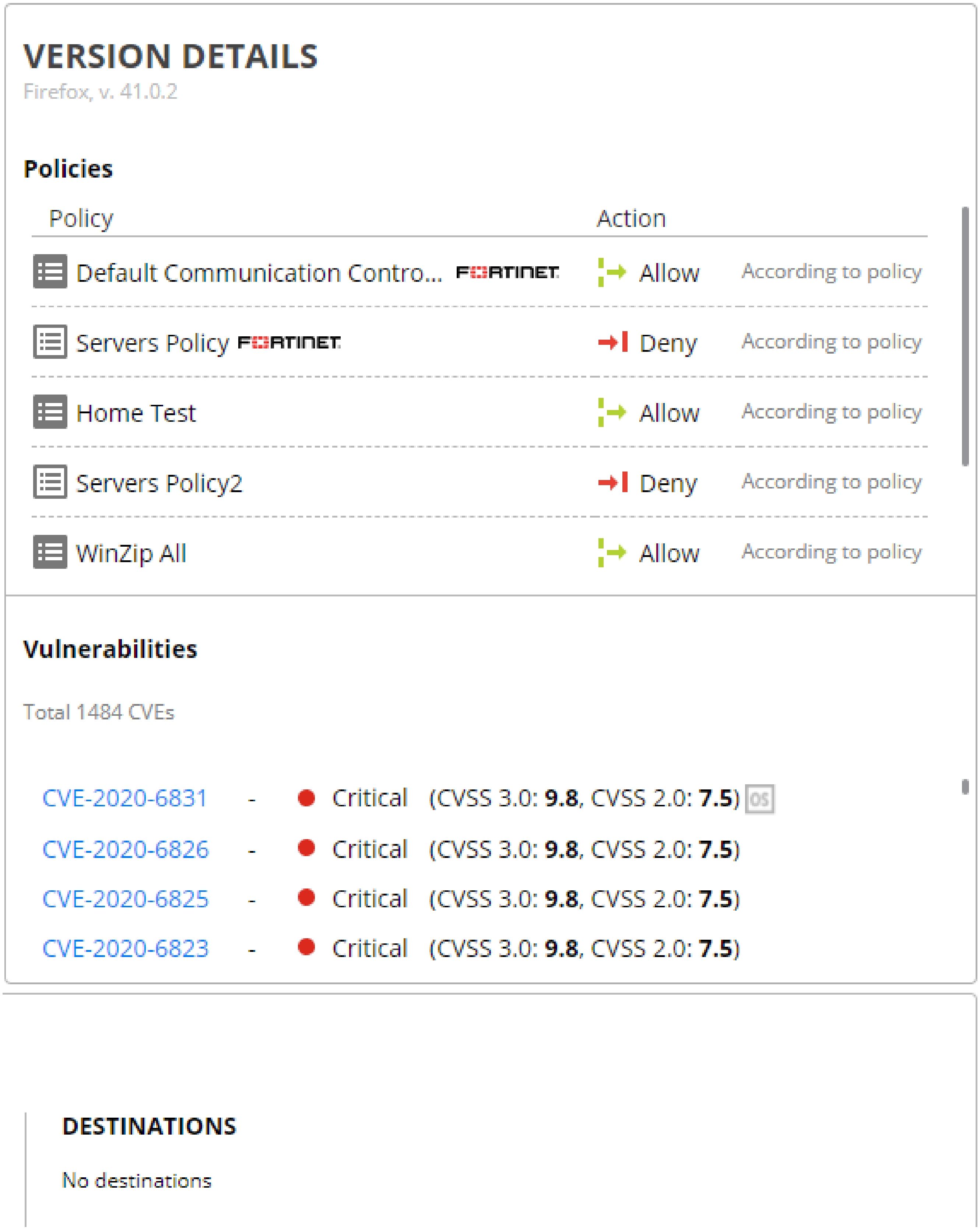
WinZip

Total number of IPs - **6**

IP	CONNECTION TIME ▾	COUNTRY
216.58.212.8	12-Sep-2016, 05:12:35	United States
216.58.208.104	12-Sep-2016, 05:12:34	United States
182.50.136.239	11-Sep-2016, 05:48:36	Singapore
157.55.160.240	11-Sep-2016, 05:48:30	United States
54.210.8.37	11-Sep-2016, 05:48:30	United States
216.58.212.40	11-Sep-2016, 05:48:30	United States

Version Details

The Version Details area displays the action defined for the application in each policy, plus its vulnerability details and affected destinations.



VERSION DETAILS

Firefox, v. 41.0.2

Policies

Policy	Action	
Default Communication Contro... FORTINET	Allow	According to policy
Servers Policy FORTINET	Deny	According to policy
Home Test	Allow	According to policy
Servers Policy2	Deny	According to policy
WinZip All	Allow	According to policy

Vulnerabilities

Total 1484 CVEs

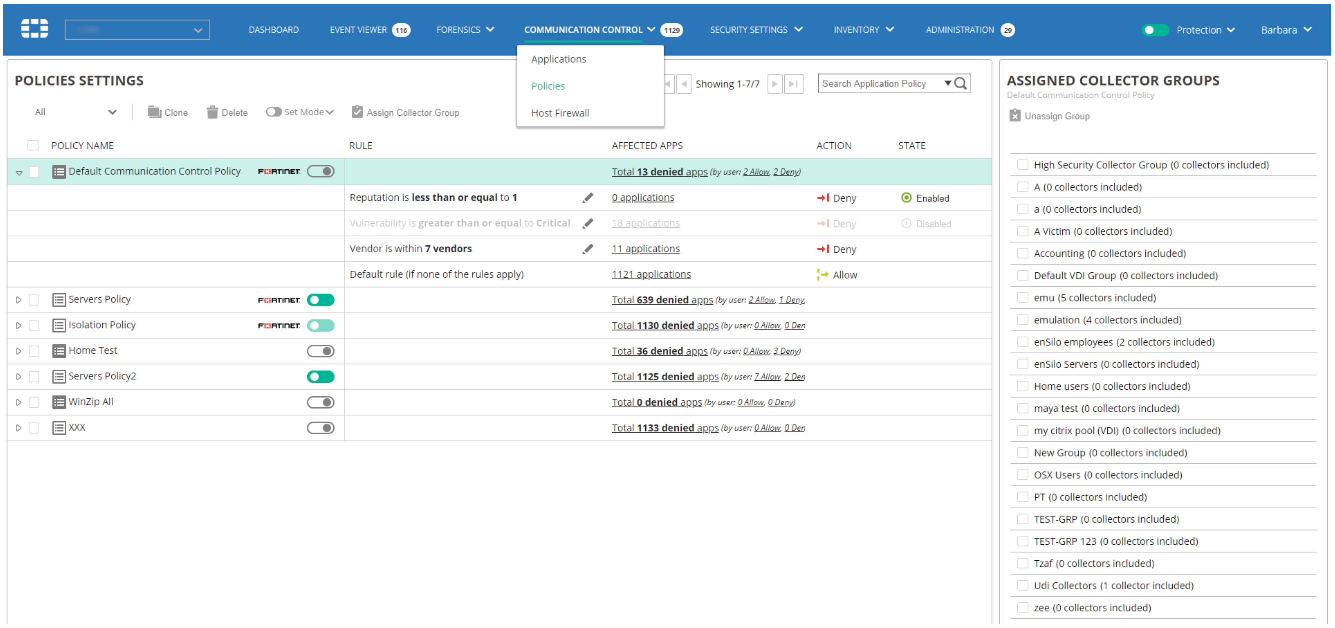
CVE-2020-6831	-	●	Critical	(CVSS 3.0: **9.8**, CVSS 2.0: **7.5**) OS
CVE-2020-6826	-	●	Critical	(CVSS 3.0: **9.8**, CVSS 2.0: **7.5**)
CVE-2020-6825	-	●	Critical	(CVSS 3.0: **9.8**, CVSS 2.0: **7.5**)
CVE-2020-6823	-	●	Critical	(CVSS 3.0: **9.8**, CVSS 2.0: **7.5**)

DESTINATIONS

No destinations

Policies

The **POLICY SETTINGS** page displays the Communication Control policies that can be applied to an application or version in the application list. Communication Control has its own policies. Each policy row can be expanded to show the rules for that policy. To access this page, click the down arrow next to **COMMUNICATION CONTROL** and then select the Policies.



POLICIES SETTINGS

	POLICY NAME		RULE	AFFECTED APPS	ACTION	STATE
▽ □	Default Communication Control Policy	FORTINET		Total **13 denied** apps (by user: 2 Allow, 2 Deny)		
			Reputation is **less than or equal** to **1**	0 applications	Deny	Enabled
			Vulnerability is **greater than or equal** to **Critical**	18 applications	Deny	Disabled
			Vendor is within **7 vendors**	11 applications	Deny	
			Default rule (if none of the rules apply)	1121 applications	Allow	
▷ □	Servers Policy	FORTINET		Total **639 denied** apps (by user: 2 Allow, 1 Deny,		
▷ □	Isolation Policy	FORTINET		Total **1130 denied** apps (by user: 0 Allow, 0 Den		
▷ □	Home Test			Total **36 denied** apps (by user: 0 Allow, 3 Deny)		
▷ □	Servers Policy2			Total **1125 denied** apps (by user: 7 Allow, 2 Den		
▷ □	WinZip All			Total **0 denied** apps (by user: 0 Allow, 0 Deny)		
▷ □	XXX			Total **1133 denied** apps (by user: 0 Allow, 0 Den		

ASSIGNED COLLECTOR GROUPS
Default Communication Control Policy
Unassign Group

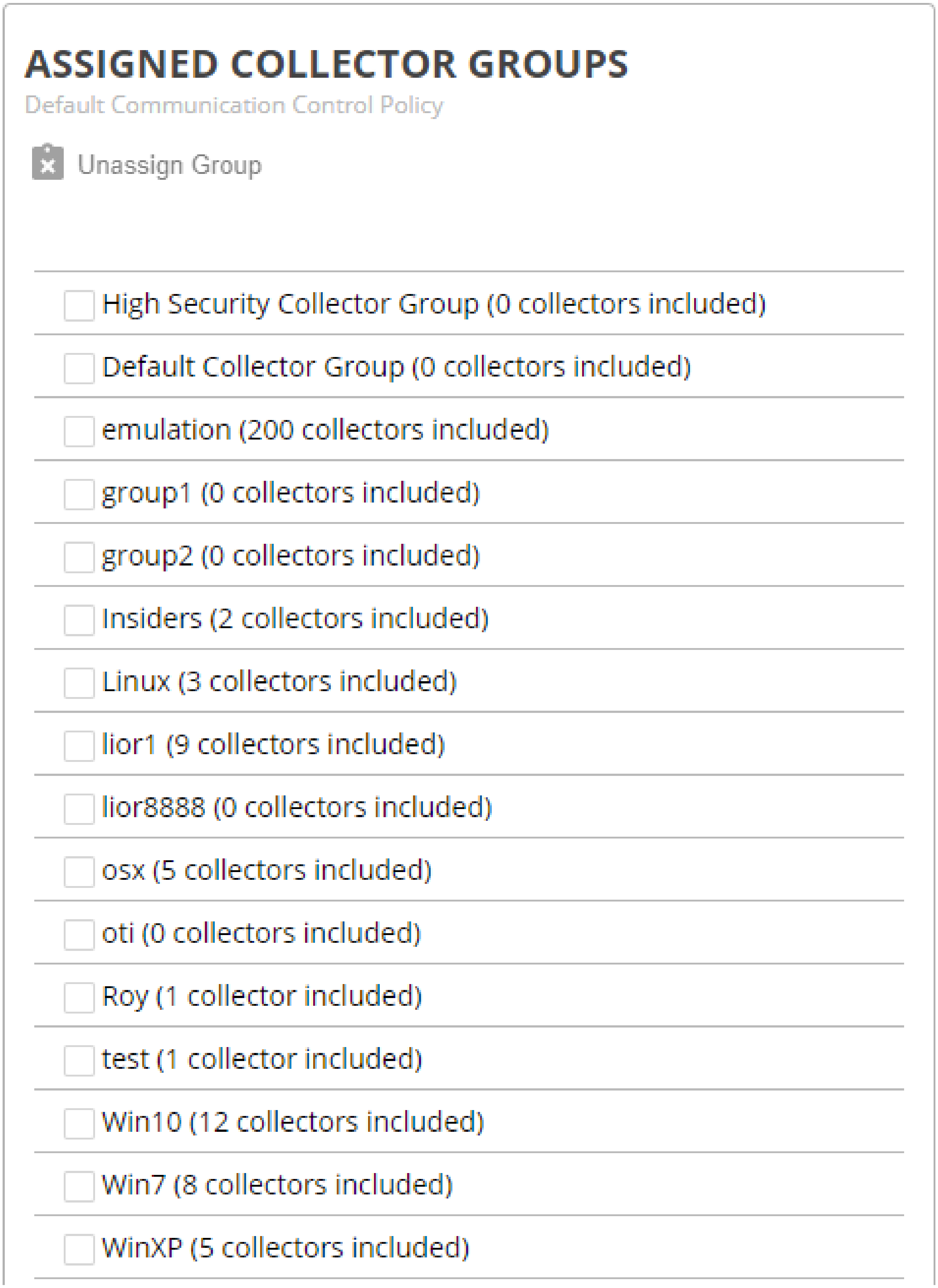
- □ High Security Collector Group (0 collectors included)
- □ A (0 collectors included)
- □ a (0 collectors included)
- □ A Victim (0 collectors included)
- □ Accounting (0 collectors included)
- □ Default VDI Group (0 collectors included)
- □ emu (5 collectors included)
- □ emulation (4 collectors included)
- □ enSilo employees (2 collectors included)
- □ enSilo Servers (0 collectors included)
- □ Home users (0 collectors included)
- □ maya test (0 collectors included)
- □ my citrix pool (VDI) (0 collectors included)
- □ New Group (0 collectors included)
- □ OSX Users (0 collectors included)
- □ PT (0 collectors included)
- □ TEST-GRP (0 collectors included)
- □ TEST-GRP 123 (0 collectors included)
- □ Tzaf (0 collectors included)
- □ Udi Collectors (1 collector included)
- □ zee (0 collectors included)

Communication Control policies define the actions to be taken for a given application or application version. Each policy applies to a different Collector Group(s), and all the devices that belong to that Collector Group(s). A Collector Group can only be assigned to one policy.

The following information is defined for each communication policy:

Information Field	Description
Policy Name	The policy name appears in the leftmost column. The policy name is defined when the policy is created.
Rule	The rule as it applies to the policy. The default action for the policy is displayed under the default rule of the policy. For more details, see the Policy Rules on page 198.
Affected Apps	The number of applications affected by the policy.
Action	Specifies the action that is enforced when this rule is violated (Allow or Deny).
State (Enabled/Disabled)	This option enables you to disable/enable this rule.

The Assigned Collector Groups area on the right lists the Collector Group(s) assigned to the policy.



ASSIGNED COLLECTOR GROUPS

Default Communication Control Policy

Unassign Group

□ High Security Collector Group (0 collectors included)

□ Default Collector Group (0 collectors included)

□ emulation (200 collectors included)

□ group1 (0 collectors included)

□ group2 (0 collectors included)

□ Insiders (2 collectors included)

□ Linux (3 collectors included)

□ lior1 (9 collectors included)

□ lior8888 (0 collectors included)

□ osx (5 collectors included)

□ oti (0 collectors included)

□ Roy (1 collector included)

□ test (1 collector included)

□ Win10 (12 collectors included)

□ Win7 (8 collectors included)

□ WinXP (5 collectors included)

Predefined Policies

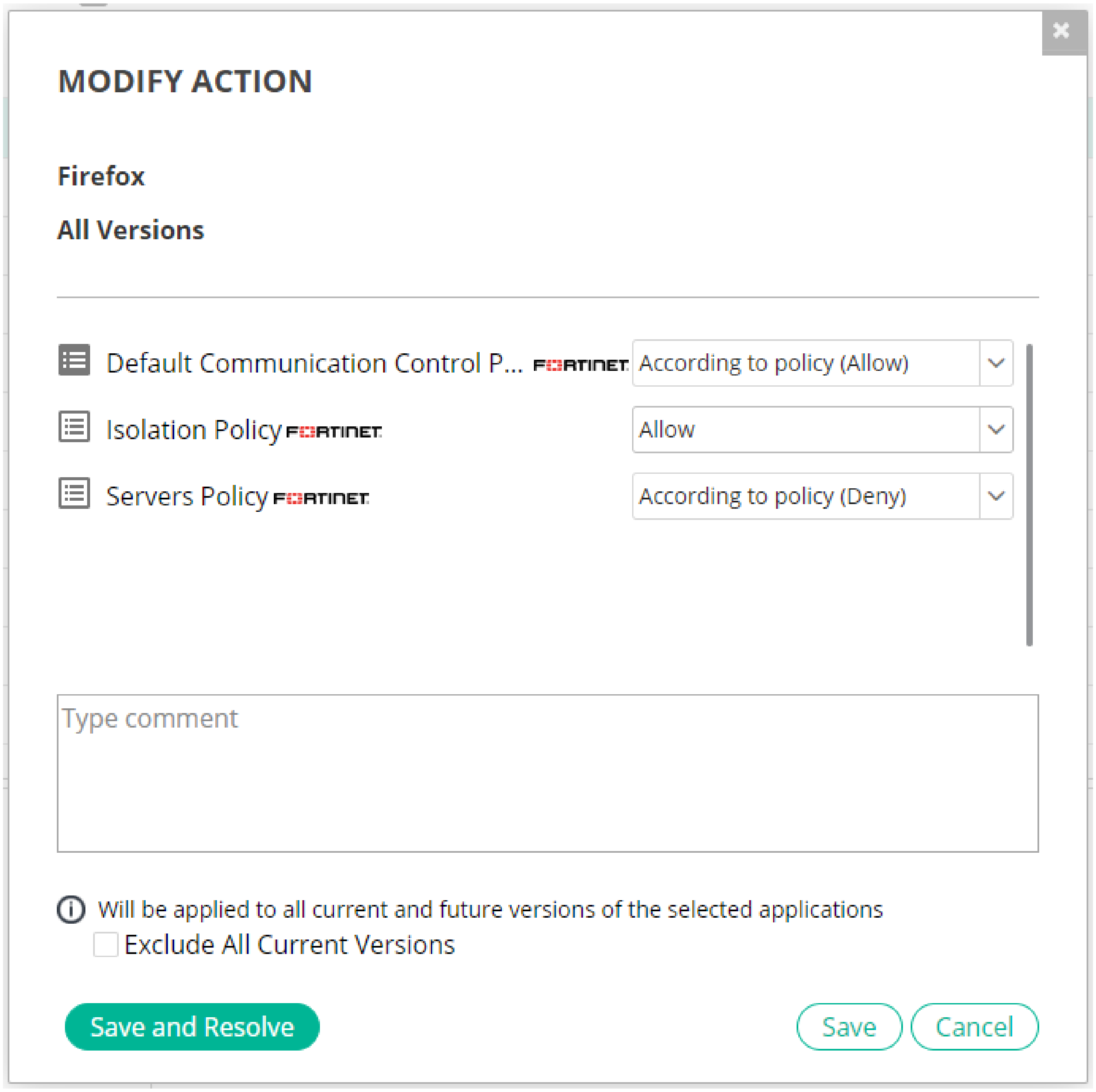
FortiEDR is provided out-of-the-box with several predefined policies, ready for you to get started. These policies are marked with the FORTINET logo.

- The Default Communication Control policy is one such policy, and is always listed first in the list of policies. The Default Communication Control policy is a blocklisting policy that is automatically applied to any Collector Group that is not assigned to any of the other Communication Control policies.
- The **Servers** predefined policy is an allowlist policy that assigns a Deny action to all applications by default, except for a list of known, recognized and legitimate applications, which are allowed. This policy gives your organization a jump-start, as some of the leg work to identify legitimate applications in your organization has already been done for you.
- The Isolation predefined policy isolates (blocks) communication to/from a device. This policy cannot be deleted and only applies in Prevention mode. When this policy is in force and communication for a given device has been blocked, you can manually permit communication to/from the device for a specific application using the procedure below.

To permit communication to/from the device for a specific application:

1. Select the APPLICATIONS page.
2. Select the application/version to which you want to permit communication.

3. Click the Modify Action button. The following displays:



MODIFY ACTION

Firefox

All Versions

Default Communication Control P...	According to policy (Allow)
Isolation Policy	Allow
Servers Policy	According to policy (Deny)

Type comment

Will be applied to all current and future versions of the selected applications

□ Exclude All Current Versions

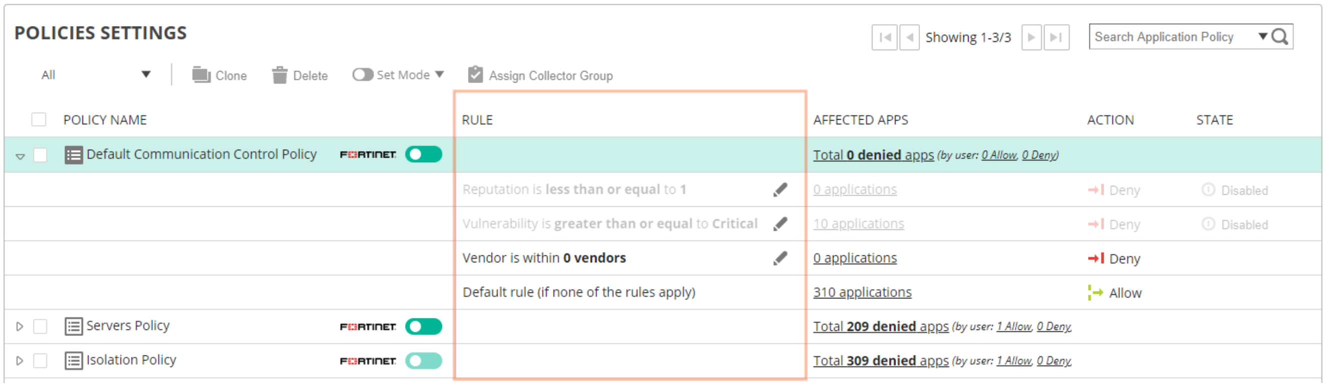
4. In the Isolation Policy row, select Allow in the dropdown menu.

Policy Mode

The slider for a policy indicates the current mode for the policy. A green slider indicates Prevention mode and a gray slider indicates Simulation mode. You can change the mode using the Set mode ▾ button at the top of the Policies pane. For more details about these modes, you may refer to Protection or Simulation Mode on page 56.

Policy Rules

For each communication policy, FortiEDR provides four rules out of the box. These rules can be modified to specify the connections to be blocked/unblocked according to several parameters. FortiEDR provides the following communication policy rules:



POLICIES SETTINGS

Showing 1-3/3 | Search Application Policy

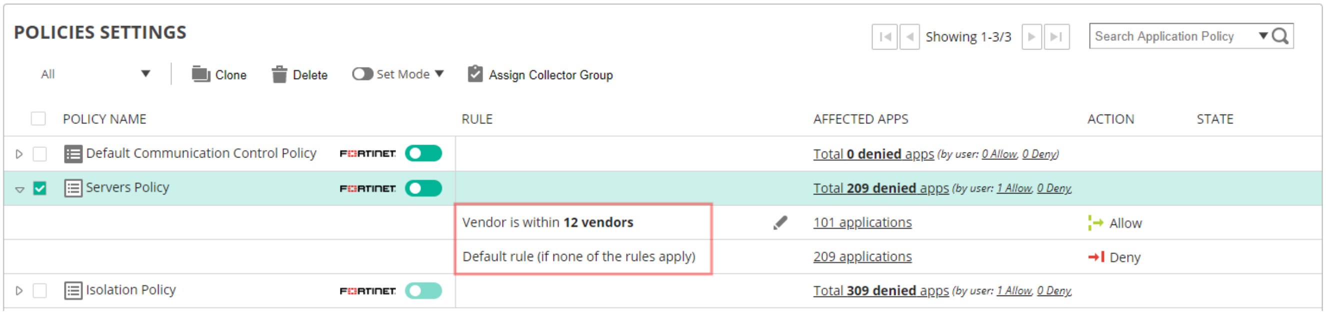
All ▼ | Clone | Delete | Set Mode ▼ | Assign Collector Group

POLICY NAME	RULE	AFFECTED APPS	ACTION	STATE
Default Communication Control Policy FORTINET		Total **0 denied** apps (by user: 0 Allow, 0 Deny)		
	Reputation is **less than or equal** to **1**	0 applications	Deny	Disabled
	Vulnerability is **greater than or equal** to **Critical**	10 applications	Deny	Disabled
	Vendor is within **0 vendors**	0 applications	Deny	
	Default rule (if none of the rules apply)	310 applications	Allow	
Servers Policy FORTINET		Total **209 denied** apps (by user: 1 Allow, 0 Deny		
Isolation Policy FORTINET		Total **309 denied** apps (by user: 1 Allow, 0 Deny		

Policy Rule	Description
Default rule	This rule applies when none of the other three rules apply.
Reputation is less than or equal to X	This rule enables FortiEDR to block/unblock by reputation score.
Vendor is within X vendors	This rule enables FortiEDR to block/unblock by vendor. For this rule, you specify the vendor(s) to include and to exclude.
Vulnerability is greater than or equal to X	This rule enables FortiEDR to block/unblock by vulnerability. In the rules, X represents a user-defined value.

In the rules, **X** represents a user-defined value.

For example, the figure below shows that the Servers Policy has the following rules defined for it:



POLICIES SETTINGS

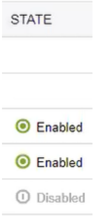
Showing 1-3/3 | Search Application Policy

All ▼ | Clone | Delete | Set Mode ▼ | Assign Collector Group

POLICY NAME	RULE	AFFECTED APPS	ACTION	STATE
Default Communication Control Policy FORTINET		Total **0 denied** apps (by user: 0 Allow, 0 Deny)		
☑ Servers Policy FORTINET		Total **209 denied** apps (by user: 1 Allow, 0 Deny		
	Vendor is within **12 vendors**	101 applications	Allow	
	Default rule (if none of the rules apply)	209 applications	Deny	
Isolation Policy FORTINET		Total **309 denied** apps (by user: 1 Allow, 0 Deny		

- Vendor is within 12 vendors. This rule is enabled for the policy. The action for this rule is Allow.
- Default rule (if none of the rules apply). This rule is always enabled.

You can enable or disable a rule for a policy by clicking the Enabled/Disabled button in the State column of the applicable rule. This button toggles between **Enabled/Disabled**.



STATE

Enabled

Enabled

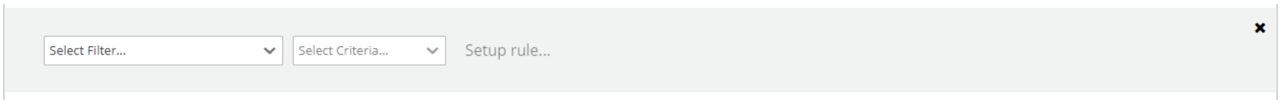
Disabled

Editing a Policy Rule

The four rules for a policy can be modified, as needed.

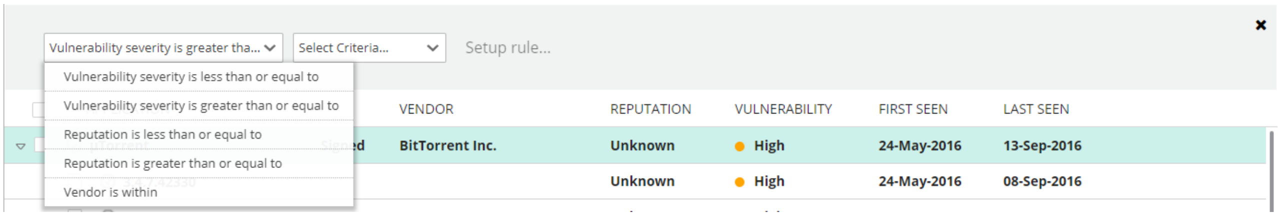
To edit a rule:

1. Click the Edit button for the rule of the policy that you want to modify. This switches the view to the **APPLICATIONS** page, enabling you to review the applications affected by this rule before saving it. The following displays:



Select Filter... | Select Criteria... | Setup rule...

2. In the **Select Filter** dropdown list, select the parameter whose value you want to set in the rule. This dropdown list lists the parameters available to configure for the rule.

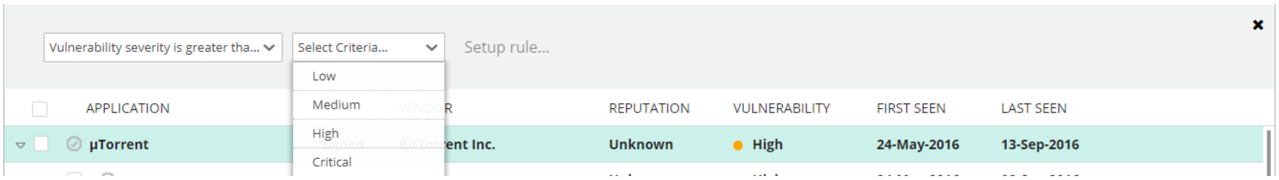


Vulnerability severity is greater tha... | Select Criteria... | Setup rule...

- Vulnerability severity is less than or equal to
- Vulnerability severity is greater than or equal to
- Reputation is less than or equal to
- Reputation is greater than or equal to
- Vendor is within

VENDOR	REPUTATION	VULNERABILITY	FIRST SEEN	LAST SEEN
BitTorrent Inc.	Unknown	● High	24-May-2016	13-Sep-2016
	Unknown	● High	24-May-2016	08-Sep-2016

3. In the rightmost **Select Criteria** dropdown list, select the value for the parameter. This dropdown list lists the values available to configure for the parameter specified in step 2.

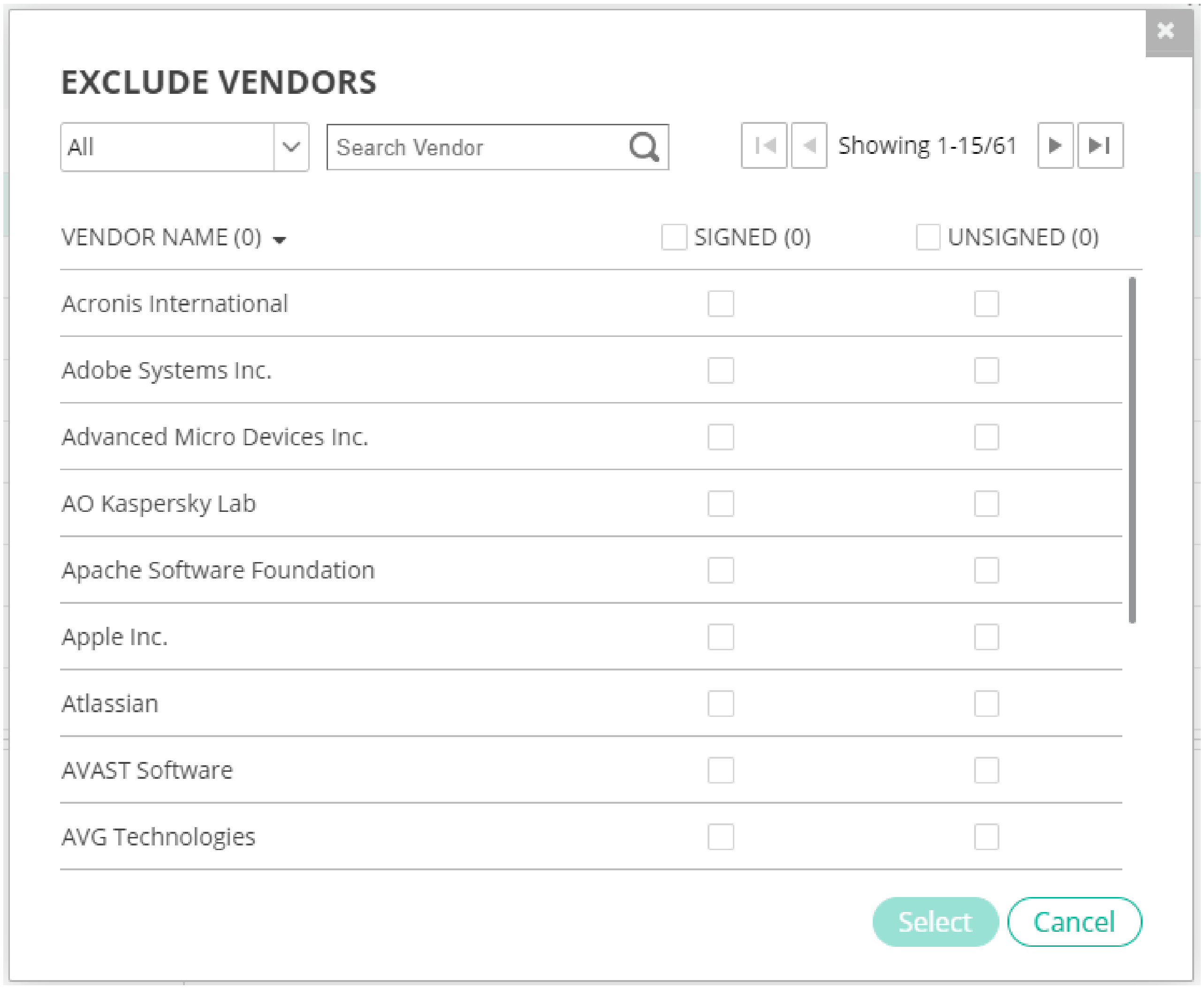


Vulnerability severity is greater tha... | Select Criteria... | Setup rule...

- Low
- Medium
- High
- Critical

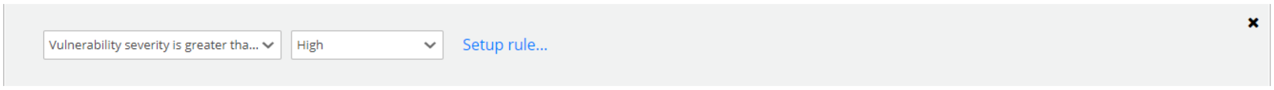
APPLICATION	VENDOR	REPUTATION	VULNERABILITY	FIRST SEEN	LAST SEEN
µTorrent	BitTorrent Inc.	Unknown	● High	24-May-2016	13-Sep-2016

Note – When modifying the Vendor is within X vendors rule, you specify the vendor(s) to include and those to exclude for the rule.

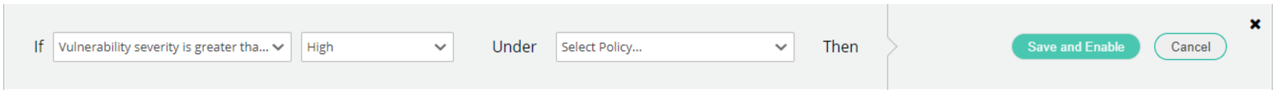


VENDOR NAME (0)	□ SIGNED (0)	□ UNSIGNED (0)
Acronis International	□	□
Adobe Systems Inc.	□	□
Advanced Micro Devices Inc.	□	□
AO Kaspersky Lab	□	□
Apache Software Foundation	□	□
Apple Inc.	□	□
Atlassian	□	□
AVAST Software	□	□
AVG Technologies	□	□

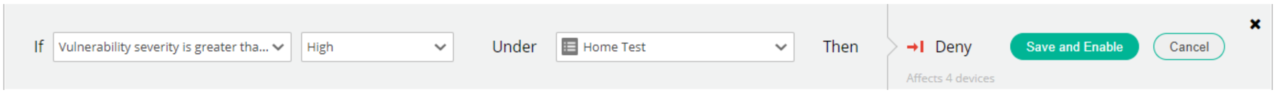
4. Click the Setup rule link.



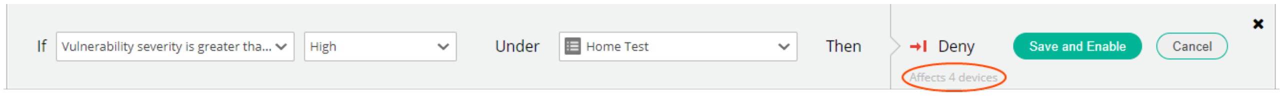
5. In the Under dropdown list, select the policy to which this rule applies.



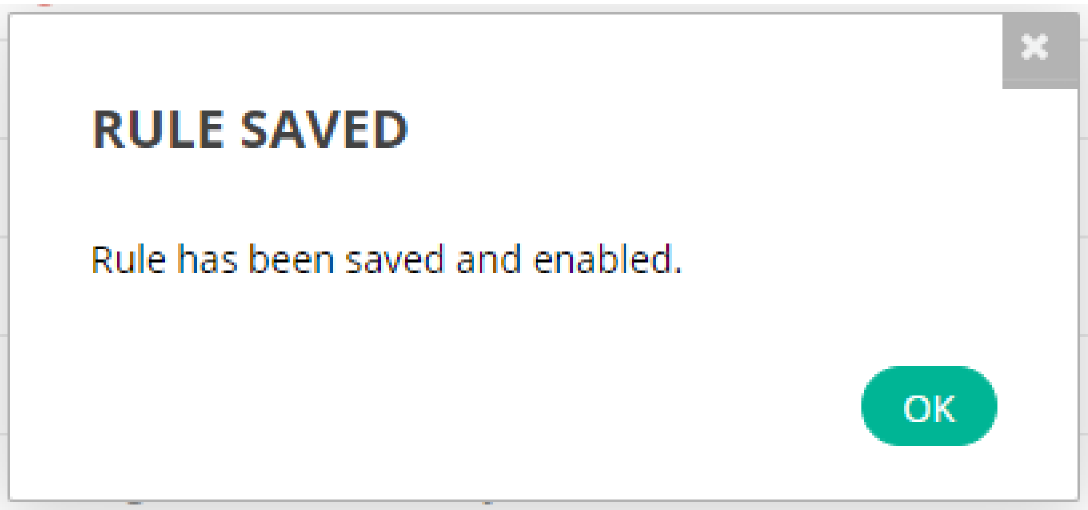
6. In the Then field, specify whether to Allow or Deny the application based on this rule.



The application list now shows the number of application(s) affected by the rule change.



7. Click the **Save and Enable** button to save and enable the changes to the rule. A confirmation window displays, confirming the rule change.



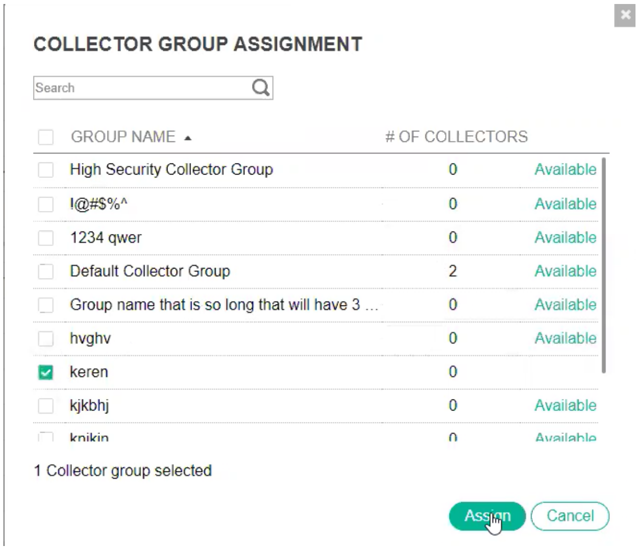
RULE SAVED

Rule has been saved and enabled.

8. Click **OK**.

Assigning a Policy to a Collector Group

1. Check the policy that you want to change in the policy list and then click the Assign Collector Group button. The following displays:



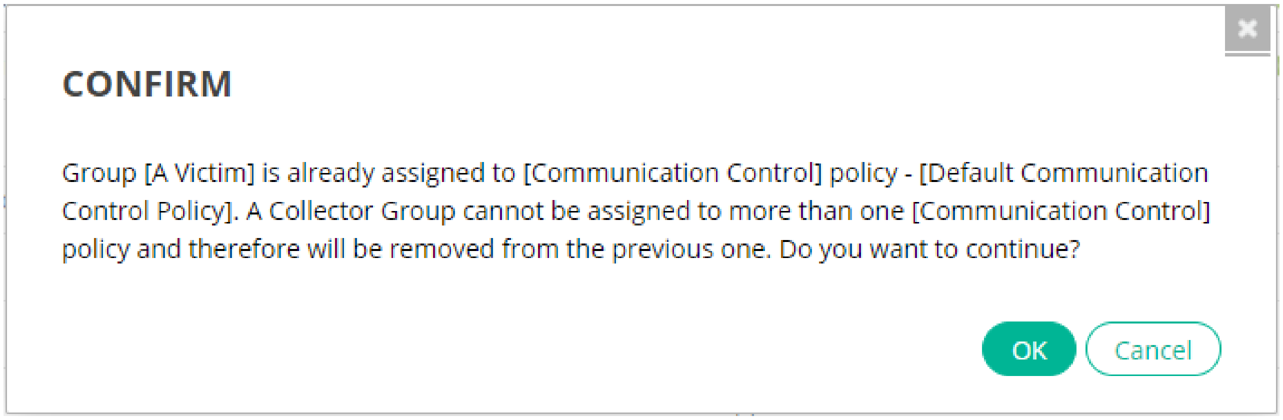
COLLECTOR GROUP ASSIGNMENT

□	GROUP NAME ▲	# OF COLLECTORS	
□	High Security Collector Group	0	Available
□	!@#$%^	0	Available
□	1234 qwer	0	Available
□	Default Collector Group	2	Available
□	Group name that is so long that will have 3 ...	0	Available
□	hvghv	0	Available
☑	keren	0	
□	kjkbhj	0	Available
□	knikin	0	Available

1 Collector group selected

2. Check the checkbox of the Collector Group you want to assign to the policy.

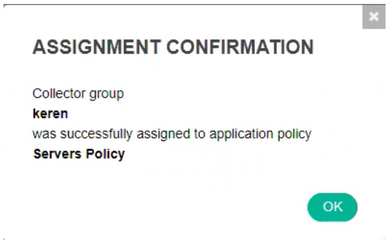
3. Click the Assign button. A window displays, prompting you to confirm the reassignment.



CONFIRM

Group [A Victim] is already assigned to [Communication Control] policy - [Default Communication Control Policy]. A Collector Group cannot be assigned to more than one [Communication Control] policy and therefore will be removed from the previous one. Do you want to continue?

4. Click **OK**. The following displays:



ASSIGNMENT CONFIRMATION

Collector group
keren
was successfully assigned to application policy
Servers Policy

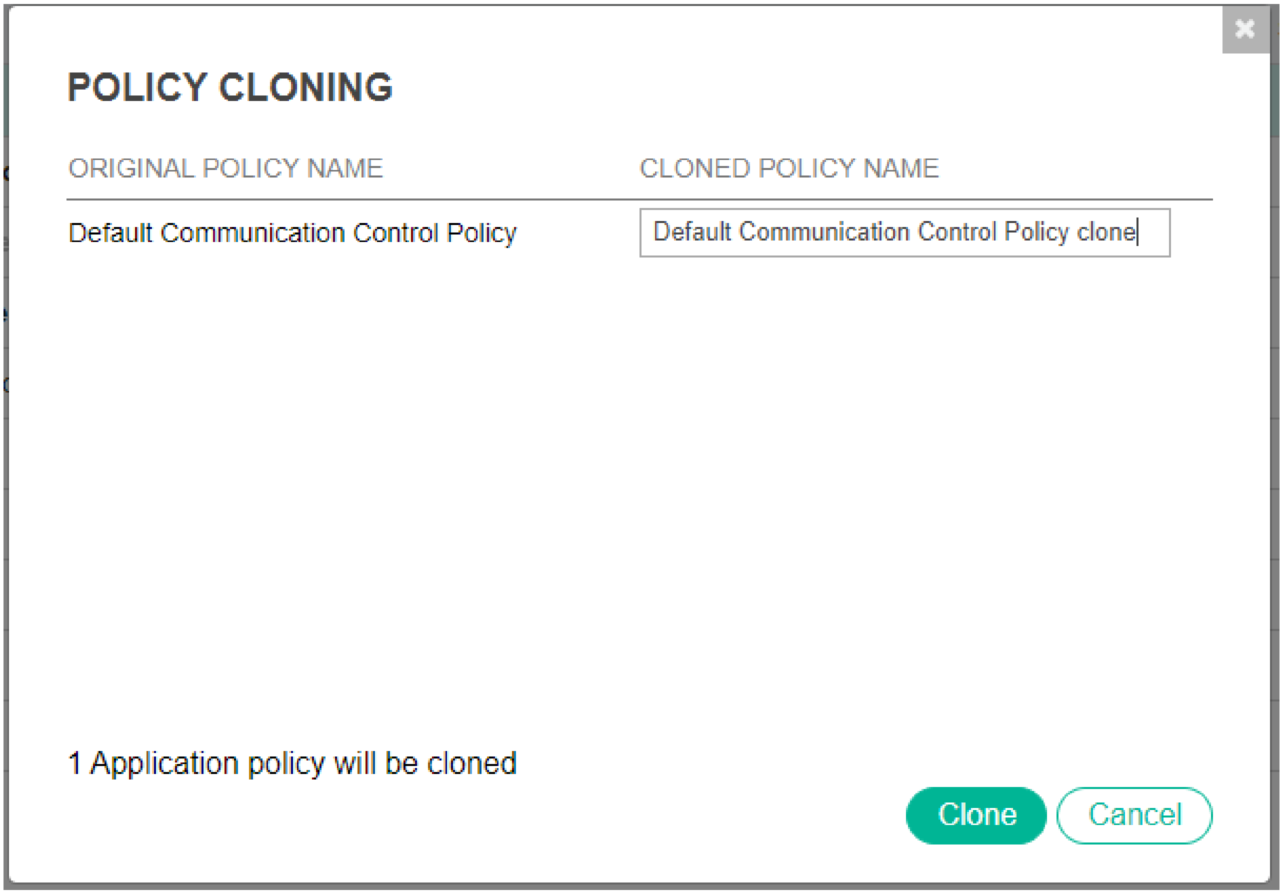
5. Click **OK**.

Creating a New Communication Control Policy

A new Communication Control policy can be created by cloning an existing policy, as described below. New policies are only needed if you are going to assign different policies to different Collector Groups. Otherwise, you can simply modify one of the default policies that come out-of-the-box and apply it to all FortiEDR Collector Groups by default. Modifications made on one policy do not affect any other policies.

1. In the policy list, check the policy that you want to clone. There are two types of Communication Control policies: blocklisting policies (☰), such as the Default communication control policy, which allows any connection by default, and allowlisting policies (▤), such as the Servers policy, which denies any connection by default.

2. Click the **Clone** button. The following window displays:



POLICY CLONING

ORIGINAL POLICY NAME	CLONED POLICY NAME
Default Communication Control Policy	Default Communication Control Policy clone

1 Application policy will be cloned

3. In the **Cloned Policy Name** field, specify a name for the cloned policy.
4. Click the **Clone** button.

Other Options in the Policies Pane

Option	Description
All ▾	Click the down arrow in the All ▾ button and then select an option in the dropdown list to filter the policy list accordingly.
Clone	Click this button to clone a policy.
Delete	Click this button to delete a policy. Before deletion, a confirmation message displays, prompting you to confirm the deletion of the policy.
○ Set mode ▾	Click the down arrow in the ○ Set mode ▾ button and then select the mode for the policy, as described in Policy Mode on page 197

Forensics

This chapter describes the FortiEDR Forensics add-on option for deep analysis of security events.

Introduction

The Forensic Analysis add-on enables a security team (or anyone else) to delve deeply into the actual internals of the communicating devices' operating system that led up to the security event.

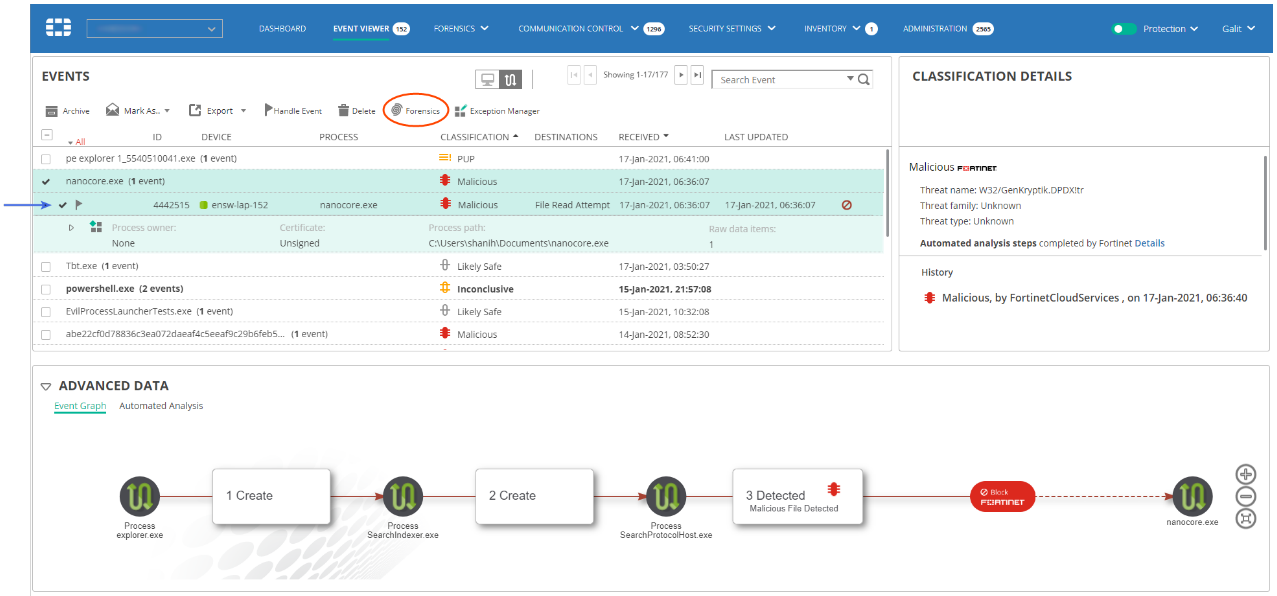
The Forensic Analysis add-on provides an abundance of deep analysis and drill-down options that reveal the process flows, memory stacks and a variety of operating system parameters in a graphic view, such as:

- Infected device and application details.
- Evidence path, which includes the process that the threat actor violated and which type of violation was executed.
- Side-by-side security event comparisons.

This option is only available to users who have purchased the Forensics add-on license, which is part of the **Protect and Response** license or the **Discover, Protect and Response** license.

The first stage of working with Forensics is to select one or more security event aggregations or security events to analyze. To do so, use one of the methods below:

- In the Event Viewer, select a security event aggregation and then click the Forensics button. Selecting a security event aggregation lets you analyze the aggregation of events triggered on this process.



EVENTS

	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED
pe explorer 1_5540510041.exe (**1** event)				PUP		17-Jan-2021, 06:41:00	
nanocore.exe (**1** event)				Malicious		17-Jan-2021, 06:36:07	
	4442515	ensw-lap-152	nanocore.exe	Malicious	File Read Attempt	17-Jan-2021, 06:36:07	17-Jan-2021, 06:36:07
Tbt.exe (**1** event)				Likely Safe		17-Jan-2021, 03:50:27	
powershell.exe (2 events)				**Inconclusive**		**15-Jan-2021, 21:57:08**	
EvilProcessLauncherTests.exe (**1** event)				Likely Safe		15-Jan-2021, 10:32:08	
abe22cf0d78836c3ea072daeaf4c5eeaf9c29b6feb5... (**1** event)				Malicious		14-Jan-2021, 08:52:30	

Process owner: None
Certificate: Unsigned
Process path: C:\Users\shanih\Documents\nanocore.exe
Raw data items: 1

CLASSIFICATION DETAILS

Malicious FORTINET

Threat name: W32/GenKryptik.DPDX!tr
Threat family: Unknown
Threat type: Unknown

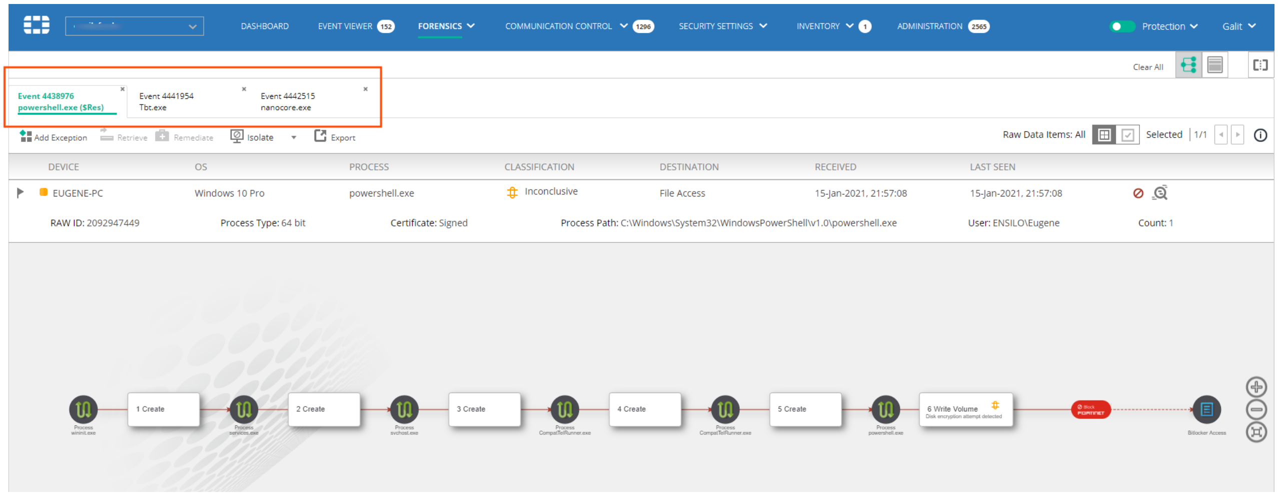
Automated analysis steps completed by Fortinet Details

History

Malicious, by FortinetCloudServices , on 17-Jan-2021, 06:36:40

ADVANCED DATA

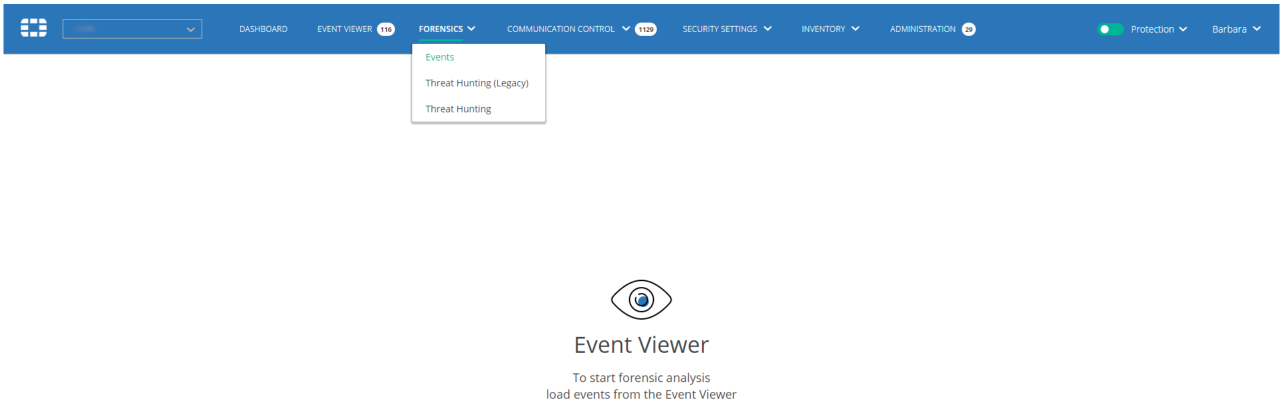
In this case, the Forensics add-on shows a separate tab for each security event associated with the security event aggregation. For example, the figure below shows seven tabs for a security event aggregation containing two events.



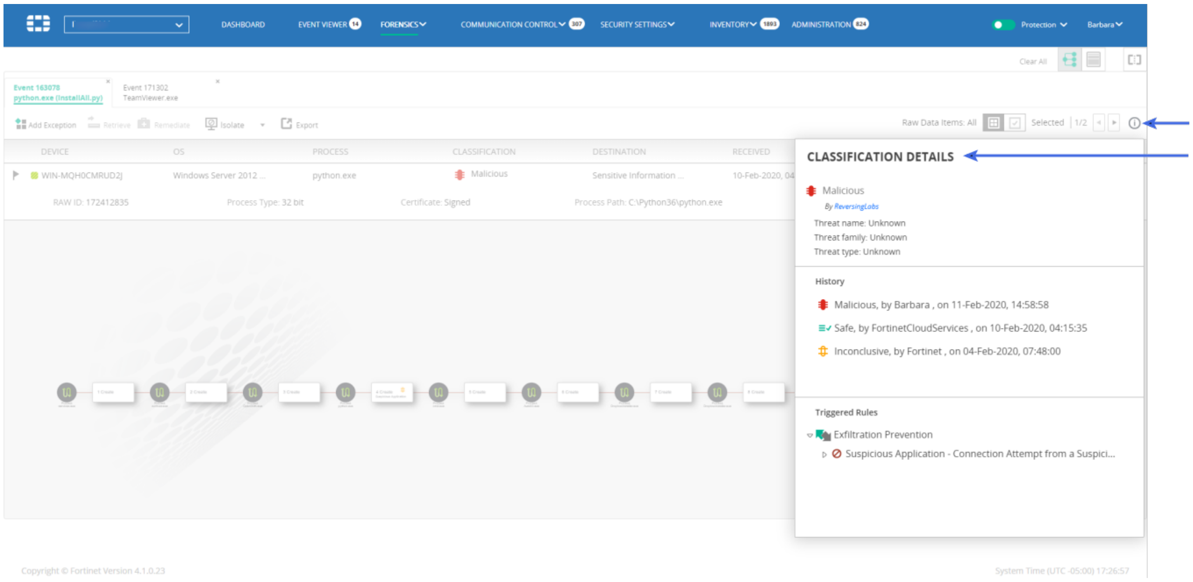
DEVICE	OS	PROCESS	CLASSIFICATION	DESTINATION	RECEIVED	LAST SEEN
EUGENE-PC	Windows 10 Pro	powershell.exe	Inconclusive	File Access	15-Jan-2021, 21:57:08	15-Jan-2021, 21:57:08

RAW ID: 2092947449 Process Type: 64 bit Certificate: Signed Process Path: C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe User: ENSILO\Eugene Count: 1

- Select an individual security event in the Event Viewer and then click the Forensics button. In this case, the Forensics add-on shows a single tab for the selected security event, with all of its related raw data items.
- Select a raw data item when in drill down, and then click the Forensics button. In this case, the Forensics add-on shows a single tab for the selected security event with a single raw data item.
- In the **FORENSICS** tab, select **Events**. In the page that displays, click the **Event Viewer** link, shown below, and then select the security event of interest using any of the methods described above.



You can click ⓘ the button in the FORENSICS tab to display classification details, including the classification, policy and rules assigned to the FortiEDR Collector that triggered this security event. For more details about classification details, see Classification Details on page 168.



Event 163078 python.exe (InstallAll.py)

Event 171302 TeamViewer.exe

DEVICE	OS	PROCESS	CLASSIFICATION	DESTINATION	RECEIVED
WIN-MQH0CMRUD2J	Windows Server 2012 ...	python.exe	Malicious	Sensitive Information ...	10-Feb-2020, 04

RAW ID: 172412835 Process Type: 32 bit Certificate: Signed Process Path: C:\Python36\python.exe

CLASSIFICATION DETAILS

Malicious

By ReversingLabs

Threat name: Unknown

Threat family: Unknown

Threat type: Unknown

History

Malicious, by Barbara , on 11-Feb-2020, 14:58:58

Safe, by FortinetCloudServices , on 10-Feb-2020, 04:15:35

Inconclusive, by Fortinet , on 04-Feb-2020, 07:48:00

Triggered Rules

Exfiltration Prevention

Suspicious Application - Connection Attempt from a Suspici...

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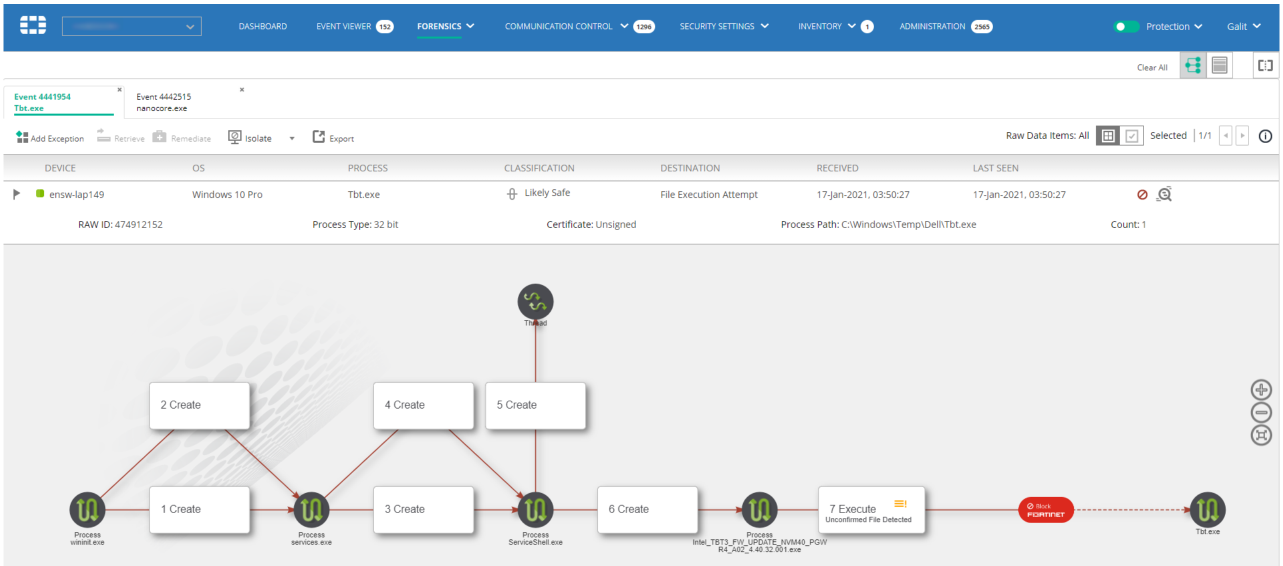
System Time (UTC -05:00) 17:26:57

To perform deep Forensic analysis:

1. Select the security events to analyze using one of the methods described on Event Viewer on page 134. Selected security events that are currently loaded to the **FORENSICS tab** are marked in the **Event Viewer** with a fingerprint icon.
2. Each selected security event is then displayed in the Event Viewer as a separate tab:



Event 4441954 Tbt.exe

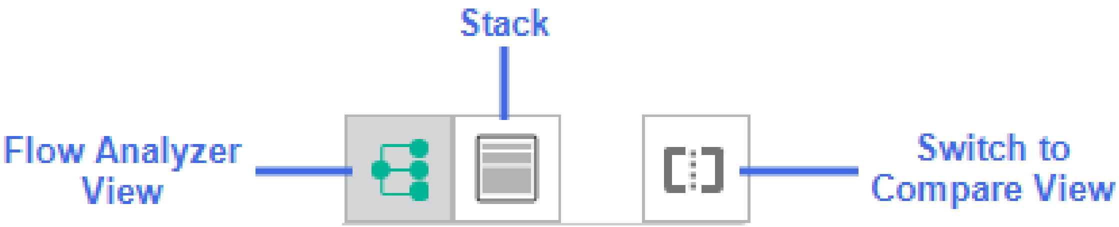
Event 4442515 nanocore.exe

DEVICE	OS	PROCESS	CLASSIFICATION	DESTINATION	RECEIVED	LAST SEEN
ensw-lap149	Windows 10 Pro	Tbt.exe	Likely Safe	File Execution Attempt	17-Jan-2021, 03:50:27	17-Jan-2021, 03:50:27

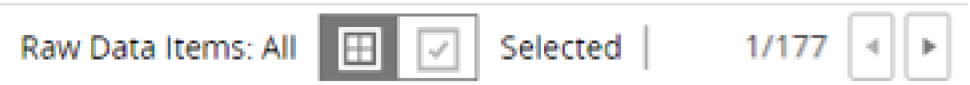
RAW ID: 474912152 Process Type: 32 bit Certificate: Unsigned Process Path: C:\Windows\Temp\Dell\Tbt.exe Count: 1

Each tab shows the same information as in the Event Viewer on page 134, with additional information as described below.

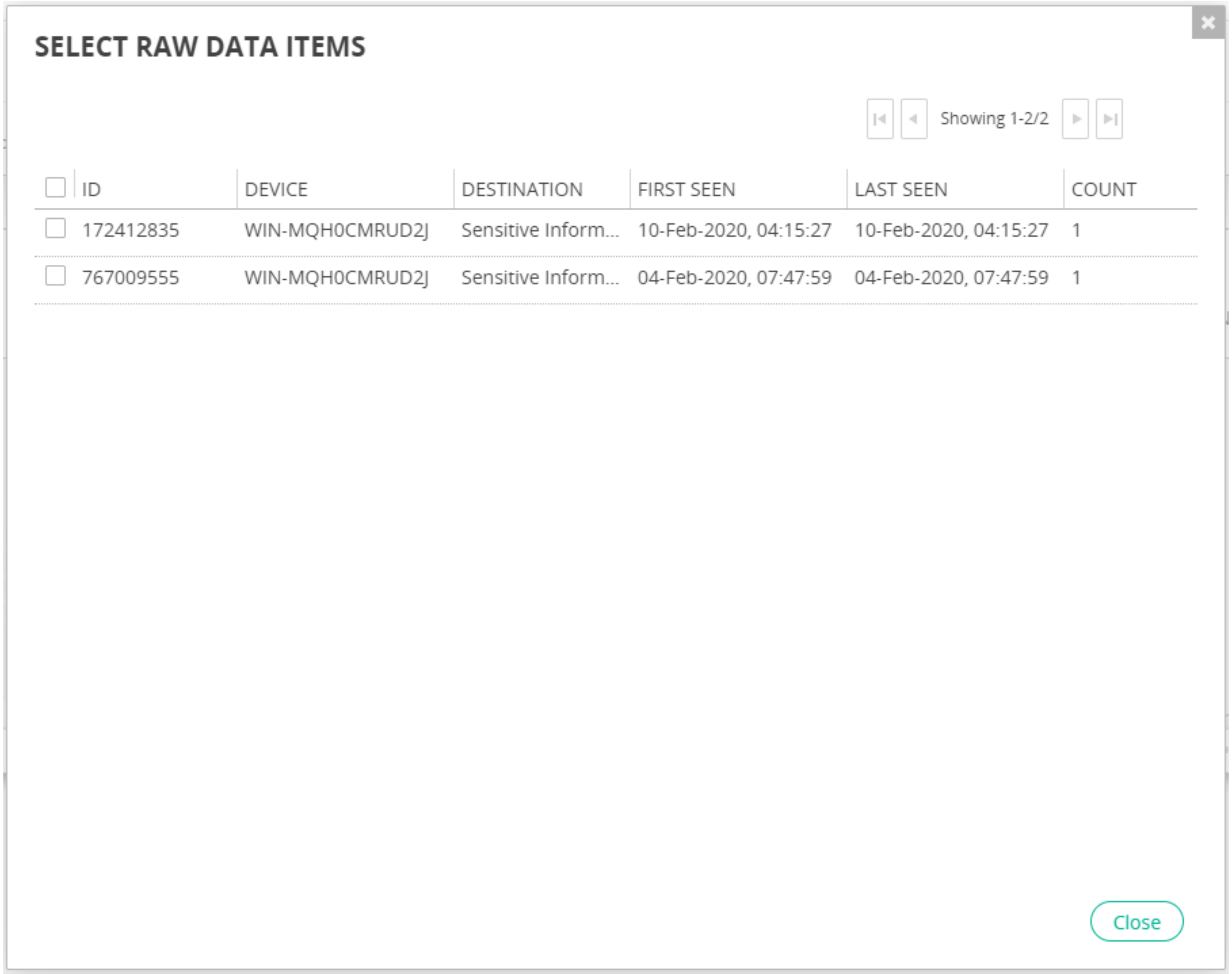
The following options for viewing more information are provided:



In the Raw Events area, use the right and left arrows to scroll through the raw data items for a security event.



Click the **All Raw Data Items** ⊞ button to display all raw data items. Click the **Selected Raw Data Items** ☑ button to select a specific raw data item. This action opens the following window, in which you specify the raw data item(s) to display.

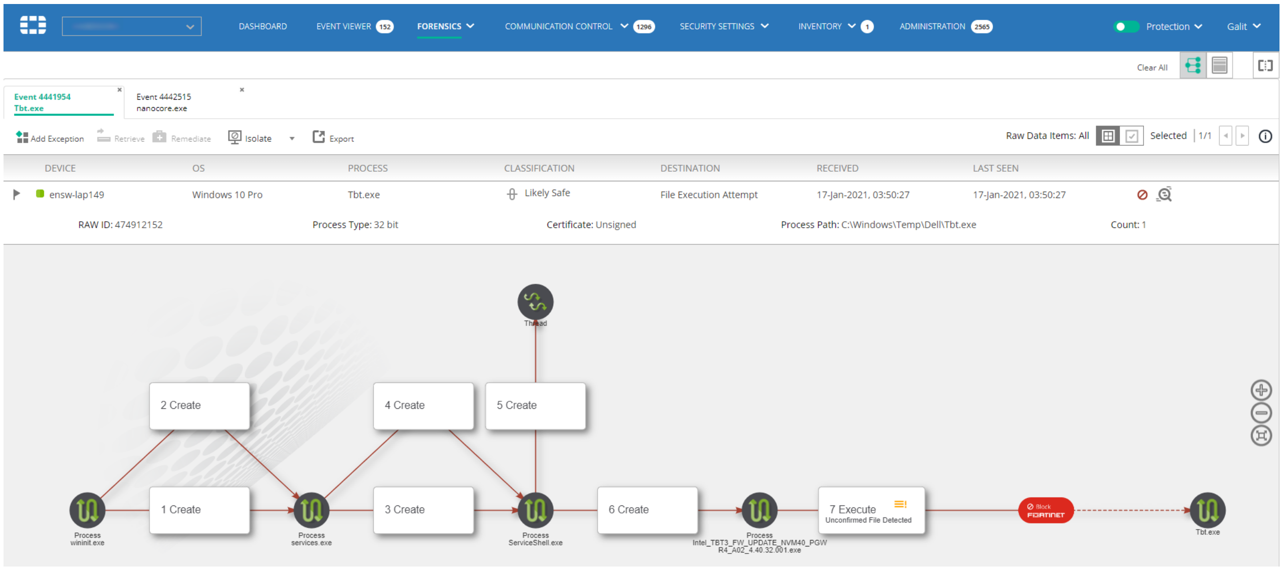


SELECT RAW DATA ITEMS

Showing 1-2/2

□	ID	DEVICE	DESTINATION	FIRST SEEN	LAST SEEN	COUNT
□	172412835	WIN-MQH0CMRUD2J	Sensitive Inform...	10-Feb-2020, 04:15:27	10-Feb-2020, 04:15:27	1
□	767009555	WIN-MQH0CMRUD2J	Sensitive Inform...	04-Feb-2020, 07:47:59	04-Feb-2020, 07:47:59	1

Click **Close** in the SELECT RAW DATA ITEMS window. The Events page displays only those raw data items you selected in the view.

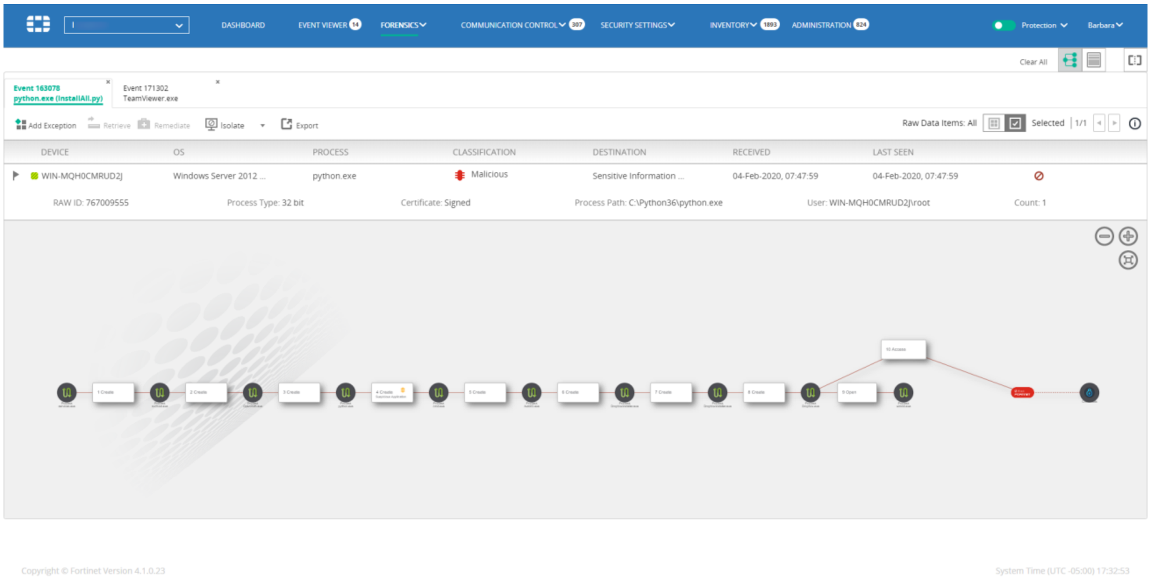


DEVICE	OS	PROCESS	CLASSIFICATION	DESTINATION	RECEIVED	LAST SEEN
ensw-lap149	Windows 10 Pro	Tbt.exe	Likely Safe	File Execution Attempt	17-Jan-2021, 03:50:27	17-Jan-2021, 03:50:27

RAW ID: 474912152 Process Type: 32 bit Certificate: Unsigned Process Path: C:\Windows\Temp\Dell\Tbt.exe Count: 1

Click the **Threat Hunting** button to review relevant Activity Events in the **Threat Hunting** tab

Flow Analyzer View



DEVICE	OS	PROCESS	CLASSIFICATION	DESTINATION	RECEIVED	LAST SEEN
WIN-MQHOCMRUD2J	Windows Server 2012 ...	python.exe	Malicious	Sensitive Information ...	04-Feb-2020, 07:47:59	04-Feb-2020, 07:47:59

RAW ID: 767009555 Process Type: 32 bit Certificate: Signed Process Path: C:\Python36\python.exe User: WIN-MQHOCMRUD2J\root Count: 1

This view shows a graphic flow diagram depicting the history of what happened before the security event was triggered, from left to right. Each node can represent a process, a thread or a service.

The arrows indicate the sequence of processes and specify the operation that was performed, such as **Create, Inject, Open** and so on. If multiple operations were performed between two processes, then multiple arrows are shown between them. If an operation repeated several times in the same segment, it is represented by a dashed line ▬ ▬ ▬.

Typically, the next to last rightmost node represents a connection request Connection and specifies the IP to which it attempted to establish a connection. It can also represent an attempt to lock or encrypt a file by ransomware .

The rightmost node represents the action performed by FortiEDR, such as **Block, Log** or **Simulated Block**.

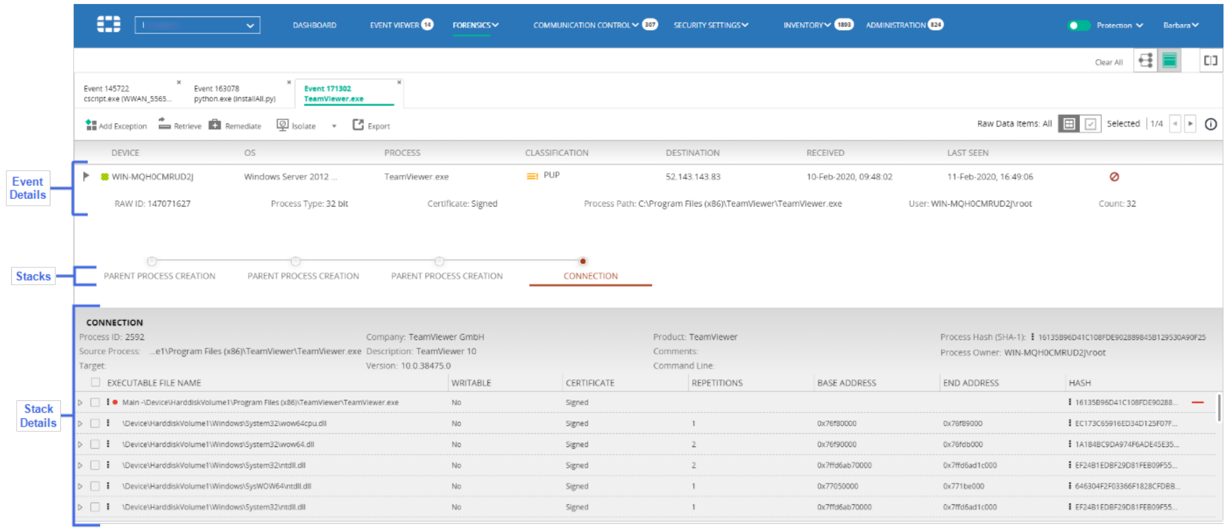
Log
FORTINET

Block
FORTINET

Block
FORTINET

The flow chart is interactive. Clicking on a specific node or arrow drills down to the Stack View (described in Stack View on page 209). This enables you to perform further investigation of the specific stack that was collected during that step.

Stack View



DEVICE	OS	PROCESS	CLASSIFICATION	DESTINATION	RECEIVED	LAST SEEN
WIN-MQH0CMRUD2J	Windows Server 2012 ...	TeamViewer.exe	PUP	52.143.143.83	10-Feb-2020, 09:48:02	11-Feb-2020, 16:49:06

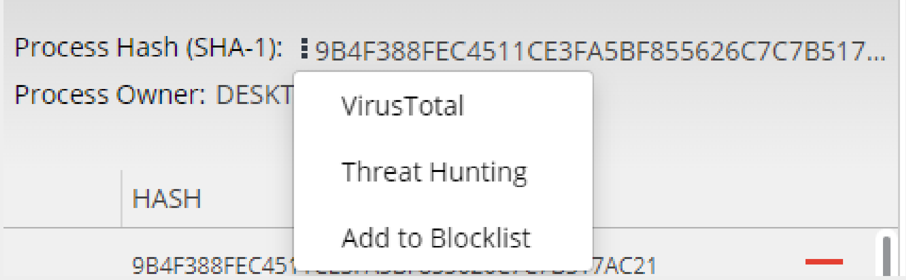
RAW ID: 147071627 Process Type: 32 bit Certificate: Signed Process Path: C:\Program Files (x86)\TeamViewer\TeamViewer.exe User: WIN-MQH0CMRUD2J\root Count: 32

CONNECTION
Process ID: 2592
Source Process: ...e1\Program Files (x86)\TeamViewer\TeamViewer.exe
Target:
Company: TeamViewer GmbH
Description: TeamViewer 10
Version: 10.0.38475.0
Product: TeamViewer
Comments:
Command Line:
Process Hash (SHA-1): 16135B96D41C108FDE902889845B129530A90F25
Process Owner: WIN-MQH0CMRUD2J\root

EXECUTABLE FILE NAME	WRITABLE	CERTIFICATE	REPETITIONS	BASE ADDRESS	END ADDRESS	HASH
Main -\Device\HarddiskVolume1\Program Files (x86)\TeamViewer\TeamViewer.exe	No	Signed				16135B96D41C108FDE90288...
\Device\HarddiskVolume1\Windows\System32\wow64cpu.dll	No	Signed	1	0x76f80000	0x76f89000	EC173C65916ED34D125F07F...
\Device\HarddiskVolume1\Windows\System32\wow64.dll	No	Signed	2	0x76f90000	0x76fdb000	1A184BC9DA974F6ADE45E35...
\Device\HarddiskVolume1\Windows\System32\ntdll.dll	No	Signed	2	0x7ffd6ab70000	0x7ffd6ad1c000	EF24B1EDBF29D81FEB09F55...
\Device\HarddiskVolume1\Windows\SysWOW64\ntdll.dll	No	Signed	1	0x77050000	0x771be000	646304F2F03366F1828CFDBB...
\Device\HarddiskVolume1\Windows\System32\ntdll.dll	No	Signed	1	0x7ffd6ab70000	0x7ffd6ad1c000	EF24B1EDBF29D81FEB09F55...

The **Stack View** displays the following sections of information:

Field	Description
Events	Shows the same information as in the Event Viewer on page 134.
Stacks	A control toolbar that depicts the stacks that were collected in each step prior to the connection establishment requestor file access. A red dot means that a rule violation was observed in this stack. You can click the different stack names to see the collected stack data.

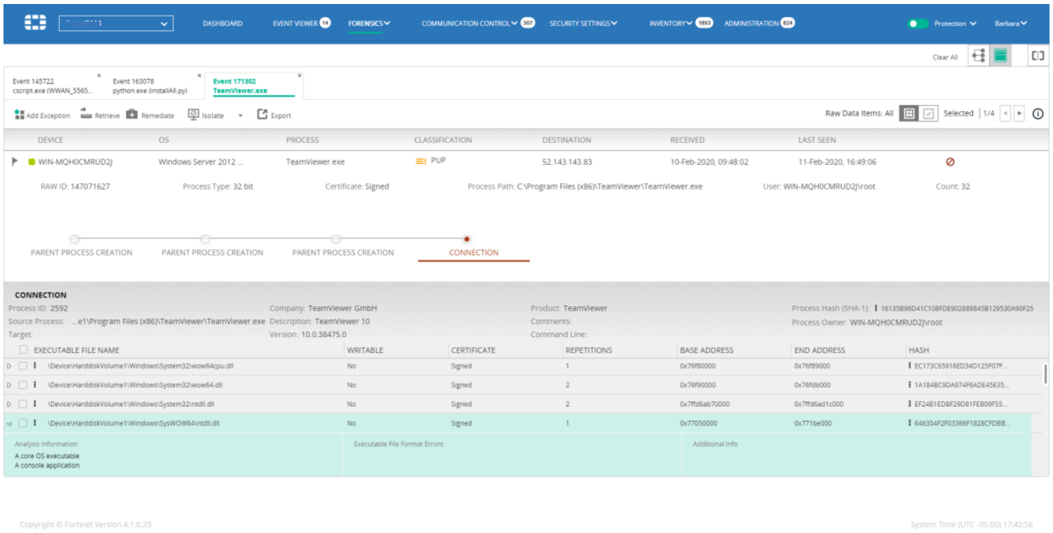
Field	Description
Stack Content Details	The bottom of the window displays each stack in the flow of the selected step. The stack entries represent the executable files that resided in the stack upon collecting the stack data. Click the stack node to filter the display to show that stack. The selected stack appears with a red line below it. Click the **Process Hash** link display a dropdown menu with the following options:  Process Hash (SHA-1): 9B4F388FEC4511CE3FA5BF855626C7C7B517... Process Owner: DESKT VirusTotal Threat Hunting Add to Blocklist HASH 9B4F388FEC451 7AC21 • **VirusTotal**: Checks whether this hash was seen elsewhere. This involves searching another external website (VirusTotal). Clicking the link runs the query in VirusTotal. Alternatively, you can go to www.virustotal.com, click the **Search** tab, paste the hash from FortiEDR and then click **Search It**. • **Threat Hunting**: Checks the activity events that are relevant to this hash. Clicking this option takes you to the Threat Hunting page. • **Add to Blocklist**: Adds this hash to the Application Control block list, as described in Application Control Manager on page 73. Clicking this option opens up the Add Application Window with this hash specified.

For each executable, you can see the following information:

- Executable File Name
- Writeable: Specifies whether the executable code can be modified.
- Certificate: Specifies whether or not the certificate was signed.
- Repetitions: Specifies how many times this executable was detected in the stack.
- Base Address of this entry in memory.
- End Address of this entry in memory.
- Hash: Specifies the file hash.

The row of the executable that triggered the FortiEDR security event is highlighted with a red dot ▷ ●. This indicates the row that you may want to investigate further.

You can click an executable row to display an even deeper level of information describing that process, as shown below:



Event 145722 cscript.exe (WWAN_5565... | Event 163078 python.exe (installAll.py) | Event 171302 TeamViewer.exe

Add Exception | Retrieve | Remediate | Isolate | Export — Raw Data Items: All | Selected | 1/4

DEVICE	OS	PROCESS	CLASSIFICATION	DESTINATION	RECEIVED	LAST SEEN
WIN-MQH0CMRUD2J	Windows Server 2012 ...	TeamViewer.exe	PUP	52.143.143.83	10-Feb-2020, 09:48:02	11-Feb-2020, 16:49:06

RAW ID: 147071627 Process Type: 32 bit Certificate: Signed Process Path: C:\Program Files (x86)\TeamViewer\TeamViewer.exe User: WIN-MQH0CMRUD2J\root Count: 32

PARENT PROCESS CREATION — PARENT PROCESS CREATION — PARENT PROCESS CREATION — CONNECTION

CONNECTION

Process ID: 2592
Source Process: ...e1\Program Files (x86)\TeamViewer\TeamViewer.exe
Target:
Company: TeamViewer GmbH
Description: TeamViewer 10
Version: 10.0.38475.0
Product: TeamViewer
Comments:
Command Line:
Process Hash (SHA-1): 16135B96D41C108FDE902889845B129530A90F25
Process Owner: WIN-MQH0CMRUD2J\root

EXECUTABLE FILE NAME	WRITABLE	CERTIFICATE	REPETITIONS	BASE ADDRESS	END ADDRESS	HASH
\Device\HarddiskVolume1\Windows\System32\wow64cpu.dll	No	Signed	1	0x76f80000	0x76f89000	EC173C65916ED34D125F07F...
\Device\HarddiskVolume1\Windows\System32\wow64.dll	No	Signed	2	0x76f90000	0x76fdb000	1A184BC9DA974F6ADE45E35...
\Device\HarddiskVolume1\Windows\System32\ntdll.dll	No	Signed	2	0x7ffd6ab70000	0x7ffd6ad1c000	EF24B1EDBF29D81FEB09F55...
\Device\HarddiskVolume1\Windows\SysWOW64\ntdll.dll	No	Signed	1	0x77050000	0x771be000	646304F2F03366F1828CFDBB...

Analysis Information
A core OS executable
A console application

Executable File Format Errors

Additional Info

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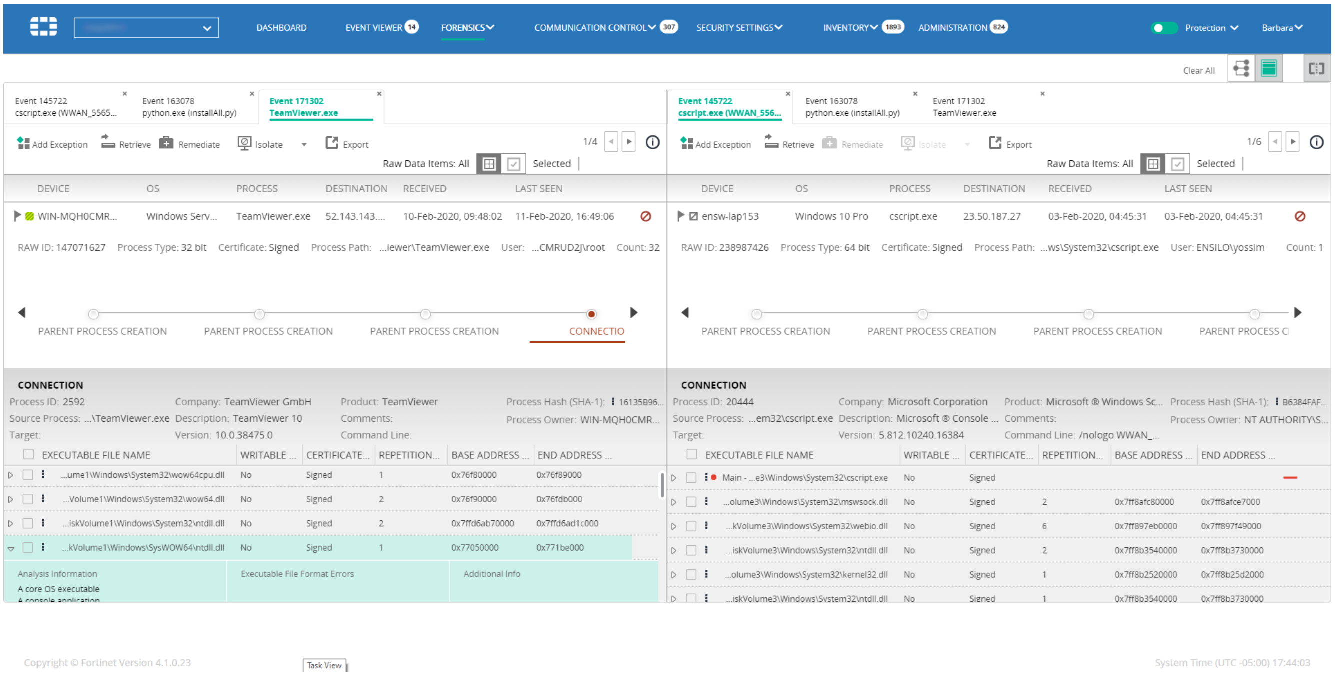
System Time (UTC -05:00) 17:42:56

Compare View



Event 145722 cscript.exe (WWAN_5565... | Event 163078 python.exe (installAll.py) | Event 171302 TeamViewer.exe

Add Exception | Retrieve | Remediate | Isolate | Export — 1/4 — Raw Data Items: All | Selected

DEVICE	OS	PROCESS	DESTINATION	RECEIVED	LAST SEEN
WIN-MQH0CMR...	Windows Serv...	TeamViewer.exe	52.143.143....	10-Feb-2020, 09:48:02	11-Feb-2020, 16:49:06

RAW ID: 147071627 Process Type: 32 bit Certificate: Signed Process Path: ...iewer\TeamViewer.exe User: ...CMRUD2J\root Count: 32

PARENT PROCESS CREATION — PARENT PROCESS CREATION — PARENT PROCESS CREATION — CONNECTIO

CONNECTION

Process ID: 2592
Source Process: ...\TeamViewer.exe
Target:
Company: TeamViewer GmbH
Description: TeamViewer 10
Version: 10.0.38475.0
Product: TeamViewer
Comments:
Command Line:
Process Hash (SHA-1): 16135B96...
Process Owner: WIN-MQH0CMR...

EXECUTABLE FILE NAME	WRITABLE ...	CERTIFICATE...	REPETITION...	BASE ADDRESS ...	END ADDRESS ...
...ume1\Windows\System32\wow64cpu.dll	No	Signed	1	0x76f80000	0x76f89000
...Volume1\Windows\System32\wow64.dll	No	Signed	2	0x76f90000	0x76fdb000
...iskVolume1\Windows\System32\ntdll.dll	No	Signed	2	0x7ffd6ab70000	0x7ffd6ad1c000
...kVolume1\Windows\SysWOW64\ntdll.dll	No	Signed	1	0x77050000	0x771be000

Analysis Information
A core OS executable
A console application

Executable File Format Errors

Additional Info

Event 145722 cscript.exe (WWAN_556... | Event 163078 python.exe (installAll.py) | Event 171302 TeamViewer.exe

Add Exception | Retrieve | Remediate | Isolate | Export — 1/6 — Raw Data Items: All | Selected

DEVICE	OS	PROCESS	DESTINATION	RECEIVED	LAST SEEN
ensw-lap153	Windows 10 Pro	cscript.exe	23.50.187.27	03-Feb-2020, 04:45:31	03-Feb-2020, 04:45:31

RAW ID: 238987426 Process Type: 64 bit Certificate: Signed Process Path: ...ws\System32\cscript.exe User: ENSILO\yossim Count: 1

PARENT PROCESS CREATION — PARENT PROCESS CREATION — PARENT PROCESS CREATION — PARENT PROCESS C

CONNECTION

Process ID: 20444
Source Process: ...em32\cscript.exe
Target:
Company: Microsoft Corporation
Description: Microsoft ® Console ...
Version: 5.812.10240.16384
Product: Microsoft ® Windows Sc...
Comments:
Command Line: /nologo WWAN_...
Process Hash (SHA-1): B6384FAF...
Process Owner: NT AUTHORITY\S...

EXECUTABLE FILE NAME	WRITABLE ...	CERTIFICATE...	REPETITION...	BASE ADDRESS ...	END ADDRESS ...
Main - ...e3\Windows\System32\cscript.exe	No	Signed			
...olume3\Windows\System32\mswsock.dll	No	Signed	2	0x7ff8afc80000	0x7ff8afce7000
...kVolume3\Windows\System32\webio.dll	No	Signed	6	0x7ff897eb0000	0x7ff897f49000
...iskVolume3\Windows\System32\ntdll.dll	No	Signed	2	0x7ff8b3540000	0x7ff8b3730000
...olume3\Windows\System32\kernel32.dll	No	Signed	1	0x7ff8b2520000	0x7ff8b25d2000
...iskVolume3\Windows\System32\ntdll.dll	No	Signed	1	0x7ff8b3540000	0x7ff8b3730000

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System Time (UTC -05:00) 17:44:03

The Compare View enables you to display two views side-by-side. They can both be either Flow Analyzer View on page 208or Stack View on page 209

Defining an Exception

After Forensic analysis, you may decide to create an exception for a specific security event. To do so, you may refer to the Defining Security Event Exceptions on page 147. You may refer to Playbook Policies on page 89 for general information about Exceptions.

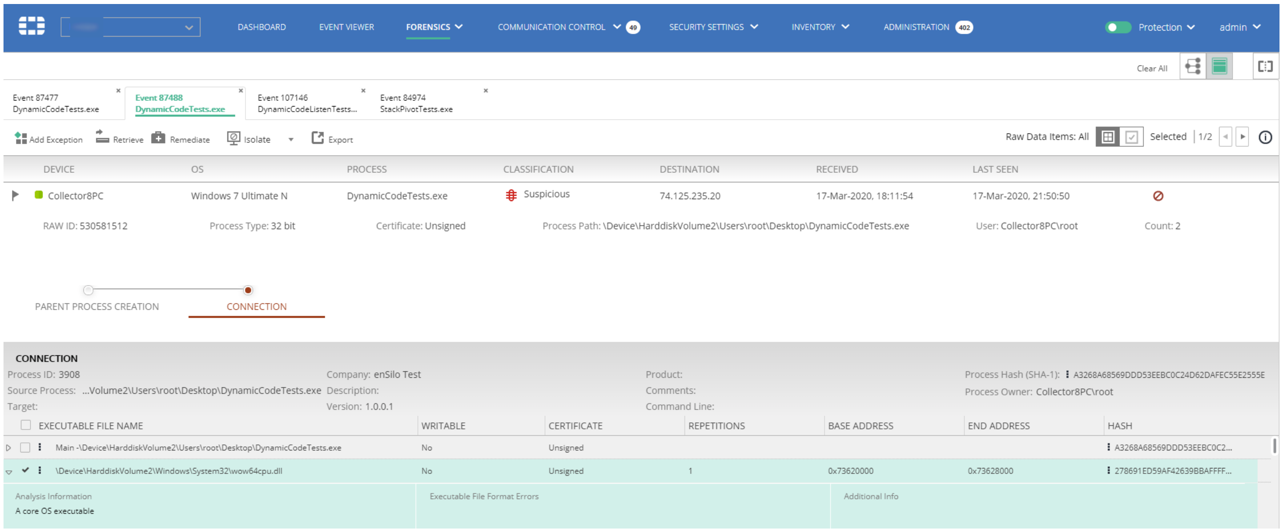
Remediating a Device Upon Malware Detection

After malware is detected on a device, you can use one of the following methods to remediate the situation in the FortiEDR system:

Method	Description
Terminate the Process	This method does not guarantee that the affected process will not attempt to execute again.
Delete the Affected File from the Computer	This method ensures that the file does not attempt to exfiltrate data again, as the file is permanently removed from the device. When using this method, be careful not to delete files that are important to the system, in order to protect system stability.
Remove or Modify the Registry Key	This method removes a registry key or updates a registry key's value. This method changes malicious registry key modifications by removing newly created keys or returning key values to their original form. **Note** – Some malware have persistency capabilities, which makes the infection appear again. In addition, in some rare cases, malware can cause the system to crash if you try to remove them. Both of these methods can be performed using the Forensics add-on.

To remediate a device on which malware was detected:

1. Select the security event(s) to analyze using one of the following methods described onEvent Viewer on page 134
2. In the Raw Events area, select the relevant process. Use the various forensic tools provided by FortiEDR to determine the process of interest.



DEVICE	OS	PROCESS	CLASSIFICATION	DESTINATION	RECEIVED	LAST SEEN
Collector8PC	Windows 7 Ultimate N	DynamicCodeTests.exe	Suspicious	74.125.235.20	17-Mar-2020, 18:11:54	17-Mar-2020, 21:50:50

RAW ID: 530581512 Process Type: 32 bit Certificate: Unsigned Process Path: \Device\HarddiskVolume2\Users\root\Desktop\DynamicCodeTests.exe User: Collector8PC\root Count: 2

CONNECTION

Process ID: 3908
Source Process: ...Volume2\Users\root\Desktop\DynamicCodeTests.exe
Target:
Company: enSilo Test
Description:
Version: 1.0.0.1
Product:
Comments:
Command Line:
Process Hash (SHA-1): A3268A68569DDD53EEBC0C24D62DAFEC55E2555E
Process Owner: Collector8PC\root

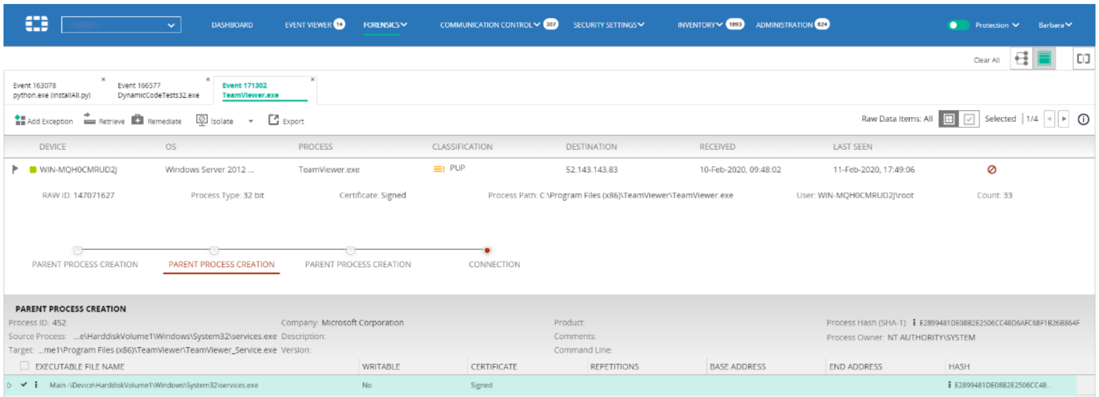
EXECUTABLE FILE NAME	WRITABLE	CERTIFICATE	REPETITIONS	BASE ADDRESS	END ADDRESS	HASH
Main -\Device\HarddiskVolume2\Users\root\Desktop\DynamicCodeTests.exe	No	Unsigned				A3268A68569DDD53EEBC0C2...
\Device\HarddiskVolume2\Windows\System32\wow64cpu.dll	No	Unsigned	1	0x73620000	0x73628000	278691ED59AF42639BBAFFFF...

Analysis Information
A core OS executable

Executable File Format Errors

Additional Info

After selecting the process of interest, the bottom pane of the window displays the list of files associated with that process.



DEVICE	OS	PROCESS	CLASSIFICATION	DESTINATION	RECEIVED	LAST SEEN
WIN-MQH0CMRUD2J	Windows Server 2012 ...	TeamViewer.exe	PUP	52.143.143.83	10-Feb-2020, 09:48:02	11-Feb-2020, 17:49:06

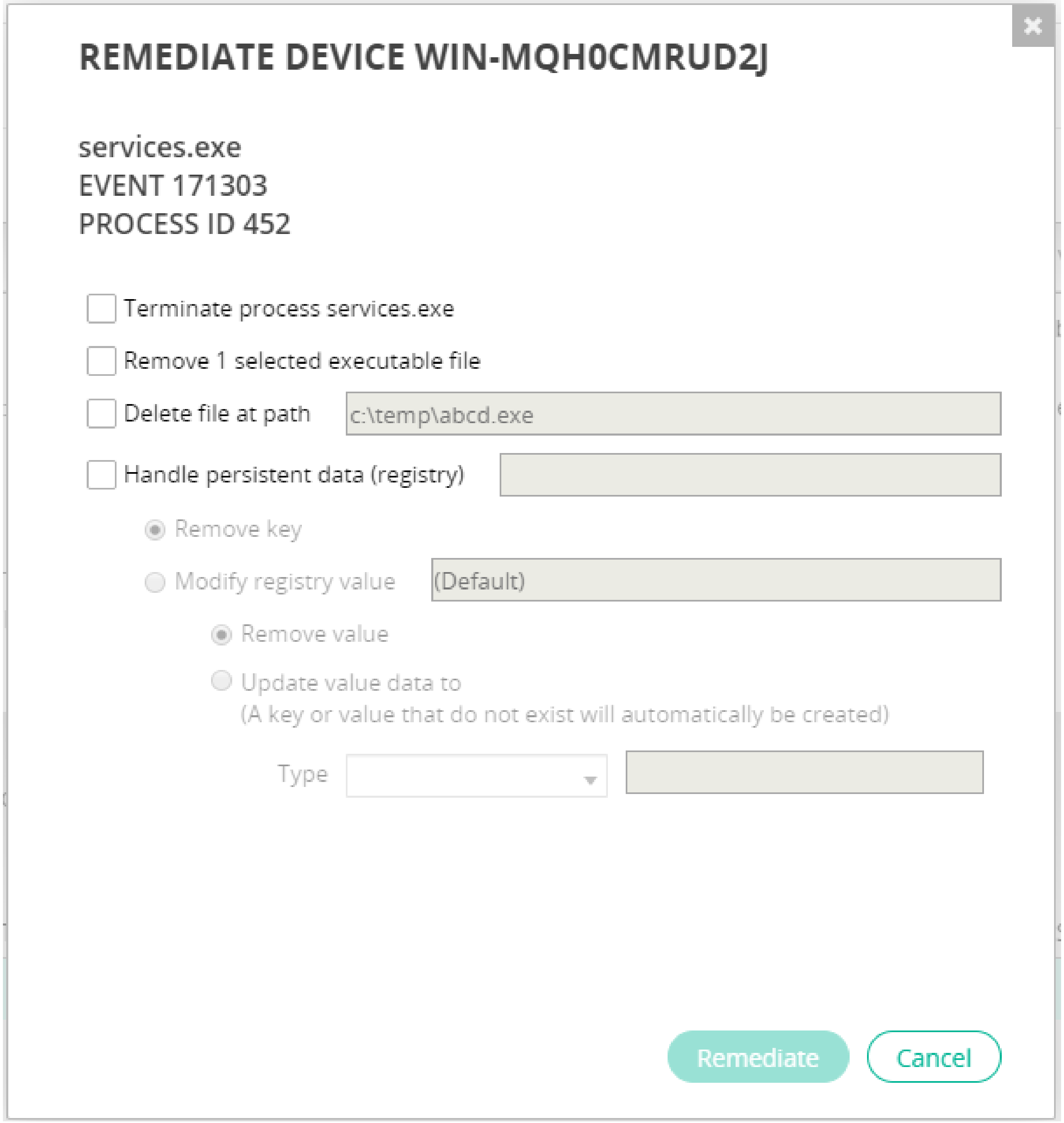
RAW ID: 147071627 Process Type: 32 bit Certificate: Signed Process Path: C:\Program Files (x86)\TeamViewer\TeamViewer.exe User: WIN-MQH0CMRUD2J\root Count: 33

PARENT PROCESS CREATION

Process ID: 452
Source Process: ...e\HarddiskVolume1\Windows\System32\services.exe
Target: ...me1\Program Files (x86)\TeamViewer\TeamViewer_Service.exe
Company: Microsoft Corporation
Description:
Version:
Product:
Comments:
Command Line:
Process Hash (SHA-1): E2899481DE08B2E2506CC48D6AFC68F1B26B864F
Process Owner: NT AUTHORITY\SYSTEM

EXECUTABLE FILE NAME	WRITABLE	CERTIFICATE	REPETITIONS	BASE ADDRESS	END ADDRESS	HASH
Main -\Device\HarddiskVolume1\Windows\System32\services.exe	No	Signed				E2899481DE08B2E2506CC48...

3. Check the checkbox of the relevant file and then click the Remediate button. The following window displays:



REMEDIATE DEVICE WIN-MQH0CMRUD2J

services.exe
EVENT 171303
PROCESS ID 452

□ Terminate process services.exe

□ Remove 1 selected executable file

□ Delete file at path c:\temp\abcd.exe

□ Handle persistent data (registry)

● Remove key

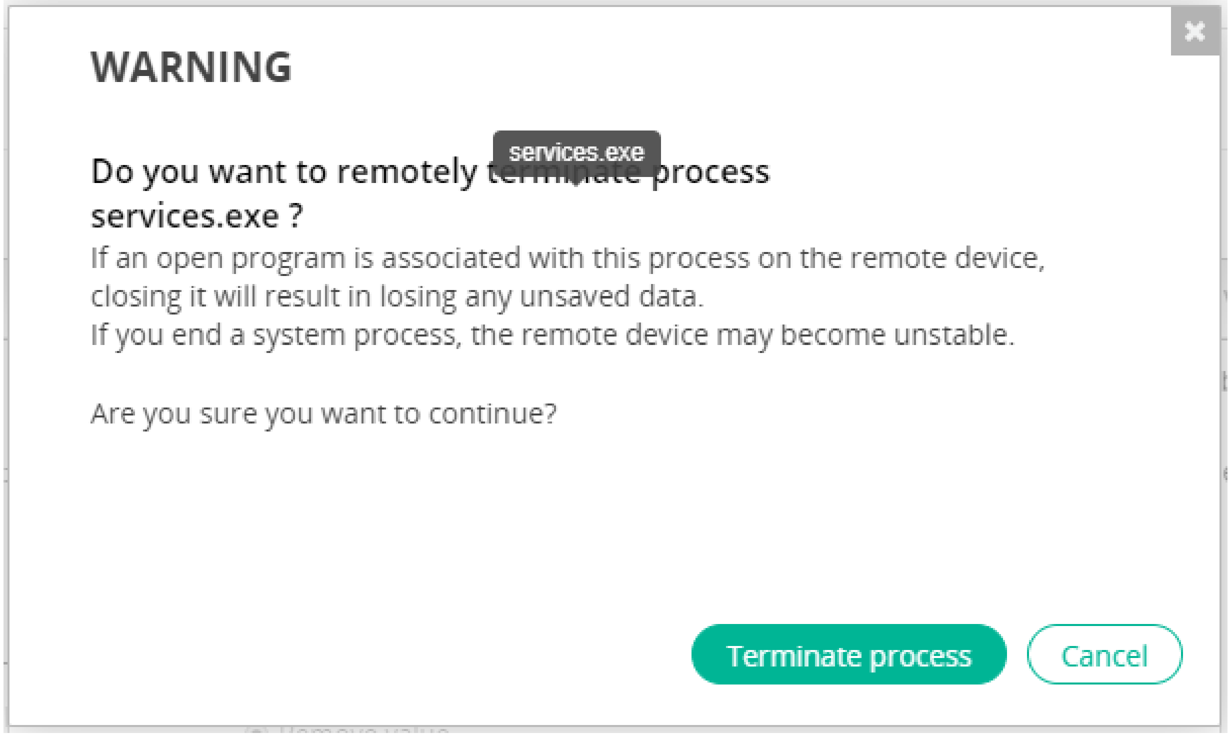
○ Modify registry value (Default)

● Remove value

○ Update value data to
(A key or value that do not exist will automatically be created)

Type

4. Do one of the following:
   a. Check the Terminate process checkbox to terminate the selected process. A warning message displays.



WARNING

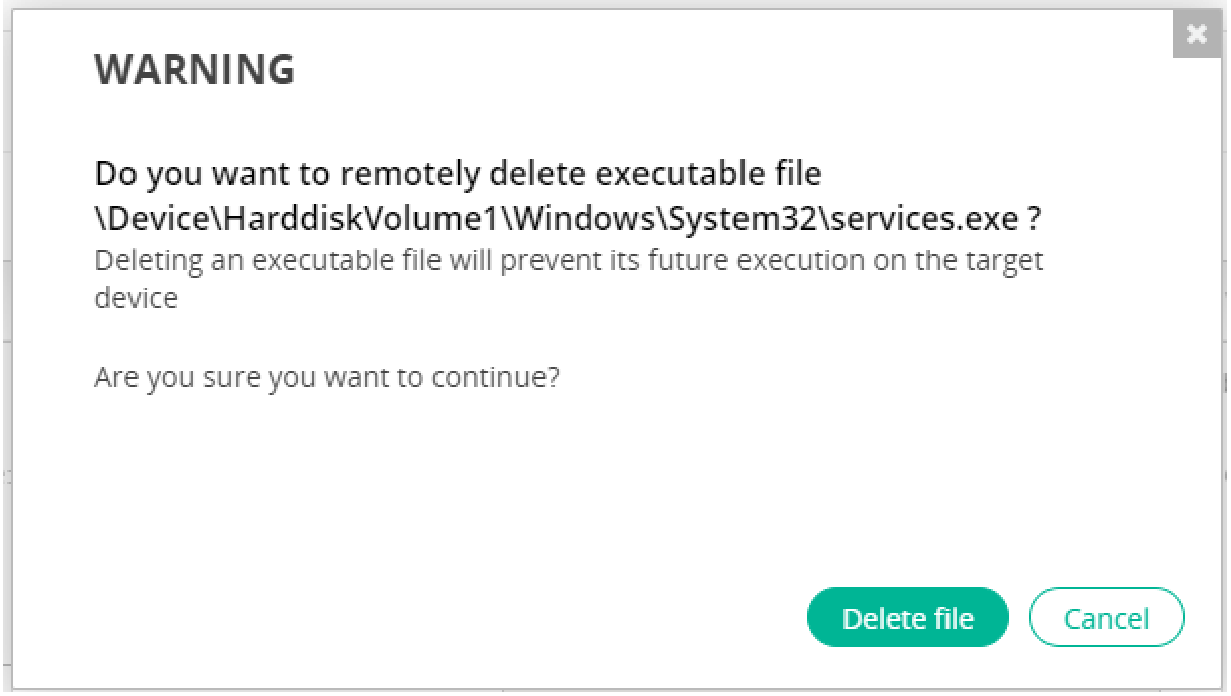
Do you want to remotely terminate process services.exe ?

If an open program is associated with this process on the remote device, closing it will result in losing any unsaved data.
If you end a system process, the remote device may become unstable.

Are you sure you want to continue?

Click **Terminate process** to terminate the selected process.

   b. Check the **Remove selected executable file** checkbox to delete the specified file from the device. A warning message displays.



WARNING

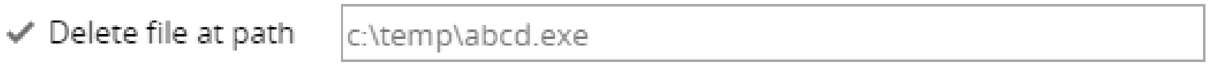
Do you want to remotely delete executable file \Device\HarddiskVolume1\Windows\System32\services.exe ?

Deleting an executable file will prevent its future execution on the target device

Are you sure you want to continue?

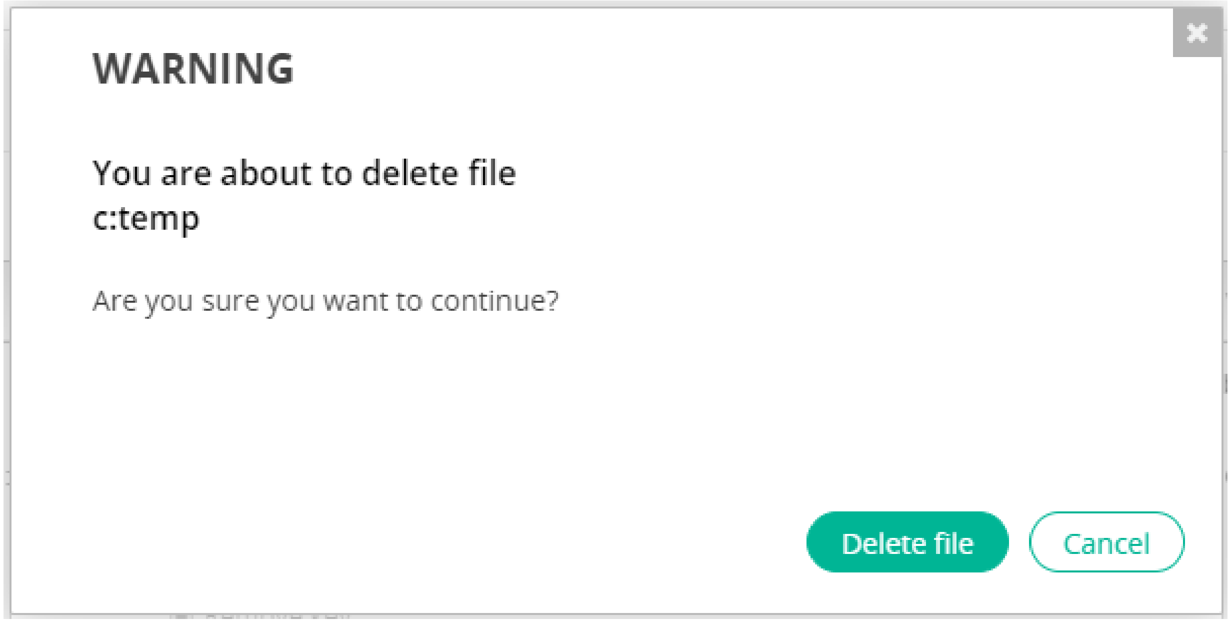
Click **Delete file** to remove the selected file.

c. Check the **Delete file at path** checkbox. In the adjacent field, enter the file path on the device that contains the file to be removed.



✓ Delete file at path c:\temp\abcd.exe

A warning message displays.



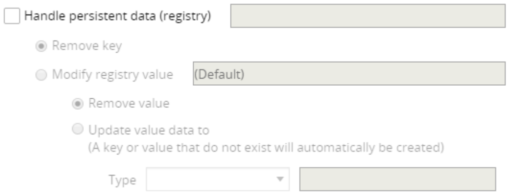
WARNING

You are about to delete file
c:temp

Are you sure you want to continue?

Click **Delete file** to remove the file from the specified path.

d. Check the **Handle persistent data (registry)** checkbox to clean the registry keys in Windows. In the adjacent field, enter the value of the registry key to be removed or modified.



□ Handle persistent data (registry)

● Remove key

○ Modify registry value (Default)

● Remove value

○ Update value data to
(A key or value that do not exist will automatically be created)

Type

Value data should be provided in the required format, based on the value type selected in the dropdown list, as follows:

- **String** for types REG_SZ(1), REG_EXPAND_SZ(2), REG_DWORD(4) and REG_QWORD(11).
- **Base64** for types REG_BINARY(3), REG_DWORD_BIG_ENDIAN(5), REG_LINK(6), REG_MULTI_SZ (7), REG_RESOURCE_LIST(8), REG_FULL_RESOURCE_DESCRIPTOR(9) and REG_RESOURCE_REQUIREMENTS_LIST(10).

Select the Remove key radio button to remove the registry key value.

Select the Modify registry value radio button to change the current registry key value. When selecting this option, you must also specify the new value for the registry key in the gray box and the key's value type in the adjacent dropdown menu (for example, string, binary and so on).

5. Click the **Remediate** button.

Retrieving Memory

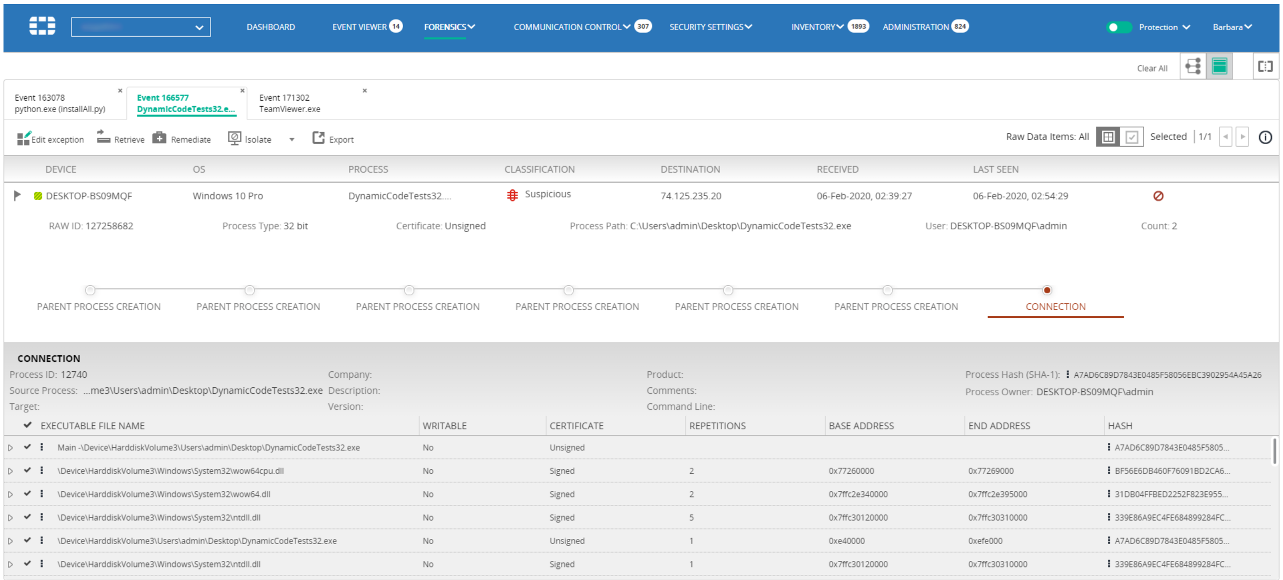
The **Retrieve Memory** function enables you to retrieve the stack-memory of a specific Collector. This option enables you to retrieve memory from a specific communicating device in order to perform deeper analysis by analyzing the actual memory from the device. This function is only accessible from the Stack View.

Memory is fetched by the Collector in binary (*.bin) format, compressed, encrypted and then sent to the user's local machine. The returned file is password-protected. The password is **enCrypted**.

If the file cannot be sent, it is saved locally on the host by the Collector.

To retrieve memory for a Collector:

1. In the Stack View, select the stack(s) that you want to analyze by selecting its checkbox(es).



DEVICE	OS	PROCESS	CLASSIFICATION	DESTINATION	RECEIVED	LAST SEEN
DESKTOP-BS09MQF	Windows 10 Pro	DynamicCodeTests32....	Suspicious	74.125.235.20	06-Feb-2020, 02:39:27	06-Feb-2020, 02:54:29

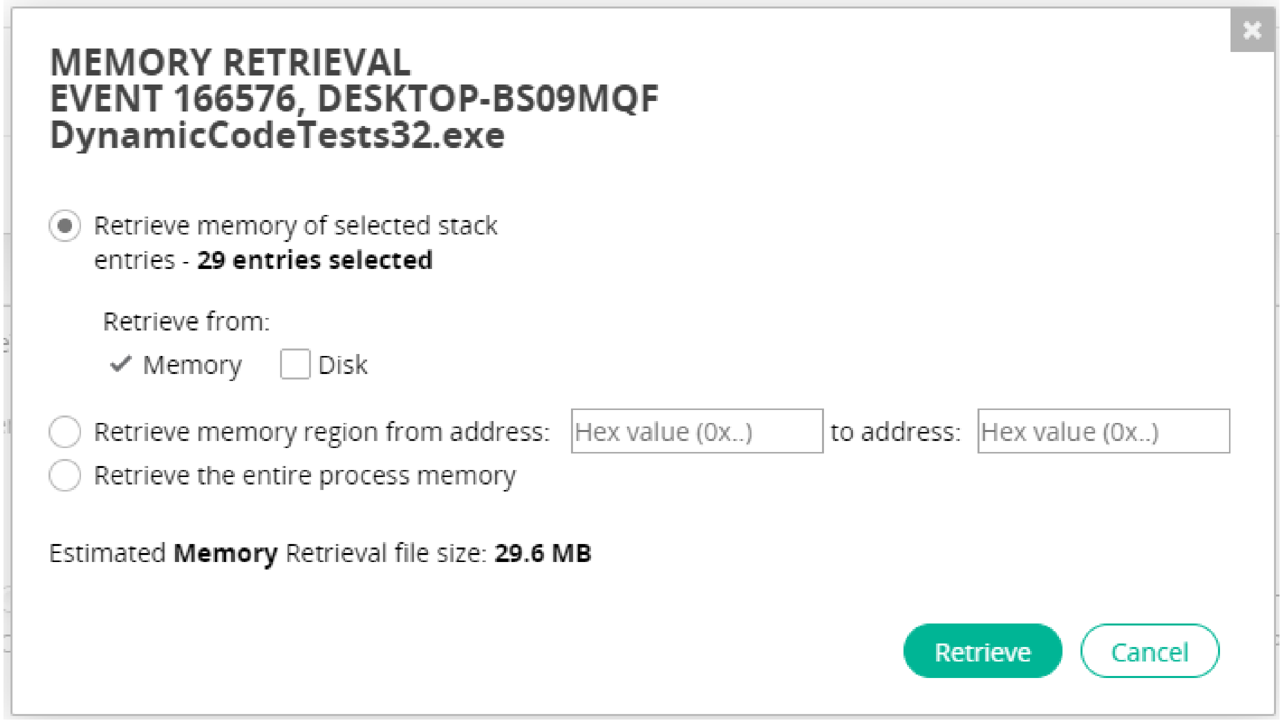
RAW ID: 127258682 Process Type: 32 bit Certificate: Unsigned Process Path: C:\Users\admin\Desktop\DynamicCodeTests32.exe User: DESKTOP-BS09MQF\admin Count: 2

CONNECTION

Process ID: 12740
Source Process: ...me3\Users\admin\Desktop\DynamicCodeTests32.exe
Target:
Company:
Description:
Version:
Product:
Comments:
Command Line:
Process Hash (SHA-1): A7AD6C89D7843E0485F58056EBC3902954A45A26
Process Owner: DESKTOP-BS09MQF\admin

✓ EXECUTABLE FILE NAME	WRITABLE	CERTIFICATE	REPETITIONS	BASE ADDRESS	END ADDRESS	HASH
✓ Main -\Device\HarddiskVolume3\Users\admin\Desktop\DynamicCodeTests32.exe	No	Unsigned				A7AD6C89D7843E0485F5805...
✓ \Device\HarddiskVolume3\Windows\System32\wow64cpu.dll	No	Signed	2	0x77260000	0x77269000	BF56E6DB460F76091BD2CA6...
✓ \Device\HarddiskVolume3\Windows\System32\wow64.dll	No	Signed	2	0x7ffc2e340000	0x7ffc2e395000	31DB04FFBED2252F823E955...
✓ \Device\HarddiskVolume3\Windows\System32\ntdll.dll	No	Signed	5	0x7ffc30120000	0x7ffc30310000	339E86A9EC4FE684899284FC...
✓ \Device\HarddiskVolume3\Users\admin\Desktop\DynamicCodeTests32.exe	No	Unsigned	1	0xe40000	0xefe000	A7AD6C89D7843E0485F5805...
✓ \Device\HarddiskVolume3\Windows\System32\ntdll.dll	No	Signed	1	0x7ffc30120000	0x7ffc30310000	339E86A9EC4FE684899284FC...

2. Click the Retrieve button. The following window displays:



MEMORY RETRIEVAL
EVENT 166576, DESKTOP-BS09MQF
DynamicCodeTests32.exe

● Retrieve memory of selected stack entries - **29 entries selected**

Retrieve from:

✓ Memory □ Disk

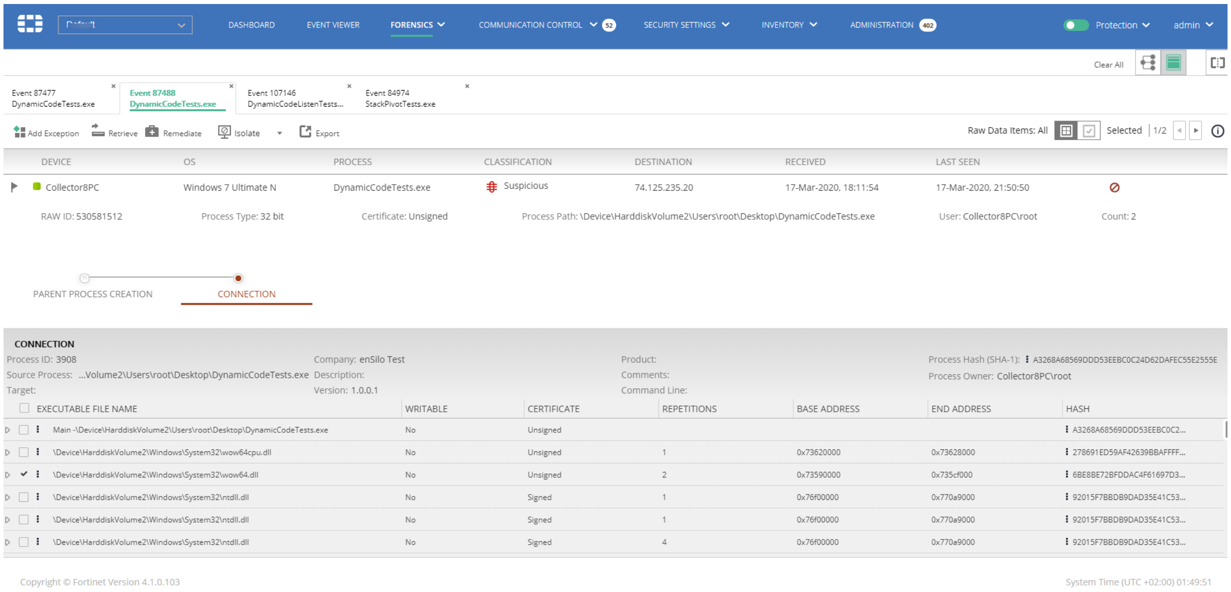
○ Retrieve memory region from address: Hex value (0x..) to address: Hex value (0x..)

○ Retrieve the entire process memory

Estimated **Memory** Retrieval file size: **29.6 MB**

3. Select one of the following options:

   a. **Retrieve memory of selected stack entries**: Select this radio button to retrieve memory for one or more specific stack entries. Then, select the stack entries you want to analyze by checking their checkboxes, as shown below:



DEVICE	OS	PROCESS	CLASSIFICATION	DESTINATION	RECEIVED	LAST SEEN
Collector8PC	Windows 7 Ultimate N	DynamicCodeTests.exe	Suspicious	74.125.235.20	17-Mar-2020, 18:11:54	17-Mar-2020, 21:50:50

RAW ID: 530581512 Process Type: 32 bit Certificate: Unsigned Process Path: \Device\HarddiskVolume2\Users\root\Desktop\DynamicCodeTests.exe User: Collector8PC\root Count: 2

CONNECTION
Process ID: 3908
Source Process: ...Volume2\Users\root\Desktop\DynamicCodeTests.exe
Target:
Company: enSilo Test
Description:
Version: 1.0.0.1
Product:
Comments:
Command Line:
Process Hash (SHA-1): A3268A68569DDD53EEBC0C24D62DAFEC55E2555E
Process Owner: Collector8PC\root

	EXECUTABLE FILE NAME	WRITABLE	CERTIFICATE	REPETITIONS	BASE ADDRESS	END ADDRESS	HASH
□	Main -\Device\HarddiskVolume2\Users\root\Desktop\DynamicCodeTests.exe	No	Unsigned				A3268A68569DDD53EEBC0C2...
□	\Device\HarddiskVolume2\Windows\System32\wow64cpu.dll	No	Unsigned	1	0x73620000	0x73628000	278691ED59AF42639BBAFFFF...
✓	\Device\HarddiskVolume2\Windows\System32\wow64.dll	No	Unsigned	2	0x73590000	0x735cf000	6BE8BE72BFDDAC4F61697D3...
□	\Device\HarddiskVolume2\Windows\System32\ntdll.dll	No	Signed	1	0x76f00000	0x770a9000	92015F7BBDB9DAD35E41C53...
□	\Device\HarddiskVolume2\Windows\System32\ntdll.dll	No	Signed	1	0x76f00000	0x770a9000	92015F7BBDB9DAD35E41C53...
□	\Device\HarddiskVolume2\Windows\System32\ntdll.dll	No	Signed	4	0x76f00000	0x770a9000	92015F7BBDB9DAD35E41C53...

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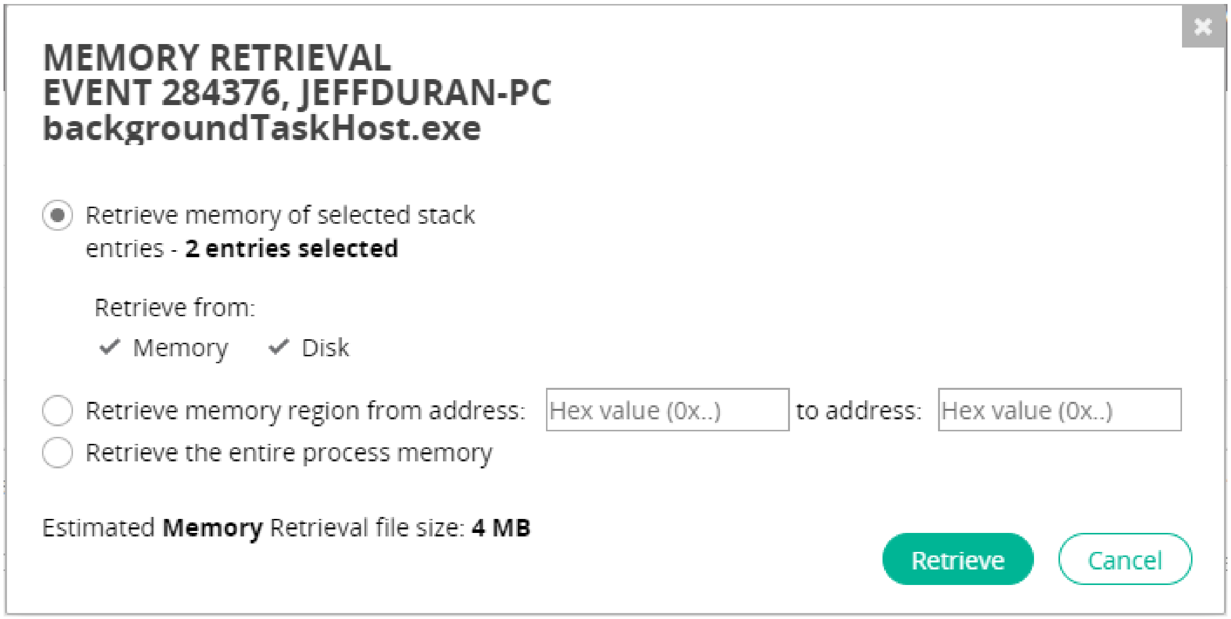
System Time (UTC +02:00) 01:49:51

You must also specify whether to retrieve the memory from **Memory, Disk** or both by selecting the respective checkbox. The **Memory** option is the default. You can select either option or both options. It is important to remember that the retrievable data may be different in the memory and on disk. In addition, the stack entry may no longer reside in memory, for example, if the system was rebooted.

After you make your selection, the window indicates how many stack entries were selected, as shown below. For example, the figure below shows that three stack entries were selected for analysis.



MEMORY RETRIEVAL
EVENT 284376, JEFFDURAN-PC
backgroundTaskHost.exe

● Retrieve memory of selected stack entries - **2 entries selected**

Retrieve from:

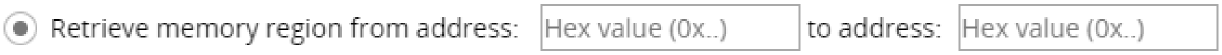
✓ Memory ✓ Disk

○ Retrieve memory region from address: Hex value (0x..) to address: Hex value (0x..)

○ Retrieve the entire process memory

Estimated **Memory** Retrieval file size: **4 MB**

b. **Retrieve memory region from address**: Select this option to retrieve memory from a specific memory region. Specify the **To** and **From** addresses for the region in the adjacent fields.



● Retrieve memory region from address: Hex value (0x..) to address: Hex value (0x..)

c. **Retrieve the entire process memory**: Select this option to retrieve memory for an entire process. This option retrieves all the stack entries comprising the process.

4. Click the **Retrieve** button.

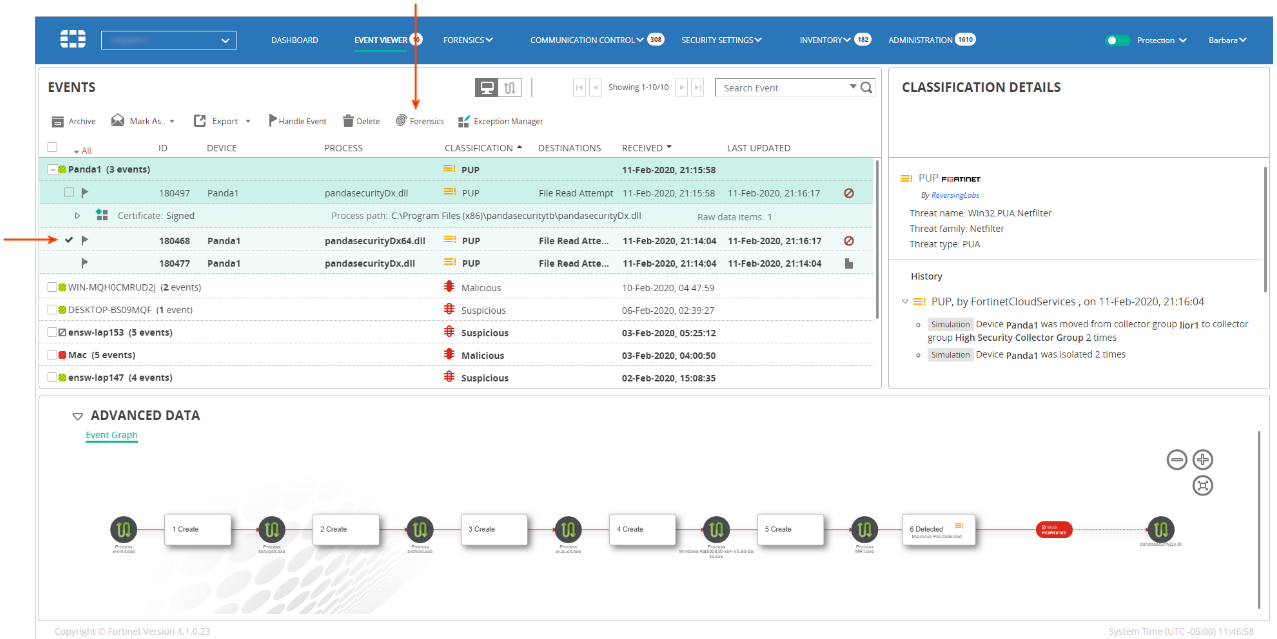
Isolating a Device

An isolated device is one that is blocked from communicating with the outside world (for both sending and receiving). For more details about device isolation, see Investigation on page 93.

Note – Isolation mode takes effect upon any attempt to establish a network session after isolation mode has been initiated. Connections that were established before device isolation was initiated remain intact. The same applies for Communication Control denial configuration changes. Note that both Isolation mode and Communication Control denial do not apply on incoming RDP connections and ICMP connections.

To isolate a device using the FortiEDR Collector:

1. In the **EVENT VIEWER** tab, select the checkbox(es) of the security event(s) that you want to isolate, and then click the **Forensics** button, as shown below:



EVENTS

All	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED
Panda1 (3 events)				PUP		11-Feb-2020, 21:15:58	
	180497	Panda1	pandasecurityDx.dll	PUP	File Read Attempt	11-Feb-2020, 21:15:58	11-Feb-2020, 21:16:17
Certificate: Signed			Process path: C:\Program Files (x86)\pandasecuritytb\pandasecurityDx.dll			Raw data items: 1	
✓	180468	Panda1	pandasecurityDx64.dll	PUP	File Read Atte...	11-Feb-2020, 21:14:04	11-Feb-2020, 21:16:17
	180477	Panda1	pandasecurityDx.dll	PUP	File Read Atte...	11-Feb-2020, 21:14:04	11-Feb-2020, 21:14:04
WIN-MQH0CMRUD2J (2 events)				Malicious		10-Feb-2020, 04:47:59	
DESKTOP-BS09MQF (1 event)				Suspicious		06-Feb-2020, 02:39:27	
ensw-lap153 (5 events)				Suspicious		03-Feb-2020, 05:25:12	
Mac (5 events)				Malicious		03-Feb-2020, 04:00:50	
ensw-lap147 (4 events)				Suspicious		02-Feb-2020, 15:08:35	

CLASSIFICATION DETAILS

PUP FORTINET

By ReversingLabs

Threat name: Win32.PUA.Netfilter

Threat family: Netfilter

Threat type: PUA

History

PUP, by FortinetCloudServices , on 11-Feb-2020, 21:16:04

- Simulation Device **Panda1** was moved from collector group **lior1** to collector group **High Security Collector Group** 2 times
- Simulation Device **Panda1** was isolated 2 times

ADVANCED DATA

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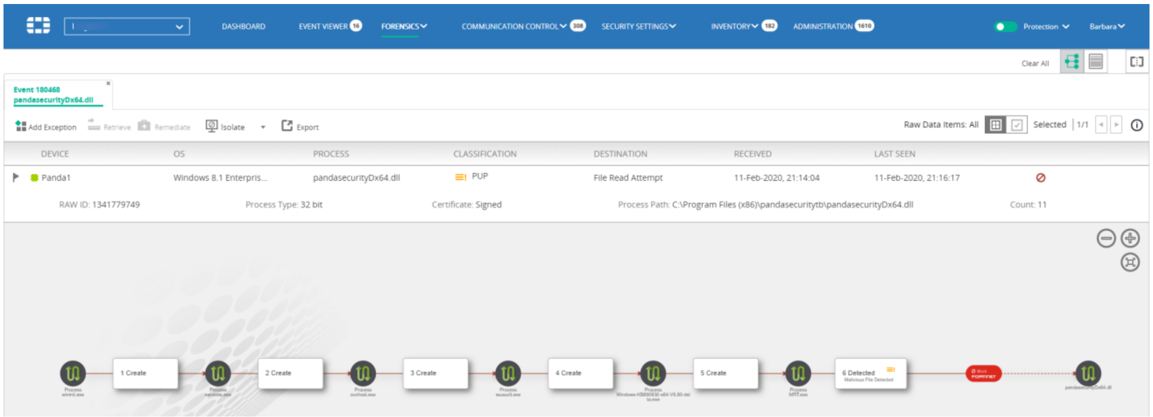
System Time (UTC -05:00) 11:46:58

The following window displays:



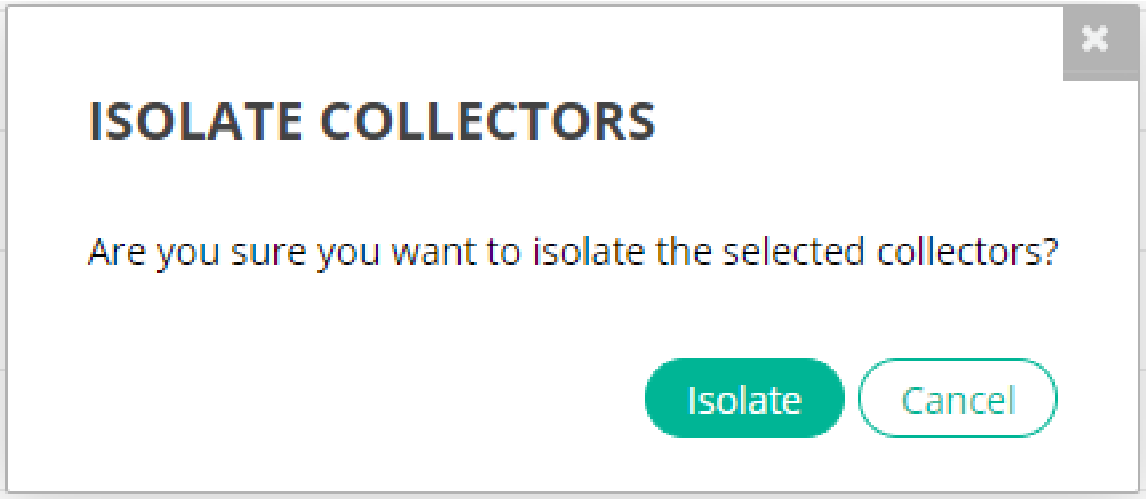
Event 180468
pandasecurityDx64.dll

Raw Data Items: All   Selected 1/1

DEVICE	OS	PROCESS	CLASSIFICATION	DESTINATION	RECEIVED	LAST SEEN
Panda1	Windows 8.1 Enterpris...	pandasecurityDx64.dll	PUP	File Read Attempt	11-Feb-2020, 21:14:04	11-Feb-2020, 21:16:17

RAW ID: 1341779749   Process Type: 32 bit   Certificate: Signed   Process Path: C:\Program Files (x86)\pandasecuritytb\pandasecurityDx64.dll   Count: 11

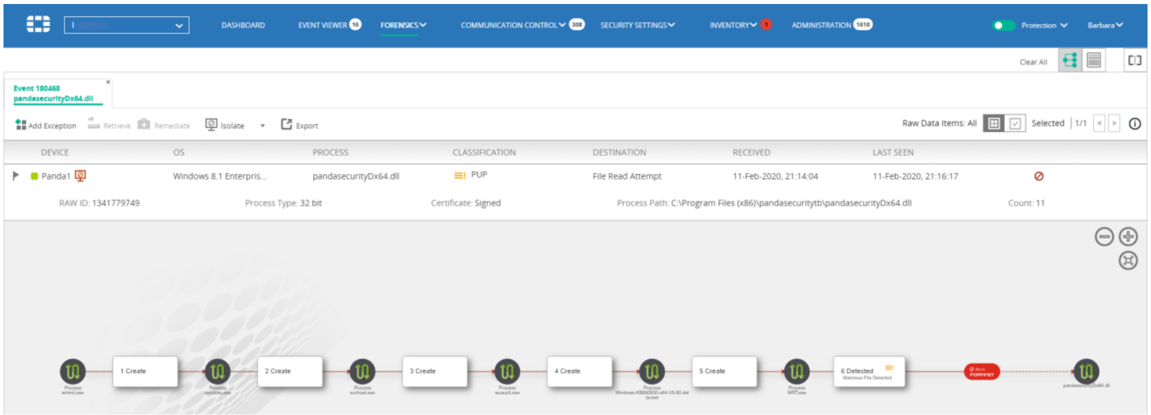
2. In the **Events** tab, click the security event that you want to isolate, click the Isolate ▾ button dropdown arrow and then select **Isolate.** The following window displays:



ISOLATE COLLECTORS

Are you sure you want to isolate the selected collectors?

3. Click the **Isolate** button. A red icon appears next to the relevant security event in the **Events** tab to indicate that the applicable Collector has been isolated, as shown below:

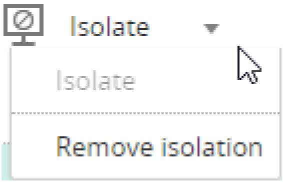


DEVICE	OS	PROCESS	CLASSIFICATION	DESTINATION	RECEIVED	LAST SEEN
Panda1	Windows 8.1 Enterpris...	pandasecurityDx64.dll	PUP	File Read Attempt	11-Feb-2020, 21:14:04	11-Feb-2020, 21:16:17

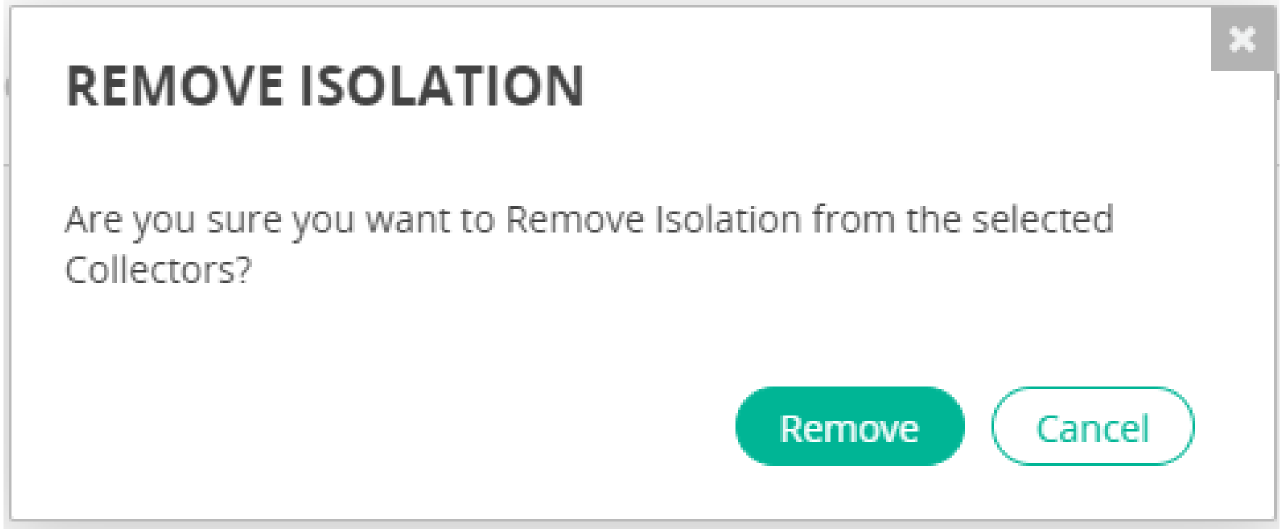
RAW ID: 1341779749 Process Type: 32 bit Certificate: Signed Process Path: C:\Program Files (x86)\pandasecuritytb\pandasecurityDx64.dll Count: 11

To remove isolation from a device:

1. In the **FORENSICS** tab, select the checkbox of the security event whose isolation you want to remove.
2. Click the down arrow on the Isolate ▾ button and select **Remove isolation**, as shown below.



The following window displays:



REMOVE ISOLATION

Are you sure you want to Remove Isolation from the selected Collectors?

3. Click the **Remove** button.

Threat Hunting

FortiEDR's Threat Hunting feature enables you to search for many types of Indicators of Compromise (IOCs) and malware across your entire environment in order to enable enhanced detection. Searching can be based on various attributes of files, registry keys and values, network, processes, event log and activity event types. Search operations apply to both Windows and Linux operating system activity.

Two versions of FortiEDR's Threat Hunting feature are supported:

- Threat Hunting on page 222
- Legacy Threat Hunting on page 249

Note – Threat Hunting is a license-dependent add-on. You may contact Fortinet Support for more information.

Threat Hunting

Threat Hunting significantly expands and enhances the capabilities of the Legacy Threat Hunting feature, which is described in Legacy Threat Hunting on page 249. In addition to searching for activities based on a security event's process or HASH, you can also search for these activities based on a variety of activity types (such as Process Creation, File Deletion, Registry Value change, Socket Connect and so on), as well as by Process/File/Registry/Network or Event Log criteria.

Threat Hunting is ideal in situations where you have identified malware on one endpoint and want to search throughout your organization to determine whether this same malware exists on another endpoint, even though it may not be currently running (stealth mode) or in situations where you would like to hunt for the existence of a specific IoC within your organization.

Note – This Threat Hunting page automatically becomes the only option available after all Collectors are V5.0 or above.

Threat Hunting utilizes **activity events**, which specify an action taken by an entity. Each type of entity may be involved in a variety of types of actions. An activity event consists of a **source** (usually a process), an **action** (the activity event type) and a **target** (Process, file, Registry key/value, network item(, where the source performs the designated action on the target.

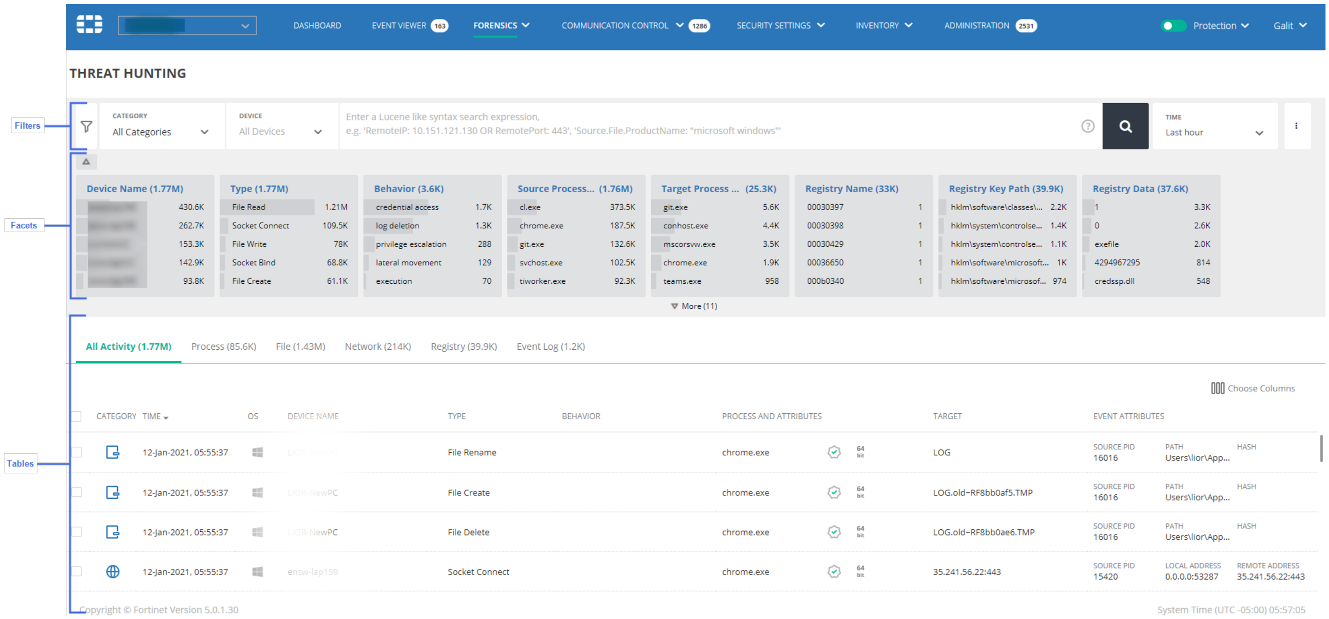
For example, when a process runs, it can perform various actions on files, such as File Open, File Read, File Delete and so on. In this case, the process is the source, and it performs an action such as File Open on a target File.

Note – Activity events are not the same as the security events identified in the Event Viewer. Unlike Event Viewer security events, which are only reported in the Event Viewer as they occur and are detected, activity events are continuously collected based on a wealth of data, activity and actions occurring in your system and the chosen Threat Hunting Profile. You may refer to Threat Hunting on page 80 for more information.

FortiEDR categorizes the various actions that can be performed into the following categories:

Action	Description
Registry Key Actions	All targets are either registry keys or registry values and all actions are registry-related, such as Key Created, Key Deleted, Value Set and so on.
File Actions	All targets identify the target file on which the action was performed and all actions are file-related, such as File Create, File Delete, File Rename and so on.
Process Actions	The target is another process and all actions are process related, such as Process Termination, Process Creation, Executable Loaded and so on.
Network Actions	The target is a network item (such as connection or URL) and all actions are Network related, such as Socket Connect, Socket Close and Socket Bind.
Event Log Actions	The only action is Log Entry Created and relates to the logs of the operating system - Windows and Linux.

Access the **Threat Hunting** page under the **Forensics** tab by selecting the **Threat Hunting** option under the **Forensics** tab. The following page displays:



THREAT HUNTING

CATEGORY: All Categories
DEVICE: All Devices
Enter a Lucene like syntax search expression,
e.g. 'RemoteIP: 10.151.121.130 OR RemotePort: 443', 'Source.File.ProductName: "microsoft windows"'
TIME: Last hour

Device Name (1.77M)		Type (1.77M)		Behavior (3.6K)		Source Process... (1.76M)		Target Process ... (25.3K)		Registry Name (33K)		Registry Key Path (39.9K)		Registry Data (37.6K)	
[redacted]	430.6K	File Read	1.21M	credential access	1.7K	cl.exe	373.5K	git.exe	5.6K	00030397	1	hklm\software\classes\...	2.2K	1	3.3K
[redacted]	262.7K	Socket Connect	109.5K	log deletion	1.3K	chrome.exe	187.5K	conhost.exe	4.4K	00030398	1	hklm\system\controlse...	1.4K	0	2.6K
[redacted]	153.3K	File Write	78K	privilege escalation	288	git.exe	132.6K	mscorsvw.exe	3.5K	00030429	1	hklm\system\controlse...	1.1K	exefile	2.0K
[redacted]	142.9K	Socket Bind	68.8K	lateral movement	129	svchost.exe	102.5K	chrome.exe	1.9K	00036650	1	hklm\software\microsoft...	1K	4294967295	814
[redacted]	93.8K	File Create	61.1K	execution	70	tiworker.exe	92.3K	teams.exe	958	000b0340	1	hklm\software\microsof...	974	credssp.dll	548

All Activity (1.77M) Process (85.6K) File (1.43M) Network (214K) Registry (39.9K) Event Log (1.2K)

CATEGORY	TIME	OS	DEVICE NAME	TYPE	BEHAVIOR	PROCESS AND ATTRIBUTES	TARGET	EVENT ATTRIBUTES
	12-Jan-2021, 05:55:37		[redacted]	File Rename		chrome.exe 64 bit	LOG	SOURCE PID 16016 PATH Users\lior\App... HASH
	12-Jan-2021, 05:55:37		LIOR-NewPC	File Create		chrome.exe 64 bit	LOG.old~RF8bb0af5.TMP	SOURCE PID 16016 PATH Users\lior\App... HASH
	12-Jan-2021, 05:55:37		LIOR-NewPC	File Delete		chrome.exe 64 bit	LOG.old~RF8bb0ae6.TMP	SOURCE PID 16016 PATH Users\lior\App... HASH
	12-Jan-2021, 05:55:37		ensw-lap159	Socket Connect		chrome.exe 64 bit	35.241.56.22:443	SOURCE PID 15420 LOCAL ADDRESS 0.0.0.0:53287 REMOTE ADDRESS 35.241.56.22:443

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System Time (UTC -05:00) 05:57:05

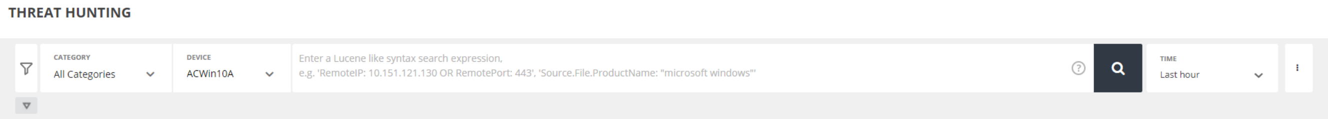
The Threat Hunting page contains the following areas:

- Filters on page 224
- Facets on page 233

- Activity Events Tables on page 236
- Details Pane on page 240

Filters

The Filters area enables you to define a query that filters the activity events to display in the result tables. It comprises the following filters:



THREAT HUNTING

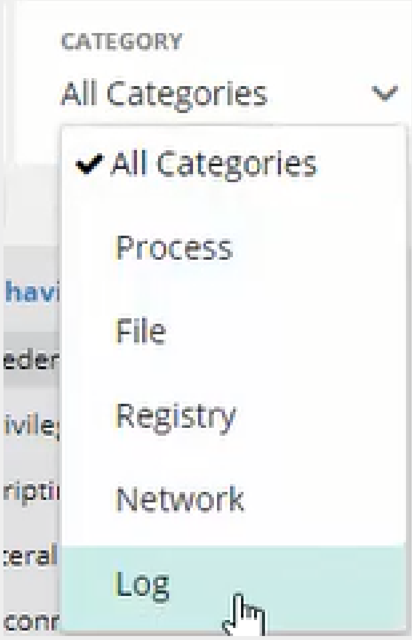
CATEGORY: All Categories

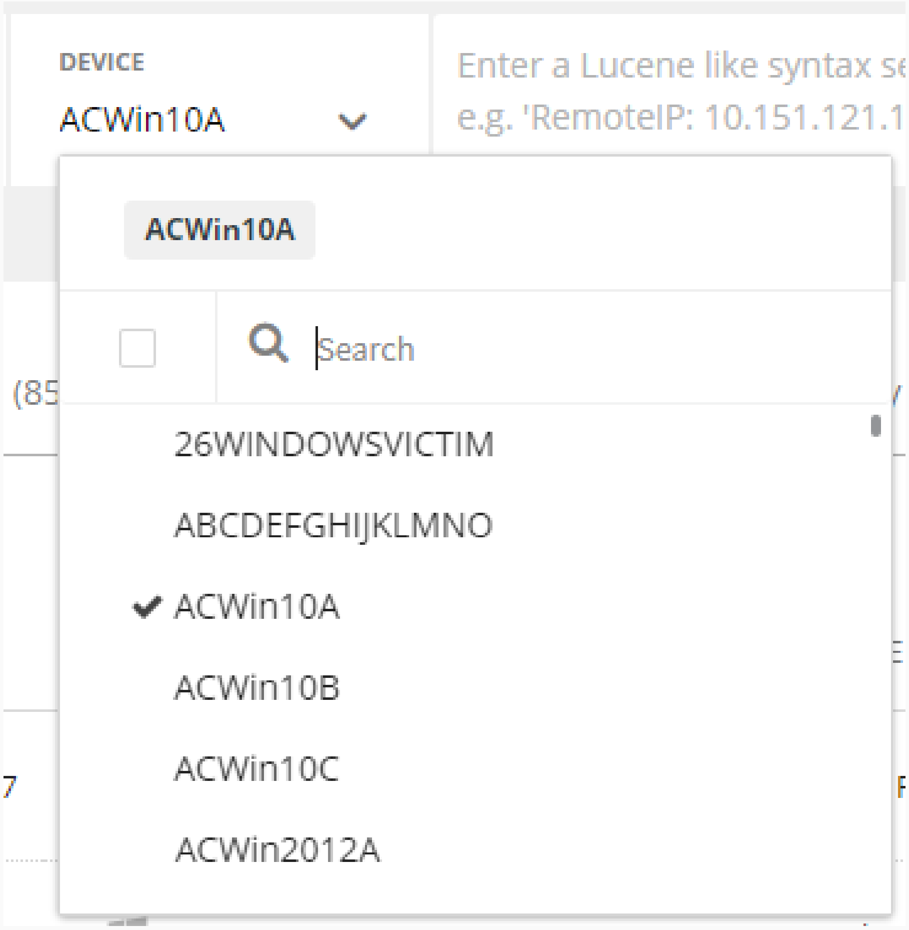
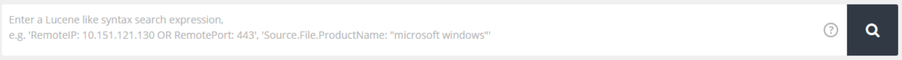
DEVICE: ACWin10A

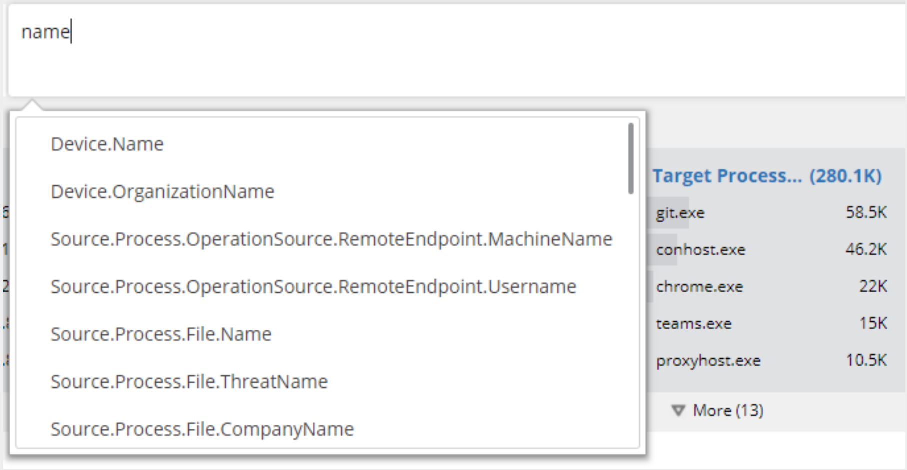
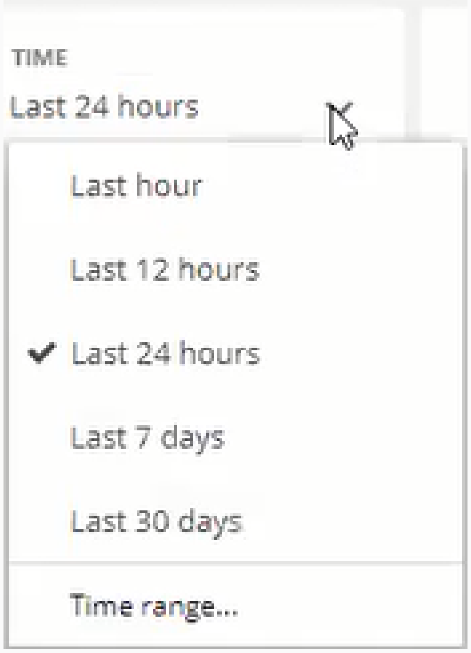
Enter a Lucene like syntax search expression,
e.g. 'RemoteIP: 10.151.121.130 OR RemotePort: 443', 'Source.File.ProductName: "microsoft windows"'

TIME: Last hour

Note – This area also enables you to save queries and to redisplay saved queries, as described in Saving Queries and Saved Queries on page 226.

Filter	Description
Category Filter	The Category filter enables you to filter the activity events by their Category.  CATEGORY All Categories ✓ All Categories Process File Registry Network Log
Device Filter	The Device filter enables you to filter by a specific device[s].

Filter	Description
	 DEVICE ACWin10A Enter a Lucene like syntax se e.g. 'RemoteIP: 10.151.121.1 ACWin10A Search 26WINDOWSVICTIM ABCDEFGHIJKLMNO ✓ ACWin10A ACWin10B ACWin10C ACWin2012A
Free-text Query Filter	This filter enables you to specify a free-text query to filter the results. This filter uses Lucene syntax. For details about the supported Lucene syntax features, see Appendix B - Lucene Syntax on page 380  Enter a Lucene like syntax search expression, e.g. 'RemoteIP: 10.151.121.130 OR RemotePort: 443', 'Source.File.ProductName: "microsoft windows"' To simply query definition, the free-text query filter has an auto-complete helper dropdown list that contains all the available activity event fields, as well as available syntax operators. Simply start typing to see a dropdown menu of options. The automatic-complete helper guides you through the process of creating a query by displaying appropriate options in the dropdown menus, such as fields and operators when appropriate.

Filter	Description
	 name Device.Name Device.OrganizationName Source.Process.OperationSource.RemoteEndpoint.MachineName Source.Process.OperationSource.RemoteEndpoint.Username Source.Process.File.Name Source.Process.File.ThreatName Source.Process.File.CompanyName Target Process... (280.1K) git.exe 58.5K conhost.exe 46.2K chrome.exe 22K teams.exe 15K proxyhost.exe 10.5K More (13)
Time Filter	The Time filter enables you to filter for a specific time period. The default is the last hour.  TIME Last 24 hours Last hour Last 12 hours ✔ Last 24 hours Last 7 days Last 30 days Time range...

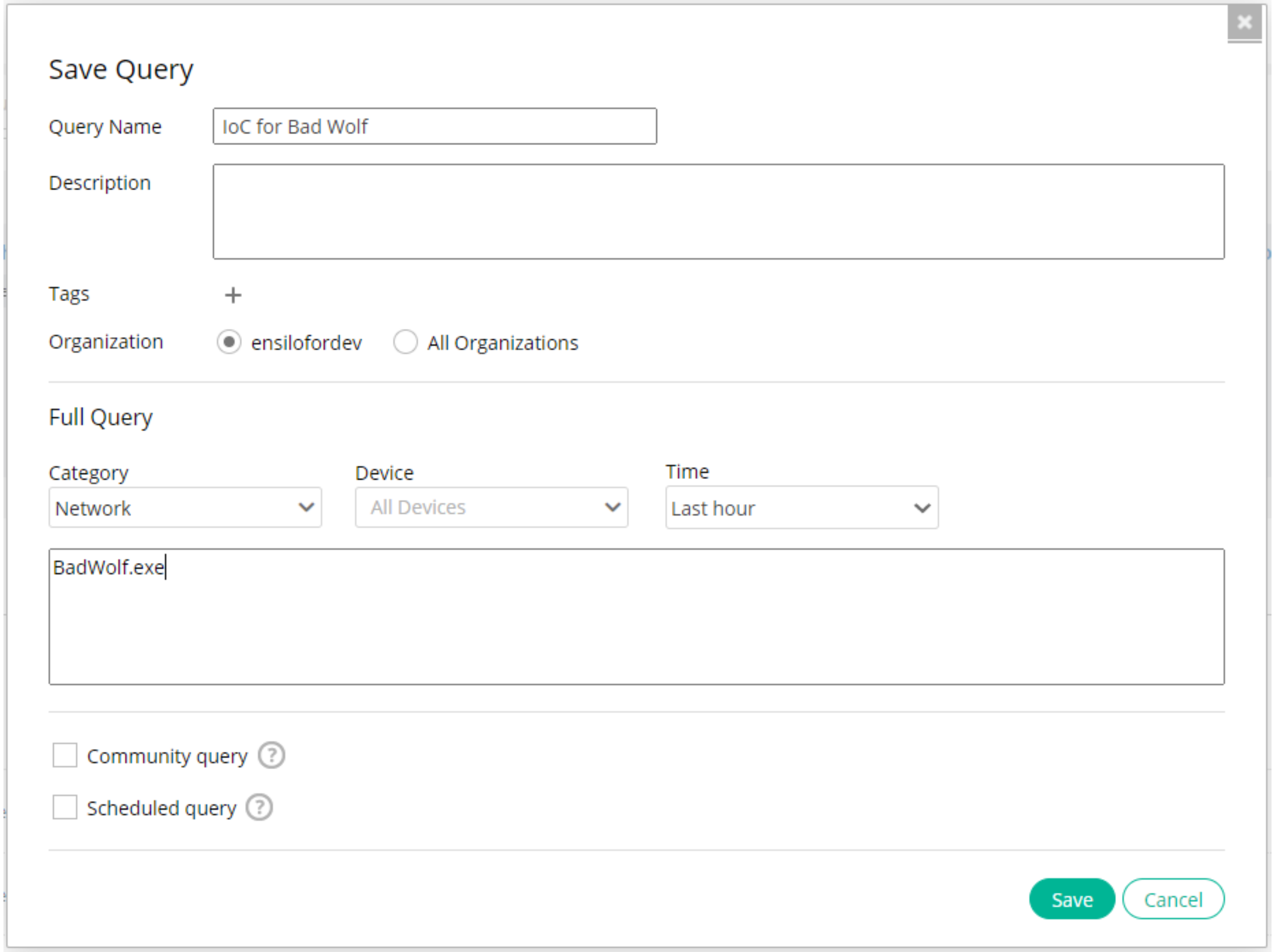
To clear the contents of all the filters in the Filters area, at the far right of the page, click the ⋮ button and select **Clear all**.

Saving Queries and Saved Queries

After filtering the activity events displayed in the result tables, you can save the query to be redisplayed when needed. Saving a query in this manner also enables you to define it as a Scheduled Query in order to automate the process of threat detection.

To save a query:

1. Use the filters to display the desired filtered events in the result tables.
2. In the Filters area, at the far right of the page, click the ⋮ button and select **Save Query**. The following displays populated with the current filter definitions. The **Category, Device and Time** dropdown menus show the filter selections and the box underneath it shows the actual query string. For example, as shown below:



Save Query

Query Name: IoC for Bad Wolf

Description:

Tags +

Organization ● ensilofordev ○ All Organizations

Full Query

Category	Device	Time
Network	All Devices	Last hour

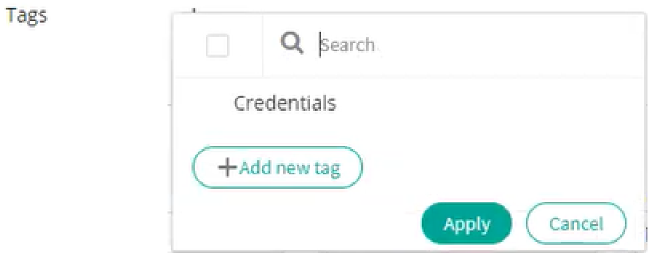
```
BadWolf.exe
```

□ Community query

□ Scheduled query

3. Fill in or modify the definitions of this saved query, as follows:
   - **Query Name**: Enter any free text name describing this query.
   - **Description**: Enter any free text description of this query.
   - **Tags**: Enables you to assign one or more metadata tags to this query. You can assign a previously defined tag to this query or define a new tag. These tags can then be used for general information purposes and for searching through queries in the Event Viewer.
     Note – These tags only relate to saved queries.

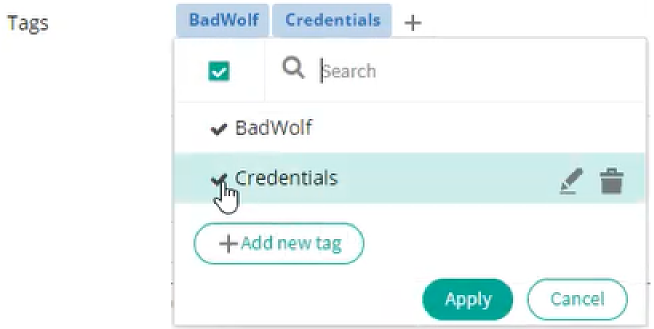
     Click the **+** to assign tag(s) to this query. The following displays:



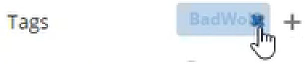
All previously defined tags (for any query in your organization) are listed for your selection.

If this tag is assigned to this query, a checkmark appears on its left: ✓ Credentials .

To assign a tag to this query, simply click on it. It will then show the checkmark to its left. Each tag that you assign appears as an icon, as follows:

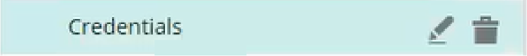


To unassigned a tag from a query, click on it in the list so that its checkmark is removed or hover over it to display an X and then click the X to delete it, as shown below:



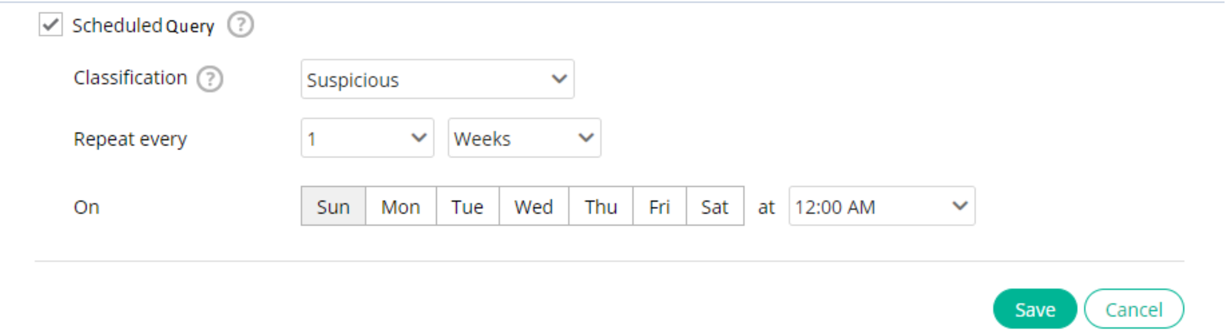
To create a new tag, click the **+ Add New Tag** button.

To modify the name of the tag or to delete it from the list (and from all queries to which it was assigned previously in the organization(s) of the logged in user), hover over it and click the **Edit** or **Delete** icon, as needed.



Click the **Apply** button to assign all the selected tags (with checkmarks) to this query.

- **Organization**: Specifies the name of the organization in a multi-organization FortiEDR environment when the logged in user has a Hoster role. In a single-organization FortiEDR system, this field does not appear.
- The **Category, Device and Time** dropdown menus show the filter selections and enable you to modify the selection.
- **Query String Box**: Displays the actual query string according to the selections made above and enables you to modify it.
- **Community Query**: Select this option to specify that it is shared with the entire FortiEDR community including other organizations.
  Note – After you have defined a Community Query and saved it, you can edit it. Unchecking the Community Query option means that this query is no longer available to the FortiEDR community. If however, a community member already copied this query, they will still have it, even after you unshare it here.
- **Scheduled Query**: Mark this option to automate the process of detecting threats so that this query is run automatically according to the schedule that you define. A security event is automatically created in the Event Viewer upon detecting threats (query matches). Notifications are sent according to the security event's definition, such as via email, Syslog and so on.
  Marking this checkbox shows the following options:



☑ Scheduled Query

Classification: Suspicious

Repeat every: 1 Weeks

On: Sun Mon Tue Wed Thu Fri Sat at 12:00 AM

The time range of the activity events that this query matches is determined by the frequency of the schedule. For example, if you define that the query automatically runs once a week, then each time it runs, it will match and create a security event for all the activity events in the most recent week; the same goes for it being scheduled once a month – in this case, the query will match all the activity events in the most recent month.

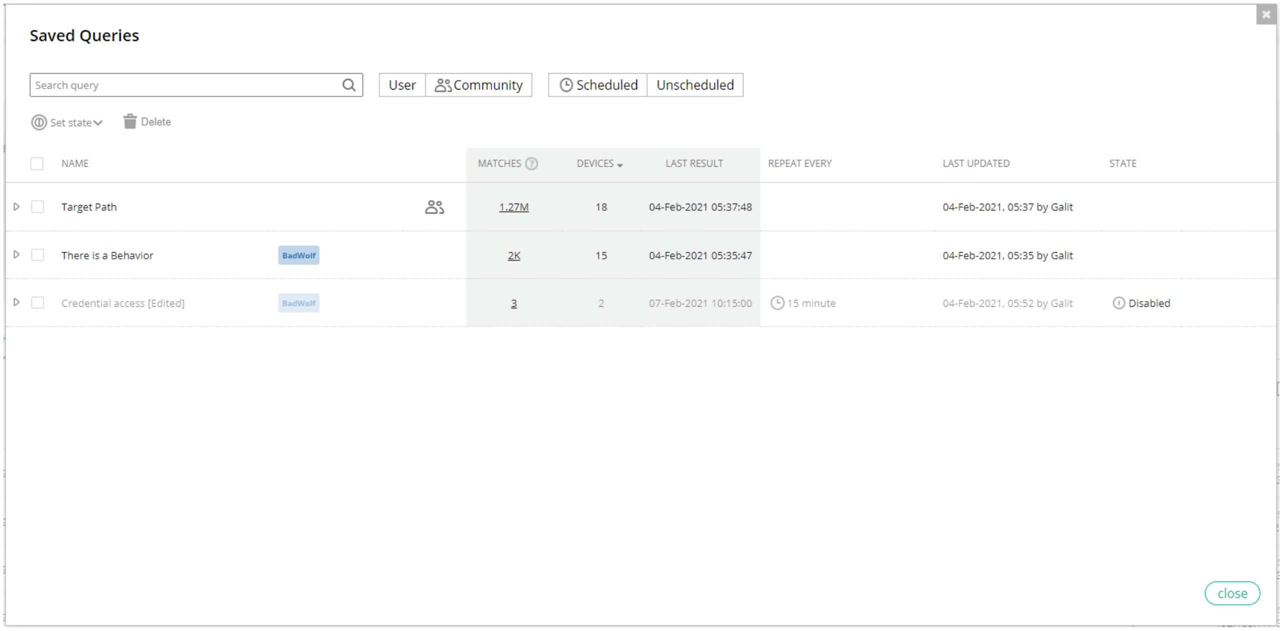
Define the scheduled query, as follows:

Field	Definition
Classification	Select the classification of the Security Event to be issued when the scheduled query has run and found matches. The Classification specifies how malicious the security event is, if at all. Classifications are initially determined by FortiEDR automatically or manually and are shown in the Event Viewer, as described in Classification Details on page 168. They can be: • Malicious • Suspicious • Inconclusive • Likely Safe • PUP (Potentially Unwanted Program) • Safe
Repeat Every/On	These options enable you to define the frequency and schedule when this query will be run. For example, to repeat the query every week on Sunday, make the selections shown in the screen above.

4. Click the **Save** button to save this query so that it is available to be redisplayed, as described below. The system runs the query immediately in order to verify that it is functional.
   Note – if the system detects a large quantity of events about which to send notifications, then a warning message is displayed suggesting that you refine the query so that there are less matches. The reason being that extremely large quantities of notifications may be more of a hindrance than a help.

To display a saved query:

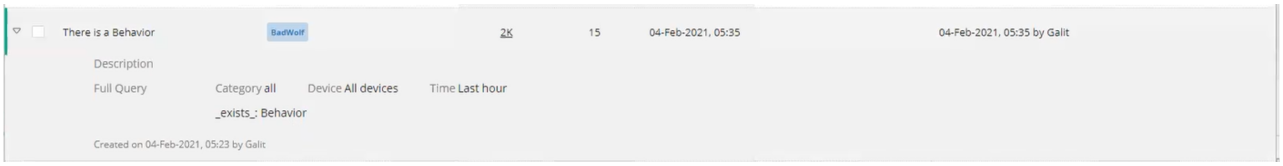
1. In the Filters area, at the far right of the page, click the ⋮ button and select **Saved Queries**. The following displays listing all the queries that were saved using the Save Query option.



	NAME		MATCHES	DEVICES	LAST RESULT	REPEAT EVERY	LAST UPDATED	STATE
▷ □	Target Path		1.27M	18	04-Feb-2021 05:37:48		04-Feb-2021, 05:37 by Galit	
▷ □	There is a Behavior	BadWolf	2K	15	04-Feb-2021 05:35:47		04-Feb-2021, 05:35 by Galit	
▷ □	Credential access [Edited]	BadWolf	3	2	07-Feb-2021 10:15:00	15 minute	04-Feb-2021, 05:52 by Galit	Disabled

For each saved query, this list shows the quantity of matches detected (**MATCHES**), the quantity of devices on which these matches were detected and the last time the query was run (**LAST RESULT**). These three columns are highlighted in gray, as shown above. Additional details about the queries definition are also displayed in each row.

2. Click on the row of a Saved Query to display additional details about that query's most recent run. For example, as shown below:



There is a Behavior BadWolf 2K 15 04-Feb-2021, 05:35 04-Feb-2021, 05:35 by Galit

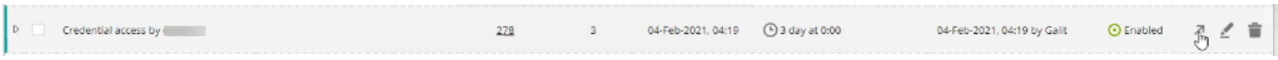
Description

Full Query Category all Device All devices Time Last hour

exists: Behavior

Created on 04-Feb-2021, 05:23 by Galit

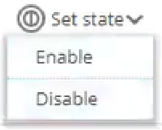
3. You can filter this list of saved queries by typing into the Search field and/or selecting one of the following options:
   a. **Scheduled/Unscheduled**: To specify that Scheduled Queries are listed in this window, click the **Scheduled** option. A Scheduled Query is one whose **Scheduled Query** field was marked when it was created/modified.
   b. **Community/User**: To specify that Community Queries are listed in this window, click the **Community** option. A Community Query is one whose Community Query field was marked when it was created/modified. 👥 appears in the list next to **Community Queries**. **User** refers to queries that are not Community Queries, meaning that each one is only available to the Organization for which it was created.
4. 4 You can modify a Saved Query by hovering over it. The following tools are displayed on the right of the row:



▷ □ Credential access by [redacted] 278 3 04-Feb-2021, 04:19 3 day at 0:00 04-Feb-2021, 04:19 by Galit Enabled

Tool	Definition
Run Now ↗	To run and detect activity events now according to this Saved Query.
Edit ✎	To edit the Saved Query definition.
Delete 🗑	To delete the Saved Query. Multiple queries can be deleted at once by marking the checkboxes on the left side of each row and then clicking the **Delete** 🗑 icon at the top of the window.

5. To enable/disable a saved query, mark the checkboxes on the left side of the relevant rows and select the **Enable/Disable** option in the **Set State** dropdown menu.



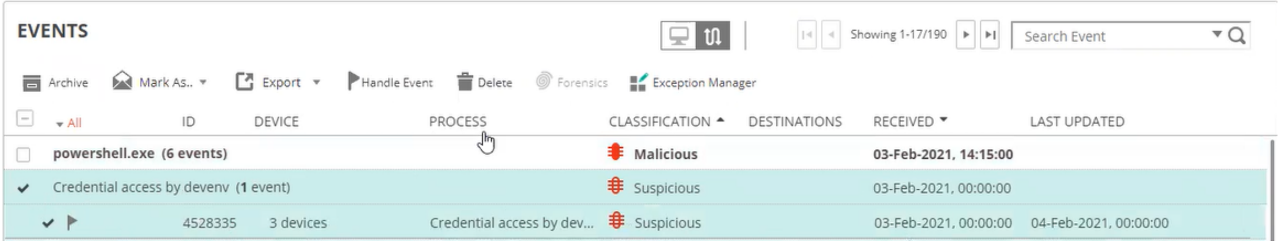
Set state
- Enable
- Disable

Scheduled Queries

Scheduled queries enable you to automate the process of detecting threats so that it is activated automatically according to the schedule that you define. This will enable timely and continuous detection and notification of threats. A Scheduled Query runs automatically when you define a Query as a Scheduled Query, as described below. Each time it runs and detects a match, it generates a security event in the Event Viewer, and sends a notification (via email, Syslog and so on) according to the security event's definition.

The security event that is generated by a Scheduled Query in the Event Viewer is similar to a standard security event, except for the following:

- The following options are not available in the Event Viewer for Saved Query Security Events:
  - Forensics The Forensics option is not available because it is irrelevant.
  - An Exception cannot be defined for Saved Query Security Event.
- In the Process View of the Event Viewer, a Saved Query Security Event shows the name of the Saved Query instead of the process name, as shown below:



EVENTS

Showing 1-17/190 | Search Event

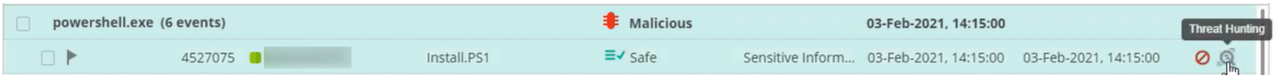
Archive | Mark As.. | Export | Handle Event | Delete | Forensics | Exception Manager

All	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED
powershell.exe (6 events)				Malicious		03-Feb-2021, 14:15:00	
✓ Credential access by devenv (1 event)				Suspicious		03-Feb-2021, 00:00:00	
✓	4528335	3 devices	Credential access by dev...	Suspicious		03-Feb-2021, 00:00:00	04-Feb-2021, 00:00:00

The Classification (in the CLASSIFICATION column) is determined by the definition of the Saved Query.

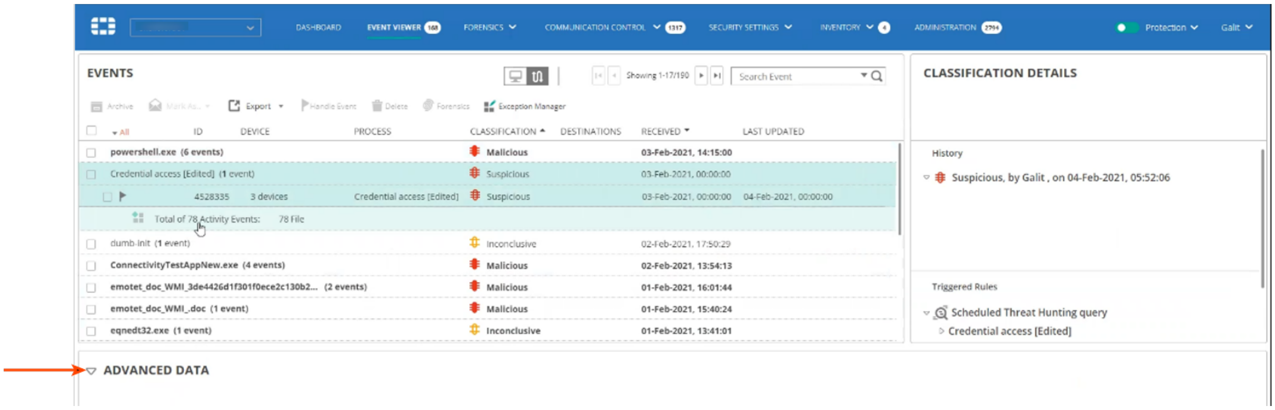
In the same manner as other security events it indicates the quantity of devices (in the DEVICE column) on which this type of activity events were found. All other aspects of a Saved Query Security Event are the same as other security events.

- Clicking the **Threat Hunting** option on the right side of the Saved Query Security Event in the Event Viewer displays the Threat Hunting tab and the Saved Query that was run, because that is what triggered the security event.



□ powershell.exe (6 events)			Malicious		03-Feb-2021, 14:15:00		
□	4527075	[redacted]	Install.PS1	Safe	Sensitive Inform...	03-Feb-2021, 14:15:00	03-Feb-2021, 14:15:00

- The Event Viewer does not show any **ADVANCED DATA** for a Saved Query Security Event.



EVENTS

All	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED
powershell.exe (6 events)				Malicious		03-Feb-2021, 14:15:00	
Credential access [Edited] (1 event)				Suspicious		03-Feb-2021, 00:00:00	
	4528335	3 devices	Credential access [Edited]	Suspicious		03-Feb-2021, 00:00:00	04-Feb-2021, 00:00:00
Total of 78 Activity Events: 78 File							
dumb-init (1 event)				Inconclusive		02-Feb-2021, 17:50:29	
ConnectivityTestAppNew.exe (4 events)				Malicious		02-Feb-2021, 13:54:13	
emotet_doc_WMI_3de4426d1f301f0ece2c130b2... (2 events)				Malicious		01-Feb-2021, 16:01:44	
emotet_doc_WMI_.doc (1 event)				Malicious		01-Feb-2021, 15:40:24	
eqnedt32.exe (1 event)				Inconclusive		01-Feb-2021, 13:41:01	

CLASSIFICATION DETAILS

History

Suspicious, by Galit , on 04-Feb-2021, 05:52:06

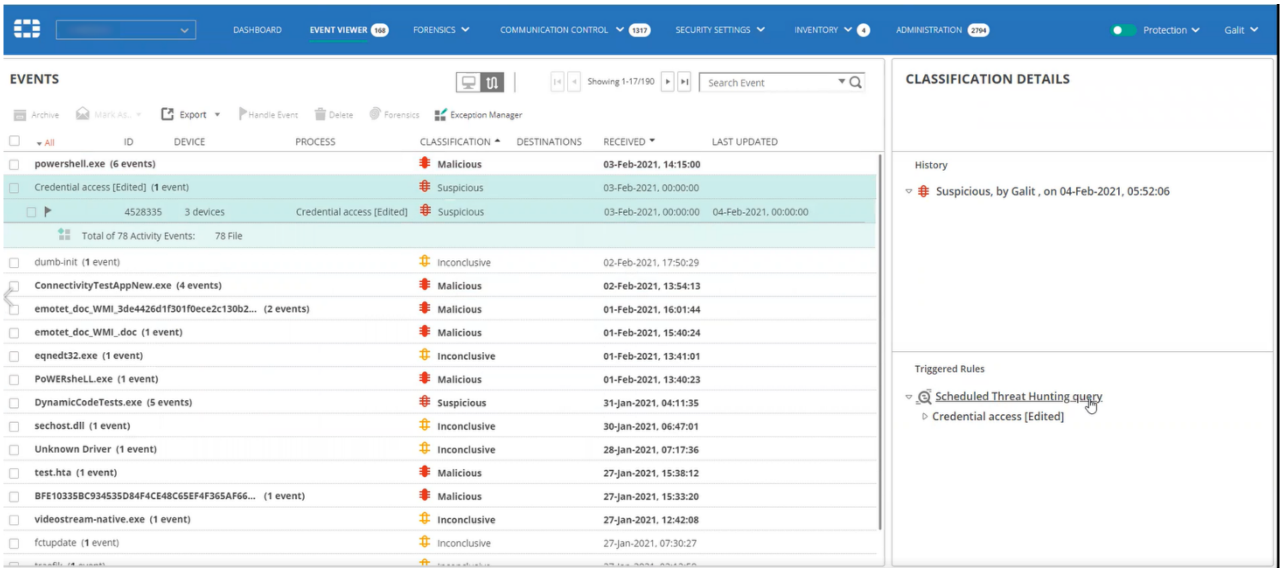
Triggered Rules

Scheduled Threat Hunting query

Credential access [Edited]

ADVANCED DATA

- **Triggered Rules**: When a Saved Query Security Event is selected in the Event Viewer, the **Triggered Rules** pane on the bottom right of the page indicates that this security event was triggered by a **Scheduled Threat Hunting Query**, as shown below:



EVENTS

All	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED
powershell.exe (6 events)				Malicious		03-Feb-2021, 14:15:00	
Credential access [Edited] (1 event)				Suspicious		03-Feb-2021, 00:00:00	
	4528335	3 devices	Credential access [Edited]	Suspicious		03-Feb-2021, 00:00:00	04-Feb-2021, 00:00:00
Total of 78 Activity Events: 78 File							
dumb-init (1 event)				Inconclusive		02-Feb-2021, 17:50:29	
ConnectivityTestAppNew.exe (4 events)				Malicious		02-Feb-2021, 13:54:13	
emotet_doc_WMI_3de4426d1f301f0ece2c130b2... (2 events)				Malicious		01-Feb-2021, 16:01:44	
emotet_doc_WMI_.doc (1 event)				Malicious		01-Feb-2021, 15:40:24	
eqnedt32.exe (1 event)				Inconclusive		01-Feb-2021, 13:41:01	
PoWERsheLL.exe (1 event)				Malicious		01-Feb-2021, 13:40:23	
DynamicCodeTests.exe (5 events)				Suspicious		31-Jan-2021, 04:11:35	
sechost.dll (1 event)				Inconclusive		30-Jan-2021, 06:47:01	
Unknown Driver (1 event)				Inconclusive		28-Jan-2021, 07:17:36	
test.hta (1 event)				Malicious		27-Jan-2021, 15:38:12	
BFE10335BC934535D84F4CE48C65EF4F365AF66... (1 event)				Malicious		27-Jan-2021, 15:33:20	
videostream-native.exe (1 event)				Inconclusive		27-Jan-2021, 12:42:08	
fctupdate (1 event)				Inconclusive		27-Jan-2021, 07:30:27	

CLASSIFICATION DETAILS

History

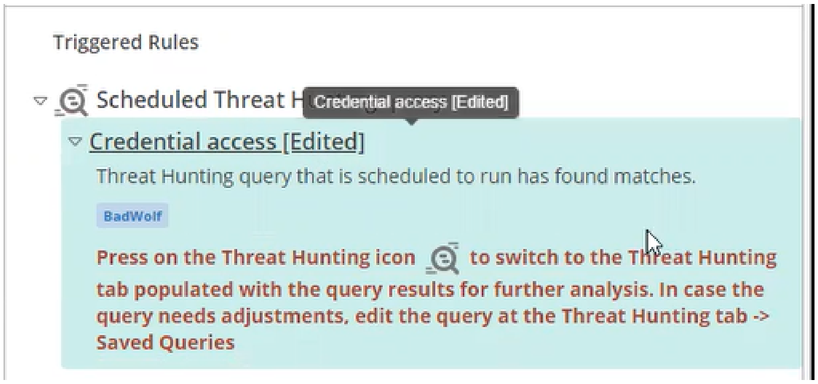
Suspicious, by Galit , on 04-Feb-2021, 05:52:06

Triggered Rules

Scheduled Threat Hunting query

Credential access [Edited]

The name of the saved query is listed below it. Click that Saved Query's name (for example, Credential Access (Edited)) to display additional details about this saved query, such as its description and the tags that were defined when it was created/modified, as shown below:



Triggered Rules

Scheduled Threat H Credential access [Edited]

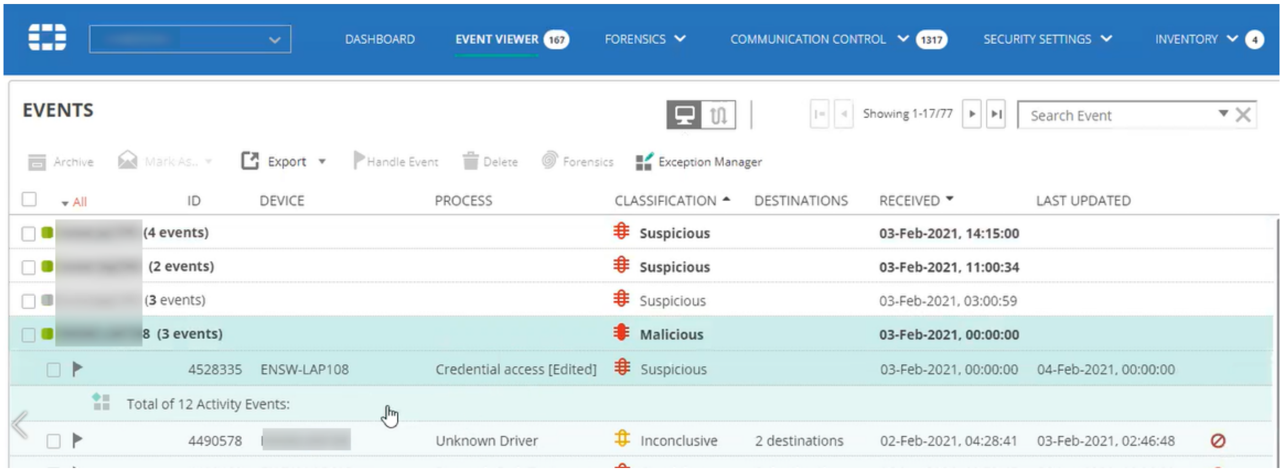
Credential access [Edited]

Threat Hunting query that is scheduled to run has found matches.

BadWolf

Press on the Threat Hunting icon to switch to the Threat Hunting tab populated with the query results for further analysis. In case the query needs adjustments, edit the query at the Threat Hunting tab -> Saved Queries

- In the **Device View** of the Event Viewer, a Saved Query Security Event appears under the devices that were affected. It also shows the name of the Saved Query instead of the process name, as shown below:

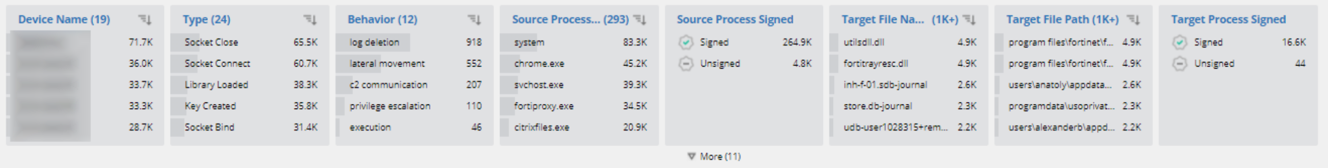


☐	All	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED
☐	[redacted] (4 events)				Suspicious		03-Feb-2021, 14:15:00	
☐	[redacted] (2 events)				Suspicious		03-Feb-2021, 11:00:34	
☐	[redacted] (3 events)				Suspicious		03-Feb-2021, 03:00:59	
☐	[redacted]8 (3 events)				Malicious		03-Feb-2021, 00:00:00	
☐		4528335	ENSW-LAP108	Credential access [Edited]	Suspicious		03-Feb-2021, 00:00:00	04-Feb-2021, 00:00:00
	Total of 12 Activity Events:							
☐		4490578	[redacted]	Unknown Driver	Inconclusive	2 destinations	02-Feb-2021, 04:28:41	03-Feb-2021, 02:46:48

If this security event was triggered for more than 100 devices, then this row shows a notification indicating that they are not all listed here and that you can use the Threat Hunting in option on the right of this event's row to investigate further.

Facets

As expected, the continuous, realtime collection of Threat Hunting data produces numerous activity events. The sheer volume of activity data makes working directly with these activity events almost unmanageable. Therefore, FortiEDR uses facets to summarize the data displayed in the results tables. Facets are predefined in FortiEDR and represent the same data that is displayed in the results tables, but in an aggregated form. As such, facets represent the aggregation of the values in the results tables.



Device Name (19)	
[redacted]	71.7K
	36.0K
	33.7K
	33.3K
	28.7K

Type (24)	
Socket Close	65.5K
Socket Connect	60.7K
Library Loaded	38.3K
Key Created	35.8K
Socket Bind	31.4K

Behavior (12)	
log deletion	918
lateral movement	552
c2 communication	207
privilege escalation	110
execution	46

Source Process... (293)	
system	83.3K
chrome.exe	45.2K
svchost.exe	39.3K
fortiproxy.exe	34.5K
citrixfiles.exe	20.9K

Source Process Signed	
Signed	264.9K
Unsigned	4.8K

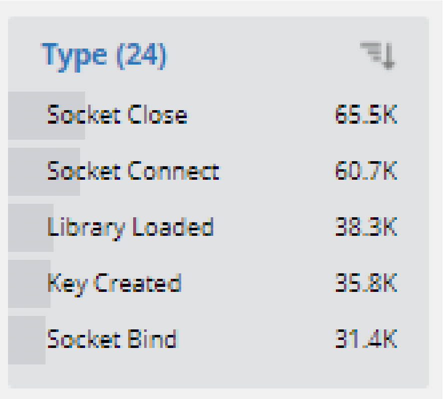
Target File Na... (1K+)	
utilsdll.dll	4.9K
fortitrayresc.dll	4.9K
inh-f-01.sdb-journal	2.6K
store.db-journal	2.3K
udb-user1028315+rem...	2.2K

Target File Path (1K+)	
program files\fortinet\f...	4.9K
program files\fortinet\f...	4.9K
users\anatoly\appdata...	2.6K
programdata\usoprivat...	2.3K
users\alexanderb\appd...	2.2K

Target Process Signed	
Signed	16.6K
Unsigned	44

Each individual facet pane summarizes the top five items for that facet. For example, in the Type (action) facet below, the facet lists the top five actions, based on the filters applied in the query. The number at the top in parentheses () indicates the total number of different values for this facet in the results table, in this case 24. In this case, the top five actions are Socket Close, Socket Connect, Library Loaded, Key created and Socket ind.

Facet can show the bottom five instead of the top five. In order to switching from the top five to the bottom five for this specific facet, click on the arrow on the right side of the number .

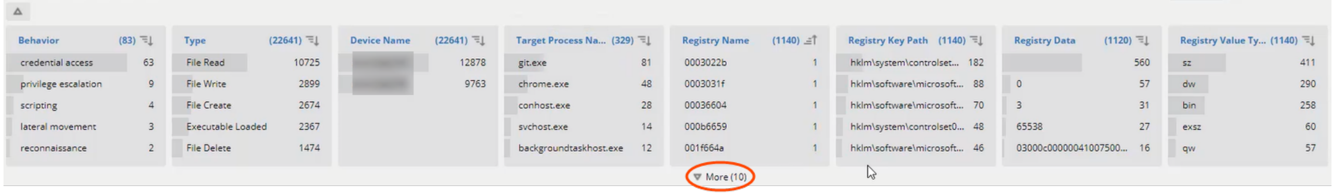


Type (24)	
Socket Close	65.5K
Socket Connect	60.7K
Library Loaded	38.3K
Key Created	35.8K
Socket Bind	31.4K

The filters applied in the Filters area affect the results displayed in the Facets and Results Tables areas.

The displayed facets vary according to the filters used in the Filters area.

You can click the **More** link to display additional facets.



Behavior	(83)
credential access	63
privilege escalation	9
scripting	4
lateral movement	3
reconnaissance	2

Type	(22641)
File Read	10725
File Write	2899
File Create	2674
Executable Loaded	2367
File Delete	1474

Device Name	(22641)
[redacted]	12878
[redacted]	9763

Target Process Na...	(329)
git.exe	81
chrome.exe	48
conhost.exe	28
svchost.exe	14
backgroundtaskhost.exe	12

Registry Name	(1140)
0003022b	1
0003031f	1
00036604	1
000b6659	1
001f664a	1

Registry Key Path	(1140)
hklm\system\controlset...	182
hklm\software\microsoft...	88
hklm\software\microsoft...	70
hklm\system\controlset0...	48
hklm\software\microsoft...	46

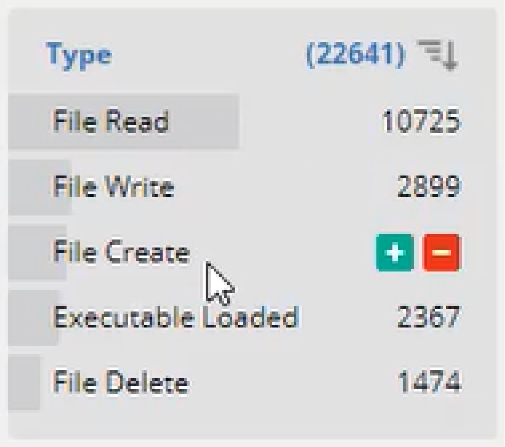
Registry Data	(1120)
	560
0	57
3	31
65538	27
03000c00000041007500...	16

Registry Value Ty...	(1140)
sz	411
dw	290
bin	258
exsz	60
qw	57

You can click the △ button to minimize the Facets area.

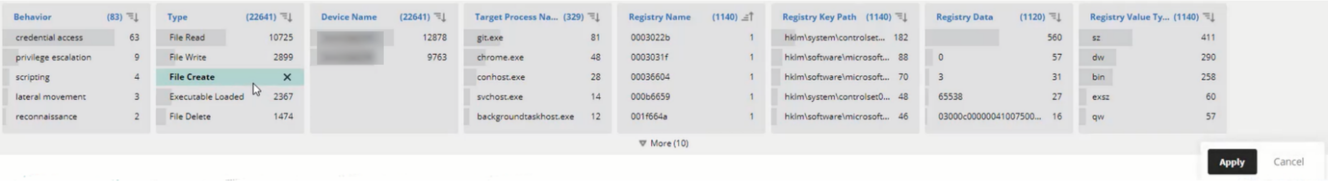
Filtering Using Facets

Facets provide an easy-to-use mechanism to aggregate the results in the Activity Events tables. In addition, you can also further narrow the results in the Activity Events table directly from the facets by including or excluding specific values. For example, when you hover over an item in a facet pane, a green and red button appear in its row. Click the green plus + button to include that item as a filter or click the red minus − button to exclude that item as a filter.

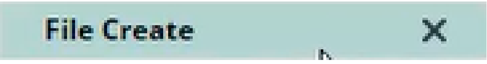


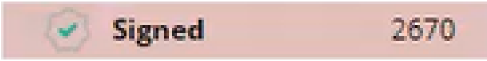
Type	(22641)
File Read	10725
File Write	2899
File Create	+ −
Executable Loaded	2367
File Delete	1474

Then, click the **Apply** button.



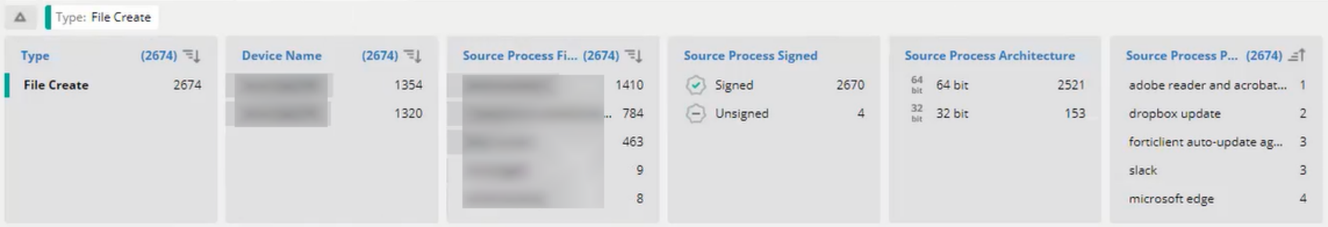
Behavior	(83)	Type	(22641)	Device Name	(22641)	Target Process Na...	(329)	Registry Name	(1140)	Registry Key Path	(1140)	Registry Data	(1120)	Registry Value Ty...	(1140)
credential access	63	File Read	10725	[redacted]	12878	git.exe	81	0003022b	1	hklm\system\controlset...	182		560	sz	411
privilege escalation	9	File Write	2899	[redacted]	9763	chrome.exe	48	0003031f	1	hklm\software\microsoft...	88	0	57	dw	290
scripting	4	File Create	✕			conhost.exe	28	00036604	1	hklm\software\microsoft...	70	3	31	bin	258
lateral movement	3	Executable Loaded	2367			svchost.exe	14	000b6659	1	hklm\system\controlset0...	48	65538	27	exsz	60
reconnaissance	2	File Delete	1474			backgroundtaskhost.exe	12	001f664a	1	hklm\software\microsoft...	46	03000c00000041007500...	16	qw	57


File Create ✕


✓ Signed 2670

An item highlighted in green indicates that it has been marked as an inclusion filter, but has not yet been applied by clicking the **Apply** button. An item highlighted in red indicates that it has been marked as an exclusion filter, but has not yet been applied by clicking **Apply**.

Clicking the **Apply** button applies the additional filtering criteria to the threat hunting query. In addition, it creates a *chip* (indicated by the arrow in the following picture), which represents that additional filter and displays it at the top of the Facets area. In the example below, the query has been further filtered to only show the **File Create** type of action. Each chip is also part of the threat hunting query.

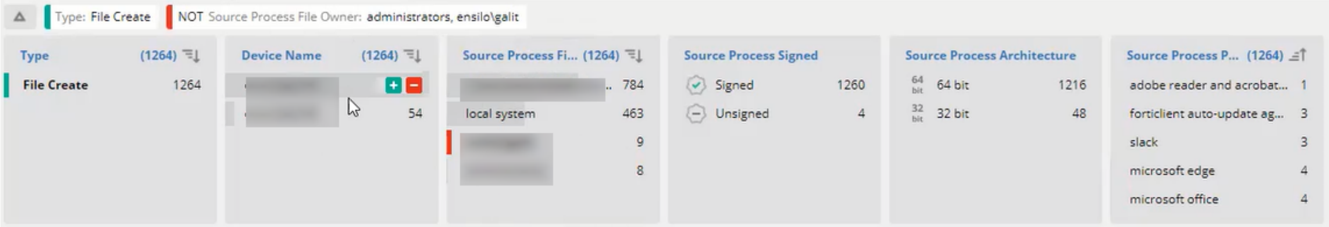


Type: File Create

Type	(2674)	Device Name	(2674)	Source Process Fi...	(2674)	Source Process Signed		Source Process Architecture		Source Process P...	(2674)
File Create	2674	[redacted]	1354	[redacted]	1410	Signed	2670	64 bit	2521	adobe reader and acrobat...	1
		[redacted]	1320	[redacted]	784	Unsigned	4	32 bit	153	dropbox update	2
				[redacted]	463					forticlient auto-update ag...	3
				[redacted]	9					slack	3
				[redacted]	8					microsoft edge	4

Each chip has either a green or red border on its left side to indicate whether it was defined to include (green) or exclude (red) that item in the filter.

Each Facet pane may have a green or red left border to indicate whether it has been applied in the query, meaning that the displayed results are filtered by it.

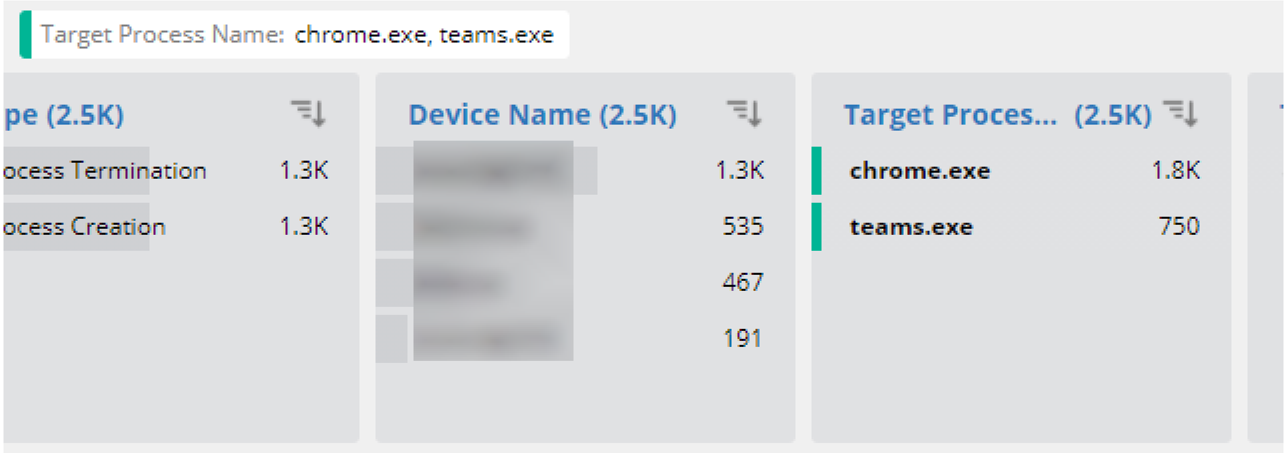


Type: File Create | NOT Source Process File Owner: administrators, ensilo\galit

Type	(1264)	Device Name	(1264)	Source Process Fi...	(1264)	Source Process Signed		Source Process Architecture		Source Process P...	(1264)
File Create	1264	[redacted]	+ −	[redacted]	784	Signed	1260	64 bit	1216	adobe reader and acrobat...	1
		[redacted]	54	local system	463	Unsigned	4	32 bit	48	forticlient auto-update ag...	3
				[redacted]	9					slack	3
				[redacted]	8					microsoft edge	4
										microsoft office	4

You can define an unlimited number of chip filters, with an AND relationship between multiple filters. Each facet can create up to two chips, one for the inclusion of values and one for the exclusion of values.

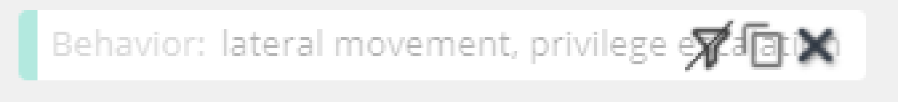
If two values have been added to the query from the same Facet pane, the relationship between the values in the chip is OR. The following example shows that the query includes activity events in which their Target Process Name is either **chrome.exe** or **teams.exe**, which is shown below in both the chip and in the facet.



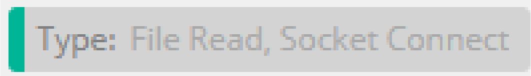
Target Process Name: chrome.exe, teams.exe

pe (2.5K)		Device Name (2.5K)		Target Proces... (2.5K)	
ocess Termination	1.3K	[redacted]	1.3K	chrome.exe	1.8K
ocess Creation	1.3K	[redacted]	535	teams.exe	750
		[redacted]	467		
		[redacted]	191		

Hovering over a chip enables you to remove, disable or copy it, as follows:



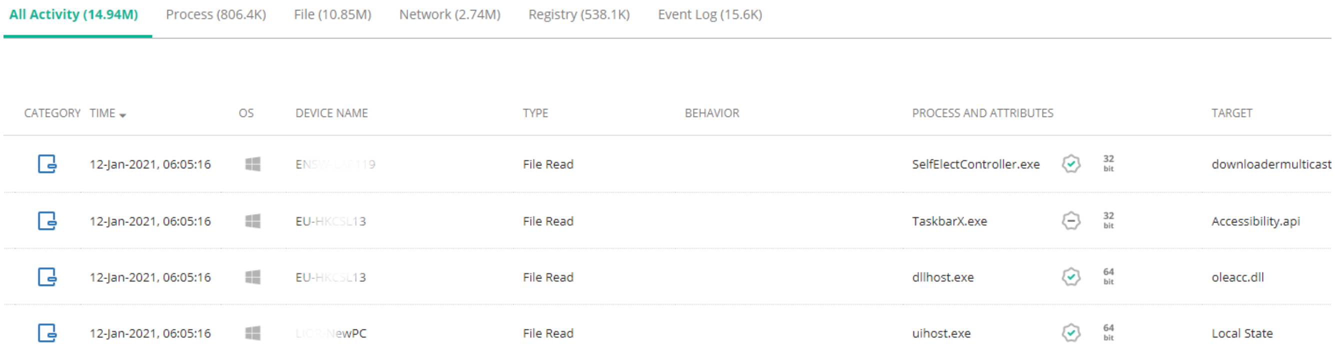
Behavior: lateral movement, privilege e

Tool	Definition
Remove	The chip is removed and the Facets and Result tables are updated accordingly.
Disable	A disabled chip no longer affects the results. The Facets and the Results tabs are updated as if the chip was removed and the chip appears as follows:  Type: File Read, Socket Connect
Copy	The chip content is copied to memory and can be pasted into the query for further editing.

In order to enable a disabled chip and update the results according to its criteria, click the **Enable** icon.

Activity Events Tables

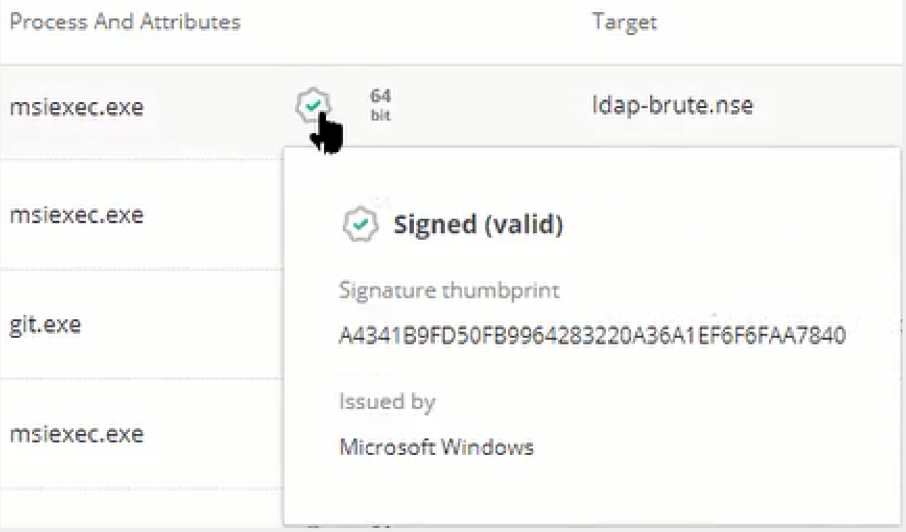
The results presented in the tables in this area are activity events. The Activity Events table area contains six tabs, each representing one Category of activity events, as follows:



All Activity (14.94M) | Process (806.4K) | File (10.85M) | Network (2.74M) | Registry (538.1K) | Event Log (15.6K)

CATEGORY	TIME	OS	DEVICE NAME	TYPE	BEHAVIOR	PROCESS AND ATTRIBUTES	TARGET
	12-Jan-2021, 06:05:16		[redacted]	File Read		SelfElectController.exe ✓ 32 bit	downloadermulticast
	12-Jan-2021, 06:05:16		[redacted]	File Read		TaskbarX.exe ⊖ 32 bit	Accessibility.api
	12-Jan-2021, 06:05:16		[redacted]	File Read		dllhost.exe ✓ 64 bit	oleacc.dll
	12-Jan-2021, 06:05:16		[redacted]	File Read		uihost.exe ✓ 64 bit	Local State

<table>
<tr><th>Category</th><th>Definition</th></tr>
<tr><td><b>All Activity</b></td><td>This tab lists all activity events, based on the filters defined for the Threat Hunting query. The number in parentheses () specifies the total number of activity events, based on your query criteria. This total equals the sum of the activity events in the other five tabs. Each Category of activity events is represented by a different icon, as follows:
<ul>
<li>⇅ Process</li>
<li>🗎 File</li>
<li>▦ Registry</li>
<li>🌐 Network</li>
<li>🗋 Log</li>
</ul>
You can hover over the icon in the <b>Process and Attributes</b> column to temporarily display additional details about the source process, including whether it is signed, its signature, issuer and so on.



<table>
<tr><th>Process And Attributes</th><th></th><th>Target</th></tr>
<tr><td>msiexec.exe</td><td>✓ 64 bit</td><td>ldap-brute.nse</td></tr>
<tr><td>msiexec.exe</td><td></td><td></td></tr>
<tr><td>git.exe</td><td></td><td></td></tr>
<tr><td>msiexec.exe</td><td></td><td></td></tr>
</table>

Signed (valid)

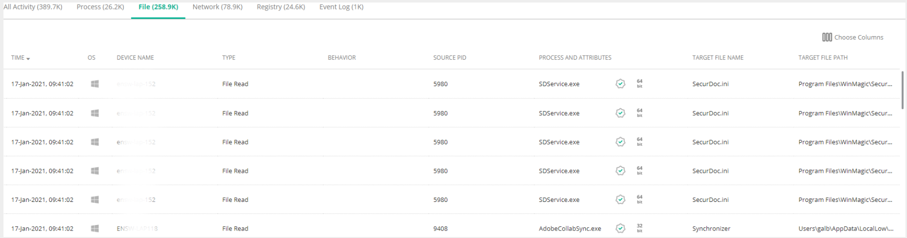
Signature thumbprint

A4341B9FD50FB9964283220A36A1EF6F6FAA7840

Issued by

Microsoft Windows

<b>Note</b> – There are several types of attribute icons, such as Signed/Unsigned.</td></tr>
<tr><td>Process</td><td>This tab shows all matching activity events of category Process.</td></tr>
<tr><td>File</td><td>This tab shows all matching activity events of category File.

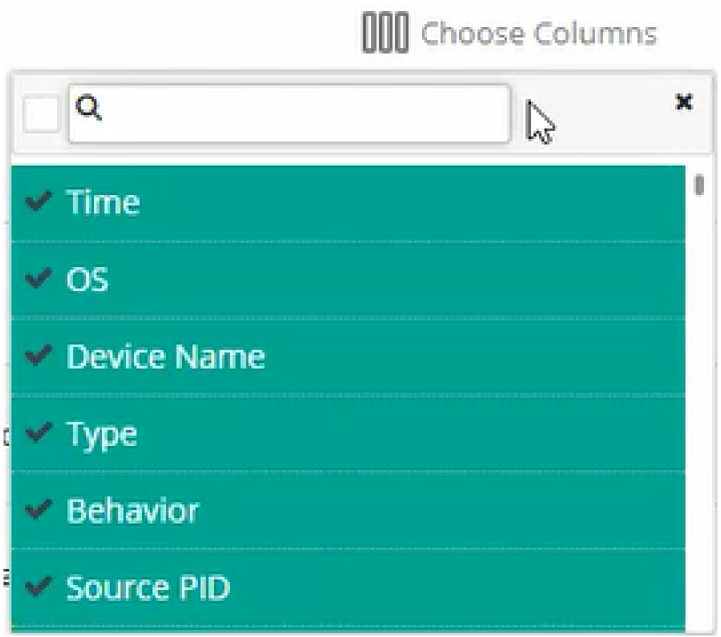


<table>
<tr><th>TIME</th><th>OS</th><th>DEVICE NAME</th><th>TYPE</th><th>BEHAVIOR</th><th>SOURCE PID</th><th>PROCESS AND ATTRIBUTES</th><th>TARGET FILE NAME</th><th>TARGET FILE PATH</th></tr>
<tr><td>17-Jan-2021, 09:41:02</td><td>⊞</td><td>[redacted]</td><td>File Read</td><td></td><td>5980</td><td>SDService.exe ✓ 64 bit</td><td>SecurDoc.ini</td><td>Program Files\WinMagic\Secur...</td></tr>
<tr><td>17-Jan-2021, 09:41:02</td><td>⊞</td><td>[redacted]</td><td>File Read</td><td></td><td>5980</td><td>SDService.exe ✓ 64 bit</td><td>SecurDoc.ini</td><td>Program Files\WinMagic\Secur...</td></tr>
<tr><td>17-Jan-2021, 09:41:02</td><td>⊞</td><td>[redacted]</td><td>File Read</td><td></td><td>5980</td><td>SDService.exe ✓ 64 bit</td><td>SecurDoc.ini</td><td>Program Files\WinMagic\Secur...</td></tr>
<tr><td>17-Jan-2021, 09:41:02</td><td>⊞</td><td>[redacted]</td><td>File Read</td><td></td><td>5980</td><td>SDService.exe ✓ 64 bit</td><td>SecurDoc.ini</td><td>Program Files\WinMagic\Secur...</td></tr>
<tr><td>17-Jan-2021, 09:41:02</td><td>⊞</td><td>[redacted]</td><td>File Read</td><td></td><td>5980</td><td>SDService.exe ✓ 64 bit</td><td>SecurDoc.ini</td><td>Program Files\WinMagic\Secur...</td></tr>
<tr><td>17-Jan-2021, 09:41:02</td><td>⊞</td><td>[redacted]</td><td>File Read</td><td></td><td>9408</td><td>AdobeCollabSync.exe ✓ 32 bit</td><td>Synchronizer</td><td>Users\galb\AppData\LocalLow\...</td></tr>
</table></td></tr>
<tr><td>Network</td><td>This tab shows all matching activity events of type Network.</td></tr>
</table>

Category	Definition
Registry	This tab shows all matching activity events of type Registry.
Event Log	This tab shows all matching activity events of type Event Log.

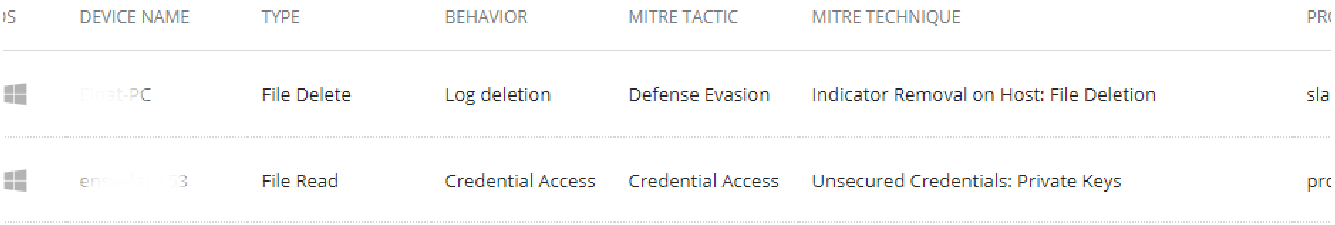
Each table contains a row for each matching activity event and each table includes different columns according to the Category.

You can select which columns should appear in any of the tables using the **Choose Columns** option at the far right of the page. You can type in the **Search** box to help narrow the list of columns that display.



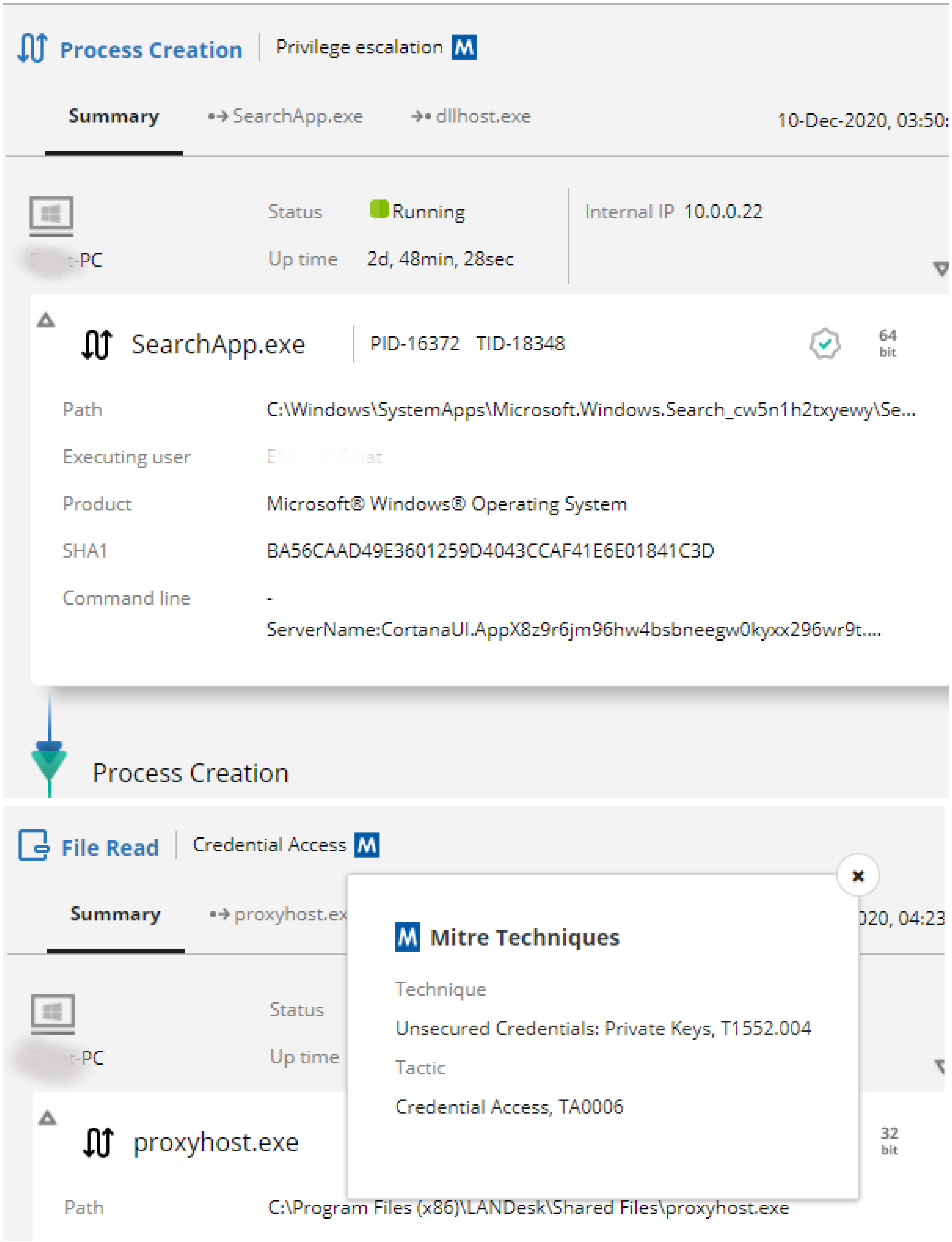
Each activity event may also be a part of a *behavior* and/or a MITRE Technique. A behavior indicates that this activity event is part of a specific behavior as determined by FortiEDR. A MITRE type (Technique or Tactic) indicates that the activity event is part of specification of a technique and tactic as classified by MITRE.

The activity events that have such behaviors and/or MITRE indications have values in the related columns in the Activity Events Tables, as shown below:



S	DEVICE NAME	TYPE	BEHAVIOR	MITRE TACTIC	MITRE TECHNIQUE	PR
⊞	[redacted]	File Delete	Log deletion	Defense Evasion	Indicator Removal on Host: File Deletion	sla
⊞	[redacted]	File Read	Credential Access	Credential Access	Unsecured Credentials: Private Keys	prc

When an activity event has a related MITRE indication, it is indicated at the Details Pane (see below). You can hover over the associated icon to display more details.



Process Creation | Privilege escalation M

Summary · SearchApp.exe · dllhost.exe · 10-Dec-2020, 03:50:

[redacted]-PC

Status: Running

Up time: 2d, 48min, 28sec

Internal IP: 10.0.0.22

SearchApp.exe | PID-16372 TID-18348 · 64 bit

Path: C:\Windows\SystemApps\Microsoft.Windows.Search_cw5n1h2txyewy\Se...

Executing user: [redacted]

Product: Microsoft® Windows® Operating System

SHA1: BA56CAAD49E3601259D4043CCAF41E6E01841C3D

Command line: - ServerName:CortanaUI.AppX8z9r6jm96hw4bsbneegw0kyxx296wr9t....

Process Creation

File Read | Credential Access M

Summary · proxyhost.ex · 020, 04:23

[redacted]-PC

Status

Up time

M Mitre Techniques

Technique

Unsecured Credentials: Private Keys, T1552.004

Tactic

Credential Access, TA0006

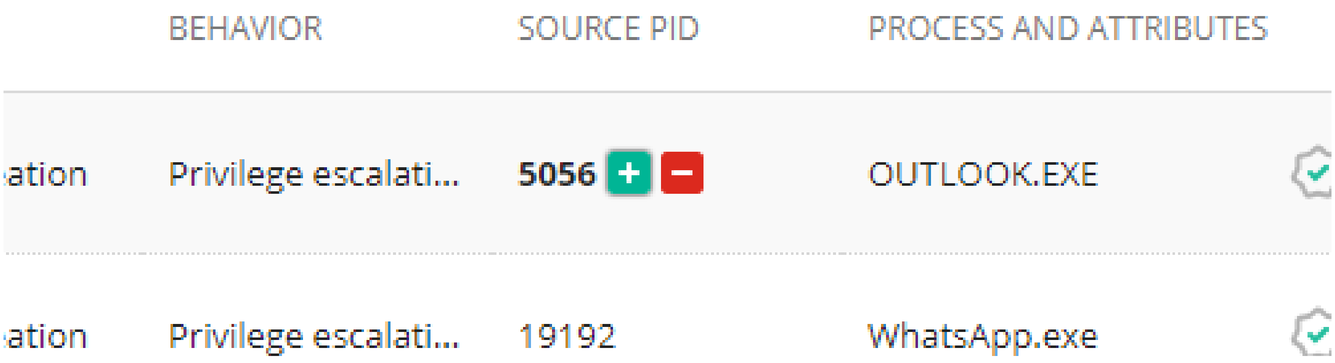
proxyhost.exe · 32 bit

Path: C:\Program Files (x86)\LANDesk\Shared Files\proxyhost.exe

Filtering Using Activity Events Tables

The Activity Events Tables area can be used to add filters to the query in a similar manner as Facets.

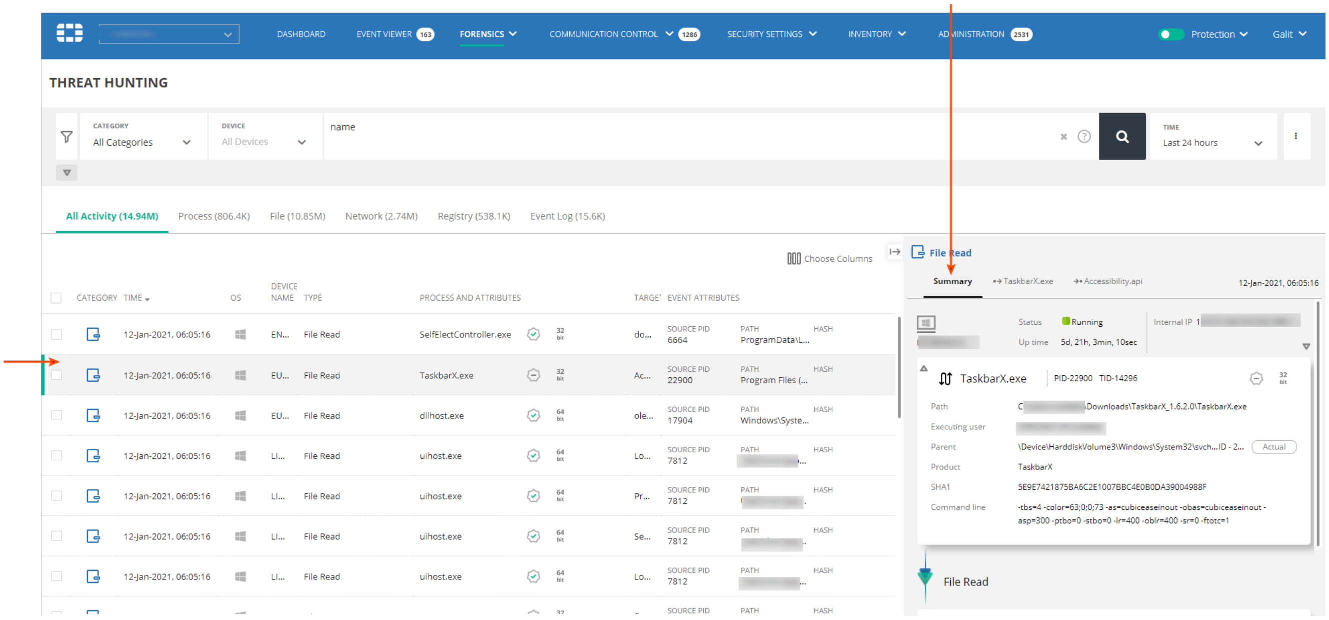
When you hover over an item in the table, a green and red button appear to its right. Click the green plus + button to include that item as a filter or click the red minus − button to exclude that item as a filter. For more details, see Filtering Using Facets on page 234.



	BEHAVIOR	SOURCE PID	PROCESS AND ATTRIBUTES
ation	Privilege escalati...	5056 + −	OUTLOOK.EXE
ation	Privilege escalati...	19192	WhatsApp.exe

Details Pane

You can click anywhere in a row in any of the Activity Events Tables to display more details about the specific Activity Event in a Details pane on the right. The selected row is marked by a green border on its left.



CATEGORY	TIME	OS	DEVICE NAME	TYPE	PROCESS AND ATTRIBUTES		TARGET	EVENT ATTRIBUTES		
	12-Jan-2021, 06:05:16		EN...	File Read	SelfElectController.exe	32 bit	do...	SOURCE PID 6664	PATH ProgramData\L...	HASH
	12-Jan-2021, 06:05:16		EU...	File Read	TaskbarX.exe	32 bit	Ac...	SOURCE PID 22900	PATH Program Files (...	HASH
	12-Jan-2021, 06:05:16		EU...	File Read	dllhost.exe	64 bit	ole...	SOURCE PID 17904	PATH Windows\Syste...	HASH
	12-Jan-2021, 06:05:16		LI...	File Read	uihost.exe	64 bit	Lo...	SOURCE PID 7812	PATH [redacted]...	HASH
	12-Jan-2021, 06:05:16		LI...	File Read	uihost.exe	64 bit	Pr...	SOURCE PID 7812	PATH [redacted].	HASH
	12-Jan-2021, 06:05:16		LI...	File Read	uihost.exe	64 bit	Se...	SOURCE PID 7812	PATH [redacted].	HASH
	12-Jan-2021, 06:05:16		LI...	File Read	uihost.exe	64 bit	Lo...	SOURCE PID 7812	PATH [redacted]...	HASH

File Read

Summary | TaskbarX.exe | Accessibility.api | 12-Jan-2021, 06:05:16

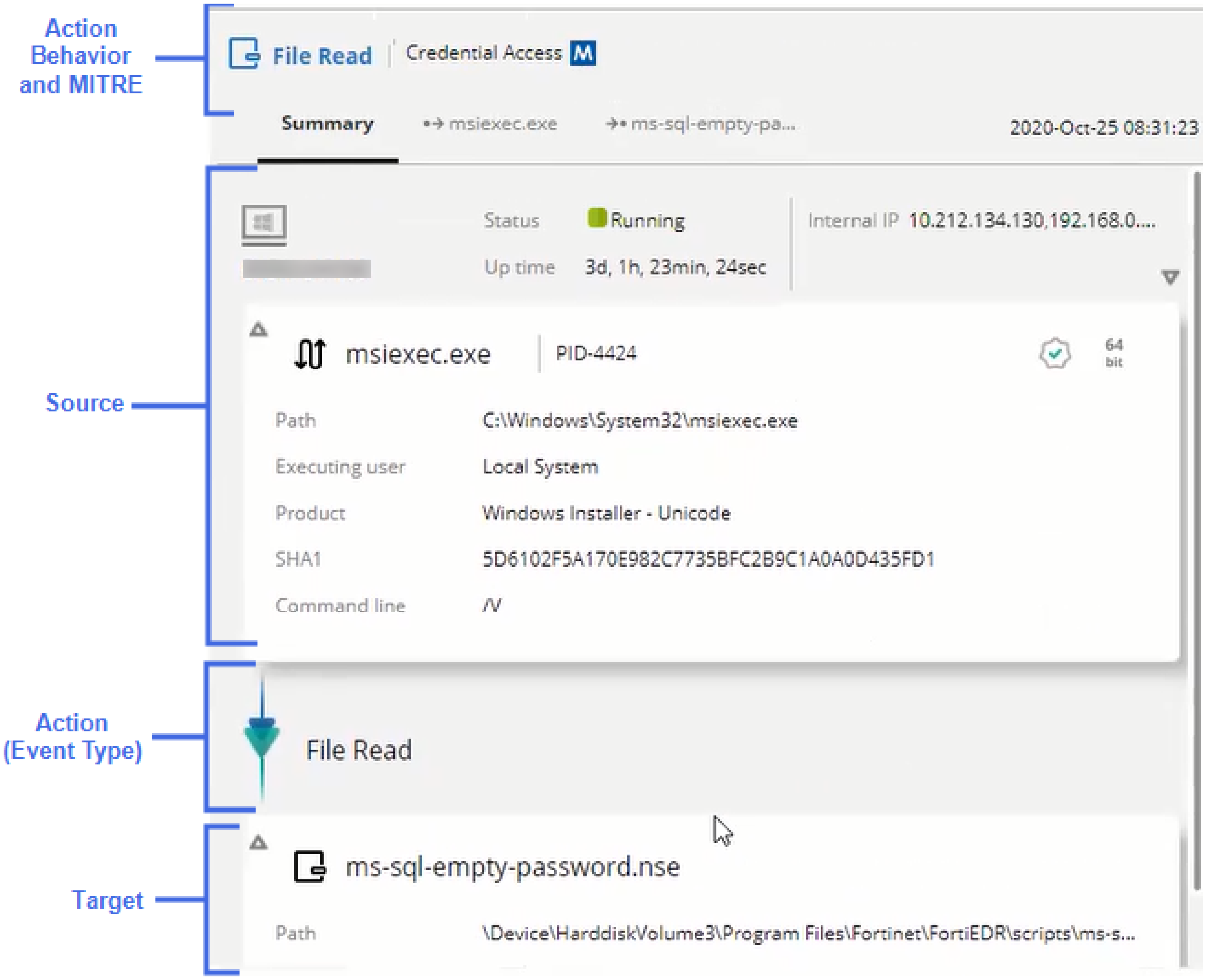
[redacted]
Status: Running
Up time: 5d, 21h, 3min, 10sec
Internal IP 1[redacted]

TaskbarX.exe | PID-22900 TID-14296 | 32 bit

Path	C[redacted]Downloads\TaskbarX_1.6.2.0\TaskbarX.exe
Executing user	[redacted]
Parent	\Device\HarddiskVolume3\Windows\System32\svch...ID - 2... Actual
Product	TaskbarX
SHA1	5E9E7421875BA6C2E1007BBC4E0B0DA39004988F
Command line	-tbs=4 -color=63;0;0;73 -as=cubiceaseinout -obas=cubiceaseinout -asp=300 -ptbo=0 -stbo=0 -lr=400 -oblr=400 -sr=0 -ftotc=1

File Read

The Details pane for an activity event contains a Summary tab and one or two other tabs, as follows:



File Read | Credential Access M

Summary | msiexec.exe | ms-sql-empty-pa... 2020-Oct-25 08:31:23

[redacted]

Status 🟩 Running

Up time 3d, 1h, 23min, 24sec

Internal IP 10.212.134.130,192.168.0....

msiexec.exe | PID-4424 64 bit

Path C:\Windows\System32\msiexec.exe

Executing user Local System

Product Windows Installer - Unicode

SHA1 5D6102F5A170E982C7735BFC2B9C1A0A0D435FD1

Command line /V

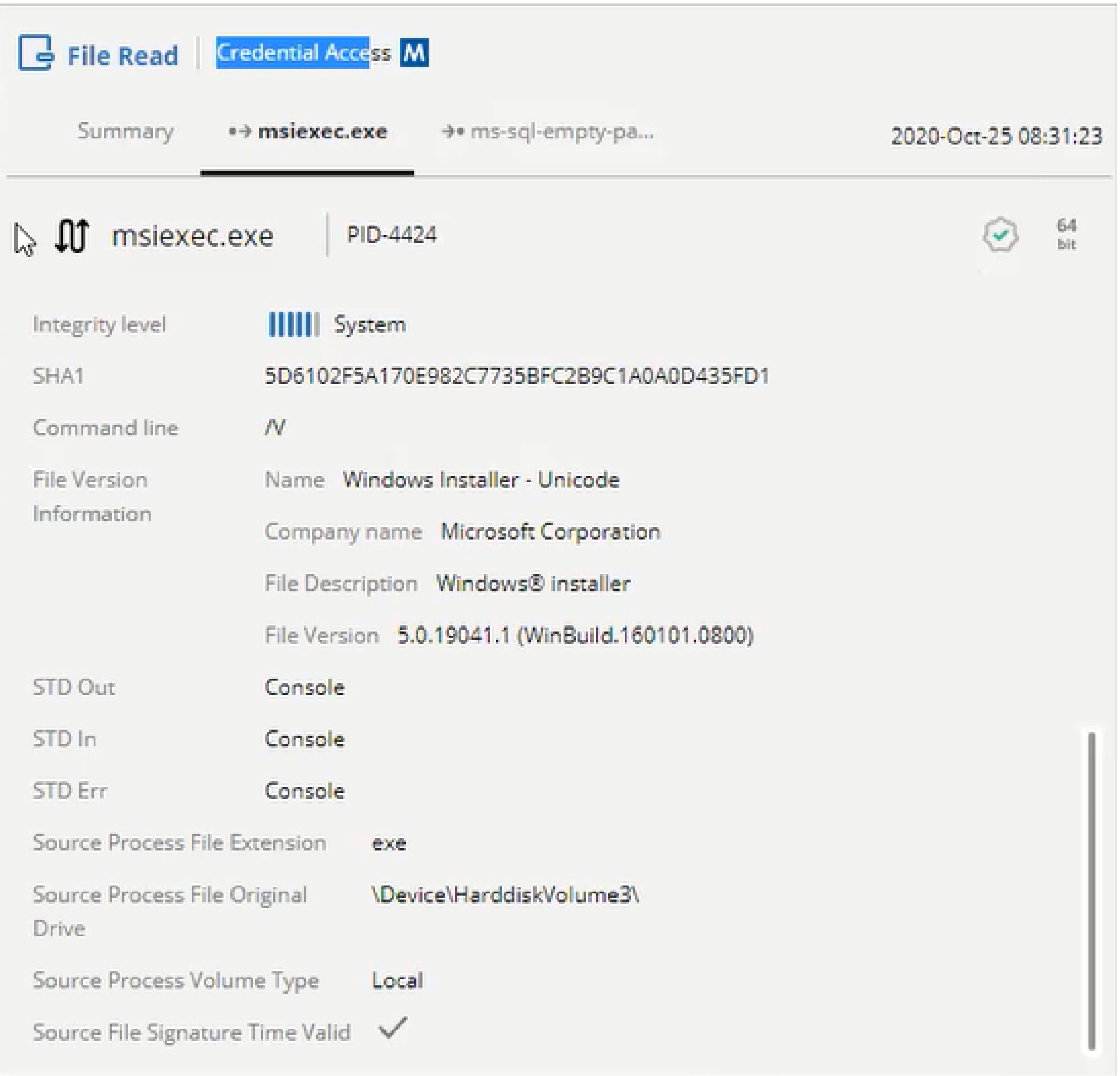
File Read

ms-sql-empty-password.nse

Path \Device\HarddiskVolume3\Program Files\Fortinet\FortiEDR\scripts\ms-s...

- **Summary Tab**: This tab specifies a summary of the Activity Event. At the top of the tab it shows details about the Endpoint, including the endpoint and its IP, path, operating system and so on. The area below the Endpoint section shows the source process and its detail. The area below the source graphically shows the action again, which is the Activity Event type, as well as some additional data regarding the action, if any. The area at the bottom of the pane shows the target and its details. You can click the ▽ or △ arrow in an area of this pane to show or hide additional relevant details, respectively.

- **Process Tab**: This tab shows additional details about the source process.



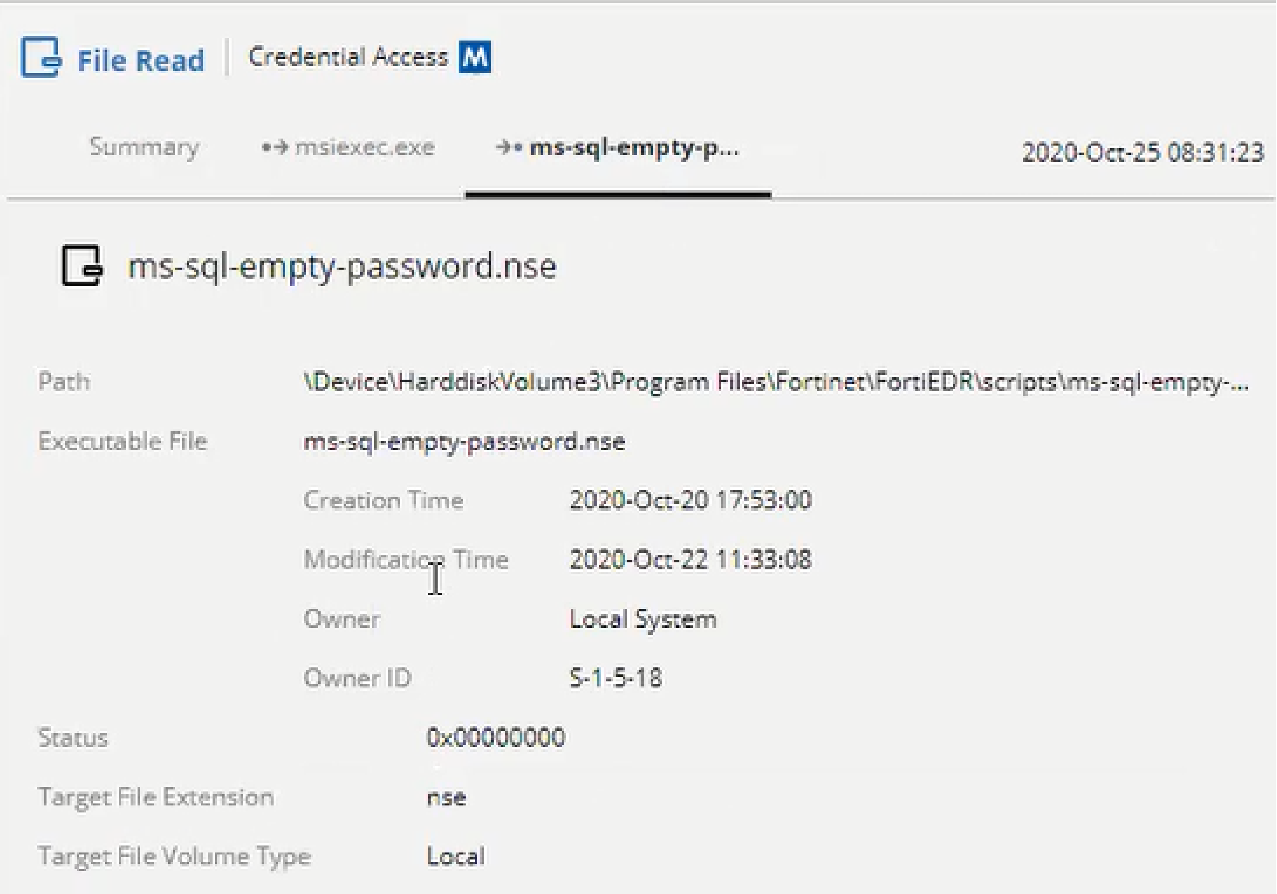
File Read | Credential Access M

Summary | msiexec.exe | ms-sql-empty-pa... | 2020-Oct-25 08:31:23

msiexec.exe | PID-4424 | 64 bit

Integrity level	System
SHA1	5D6102F5A170E982C7735BFC2B9C1A0A0D435FD1
Command line	/V
File Version Information	Name Windows Installer - Unicode Company name Microsoft Corporation File Description Windows® installer File Version 5.0.19041.1 (WinBuild.160101.0800)
STD Out	Console
STD In	Console
STD Err	Console
Source Process File Extension	exe
Source Process File Original Drive	\Device\HarddiskVolume3\
Source Process Volume Type	Local
Source File Signature Time Valid	✓

- **Target Tab**: This tab only displays if the target is of type Process or File and details additional data regarding such.



ms-sql-empty-password.nse

Path \Device\HarddiskVolume3\Program Files\Fortinet\FortiEDR\scripts\ms-sql-empty-...

Executable File ms-sql-empty-password.nse

Creation Time 2020-Oct-20 17:53:00

Modification Time 2020-Oct-22 11:33:08

Owner Local System

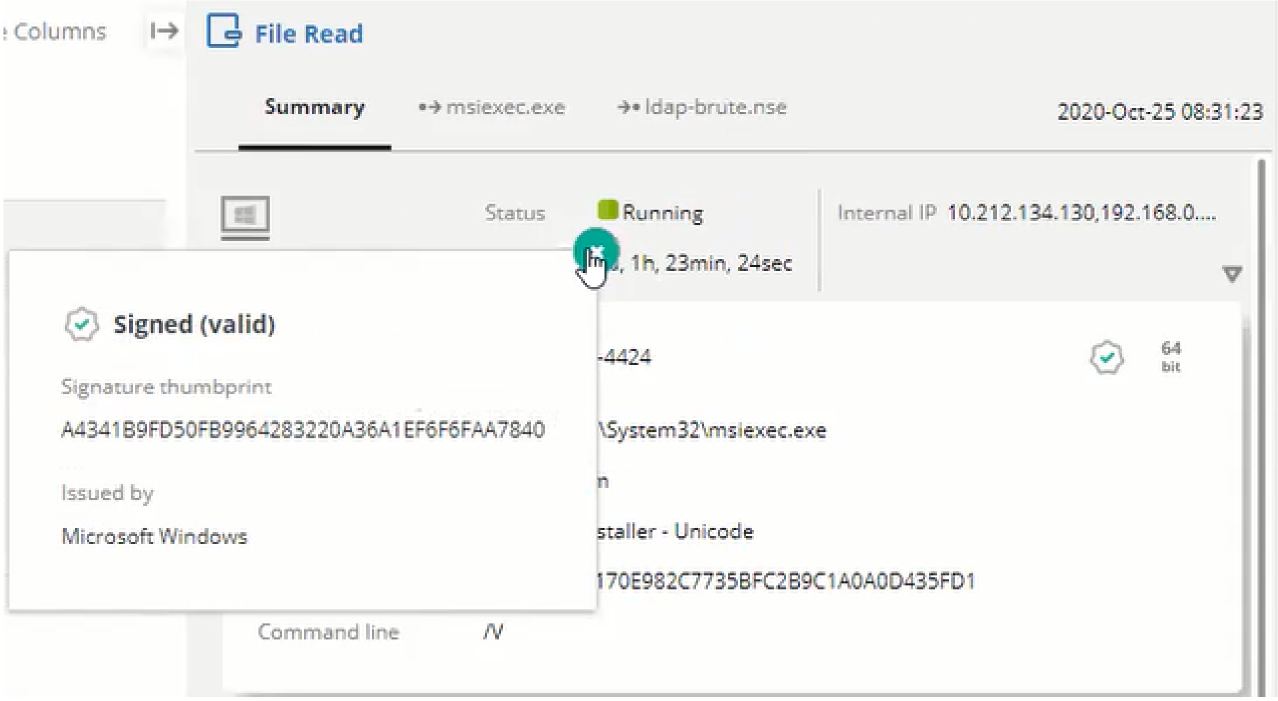
Owner ID S-1-5-18

Status 0x00000000

Target File Extension nse

Target File Volume Type Local

You can click an icon in the Details pane to display additional details, as shown below:



Status Running

Internal IP 10.212.134.130,192.168.0....

, 1h, 23min, 24sec

Signed (valid)

Signature thumbprint

A4341B9FD50FB9964283220A36A1EF6F6FAA7840

Issued by

Microsoft Windows

-4424

\System32\msiexec.exe

n

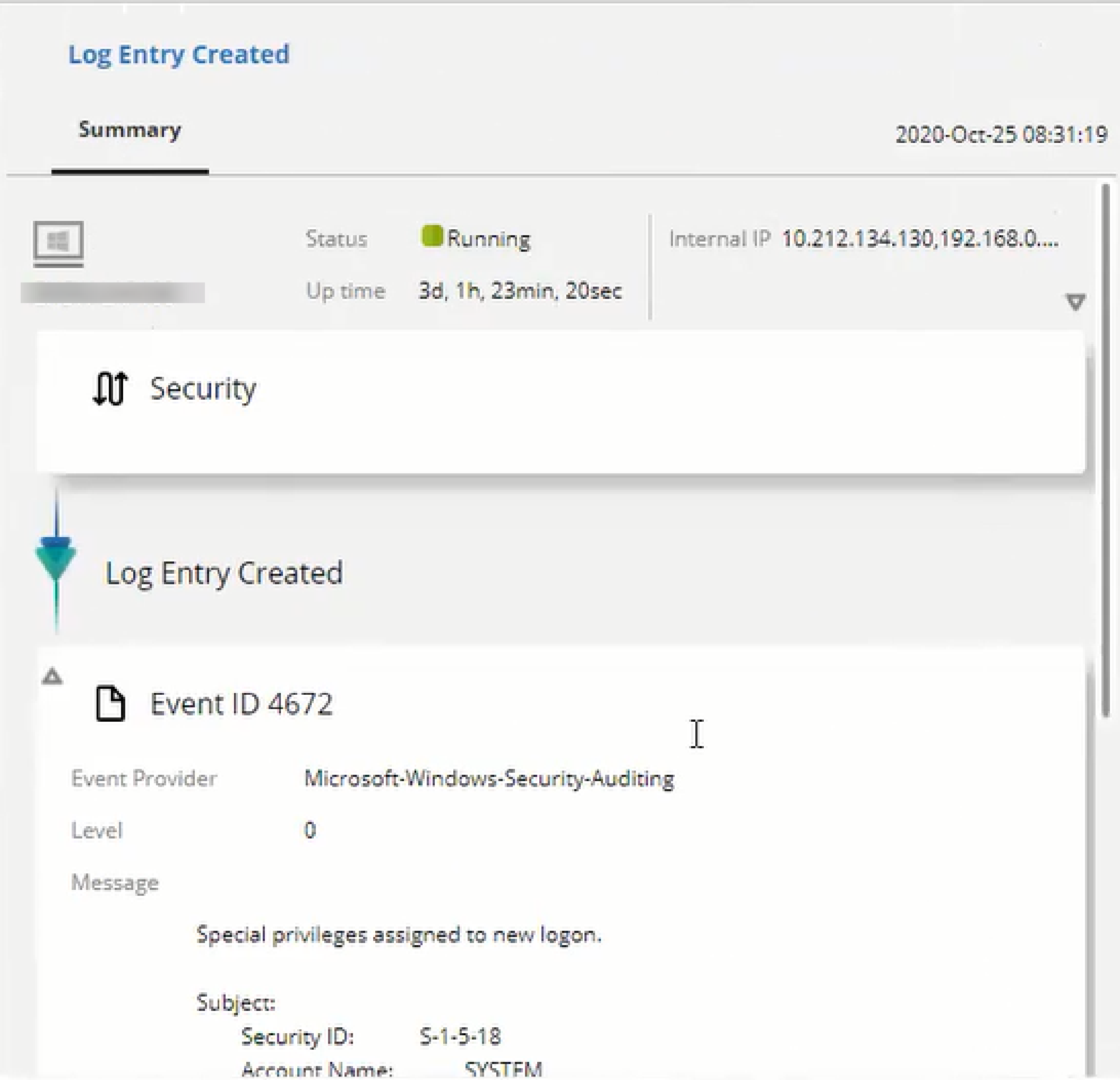
staller - Unicode

170E982C7735BFC2B9C1A0A0D435FD1

Command line /V

Event Log Details Pane

The Details pane for an activity event of type Event Log Created appears somewhat differently, as shown below. In this case, the action is always Log Entry Created and the target is always the event ID.



2020-Oct-25 08:31:19

[redacted]

Status 🟩Running

Up time 3d, 1h, 23min, 20sec

Internal IP 10.212.134.130,192.168.0....

Security

Log Entry Created

Event ID 4672

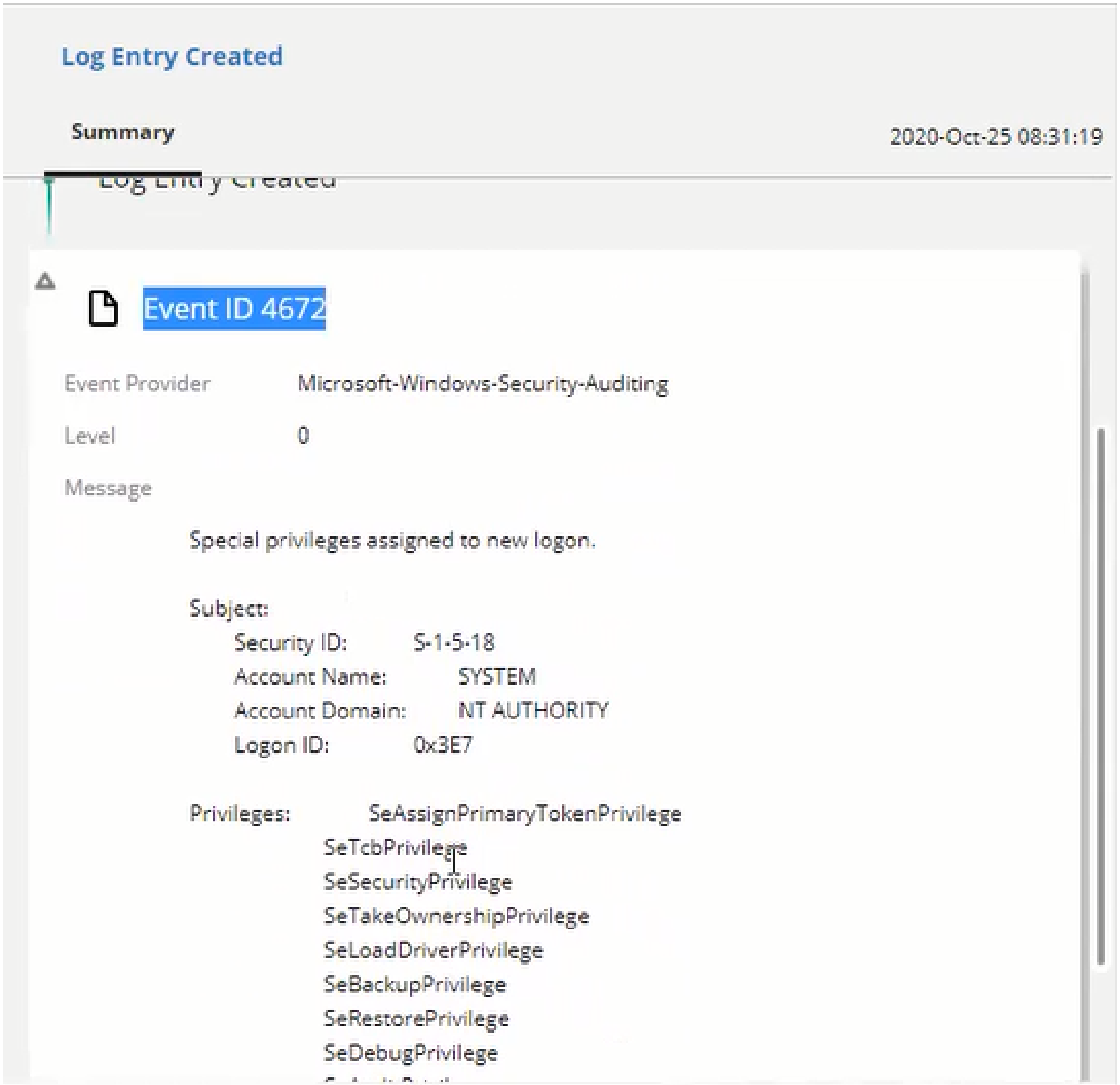
Event Provider Microsoft-Windows-Security-Auditing

Level 0

Message

```
Special privileges assigned to new logon.

Subject:
    Security ID:        S-1-5-18
    Account Name:          SYSTEM
```

You can scroll down in the Target area to view the actual log entry.



Event ID 4672

Event Provider Microsoft-Windows-Security-Auditing

Level 0

Message

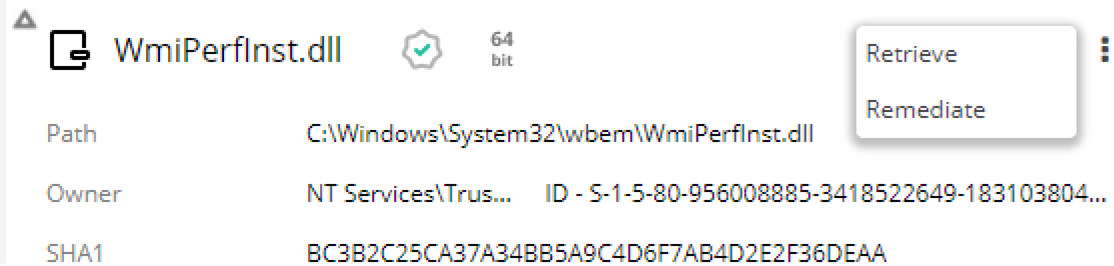
```
Special privileges assigned to new logon.

Subject:
	Security ID:		S-1-5-18
	Account Name:		SYSTEM
	Account Domain:		NT AUTHORITY
	Logon ID:		0x3E7

Privileges:		SeAssignPrimaryTokenPrivilege
			SeTcbPrivilege
			SeSecurityPrivilege
			SeTakeOwnershipPrivilege
			SeLoadDriverPrivilege
			SeBackupPrivilege
			SeRestorePrivilege
			SeDebugPrivilege
```

Retrieving a File / Remediating Devices upon Malware Detection

You can remediate any file that is a target of an activity event. You can also download a copy of any file (Retrieve action) that is a target of an activity event.

To retrieve a file or remediate the process:

1. Select the relevant Activity Event and open its Details Pane.
2. When hovering over the file name, you can select either of the following options:
   - In the Summary pane, select the three dot dropdown menu and then select **Retrieve** of **Remediate** the file, as shown below:



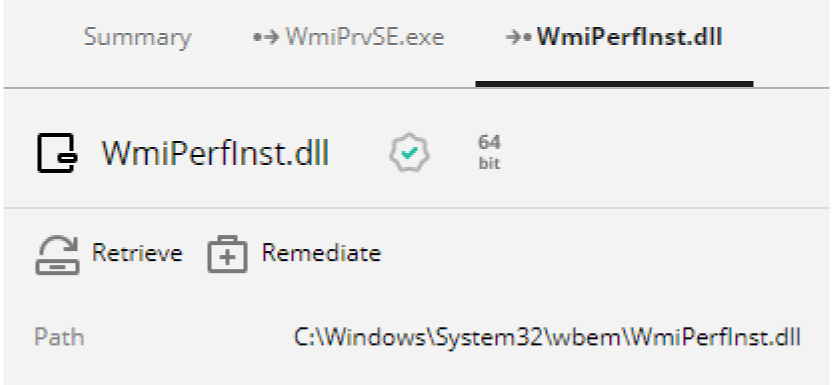
Path C:\Windows\System32\wbem\WmiPerfInst.dll

Owner NT Services\Trus... ID - S-1-5-80-956008885-3418522649-183103804...

SHA1 BC3B2C25CA37A34BB5A9C4D6F7AB4D2E2F36DEAA

– OR –

   - In the Details pane, click the **Retrieve** or **Remediate** button, as shown below:



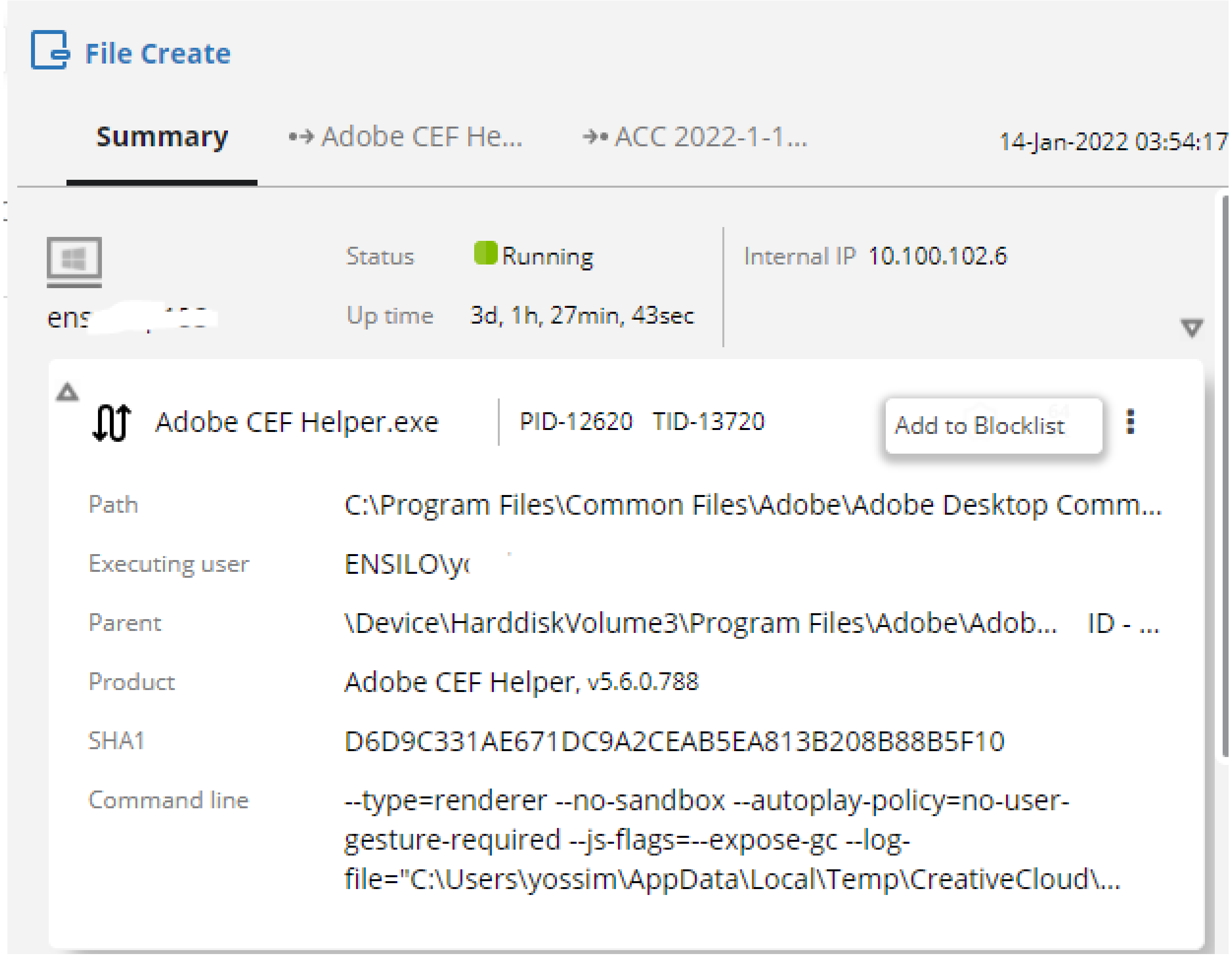
Path C:\Windows\System32\wbem\WmiPerfInst.dll

Adding an application to the Application Control policy blocklist

You can add any process that is either the source or the target of an activity event to the Application Control Policy blocklist such that this process won't launch on the devices that are assigned to that Application Control Policy.

To add a process to an Application Control policy:

1. Select the relevant Activity Event and open its Details Pane.
2. In the Summary page, click the ⋮ option next to the process name and select **Add to Blocklist**, as shown below:



File Create

Summary | ••→ Adobe CEF He... | →• ACC 2022-1-1... | 14-Jan-2022 03:54:17

ens

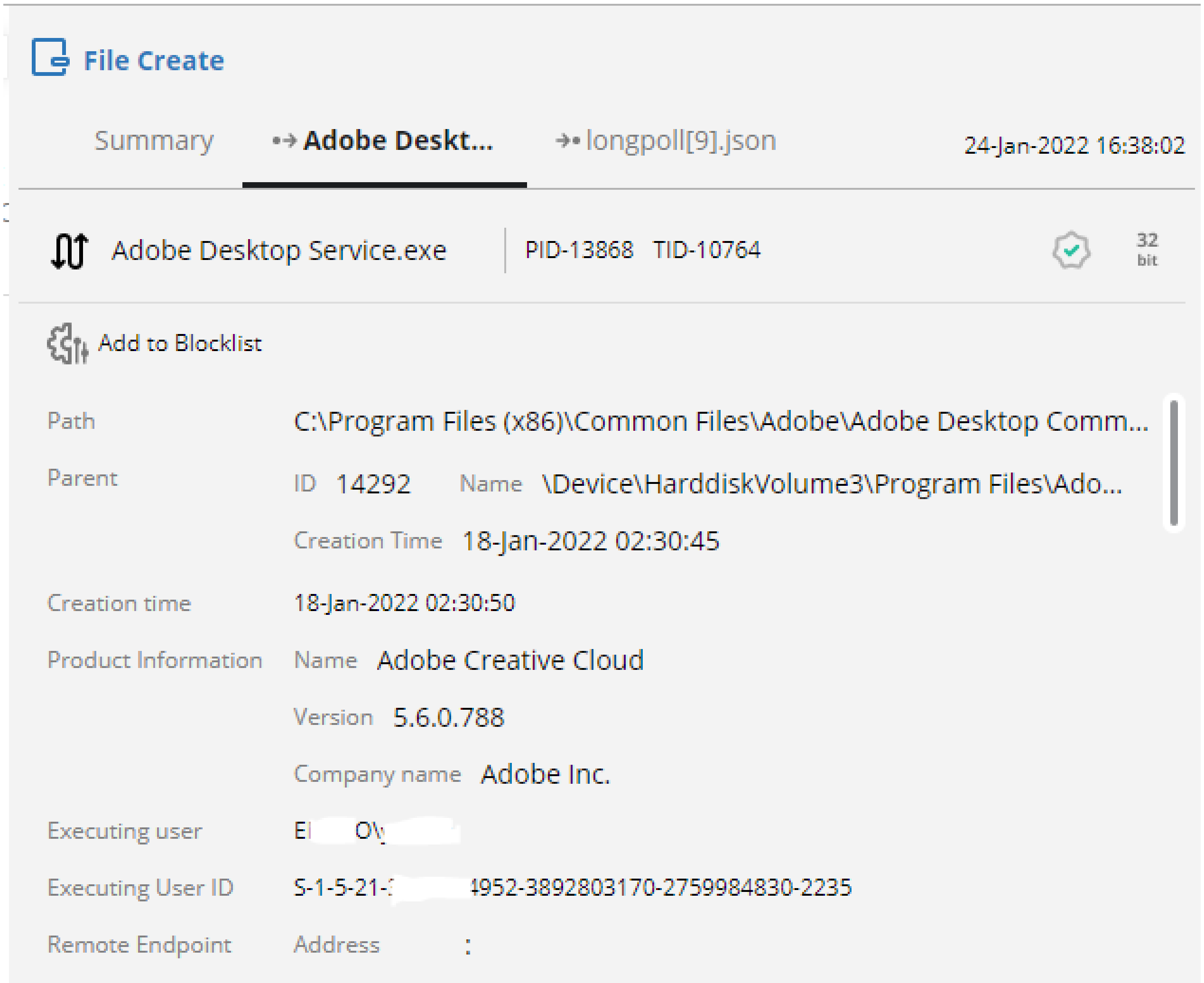
Status	🟩 Running	Internal IP	10.100.102.6
Up time	3d, 1h, 27min, 43sec		

Adobe CEF Helper.exe | PID-12620 TID-13720 | Add to Blocklist ⋮

Path	C:\Program Files\Common Files\Adobe\Adobe Desktop Comm...
Executing user	ENSILO\y
Parent	\Device\HarddiskVolume3\Program Files\Adobe\Adob... ID - ...
Product	Adobe CEF Helper, v5.6.0.788
SHA1	D6D9C331AE671DC9A2CEAB5EA813B208B88B5F10
Command line	--type=renderer --no-sandbox --autoplay-policy=no-user-gesture-required --js-flags=--expose-gc --log-file="C:\Users\yossim\AppData\Local\Temp\CreativeCloud\...

OR

Go to either the **Source** or the **Target** tab of type process and click the **Add to Blocklist** button, as shown below:



File Create

Summary | Adobe Deskt... | longpoll[9].json | 24-Jan-2022 16:38:02

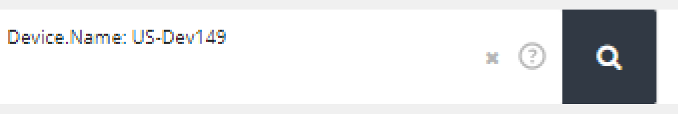
Adobe Desktop Service.exe | PID-13868 TID-10764 | 32 bit

Add to Blocklist

Path	C:\Program Files (x86)\Common Files\Adobe\Adobe Desktop Comm...
Parent	ID 14292 Name \Device\HarddiskVolume3\Program Files\Ado... Creation Time 18-Jan-2022 02:30:45
Creation time	18-Jan-2022 02:30:50
Product Information	Name Adobe Creative Cloud Version 5.6.0.788 Company name Adobe Inc.
Executing user	E[redacted]O[redacted]
Executing User ID	S-1-5-21-[redacted]4952-3892803170-2759984830-2235
Remote Endpoint	Address :

GDPR and Activity Event Data

The FortiEDR system fully complies with the General Data Protection Regulation (GDPR) standard, as described in the Personal Data Handling section on page 224. When you use the Personal Data Handling feature to delete data, it also deletes activity event data. However, the Personal Data Handling Search option does not search for and display the activity data that it will delete. Just for your own knowledge, in order to see a list of the activity data that will be deleted you can view it here before you delete it. To do so, simply enter a query here that includes the chosen record from the Activity Report (that can be accessed by selecting **Administration >Tools > Personal Data Handling**) in order to find the data to be removed. For example, if you have provided the string **149** in **Personal Data Handling** for Search by **Device name**, then in the displayed Activity Report, select the record containing the Device name to be deleted. In this example, it is **US-Dev149**. Then, in order to display all the activity events that are related to this device, enter the query **Device.Name: US-Dev149**, as shown below in order to display the relevant records.



Device.Name: US-Dev149

To find all activity related to a user chosen from a Personal Data Handling Activity Report, enter the following query, and select the required time range:

"Source.File.Owner:<**username**> OR Source.User:<**username**> OR Process.File.Owner:<**username here**> OR Process.User:<**username**> OR Target.File.Owner:<**username**>"

Similarly, to find all activity related to an IP chosen from a Personal Data Handling Activity Report, enter the following query:

"Device.IPInternal:<**IP**> OR LocalIP:< **IP** > OR RemoteIP:< **IP** > OR Target.Network.AdditionalData.RemoteIp:<**IP**>"

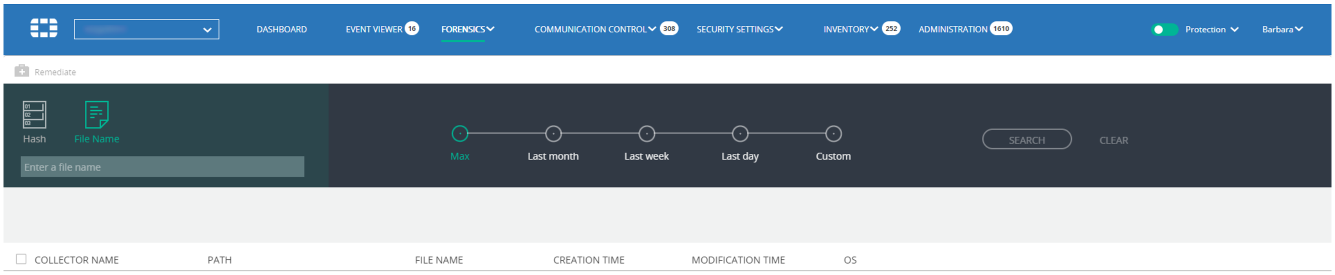
Legacy Threat Hunting

FortiEDR's Legacy Threat Hunting is available in FortiEDR environments that have been upgraded to v5.0 and above from previous versions. This feature enables you to hunt for files and hashes that were collected before the upgrade to v5.0.

Use the Legacy Threat Hunting feature when there are Collectors in your system that have not been upgraded to FortiEDR V5.0 in order to search for files/hashes on those Collectors. After all Collectors have been upgraded to V5.0 or above, you can use FortiEDR's Threat Hunting feature instead, which has more extensive collected data. For more details, seeThreat Hunting on page 222

.Access the **Threat Hunting Legacy** page under the **Forensics** tab.

Click the **Threat Hunting** option under the **Forensics** tab. This action opens the **Threat Hunting** page. In this case, the **Hash/Process** field is empty.



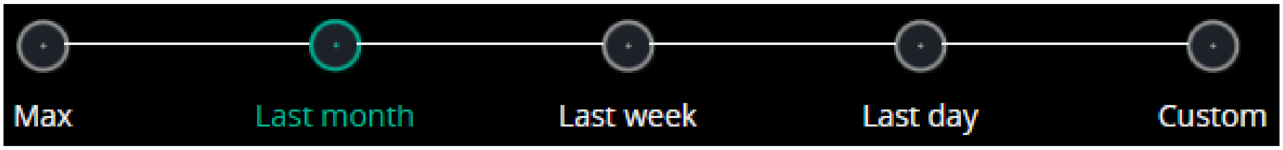
To search for malware using Threat Hunting (Legacy):

1. Select the basis for the search by clicking the Hash or File Name button. When you select the Hash button, the search results represent matching HASH values. When you select the File Name button, the search results represent matching file names.

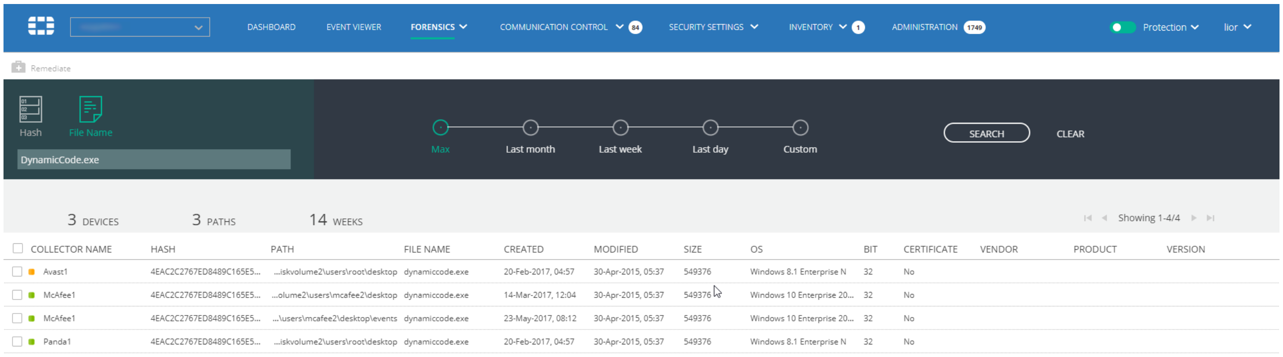
When accessing the **Threat Hunting** page using Method 1, the relevant HASH value appears in the field adjacent to the Hash button, as shown below.

When accessing the **Threat Hunting** page using Method 2, the field adjacent to the Hash and File Name buttons is empty.

2. If the field adjacent to the Hash and File Name buttons is empty, copy and paste the applicable file name or HASH value into the empty field.
3. Specify the time range for the search using the timeline buttons at the top of the window.



4. Click the **Search** button. The system searches for matching files in all devices in your environment. When the search completes, the search results display in the window. The example below shows a search by process.

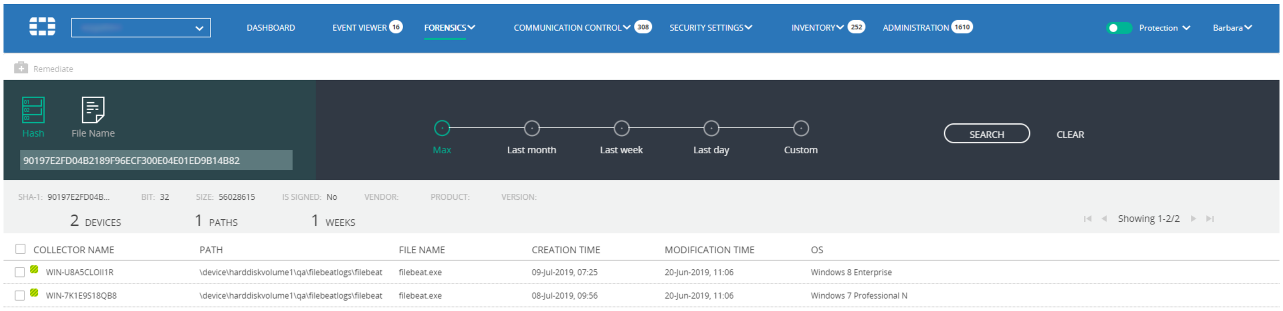


DynamicCode.exe

3 DEVICES 3 PATHS 14 WEEKS

	COLLECTOR NAME	HASH	PATH	FILE NAME	CREATED	MODIFIED	SIZE	OS	BIT	CERTIFICATE	VENDOR	PRODUCT	VERSION
□	Avast1	4EAC2C2767ED8489C165E5...	...iskvolume2\users\root\desktop	dynamiccode.exe	20-Feb-2017, 04:57	30-Apr-2015, 05:37	549376	Windows 8.1 Enterprise N	32	No			
□	McAfee1	4EAC2C2767ED8489C165E5...	...olume2\users\mcafee2\desktop	dynamiccode.exe	14-Mar-2017, 12:04	30-Apr-2015, 05:37	549376	Windows 10 Enterprise 20...	32	No			
□	McAfee1	4EAC2C2767ED8489C165E5...	...\users\mcafee2\desktop\events	dynamiccode.exe	23-May-2017, 08:12	30-Apr-2015, 05:37	549376	Windows 10 Enterprise 20...	32	No			
□	Panda1	4EAC2C2767ED8489C165E5...	...iskvolume2\users\root\desktop	dynamiccode.exe	20-Feb-2017, 04:57	30-Apr-2015, 05:37	549376	Windows 8.1 Enterprise N	32	No			

The row directly above the results table summarizes the results of the search. For example, in the window above, the system found 2 unique devices and one unique path created in the same one week. The example below shows the results of a search by HASH.



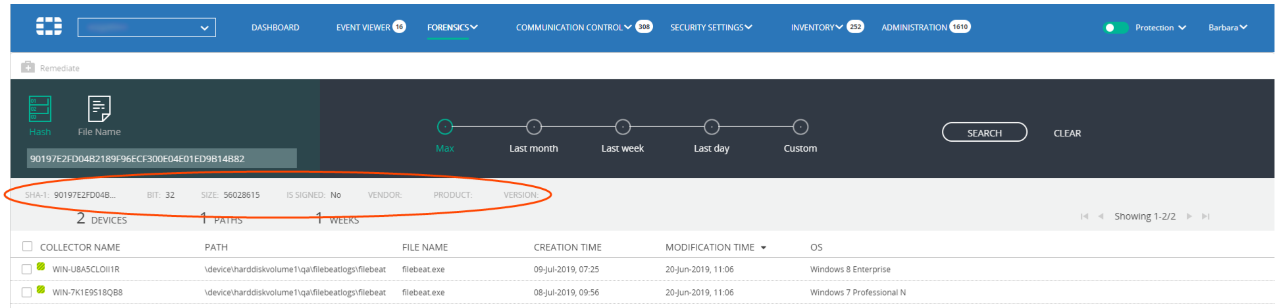
90197E2FD04B2189F96ECF300E04E01ED9B14B82

SHA-1: 90197E2FD04B... BIT: 32 SIZE: 56028615 IS SIGNED: No VENDOR: PRODUCT: VERSION:

2 DEVICES 1 PATHS 1 WEEKS

□ COLLECTOR NAME	PATH	FILE NAME	CREATION TIME	MODIFICATION TIME	OS
□ WIN-U8A5CLOII1R	\device\harddiskvolume1\qa\filebeatlogs\filebeat	filebeat.exe	09-Jul-2019, 07:25	20-Jun-2019, 11:06	Windows 8 Enterprise
□ WIN-7K1E9S18QB8	\device\harddiskvolume1\qa\filebeatlogs\filebeat	filebeat.exe	08-Jul-2019, 09:56	20-Jun-2019, 11:06	Windows 7 Professional N

The labels row directly above the summary row identifies common, shared data elements. For example, Sha-1, vendor and so on. The identified elements are shared by all files. Note that typically you see more common data elements when searching by HASH than by process.



90197E2FD04B2189F96ECF300E04E01ED9B14B82

SHA-1: 90197E2FD04B... BIT: 32 SIZE: 56028615 IS SIGNED: No VENDOR: PRODUCT: VERSION:

2 DEVICES 1 PATHS 1 WEEKS

□ COLLECTOR NAME	PATH	FILE NAME	CREATION TIME	MODIFICATION TIME ▾	OS
□ WIN-U8A5CLOII1R	\device\harddiskvolume1\qa\filebeatlogs\filebeat	filebeat.exe	09-Jul-2019, 07:25	20-Jun-2019, 11:06	Windows 8 Enterprise
□ WIN-7K1E9S18QB8	\device\harddiskvolume1\qa\filebeatlogs\filebeat	filebeat.exe	08-Jul-2019, 09:56	20-Jun-2019, 11:06	Windows 7 Professional N

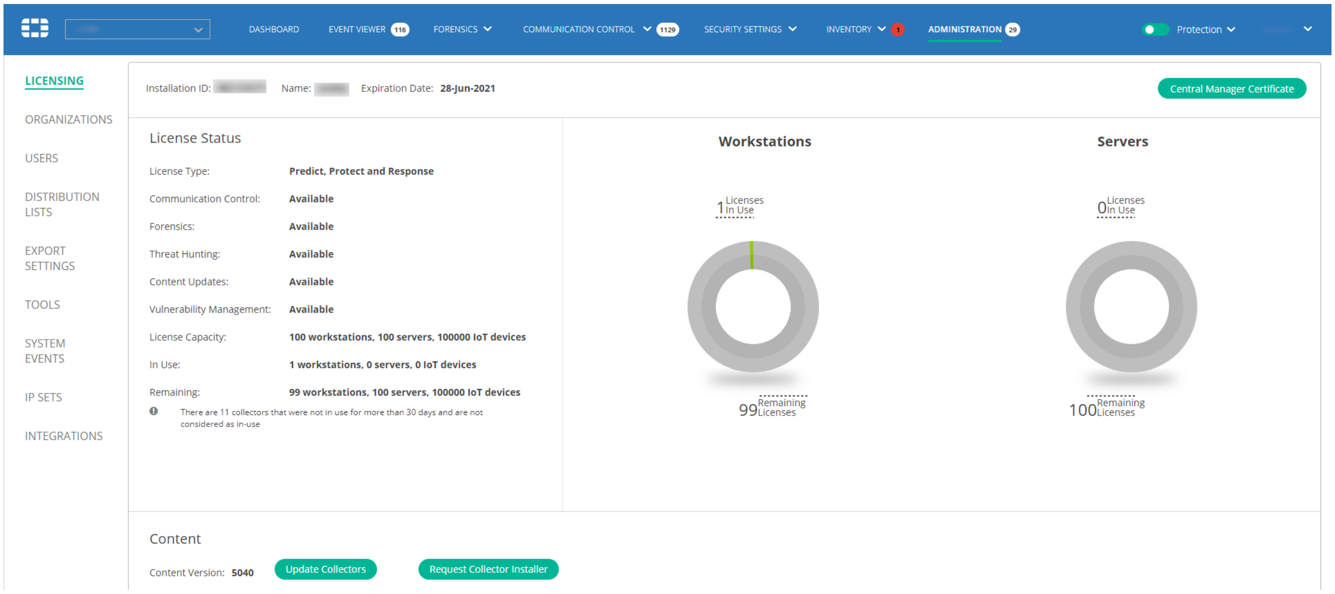
Administration

This chapter describes the FortiEDR Administration options, which are only available to users with administration rights (Local Administrators and Administrators).

Licensing

Selecting **LICENSING** in the **ADMINISTRATION** tab displays all the entitlements provided by your license.

This window also shows your Serial Number, which is your FortiEDR unique identifier with Fortinet.



Installation ID: [redacted] Name: [redacted] Expiration Date: **28-Jun-2021**

License Status

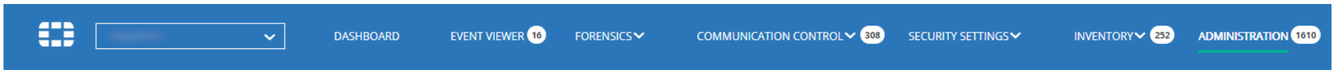
License Type:	**Predict, Protect and Response**
Communication Control:	**Available**
Forensics:	**Available**
Threat Hunting:	**Available**
Content Updates:	**Available**
Vulnerability Management:	**Available**
License Capacity:	**100 workstations, 100 servers, 100000 IoT devices**
In Use:	**1 workstations, 0 servers, 0 IoT devices**
Remaining:	**99 workstations, 100 servers, 100000 IoT devices**

There are 11 collectors that were not in use for more than 30 days and are not considered as in-use

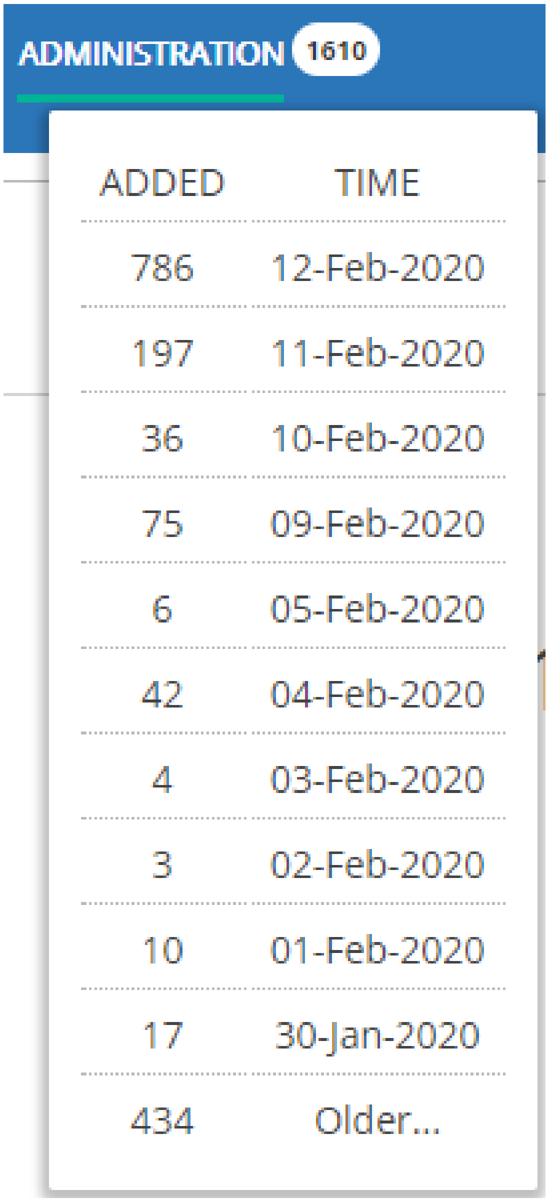
Content

Content Version: **5040**

Note – The tab bar at the top of the window may display a white circle(s) with a number inside the circle to indicate that new security events have not been read by the user. For Administration, the number represents the number of unread system events.



You can hover over the number to see the list of unread system events. Each row shows the number of system events added by day.

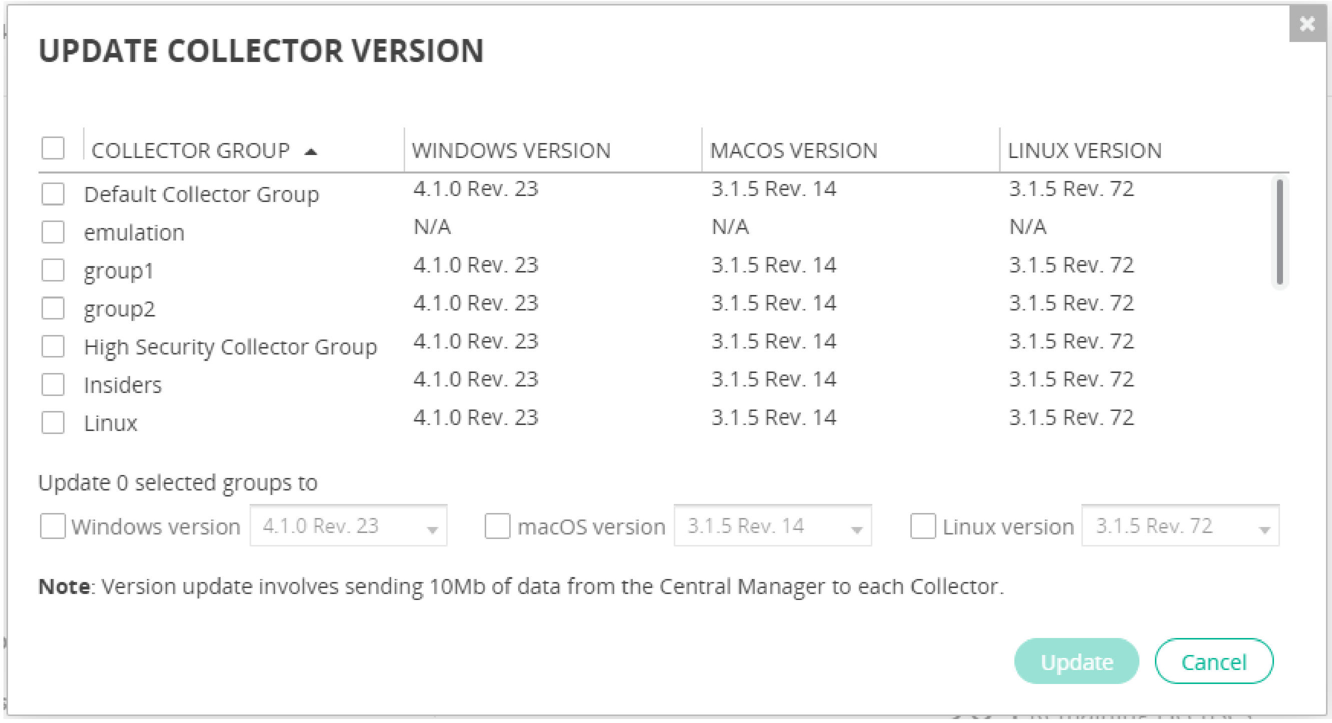


ADDED	TIME
786	12-Feb-2020
197	11-Feb-2020
36	10-Feb-2020
75	09-Feb-2020
6	05-Feb-2020
42	04-Feb-2020
4	03-Feb-2020
3	02-Feb-2020
10	01-Feb-2020
17	30-Jan-2020
434	Older...

Updating the Collector Version

The Update Collector Version feature is used to update a FortiEDR version, such as from version 3.1.0 to 3.1.1. To update a FortiEDR revision, use the Automatic Updates feature described on Automatic Collector Updates on page 295.

When you click the Update Collectors button in the Licensing window, the Update Collector Version window displays. This window lists all available Collector Groups. The **Windows Version, MacOS Version** and **Linux Version** columns indicate the current FortiEDR version for the Collectors in a Collector Group.



UPDATE COLLECTOR VERSION

□ COLLECTOR GROUP ▲	WINDOWS VERSION	MACOS VERSION	LINUX VERSION
□ Default Collector Group	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□ emulation	N/A	N/A	N/A
□ group1	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□ group2	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□ High Security Collector Group	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□ Insiders	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□ Linux	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72

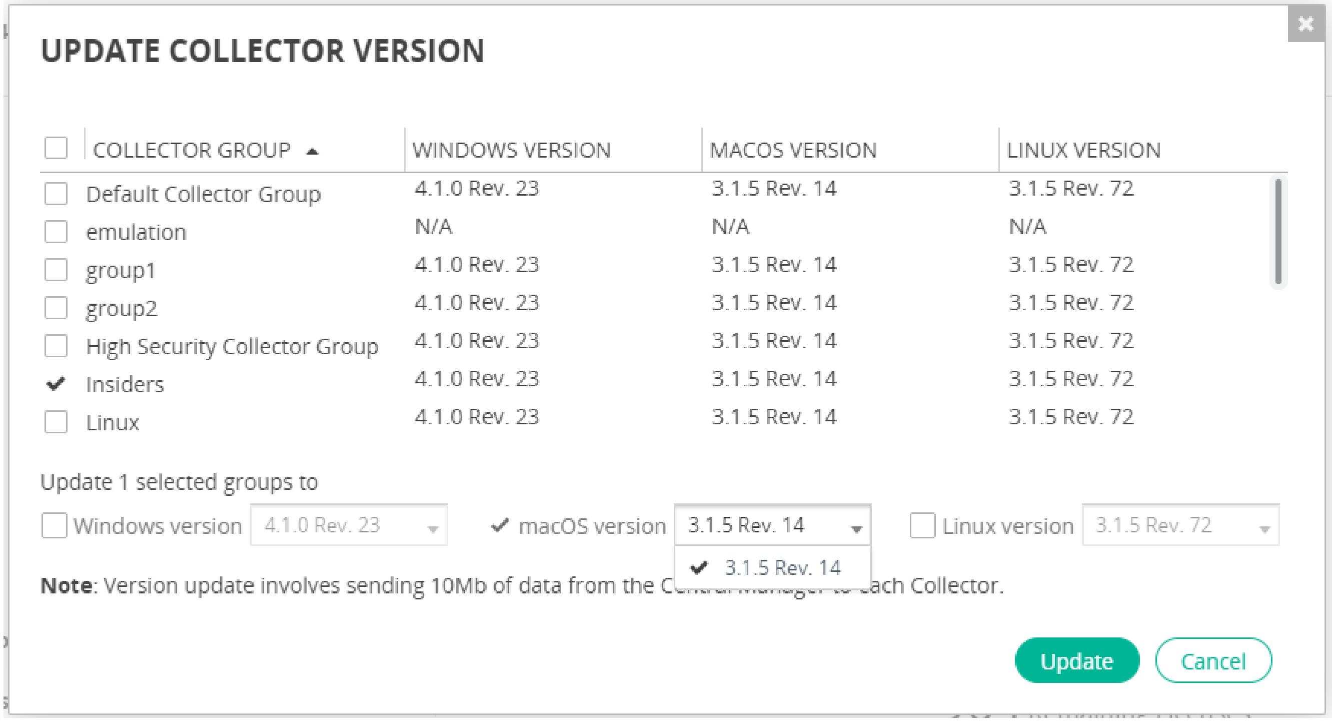
Update 0 selected groups to

□ Windows version 4.1.0 Rev. 23 □ macOS version 3.1.5 Rev. 14 □ Linux version 3.1.5 Rev. 72

Note: Version update involves sending 10Mb of data from the Central Manager to each Collector.

You can update the version for the Collectors in a Collector Group for each operating system.

Note that if the **Automatic Updates** checkbox is checked in the Tools window, then the Update Collector Version window does not display the revision number in the Windows Version, MacOS Version and Linux Version columns, as the revision is automatically updated with the Automatic Updates feature.



UPDATE COLLECTOR VERSION

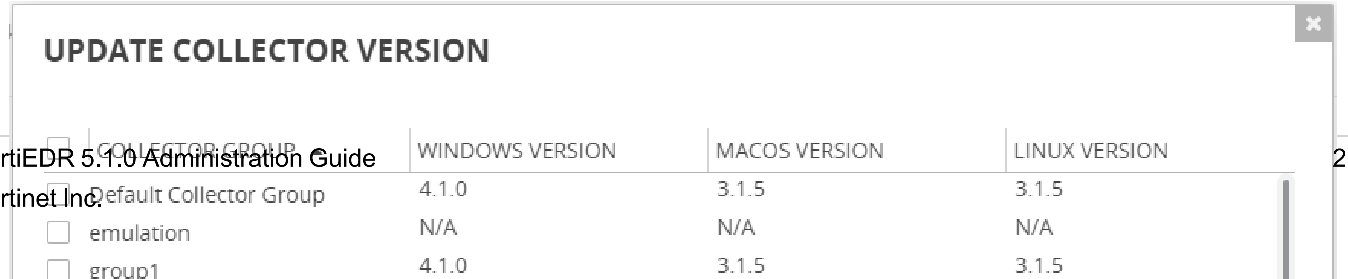
□ COLLECTOR GROUP ▲	WINDOWS VERSION	MACOS VERSION	LINUX VERSION
□ Default Collector Group	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□ emulation	N/A	N/A	N/A
□ group1	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□ group2	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□ High Security Collector Group	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
✓ Insiders	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□ Linux	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72

Update 1 selected groups to

□ Windows version 4.1.0 Rev. 23 ✓ macOS version 3.1.5 Rev. 14 □ Linux version 3.1.5 Rev. 72

✓ 3.1.5 Rev. 14

Note: Version update involves sending 10Mb of data from the C... ...ach Collector.

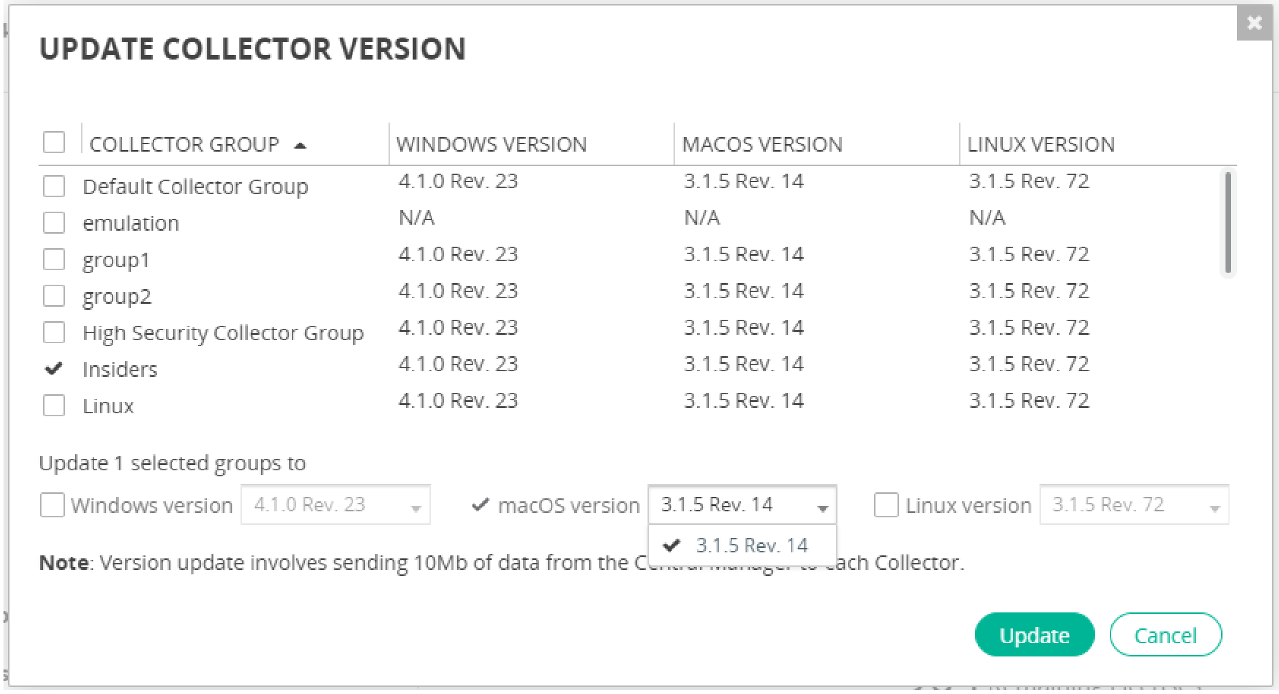


UPDATE COLLECTOR VERSION

□ COLLECTOR GROUP	WINDOWS VERSION	MACOS VERSION	LINUX VERSION
□ Default Collector Group	4.1.0	3.1.5	3.1.5
□ emulation	N/A	N/A	N/A
□ group1	4.1.0	3.1.5	3.1.5

To update the version for the Collectors in a Collector Group:

1. Check the checkbox of the Collector Group(s) whose Collectors you want to update. You can select more than one Collector Group.
2. Select the checkbox of the operating system(s) to update and in its adjacent dropdown list, select the FortiEDR version for the Collectors in the designated Collector Group. You can select more than one operating system.



UPDATE COLLECTOR VERSION

□	COLLECTOR GROUP ▲	WINDOWS VERSION	MACOS VERSION	LINUX VERSION
□	Default Collector Group	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□	emulation	N/A	N/A	N/A
□	group1	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□	group2	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□	High Security Collector Group	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
✓	Insiders	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□	Linux	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72

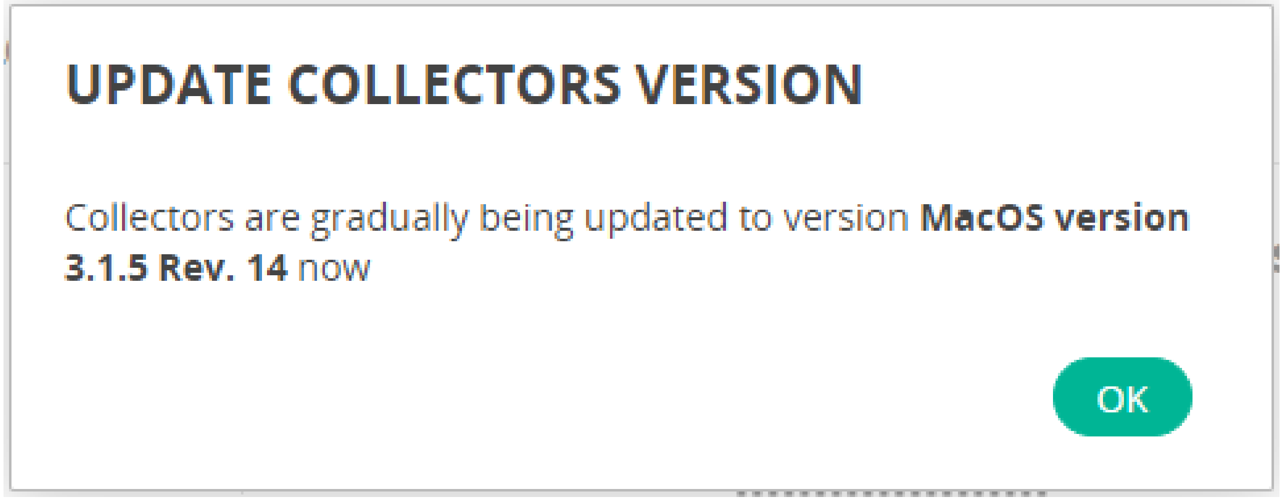
Update 1 selected groups to

□ Windows version 4.1.0 Rev. 23 ✓ macOS version 3.1.5 Rev. 14 □ Linux version 3.1.5 Rev. 72

✓ 3.1.5 Rev. 14

Note: Version update involves sending 10Mb of data from the Central Manager to each Collector.

3. Click **Update**. FortiEDR gradually updates all the Collectors in the Collector Group(s) to the required version for the specified operating system(s), and displays the following window:



UPDATE COLLECTORS VERSION

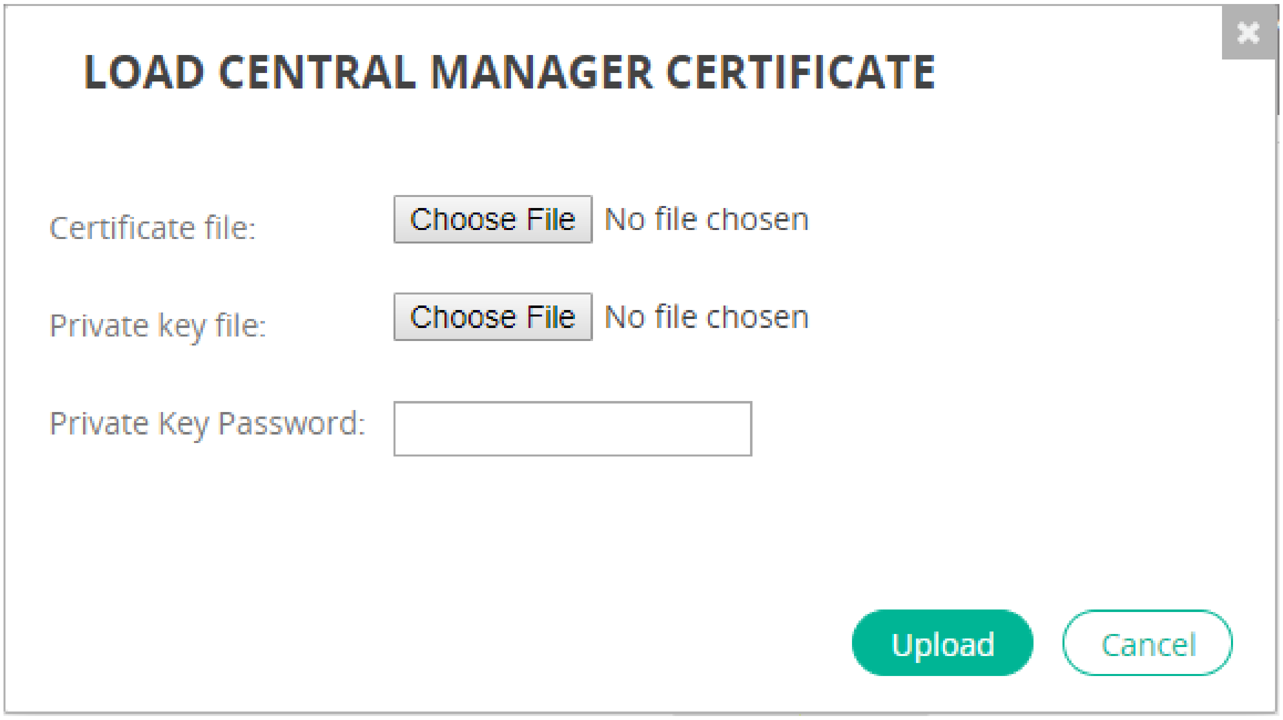
Collectors are gradually being updated to version **MacOS version 3.1.5 Rev. 14** now

4. Click **OK**.

Loading a Server Certificate

To load a certificate:

1. Click Central Manager Certificate . The **Load Central Manager Certificate** dialog opens.



LOAD CENTRAL MANAGER CERTIFICATE

Certificate file: Choose File No file chosen

Private key file: Choose File No file chosen

Private Key Password:

2. Click **Choose File** to upload the certificate file.

The certificate common name (CN) must match the FQDN of the FortiEDR machine. Otherwise, an error will occur.

3. Click **Choose File** to upload the private key file.
4. Enter the certificate password in the **Private Key Password** field.
5. Click **Upload**.
6. Configure the certificate as follows:
   - For cloud deployment, please contact Fortinet Support.
   - For on-premise deployment, on the FortiEDR Manager VM, add `connector.ssl.externalAddress = %certificate domain%` to the `/opt/FortiEDR/webapp/application-customer.properties` file, and then restart the VM.

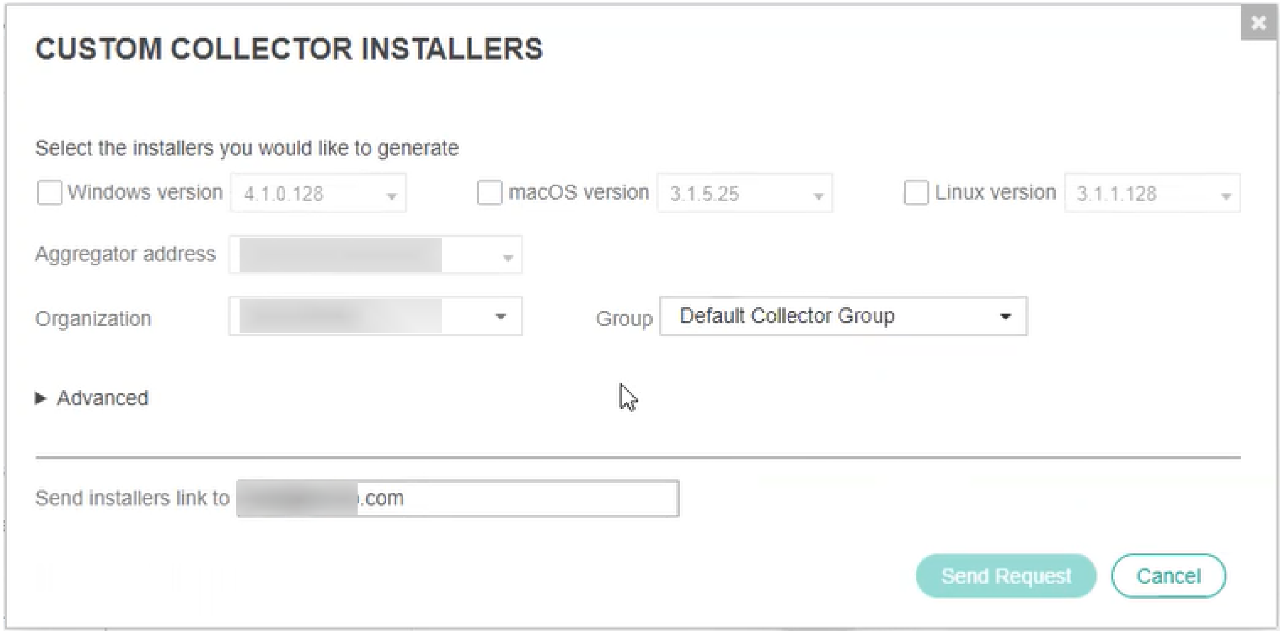
Requesting and Obtaining a Collector Installer

You can click the Request Collector Installer button to obtain a Collector installer file that can be used to install a Collector. This option enables you to request an installer for a particular operating system(s), such as Windows, MacOS or Linux. This installer is similar to the standard wizard used to install a Collector, except that many of the fields in the wizard have already been filled in for you. The requested installer is then emailed to you. After you receive the installer file from FortiEDR, simply unzip it using the password provided in the email, double-click the installer and then follow the instructions to install a Collector based on the operating system on which it is to be installed, as described in Installing FortiEDR Collectors on page 26.

In order to determine the type of installer to request (according to the operating system), configure the settings in the Custom Collector Installers window, as described below.

To configure custom installer settings:

1. In the Licensing window, click the Request Collector Installer button. The following displays:



CUSTOM COLLECTOR INSTALLERS

Select the installers you would like to generate

□ Windows version 4.1.0.128 □ macOS version 3.1.5.25 □ Linux version 3.1.1.128

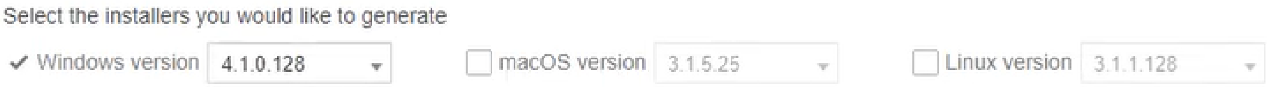
Aggregator address [redacted]

Organization [redacted] Group Default Collector Group

▶ Advanced

Send installers link to [redacted].com

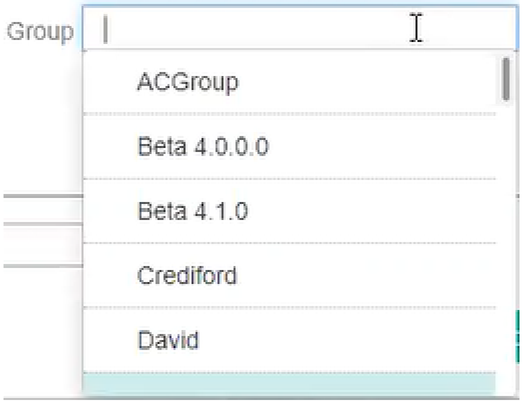
2. In the Select the installer you would like to generate area, select the checkbox of the installer(s) you want to request. Multiple installers can be requested at the same time.



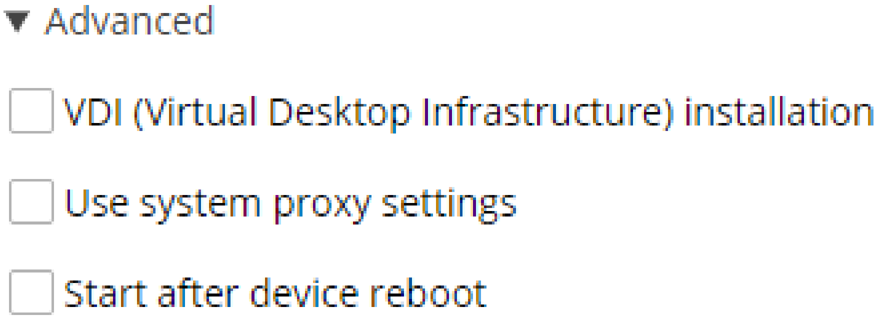
Select the installers you would like to generate

✓ Windows version 4.1.0.128 □ macOS version 3.1.5.25 □ Linux version 3.1.1.128

3. In the adjacent dropdown list, select the installer version. When selecting installers for more than one operating system, you must specify the version for each of them. Specify the version in the same manner as described on Updating the Collector Version on page 253
4. In the **Aggregator Address** dropdown list, select the aggregator to which this Collector is registered.
5. In a multi-tenant system, select the organization to which the installed Collector is registered in the **Organization** dropdown list.
6. In the **Group** dropdown list, select the Collector Group to which the installed Collector is assigned, or leave the field empty for the Collector to be assigned to the default Collector Group.



7. In the Advanced area, specify the following:



▼ Advanced

□ VDI (Virtual Desktop Infrastructure) installation

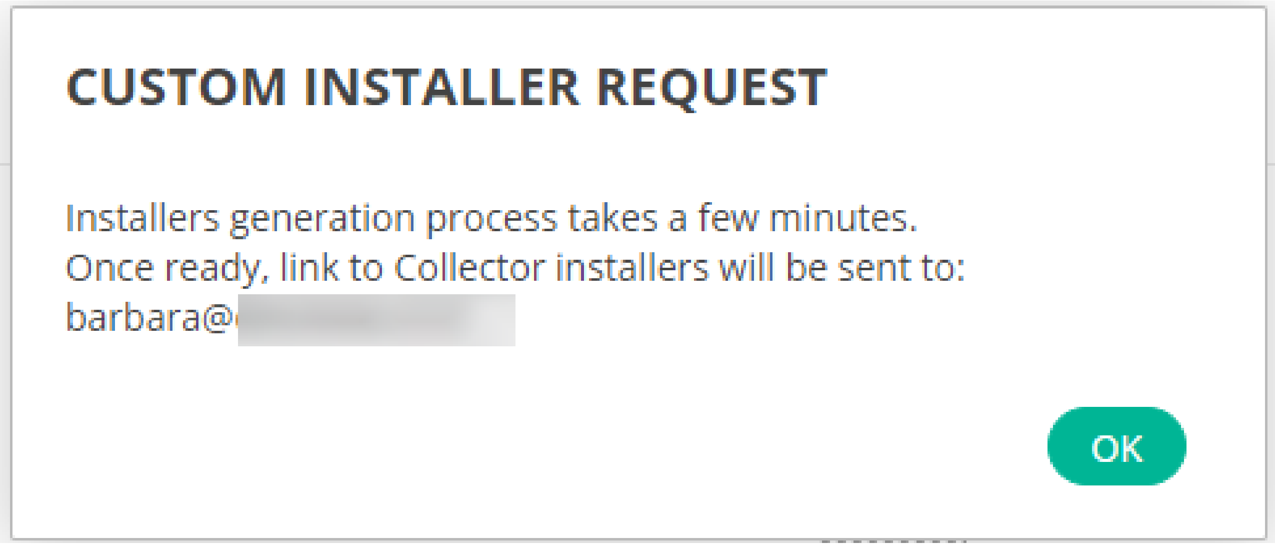
□ Use system proxy settings

□ Start after device reboot

- **VDI (Virtual Desktop Infrastructure) Installation**: If you are installing the Collector on a VDI environment, check this checkbox. For more details, you may refer to the Working with FortiEDR on VDI Environments section on page 54.
- **Use System Proxy Settings**: If you use a web proxy to filter requests in this device's network, then check the **Use System Proxy Settings** checkbox. Note that Windows must be configured to use a proxy and tunneling must be allowed from the Collector to the Aggregator on port 8081 and from the Collector to the Core on port 555. (Run as Administrator: netsh winhttp set proxy <proxy IP >).
- **Start After Device Reboot**: Check this checkbox in order to delay data collection until a device reboot is applied. This is only required in rare cases. Typically, this checkbox remains unchecked.

8. In the Send Installers Link To field, specify the email address to which the installer is to be sent.

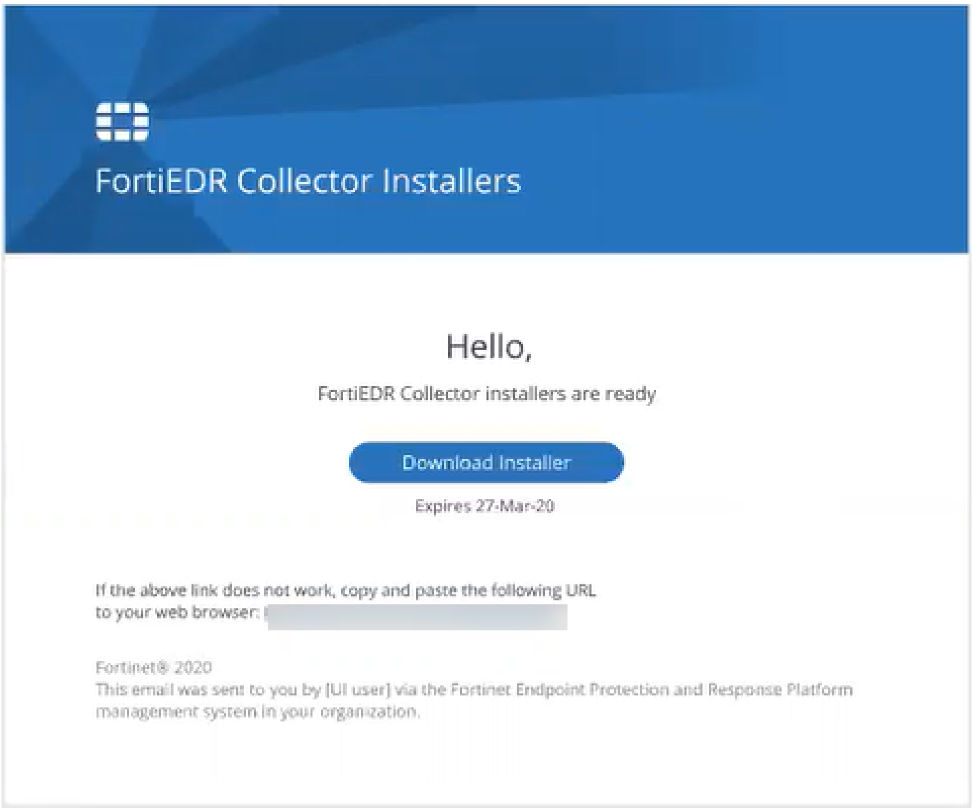
9. Click the Send Request button. A confirmation message displays.



CUSTOM INSTALLER REQUEST

Installers generation process takes a few minutes.
Once ready, link to Collector installers will be sent to:
barbara@[redacted]

10. Click **OK.** After the installer is generated by FortiEDR, it is emailed to the specified email address. Note that the link to download installers is only available for several hours. Be sure to download the installers within the required time period so that the link does not expire.



FortiEDR Collector Installers

Hello,

FortiEDR Collector installers are ready

Expires 27-Mar-20

If the above link does not work, copy and paste the following URL
to your web browser: [redacted]

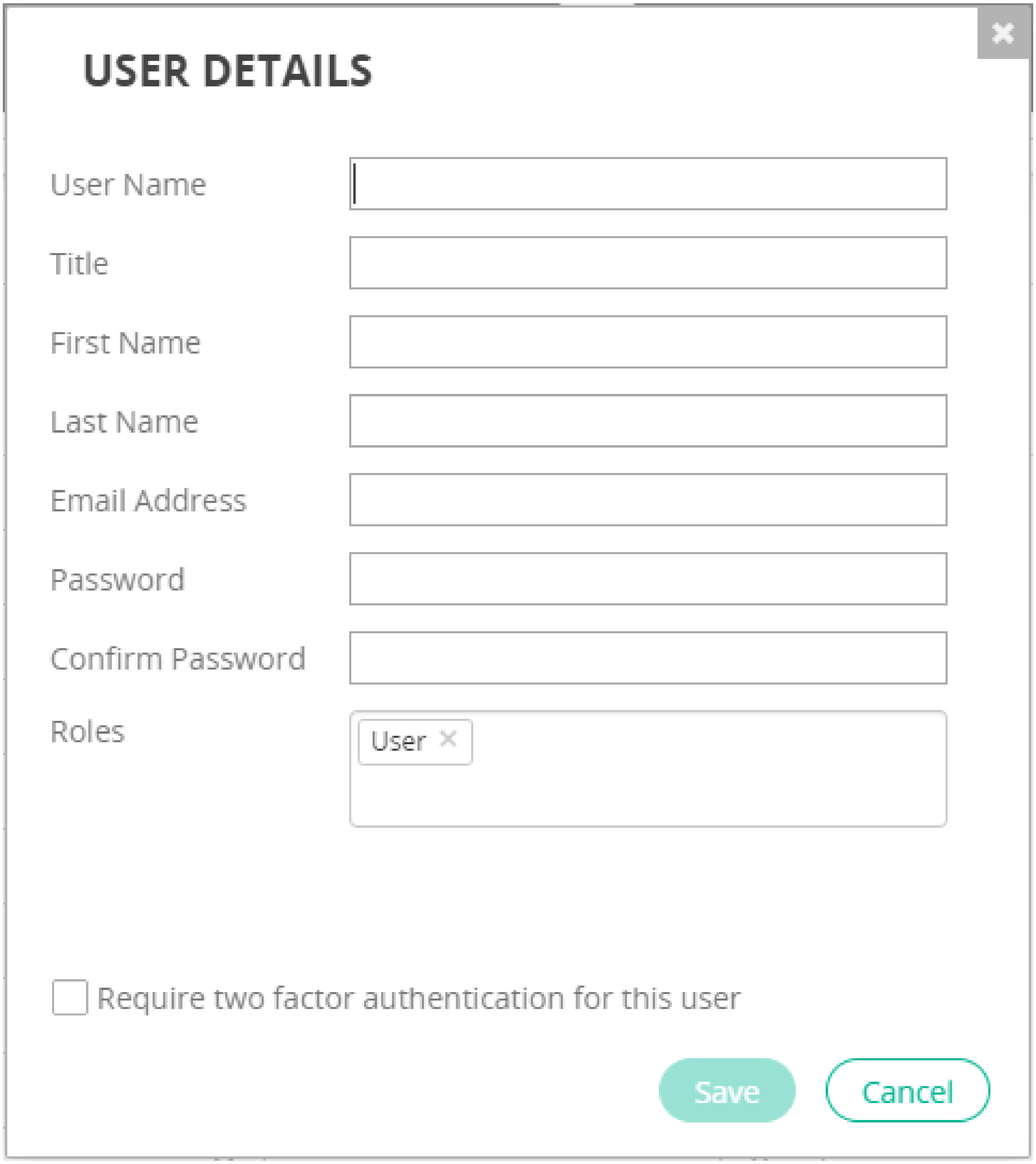
Fortinet® 2020
This email was sent to you by [UI user] via the Fortinet Endpoint Protection and Response Platform management system in your organization.

Users

The USERS option specifies who is allowed to use the FortiEDR Central Manager console. During installation of the FortiEDR Central Manager, you must specify the user name and password of the first FortiEDR Central Manager console user. This is the only user who can log in to the FortiEDR Central Manager console for the first time.

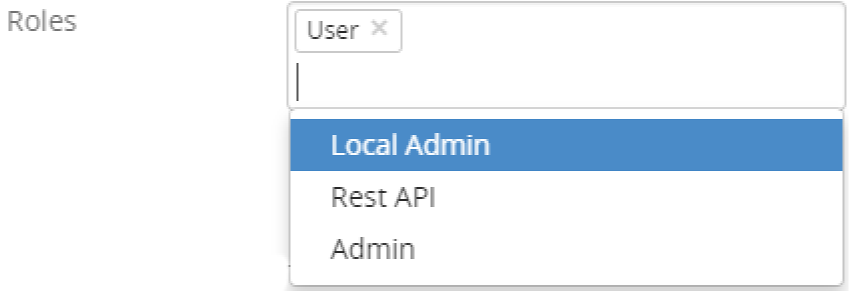
To add a user:

1. Click the Add User button.
2. Fill in the displayed window.



3. Define this user’s password. Make sure to remember it and notify the user about this password.

4. Select the user's Role. The system comes with three predefined user roles:
    - **Admin**: Is the highest-level super user that can perform all operations in the FortiEDR Central Manager console for all organizations. This role can create users for any organization. For more details, seeMulti-tenancy (Organizations) on page 338.
    - **Local Admin**: Is a super user that can perform all operations in the FortiEDR Central Manager console only for its own organization. Typically, the Local Administrator sets up the users for its organization. This role can only create users for its own organization.
    - **User**: This user is allowed to view all information and to perform actions, such as to mark security events as handled, change policies and define Exceptions. This user is very similar to the Local Administrator. However, this user cannot access the **ADMINISTRATION** tab, which is described in this chapter.



Note – When upgrading FortiEDR from a version prior to V3.0, all administrators in the previous FortiEDR version are automatically assigned Administrator and Local Administrator privileges. You can decide whether to leave each such administrator with both sets of privileges, or to only assign them the Local Administrator role.

5. Check the **Require two-factor authentication for this user** checkbox if you want to require two-factor authentication for the user. When checked, this user must be authenticated using two-factor authentication in order to log in. For more details about two-factor authentication in FortiEDR, seeTwo-factor Authentication on page 262.
6. Click **Save**.

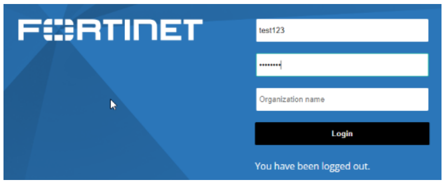
Two-factor Authentication

You can require two-factor authentication for a specific FortiEDR user. In this case, that user must provide additional proof in addition to their user name and password whenever logging in to FortiEDR. In FortiEDR, two-factor authentication can be used with any third-party authentication application such as Google Authenticator, Microsoft Authenticator or Duo, in order to verify the user's identify.

To designate that a user requires two-factor authentication, you must check the **Require two-factor authentication for this user** checkbox for that user, as described in Users on page 260.

To log in using two-factor authentication (in this example we use the Google Authenticator app):

1. For a user who requires two-factor authentication to log in, the following window appears the first time that user attempts to log in.



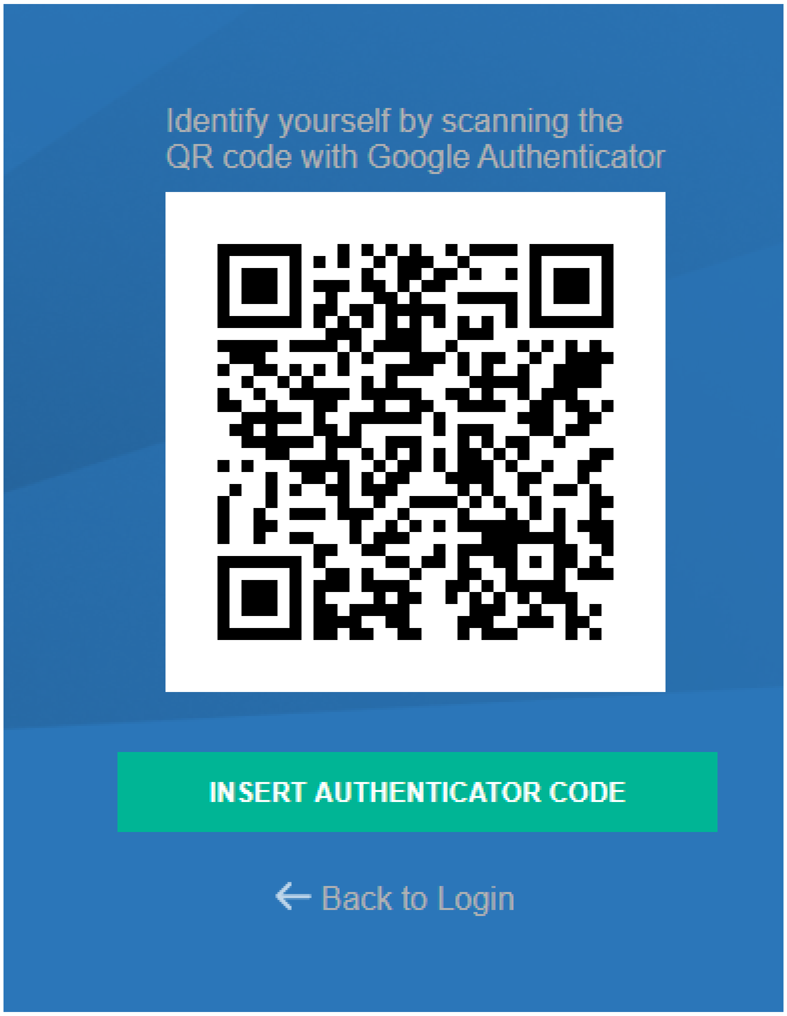
test123

••••••••

You have been logged out.

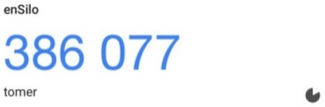
2. 2 Enter the user name and password and click LOGIN.

3. After clicking **LOGIN**, the user's identify must be verified using Google Authenticator. To do so, launch Google Authenticator by clicking the **Google Authenticator** icon on your mobile device. A QR code displays, as shown below:



Identify yourself by scanning the QR code with Google Authenticator

4. Scan the QR code that displays in the FortiEDR window using your mobile device. After scanning, a FortiEDR token appears on the mobile device, as shown below. Note that this token (code) changes every 30 seconds.

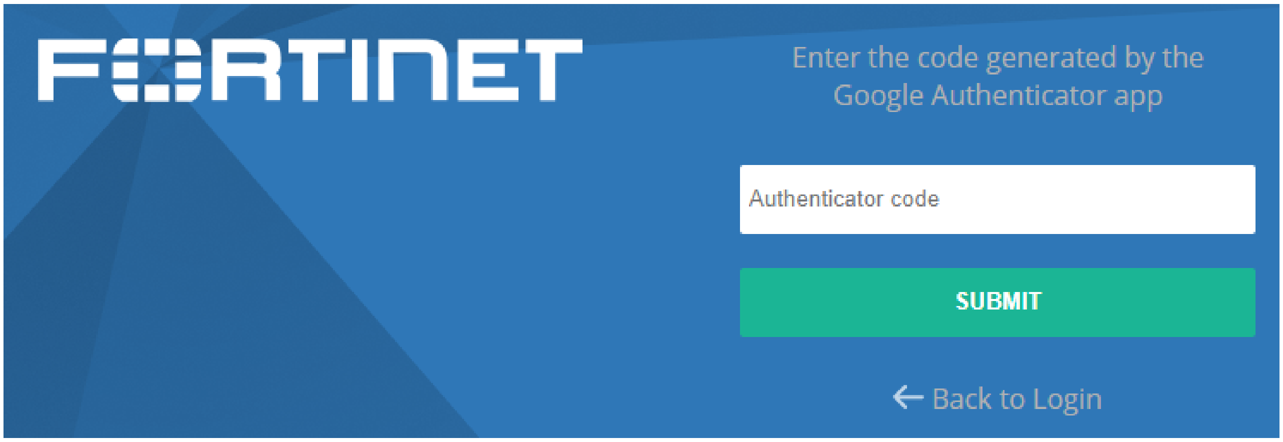


enSilo

386 077

tomer

5. In the FortiEDR login window, click the INSERT AUTHENTICATOR CODE button. The following window displays:



Enter the code generated by the Google Authenticator app

6. Enter the authentication token (code) you received in step 4, and then click **SUBMIT**. Be sure to enter the latest code, as the code changes every 30 seconds.
   From this point on, the user can log in using the standard manner. Note that FortiEDR asks for a new token once every seven days. This means that you must repeat steps 1 through 6 when logging in to FortiEDR every seven days.

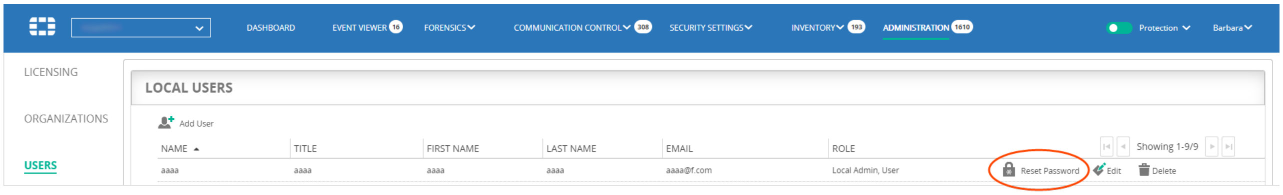
Resetting a User Password

Use the procedure described below to reset a user's password.

If a user who must use two-factor authentication cannot access the FortiEDR application because of a lost or replaced mobile device, that user must repeat the procedure in Two-factor Authentication on page 262 in order to log in. Before performing this procedure, you must first reset that user's password to accept a new two-factor authentication token.

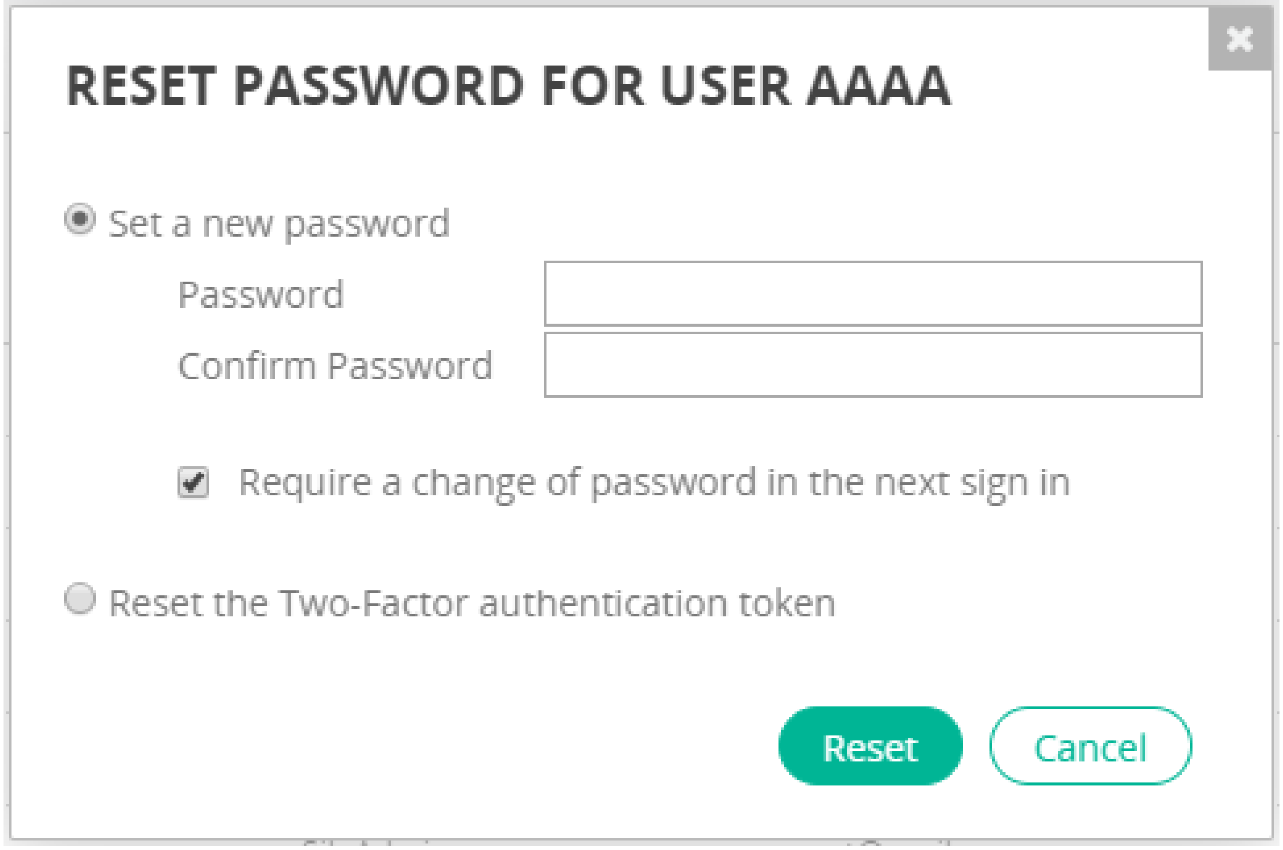
To reset a user password:

1. In the **ADMINISTRATION** tab, click the **USERS** link. The user list displays.



NAME ▲	TITLE	FIRST NAME	LAST NAME	EMAIL	ROLE	
aaaa	aaaa	aaaa	aaaa	aaaa@f.com	Local Admin, User	Reset Password Edit Delete

2. Click the **Reset Password** button for the user whose password you want to reset. The following window displays:



RESET PASSWORD FOR USER AAAA

● Set a new password

Password

Confirm Password

☑ Require a change of password in the next sign in

○ Reset the Two-Factor authentication token

3. Do one fo the following:
   - Click the **Set a New Password** radio button and define a new password for the user.
   - For a user that must use two-factor authentication, click the **Reset the Two-Factor Authentication Token** radio button to force user identity verification using two-factor authentication during that user's next login. This means that the user must complete the procedure inTwo-factor Authentication on page 262in order to log in.
4. Click the **Reset** button.

LDAP Authentication

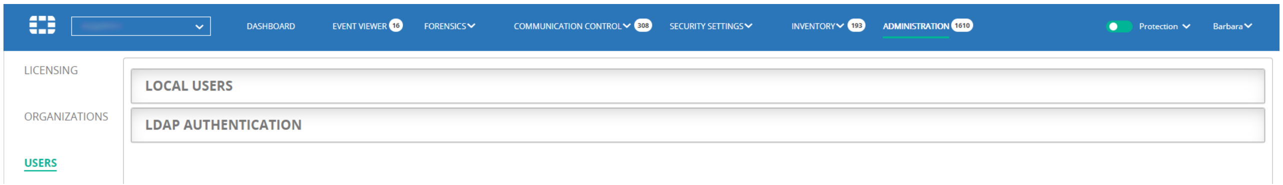
Lightweight Directory Access Protocol (LDAP) authentication is an open, industry-standard application protocol for accessing and maintaining distributed directory information services over an IP network. LDAP provides a central place to store usernames and passwords. This enables many different applications and services to connect to an LDAP server to validate users. This has a major benefit that allows a central place to update and change user passwords.

When LDAP authentication is enabled in FortiEDR, whenever a user attempts to log in to FortiEDR, the system looks for that user name and password in the central directory, instead of within the FortiEDR directory. If the user is not found on the LDAP server, the system checks whether the user is defined locally (under **Admin > User Settings**).

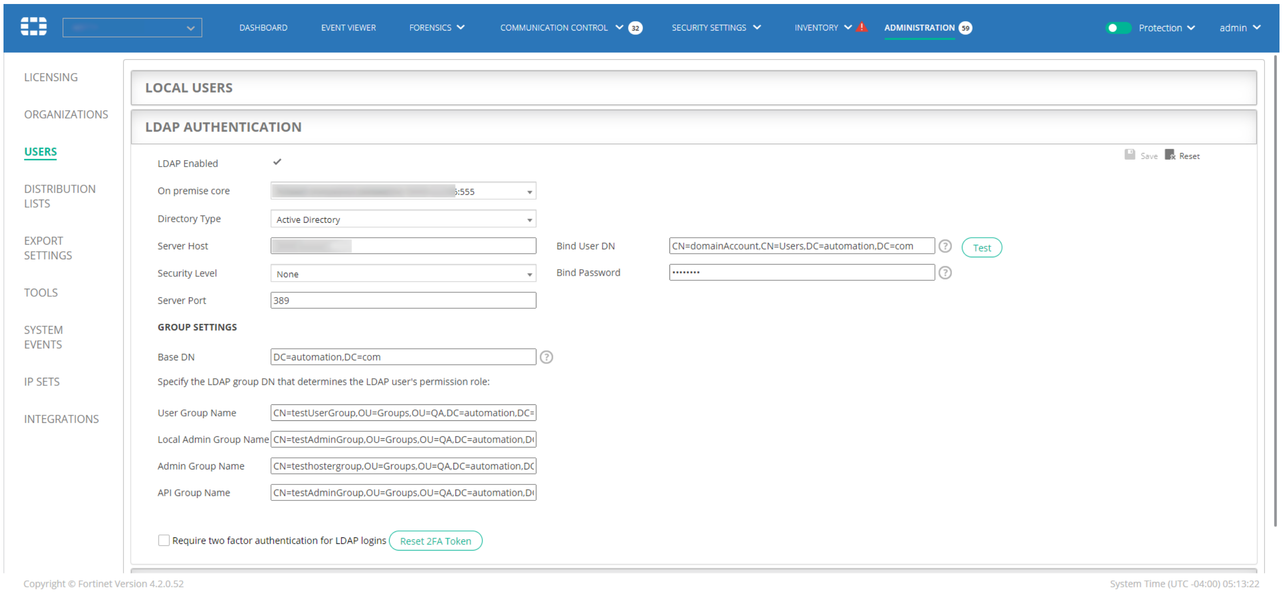
Before you start firewall configuration, make sure that your FortiEDR deployment includes an on-premise Core that has connectivity to the LDAP server. Details about how to install a FortiEDR on-premise Core can be found in Installing the FortiEDR Core on page 397.

To set up LDAP authentication in FortiEDR:

1. Click the **LDAP AUTHENTICATION** button.



The following window displays:



LDAP Enabled ✓

On premise core [redacted]:555

Directory Type: Active Directory

Server Host: [redacted]

Security Level: None

Server Port: 389

Bind User DN: CN=domainAccount,CN=Users,DC=automation,DC=com

Bind Password: ••••••••

GROUP SETTINGS

Base DN: DC=automation,DC=com

Specify the LDAP group DN that determines the LDAP user's permission role:

User Group Name: CN=testUserGroup,OU=Groups,OU=QA,DC=automation,DC=

Local Admin Group Name: CN=testAdminGroup,OU=Groups,OU=QA,DC=automation,D(

Admin Group Name: CN=testhostergroup,OU=Groups,OU=QA,DC=automation,DC

API Group Name: CN=testAdminGroup,OU=Groups,OU=QA,DC=automation,D(

☐ Require two factor authentication for LDAP logins

Copyright © Fortinet Version 4.2.0.52

System Time (UTC -04:00) 05:13:22

2. Fill in the following fields:

Field	Definition
LDAP Enabled	Check this checkbox to enable LDAP authentication in FortiEDR.
On Premise Core	Select the on-premise FortiEDR Core that is to communicate with the LDAP server.
Directory Type	Specify the type of central directory in use. FortiEDR supports Active Directory and OpenLDAP. The default is Active Directory.
Server Host	Specify the IP address of your LDAP server
Security Level	Specify the protocol to be used for the secured connection – TLS, SSL or None.
Port	This value is dependent on the security protocol that was selected.
Bind DN and Bind Password	Specify the user and password for the authentication of FortiEDR in the Central Directory.
Base DN	Specify the location in the Central Directory hierarchy where the Groups that are used for permission mapping can be found. For example, the DN for the root of the Domain should always work, but results in low performance.

Field	Definition
User Group Name/Local Admin Group Name/Admin Group Name/API Group Name	Specify the name of the group, as it is defined in your central directory (Active Directory or OpenLDAP), that is to be granted FortiEDR permissions. Be sure to specify a name for the **User, Local Admin, Admin and API groups**. Each of these groups corresponds to a different role in FortiEDR. **For example**: To give the user John user permissions in FortiEDR (for both the FortiEDR application and the RESTful API), assign John to a FortiEDRUsers group that is defined in your Central Directory. Then, specify FortiEDRUsers in the text box next to the User Group Name in the LDAP configuration page of the FortiEDR management UI. Then, during authentication, FortiEDR determines the relevant role for the user John by checking that the Central Directory exists and that the password used in the FortiEDR login page matches the password in the Central Directory. If both exist and are correct, then FortiEDR checks the FortiEDRUsers group to which John is assigned and in this case, matches the user role permissions.

3. 3 If users must use two-factor authentication to log in, check the Require two-factor authentication for LDAP logins checkbox. For more details about two-factor login, see the Two-factor Authentication section on Two-factor Authentication on page 262.

   Note – Click the Reset 2FA Token button to reset the two-factor authentication token for a specific user. This process works in the same way as described in Resetting a User Password on page 264.
4. Click **Save.**

   Note – Users in Active Directory must not have a backslash (\) in the user name, in order for the name be supported by the FortiEDR Console. In some cases in Active Directory, a backslash is added when there is a space between a user's first and last names. For example, "CN=Yell\, ".

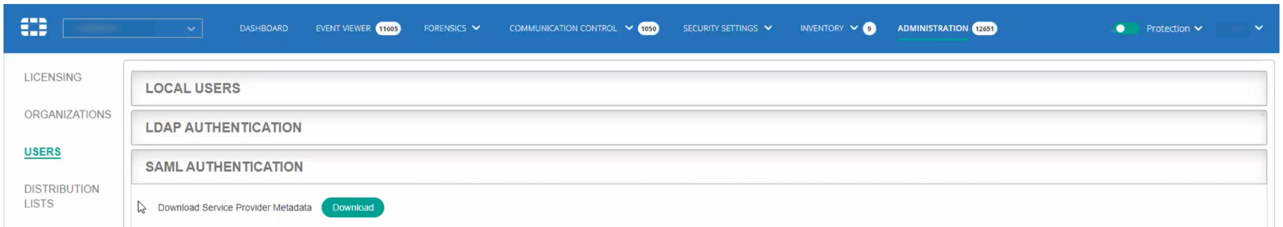
SAML Authentication

Security Assertion Markup Language (SAML) is an XML-based open standard for exchanging authentication and authorization data between parties, particularly between an identity provider (IdP) and a service provider (SP).

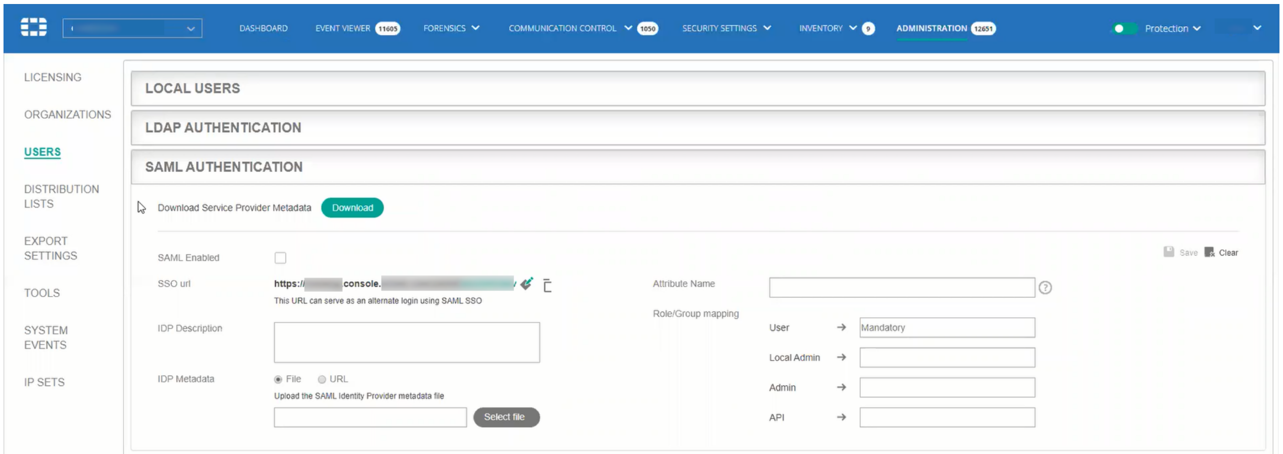
FortiEDR can act as an SP to authenticate users with a third-party IdP, enabling transparent user sign-in to the FortiEDR Central Manager Console.

To set up SAML authentication in FortiEDR:

1. Click the **SAML Authentication** button.



The following window displays:



Download Service Provider Metadata

SAML Enabled □

SSO url https://[redacted]console.[redacted]

This URL can serve as an alternate login using SAML SSO

IDP Description

IDP Metadata ● File ○ URL

Upload the SAML Identity Provider metadata file

Attribute Name

Role/Group mapping

User → Mandatory

Local Admin →

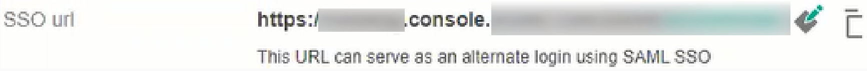
Admin →

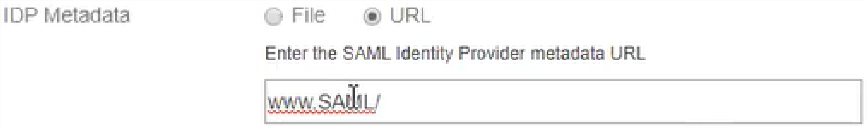
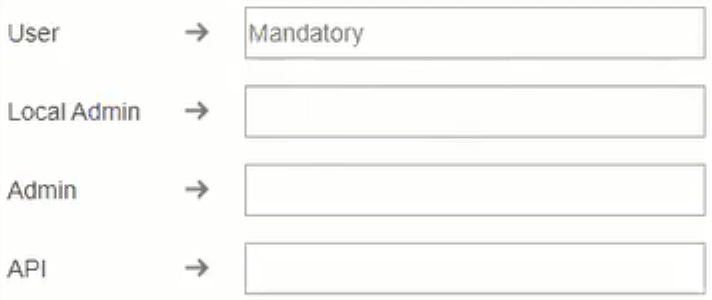
API →

2. Click the **Download** button to download and save SP data from FortiEDR, which is used by your IdP server during SAML authentication. Then, upload this FortiEDR data as is to your IdP server using a standard method.
   If your IdP requires manual configuration, you can extract the following fields from the XML file that you downloaded and use them for manual configuration:

Field	Description
Entity ID	Located under the **md:EntityDescriptor** tag, in the **entityID** attribute.
Logout Address Value	Located under the **md:SingleLogoutService** tag, in the **Location** attribute.
Login Address Value	Located under the **md:AssertionConsumerService** tag, in the **Location** attribute.
Certificate Value (Public)	Located under the **ds:X509Certificate** tag.

3. Fill in the following fields:

Field	Definition
SAML Enabled	Check this checkbox to enable SAML authentication in FortiEDR.
SSO URL	Specify the URL to be used by users to log in to FortiEDR. If necessary, you can edit the suffix of this URL (shown in green) by clicking the Edit button ✎ and then modifying it as needed. You can also copy the URL to the clipboard using the Copy button ⧉ (for example, in order to email the FortiEDR SAML login page to your users).  SSO url https://[redacted].console.[redacted] This URL can serve as an alternate login using SAML SSO Make sure that the suffix does not include any spaces and is comprised of only letters, numbers and underscores
IDP DEscription	Specify a free-text description. For example, you may want to specify the IdP server that you are using here.

Field	Definition
IDP Metadata	Upload the IdP metadata to FortiEDR. You can either upload an *.XML file or a URL. To upload a file, click the File radio button and then click the **Select File** button to navigate to and select the applicable *.XML file. To upload a URL, click the **URL** radio button and then specify the requisite URL.  IDP Metadata ○ File ● URL Enter the SAML Identity Provider metadata URL www.SAML/
Attribute Name	Specify the name of the attribute to be read by FortiEDR, in order to determine the permissions and role to be assigned to that user in FortiEDR. This attribute must be included as part of the response from the identify provider server to FortiEDR when a user attempts to log in to FortiEDR. Attribute Name privileges
Role/Group Mapping	Specify an attribute value for the User, Local Admin, Admin and API groups. You must specify a value for at least one of these user roles. Each of these groups corresponds to a different role in FortiEDR.  User → Mandatory Local Admin → Admin → API → Note that if more than a single role is mapped to the user, FortiEDR expects to get multiple roles as a list of values and not in bulk in the SAML assertion that is sent by IdP.

4. Click **Save**.

The examples below describe how the Azure, Okta or FortiAuthenticator SSO services can be used as an IdP that provides authorization and authentication for users attempting to access the FortiEDR Central Manager console. It demonstrates how to exchange metadata between the two entities, how to define group attributes and how to associate them with SAML users so that user permissions are dictated by the Group/Roles mapping in FortiEDR SAML configuration.

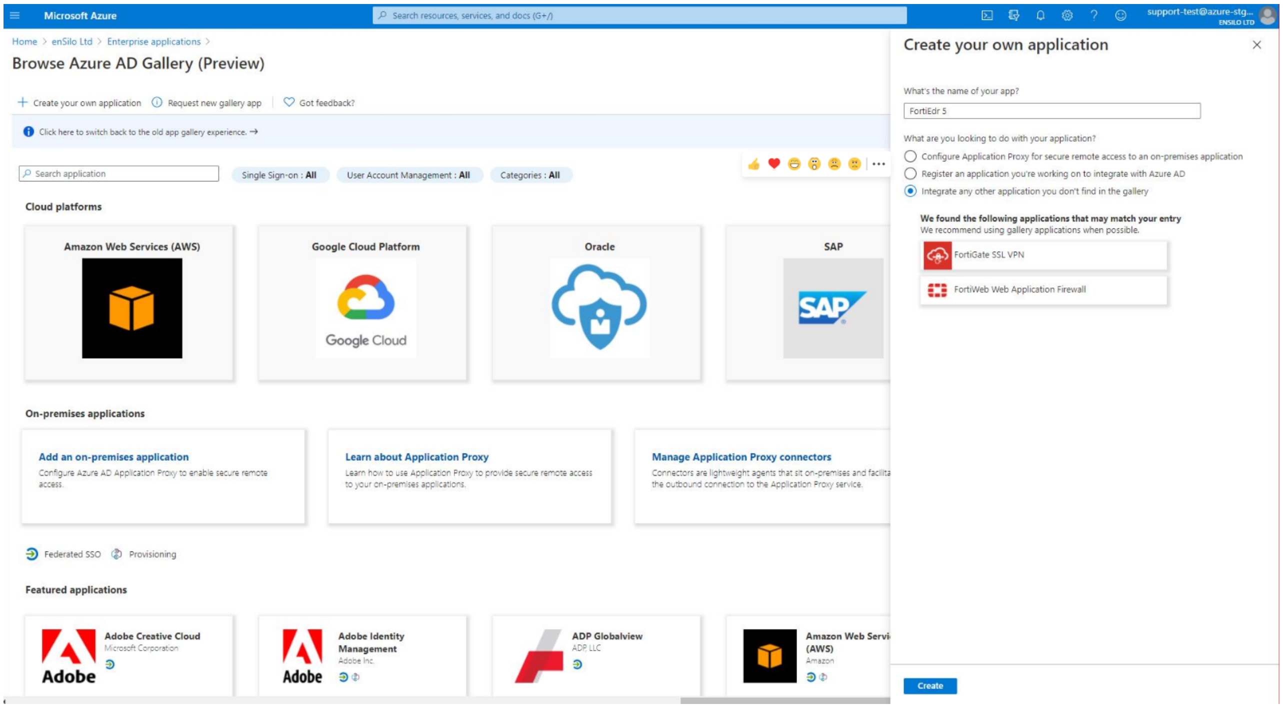
SAML IdP configuration with Azure

Note – Azure may require a license to support SAML integration with their Enterprise Application. Contact Microsoft's support for further information.

To configure general SAML IdP portal settings:

1. Before you start configuring SAML on Azure, download and save SP data from the FortiEDR SAML configuration page (fortiEDR.sp.metedata.id.1.xml), as described above on page 197.

2. Sign in to the Azure Dashboard.
3. In the Azure services, select and navigate to the Azure Active Directory.
4. From the left menu, select **Enterprise applications**.
5. Click **New Application** and then **Create your own application**. The following displays:



Microsoft Azure
Search resources, services, and docs (G+/)
support-test@azure-stg...
ENSILO LTD
Home > enSilo Ltd > Enterprise applications >
Browse Azure AD Gallery (Preview)
+ Create your own application
Request new gallery app
Got feedback?
Click here to switch back to the old app gallery experience. →
Search application
Single Sign-on : All
User Account Management : All
Categories : All
Cloud platforms
Amazon Web Services (AWS)
Google Cloud Platform
Oracle
SAP
On-premises applications
Add an on-premises application
Configure Azure AD Application Proxy to enable secure remote access.
Learn about Application Proxy
Learn how to use Application Proxy to provide secure remote access to your on-premises applications.
Manage Application Proxy connectors
Connectors are lightweight agents that sit on-premises and facilita the outbound connection to the Application Proxy service.
Federated SSO
Provisioning
Featured applications
Adobe Creative Cloud
Microsoft Corporation
Adobe Identity Management
Adobe Inc.
ADP Globalview
ADP LLC
Amazon Web Servi (AWS)
Amazon

Create your own application

What's the name of your app?

FortiEdr 5

What are you looking to do with your application?

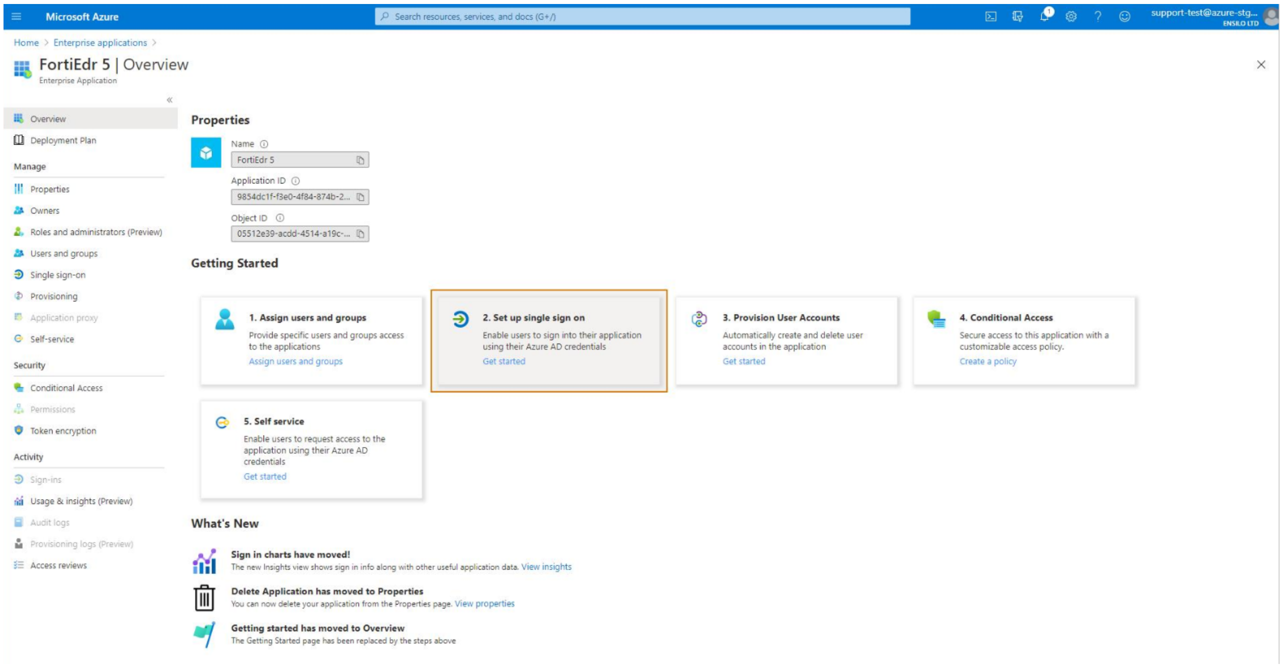
○ Configure Application Proxy for secure remote access to an on-premises application
○ Register an application you're working on to integrate with Azure AD
● Integrate any other application you don't find in the gallery

We found the following applications that may match your entry
We recommend using gallery applications when possible.

FortiGate SSL VPN
FortiWeb Web Application Firewall

Create

6. Leave the default and click Create. The following displays:



FortiEdr 5 | Overview
Enterprise Application

Properties

Name: FortiEdr 5
Application ID: 9854dc1f-f3e0-4f84-874b-2...
Object ID: 05512e39-acdd-4514-a19c-...

Getting Started

1. Assign users and groups
Provide specific users and groups access to the applications
Assign users and groups

2. Set up single sign on
Enable users to sign into their application using their Azure AD credentials
Get started

3. Provision User Accounts
Automatically create and delete user accounts in the application
Get started

4. Conditional Access
Secure access to this application with a customizable access policy.
Create a policy

5. Self service
Enable users to request access to the application using their Azure AD credentials
Get started

What's New

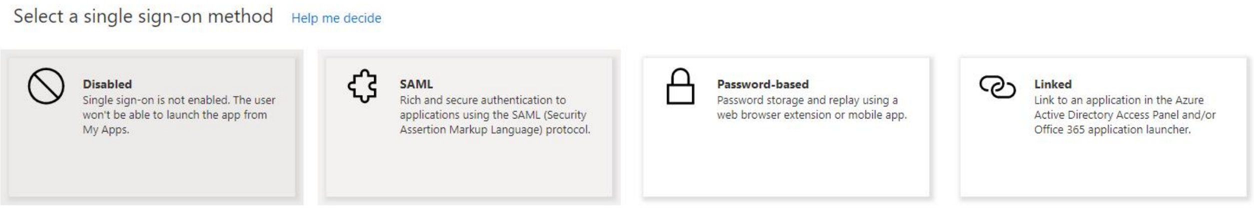
Sign in charts have moved!
The new Insights view shows sign in info along with other useful application data. View insights

Delete Application has moved to Properties
You can now delete your application from the Properties page. View properties

Getting started has moved to Overview
The Getting Started page has been replaced by the steps above

7. Click **Assign users and groups** and configure which users and groups to be provided with access to the FortiEDR application.

8. Click **Set up single sign on.** The following displays:



Select a single sign-on method Help me decide

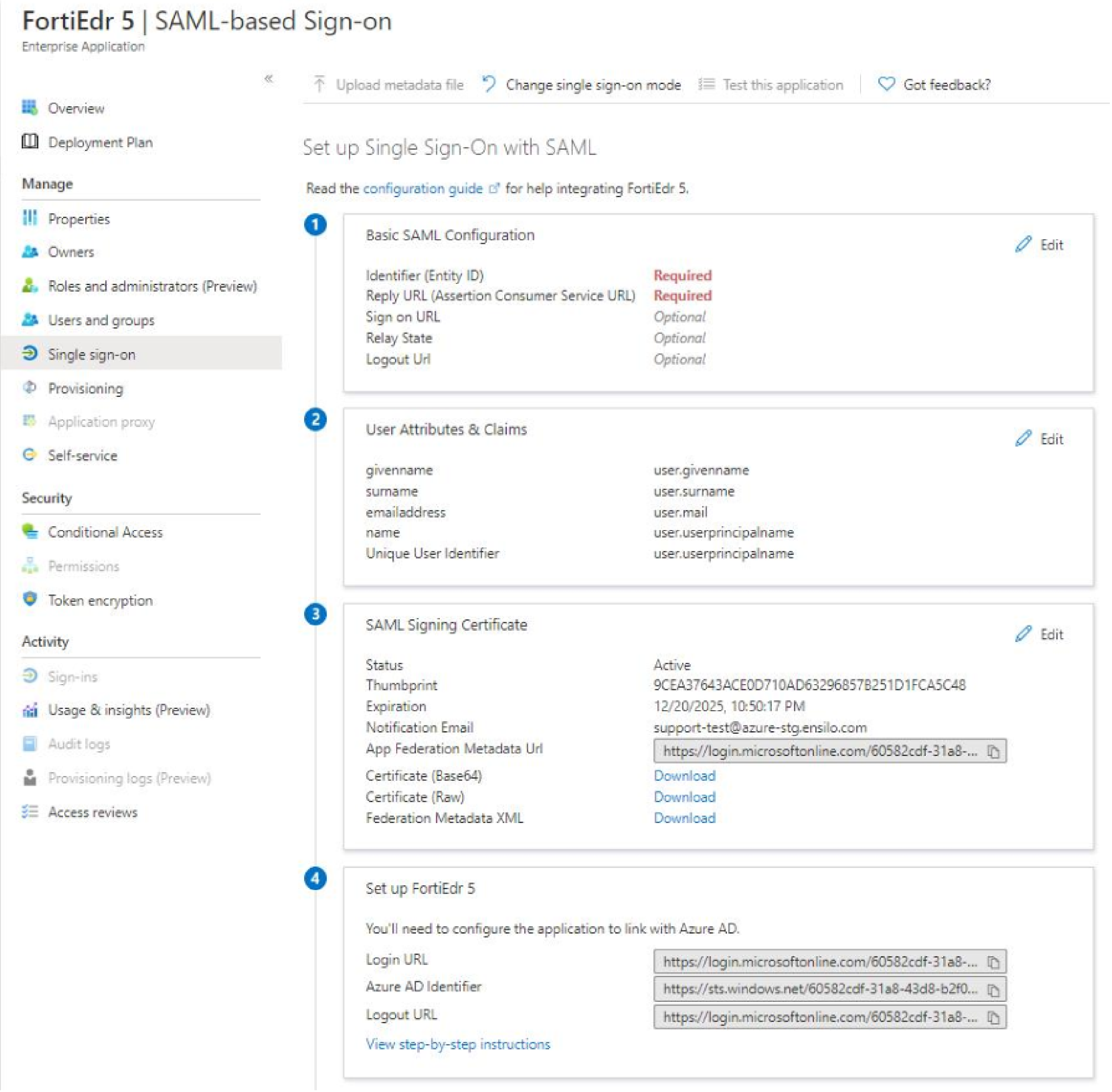
Disabled Single sign-on is not enabled. The user won't be able to launch the app from My Apps.

SAML Rich and secure authentication to applications using the SAML (Security Assertion Markup Language) protocol.

Password-based Password storage and replay using a web browser extension or mobile app.

Linked Link to an application in the Azure Active Directory Access Panel and/or Office 365 application launcher.

9. Click **SAML**. The following displays:



FortiEdr 5 | SAML-based Sign-on

Enterprise Application

Set up Single Sign-On with SAML

Read the configuration guide for help integrating FortiEdr 5.

1 Basic SAML Configuration

Identifier (Entity ID)	Required
Reply URL (Assertion Consumer Service URL)	Required
Sign on URL	Optional
Relay State	Optional
Logout Url	Optional

2 User Attributes & Claims

givenname	user.givenname
surname	user.surname
emailaddress	user.mail
name	user.userprincipalname
Unique User Identifier	user.userprincipalname

3 SAML Signing Certificate

Status	Active
Thumbprint	9CEA37643ACE0D710AD63296857B251D1FCA5C48
Expiration	12/20/2025, 10:50:17 PM
Notification Email	support-test@azure-stg.ensilo.com
App Federation Metadata Url	https://login.microsoftonline.com/60582cdf-31a8-...
Certificate (Base64)	Download
Certificate (Raw)	Download
Federation Metadata XML	Download

4 Set up FortiEdr 5

You'll need to configure the application to link with Azure AD.

Login URL	https://login.microsoftonline.com/60582cdf-31a8-...
Azure AD Identifier	https://sts.windows.net/60582cdf-31a8-43d8-b2f0...
Logout URL	https://login.microsoftonline.com/60582cdf-31a8-...

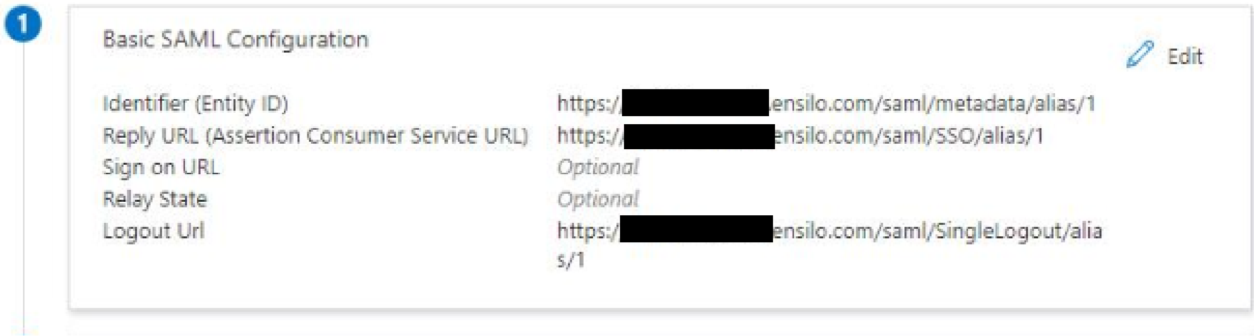
View step-by-step instructions

10. Click **Edit** in the Basic SAML Configuration box.

11. Click **Upload metadata file** and browse in order to select the FortiEDR SP metadata file (fortiEDR.sp.metedata.id.1.xml) that was downloaded from FortiEDR SAML configuration page (as described on

page 197). Alternatively, you can manually copy entityID and the Reply URL values from FortiEDR metadata file and paste it to the relevant input text boxes.

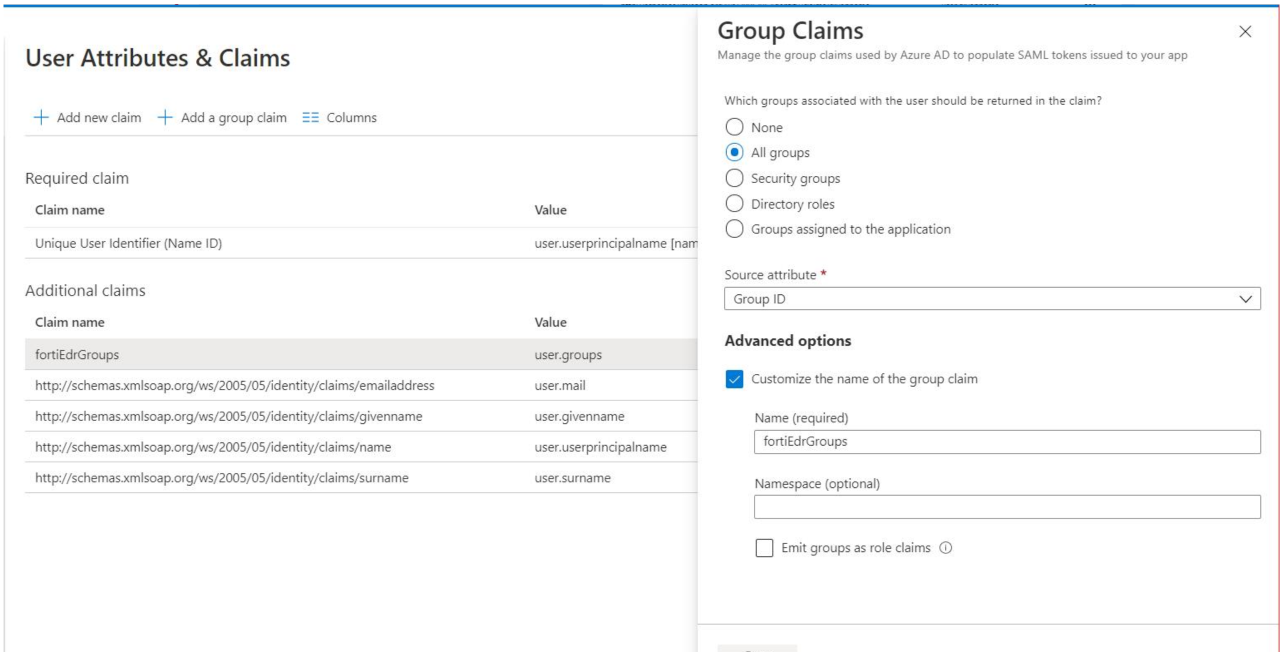
12. Click **Save**. The required SAML Configuration fields displays populated with details, as shown below:



Basic SAML Configuration

Identifier (Entity ID)	https:/[redacted]ensilo.com/saml/metadata/alias/1
Reply URL (Assertion Consumer Service URL)	https:/[redacted]ensilo.com/saml/SSO/alias/1
Sign on URL	*Optional*
Relay State	*Optional*
Logout Url	https:/[redacted]ensilo.com/saml/SingleLogout/alias/1

13. Click **Edit** in the User Attributes & Claims box.
14. In the User Attributes & Claims window, click **Add a group claim**. The following window displays:



User Attributes & Claims

Required claim

Claim name	Value
Unique User Identifier (Name ID)	user.userprincipalname [nam

Additional claims

Claim name	Value
fortiEdrGroups	user.groups
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/emailaddress	user.mail
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/givenname	user.givenname
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/name	user.userprincipalname
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/surname	user.surname

Group Claims

Manage the group claims used by Azure AD to populate SAML tokens issued to your app

Which groups associated with the user should be returned in the claim?

○ None
● All groups
○ Security groups
○ Directory roles
○ Groups assigned to the application

Source attribute *: Group ID

Advanced options

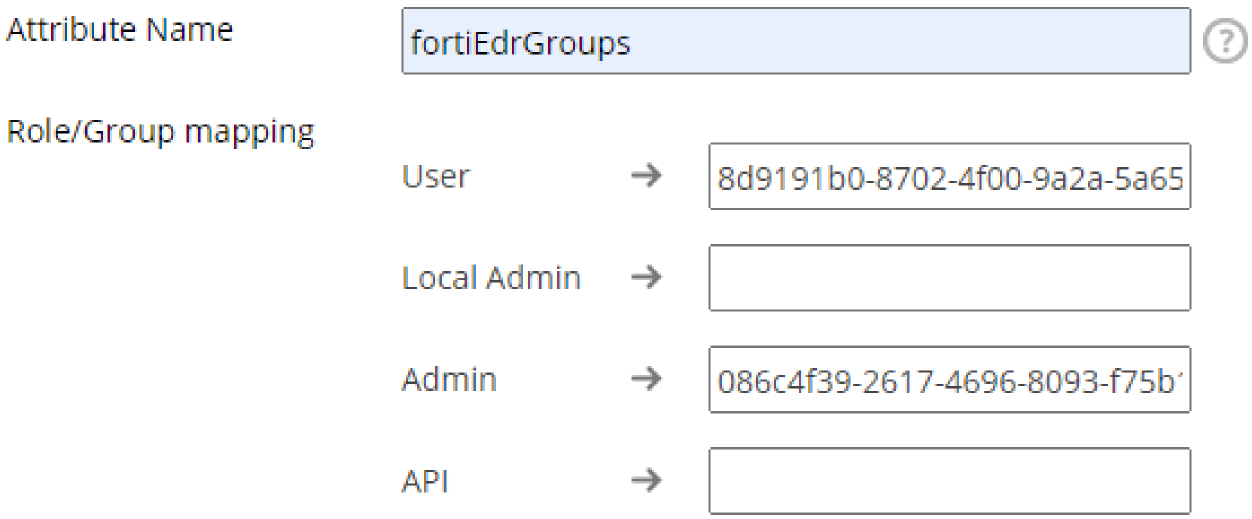
☑ Customize the name of the group claim

Name (required): fortiEdrGroups

Namespace (optional):

☐ Emit groups as role claims

15. Select the groups to be added to the claim sent to the FortiEDR application. These specific groups should be specified in the Role/Group mapping on the SAML configuration page of the FortiEDR console in order to determine the permissions of the signed in user.
16. Check the **Customize the name of the group claim** checkbox, and in the **Name** field, enter the Attribute Name that was specified on the SAML configuration page of the FortiEDR console. In our example, it is **fortiEdrGroups**, as shown below:

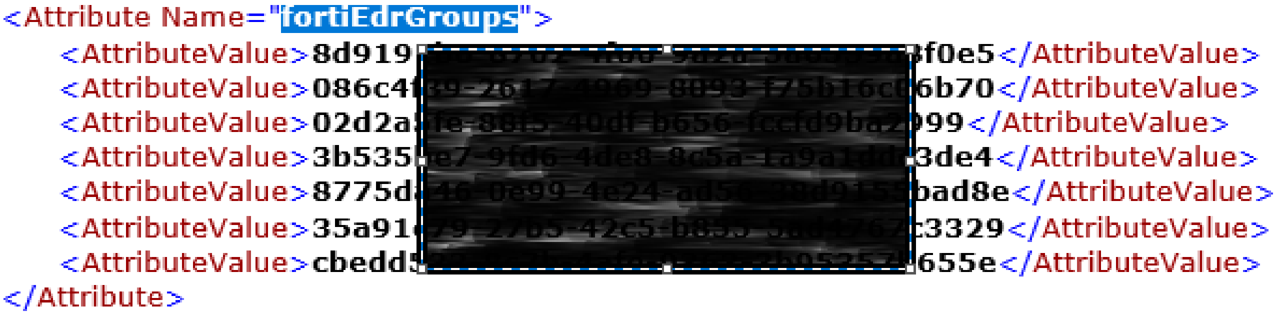


Attribute Name: fortiEdrGroups

Role/Group mapping

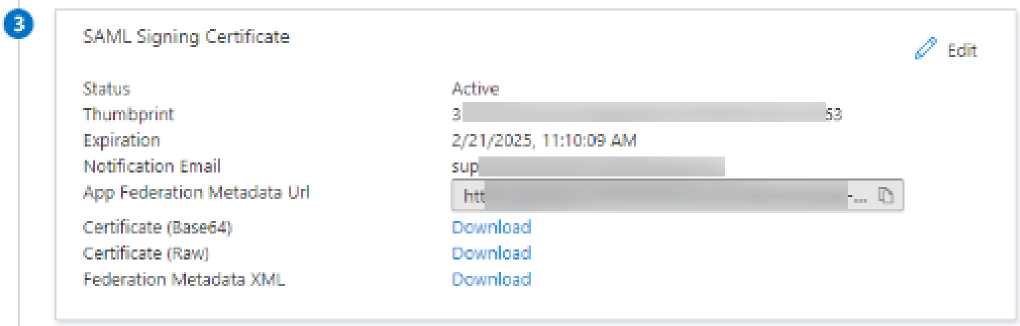
User	→	8d9191b0-8702-4f00-9a2a-5a65
Local Admin	→	
Admin	→	086c4f39-2617-4696-8093-f75b'
API	→	

17. Click **Save**. The newly defined attribute should now be included in the assertion, such as in the following example:



```
<Attribute Name="fortiEdrGroups">
    <AttributeValue>8d919[redacted]f0e5</AttributeValue>
    <AttributeValue>086c4[redacted]6b70</AttributeValue>
    <AttributeValue>02d2a[redacted]99</AttributeValue>
    <AttributeValue>3b535[redacted]3de4</AttributeValue>
    <AttributeValue>8775d[redacted]bad8e</AttributeValue>
    <AttributeValue>35a91[redacted]3329</AttributeValue>
    <AttributeValue>cbedd5[redacted]655e</AttributeValue>
</Attribute>
```

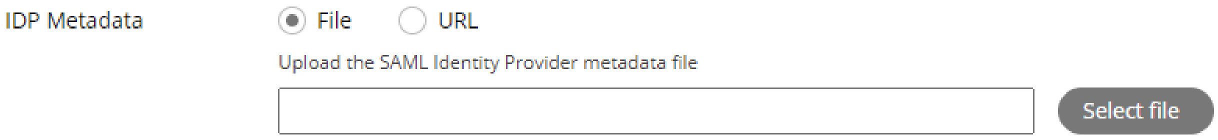
18. Before configuring SAML SSO on the FortiEDR console, download the Federation Metadata XML file from the SAML Signing Certificate section on Azure, as shown below:



SAML Signing Certificate

Status	Active
Thumbprint	3[redacted]53
Expiration	2/21/2025, 11:10:09 AM
Notification Email	sup[redacted]
App Federation Metadata Url	htt[redacted]...
Certificate (Base64)	Download
Certificate (Raw)	Download
Federation Metadata XML	Download

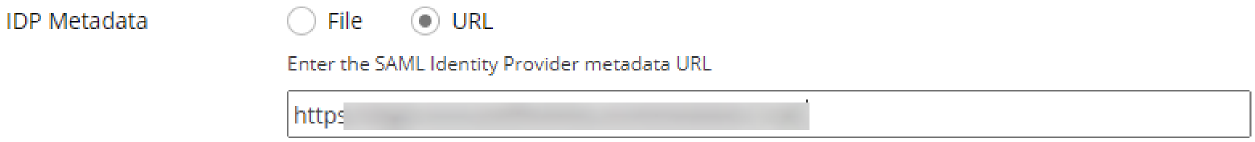
19. Select and upload the file into the FortiEDR Central Manager, as follows:



IDP Metadata ● File ○ URL

Upload the SAML Identity Provider metadata file

20. Alternatively, you can use the App Federation Metadata URL from Azure, select the **URL** radio button in the IDP Metadata configuration on the FortiEDR console and paste it to the same location:



IDP Metadata ○ File ● URL

Enter the SAML Identity Provider metadata URL

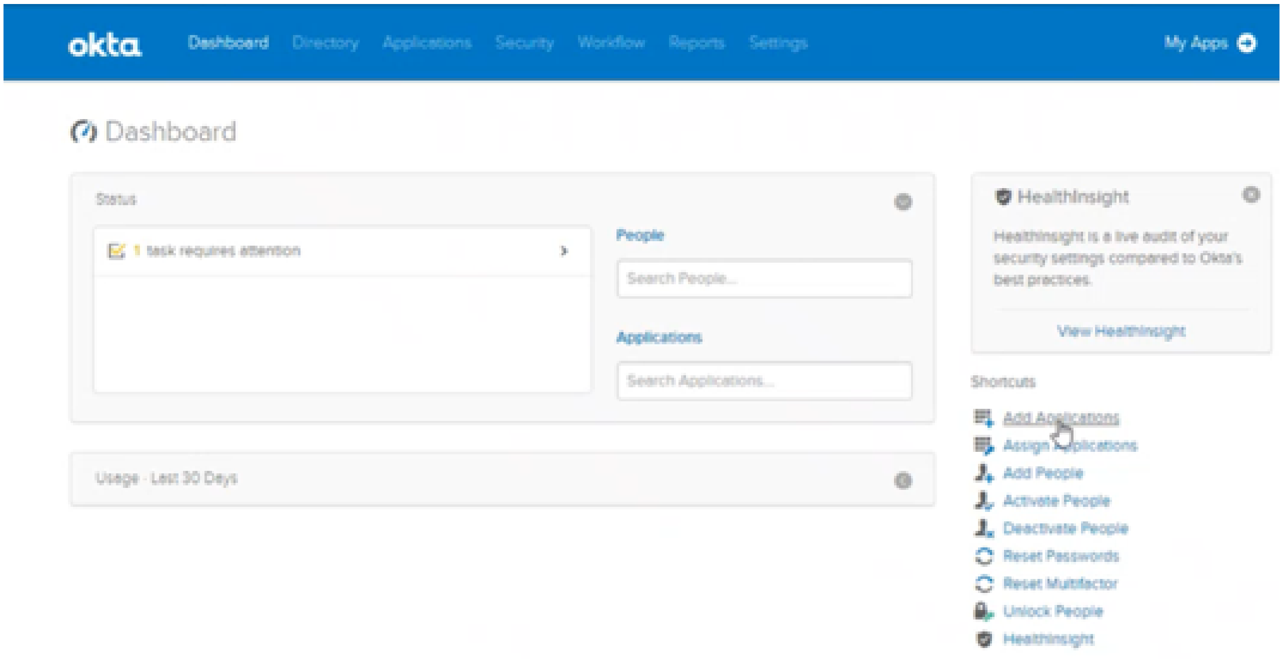
https[redacted]

Azure can now be used as an IdP that awards authorization and authentication to users trying to access the FortiEDR Central Manager console. When logging into the FortiEDR console via an SSO URL that is specified under the SAML settings page, an Azure user is awarded access rights to the FortiEDR Central Manager according to the User Groups to which that user was added in Azure.

SAML IdP Configuration with Okta

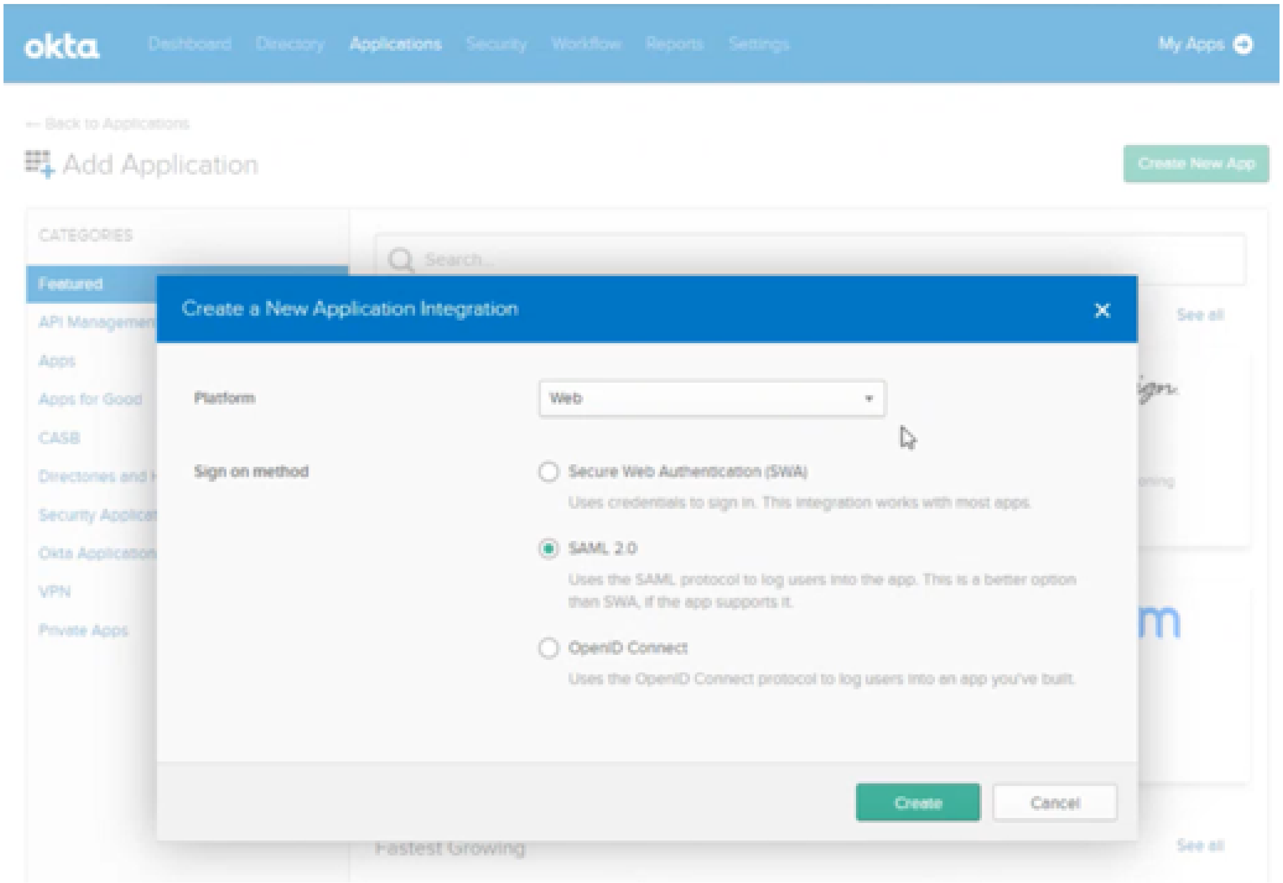
To configure general SAML IdP portal settings:

1. Before starting to configure SAML on Okta, you must download and save SP data from the FortiEDR SAML configuration page (fortiEDR.sp.metedata.id.1.xml), as described in SAML Authentication on page 267
2. Sign in to the Okta Admin Dashboard. The following displays:



3. In your Okta org, click **Applications** and then **Add Applications**.

4. Click **Create New App** . The following displays:



Create a New Application Integration

Platform: Web

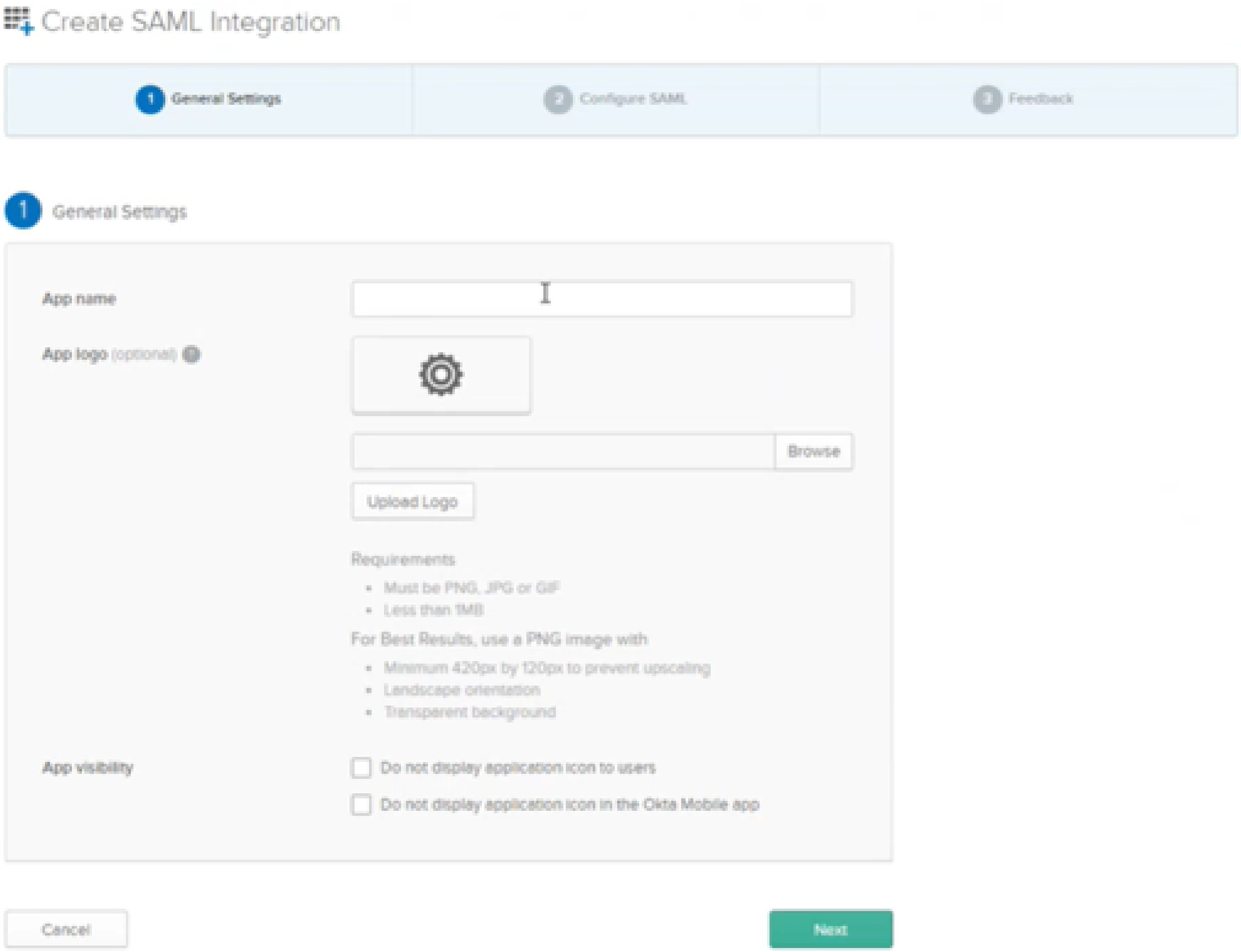
Sign on method:

○ Secure Web Authentication (SWA)
Uses credentials to sign in. This integration works with most apps.

● SAML 2.0
Uses the SAML protocol to log users into the app. This is a better option than SWA, if the app supports it.

○ OpenID Connect
Uses the OpenID Connect protocol to log users into an app you've built.

5. In the **Platform** field, select **Web**.
6. In the **Sign on method** field, select **SAML 2.0**.
7. Click **Create**.
8. In the **General Settings** page, select a name for the application. For example, FortiEDRConsole. Optionally, you can also add the FortiEDR logo here.



Create SAML Integration

1 General Settings

App name

App logo (optional)

Requirements

- Must be PNG, JPG or GIF
- Less than 1MB

For Best Results, use a PNG image with

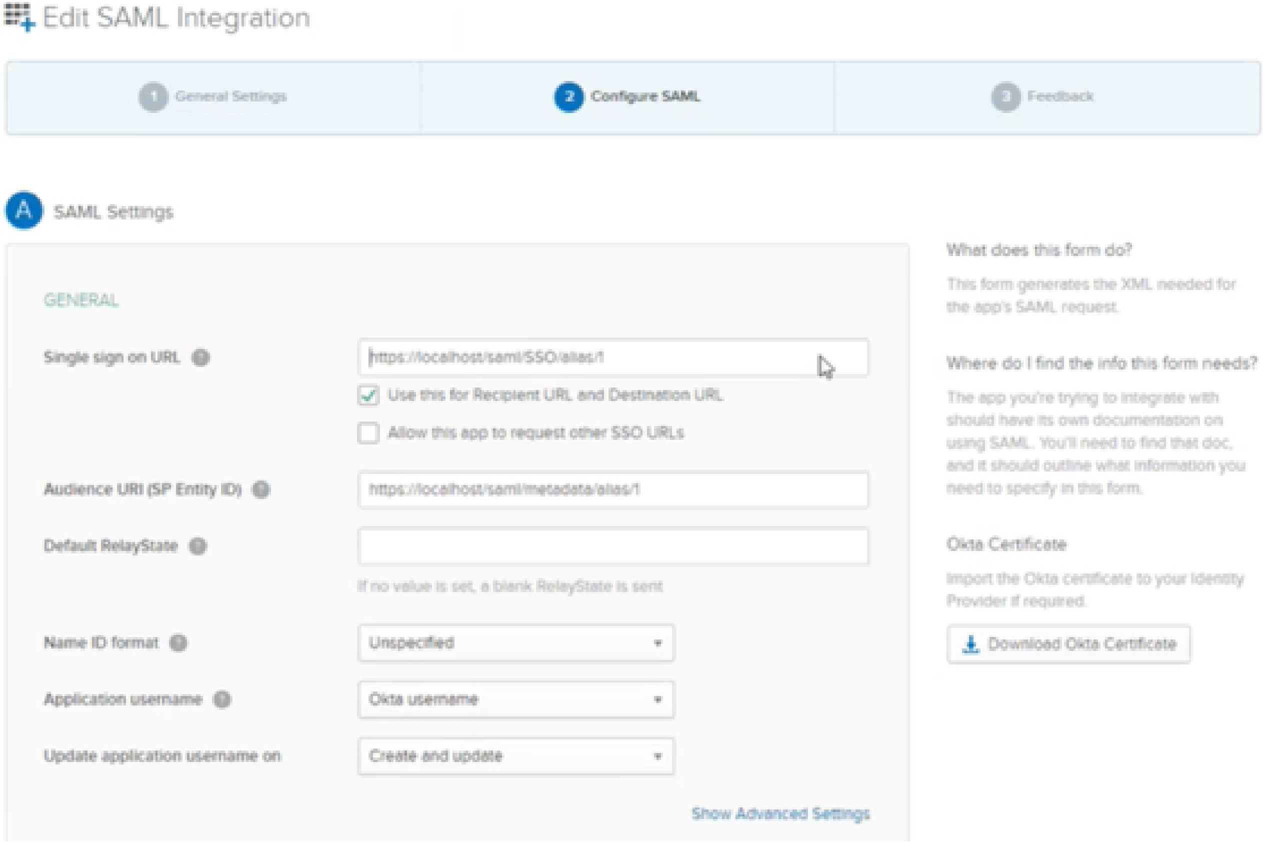
- Minimum 420px by 120px to prevent upscaling
- Landscape orientation
- Transparent background

App visibility

□ Do not display application icon to users

□ Do not display application icon in the Okta Mobile app

9. Click **Next.** The Configure SAML page displays:



Edit SAML Integration

1 General Settings | 2 Configure SAML | 3 Feedback

A SAML Settings

GENERAL

Single sign on URL	https://localhost/saml/SSO/alias/1 ☑ Use this for Recipient URL and Destination URL □ Allow this app to request other SSO URLs
Audience URI (SP Entity ID)	https://localhost/saml/metadata/alias/1
Default RelayState	If no value is set, a blank RelayState is sent
Name ID format	Unspecified
Application username	Okta username
Update application username on	Create and update

What does this form do?

This form generates the XML needed for the app's SAML request.

Where do I find the info this form needs?

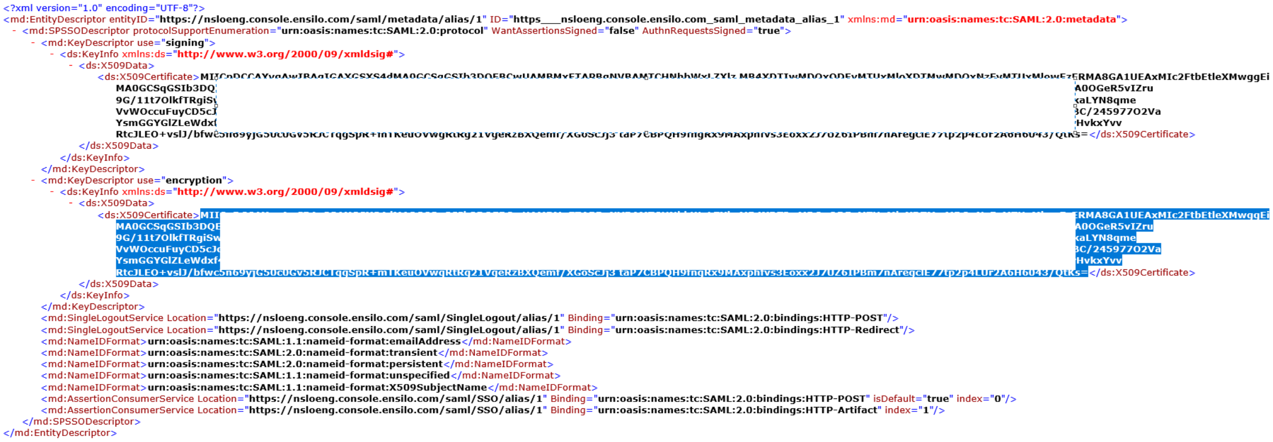
The app you're trying to integrate with should have its own documentation on using SAML. You'll need to find that doc, and it should outline what information you need to specify in this form.

Okta Certificate

Import the Okta certificate to your Identity Provider if required.

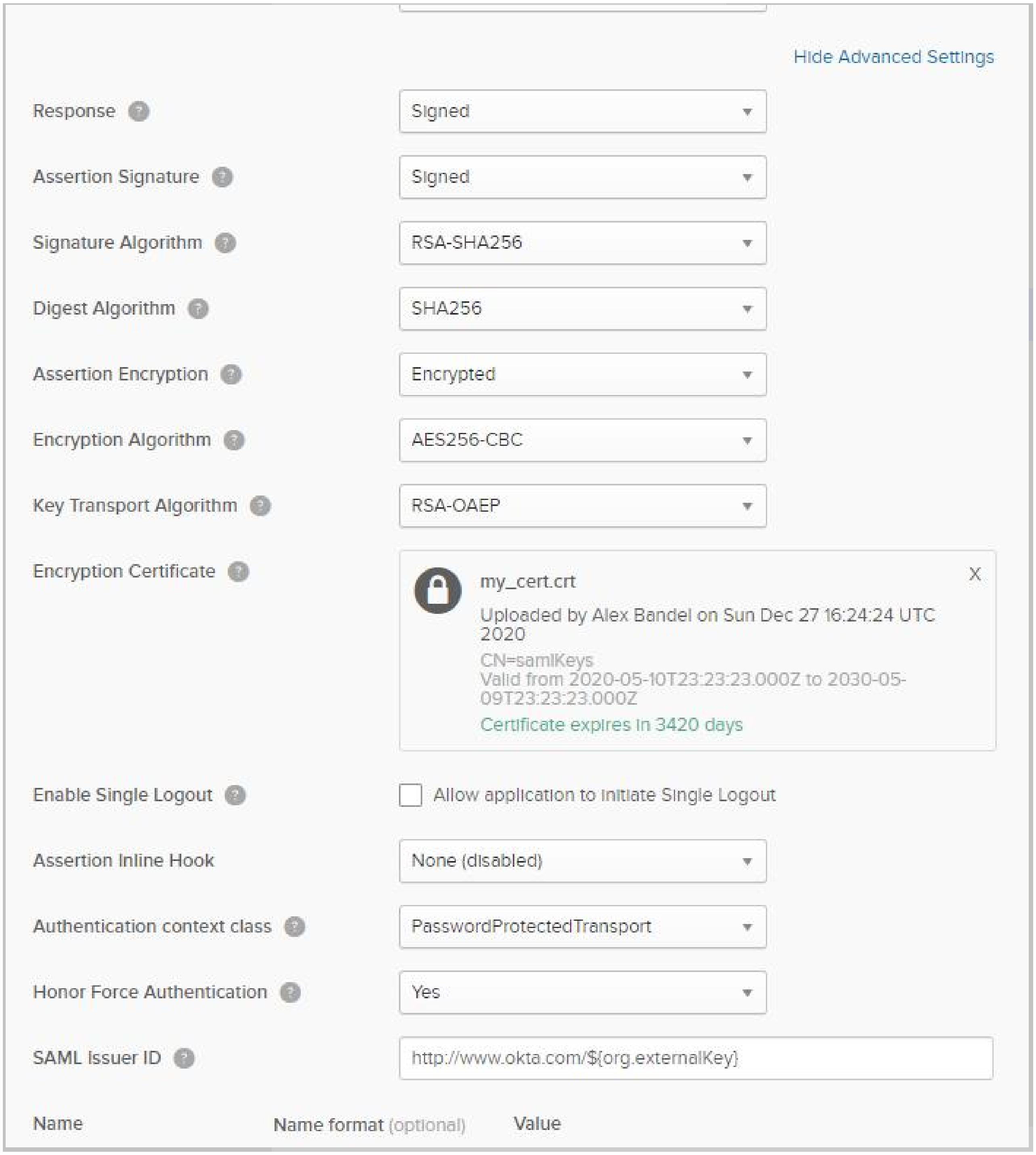
10. Copy the following values that are taken from the FortiEDR SP metadata file (fortiEDR.sp.metedata.id.1.xml) that was downloaded from FortiEDR SAML configuration page, as described in SAML Authentication on page 267.
    - **Single sign on URL**: Under the 'md:AssertionConsumerService' tag, in the **Location** attribute (For example, `https://myexample.fortiedr.com/saml/SSO/alias/1`).
    - **Audience URI (SP entity ID)**: Under the 'md:EntityDescriptor' tag, in the 'entityID' attribute (For example, `https://myexample.fortiedr.com/saml/metadata/alias/1`).
11. In **Advanced Settings**, in the **Assertion Encryption** field, select **Encrypted**.
12. Use Notepad or another text editor to copy the entire attribute <ds:X509Certificate>XXX </ds:X509Certificate> from the FortiEDR SP metadata file (fortiEDR.sp.metedata.id.1.xml) that was downloaded from FortiEDR SAML configuration page. Then, save this attribute as a .crt file to be used as a certificate.

13. Upload this .crt file to the Encryption Certificate box on Okta, as shown below:



```xml
<?xml version="1.0" encoding="UTF-8"?>
<md:EntityDescriptor entityID="https://nsloeng.console.ensilo.com/saml/metadata/alias/1" ID="https___nsloeng.console.ensilo.com_saml_metadata_alias_1" xmlns:md="urn:oasis:names:tc:SAML:2.0:metadata">
 - <md:SPSSODescriptor protocolSupportEnumeration="urn:oasis:names:tc:SAML:2.0:protocol" WantAssertionsSigned="false" AuthnRequestsSigned="true">
   - <md:KeyDescriptor use="signing">
     - <ds:KeyInfo xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
       - <ds:X509Data>
           <ds:X509Certificate>[redacted]</ds:X509Certificate>
         </ds:X509Data>
       </ds:KeyInfo>
     </md:KeyDescriptor>
   - <md:KeyDescriptor use="encryption">
     - <ds:KeyInfo xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
       - <ds:X509Data>
           <ds:X509Certificate>[redacted]</ds:X509Certificate>
         </ds:X509Data>
       </ds:KeyInfo>
     </md:KeyDescriptor>
     <md:SingleLogoutService Location="https://nsloeng.console.ensilo.com/saml/SingleLogout/alias/1" Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST"/>
     <md:SingleLogoutService Location="https://nsloeng.console.ensilo.com/saml/SingleLogout/alias/1" Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-Redirect"/>
     <md:NameIDFormat>urn:oasis:names:tc:SAML:1.1:nameid-format:emailAddress</md:NameIDFormat>
     <md:NameIDFormat>urn:oasis:names:tc:SAML:2.0:nameid-format:transient</md:NameIDFormat>
     <md:NameIDFormat>urn:oasis:names:tc:SAML:2.0:nameid-format:persistent</md:NameIDFormat>
     <md:NameIDFormat>urn:oasis:names:tc:SAML:1.1:nameid-format:unspecified</md:NameIDFormat>
     <md:NameIDFormat>urn:oasis:names:tc:SAML:1.1:nameid-format:X509SubjectName</md:NameIDFormat>
     <md:AssertionConsumerService Location="https://nsloeng.console.ensilo.com/saml/SSO/alias/1" Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST" isDefault="true" index="0"/>
     <md:AssertionConsumerService Location="https://nsloeng.console.ensilo.com/saml/SSO/alias/1" Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-Artifact" index="1"/>
   </md:SPSSODescriptor>
</md:EntityDescriptor>
```

14. Leave the default values in the rest of the settings. For example, as shown below:



Hide Advanced Settings

Response: Signed

Assertion Signature: Signed

Signature Algorithm: RSA-SHA256

Digest Algorithm: SHA256

Assertion Encryption: Encrypted

Encryption Algorithm: AES256-CBC

Key Transport Algorithm: RSA-OAEP

Encryption Certificate: my_cert.crt
Uploaded by Alex Bandel on Sun Dec 27 16:24:24 UTC 2020
CN=samlKeys
Valid from 2020-05-10T23:23:23.000Z to 2030-05-09T23:23:23.000Z
Certificate expires in 3420 days

Enable Single Logout: □ Allow application to initiate Single Logout

Assertion Inline Hook: None (disabled)

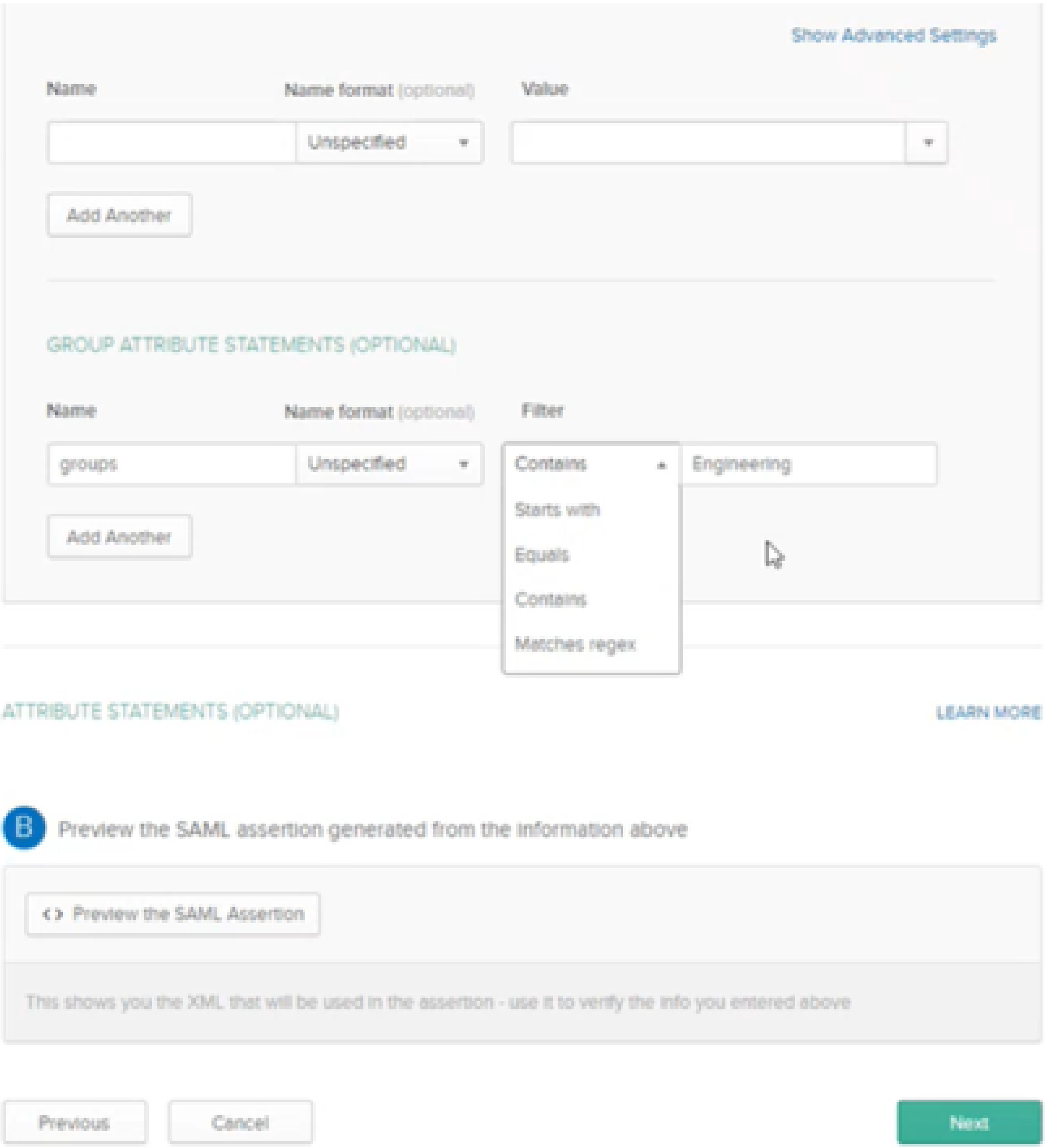
Authentication context class: PasswordProtectedTransport

Honor Force Authentication: Yes

SAML Issuer ID: http://www.okta.com/${org.externalKey}

Name | Name format (optional) | Value

15. Groups will be used in the assertion so that FortiEDR roles will be assigned according to the current groups in the Okta directory. For example, to assign the **Okta Engineering** group to have Admin roles on FortiEDR, add it to Okta as follows:



GROUP ATTRIBUTE STATEMENTS (OPTIONAL)

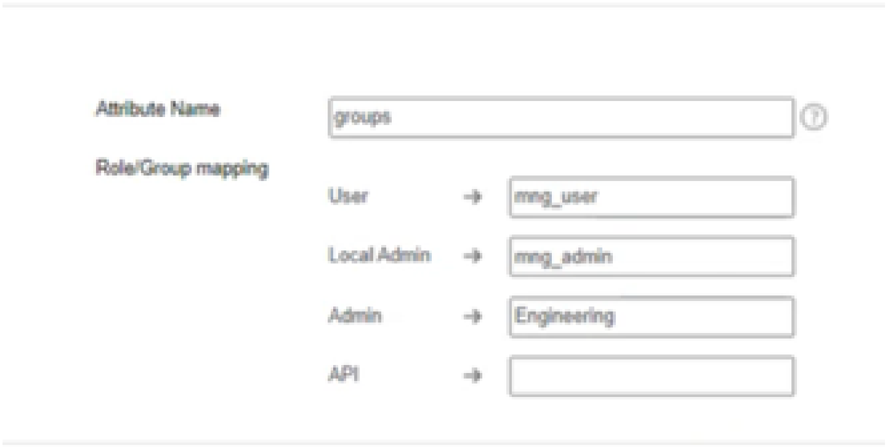
Name: groups — Name format (optional): Unspecified — Filter: Contains — Engineering

ATTRIBUTE STATEMENTS (OPTIONAL)

B Preview the SAML assertion generated from the information above

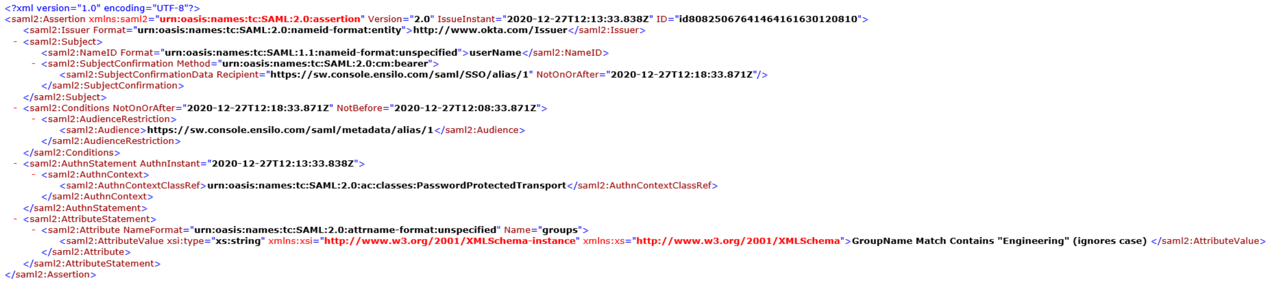
This shows you the XML that will be used in the assertion - use it to verify the info you entered above

The mapping of this group to the FortiEDR Admin role is then performed in the SAML settings page of the FortiEDR Central Manager console as follows:



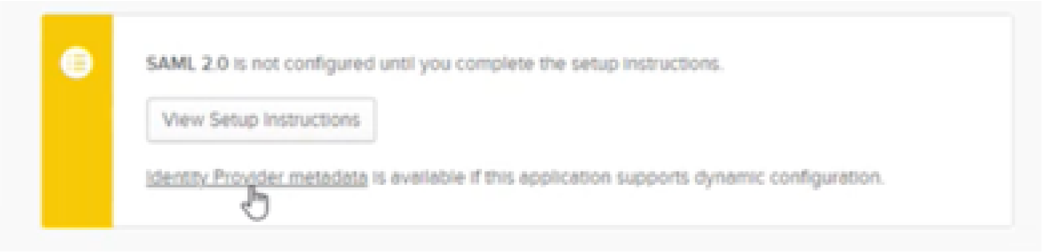
Attribute Name	groups		
Role/Group mapping	User	→	mng_user
	Local Admin	→	mng_admin
	Admin	→	Engineering
	API	→	

16. Previewing the assertion should appear similar to the following example:



```
<?xml version="1.0" encoding="UTF-8"?>
<saml2:Assertion xmlns:saml2="urn:oasis:names:tc:SAML:2.0:assertion" Version="2.0" IssueInstant="2020-12-27T12:13:33.838Z" ID="id80825067641464161630120810">
    <saml2:Issuer Format="urn:oasis:names:tc:SAML:2.0:nameid-format:entity">http://www.okta.com/Issuer</saml2:Issuer>
  - <saml2:Subject>
        <saml2:NameID Format="urn:oasis:names:tc:SAML:1.1:nameid-format:unspecified">userName</saml2:NameID>
      - <saml2:SubjectConfirmation Method="urn:oasis:names:tc:SAML:2.0:cm:bearer">
            <saml2:SubjectConfirmationData Recipient="https://sw.console.ensilo.com/saml/SSO/alias/1" NotOnOrAfter="2020-12-27T12:18:33.871Z"/>
        </saml2:SubjectConfirmation>
    </saml2:Subject>
  - <saml2:Conditions NotOnOrAfter="2020-12-27T12:18:33.871Z" NotBefore="2020-12-27T12:08:33.871Z">
      - <saml2:AudienceRestriction>
            <saml2:Audience>https://sw.console.ensilo.com/saml/metadata/alias/1</saml2:Audience>
        </saml2:AudienceRestriction>
    </saml2:Conditions>
  - <saml2:AuthnStatement AuthnInstant="2020-12-27T12:13:33.838Z">
      - <saml2:AuthnContext>
            <saml2:AuthnContextClassRef>urn:oasis:names:tc:SAML:2.0:ac:classes:PasswordProtectedTransport</saml2:AuthnContextClassRef>
        </saml2:AuthnContext>
    </saml2:AuthnStatement>
  - <saml2:AttributeStatement>
      - <saml2:Attribute NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:unspecified" Name="groups">
            <saml2:AttributeValue xsi:type="xs:string" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xs="http://www.w3.org/2001/XMLSchema">GroupName Match Contains "Engineering" (ignores case) </saml2:AttributeValue>
        </saml2:Attribute>
    </saml2:AttributeStatement>
</saml2:Assertion>
```

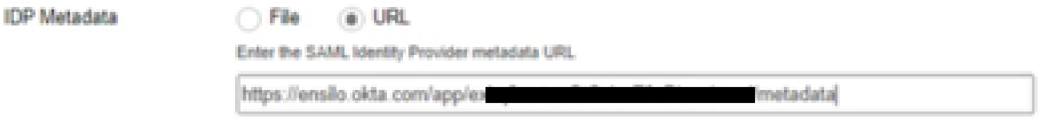
17. Click **Next** and then click **Finish**.
18. When you configure SAML SSO on the FortiEDR console, use the URL for **Identity Provide Metadata** from the application Sign On settings in Okta, as shown below:



SAML 2.0 is not configured until you complete the setup instructions.

Identity Provider metadata is available if this application supports dynamic configuration.

19. Paste it into the FortiEDR Central Manager as follows:



IDP Metadata ○ File ● URL

Enter the SAML Identity Provider metadata URL

https://ensilo.okta.com/app/e[redacted]metadata

Okta can now be used as an IdP that awards authorization and authentication to users trying to access the FortiEDR Central Manager console. When logging into FortiEDR console via the SSO URL that is specified under the SAML settings page, an Okta user is awarded access rights to the FortiEDR Central Manager according to the User Groups to which that user was added in Okta.

SAML IdP Configuration with FortiAuthenticator

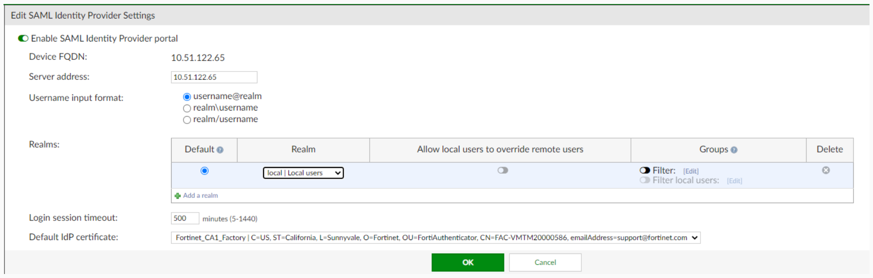
FortiAuthenticator configuration is comprised of the following steps:

1. Setting up FortiAuthenticator as an IdP.
2. Setting up user group management (if not configured already).
3. Setting up service provider settings for FortiEDR.

FortiAuthenticator IdP Configuration

To configure general SAML IdP portal settings:

1. Go to **Authentication > SAML IdP > General** and select **Enable SAML Identity Provider portal**.
2. 2 Configure the following settings:

Setting	Definition
Device FQDN	To configure this setting, you must enter a Device FQDN in the System Information widget in the Dashboard.
Server address	Enter the IP address or FQDN of the FortiAuthenticator device.
Username input format	Select one of the provided options. In our example, we used username@realm
Realms	Select Add a realm to add the default local realm to which the users will be associated.
Login session timeout	Set the user's login session timeout limit to between 5 – 1440 minutes (one day). In our example, we used 500 minutes.
Default IdP certificate	Select a default certificate the IdP uses to sign SAML assertions from the dropdown menu.  Edit SAML Identity Provider Settings Enable SAML Identity Provider portal Device FQDN: 10.51.122.65 Server address: 10.51.122.65 Username input format: ● username@realm ○ realm\username ○ realm/username Realms: Default / Realm / Allow local users to override remote users / Groups / Delete ● / local | Local users / ○ / Filter: [Edit] Filter local users: [Edit] / ⊗ Add a realm Login session timeout: 500 minutes (5-1440) Default IdP certificate: Fortinet_CA1_Factory | C=US, ST=California, L=Sunnyvale, O=Fortinet, OU=FortiAuthenticator, CN=FAC-VMTM20000586, emailAddress=support@fortinet.com OK Cancel

3. Click **OK** to apply these changes.

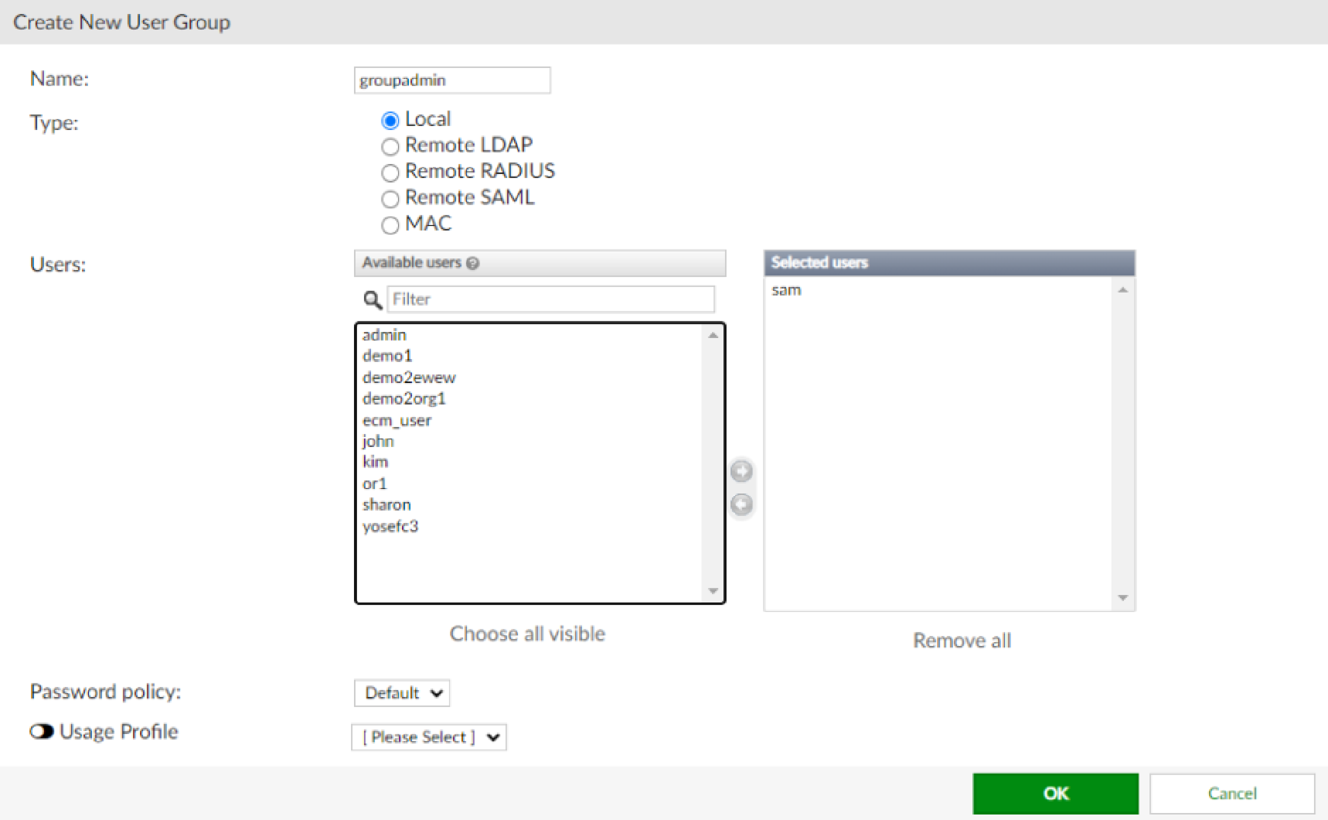
User Groups Management Settings on FortiAuthenticator

To configure on FortiAuthenticator the assertion attribute that will be used to map users' permissions to access FortiEDR:

1. Go to **Authentication > User Management > User Groups**.
2. Select **Create New**.

3. Specify a name for the group to be used for setting User access permissions for FortiEDR. In our example, we used **groupuser**.
4. In the **Users** section, select all the FortiAuthenticator users to be assigned with User permission to the FortiEDR Central Manager Console in order to add them to this User Group.
5. Click **OK** to save the configuration.
6. Repeat steps 1 – 5 above in order to also create Local Admin, Admin and API groups and in order to select the users to be assigned with these access permissions to the FortiEDR Central Manager Console.

In our example, we created a group named **groupadmin** and assigned this user the same Admin permissions to the FortiEDR Central Manager Console, as shown below:



Create New User Group

Name: groupadmin

Type:
● Local
○ Remote LDAP
○ Remote RADIUS
○ Remote SAML
○ MAC

Users:

Available users: admin, demo1, demo2ewew, demo2org1, ecm_user, john, kim, or1, sharon, yosefc3

Selected users: sam

Password policy: Default

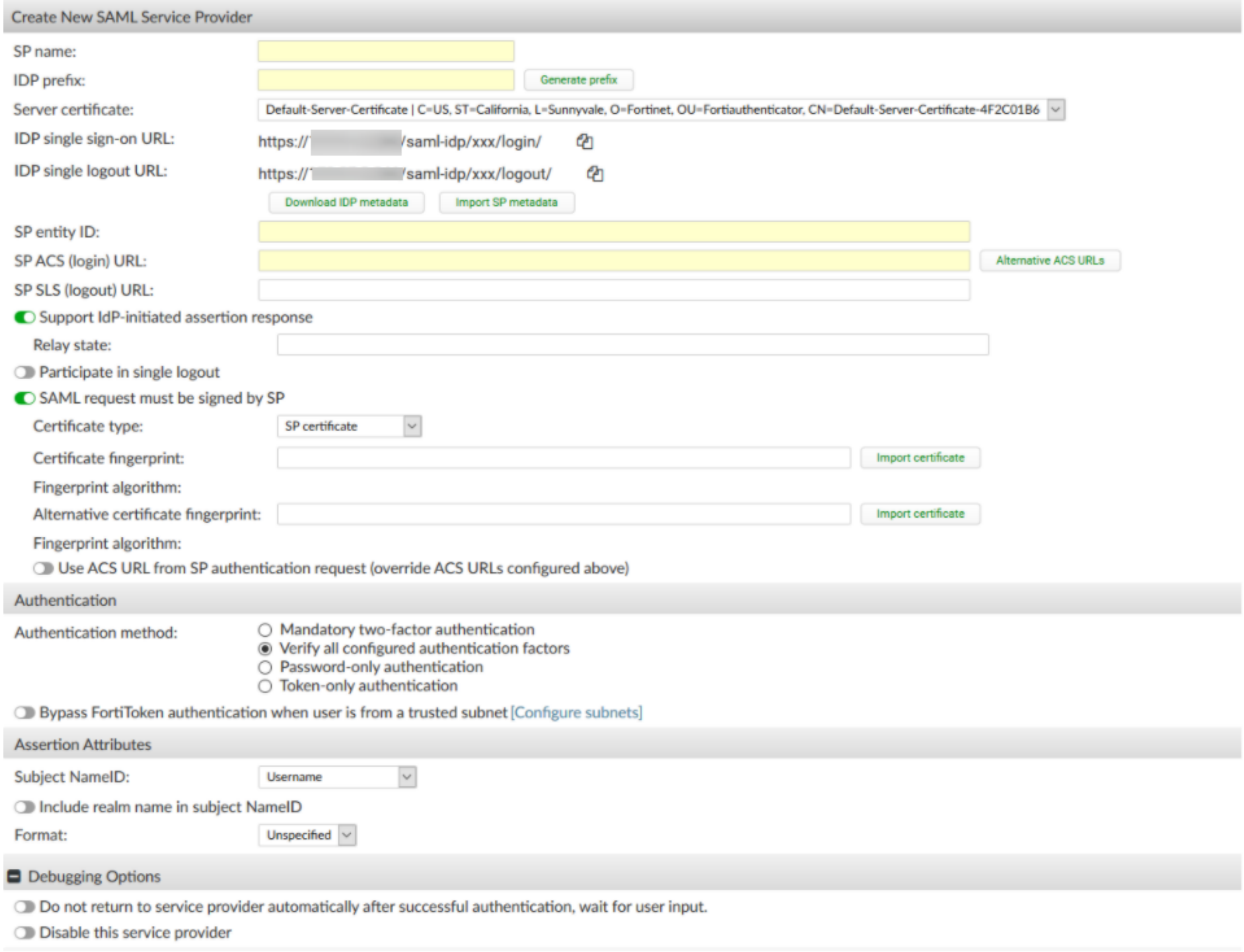
Usage Profile: [Please Select]

Note – New or existing FortiAuthenticator users can also be configured into groups on the Local Users create and edit page.

Service Provider Settings for FortiEDR on FortiAuthenticator

To configure FortiEDR as a SAML service provider on FortiAuthenticator:

1. Go to **Authentication > SAML IdP > Service Providers.**
2. Select **Create New.**



Create New SAML Service Provider

SP name:

IDP prefix: Generate prefix

Server certificate: Default-Server-Certificate | C=US, ST=California, L=Sunnyvale, O=Fortinet, OU=Fortiauthenticator, CN=Default-Server-Certificate-4F2C01B6

IDP single sign-on URL: https://[redacted]/saml-idp/xxx/login/

IDP single logout URL: https://[redacted]/saml-idp/xxx/logout/

Download IDP metadata Import SP metadata

SP entity ID:

SP ACS (login) URL: Alternative ACS URLs

SP SLS (logout) URL:

● Support IdP-initiated assertion response

Relay state:

○ Participate in single logout

● SAML request must be signed by SP

Certificate type: SP certificate

Certificate fingerprint: Import certificate

Fingerprint algorithm:

Alternative certificate fingerprint: Import certificate

Fingerprint algorithm:

○ Use ACS URL from SP authentication request (override ACS URLs configured above)

Authentication

Authentication method:
○ Mandatory two-factor authentication
● Verify all configured authentication factors
○ Password-only authentication
○ Token-only authentication

○ Bypass FortiToken authentication when user is from a trusted subnet [Configure subnets]

Assertion Attributes

Subject NameID: Username

○ Include realm name in subject NameID

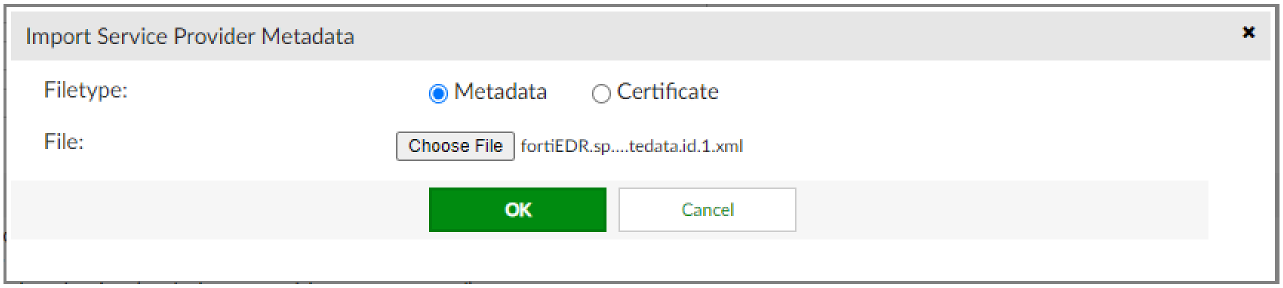
Format: Unspecified

Debugging Options

○ Do not return to service provider automatically after successful authentication, wait for user input.

○ Disable this service provider

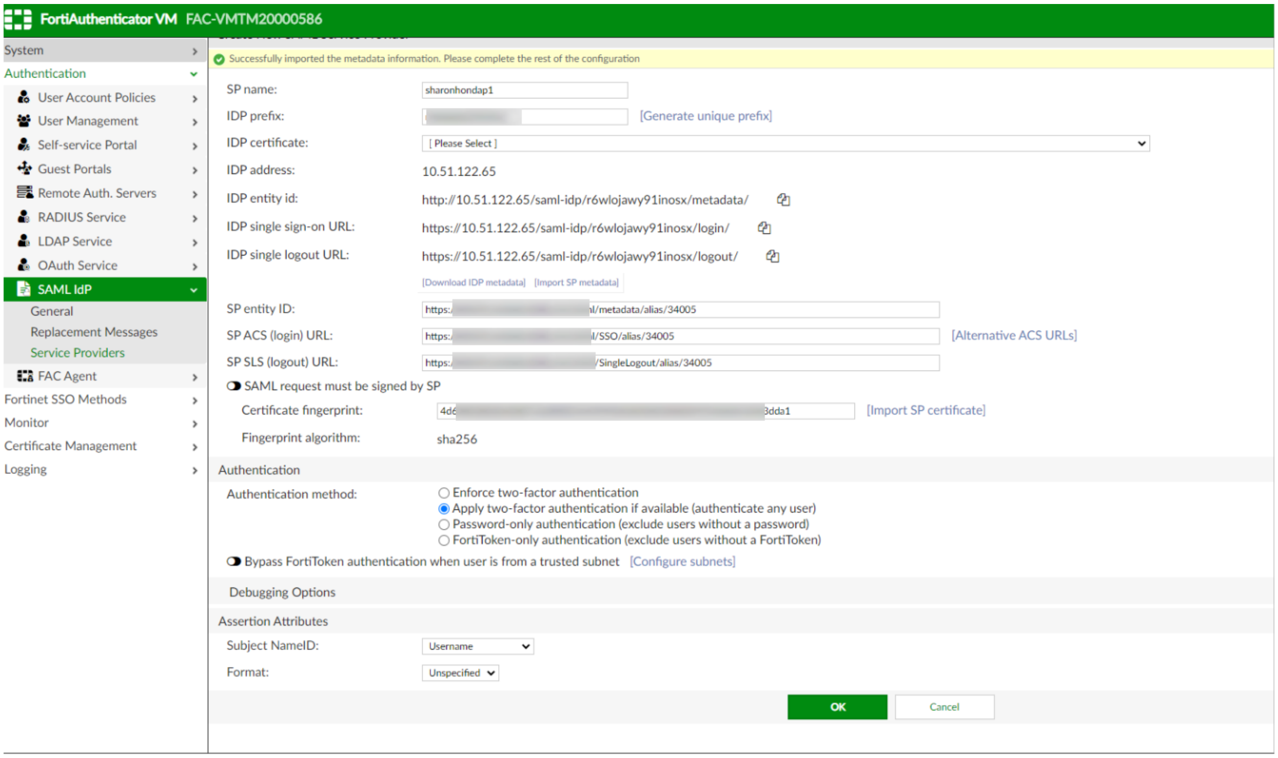
3. Fill in the following fields:
   - **SP name**: Enter a name for the FortiEDR SP.
   - **IDP prefix**: Select **Generate prefix** in order to generate a random 16-digit alphanumeric string or alternatively enter a prefix for the IDP that is appended to the end of the IDP URLs.
4. Click **Download IDP metadata** to save the FortiAuthenticator IDP data file to be used for uploading into FortiEDR. You may refer to step 3 in SAML Authentication on page 267 for more information.
5. Click **Import SP metadata** and select the SP data file that was downloaded from FortiEDR. You may refer to step 2 in SAML Authentication on page 267 for more information.


Import Service Provider Metadata

Filetype: ● Metadata ○ Certificate

File: Choose File fortiEDR.sp....tedata.id.1.xml

6. All other service provider configuration fields are auto-filled after the SP data file import:



Successfully imported the metadata information. Please complete the rest of the configuration

SP name: sharonhondap1

IDP prefix: [redacted] [Generate unique prefix]

IDP certificate: [Please Select]

IDP address: 10.51.122.65

IDP entity id: http://10.51.122.65/saml-idp/r6wlojawy91inosx/metadata/

IDP single sign-on URL: https://10.51.122.65/saml-idp/r6wlojawy91inosx/login/

IDP single logout URL: https://10.51.122.65/saml-idp/r6wlojawy91inosx/logout/

[Download IDP metadata] [Import SP metadata]

SP entity ID: https:/[redacted]l/metadata/alias/34005

SP ACS (login) URL: https:/[redacted]l/SSO/alias/34005 [Alternative ACS URLs]

SP SLS (logout) URL: https:/[redacted]/SingleLogout/alias/34005

SAML request must be signed by SP

Certificate fingerprint: 4d6[redacted]3dda1 [Import SP certificate]

Fingerprint algorithm: sha256

Authentication

Authentication method:
○ Enforce two-factor authentication
● Apply two-factor authentication if available (authenticate any user)
○ Password-only authentication (exclude users without a password)
○ FortiToken-only authentication (exclude users without a FortiToken)

Bypass FortiToken authentication when user is from a trusted subnet [Configure subnets]

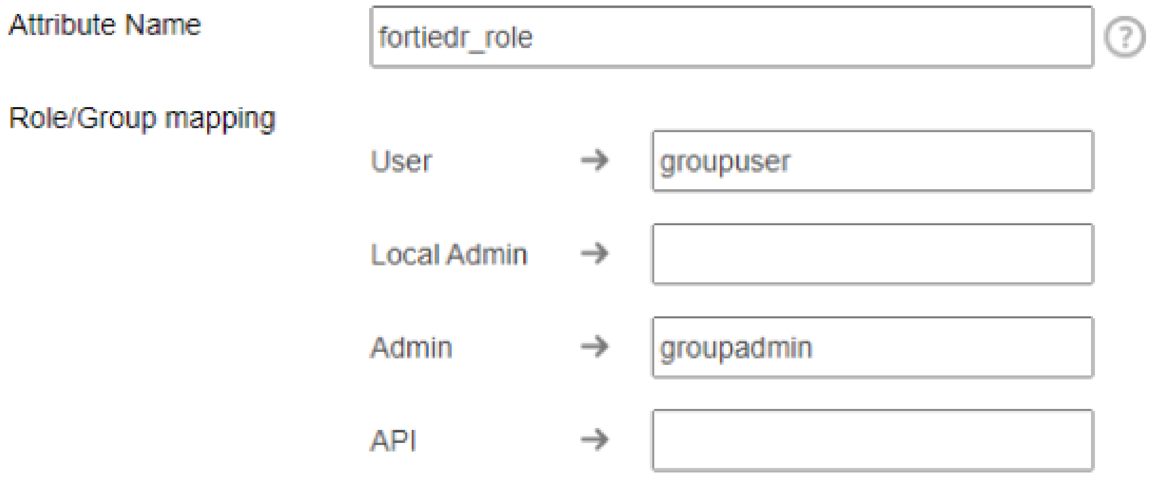
Debugging Options

Assertion Attributes

Subject NameID: Username

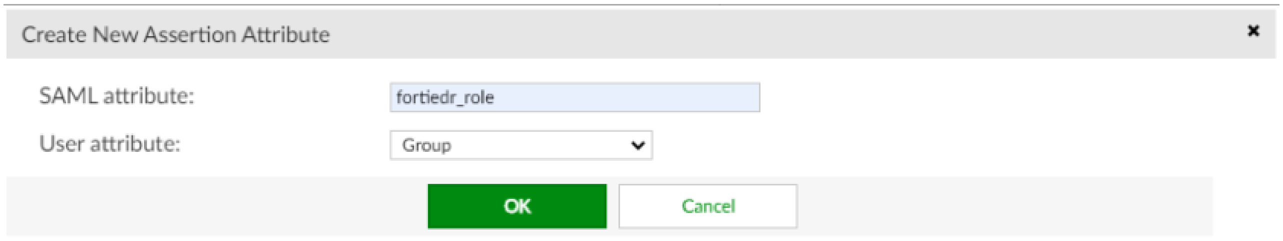
Format: Unspecified

7. Click **OK** to apply the changes.
8. Go to **Authentication > SAML IdP > Service Providers** and double-click to open the Service Provider that you created in the previous step.
9. 9 In the **SAML Attribute** section, click **Create New**.
10. In the popup window, enter the attribute name that was configured in the FortiEDR SAML Authentication settings and select **FortiAuthenticator Group** as the User Attribute.
    In our example, we use **fortiedr_role** as an attribute name, as shown below:



Attribute Name	fortiedr_role	
Role/Group mapping		
	User →	groupuser
	Local Admin →	
	Admin →	groupadmin
	API →	

And therefore the configuration on FortiAuthenticator appears as follows:



Create New Assertion Attribute

SAML attribute: fortiedr_role

User attribute: Group

11. Click **OK** to save the changes.

FortiAuthenticator can now be used as the IdP, which provides authorization and authentication for users trying to access the FortiEDR Central Manager Console. When logging into the FortiEDR Console via the SSO url that is specified in the SAML settings page, a FortiAuthenticator user is awarded access permissions to the FortiEDR Central Manager according to the User Groups into which he/she was added.

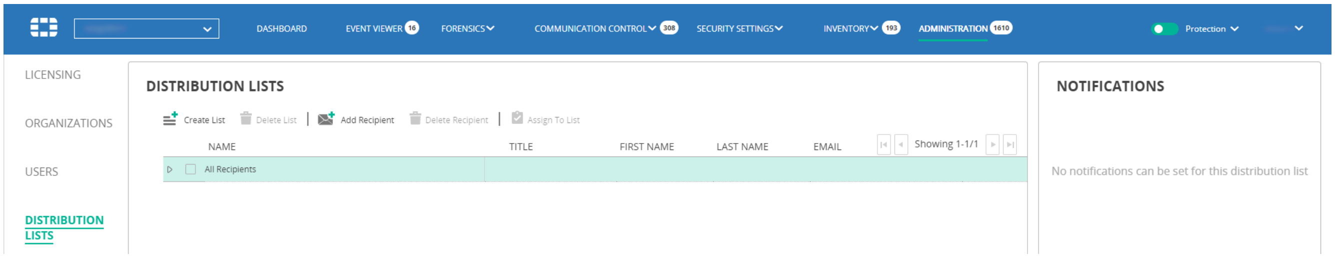
Distribution Lists

The **DISTRIBUTION LISTS** option enables you to specify recipients who will receive an email each time a security event is triggered by FortiEDR.

Note – You must configure SMTP before using the Distribution List option. For more details, see SMTP on page 288.

Note – Emails are only sent for security events that occur on devices that are part of Collector Groups that are assigned to a Playbook policy in which the Send Email Notification option is checked.

Each email contains all the raw data items collected by FortiEDR about that security event. The system is provided with a Distribution List called All Recipients that contains all FortiEDR Central Manager users. All other recipients that are added to the system are also automatically added to the **All Recipients** list.



DISTRIBUTION LISTS

NAME	TITLE	FIRST NAME	LAST NAME	EMAIL
▷ □ All Recipients				

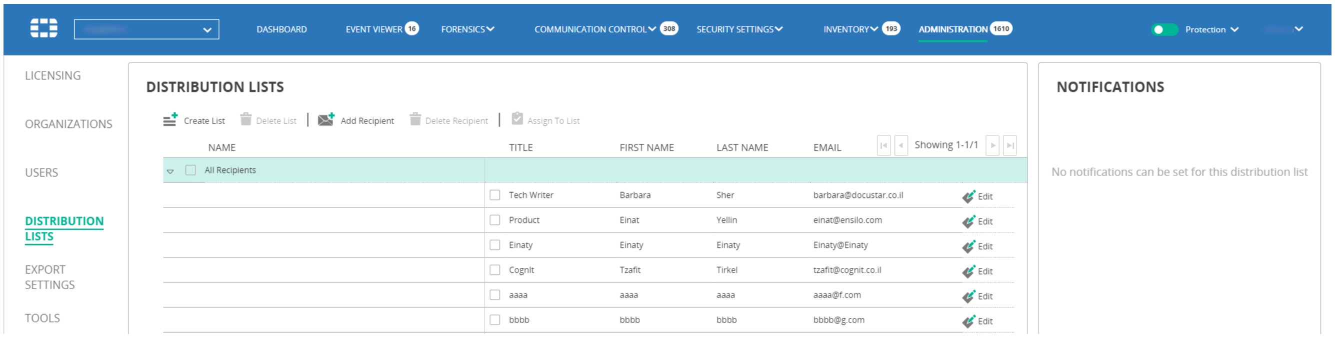
NOTIFICATIONS

No notifications can be set for this distribution list

This window displays a row for each Distribution List. Click the ▽ button in a row to view the recipients assigned to that list.

Use the Create List button to create a new Distribution List.

Use the Add Recipient button to add a recipient/user to a Distribution List.



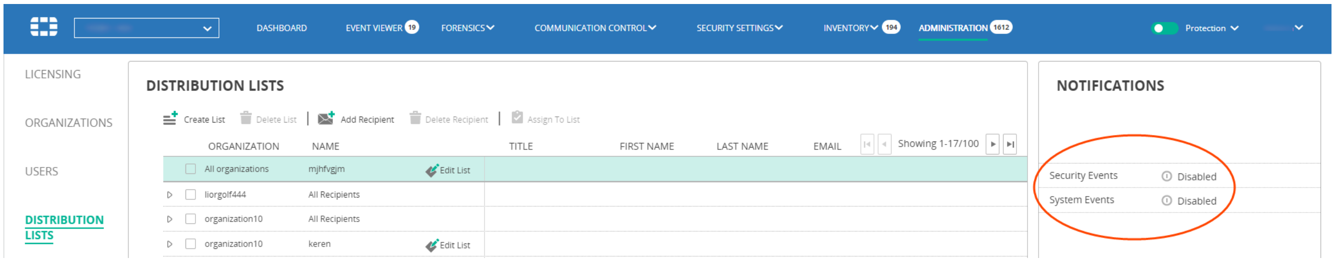
DISTRIBUTION LISTS

NAME	TITLE	FIRST NAME	LAST NAME	EMAIL	
▽ □ All Recipients					
	□ Tech Writer	Barbara	Sher	barbara@docustar.co.il	Edit
	□ Product	Einat	Yellin	einat@ensilo.com	Edit
	□ Einaty	Einaty	Einaty	Einaty@Einaty	Edit
	□ CognIt	Tzafit	Tirkel	tzafit@cognit.co.il	Edit
	□ aaaa	aaaa	aaaa	aaaa@f.com	Edit
	□ bbbb	bbbb	bbbb	bbbb@g.com	Edit

NOTIFICATIONS

No notifications can be set for this distribution list

Select a distribution list row and then use the Enabled/Disabled option in the NOTIFICATIONS pane on the right to enable or disable the list per event type (system events or security events).



DISTRIBUTION LISTS

ORGANIZATION	NAME		TITLE	FIRST NAME	LAST NAME	EMAIL
□ All organizations	mjhfvgjm	Edit List				
▷ □ liorgolf444	All Recipients					
▷ □ organization10	All Recipients					
▷ □ organization10	keren	Edit List				

NOTIFICATIONS

Security Events	Disabled
System Events	Disabled

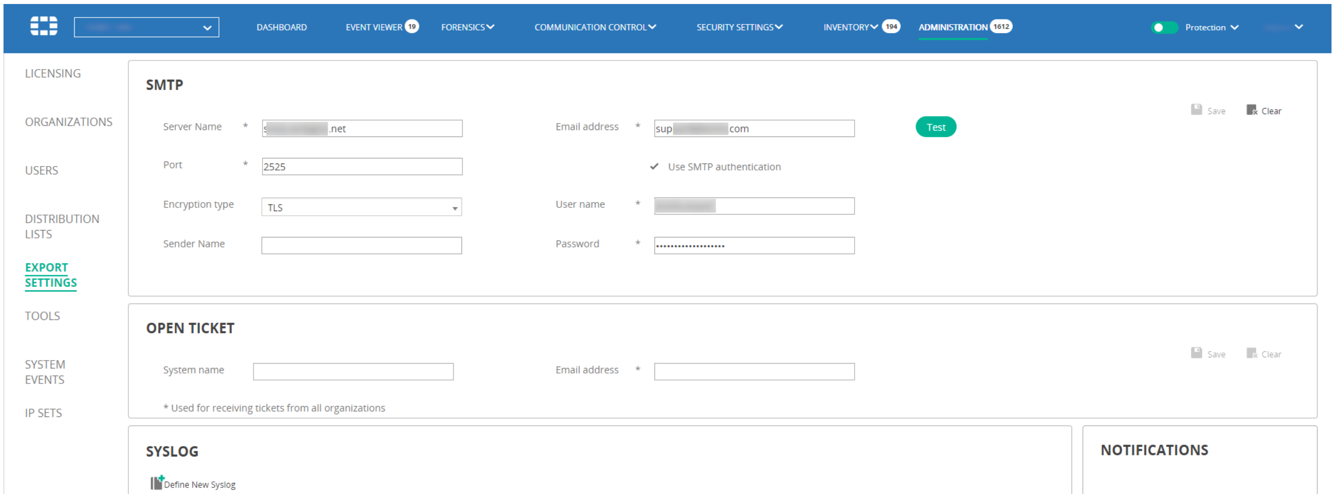
Export Settings

The **EXPORT SETTINGS** option provides access to the following options:

- SMTP on page 288
- Open Ticket on page 288
- Syslog on page 289

SMTP

The SMTP option enables you to configure the SMTP server to be used for sending emails. You can also check the connectivity to the SMTP server.



SMTP

Server Name * s[redacted].net

Email address * sup[redacted]com

Port * 2525

✓ Use SMTP authentication

Encryption type TLS

User name * [redacted]

Sender Name

Password * ....

OPEN TICKET

System name

Email address *

* Used for receiving tickets from all organizations

SYSLOG

NOTIFICATIONS

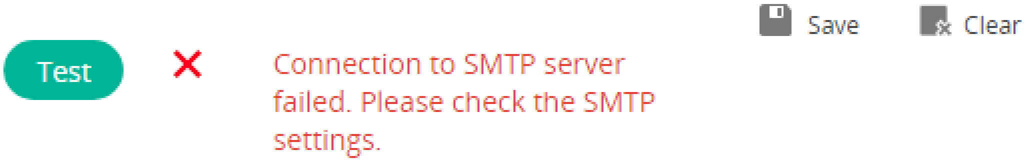
Note – In a single-organization system, SMTP settings are only accessible in Hoster view (for administrators), or to the local administrator of that organization

To configure SMTP server settings:

- In the SMTP area, enter standard SMTP settings and then click **Save**.

To test SMTP server connectivity:

- In the SMTP area, click **Test**. An error message displays if there is no connectivity to the server.



Connection to SMTP server failed. Please check the SMTP settings.

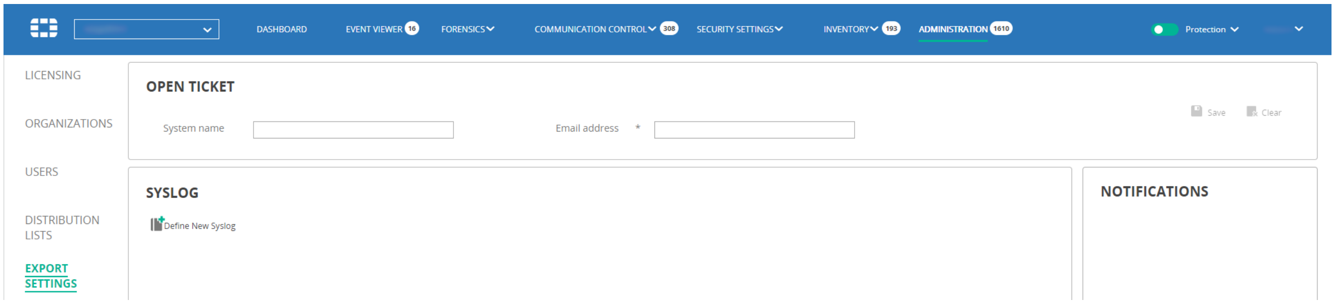
Open Ticket

The **Open Ticket** option enables you to send events to an event-management tool such as Jira or ServiceNow. Open Ticket automatically opens a ticket and attaches the relevant event to a ticket.

In order for the Open Ticket feature to work properly, you must set up an email feed in the event-management tool to be used.

Note – Most event-management tools are supported. FortiEDR has tested and verified that Open Ticket works with the ServiceNow and Jira systems. For more details about setting up the email feed required for this feature, see Appendix A – Setting up an Email Feed for Open Ticket on page 372.

Note – Security events are only sent to a ticketing system when they occur on devices that are part of Collector Groups that are assigned to a Playbook policy in which the **Open Ticket** option is checked.



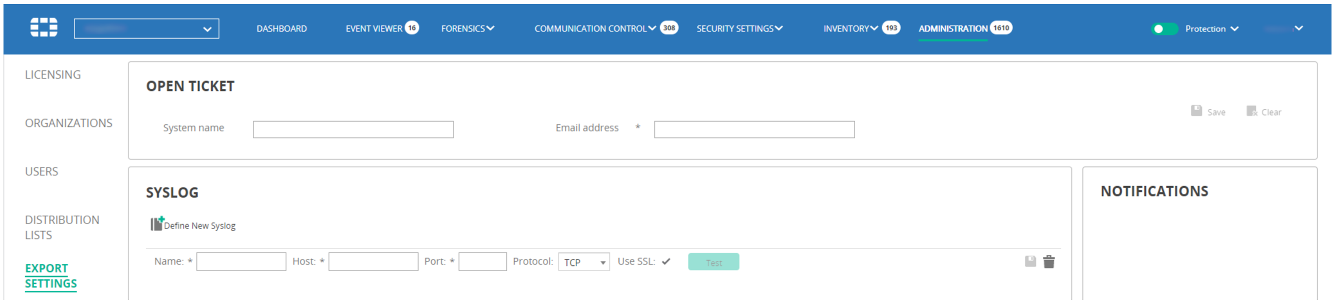
To configure Open Ticket settings:

1. In the Open Ticket area, in the **System name** field, enter the system name for the tool to be used for event management. This is a free-text field.
2. In the **Email address** field, enter the email address that is the destination to which all tickets are to be sent from FortiEDR. All tickets from all organizations are sent to this email.
3. Click **Save**.

Syslog

The SYSLOG option enables you to configure FortiEDR to automatically send FortiEDR events to one or more standard Security Information and Event Management (SIEM) solutions via Syslog.

The FortiEDR Central Manager server sends the raw data for security event aggregations. Each entry contains a raw data ID and an event ID. Raw data items belonging to the same security event aggregation share the same event ID, which enables the SIEM to combine them into one security event on the SIEM side, in order to remain aligned with the FortiEDR system.



Use the Define New Syslog button to define a new Syslog destination. The **Syslog Name** is a free-text field that identifies this destination in the FortiEDR.

Note – Syslog messages are only sent for security events that occur on devices that are part of Collector Groups that are assigned to a Playbook policy in which the **Send Syslog Notification** option is checked.

All other fields are standard Syslog parameters that the FortiEDR Central Manager is able to send. Check the checkbox of the fields that you want to be sent to your Syslog.

Select a syslog destination row and then use the sliders in the NOTIFICATIONS pane on the right to enable or disable the destination per event type (system events, security events or audit trail).

⚠ Warning: If syslog is configured for both Hoster view and an organization, two syslog events will be sent.

Syslog Notifications

Syslog includes the following types of notifications:

Notification Type	Fields
Security Event	• Event ID • Device Name • Process Path • Certificate • Last Seen • Severity • Count • MAC Address • Source IP • Raw Data ID • Process Name • Process Type • First Seen • Destination • Action • Rules List • Classification • Organization • Organization ID • Operating System • Script • Script Path • Country • Users • Device State • Autonomous System • Process Hash • Threat Name • Threat Family • Threat Type
System Events on page 307	• Component Type

Notification Type	Fields
	• Component Name • Description • Date
Audit Trail on page 292	• Date • Module • Username • Action Description

Syslog Message

The order of the fields in the Syslog message is as follows:

1. Organization
2. Organization ID
3. Event ID
4. Raw Data ID
5. Device Name
6. Device State
7. Operating System
8. Process Name
9. Process Path
10. Process Type
11. Severity
12. Classification
13. Destination
14. First Seen
15. Last Seen
16. Action
17. Count
18. Certificate
19. Rules List
20. Users
21. MAC Address
22. Script
23. Script Path
24. Autonomous System
25. Country
26. Process Hash
27. Source IP

Syslog Message Format

The Syslog message contains the following sections:

1. **Facility Code**: All messages have the value 16 (Custom App).
2. **Severity**: All messages have the value 5 (Notice).
3. **MessageType**: Enables you to differentiate between syslog message categories – Security Event, System Event or Audit.
4. **Message Text**: Contains the name and value of all the selected fields.
   For example, Device name: Laptop123. Each field is separated by a semi-colon (;).

Note – Regarding time values in system events :

- Syslog events time is expressed in UTC format.
- For system and audit events, the timestamp is the Central Manager’s time when the event occurred.
- For security events, the timestamp is the Collector device’s time when the event occurred.

Tools

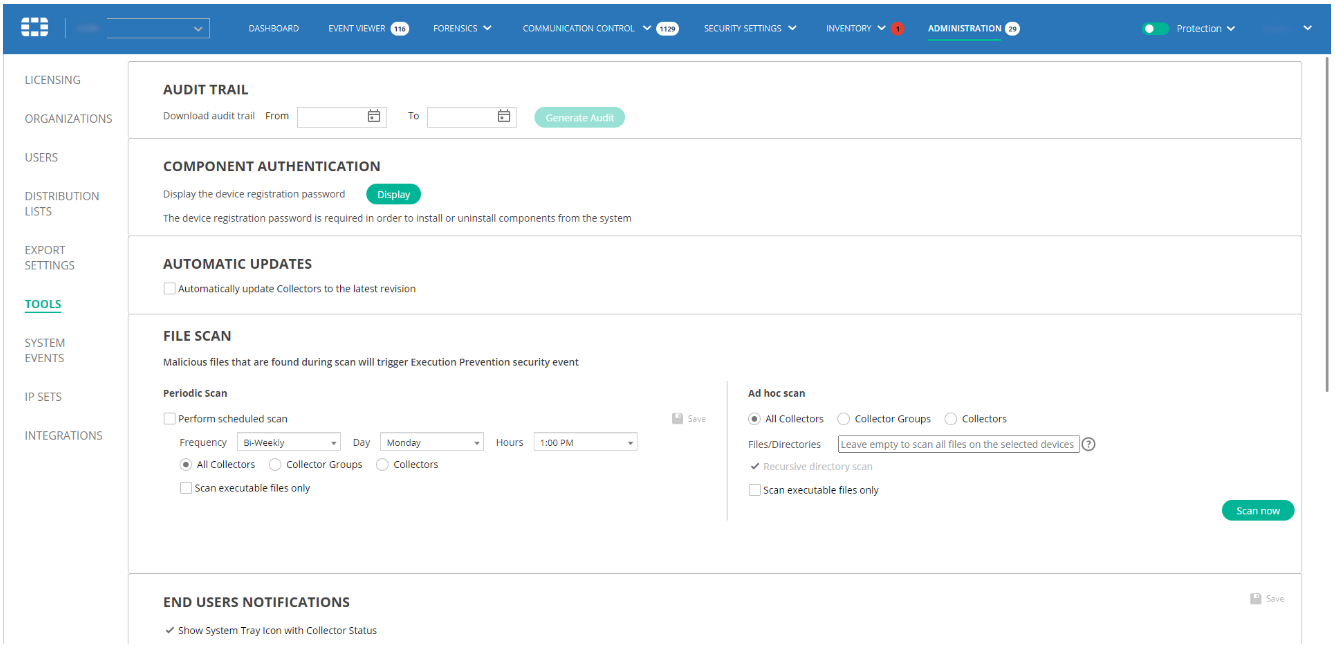
The TOOLS option provides access to the following options:

Option	Reference
Audit Trail	Audit Trail on page 292
Component Authentication	Component Authentication on page 295
Automatic Updates	Automatic Collector Updates on page 295
File Scan	File Scan on page 296
End-user Notifications	End-user Notifications on page 297
IoT Device Discovery	IoT Device Discovery on page 300
Personal Data Handling	Personal Data Handling on page 301
Windows Security Center	Windows Security Center on page 306

Audit Trail

FortiEDR’s audit mechanism records every user action in the FortiEDR system. System actions are not recorded. You can download the audit trail to a *.csv file for further analysis.

Each time a new audit trail is created, it can be sent through the Syslog.



AUDIT TRAIL

Download audit trail From To

COMPONENT AUTHENTICATION

Display the device registration password

The device registration password is required in order to install or uninstall components from the system

AUTOMATIC UPDATES

□ Automatically update Collectors to the latest revision

FILE SCAN

Malicious files that are found during scan will trigger Execution Prevention security event

Periodic Scan

□ Perform scheduled scan

Frequency: Bi-Weekly Day: Monday Hours: 1:00 PM

● All Collectors ○ Collector Groups ○ Collectors

□ Scan executable files only

Ad hoc scan

● All Collectors ○ Collector Groups ○ Collectors

Files/Directories: Leave empty to scan all files on the selected devices

✓ Recursive directory scan

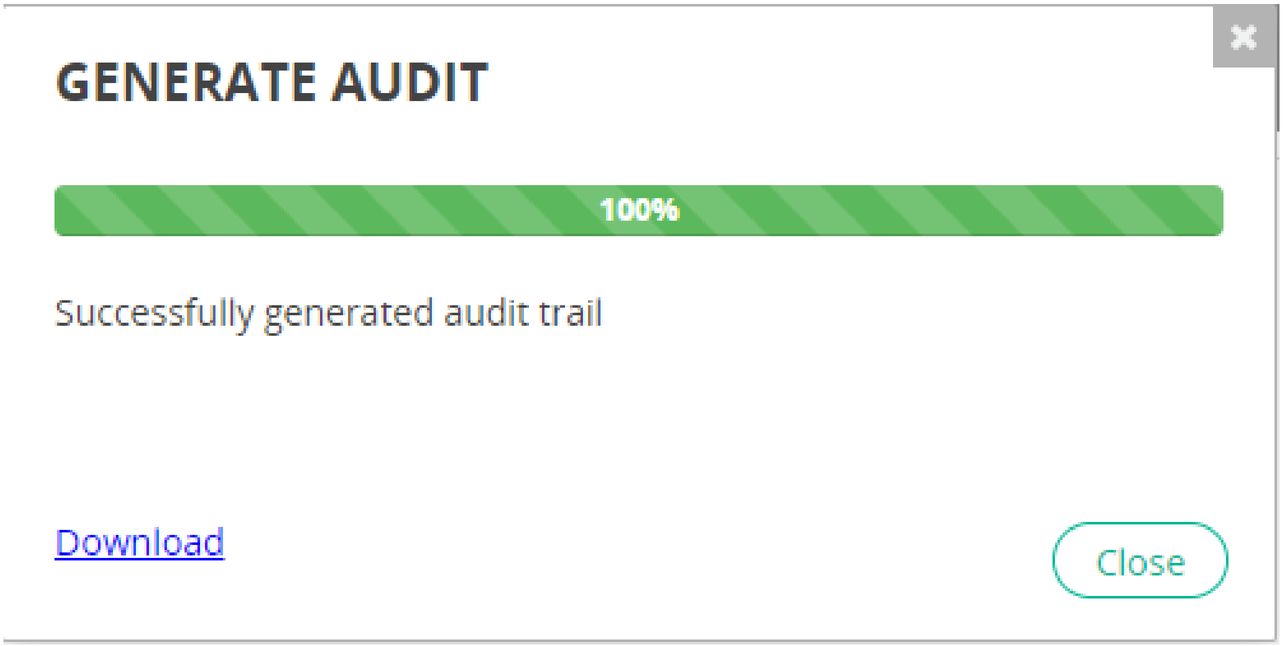
□ Scan executable files only

END USERS NOTIFICATIONS

✓ Show System Tray Icon with Collector Status

To generate the audit trail:

1. Click the **TOOLS** link in the left pane.
2. In the AUDIT TRAIL area, specify the **From** and **To** dates in the respective fields.
3. Click the **Generate Audit** button. A progress window displays:

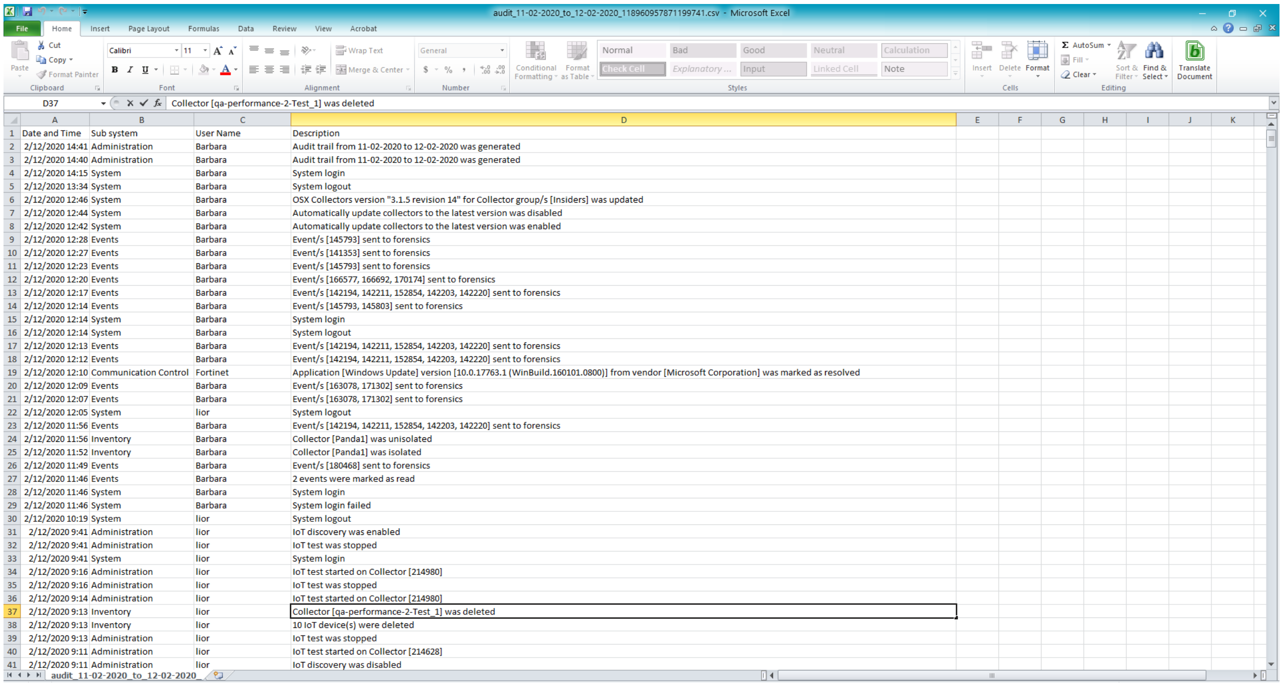


GENERATE AUDIT

100%

Successfully generated audit trail

4. Click the **Download** link to download the audit trail to a *.csv file. An Excel file, such as the example shown below, displays:



D37 Collector [qa-performance-2-Test_1] was deleted

	A	B	C	D
1	Date and Time	Sub system	User Name	Description
2	2/12/2020 14:41	Administration	Barbara	Audit trail from 11-02-2020 to 12-02-2020 was generated
3	2/12/2020 14:40	Administration	Barbara	Audit trail from 11-02-2020 to 12-02-2020 was generated
4	2/12/2020 14:15	System	Barbara	System login
5	2/12/2020 13:34	System	Barbara	System logout
6	2/12/2020 12:46	System	Barbara	OSX Collectors version "3.1.5 revision 14" for Collector group/s [Insiders] was updated
7	2/12/2020 12:44	System	Barbara	Automatically update collectors to the latest version was disabled
8	2/12/2020 12:42	System	Barbara	Automatically update collectors to the latest version was enabled
9	2/12/2020 12:28	Events	Barbara	Event/s [145793] sent to forensics
10	2/12/2020 12:27	Events	Barbara	Event/s [141353] sent to forensics
11	2/12/2020 12:23	Events	Barbara	Event/s [145793] sent to forensics
12	2/12/2020 12:20	Events	Barbara	Event/s [166577, 166692, 170174] sent to forensics
13	2/12/2020 12:17	Events	Barbara	Event/s [142194, 142211, 152854, 142203, 142220] sent to forensics
14	2/12/2020 12:14	Events	Barbara	Event/s [145793, 145803] sent to forensics
15	2/12/2020 12:14	System	Barbara	System login
16	2/12/2020 12:14	System	Barbara	System logout
17	2/12/2020 12:13	Events	Barbara	Event/s [142194, 142211, 152854, 142203, 142220] sent to forensics
18	2/12/2020 12:12	Events	Barbara	Event/s [142194, 142211, 152854, 142203, 142220] sent to forensics
19	2/12/2020 12:10	Communication Control	Fortinet	Application [Windows Update] version [10.0.17763.1 (WinBuild.160101.0800)] from vendor [Microsoft Corporation] was marked as resolved
20	2/12/2020 12:09	Events	Barbara	Event/s [163078, 171302] sent to forensics
21	2/12/2020 12:07	Events	Barbara	Event/s [163078, 171302] sent to forensics
22	2/12/2020 12:05	System	lior	System logout
23	2/12/2020 11:56	Events	Barbara	Event/s [142194, 142211, 152854, 142203, 142220] sent to forensics
24	2/12/2020 11:56	Inventory	Barbara	Collector [Panda1] was unisolated
25	2/12/2020 11:52	Inventory	Barbara	Collector [Panda1] was isolated
26	2/12/2020 11:49	Events	Barbara	Event/s [180468] sent to forensics
27	2/12/2020 11:46	Events	Barbara	2 events were marked as read
28	2/12/2020 11:46	System	Barbara	System login
29	2/12/2020 11:46	System	Barbara	System login failed
30	2/12/2020 10:19	System	lior	System logout
31	2/12/2020 9:41	Administration	lior	IoT discovery was enabled
32	2/12/2020 9:41	Administration	lior	IoT test was stopped
33	2/12/2020 9:41	System	lior	System login
34	2/12/2020 9:16	Administration	lior	IoT test started on Collector [214980]
35	2/12/2020 9:16	Administration	lior	IoT test was stopped
36	2/12/2020 9:14	Administration	lior	IoT test started on Collector [214980]
37	2/12/2020 9:13	Inventory	lior	Collector [qa-performance-2-Test_1] was deleted
38	2/12/2020 9:13	Inventory	lior	10 IoT device(s) were deleted
39	2/12/2020 9:13	Administration	lior	IoT test was stopped
40	2/12/2020 9:11	Administration	lior	IoT test started on Collector [214628]
41	2/12/2020 9:11	Administration	lior	IoT discovery was disabled

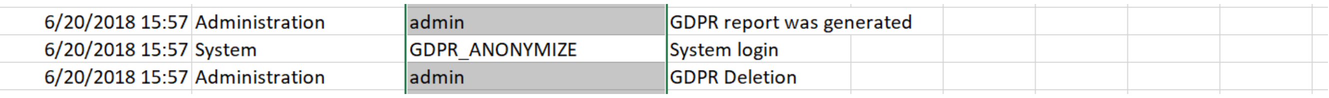
Each row in the audit trail file contains the following columns of information:

Field	Definition
Date and Time	Displays the date and time in the format yyyy-mm-dd hh:mm:ss.
Sub system	Displays the change type, such as System, Configuration, Administration, Forensics, Events, Inventory, Communication Control or Health.
User Name	Displays the name of the user.
Description	Displays the action and/or a description.

The following actions can be audited:

- System actions
- Policy actions
- Forensic actions
- Administrative actions
- Events
- Inventory actions
- System health changes

Note – If an employee's/user's data was removed from FortiEDR for GDPR compliance, then the affected record for that person still displays in the audit trail but shows GDPR_ANONYMIZE instead of actual user data. For example, as shown below:



6/20/2018 15:57	Administration	admin	GDPR report was generated
6/20/2018 15:57	System	GDPR_ANONYMIZE	System login
6/20/2018 15:57	Administration	admin	GDPR Deletion

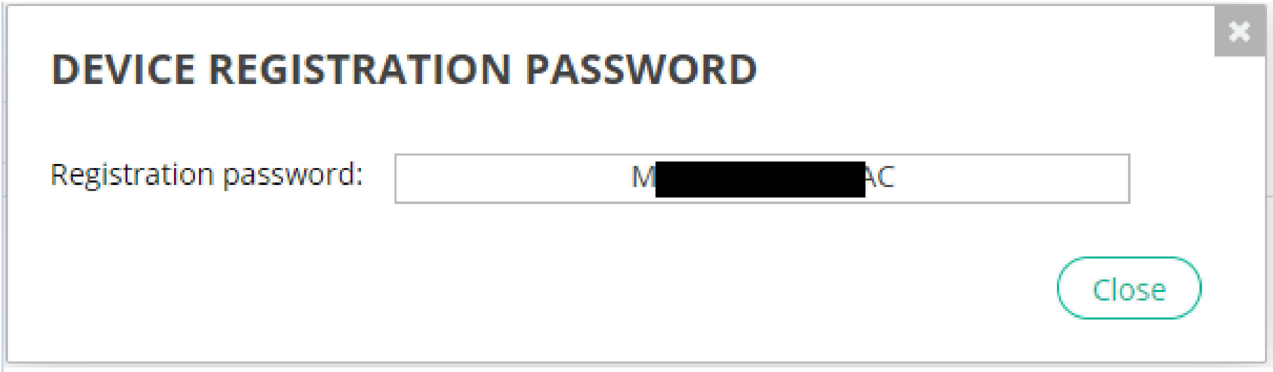
Component Authentication

In order to install, upgrade or uninstall a Collector, you must supply the Aggregator password. The Aggregator password is the same for all Collectors in the FortiEDR system. This password is defined during initial system installation. For more details, see Installing the FortiEDR Central Manager and FortiEDR Aggregator on the Same Machine on page 383.

If you forget the Aggregator password, you can use the **COMPONENT AUTHENTICATION** option to retrieve it.

To retrieve the Aggregator password:

1. Click the **TOOLS** link in the left pane.
2. In the **COMPONENT AUTHENTICATION** area, click the **Display** button. The following window displays, showing the retrieved password.



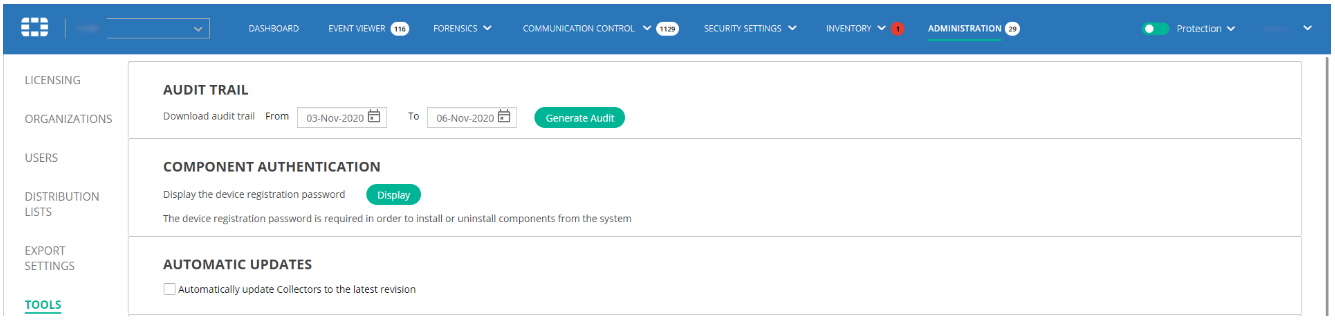
DEVICE REGISTRATION PASSWORD

Registration password: M[redacted]AC

Automatic Collector Updates

The Automatic Collector Updates feature updates the revision for a given FortiEDR version. The revision number is the fourth digit of the FortiEDR version number. For example, for FortiEDR version 3.1.0.x, x indicates the revision number.

When the **Automatically update Collectors to the latest revision** checkbox is checked, whenever the content contains a new build only (for example, 2.7.0.15 is a new build of 2.7.0.5), all Collectors are uploaded to that build. This means that all Collectors in all Collector Groups in all environments and operating systems are updated to the latest FortiEDR revision available (as provided by Fortinet using the Load Content feature). For more details about the Load Content feature, see Content Updates on page 24.



AUDIT TRAIL

Download audit trail From 03-Nov-2020 To 06-Nov-2020 Generate Audit

COMPONENT AUTHENTICATION

Display the device registration password Display

The device registration password is required in order to install or uninstall components from the system

AUTOMATIC UPDATES

☐ Automatically update Collectors to the latest revision

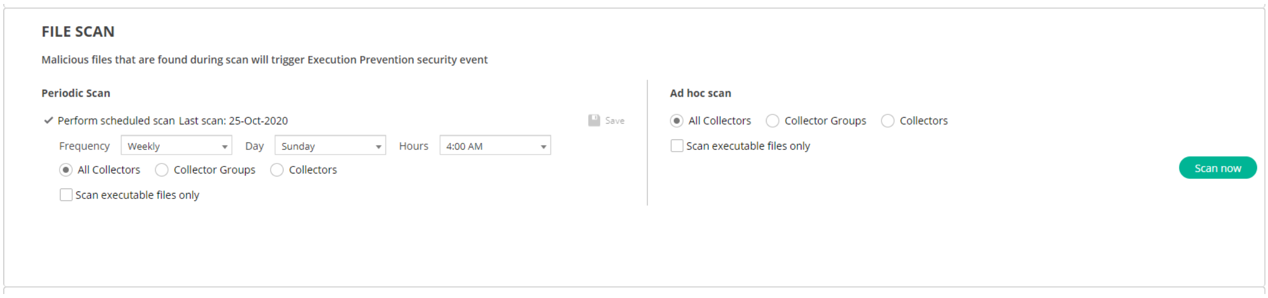
To update a FortiEDR version, use the Update Collector Version feature described in Updating the Collector Version on page 253.

File Scan

FortiEDR can perform periodic scans of the files in the system on a scheduled or on-demand basis, based on its execution prevention policy. During a periodic scan, only the files on the hard drive are scanned and no memory scan is performed. For a periodic scan, each file on the hard drive is scanned. If a malicious file is identified during a scan, a security event is triggered.

To schedule a periodic scan:

1. Click the **TOOLS** link in the left pane.
2. In the FILE SCAN area, check the **Perform Scheduled Scan** checkbox. This checkbox must be checked to perform the scan according to the designated schedule.



FILE SCAN

Malicious files that are found during scan will trigger Execution Prevention security event

Periodic Scan

✓ Perform scheduled scan Last scan: 25-Oct-2020

Frequency: Weekly Day: Sunday Hours: 4:00 AM

● All Collectors ○ Collector Groups ○ Collectors

□ Scan executable files only

Ad hoc scan

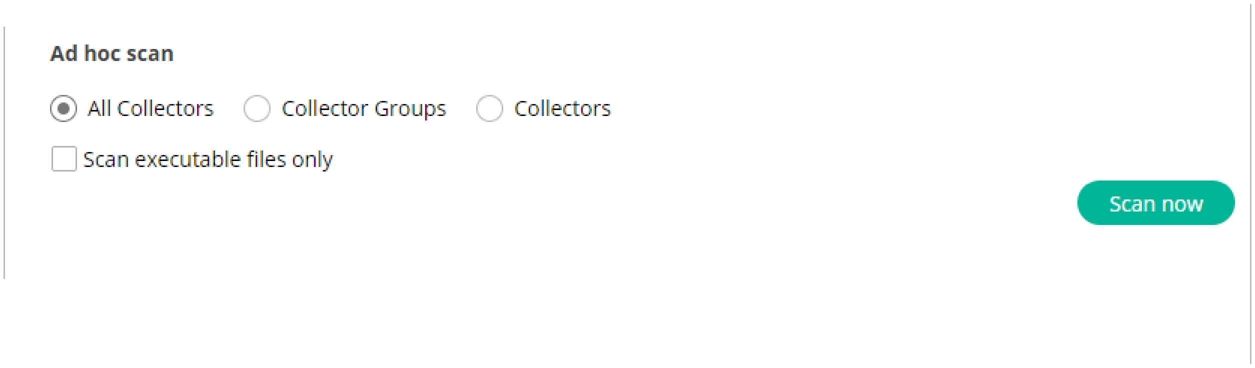
● All Collectors ○ Collector Groups ○ Collectors

□ Scan executable files only

3. In the **Frequency** dropdown list, select how frequently to execute the scan. Options are **Weekly, Bi-Weekly** (every two weeks) or **Monthly**.
4. In the **Day** dropdown list, select the day of the week to execute the scan.
5. In the **Hours** dropdown list, select the hour of the day to execute the scan.
6. Use the radio button to select on which devices the scheduled scan should be performed. When selecting Collector Groups or Collectors, you should specify which Groups or Collectors should be included in the scan. Devices that are not listed here are not scanned.
7. Click the **Save** button. The scan is performed as scheduled.

To perform an on-demand file scan:

1. Click the **TOOLS** link in the left pane.
2. In the Ad hoc scan area, select which devices to scan by specifying one or more Collectors or Collector Groups, or selecting the **All Collectors** option to scan all devices with installed Collectors.



Ad hoc scan

● All Collectors ○ Collector Groups ○ Collectors

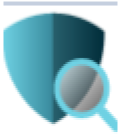
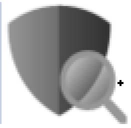
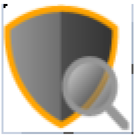
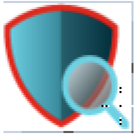
□ Scan executable files only

3. Check the **Scan executable files only** checkbox to only scan executable files. This option enables a quicker scan, but neglects documents, scripts and other potentially malicious files.
4. Click **Scan now**. The scan is performed immediately.

End-user Notifications

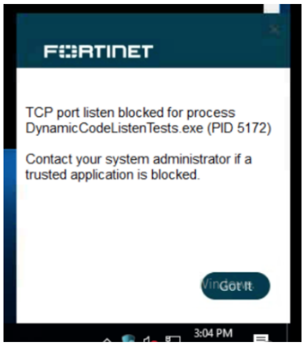
Each device protected by FortiEDR can display an icon in the system tray to indicate its state.

The FortiEDR icon indicates the current state of the device, as follows:

-  Protection On
-  Protection Off/Disabled
-  Degraded
-  Isolated

Note – Terminating a FortiEDR process ends this process and stops the display of the FortiEDR icon in the system tray, but does not stop FortiEDR protection.

When the FortiEDR icon is configured to display on FortiEDR-protected devices, a popup message displays whenever something is blocked on a protected device (based on the blocking policy set for that device). File modifications (due to suspected ransomware), the exfiltration of external connections and execution prevention actions can be blocked. For example, the following shows that a TCP port listening action was blocked for the **DynamicCodeListenTests.exe** process.



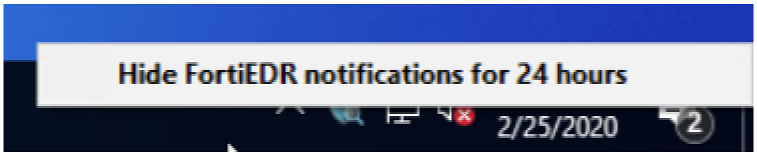
FORTINET

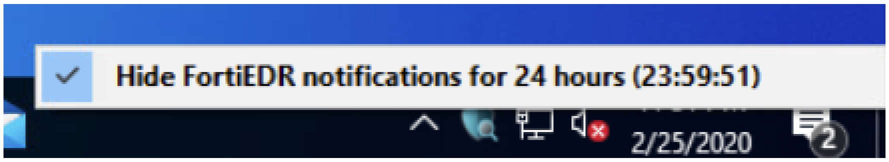
TCP port listen blocked for process DynamicCodeListenTests.exe (PID 5172)

Contact your system administrator if a trusted application is blocked.

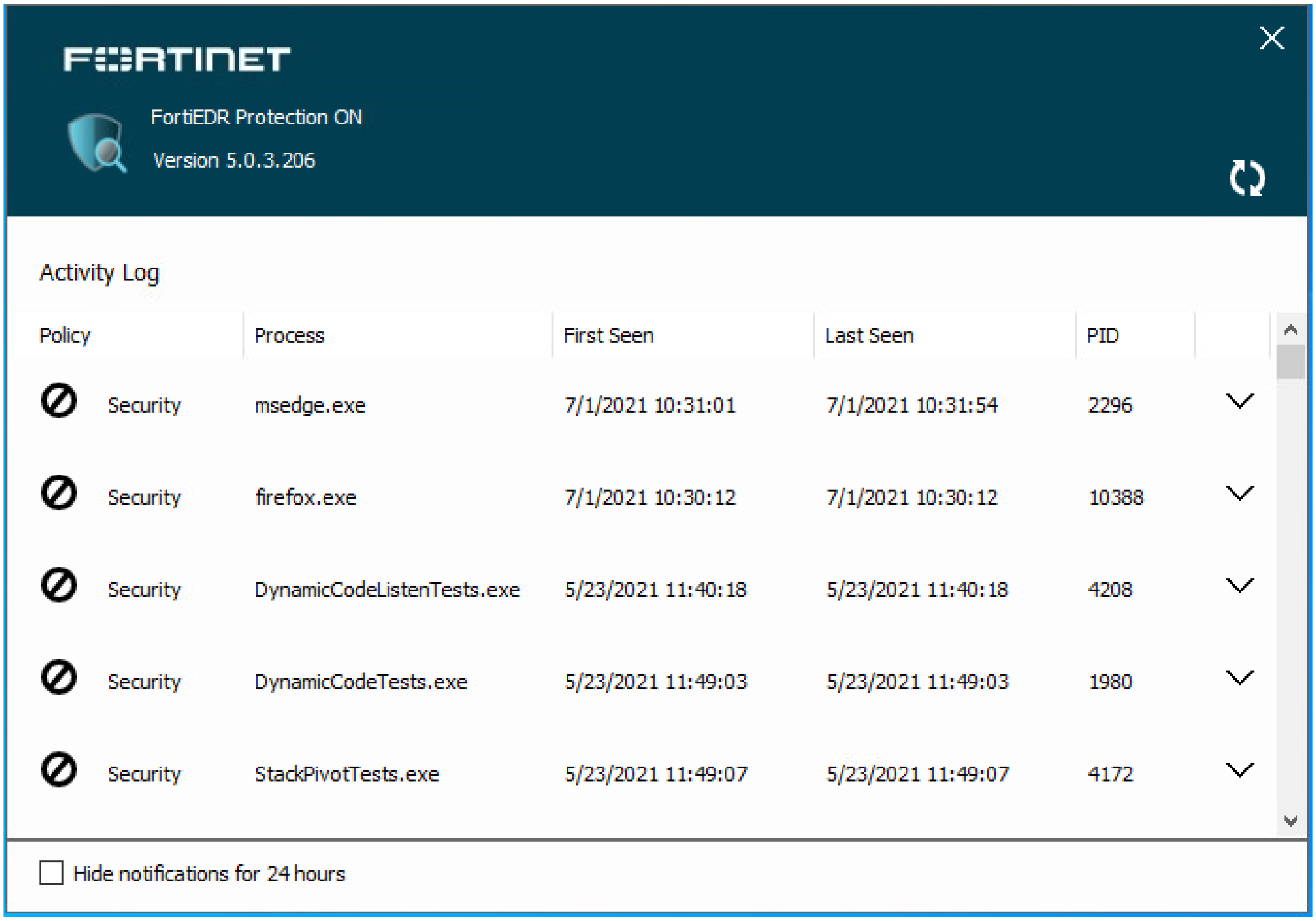
Note- This notification is displayed only once for the same process. If the same process is blocked multiple times, only a single FortiEDR pop up is displayed.

You can choose to show or hide end-user notifications (pop-ups) for the next 24 hours. To do so, right-click the FortiEDR icon in the system tray and then check the checkbox to hide notifications or leave the checkbox unchecked to display notifications.





You can double click the FortiEDR icon in the system tray to review recent blocking activity on the device as shown below. Each row includes a single event (that can be composed of multiple occurrences) and displays the process name, the first and last occurrences times, the process ID and the type of blocking: either security or communication control.



FortiEDR Protection ON

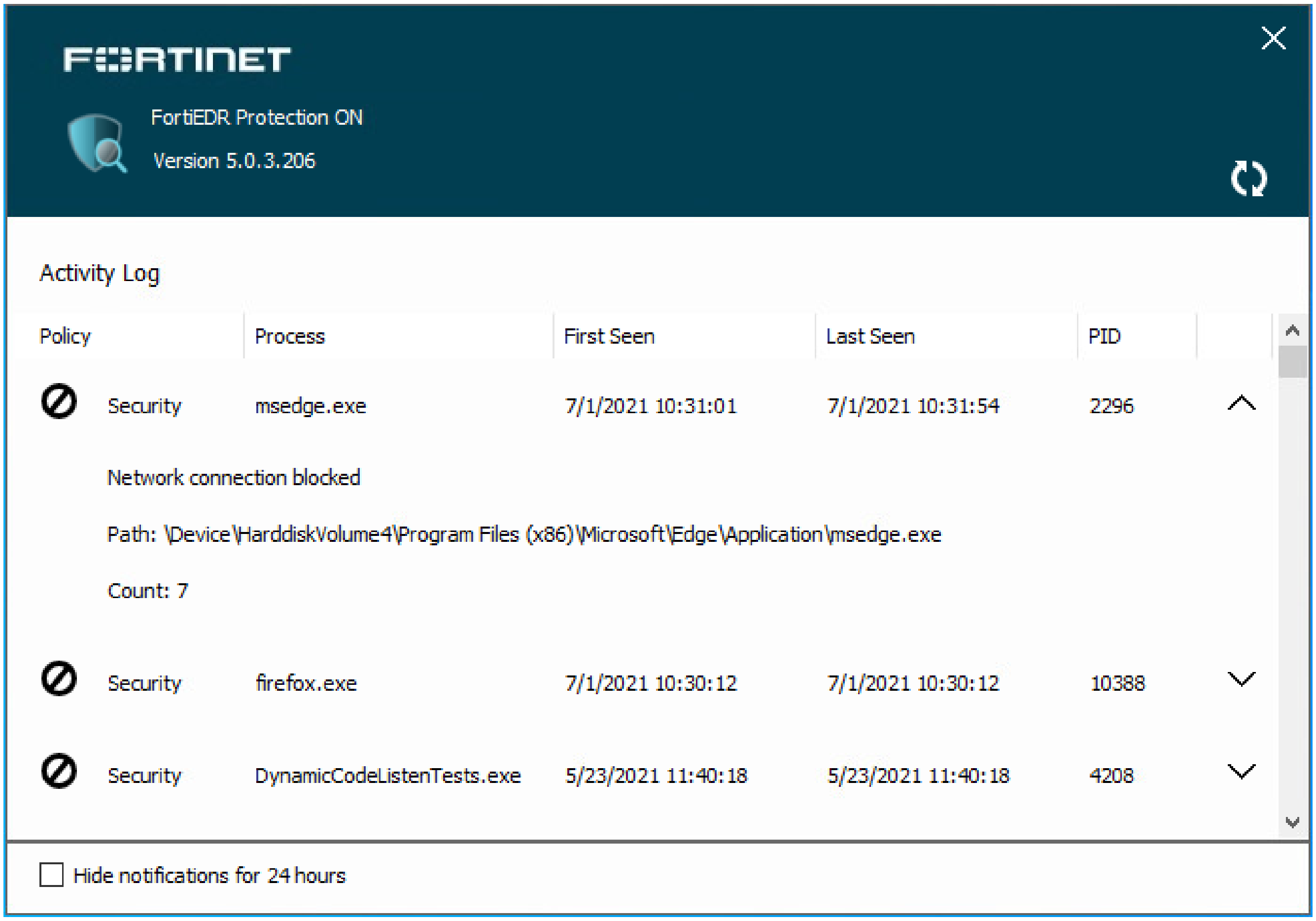
Version 5.0.3.206

Activity Log

Policy	Process	First Seen	Last Seen	PID
⊘ Security	msedge.exe	7/1/2021 10:31:01	7/1/2021 10:31:54	2296
⊘ Security	firefox.exe	7/1/2021 10:30:12	7/1/2021 10:30:12	10388
⊘ Security	DynamicCodeListenTests.exe	5/23/2021 11:40:18	5/23/2021 11:40:18	4208
⊘ Security	DynamicCodeTests.exe	5/23/2021 11:49:03	5/23/2021 11:49:03	1980
⊘ Security	StackPivotTests.exe	5/23/2021 11:49:07	5/23/2021 11:49:07	4172

□ Hide notifications for 24 hours

Expanding the arrow on the right of each event reveals more details per event including the process path and the number of occurrences of the same blocking event:



FortiEDR Protection ON

Version 5.0.3.206

Activity Log

Policy	Process	First Seen	Last Seen	PID
Security	msedge.exe	7/1/2021 10:31:01	7/1/2021 10:31:54	2296

Network connection blocked

Path: \Device\HarddiskVolume4\Program Files (x86)\Microsoft\Edge\Application\msedge.exe

Count: 7

Policy	Process	First Seen	Last Seen	PID
Security	firefox.exe	7/1/2021 10:30:12	7/1/2021 10:30:12	10388
Security	DynamicCodeListenTests.exe	5/23/2021 11:40:18	5/23/2021 11:40:18	4208

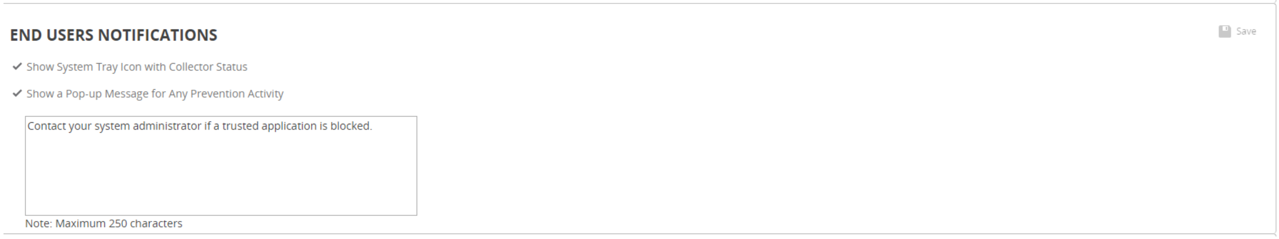
□ Hide notifications for 24 hours

FortiEDR Icon Configuration

The behavior of the FortiEDR icon in the system tray must be configured in the **Administration** tab.

To configure FortiEDR icon behavior:

1. 1 Click the **TOOLS** link in the left pane.
2. In the **END USERS NOTIFICATION** area, configure the following settings:



END USERS NOTIFICATIONS

✓ Show System Tray Icon with Collector Status

✓ Show a Pop-up Message for Any Prevention Activity

Contact your system administrator if a trusted application is blocked.

Note: Maximum 250 characters

Setting	Definition
Show System Tray Icon with Collector Status	Check this checkbox to display the FortiEDR icon on each FortiEDR-protected device or leave the checkbox unchecked to hide the icon on each protected

Setting	Definition
	device. Your selection here is applied on all protected devices. The default is checked.
Show a Pop-up Message for Any Prevention Activity	Check this checkbox to enable the display of pop-up messages (end-user notifications) on FortiEDR-protected devices. Pop-up messages display whenever a process was prevented. By default, the name of the activity of the blocked process is displayed in the pop-up message. The default is checked.

In the text box below these two checkboxes, you can customize the text that is displayed in the pop-up message. Enter the text you want to display in the text box.

3. Click the **Save** button.

IoT Device Discovery

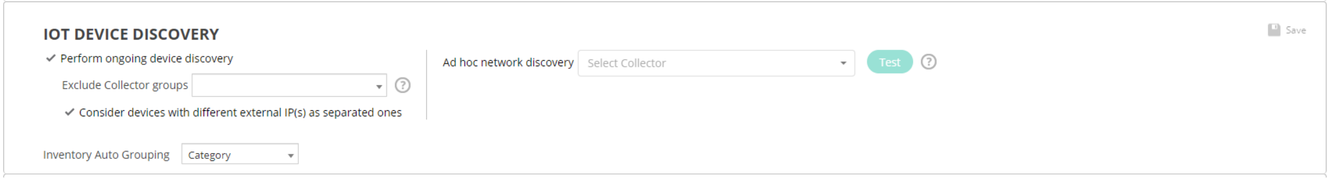
IoT device discovery enables you to continuously perform discovery to identify newly connected non-workstation devices in the system, such as printers, cameras, media devices and so on. During the discovery process, each relevant Collector in the system periodically probes all its nearby neighboring devices. Most nearby devices will respond to these requests by pinging the originating Collector device and providing information about itself, such as its device/host name (for example, ABC PC, Camera123), IP address and so on.

Such discovered devices can be seen in the **IOT DEVICES** page, as described in IoT Devices on page 110.

Note – The following default configuration applies to IoT scans by the FortiEDR Collectors:

- For operational reasons, Collectors that are running on servers or Collectors that are reported to be in one of the following states: degraded, disabled or isolated Collectors do not take part in the IoT probing process.
- In order to refrain from scans on home or other non-enterprise networks, only subnets in which there is a minimal number of Windows Collectors are scanned in order to find Connected IoT devices.
- Extremely large subnets are excluded from scans.

If needed, in order to tune the scans to be more comprehensive and more granular, contact Fortinet Support who will change the default configuration.



IOT DEVICE DISCOVERY

✓ Perform ongoing device discovery

Exclude Collector groups

✓ Consider devices with different external IP(s) as separated ones

Inventory Auto Grouping: Category

Ad hoc network discovery: Select Collector

To enable IoT device discovery, check the **Perform ongoing device discovery** checkbox. Note that when doing so, all relevant Collectors in the system perform sniffing in order to identify new connected devices in the system. When performing this discovery process, FortiEDR uses only the most powerful Collectors in each sub-network to perform sniffing, and excludes weaker Collectors for this process (disabled and degraded Collectors). This means that FortiEDR collects all the required information in the most efficient manner possible.

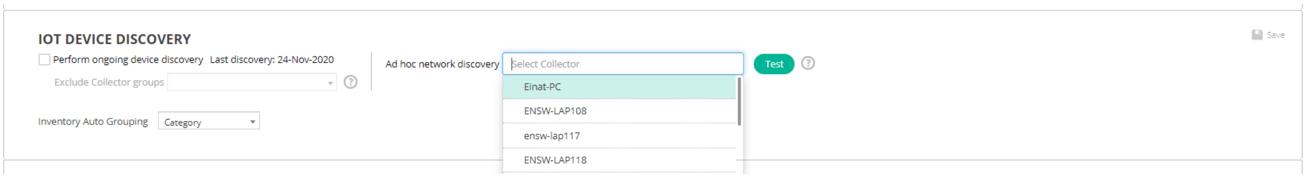
You can exclude specific Collector Groups from this discovery process. To do so, select the relevant Collector Group(s) in the **Exclude Collector Groups** dropdown list.

By default and when your organization has more than a single external IP address, FortiEDR ignores the external IP address of the IoT device while identifying and matching them. You can choose to list devices that use different external IP addresses separately by unchecking the checkbox next to **the Consider devices with different external IP(s) as separated ones** option. However, in this case the same device might be listed more than once in the IoT inventory page.

The Inventory **Auto Grouping** option enables you to group discovered devices by device type. For example, cameras, network devices, media devices, printers and so on. Select the **Category** option in the dropdown list to group discovered devices by device type or **None**. When you select Category, devices are auto-grouped in the **IOT DEVICES** page, as shown onIoT Devices on page 110

Click the **Save** button to save the configuration.

We recommend testing IoT the device discovery process to ensure that it works as expected across all your organizations before enabling the on-going periodic network scan. Testing can only be performed when IoT device discovery is not enabled, meaning the **Perform ongoing device discovery** checkbox is not checked. Select the Collector to use to test the IoT device discovery process in the **Ad Hoc Network Discovery** dropdown list and then click the **Test** button, as shown below.

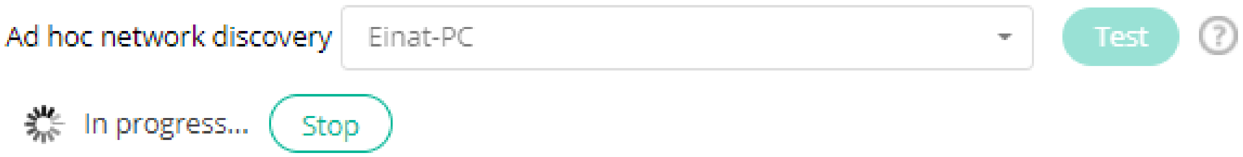


IOT DEVICE DISCOVERY

□ Perform ongoing device discovery Last discovery: 24-Nov-2020

Inventory Auto Grouping: Category

The selected Collector sniffs the network once to identify new connected devices. After the test discovery process begins, you can stop it at any time by clicking the **Stop** button. In all cases, the scan will be stopped within a predefined time period (usually 30 minutes).



Ad hoc network discovery: Einat-PC

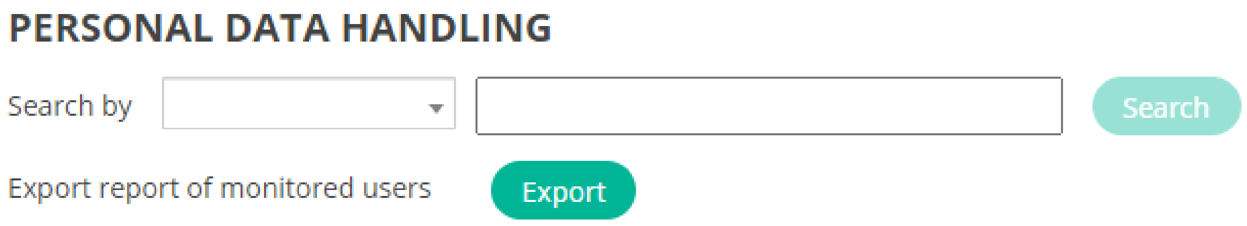
In progress...

Personal Data Handling

The FortiEDR system fully complies with the General Data Protection Regulation (GDPR) standard. The GDPR is a regulation in European Union (EU) law regarding data protection and privacy for all individuals within the EU and the European Economic Area (EEA). It also addresses the export of personal data outside the EU and EEA areas. The goal of the GDPR is primarily to give control to citizens and residents over their personal data and to simplify the regulatory environment for international business by unifying the regulation within the EU.

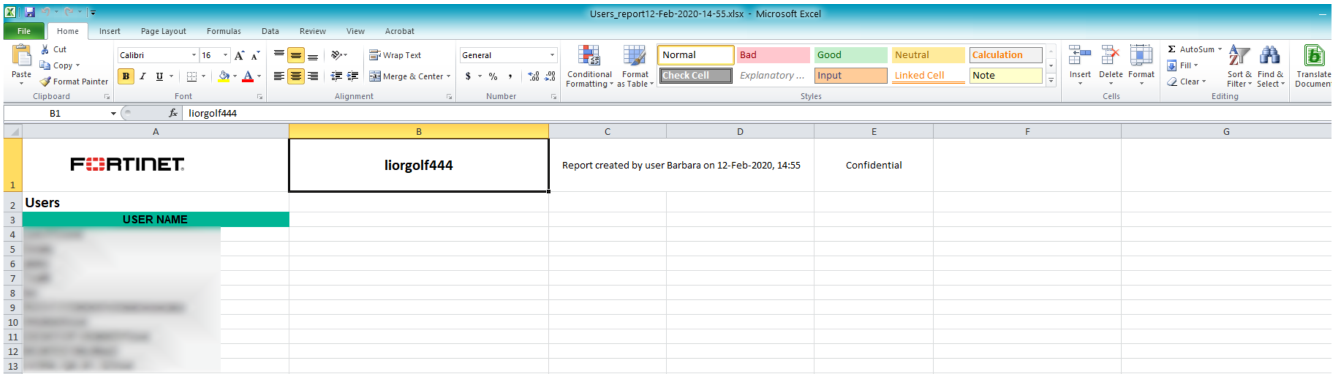
The GDPR standard requires that all relevant data for an employee of a company that is using the FortiEDR system or a FortiEDR user be removed from the FortiEDR system, once he/she no longer has access to or uses the FortiEDR system.

In FortiEDR, the GDPR feature is implemented in the Personal Data Handling area of the Tools window.



To fully comply with the GDPR standard, the employee's/user's device name, IP address, MAC address and user name must all be totally removed from the FortiEDR system. This data is deleted from FortiEDR in real time, from everywhere that it appears in the FortiEDR system (for example, from the Inventory, Event Viewer, Audit Trail and so on).

The GDPR regulation obligates you to notify your users, should the FortiEDR system be hacked. You can use the Export report of monitored users button to export the list of monitored users in the FortiEDR system. This action exports a report such as the one shown below:



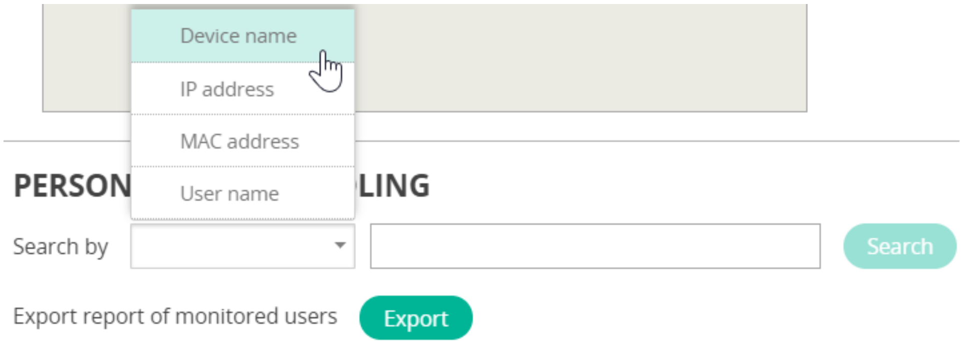
	A	B	C	D	E	F	G
1	FORTINET	liorgolf444	Report created by user Barbara on 12-Feb-2020, 14:55		Confidential		
2	Users						
3	USER NAME						
4	[redacted]						
5	[redacted]						
6	[redacted]						
7	[redacted]						
8	[redacted]						
9	[redacted]						
10	[redacted]						
11	[redacted]						
12	[redacted]						
13	[redacted]						

To remove employee/user data from the FortiEDR system for GDPR compliance:

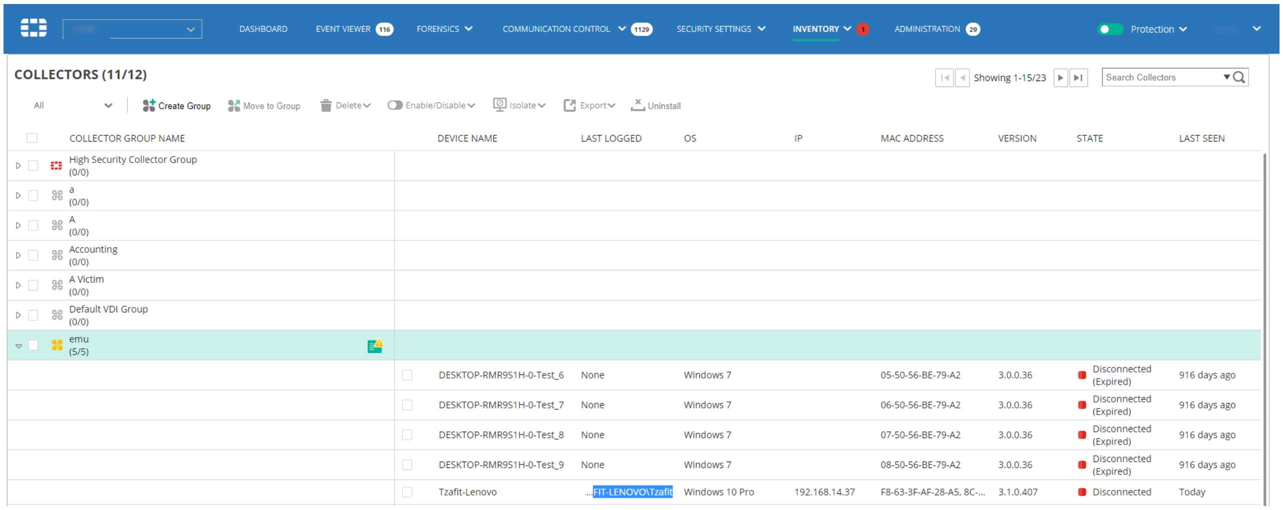
1. Uninstall the Collector from the employee's/user's computer. This step is important, so that no further data is collected from that Collector. For more details about uninstalling, see page 55.
   Note – Be sure to do this for all the employee's/user's computers on which Collectors are installed.
2. Click the **TOOLS** link in the left pane.
3. In the Personal Data Handling area you must specify the device name, IP address, MAC address and user name of the employee/user to be removed from FortiEDR.
   Note – If the employee/user has multiple computers on which Collectors are installed, you must repeat the steps below for each of his/her computers.

   Removing an employee/user for GDPR compliance requires an iterative process in FortiEDR that must be performed four times, in order to remove the device name, IP address, MAC address and user name of the employee/user successively, one after another. You can remove this data in any order that you prefer. For the purpose of example, we will start by removing all Device name data for the employee/user.

   IMPORTANT – You can remove the device name, IP address, MAC address and user name of the employee/user from FortiEDR in any order that you prefer. However, you must remove all device name, IP address, MAC address and user name data from FortiEDR in order to fully comply with the GDPR standard.
4. In the **Search by** dropdown list, select **Device name**. This field determines which criterion to search for in the FortiEDR system (device name, IP address, MAC address or user name).
5. In the adjacent field, enter the device name for the employee/user whose data you want to remove.



You can copy/paste this information into the adjacent field after locating it elsewhere in the FortiEDR user interface. For example, you can locate the relevant device name in the Last Logged column in the Collectors list in the Inventory window, such as shown below, and then copy that value into the relevant field in the Personal Data Handling area. Similarly, you can also readily locate the MAC address and IP address using the Collectors list in the Inventory window.



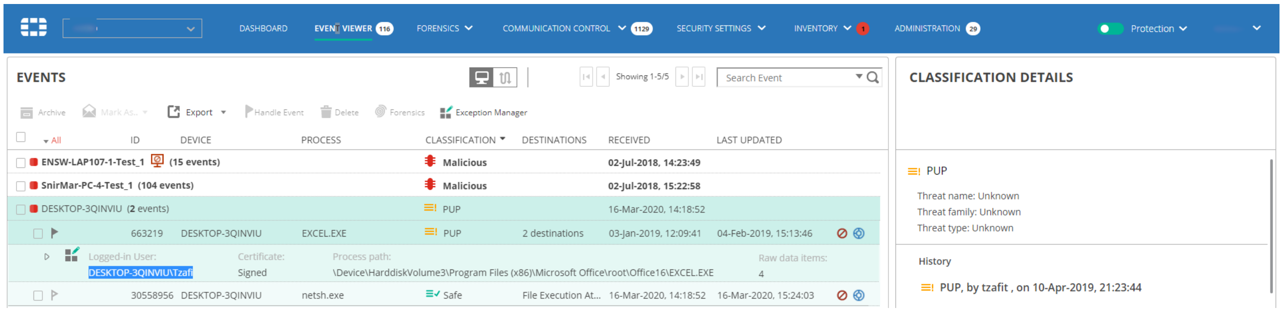
COLLECTORS (11/12)

All

Showing 1-15/23

COLLECTOR GROUP NAME	DEVICE NAME	LAST LOGGED	OS	IP	MAC ADDRESS	VERSION	STATE	LAST SEEN
High Security Collector Group (0/0)								
a (0/0)								
A (0/0)								
Accounting (0/0)								
A Victim (0/0)								
Default VDI Group (0/0)								
emu (5/5)								
	DESKTOP-RMR9S1H-0-Test_6	None	Windows 7		05-50-56-BE-79-A2	3.0.0.36	Disconnected (Expired)	916 days ago
	DESKTOP-RMR9S1H-0-Test_7	None	Windows 7		06-50-56-BE-79-A2	3.0.0.36	Disconnected (Expired)	916 days ago
	DESKTOP-RMR9S1H-0-Test_8	None	Windows 7		07-50-56-BE-79-A2	3.0.0.36	Disconnected (Expired)	916 days ago
	DESKTOP-RMR9S1H-0-Test_9	None	Windows 7		08-50-56-BE-79-A2	3.0.0.36	Disconnected (Expired)	916 days ago
	Tzafit-Lenovo	...FIT-LENOVO\Tzafit	Windows 10 Pro	192.168.14.37	F8-63-3F-AF-28-A5, 8C-...	3.1.0.407	Disconnected	Today

In a similar manner, you can locate the user name in the Event Viewer, and then copy/paste that information into the adjacent field in the Personal Data Handling area, as shown below:



EVENTS

Showing 1-5/5

All	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED
ENSW-LAP107-1-Test_1 (15 events)				Malicious		02-Jul-2018, 14:23:49	
SnirMar-PC-4-Test_1 (104 events)				Malicious		02-Jul-2018, 15:22:58	
DESKTOP-3QINVIU (2 events)				PUP		16-Mar-2020, 14:18:52	
	663219	DESKTOP-3QINVIU	EXCEL.EXE	PUP	2 destinations	03-Jan-2019, 12:09:41	04-Feb-2019, 15:13:46
	30558956	DESKTOP-3QINVIU	netsh.exe	Safe	File Execution At...	16-Mar-2020, 14:18:52	16-Mar-2020, 15:24:03

Logged-in User: DESKTOP-3QINVIU\Tzafi
Certificate: Signed
Process path: \Device\HarddiskVolume3\Program Files (x86)\Microsoft Office\root\Office16\EXCEL.EXE
Raw data items: 4

CLASSIFICATION DETAILS

PUP

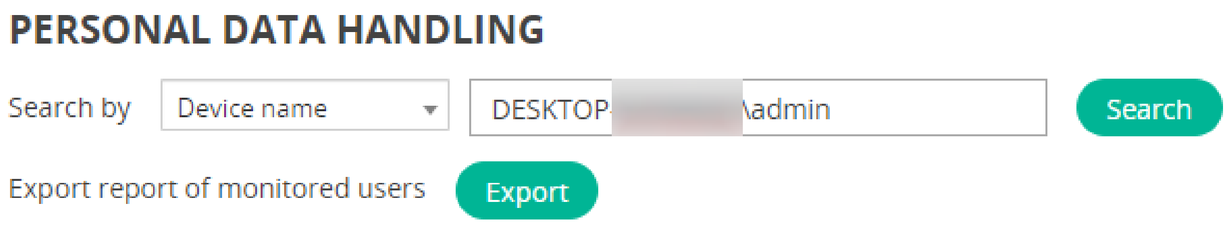
Threat name: Unknown
Threat family: Unknown
Threat type: Unknown

History

PUP, by tzafit , on 10-Apr-2019, 21:23:44

If you prefer, you can use another method of your choice to identify the device name.

6. After entering the details for the device name, as shown below, click Search to search for all occurrences of the device name in the FortiEDR system.

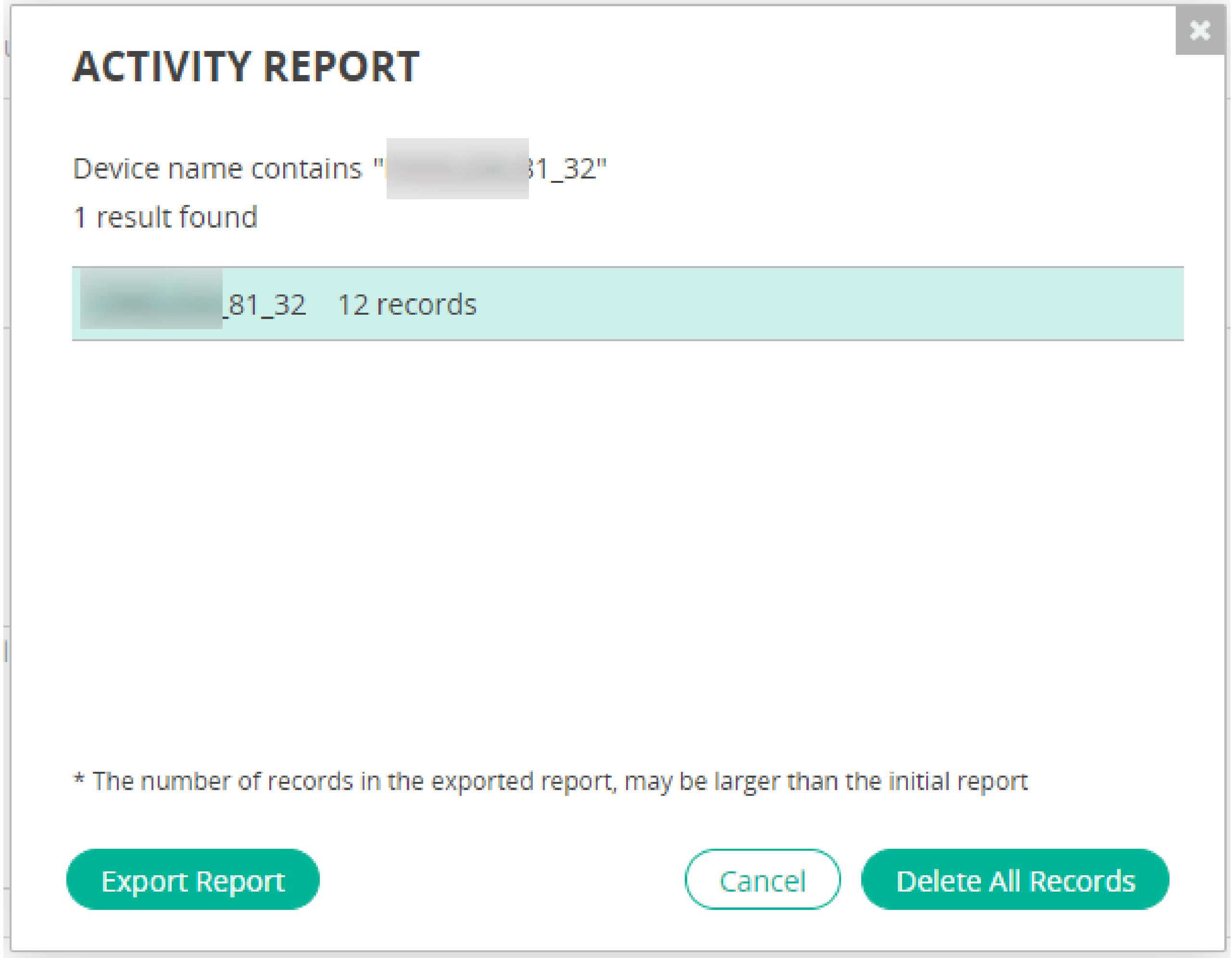


PERSONAL DATA HANDLING

Search by: Device name

DESKTOP[redacted]\admin

The following displays, listing all matching results:



ACTIVITY REPORT

Device name contains "[redacted]1_32"

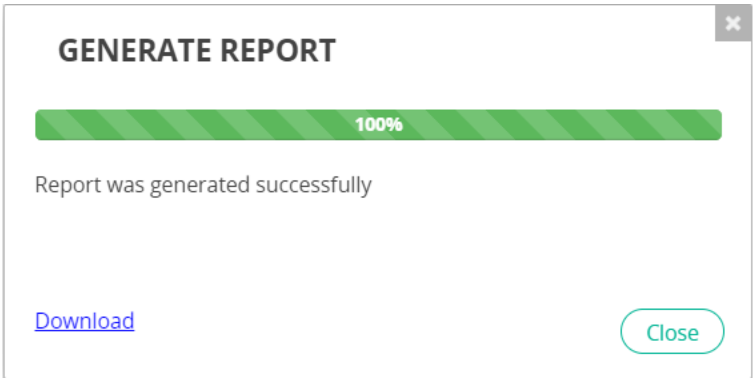
1 result found

[redacted]_81_32	12 records

* The number of records in the exported report, may be larger than the initial report

7. Do one of the following:
   a. Click the **Export Report** button to export a report of the data to be removed for the employee/user. This option enables you to keep a record of what will be deleted. However, use of this option is not recommended, as all traces of the employee's/user's data are to be permanently removed, including this report.

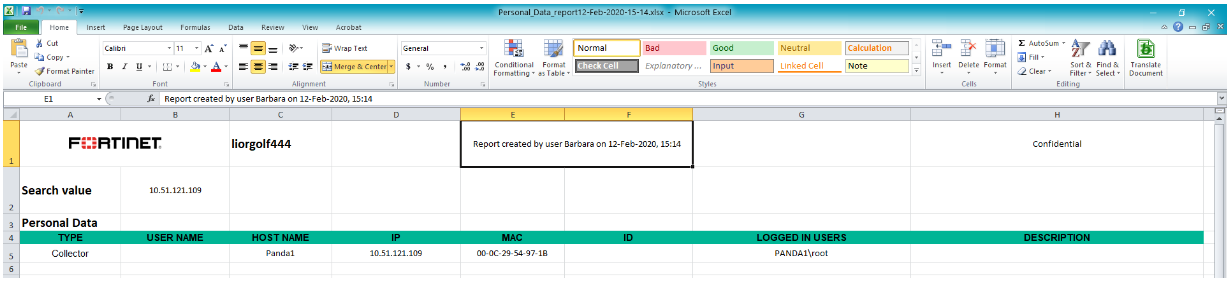
   The following displays after the report has been exported:



GENERATE REPORT

Report was generated successfully

Click the **Download** link to download the Excel report. An example of the downloaded report is shown below:

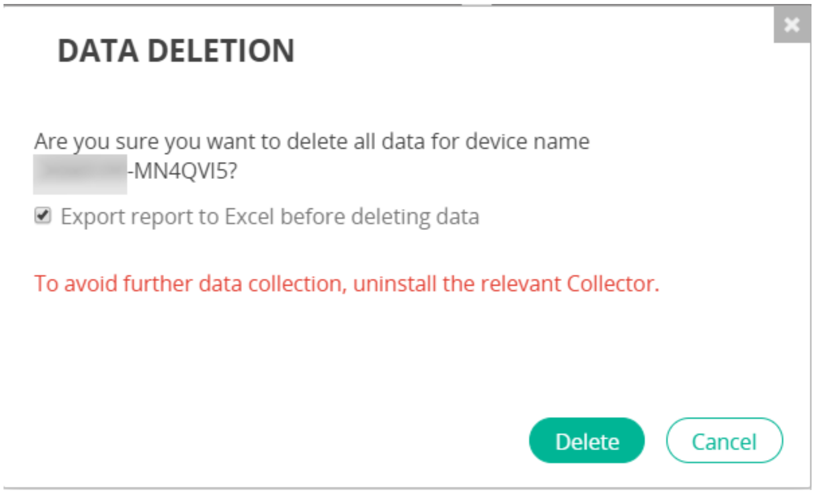


Personal_Data_report12-Feb-2020-15-14.xlsx - Microsoft Excel
File
Home
Insert
Page Layout
Formulas
Data
Review
View
Acrobat
E1

Report created by user Barbara on 12-Feb-2020, 15:14

	A	B	C	D	E	F	G	H
1	FERTINET	liorgolf444			Report created by user Barbara on 12-Feb-2020, 15:14			Confidential
2	Search value	10.51.121.109						
3	Personal Data							
4	TYPE	USER NAME	HOST NAME	IP	MAC	ID	LOGGED IN USERS	DESCRIPTION
5	Collector		Panda1	10.51.121.109	00-0C-29-54-97-1B		PANDA1\root	
6								

b. Click the **Delete All Records** button to remove all device name data for the employee/user. The following displays:



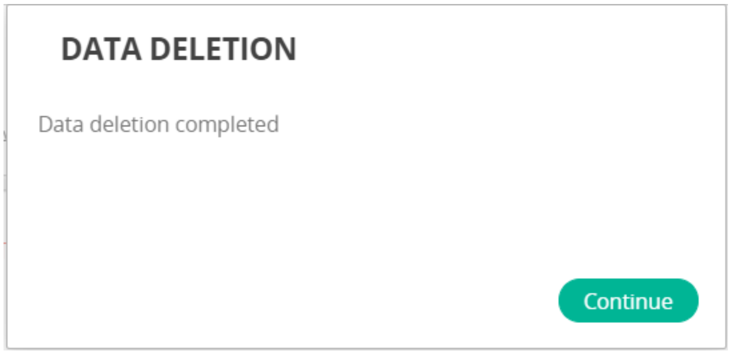
DATA DELETION

Are you sure you want to delete all data for device name [redacted]-MN4QVI5?

☑ Export report to Excel before deleting data

To avoid further data collection, uninstall the relevant Collector.

Click **Delete** to remove all device name data for the employee/user from FortiEDR. After several moments, the following displays, indicating that the data has been removed:



DATA DELETION

Data deletion completed

You can check the **Export report to Excel before deleting data** checkbox if you want to export the data before it is removed from FortiEDR.

8. Click **Continue** to proceed with removing the other required data for the employee/user (IP address, MAC address and user name).
9. Repeat steps 4–8 to remove the relevant IP address from FortiEDR. Be sure to select **IP Address** in step 4.
10. Repeat steps 4–8 to remove the relevant MAC address from FortiEDR. Be sure to select **MAC Address** in step 4.
11. Repeat steps 4–8 to remove the relevant user name data from FortiEDR. Be sure to select **User Name** in step 4.

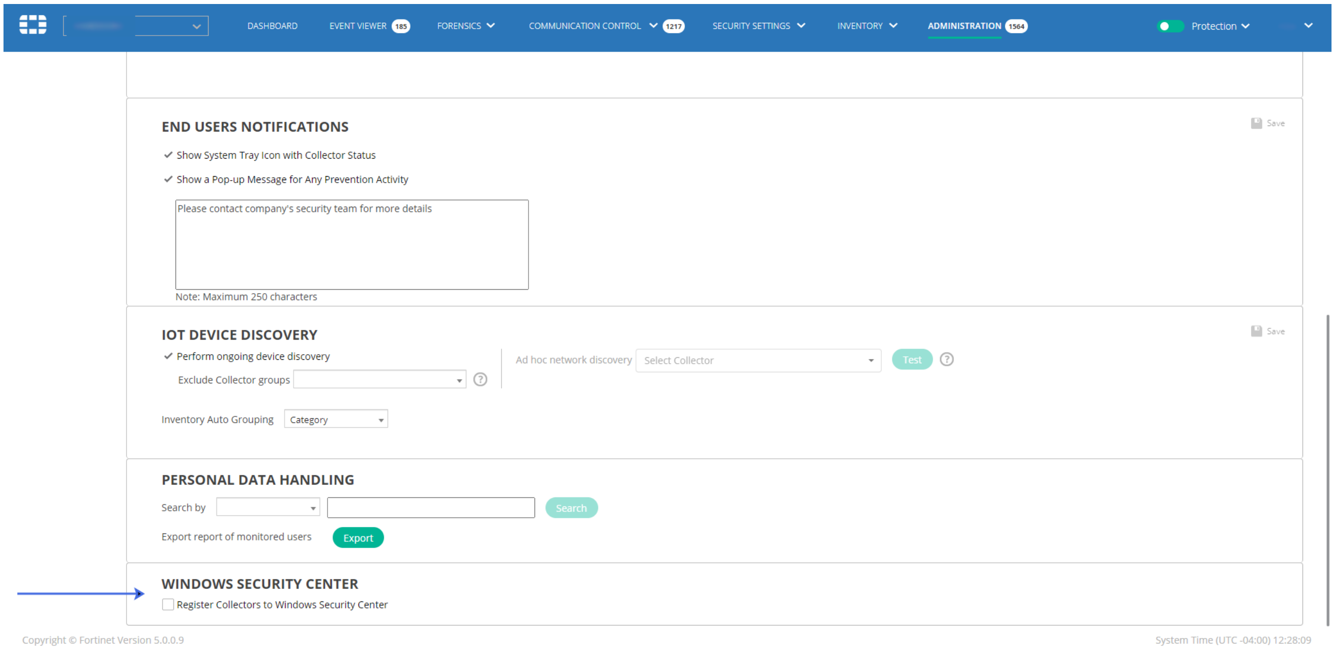
Personal Data Handling of Threat Hunting Data

The search performed by Personal Data Handling (described above) does not show activity event data. This data will be deleted in case you use the delete option (described above), even though it is not displayed in the search results. If you're interested in seeing the activity data that will be deleted, you can view it by using the Search option of the Threat Hunting feature, as described in Threat Hunting on page 222.

Windows Security Center

FortiEDR is fully integrated with Windows Security Center and has been certified by Microsoft as an anti-virus and threat protection application. You can choose whether to register FortiEDR Collectors as anti-virus and threat protection agents in Windows Security Center. When registering FortiEDR Collectors, Windows Security Center indicates that your system has anti-virus and threat protection provided by FortiEDR.

Note that in some cases, registering FortiEDR in Windows Security Center may prevent other vendors' products from installing or functioning properly. Therefore, you can choose whether or not to register FortiEDR Collectors. Your system is still fully protected, even if you do not choose to register FortiEDR Collectors with Windows Security Center.



END USERS NOTIFICATIONS

✓ Show System Tray Icon with Collector Status

✓ Show a Pop-up Message for Any Prevention Activity

Please contact company's security team for more details

Note: Maximum 250 characters

IOT DEVICE DISCOVERY

✓ Perform ongoing device discovery

Exclude Collector groups

Ad hoc network discovery Select Collector

Inventory Auto Grouping Category

PERSONAL DATA HANDLING

Search by

Export report of monitored users

WINDOWS SECURITY CENTER

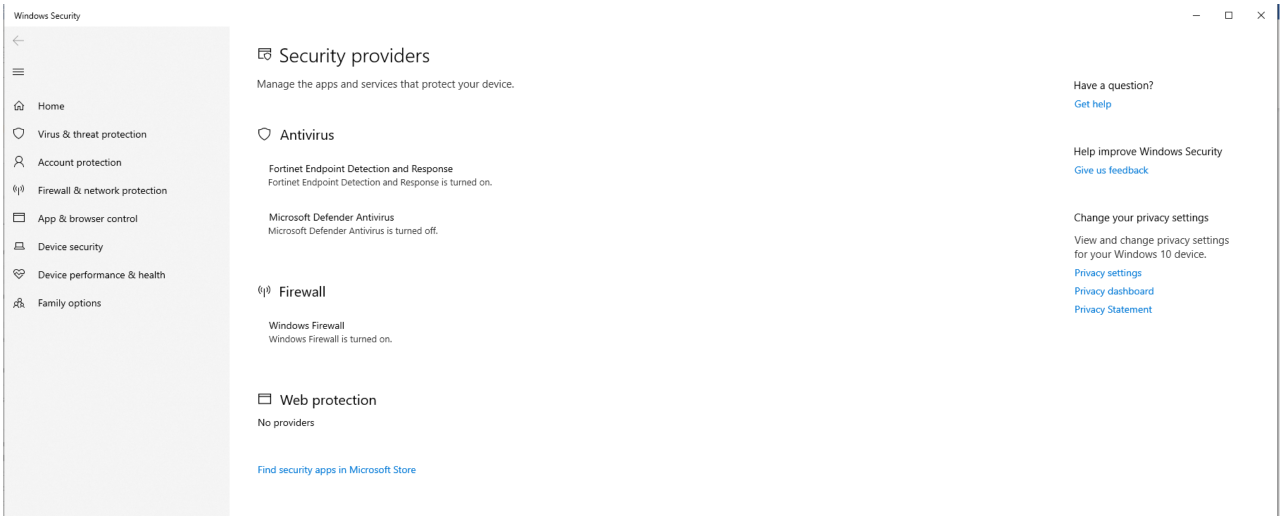
□ Register Collectors to Windows Security Center

Copyright © Fortinet Version 5.0.0.9

System Time (UTC -04:00) 12:28:09

To register FortiEDR Collectors with Windows Security Center:

- In the **ADMINISTRATION** tab, navigate to the **Tools > Windows Security Center** area, and then check the **Register Collectors to Windows Security Center** checkbox.
  When registered, FortiEDR is listed under Windows Security, as follows:



Security providers

Manage the apps and services that protect your device.

Antivirus

Fortinet Endpoint Detection and Response
Fortinet Endpoint Detection and Response is turned on.

Microsoft Defender Antivirus
Microsoft Defender Antivirus is turned off.

Firewall

Windows Firewall
Windows Firewall is turned on.

Web protection

No providers

Find security apps in Microsoft Store

Have a question?
Get help

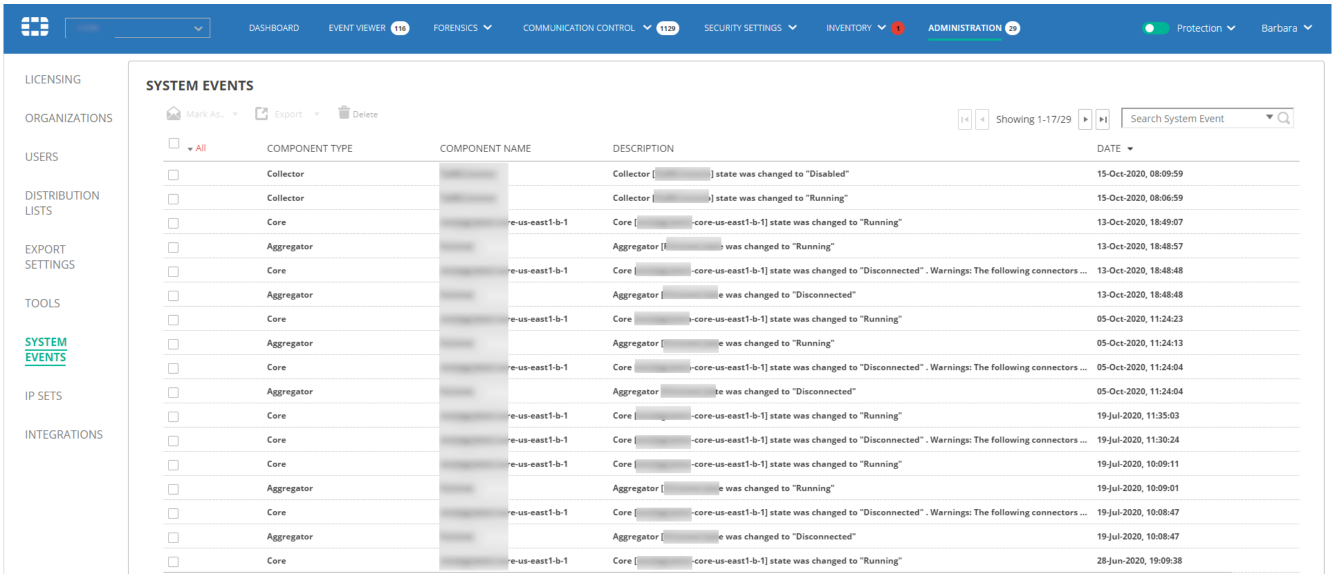
Help improve Windows Security
Give us feedback

Change your privacy settings

View and change privacy settings for your Windows 10 device.
Privacy settings
Privacy dashboard
Privacy Statement

System Events

Selecting **SYSTEM EVENTS** in the **ADMINISTRATION** tab displays all the system events relevant to the FortiEDR system.



SYSTEM EVENTS

□ All	COMPONENT TYPE	COMPONENT NAME	DESCRIPTION	DATE
□	Collector	[redacted]	Collector [[redacted]] state was changed to "Disabled"	15-Oct-2020, 08:09:59
□	Collector	[redacted]	Collector [[redacted]] state was changed to "Running"	15-Oct-2020, 08:06:59
□	Core	[redacted]e-us-east1-b-1	Core [[redacted]-core-us-east1-b-1] state was changed to "Running"	13-Oct-2020, 18:49:07
□	Aggregator	[redacted]	Aggregator [[redacted] was changed to "Running"	13-Oct-2020, 18:48:57
□	Core	[redacted]e-us-east1-b-1	Core [[redacted]-core-us-east1-b-1] state was changed to "Disconnected" . Warnings: The following connectors ...	13-Oct-2020, 18:48:48
□	Aggregator	[redacted]	Aggregator [[redacted]e was changed to "Disconnected"	13-Oct-2020, 18:48:48
□	Core	[redacted]e-us-east1-b-1	Core [redacted]-core-us-east1-b-1] state was changed to "Running"	05-Oct-2020, 11:24:23
□	Aggregator	[redacted]	Aggregator [[redacted]e was changed to "Running"	05-Oct-2020, 11:24:13
□	Core	[redacted]e-us-east1-b-1	Core [redacted]-core-us-east1-b-1] state was changed to "Disconnected" . Warnings: The following connectors ...	05-Oct-2020, 11:24:04
□	Aggregator	[redacted]	Aggregator [redacted]te was changed to "Disconnected"	05-Oct-2020, 11:24:04
□	Core	[redacted]e-us-east1-b-1	Core [[redacted]-core-us-east1-b-1] state was changed to "Running"	19-Jul-2020, 11:35:03
□	Core	[redacted]e-us-east1-b-1	Core [[redacted]-core-us-east1-b-1] state was changed to "Disconnected" . Warnings: The following connectors ...	19-Jul-2020, 11:30:24
□	Core	[redacted]e-us-east1-b-1	Core [[redacted]-core-us-east1-b-1] state was changed to "Running"	19-Jul-2020, 10:09:11
□	Aggregator	[redacted]	Aggregator [[redacted]e was changed to "Running"	19-Jul-2020, 10:09:01
□	Core	[redacted]e-us-east1-b-1	Core [[redacted]-core-us-east1-b-1] state was changed to "Disconnected" . Warnings: The following connectors ...	19-Jul-2020, 10:08:47
□	Aggregator	[redacted]	Aggregator [[redacted]e was changed to "Disconnected"	19-Jul-2020, 10:08:47
□	Core	[redacted]e-us-east1-b-1	Core [[redacted]-core-us-east1-b-1] state was changed to "Running"	28-Jun-2020, 19:09:38

When a system event is triggered, it is sent via email to the defined distribution list. For more details, you may refer to Distribution Lists on page 286

Note – System events can also be retrieved using an API command. For more details, refer to the FortiEDR RESTful API Guide.

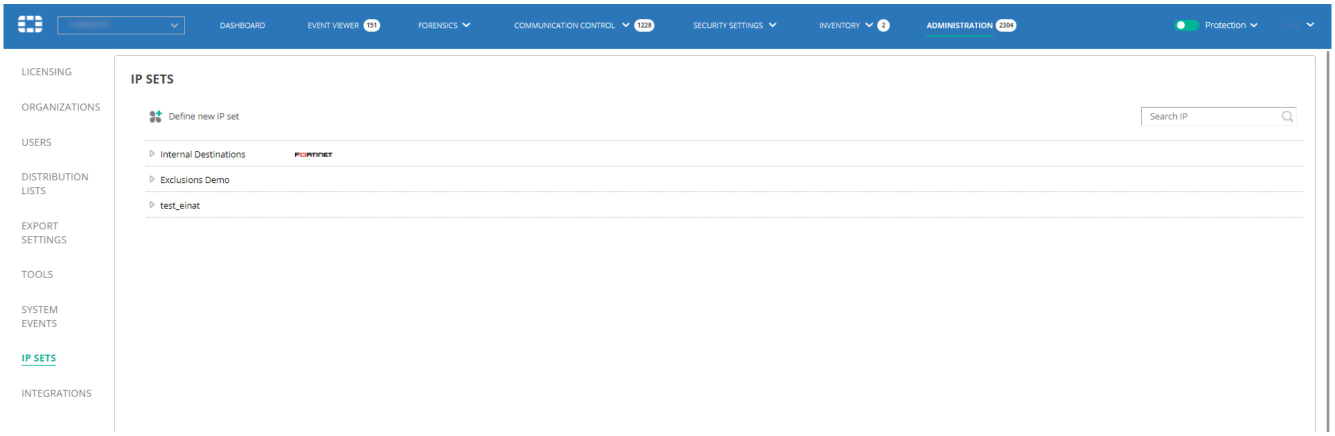
Each time a new system event is created, it can be sent through the Syslog.

The following events are defined as system events in the system. The user receives a notification for each of them if that system event is enabled for the user’s distribution list. Syslog can also be configured to send system events messages, as described in Syslog on page 289.

- Core state was changed to Disconnected (and another event when the Core state was returned to the Connected state immediately afterward)
- Core state was changed to Degraded (and another event when the Core state was returned to THE Connected state immediately afterward)
- Aggregator state was changed to Disconnected (and another event when the Aggregator state was returned to the Connected state immediately afterward)
- Aggregator state was changed to Degraded (and another event when the Aggregator state was returned to the Connected state immediately afterward)
- Threat Hunting Repository state was changed to Disconnected (and another event when the Repository state was returned to the Connected state immediately afterward).
- Threat Hunting Repository state was changed to Degraded (and another event when the Repository state was returned to the Connected state immediately afterward).
- Collector registered for the first time (only UI/API; is not sent by email/Syslog)
- Collector was uninstalled via the Central Manager console.
- Collector state was changed to Disconnected Expired.
- License will expire in 21/7 days/1 day
- License expired
- License capacity of workstations has reached 90/95/100%
- License capacity of servers has reached 90/95/100%
- System mode was changed from Prevention to Simulation or vice versa
- FortiEDR Cloud Service (FCS) connectivity is down

IP Sets

IP Sets enable you to define a set(s) of IPs to include or exclude for some security events. This feature is used when defining exceptions.

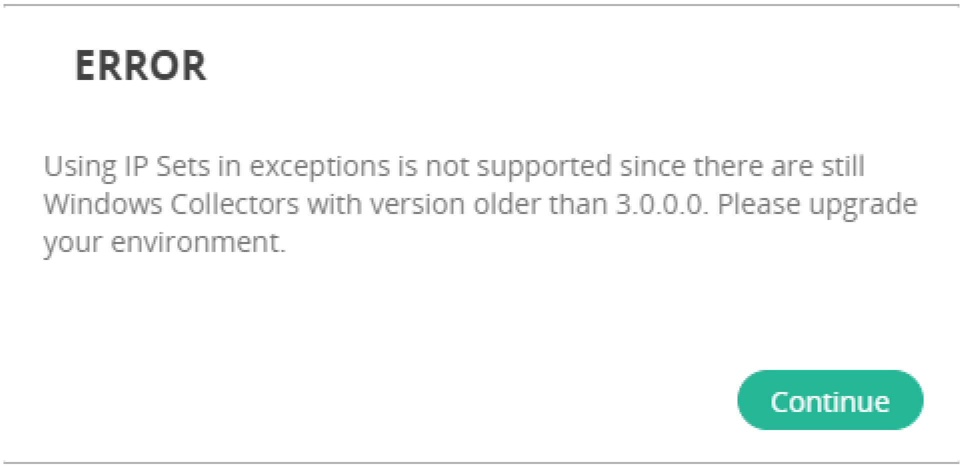


Internal Destinations FORTINET

Exclusions Demo

test_einat

Note – IP Sets can only be defined if all Collectors are V3.0.0.0 and up. If you attempt to define an exception and all Collectors are not V3.0.0.0 or above, the following error message displays:



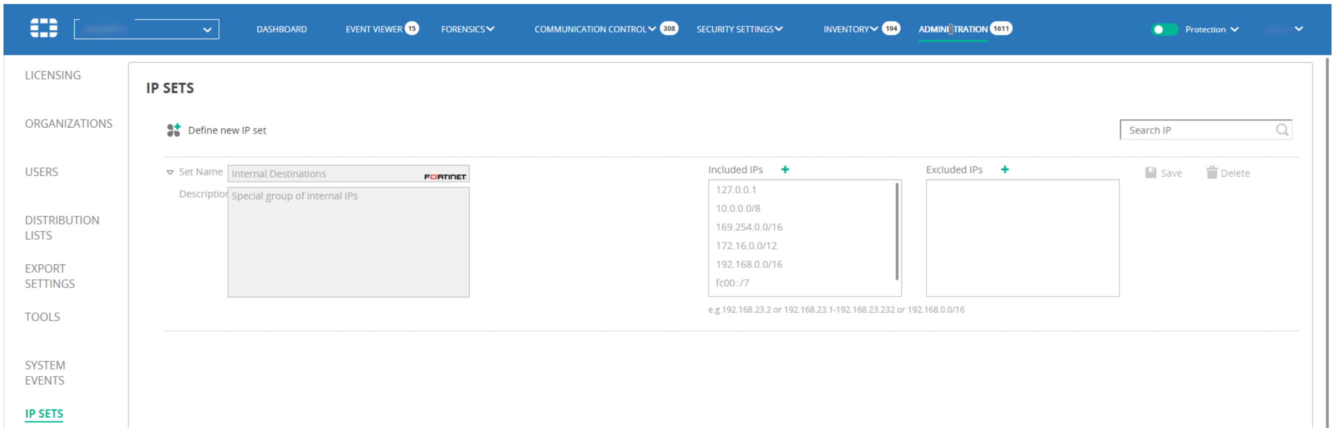
ERROR

Using IP Sets in exceptions is not supported since there are still Windows Collectors with version older than 3.0.0.0. Please upgrade your environment.

Each row in the IP Sets window represents an IP inclusion/exclusion definition. The Internal Destinations row is provided by default (as indicated by the adjacent FortiEDR logo), which defines the default IPs that are included in and excluded from the FortiEDR system. All organizations in a multi-organization system are provided with this default IP set. In a single-organization system, the main organization is provided with it. The Internal Destinations IP set cannot be deleted. However, an Administrator can add Included IPs or Excluded IPs to it.

The IP Sets window lists all the IP sets created by the Administrator. A Local Administrator can edit an IP set that was specifically created for his/her organization. A Local Administrator cannot edit an IP set that applies to all organizations.

Click the FORTINET logo in the Internal Destinations row to view its definition, as shown below:



IP SETS

Set Name: Internal Destinations FORTINET

Description: Special group of internal IPs

Included IPs +

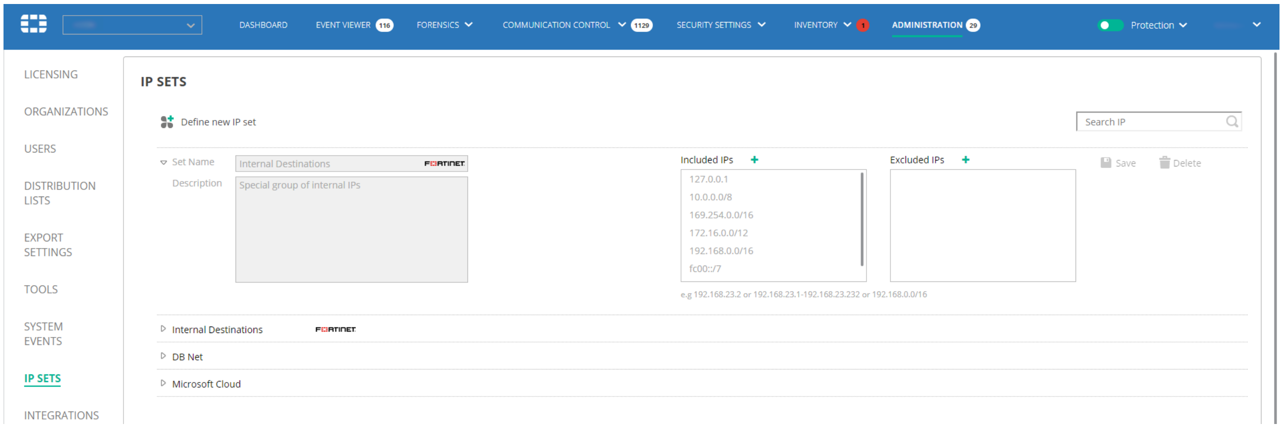
127.0.0.1
10.0.0.0/8
169.254.0.0/16
172.16.0.0/12
192.168.0.0/16
fc00::/7

Excluded IPs +

e.g 192.168.23.2 or 192.168.23.1-192.168.23.232 or 192.168.0.0/16

To define an IP set:

1. Click the Define new IP set button. The following window displays:



IP SETS

Set Name: Internal Destinations

Description: Special group of internal IPs

Included IPs:
127.0.0.1
10.0.0.0/8
169.254.0.0/16
172.16.0.0/12
192.168.0.0/16
fc00::/7

Excluded IPs:

e.g 192.168.23.2 or 192.168.23.1-192.168.23.232 or 192.168.0.0/16

- Internal Destinations
- DB Net
- Microsoft Cloud

2. In the **Set Name** field, enter a name for the IP set.
3. In the **Organization** dropdown list, select the organization to which the IP set applies or select All organizations for the IP set to apply to all organizations in the FortiEDR system.
4. In the **Description** field, enter a description for the IP set.
5. In the **Included IPs** area, click the + button to add an IP, IP range or IP mask to be included in the IP set's definition. Each click of the + button adds a new line to the list. Each entry appears in its own line. For example, you could add 192.168.23.2, 192.168.23.1-192.168.232 or 192.168.0.0/16.
   Similarly, in the **Excluded IPs** area, click the + button to add an IP, IP range or IP mask that is to be excluded.
6. Click the **Save** button.

The Search IP field at the top-right of the page enables you to search for a specific IP in all of the IP sets defined. The search option identifies matching IPs, even if they are part of a range in an IP set's definition.

To use an IP set:

Select an IP set in the Destinations area when defining an exception, as described in Defining a Security Event as an Exception on page 150.

Integrations

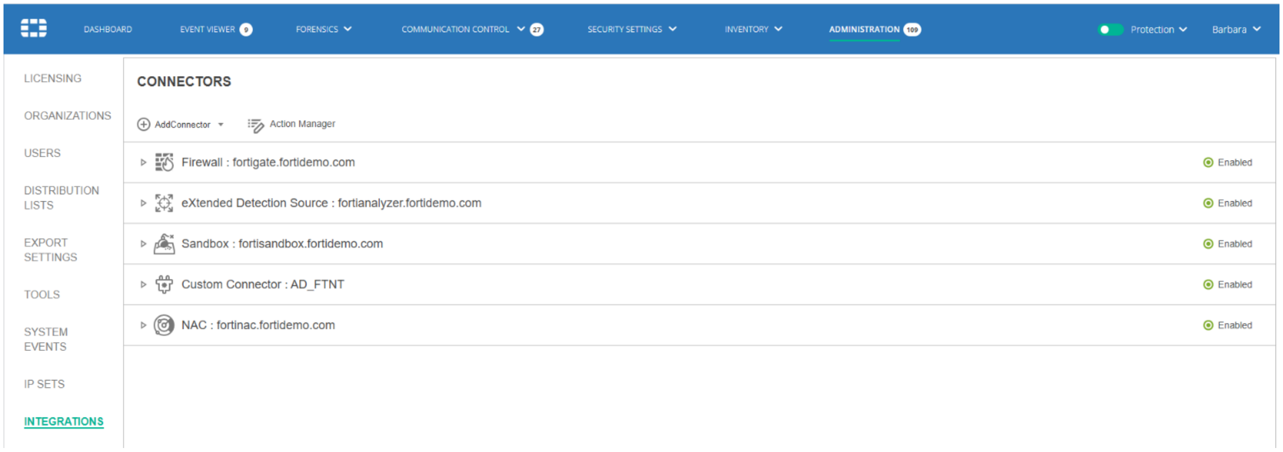
Integrations enable you to configure connectors to external systems, which enables you to trigger predefined types of actions. FortiEDR provides various connectors out-of-the-box, such as Firewalls and NAC systems. In addition, you have the option to define customized connectors to any third-party system in order to trigger any action on that system using an API. The out-of-the-box FortiEDR connectors utilize Fortinet products' APIs to automatically perform the required actions in order to extend its automatic Playbook actions.

You can set up an unlimited number of connectors for each type and use them by associating Playbook policies or Security policies to the actions defined for these integration connectors, as described below.

Note – The Integration menu is only available when the environment is connected to Fortinet Cloud Services (FCS).

To display the INTEGRATIONS page:

1. Select **ADMINISTRATION > INTEGRATIONS.**



CONNECTORS

Firewall : fortigate.fortidemo.com	Enabled
eXtended Detection Source : fortianalyzer.fortidemo.com	Enabled
Sandbox : fortisandbox.fortidemo.com	Enabled
Custom Connector : AD_FTNT	Enabled
NAC : fortinac.fortidemo.com	Enabled

The top left of this page provides two buttons, as shown below:

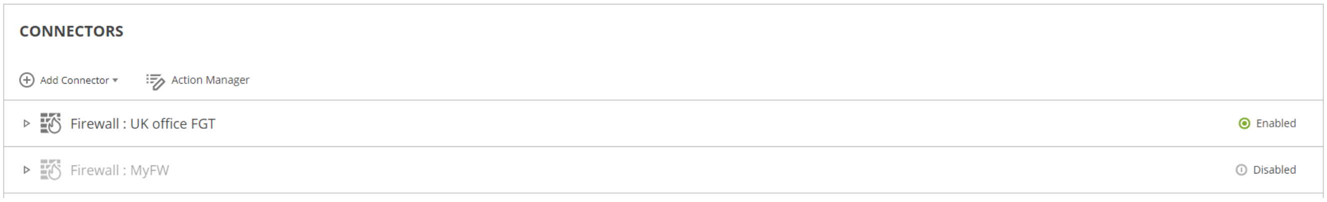
- Adding Connectors on page 311 enables you to add and configure connectors for integration with FortiEDR.
- Action Manager on page 332 enables you to upload and manage (add, modify and delete) actions (Python scripts that call third-party system APIs) to be automatically triggered by FortiEDR as incident responses.

Adding Connectors

The following types of integration connectors are provided to be configured:

- Firewall Integration on page 311
- Network Access Control (NAC) Integration on page 318
- Sandbox Integration on page 324
- eXtended Detection Source Integration on page 326
- Custom Integration on page 328

You can enable or disable a connector by clicking the **Enabled/Disabled** button next to the connector name. This button toggles between **Enabled/Disabled**.



CONNECTORS

Firewall : UK office FGT	Enabled
Firewall : MyFW	Disabled

Firewall Integration

When a firewall connector is set and Playbook policies are configured, automatic incident response actions can include blocking of malicious IP addresses by a firewall upon security event triggering.

Before you start firewall configuration, make sure that:

- Your FortiEDR deployment includes a JumpBox that has connectivity to the firewall. Details about how to install a FortiEDR Core and configure it as a JumpBox are described in Installing the FortiEDR Core. You may refer to Cores on page 115 for more information about configuring a JumpBox.
- The FortiEDR Central Manager has connectivity to the Fortinet Cloud Services (FCS).
- You have a valid API user with access to the external firewall.

Follow the steps below to automatically deny access on the firewall to malicious destination addresses detected by FortiEDR.

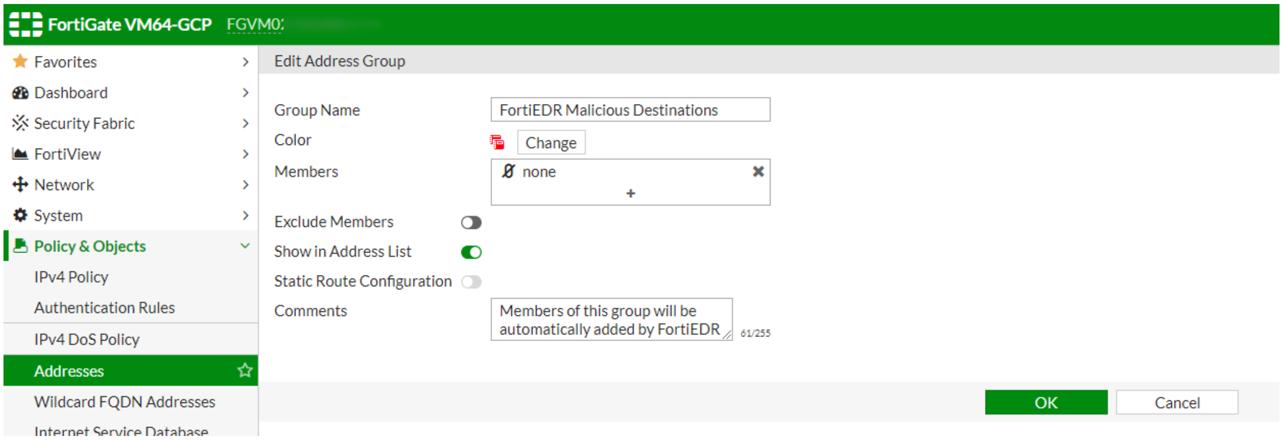
The example below describes how to define an address group on FortiGate and associate it with a FortiGate policy rule, such that it blocks connections to the addresses in the group. The address group is then used when configuring the FortiEDR connector so that it is automatically populated with malicious destinations upon detection by FortiEDR.

The same address group can obviously be used for multiple firewall policies in order to cover any VLAN-to-WAN interface in the network.

FortiGate Configuration

To set up an address group and policy on FortiGate:

1. Go to **Policy & Objects > Addresses**.
2. Create a new address group to be populated by FortiEDR. The new address group now appears in the FortiGate Addresses table.



Edit Address Group

Group Name: FortiEDR Malicious Destinations

Color: Change

Members: none

Exclude Members: ○

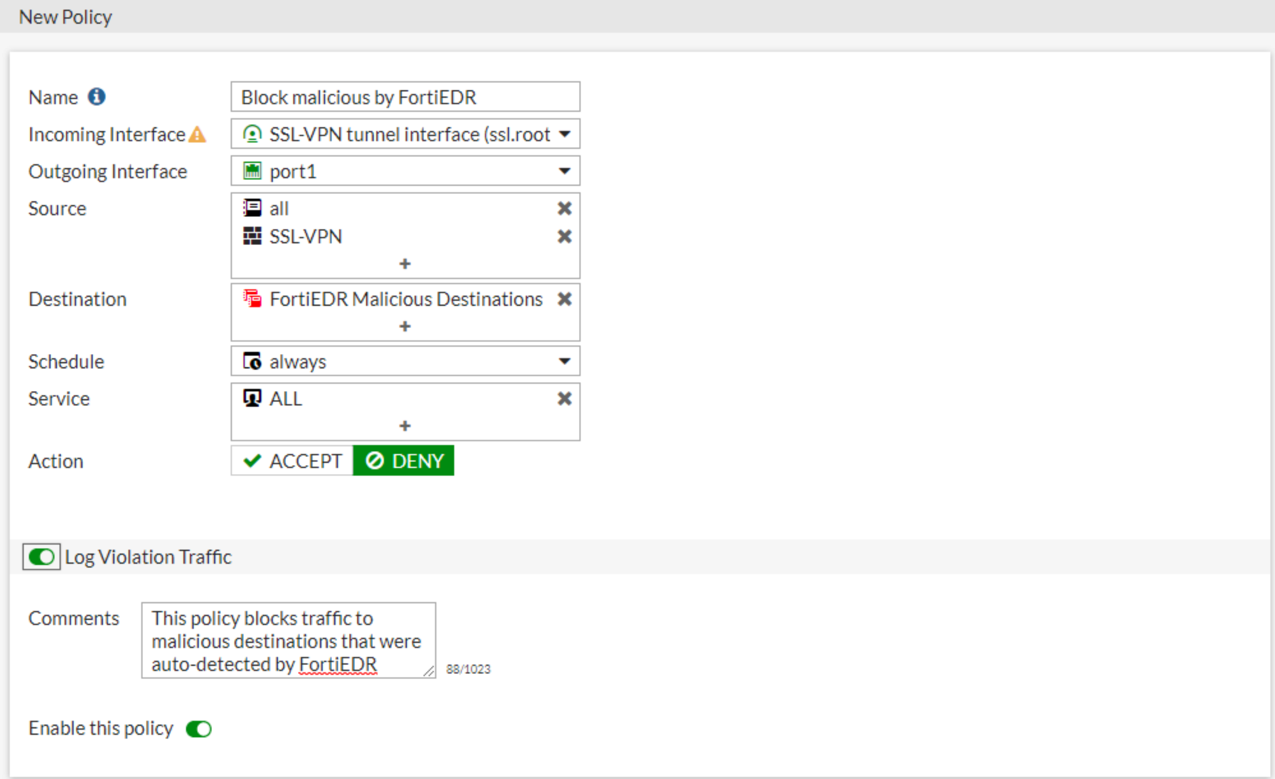
Show in Address List: ●

Static Route Configuration: ○

Comments: Members of this group will be automatically added by FortiEDR 61/255

3. Go to **Policy & Objects > IPv4 Policy**.
4. Create a new policy to deny traffic to any address in the address group that was created as part of step 2. The new

policy now appears in the FortiGate Policies table.



New Policy

Name: Block malicious by FortiEDR

Incoming Interface: SSL-VPN tunnel interface (ssl.root

Outgoing Interface: port1

Source: all, SSL-VPN

Destination: FortiEDR Malicious Destinations

Schedule: always

Service: ALL

Action: ✓ ACCEPT [✓ DENY]

Log Violation Traffic

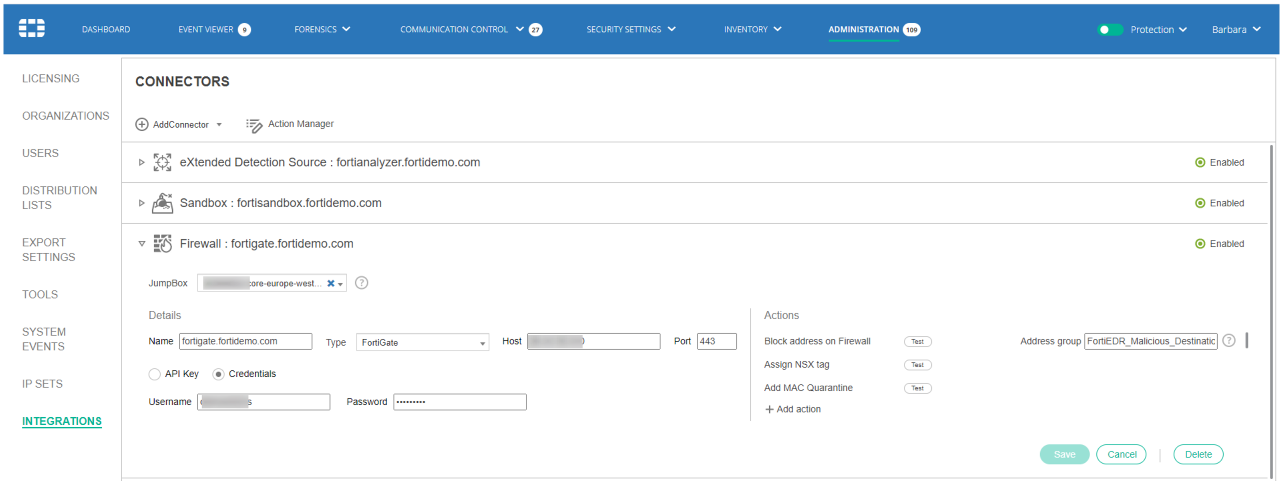
Comments: This policy blocks traffic to malicious destinations that were auto-detected by FortiEDR 88/1023

Enable this policy

FortiEDR Firewall Connector Configuration

To set up a Firewall connector with FortiEDR:

1. Click the ⊕ Add Connector ▾ button and select Firewall in the Connectors dropdown list. The following displays:



CONNECTORS

eXtended Detection Source : fortianalyzer.fortidemo.com — Enabled

Sandbox : fortisandbox.fortidemo.com — Enabled

Firewall : fortigate.fortidemo.com — Enabled

JumpBox: [redacted]core-europe-west...

Details

Name: fortigate.fortidemo.com

Type: FortiGate

Host: [redacted]

Port: 443

○ API Key ● Credentials

Username: [redacted]

Password: •••••••••

Actions

Block address on Firewall (Test) — Address group: FortiEDR_Malicious_Destinatic

Assign NSX tag (Test)

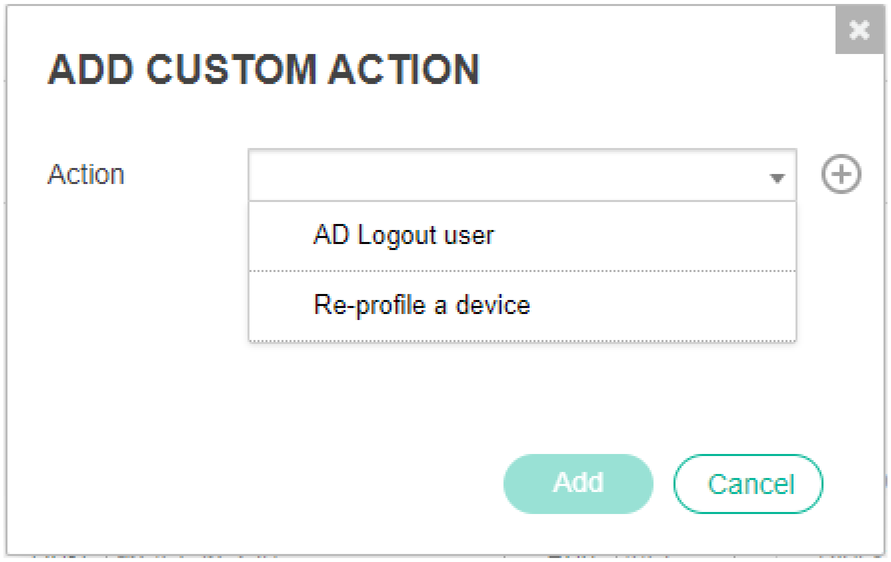
Add MAC Quarantine (Test)

+ Add action

2. Fill in the following fields:

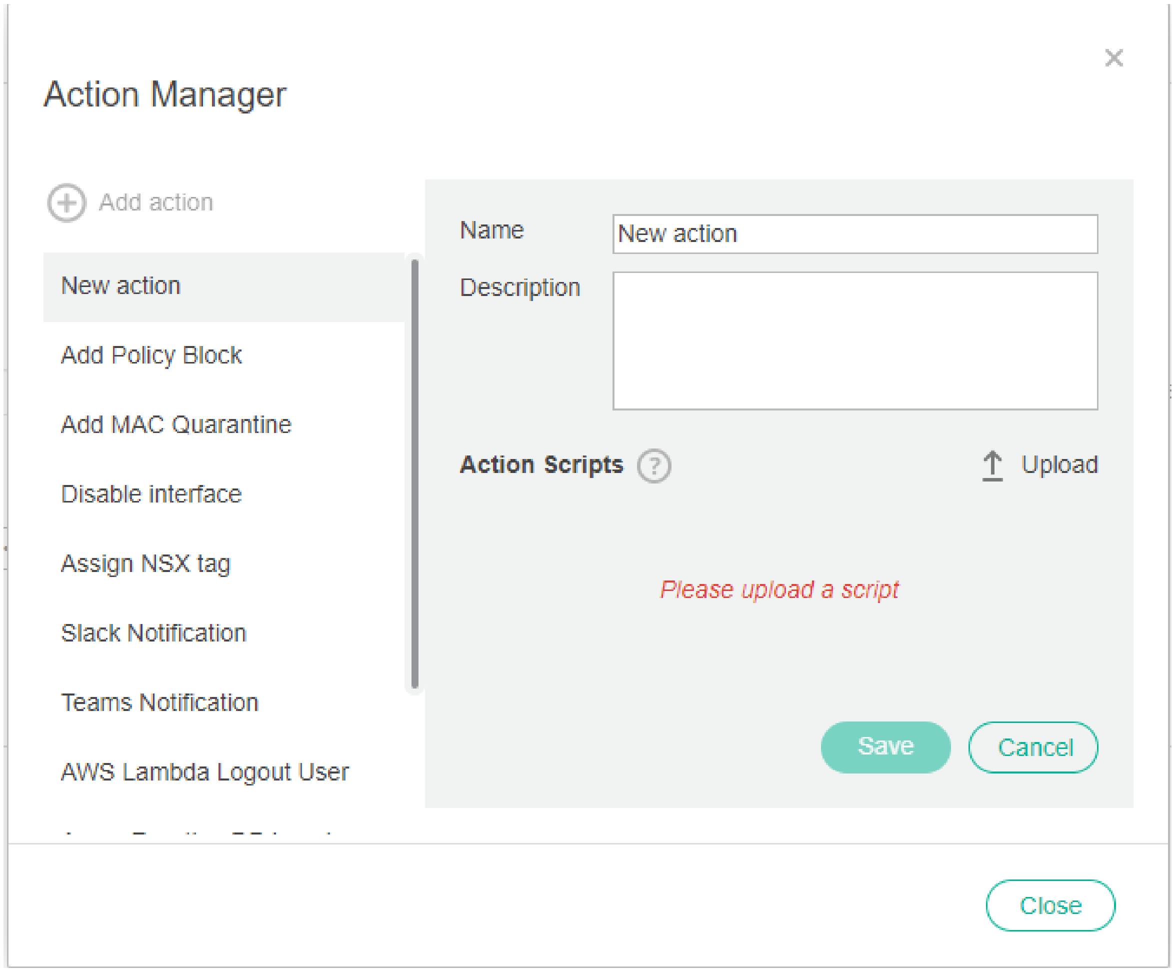
Field	Definition
JumpBox	Select the FortiEDR JumpBox to communicate with the firewall.
Name	Specify a name of your choice to be used to identify this firewall.
Type	Select the type of firewall to be used in the dropdown list.
Host	Specify the IP or DNS address of your firewall.
Port	Specify the port that is used for API communication with your firewall.
API Key / Credentials	Specify authentication details of your firewall. To use an API token, click the API Key radio button and copy the token value into the text box. To use API credentials, click the Credentials radio button and enter the Firewall API username and password.

3. In the **Actions** area on the right, define an action to be taken by this connector.
   You have the option to either use an action provided out-of-the-box with FortiEDR (for example, **Block address on Firewall**) or to create and use your own custom actions.
   a. To block an address on the Firewall, next to the Block address on Firewall field, in the Address Group field, specify the name of a previously defined address group on the firewall.
   - OR -
   b. To trigger a custom action on the Firewall, click the **+** Add Action button to display the following popup window:



- In the **Action** dropdown menu, select one of the previously defined custom integration actions.
  – OR –

- Click the **Create New Action** ⊕ button in this popup window to define a new action on the Firewall to be triggered according to the definitions in the Playbook, as described below. The following displays:



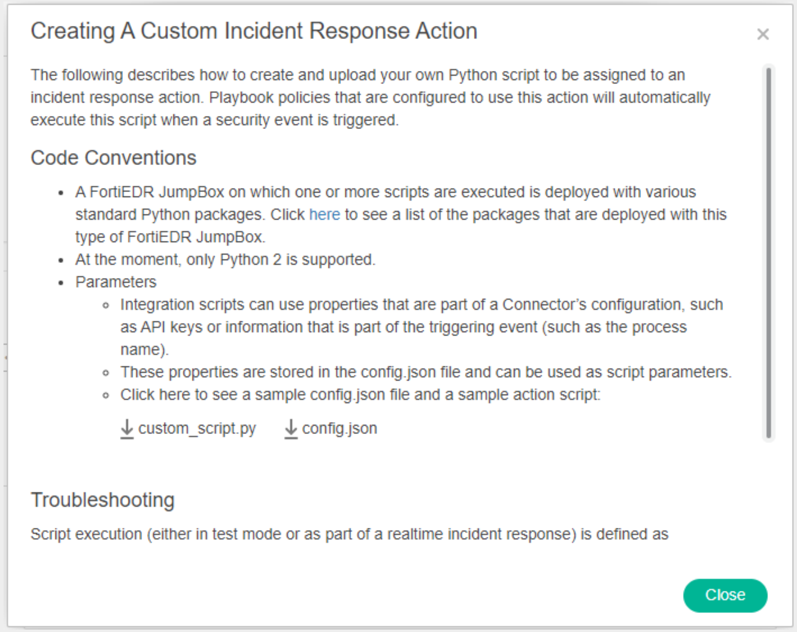
Name: New action

Please upload a script

Fill out the fields of this window as follows in order to define a new action to be triggered in response to an incident.

Note – In order to trigger this action, a Playbook policy must be defined that triggers this action to execute the script when a security event is triggered. The definition of this new action here automatically adds this action as an option in a Playbook policy. This action however, is not selected by default in the Playbook policy. Therefore, you must go to the Playbook policy and select it in order for it to be triggered when a security event is triggered.

Field	Definition
Name	Enter any name for this action
Description	Enter a description of this action
Upload	Upload a Python script that calls an API in the third-party system in order to perform the relevant action. This Python script must be created according to the coding conventions that can be displayed by clicking the icon ? next to the **Action Scripts** field. The following displays providing an explanation of these coding conventions and provides various links that you can click to see more detail and or/to download sample files.

Field	Definition
	

Creating A Custom Incident Response Action

The following describes how to create and upload your own Python script to be assigned to an incident response action. Playbook policies that are configured to use this action will automatically execute this script when a security event is triggered.

Code Conventions

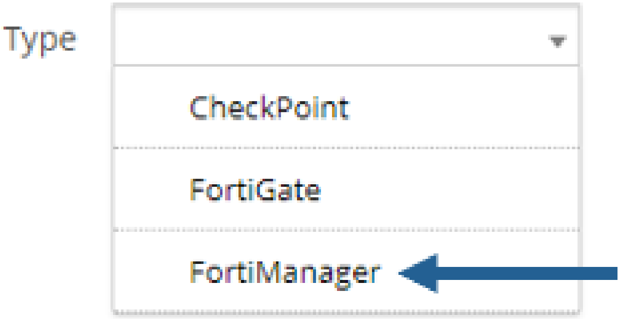
- A FortiEDR JumpBox on which one or more scripts are executed is deployed with various standard Python packages. Click here to see a list of the packages that are deployed with this type of FortiEDR JumpBox.
- At the moment, only Python 2 is supported.
- Parameters
  - Integration scripts can use properties that are part of a Connector's configuration, such as API keys or information that is part of the triggering event (such as the process name).
  - These properties are stored in the config.json file and can be used as script parameters.
  - Click here to see a sample config.json file and a sample action script:

Troubleshooting

Script execution (either in test mode or as part of a realtime incident response) is defined as

4. Click **Save**. The new action is then listed in the Actions area.
5. You can click the **Test** button next to an action to execute that action.

Note – If you are working with a FortiManager in order to manage firewalls, use the same instructions to integrate with the firewall, but select FortiManager as the integrated device Type when configuring the FortiEDR Connector in the Administration →Integration page, as follows:

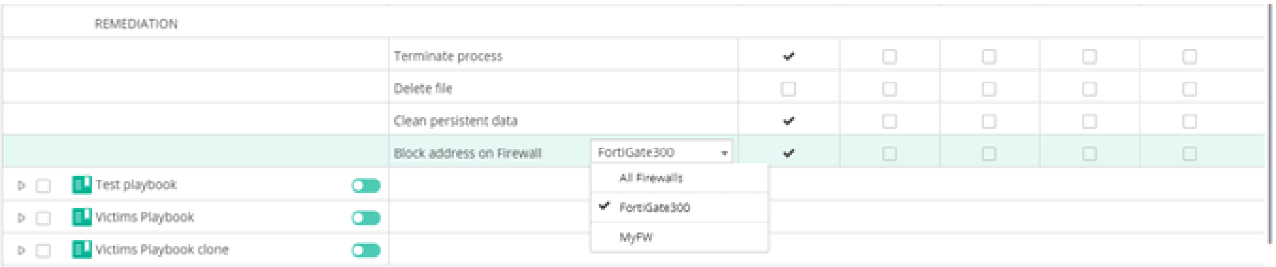


Playbooks Configuration

To configure an automated incident response that uses a firewall connector to block malicious destinations upon security event triggering:

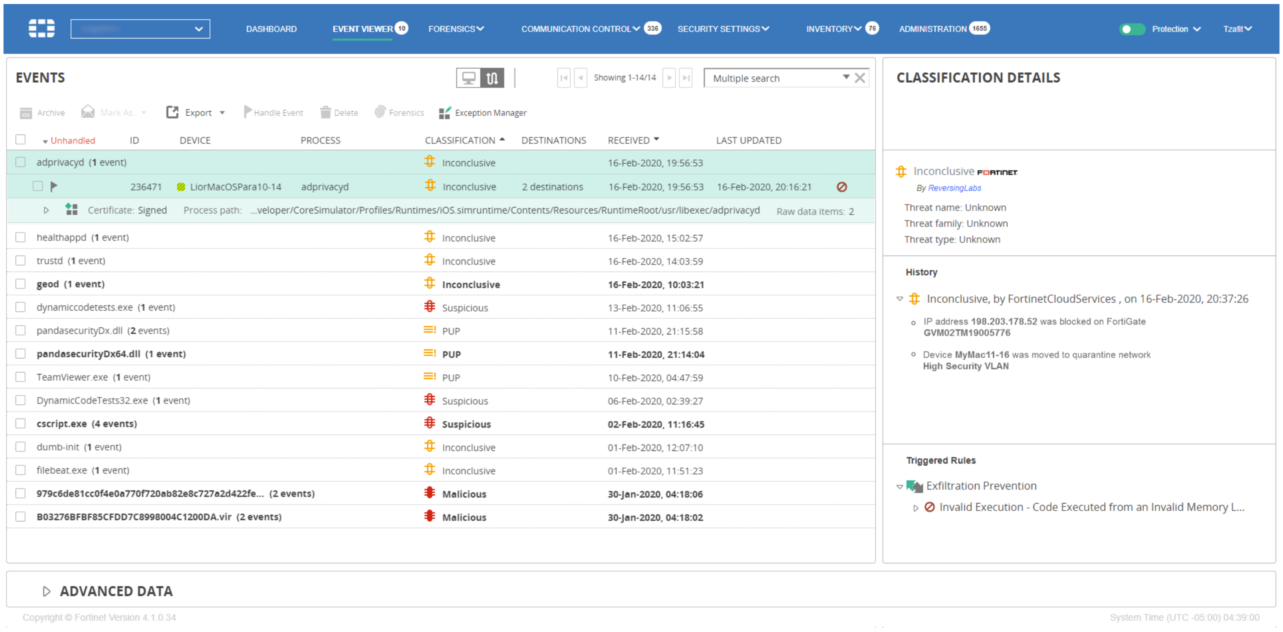
1. Navigate to the **SECURITY SETTINGS > Playbooks** page.
2. Open the Playbook policy that is applied on devices for which you want the block IP incident response to apply and place a checkmark ✔ in the relevant **Classification** column next to the **Block address on Firewall** row that is under the REMEDIATION section. In the dropdown menu next to the action, you can specify which firewalls to use

to perform the block or select all of them, as shown below:



REMEDIATION							
	Terminate process		✓	□	□	□	□
	Delete file		□	□	□	□	□
	Clean persistent data		✓	□	□	□	□
	Block address on Firewall	FortiGate300 ▾	✓	□	□	□	□
▷ □ Test playbook							
▷ □ Victims Playbook							
▷ □ Victims Playbook clone							

FortiEDR is now configured to add malicious IP addresses to the blocking policy on the firewall upon triggering of a security event. You can check that malicious IP addresses are added to the address group that was configured on the firewall following FortiEDR security events. In addition, automatic incident response actions are listed in the CLASSIFICATION DETAILS area of the Events page of the FortiEDR Console, as shown below:



▾ Unhandled	ID	DEVICE	PROCESS	CLASSIFICATION ▴	DESTINATIONS	RECEIVED ▾	LAST UPDATED
□ adprivacyd (1 event)				Inconclusive		16-Feb-2020, 19:56:53	
□	236471	LiorMacOSPara10-14	adprivacyd	Inconclusive	2 destinations	16-Feb-2020, 19:56:53	16-Feb-2020, 20:16:21
▷ Certificate: Signed	Process path: ...veloper/CoreSimulator/Profiles/Runtimes/iOS.simruntime/Contents/Resources/RuntimeRoot/usr/libexec/adprivacyd						Raw data items: 2
□ healthappd (1 event)				Inconclusive		16-Feb-2020, 15:02:57	
□ trustd (1 event)				Inconclusive		16-Feb-2020, 14:03:59	
□ **geod (1 event)**				**Inconclusive**		**16-Feb-2020, 10:03:21**	
□ dynamiccodetests.exe (1 event)				Suspicious		13-Feb-2020, 11:06:55	
□ pandasecurityDx.dll (2 events)				PUP		11-Feb-2020, 21:15:58	
□ **pandasecurityDx64.dll (1 event)**				**PUP**		**11-Feb-2020, 21:14:04**	
□ TeamViewer.exe (1 event)				PUP		10-Feb-2020, 04:47:59	
□ DynamicCodeTests32.exe (1 event)				Suspicious		06-Feb-2020, 02:39:27	
□ **cscript.exe (4 events)**				**Suspicious**		**02-Feb-2020, 11:16:45**	
□ dumb-init (1 event)				Inconclusive		01-Feb-2020, 12:07:10	
□ filebeat.exe (1 event)				Inconclusive		01-Feb-2020, 11:51:23	
□ **979c6de81cc0f4e0a770f720ab82e8c727a2d422fe... (2 events)**				**Malicious**		**30-Jan-2020, 04:18:06**	
□ **B03276BFBF85CFDD7C8998004C1200DA.vir (2 events)**				**Malicious**		**30-Jan-2020, 04:18:02**	

CLASSIFICATION DETAILS

Inconclusive FORTINET
By ReversingLabs
Threat name: Unknown
Threat family: Unknown
Threat type: Unknown

History

▿ Inconclusive, by FortinetCloudServices , on 16-Feb-2020, 20:37:26

- IP address **198.203.178.52** was blocked on FortiGate **GVM02TM19005776**
- Device **MyMac11-16** was moved to quarantine network **High Security VLAN**

Triggered Rules

▿ Exfiltration Prevention
▷ Invalid Execution - Code Executed from an Invalid Memory L...

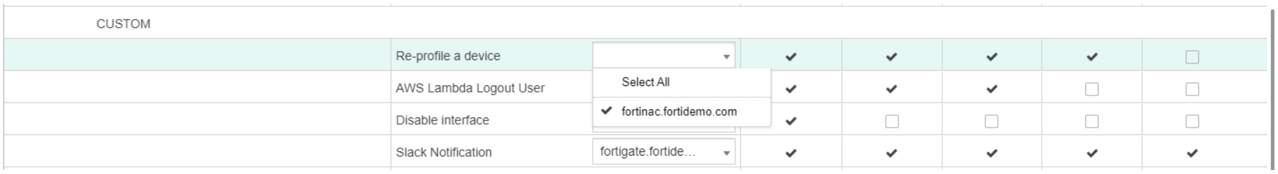
▷ ADVANCED DATA

Copyright © Fortinet Version 4.1.0.34

System Time (UTC -05:00) 04:39:00

To configure an automated incident response that uses a firewall connector to perform a custom action upon the triggering of a security event:

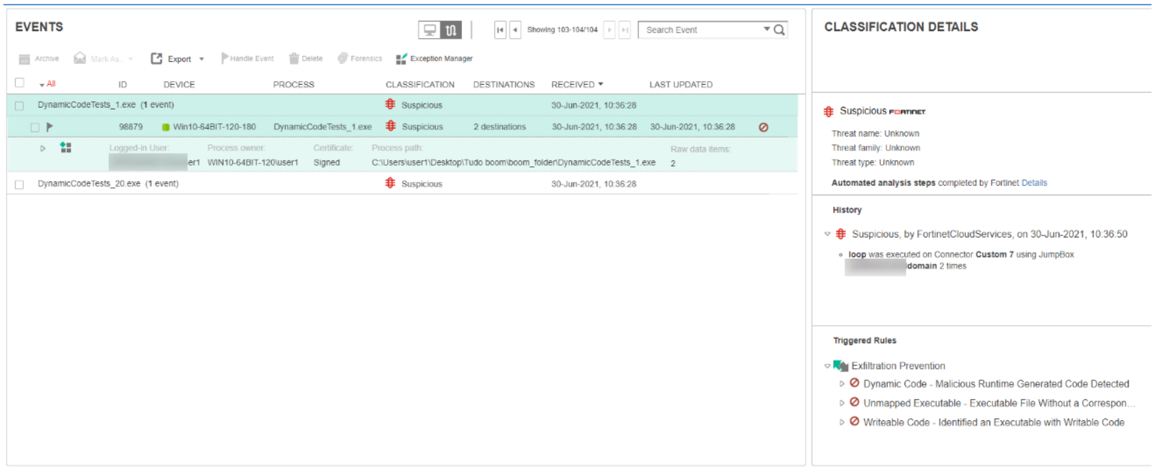
1. Navigate to the **SECURITY SETTINGS > Playbooks** page.
2. Open the Playbook policy that is applied on devices for which you want the custom action (defined above) to apply.
3. In the **CUSTOM** section, place a checkmark in the relevant **Classification** columns next to the row of the relevant custom action.
4. In the dropdown menu next to the relevant custom action, select the relevant firewall connector with which to perform the action, as shown below:



CUSTOM							
	Re-profile a device	▾	✓	✓	✓	✓	□
	AWS Lambda Logout User		✓	✓	✓	□	□
	Disable interface		✓	□	□	□	□
	Slack Notification	fortigate.fortide... ▾	✓	✓	✓	✓	✓

FortiEDR is now configured to trigger this action in the third-party system upon the triggering of a security event. This automatic incident response action appears in the CLASSIFICATION DETAILS area of the Events page of the

FortiEDR Console.



	All	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED ▾	LAST UPDATED	
□	DynamicCodeTests_1.exe (1 event)				Suspicious		30-Jun-2021, 10:36:28		
□		98879	Win10-64BIT-120-180	DynamicCodeTests_1.exe	Suspicious	2 destinations	30-Jun-2021, 10:36:28	30-Jun-2021, 10:36:28	⊘
□	DynamicCodeTests_20.exe (1 event)				Suspicious		30-Jun-2021, 10:36:28		

Logged-in User: [redacted]er1 Process owner: WIN10-64BIT-120\user1 Certificate: Signed Process path: C:\Users\user1\Desktop\Tudo boom\boom_folder\DynamicCodeTests_1.exe Raw data items: 2

CLASSIFICATION DETAILS

Suspicious FORTINET

Threat name: Unknown
Threat family: Unknown
Threat type: Unknown

Automated analysis steps completed by Fortinet Details

History

Suspicious, by FortinetCloudServices, on 30-Jun-2021, 10:36:50

- **loop** was executed on Connector **Custom 7** using JumpBox [redacted]**domain** 2 times

Triggered Rules

Exfiltration Prevention
- ⊘ Dynamic Code - Malicious Runtime Generated Code Detected
- ⊘ Unmapped Executable - Executable File Without a Correspon...
- ⊘ Writeable Code - Identified an Executable with Writable Code

Network Access Control (NAC) Integration

When a Network Access Control connector such as FortiNAC is set and Playbook policies are configured, automatic incident response actions can include isolating a device by a NAC system upon security event triggering.

Before you start NAC configuration, make sure that:

- Your FortiEDR deployment includes a JumpBox that has connectivity to the NAC server.
  Details about how to install a FortiEDR Core and configure it as a JumpBox are described in Installing the FortiEDR Core. You may refer to Cores on page 115for more information about configuring a JumpBox.
- The FortiEDR Central Manager has connectivity to the Fortinet Cloud Services (FCS).
- You have a valid API user with access to FortiNAC or equivalent network access control system.

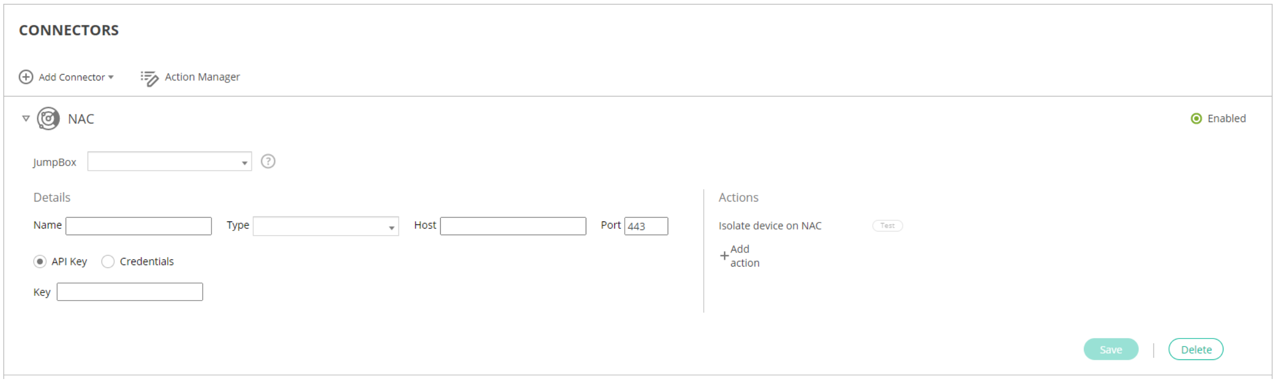
Follow the steps below in order to automatically isolate a device by NAC upon the detection of a FortiEDR security event. The example below describes how to define an API user on FortiNAC in order to enable FortiEDR to perform automatic device isolation after a FortiEDR security event.

Note: Make sure to add FortiEDR domains and/or IP addresses to the exclusion list on the VLAN that is being used for isolation on the FortiNAC system such that the FortiEDR Collector would still be able to communicate with its servers when the device is being isolated.

FortiEDR Connector Configuration

To configure NAC integration:

1. Clickthe ⊕ Add Connector ▾ button and select NAC in the Connectors dropdown list. The following displays:



CONNECTORS

⊕ Add Connector ▾ Action Manager

▿ NAC ● Enabled

JumpBox

Details

Name Type Host Port 443

● API Key ○ Credentials

Key

Actions

Isolate device on NAC Test

+ Add action

Save | Delete

2. Fill in the following fields:

Field	Definition
JumpBox	Select the FortiEDR JumpBox that will communicate with this NAC system.
Name	Specify a name of your choice which will be used to identify this NAC system.
Type	Select the type of NAC to be used in the dropdown list, for example: FortiNAC.
Host	Specify the IP or DNS address of the external NAC system.
Port	Specify the port that is used for communication with the external NAC system.
API Key	Specify authentication details of the external NAC system. To use an API token, click the API Key radio button and copy the token value into the text box. To use API credentials, click the Credentials radio button and fill in the external NAC system API username and password.

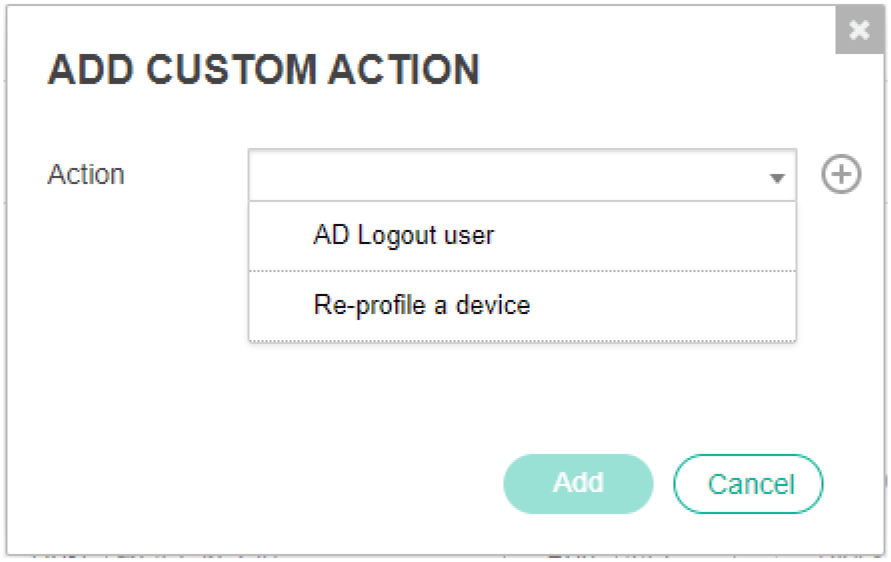
3. 3 In the **Actions** area on the right, define the action to be taken by this connector.

   You have the option to either use an action provided out-of-the-box with FortiEDR (for example, **Isolate Device on NAC**)

   – OR –

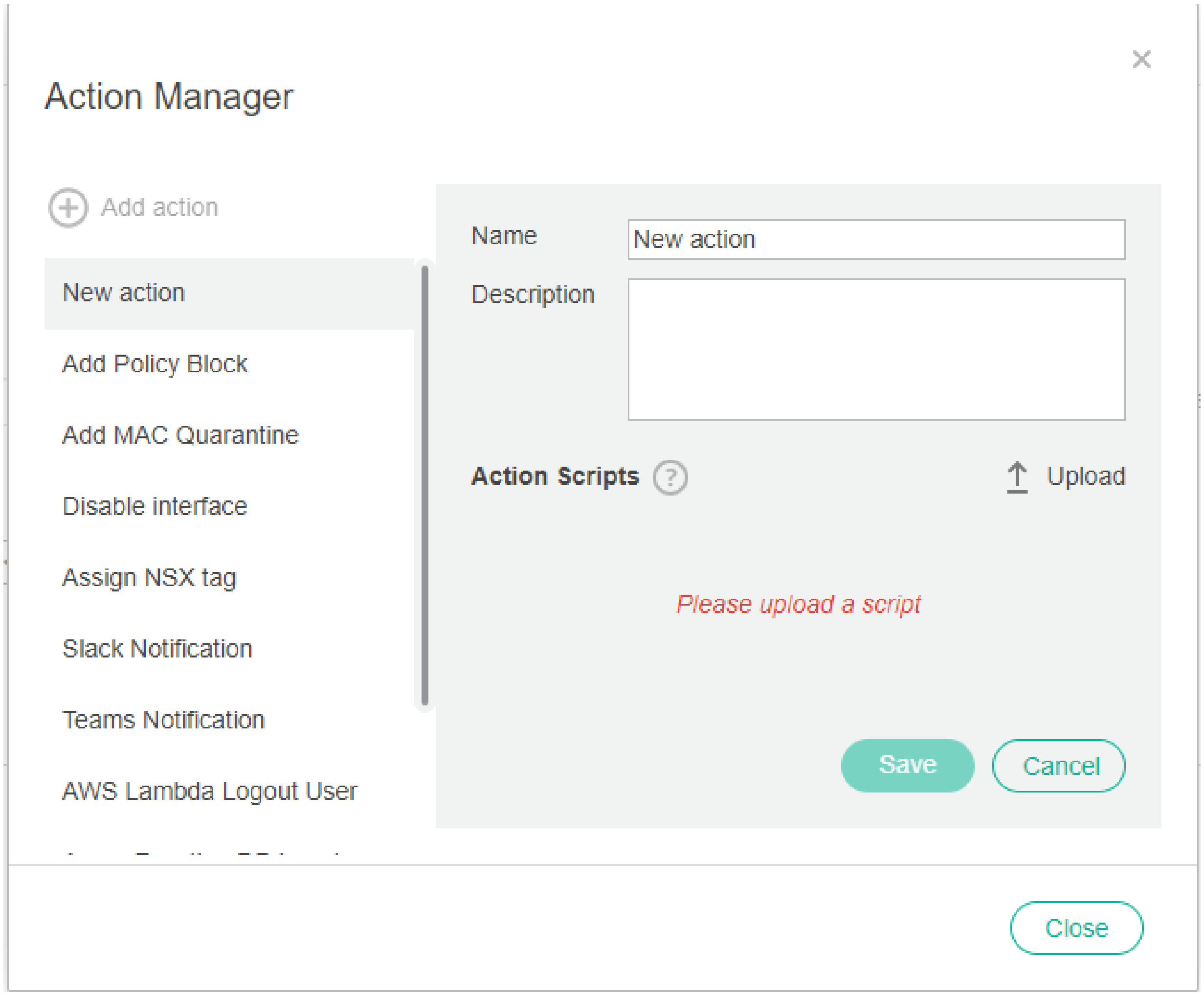
   To create or select one of the Custom Integration actions (if one or more have already been defined in FortiEDR, as described in Custom Integration on page 328.

   - To trigger an action on a custom connected third-party system, click the **+ Add Action** button to display the following popup window:



a. In the **Action** dropdown menu, select one of the previously defined actions (which were defined in FortiEDR as described in Custom Integration on page 328).
- OR -

b. Click the **Create New Action** ⊕ button in this popup window to define a new action that can be triggered according to the definitions in the Playbook, as described below. The following displays:



Action Manager

New action
Add Policy Block
Add MAC Quarantine
Disable interface
Assign NSX tag
Slack Notification
Teams Notification
AWS Lambda Logout User

Name: New action

Description:

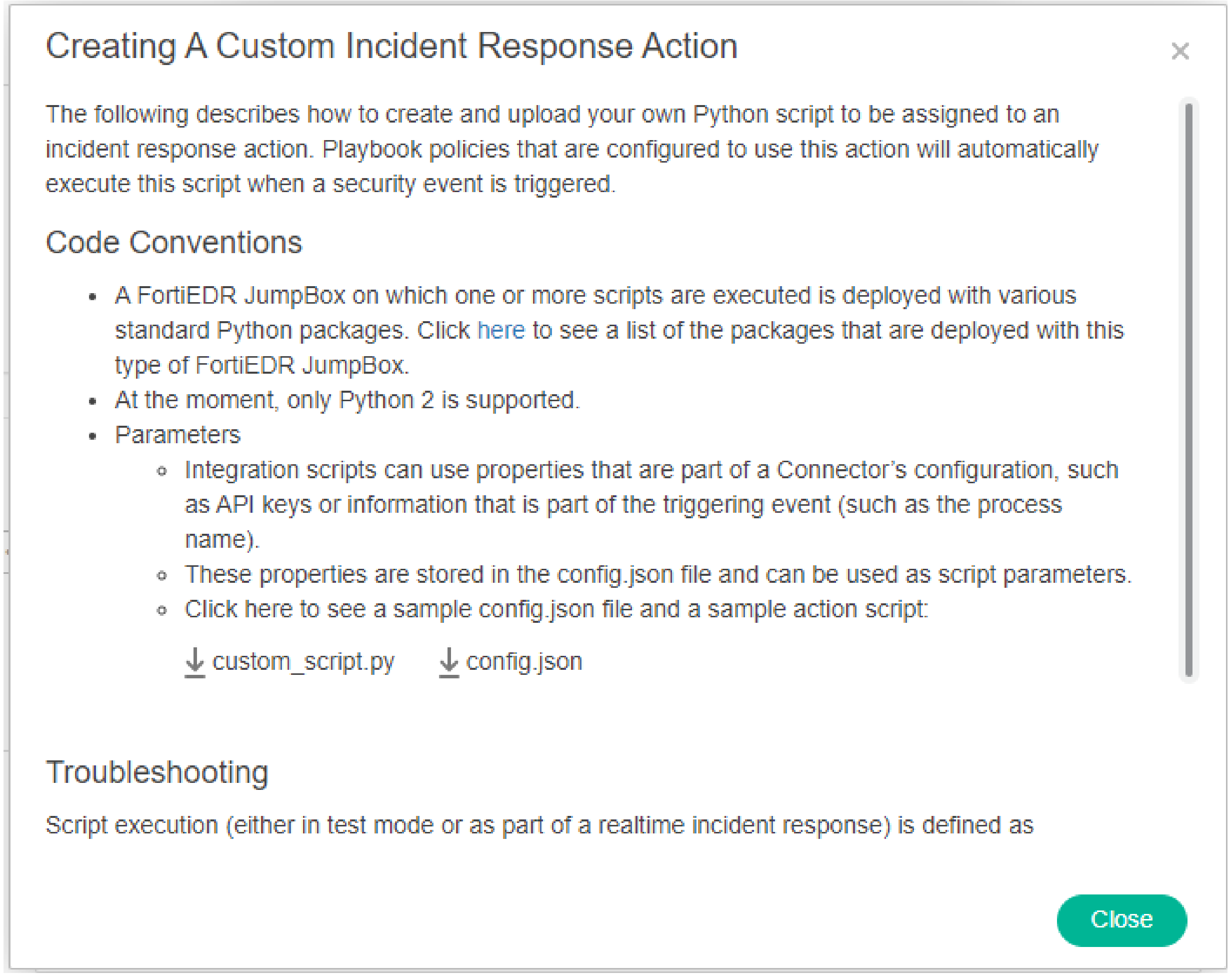
Action Scripts ?

Please upload a script

Fill out the fields of this window as follows in order to define a new action to be triggered in response to an incident.

Note – In order to trigger this action, a Playbook policy must be defined that triggers this action to execute the script when a security event is triggered. The definition of this new action here automatically adds this action as an option in a Playbook policy. This action however, is not selected by default in the Playbook policy. Therefore, you must go to the Playbook policy and select it in order for it to be triggered when a security event is triggered.

Field	Definition
Name	Enter any name for this action
Description	Enter a description of this action
Upload	Upload a Python script that calls an API from the third-party system in order to perform the relevant action. This Python script must be created according to the coding conventions that can be displayed by clicking the icon ? next to the Action Scripts field. The following displays providing an explanation of these coding conventions and provides various links that you can click to see more detail and/or to download sample files.



Creating A Custom Incident Response Action

The following describes how to create and upload your own Python script to be assigned to an incident response action. Playbook policies that are configured to use this action will automatically execute this script when a security event is triggered.

Code Conventions

- A FortiEDR JumpBox on which one or more scripts are executed is deployed with various standard Python packages. Click here to see a list of the packages that are deployed with this type of FortiEDR JumpBox.
- At the moment, only Python 2 is supported.
- Parameters
  - Integration scripts can use properties that are part of a Connector's configuration, such as API keys or information that is part of the triggering event (such as the process name).
  - These properties are stored in the config.json file and can be used as script parameters.
  - Click here to see a sample config.json file and a sample action script:

  ⤓ custom_script.py ⤓ config.json

Troubleshooting

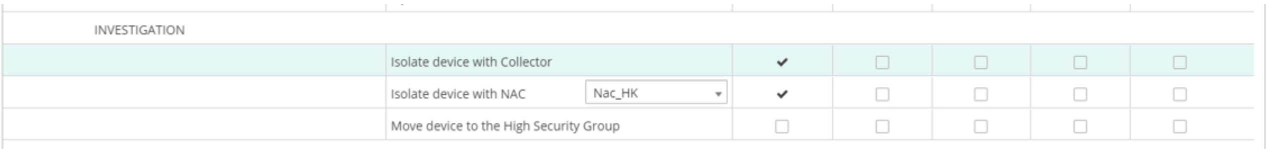
Script execution (either in test mode or as part of a realtime incident response) is defined as

4. Click **Save**. The new action is then listed in the Actions area.
5. You can click the **Test** button next to an action to execute that action.

Playbooks Configuration

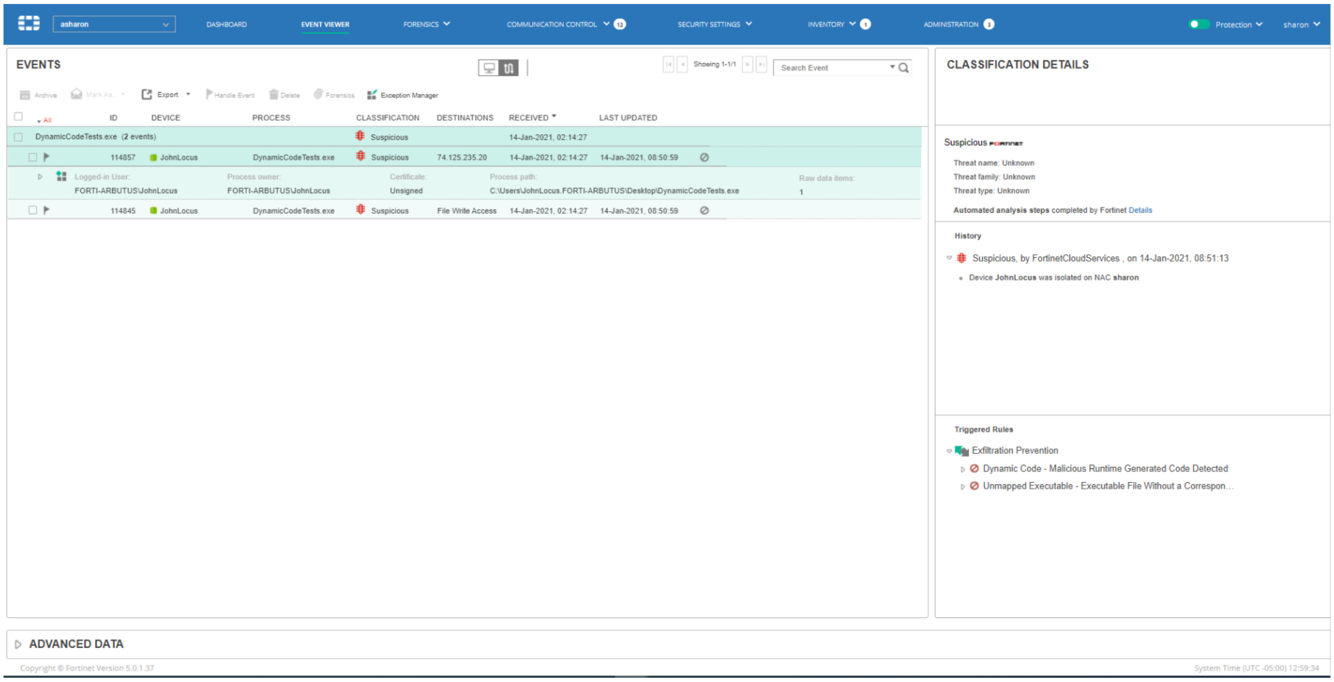
To configure an automated incident response that uses a NAC connector to isolate a device upon security event triggering:

1. Navigate to the **SECURITY SETTINGS > Playbooks** page.
2. Open the Playbook policy that is applied on devices for which you want the isolation response to apply and place a checkmark in the relevant Classification column next to the Isolate device with NAC row that is under the INVESTIGATION section.



INVESTIGATION							
	Isolate device with Collector		✓	□	□	□	□
	Isolate device with NAC	Nac_HK ▾	✓	□	□	□	□
	Move device to the High Security Group		□	□	□	□	□

FortiEDR is now configured to automatically isolate the device upon triggering of a security event. Automatic incident response actions are listed in the **CLASSIFICATION DETAILS** area of the Events page of the FortiEDR Console as shown below:



All	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED
DynamicCodeTests.exe (2 events)				Suspicious		14-Jan-2021, 02:14:27	
	114857	JohnLocus	DynamicCodeTests.exe	Suspicious	74.125.235.20	14-Jan-2021, 02:14:27	14-Jan-2021, 08:50:59
	114845	JohnLocus	DynamicCodeTests.exe	Suspicious	File Write Access	14-Jan-2021, 02:14:27	14-Jan-2021, 08:50:59

Logged-in User: FORTI-ARBUTUS\JohnLocus
Process owner: FORTI-ARBUTUS\JohnLocus
Certificate: Unsigned
Process path: C:\Users\JohnLocus.FORTI-ARBUTUS\Desktop\DynamicCodeTests.exe
Raw data items: 1

CLASSIFICATION DETAILS

Suspicious FORTINET

Threat name: Unknown
Threat family: Unknown
Threat type: Unknown

Automated analysis steps completed by Fortinet Details

History

Suspicious, by FortinetCloudServices , on 14-Jan-2021, 08:51:13

- Device **JohnLocus** was isolated on NAC **sharon**

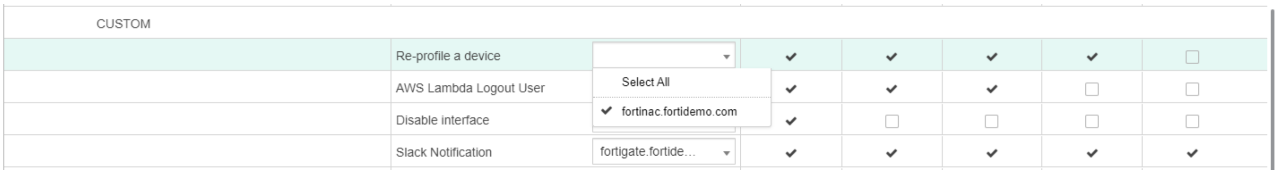
Triggered Rules

Exfiltration Prevention
- Dynamic Code - Malicious Runtime Generated Code Detected
- Unmapped Executable - Executable File Without a Correspon...

Note that isolation by NAC will only be done for devices that are managed on the specified NAC.

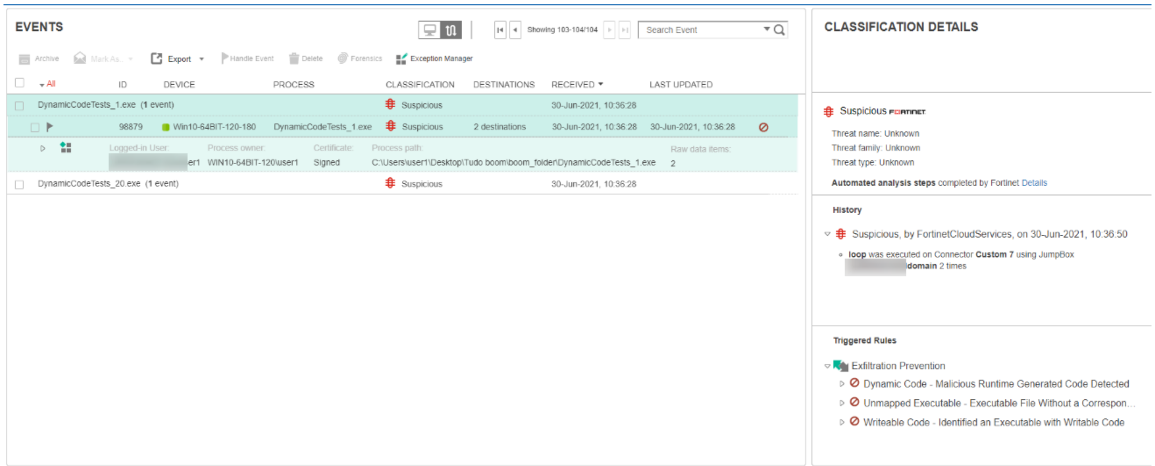
To configure an automated incident response that uses a NAC connector to perform a custom action upon the triggering of a security event:

1. Navigate to the **SECURITY SETTINGS > Playbooks** page.
2. Open the Playbook policy that is applied on devices for which you want the custom action (defined above) to apply.
3. In the **CUSTOM** section, place a checkmark in the relevant **Classification** columns next to the row of the relevant custom action.
4. In the dropdown menu next to the relevant custom action, select the relevant NAC connector with which to perform the action, as shown below:



CUSTOM							
	Re-profile a device		✓	✓	✓	✓	□
	AWS Lambda Logout User	Select All ✓ fortinac.fortidemo.com	✓	✓	✓	□	□
	Disable interface		✓	□	□	□	□
	Slack Notification	fortigate.fortide...	✓	✓	✓	✓	✓

FortiEDR is now configured to trigger this action in the third-party system upon the triggering of a security event. This automatic incident response action appears in the **CLASSIFICATION DETAILS** area of the Events page of the FortiEDR Console.



All	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED
DynamicCodeTests_1.exe (1 event)				Suspicious		30-Jun-2021, 10:36:28	
	98879	Win10-64BIT-120-180	DynamicCodeTests_1.exe	Suspicious	2 destinations	30-Jun-2021, 10:36:28	30-Jun-2021, 10:36:28
DynamicCodeTests_20.exe (1 event)				Suspicious		30-Jun-2021, 10:36:28	

Logged-in User: [redacted]er1
Process owner: WIN10-64BIT-120\user1
Certificate: Signed
Process path: C:\Users\user1\Desktop\Tudo boom\boom_folder\DynamicCodeTests_1.exe
Raw data items: 2

Suspicious FORTINET
Threat name: Unknown
Threat family: Unknown
Threat type: Unknown
Automated analysis steps completed by Fortinet Details

History
Suspicious, by FortinetCloudServices, on 30-Jun-2021, 10:36:50
- **loop** was executed on Connector **Custom 7** using JumpBox [redacted]**domain** 2 times

Triggered Rules
Exfiltration Prevention
- Dynamic Code - Malicious Runtime Generated Code Detected
- Unmapped Executable - Executable File Without a Correspon...
- Writeable Code - Identified an Executable with Writable Code

Sandbox Integration

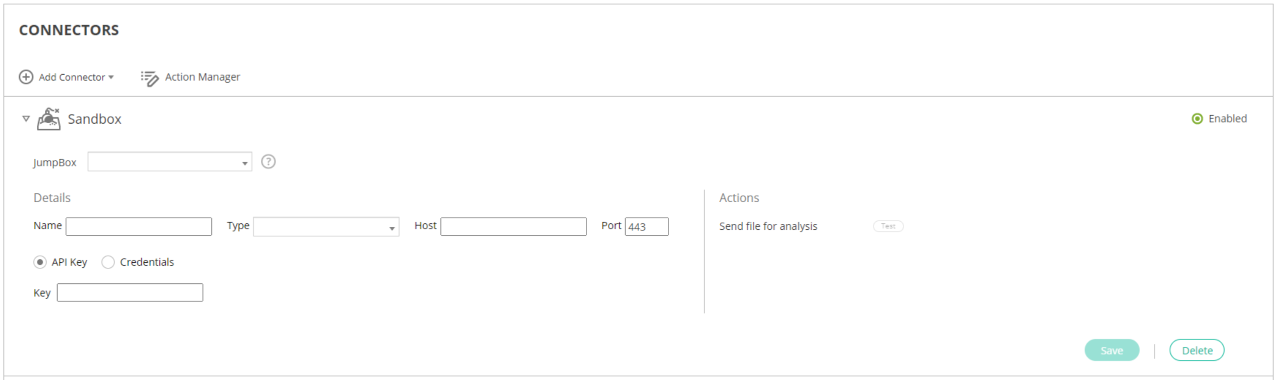
When a sandbox such as FortiSandbox is configured and the Sandbox Analysis Policy rule is enabled, files that meet several conditions and that have not been previously analyzed trigger a sandbox analysis event on FortiEDR and are sent to the sandbox. The conditions are a combination of several items, such as the file was downloaded from the Internet and was not signed by a known vendor. If the file is found to be clean, the event is automatically classified as safe and is archived. If the file is determined by the sandbox to be suspicious or malicious, then the event is classified as non-safe and any future execution attempt of the file in the environment is blocked by one of the Pre-execution (NGAV) Policy rules. Note that in all cases the first file execution is not delayed or blocked.

Before you start sandbox configuration, make sure that:

- Your FortiEDR deployment includes a JumpBox that has connectivity to the sandbox.
  Details about how to install a FortiEDR Core and configure it as a JumpBox are described in Installing the FortiEDR Core. You may refer to Cores on page 115 for more information about configuring a JumpBox.
- The FortiEDR Central Manager has connectivity to Fortinet Cloud Services (FCS).
- You have a valid API user with access to the sandbox.

To set up a sandbox connector with FortiEDR:

1. Click the ⊕ Add Connector ▾ button and select Sandbox in the Connectors dropdown list. The following displays:



JumpBox

Details

Name
Type
Host
Port 443

● API Key ○ Credentials

Key

Actions

Send file for analysis

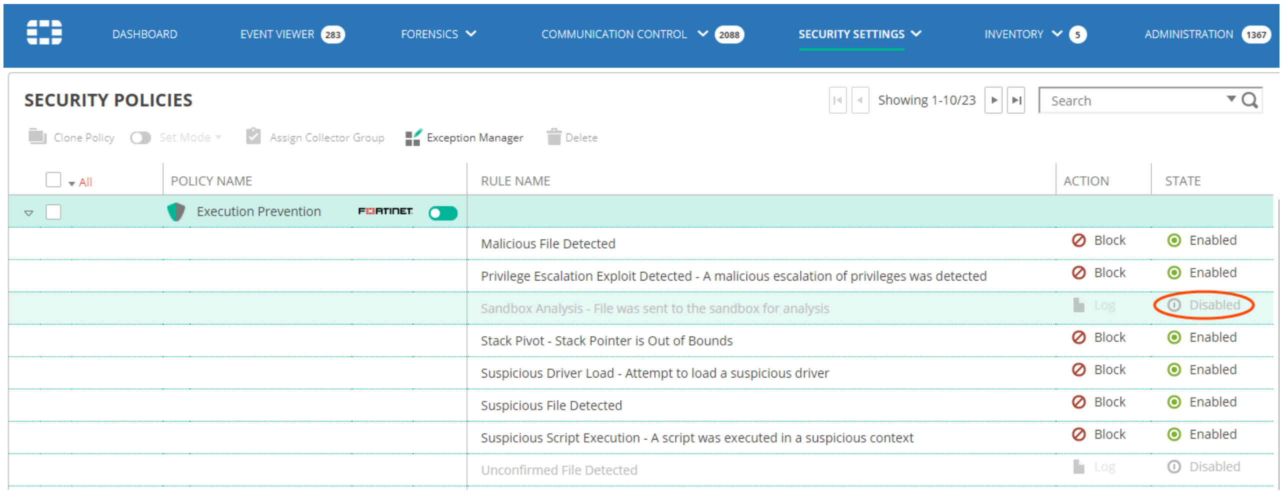
2. Fill in the following fields:

Field	Definition
JumpBox	Select the FortiEDR JumpBox that will communicate with this sandbox.
Name	Specify a name of your choice which will be used to identify this sandbox.
Type	Select the type of sandboxto be used in the dropdown list, for example: FortiNAC.
Host	Specify the IP or DNS address of you sandbox
Port	Specify the port that is used for API communication with your sandbox
API Key	Specify authentication details of your sandbox. To use an API token, click the API Key radio button and copy the token value into the text box. To use API credentials, click the Credentials radio button and fill in the external NAC system API username and password.

3. Click **Save**.
   In order to complete sandbox integration, the Sandbox Scan rule must be enabled with the FortiEDR Central Manager.

To enable the Sandbox Scan rule:

1. Navigate to the **SECURITY SETTINGS > Security** Policies page.
2. Open the Execution Prevention policy that is applied on devices for which you want the sandbox scan to apply and click the **Disabled** button next to the Sandbox Analysis rule to enable it, as shown below:

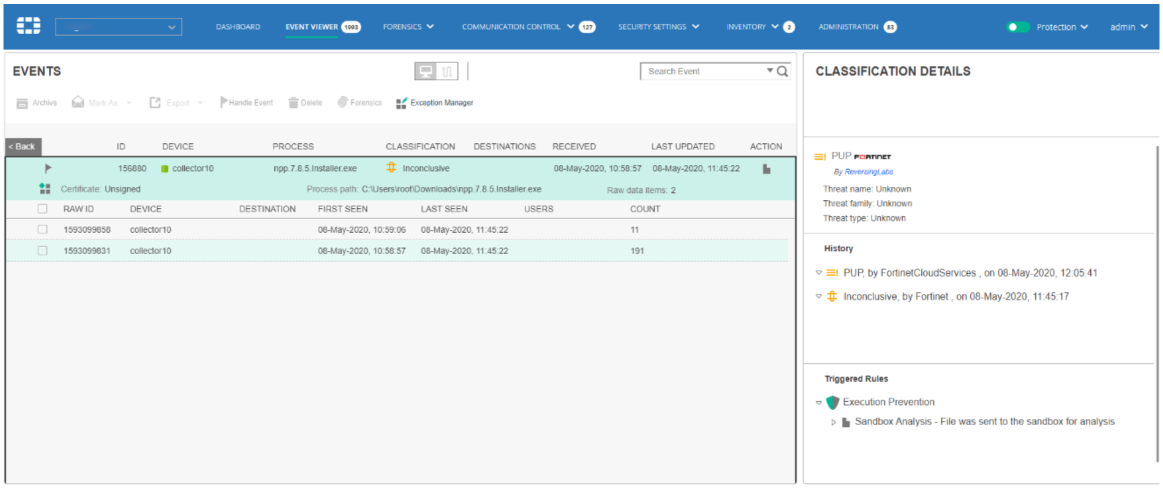


POLICY NAME	RULE NAME	ACTION	STATE
Execution Prevention			
	Malicious File Detected	Block	Enabled
	Privilege Escalation Exploit Detected - A malicious escalation of privileges was detected	Block	Enabled
	Sandbox Analysis - File was sent to the sandbox for analysis	Log	Disabled
	Stack Pivot - Stack Pointer is Out of Bounds	Block	Enabled
	Suspicious Driver Load - Attempt to load a suspicious driver	Block	Enabled
	Suspicious File Detected	Block	Enabled
	Suspicious Script Execution - A script was executed in a suspicious context	Block	Enabled
	Unconfirmed File Detected	Log	Disabled

FortiEDR is now configured to send unknown files to the sandbox.

You can check file analysis on your sandbox console.

In addition, you can see sandbox analysis events in the **Events** page. Events of files that were found to be clean appear under the **Archived Events** filter and events of files that were found to be risky are displayed under the All filter, such as shown below. A sandbox analysis digest is added to the security event’s handling comment.



EVENTS

ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED	ACTION
156880	collector10	npp.7.8.5.Installer.exe	Inconclusive		08-May-2020, 10:58:57	08-May-2020, 11:45:22	

Certificate: Unsigned Process path: C:\Users\root\Downloads\npp.7.8.5.Installer.exe Raw data items: 2

RAW ID	DEVICE	DESTINATION	FIRST SEEN	LAST SEEN	USERS	COUNT
1593099858	collector10		08-May-2020, 10:59:06	08-May-2020, 11:45:22		11
1593099831	collector10		08-May-2020, 10:58:57	08-May-2020, 11:45:22		191

CLASSIFICATION DETAILS

PUP FORTINET
By ReversingLabs
Threat name: Unknown
Threat family: Unknown
Threat type: Unknown

History

PUP, by FortinetCloudServices , on 08-May-2020, 12:05:41
Inconclusive, by Fortinet , on 08-May-2020, 11:45:17

Triggered Rules

Execution Prevention
Sandbox Analysis - File was sent to the sandbox for analysis

eXtended Detection Source Integration

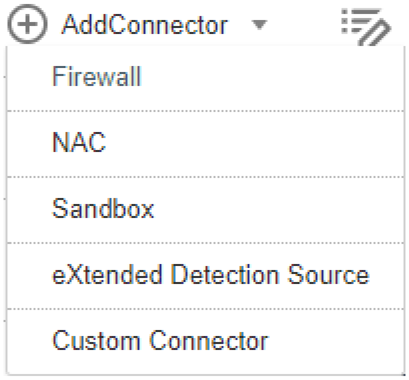
To connect to external systems in order to collect activity data, you must add a new connector for extended detection, which will automatically collect activity logs and activity data from external systems. Currently, this feature connects to a FortiAnalyzer device type, which collects the logs from other systems, such as firewalls, Active Directory and other security products. The aggregated data is then being sent to Fortinet Cloud Services (FCS) where it is correlated and analyzed to detect malicious indications that will result in security events of eXtended Detection policy rule violations.

Before you start configuring FortiAnalyzer configuration, verify that:

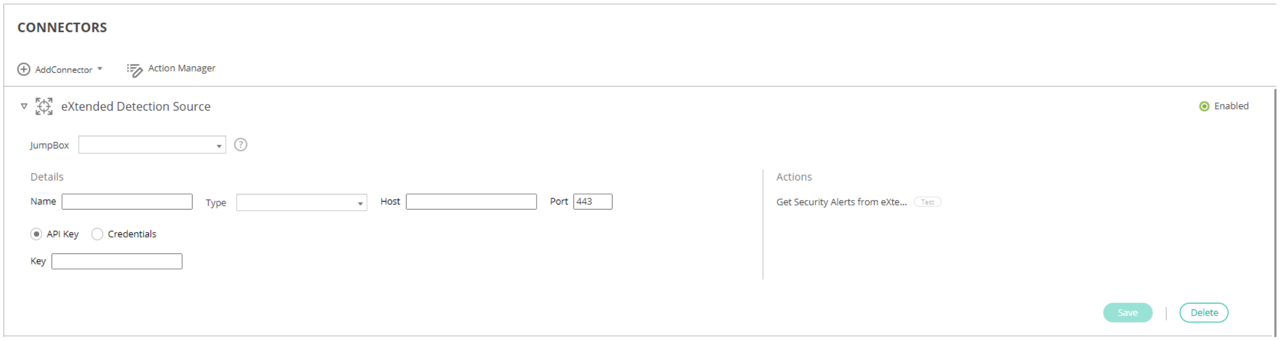
- Your FortiEDR deployment includes a JumpBox that has connectivity to FortiAnalyzer. Details about how to install a FortiEDR Core and configure it as a JumpBox are provided in Installing the FortiEDR Core. You may refer to Cores on page 115 for more information about configuring a JumpBox.
- The FortiEDR Central Manager has connectivity to the Fortinet Cloud Services (FCS).
- You have a valid API user that has access to FortiAnalyzer.

To set up an extended detection connector with FortiEDR:

1. Click the ⊕ Add Connector ▾ button and select eXtended Detection Source in the Connectors dropdown list.



The following displays:



CONNECTORS

AddConnector ▾ Action Manager

▿ eXtended Detection Source ● Enabled

JumpBox

Details

Name Type Host Port 443

● API Key ○ Credentials

Key

Actions

Get Security Alerts from eXte... Test

Save | Delete

2. Fill in the following fields: eXtended Detection Source Enabled: Check this checkbox to enable blocking of malicious IP addresses by FortiAnalyzer.

Field	Definition
JumpBox	Select the FortiEDR JumpBox that will communicate with the sandbox.
Name	Specify a name of your choice which will be used to identify this sandbox.
Type	Select the type of sandbox to be used in the dropdown list.
Host	Specify the IP or DNS address of your sandbox.
Port	Specify the port that is used for API communication with your sandbox.
API Key/Credentials	Specify authentication details of your sandbox. To use an API token, click the API Key radio button and copy the token value into the text box. To use API credentials, click the Credentials radio button and fill in the sandbox API username and password.

3. Click **Save**.

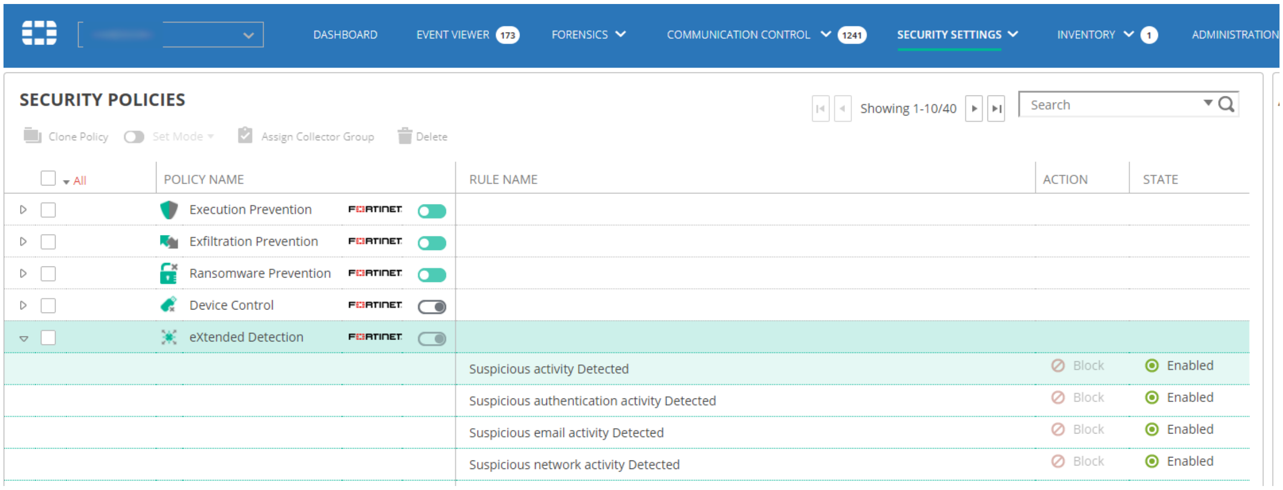
In order to complete eXtended Detection Source integration, the eXtended Detection rules must be enabled with the FortiEDR Central Manager, as follows.

Enabling eXtended Detection Rules

To enable the eXtended Detection rules:

1. Navigate to the **SECURITY SETTINGS > Security** Policies page.
2. Open the eXtended Detection policy that is applied on devices on which you want the eXtended detection policy to

apply and click the **Disabled** button next to each of the underlying rules to enable it, as shown below:



SECURITY POLICIES

All	POLICY NAME	RULE NAME	ACTION	STATE
▷ □	Execution Prevention FORTINET			
▷ □	Exfiltration Prevention FORTINET			
▷ □	Ransomware Prevention FORTINET			
▷ □	Device Control FORTINET			
▽ □	eXtended Detection FORTINET			
		Suspicious activity Detected	⊘ Block	⊙ Enabled
		Suspicious authentication activity Detected	⊘ Block	⊙ Enabled
		Suspicious email activity Detected	⊘ Block	⊙ Enabled
		Suspicious network activity Detected	⊘ Block	⊙ Enabled

FortiEDR is now configured to issue eXtended Detection alerts.

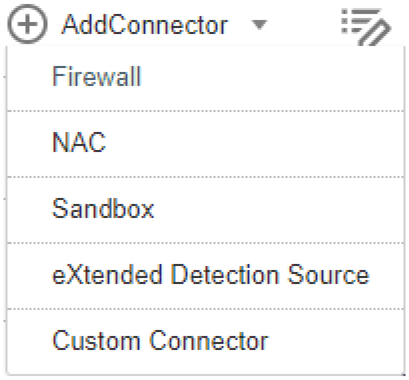
Custom Integration

Custom Connector Configuration

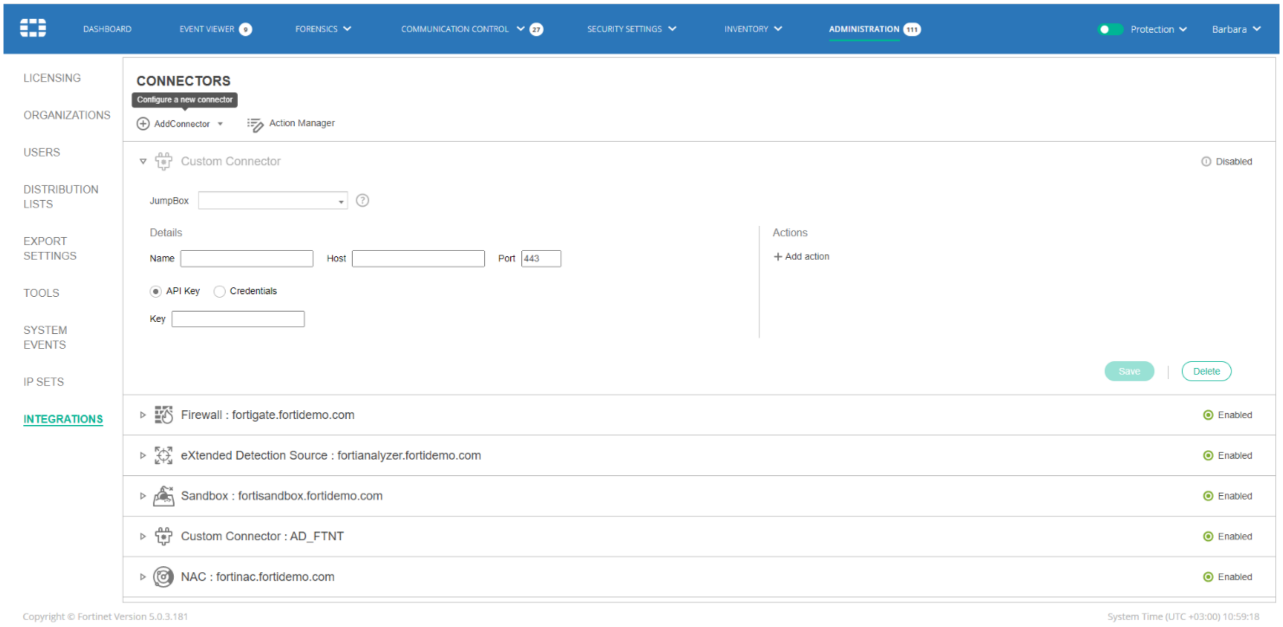
The **CUSTOM** section enables you to connect to any third-party system in order to automatically trigger an incident response in that third-party system as the result of a security event detected by FortiEDR. After you define a Custom Integration connector (and its actions) and configure a relevant Playbook policy, an automatic incident response action will be triggered in the third-party system upon the triggering of a security event.

To set up a Custom Integration Connector in FortiEDR:

1. Click the ⊕ Add Connector ▾ button and select Custom Connector from the dropdown list.



The following displays:



CONNECTORS

Custom Connector — Disabled

JumpBox

Details

Name
Host
Port 443

● API Key ○ Credentials

Key

Actions

Firewall : fortigate.fortidemo.com — Enabled

eXtended Detection Source : fortianalyzer.fortidemo.com — Enabled

Sandbox : fortisandbox.fortidemo.com — Enabled

Custom Connector : AD_FTNT — Enabled

NAC : fortinac.fortidemo.com — Enabled

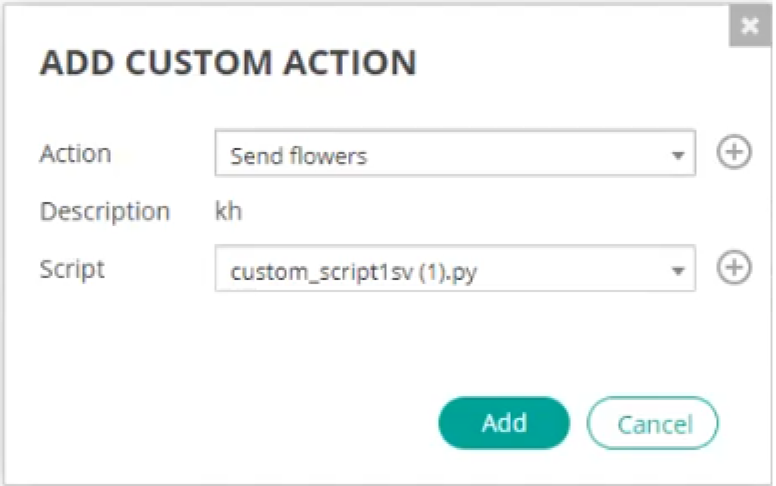
Copyright © Fortinet Version 5.0.3.181

System Time (UTC +03:00) 10:59:18

2. Fill in the following fields:

Field	Description
JumpBox	Select the FortiEDR JumpBox that will communicate with FortiAnalyzer. A FortiEDR deployment must include a JumpBox that has connectivity to the external system of this Custom Integration Connector. This JumpBox must be exclusive to this organization and cannot function as a core.
Name	Specify a name of your choice to be used to identify this custom connector.
Host	Specify the IP or DNS address of the relevant third-party application.
Port	Specify the port that is used for API communication with the relevant third-party application.
API Key/Credentials	Specify authentication details of the relevant third-party application. To use an API token, click the API Key radio button and copy the token value into the text box. To use API credentials, click the Credentials radio button and enter the relevant third-party application’s API username and password.

3. In the Actions area on the right, define the action to be taken by this custom connector, as follows:
   - To trigger an action on a custom connected third-party system, click the **+ Add Action** button to display the following popup window:



ADD CUSTOM ACTION

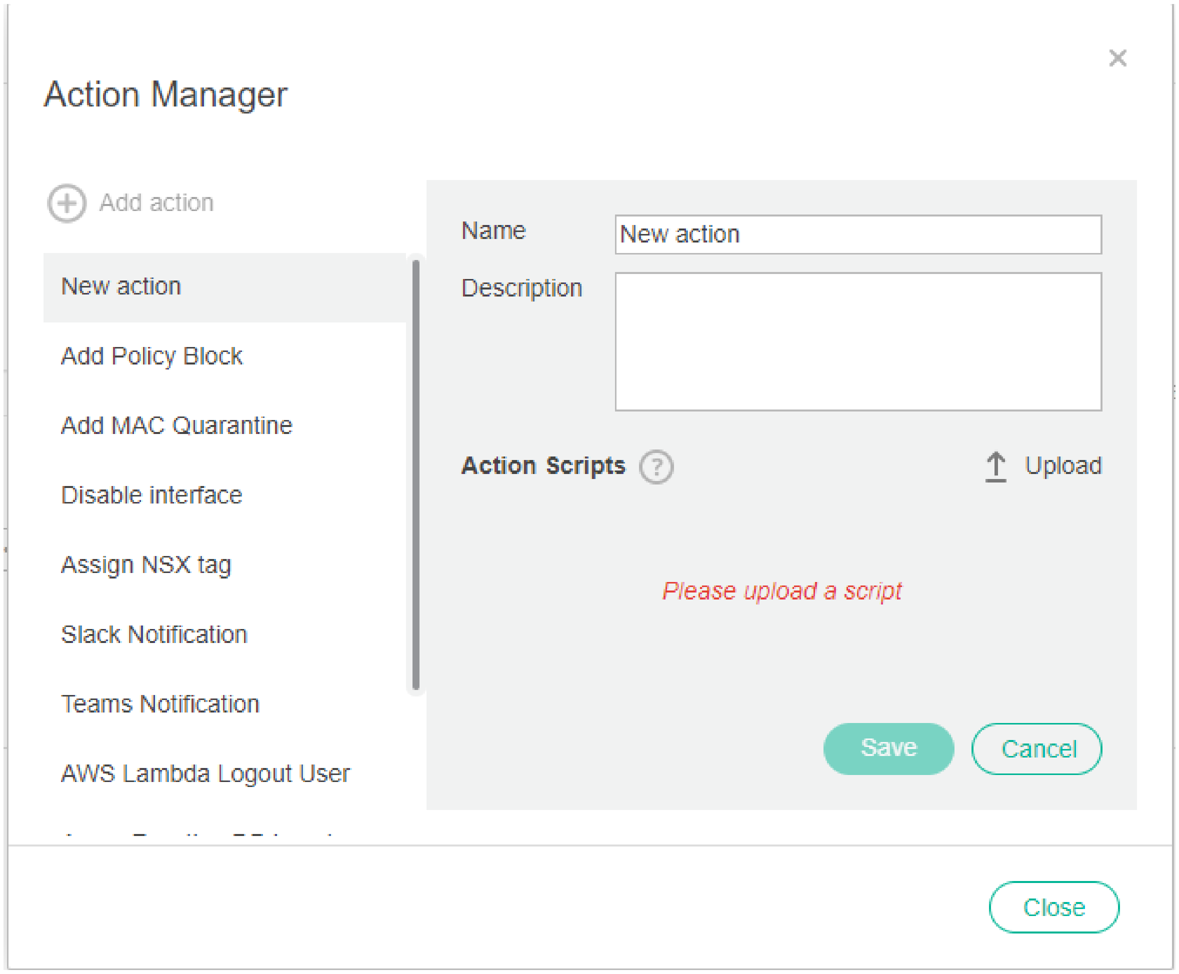
Action: Send flowers

Description: kh

Script: custom_script1sv (1).py

a. In the **Action** dropdown menu, select one of the previously defined actions (which were defined in FortiEDR as described Custom Integration on page 328).
-OR-

b. Click the Create New Action button in this popup window to define a new action that can be triggered according to the definitions in the Playbook, as described in the next section below. The following displays:



Action Manager

Name: New action

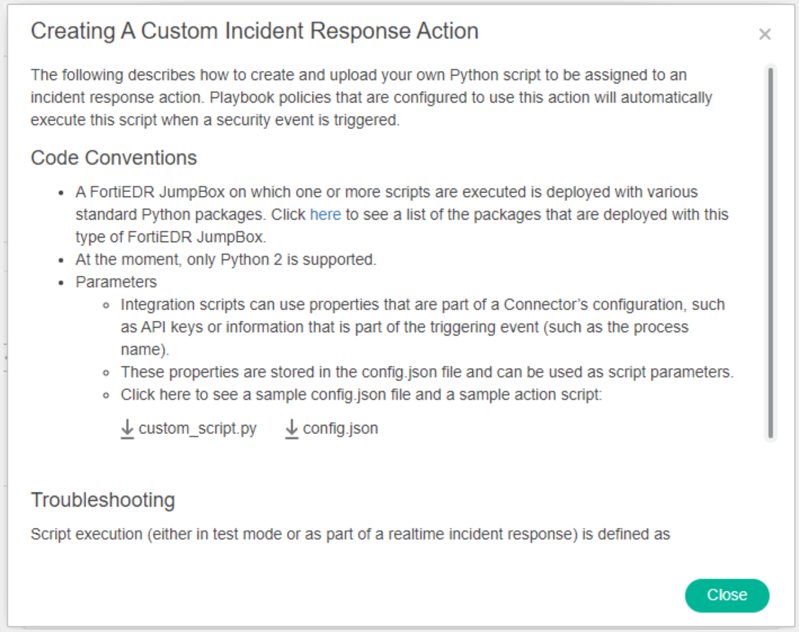
Description:

Action Scripts

Please upload a script

Fill out the fields of this window as follows in order to define a new action to be triggered in response to an incident.

Note – In order to trigger this action, a Playbook policy must be defined that triggers this action to execute the script when a security event is triggered. The definition of this new action here automatically adds this action as an option in a Playbook policy. This action however, is not selected by default in the Playbook policy. Therefore, you must go to the Playbook policy and select it in order for it to be triggered when a security event is triggered.

Field	Definition
Name	Enter any name for this action.
Description	Enter a description of this action.
Upload	Upload a Python script that calls an API from the third-party system in order to perform the relevant action. The Python script must be created according to the coding conventions that can be displayed by clicking the ? icon next to the **Action Scripts** field. The following displays providing an explanation of the coding conventions and provides various links that you can click to see more detail and/or to download sample files.  Creating A Custom Incident Response Action × The following describes how to create and upload your own Python script to be assigned to an incident response action. Playbook policies that are configured to use this action will automatically execute this script when a security event is triggered. Code Conventions • A FortiEDR JumpBox on which one or more scripts are executed is deployed with various standard Python packages. Click here to see a list of the packages that are deployed with this type of FortiEDR JumpBox. • At the moment, only Python 2 is supported. • Parameters ∘ Integration scripts can use properties that are part of a Connector's configuration, such as API keys or information that is part of the triggering event (such as the process name). ∘ These properties are stored in the config.json file and can be used as script parameters. ∘ Click here to see a sample config.json file and a sample action script: ↓ custom_script.py ↓ config.json Troubleshooting Script execution (either in test mode or as part of a realtime incident response) is defined as Close

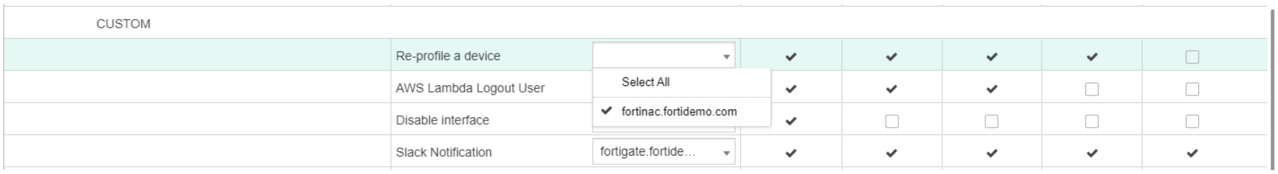
4. Click **Save**. The new action is then listed in the Actions area.
5. Select this action to associate it with the custom connector.
6. You can click the **Test** button next to it to execute this action.
   A new row is added to the CUSTOM section of the Automated Incident Response – Playbooks page. In order for this custom integration connector to trigger an action, you must define it in the Playbook, as described below.

   Note – The actions that you define here can also be selected as an action for a Firewall integration connector (as described in page 232) or for a NAC integration connector (as described in page 237). These integration connectors might use the same API. Alternatively, you may need to upload a different script that will be used to perform the same action on different 3rd party products. You can associate several scripts with the same action and select the appropriate one per connector. For example, an IM Notification action could have two scripts – one for notifications via Slack and the other for notifications via Teams.

Playbooks Configuration

To configure an automated incident response that triggers an action using this custom integration connector upon the triggering of a security event:

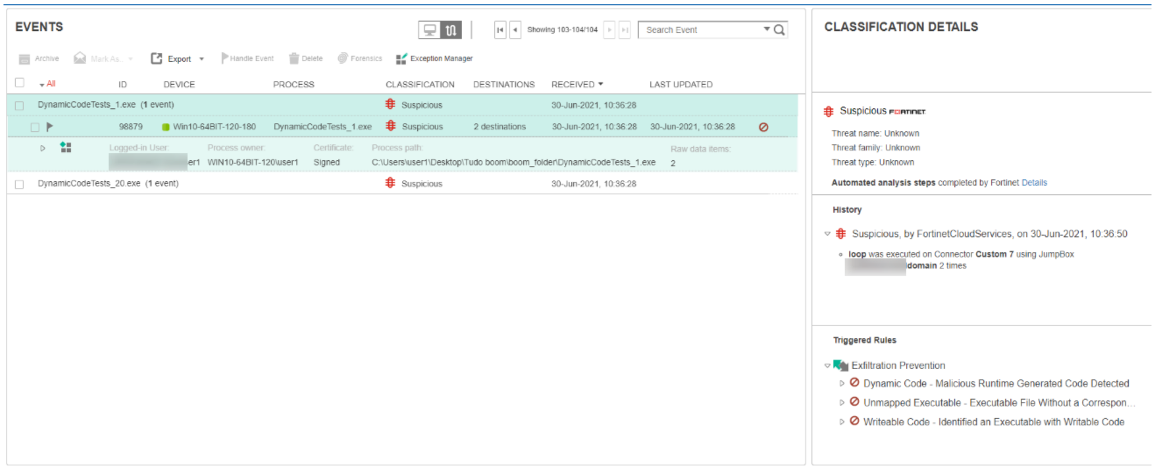
1. Navigate to the **SECURITY SETTINGS > Playbooks** page.
2. Open the Playbook policy that is applied on devices for which you want the custom action (defined above) to apply.
3. In the **CUSTOM** section, place a checkmark in the relevant Classification columns next to the row of that action.
4. In the dropdown menu next to the action, select the connector with which to perform the action or **Select All** of them, as shown below:



CUSTOM							
	Re-profile a device	▾	✓	✓	✓	✓	□
	AWS Lambda Logout User	Select All	✓	✓	✓	□	□
	Disable interface	✓ fortinac.fortidemo.com	✓	□	□	□	□
	Slack Notification	fortigate.fortide... ▾	✓	✓	✓	✓	✓

The example above showed how to configure two custom connectors by using the same action named IM notification in the Playbook – one for notifications via Teams and the other for notifications via Slack.

FortiEDR is now configured to trigger this action in the third-party system upon the triggering of a security event. This automatic incident response action appears in the **CLASSIFICATION DETAILS** area of the **Events** page of the FortiEDR Console.



□	All	ID	DEVICE	PROCESS	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDATED
□	DynamicCodeTests_1.exe (1 event)				Suspicious		30-Jun-2021, 10:36:28	
□		98879	Win10-64BIT-120-180	DynamicCodeTests_1.exe	Suspicious	2 destinations	30-Jun-2021, 10:36:28	30-Jun-2021, 10:36:28
		Logged-in User: [redacted]er1	Process owner: WIN10-64BIT-120\user1	Certificate: Signed	Process path: C:\Users\user1\Desktop\Tudo boom\boom_folder\DynamicCodeTests_1.exe		Raw data items: 2	
□	DynamicCodeTests_20.exe (1 event)				Suspicious		30-Jun-2021, 10:36:28	

CLASSIFICATION DETAILS

Suspicious FORTINET

Threat name: Unknown
Threat family: Unknown
Threat type: Unknown

Automated analysis steps completed by Fortinet Details

History

Suspicious, by FortinetCloudServices, on 30-Jun-2021, 10:36:50

- **loop** was executed on Connector **Custom 7** using JumpBox [redacted]**domain** 2 times

Triggered Rules

Exfiltration Prevention
- Dynamic Code - Malicious Runtime Generated Code Detected
- Unmapped Executable - Executable File Without a Correspon...
- Writeable Code - Identified an Executable with Writable Code

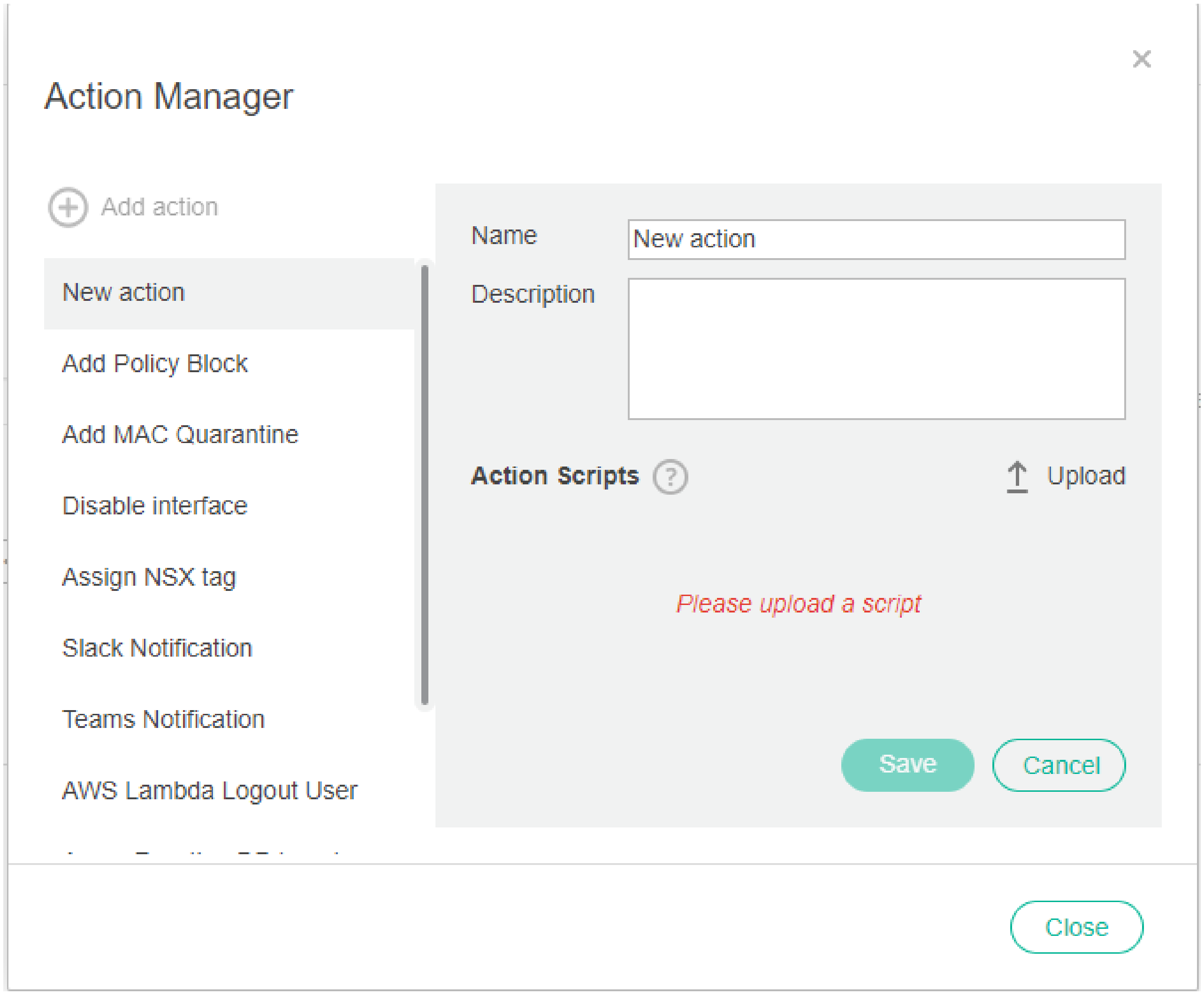
Action Manager

FortiEDR enables you to define connectors to external systems, so that FortiEDR will automatically trigger predefined actions when a security event is triggered in FortiEDR. You can define your own actions while defining a Custom integration connector, Firewall integration connector or NAC integration connector (as described above). Each action is comprised of a Python script (one or several ones) that calls an API from the third-party system in order to perform the relevant action.

The Action Manager enables you to upload and manage (add, modify and delete) these actions and the Python scripts that call third-party systems' APIs.

To display the Action Manager:

1. In the **ADMINISTRATION** tab, select **INTEGRATIONS**.
2. Click the **Action Manager** button. The following displays:



Action Manager

Name: New action

Description:

Action Scripts

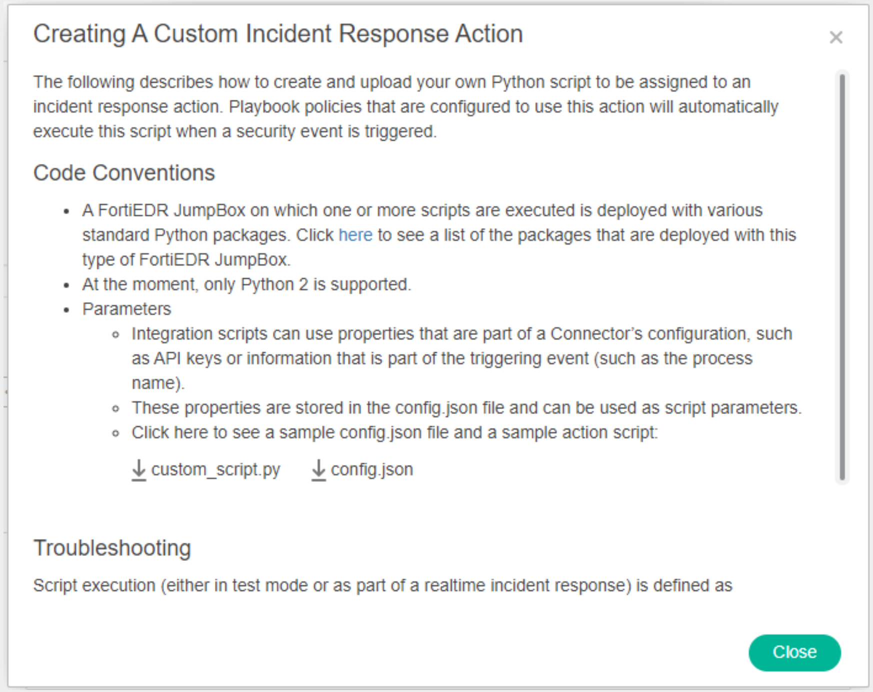
Please upload a script

To define a new action:

1. Click the **+ Add action** button in the top left corner of the window.
2. Fill out the fields of this window as follows in order to define a new action to be triggered in response to an incident.

Note – In order to trigger this action, a Playbook policy must be defined that triggers this action to execute the script when a security event is triggered. The definition of this new action here automatically adds this action as an option in a Playbook policy. This action however, is not selected by default in the Playbook policy. Therefore, you must go to the Playbook policy and select it in order for it to be triggered when a security event is triggered.

Field	Definition
Name	Enter any name for this action.
Description	Enter a description of this action.

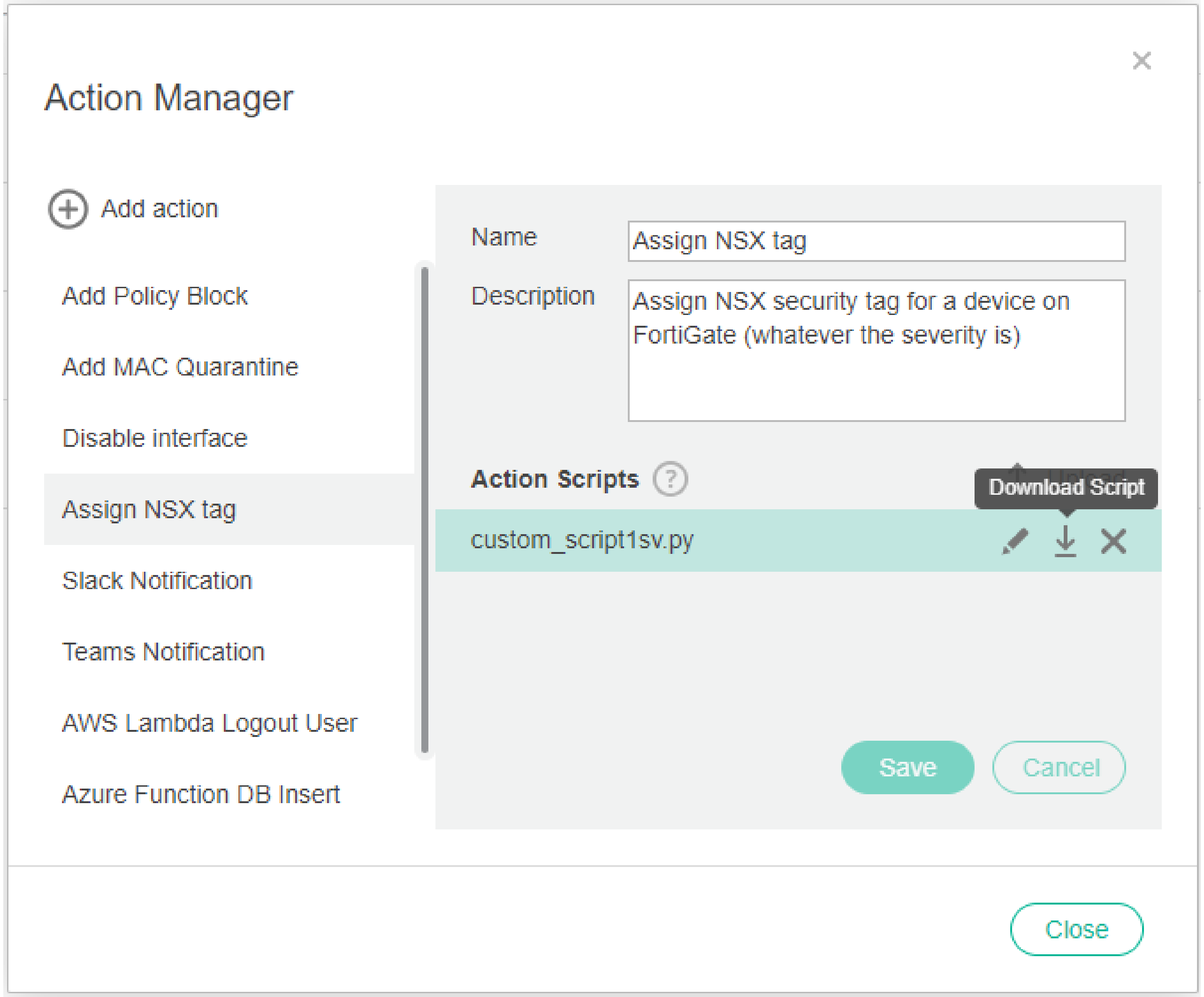
Field	Definition
Upload	Upload a Python script that calls an API from the third-party system in order to perform the relevant action. This Python script must be created according to the coding conventions that can be displayed by clicking the icon next to the Action Scripts field. The following displays providing an explanation of these coding conventions and provides various links that you can click to see more detail and/or to download sample files.  Creating A Custom Incident Response Action The following describes how to create and upload your own Python script to be assigned to an incident response action. Playbook policies that are configured to use this action will automatically execute this script when a security event is triggered. Code Conventions • A FortiEDR JumpBox on which one or more scripts are executed is deployed with various standard Python packages. Click here to see a list of the packages that are deployed with this type of FortiEDR JumpBox. • At the moment, only Python 2 is supported. • Parameters ∘ Integration scripts can use properties that are part of a Connector's configuration, such as API keys or information that is part of the triggering event (such as the process name). ∘ These properties are stored in the config.json file and can be used as script parameters. ∘ Click here to see a sample config.json file and a sample action script: ⤓ custom_script.py ⤓ config.json Troubleshooting Script execution (either in test mode or as part of a realtime incident response) is defined as

3. Click **Save**.

To modify the script of an action:

1. In the **ADMINISTRATION** tab, select **INTEGRATIONS**.
2. Click the **Action Manager** button.

3. Select the action of the script to be modified. The following displays:



Name: Assign NSX tag

Description: Assign NSX security tag for a device on FortiGate (whatever the severity is)

custom_script1sv.py

4. 4 In the Action Scripts area, hover over the name of the script in order to display various tools, as follows:

Tool	Description
✎	To overwrite the current script by uploading a different script instead of it.
⤓	To download the action's current script. For example, so that you can edit it.
✕	To delete the action's selected script.
↑ Upload	To upload a new Python script that calls an API from the third-party system in order to perform the relevant action.

Note – To delete an action entirely, hover over its name in the list on the left and click the **Trashcan** 🗑 icon.

5. Click **Save**.

Troubleshooting

This chapter describes how to troubleshoot various problems that you may encounter in the FortiEDR system.

Note – For debugging and troubleshooting, Fortinet Support may request that you provide the logs for the FortiEDR devices deployed in your organization (Collectors, Cores, Aggregators). You may refer to Exporting Logs on page 117 for details about how to do so.

Note – If your system includes the Forensics add-on, you can use the Retrieve Memory function to retrieve memory related to a specific stack on a specific Collector. For more details, you may refer to Retrieving Memory on page 217.

A FortiEDR Collector Does Not Display in the INVENTORY Tab

After a FortiEDR Collector is first launched, it registers with the FortiEDR Central Manager and is displayed in the INVENTORY tab. If it does not appear to have registered, then perform the following:

1. Check that the device on which the FortiEDR Collector is installed is powered on and has an Internet connection.
2. Validate that ports 8081 and 555 are available and that no other third-party product is blocking these ports.

No Events on the FortiEDR Central Manager Console

If no events are displayed in the FortiEDR Central manager console, then perform the following.

Validate that there is network connectivity between all the system components.

To do so, we recommend:

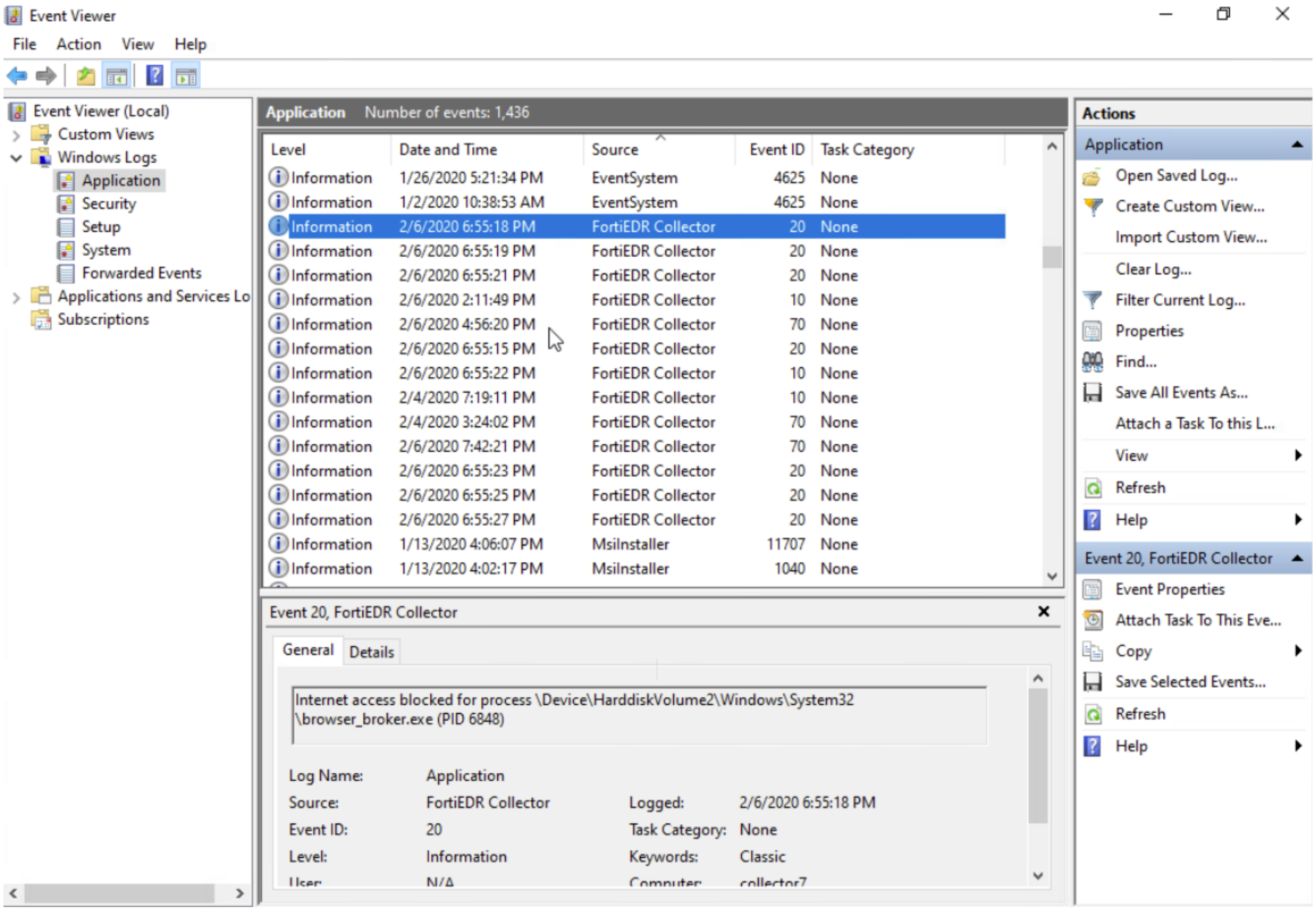
- Running Telnet on the FortiEDR Collector and connecting to the FortiEDR Core IP via port 555,
- Running Telnet on the FortiEDR Core and attempting to connect to the FortiEDR Aggregator IP on port 8081.

Note – Make sure that Telnet is enabled in Windows.

User Cannot Communicate Externally or Files Modification Activity Is Blocked

Microsoft Windows-based Devices

The Windows Event Viewer records whenever a FortiEDR Collector blocks communication from a device or file modification related to ransomware activity. This information is recorded in the Windows Event Viewer log located in the following location: **Event Viewer > Windows Logs > Application**.



Application Number of events: 1,436

Level	Date and Time	Source	Event ID	Task Category
Information	1/26/2020 5:21:34 PM	EventSystem	4625	None
Information	1/2/2020 10:38:53 AM	EventSystem	4625	None
Information	2/6/2020 6:55:18 PM	FortiEDR Collector	20	None
Information	2/6/2020 6:55:19 PM	FortiEDR Collector	20	None
Information	2/6/2020 6:55:21 PM	FortiEDR Collector	20	None
Information	2/6/2020 2:11:49 PM	FortiEDR Collector	10	None
Information	2/6/2020 4:56:20 PM	FortiEDR Collector	70	None
Information	2/6/2020 6:55:15 PM	FortiEDR Collector	20	None
Information	2/6/2020 6:55:22 PM	FortiEDR Collector	10	None
Information	2/4/2020 7:19:11 PM	FortiEDR Collector	10	None
Information	2/4/2020 3:24:02 PM	FortiEDR Collector	70	None
Information	2/6/2020 7:42:21 PM	FortiEDR Collector	70	None
Information	2/6/2020 6:55:23 PM	FortiEDR Collector	20	None
Information	2/6/2020 6:55:25 PM	FortiEDR Collector	20	None
Information	2/6/2020 6:55:27 PM	FortiEDR Collector	20	None
Information	1/13/2020 4:06:07 PM	MsiInstaller	11707	None
Information	1/13/2020 4:02:17 PM	MsiInstaller	1040	None

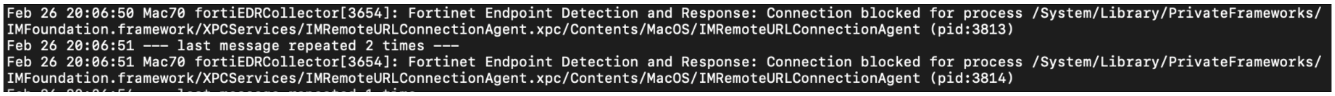
Event 20, FortiEDR Collector

Internet access blocked for process \Device\HarddiskVolume2\Windows\System32\browser_broker.exe (PID 6848)

Log Name:	Application		
Source:	FortiEDR Collector	Logged:	2/6/2020 6:55:18 PM
Event ID:	20	Task Category:	None
Level:	Information	Keywords:	Classic
User:	N/A	Computer:	collector7

MacOS-based Devices

The MacOS console records whenever a FortiEDR Collector blocks communication from a device or file modification related to ransomware activity. This information is recorded in the MacOS console log located in the following location: **Applications > Utilities > Console > All Messages**, as shown below:



```
Feb 26 20:06:50 Mac70 fortiEDRCollector[3654]: Fortinet Endpoint Detection and Response: Connection blocked for process /System/Library/PrivateFrameworks/
IMFoundation.framework/XPCServices/IMRemoteURLConnectionAgent.xpc/Contents/MacOS/IMRemoteURLConnectionAgent (pid:3813)
Feb 26 20:06:51 --- last message repeated 2 times ---
Feb 26 20:06:51 Mac70 fortiEDRCollector[3654]: Fortinet Endpoint Detection and Response: Connection blocked for process /System/Library/PrivateFrameworks/
IMFoundation.framework/XPCServices/IMRemoteURLConnectionAgent.xpc/Contents/MacOS/IMRemoteURLConnectionAgent (pid:3814)
```

Multi-tenancy (Organizations)

This chapter describes the operations that can be performed by an Administrator in a FortiEDR multi-organization system.

This chapter is only relevant for administrators in a multi-organization system. If you do not have Administrator rights, there is no need to read this chapter.

What is a Multi-organization Environment in FortiEDR?

Beginning with V3.0, the FortiEDR system can be set up as a single-organization or multi-organization environment. When set up as a single-organization system, the FortiEDR system and all its operations and infrastructure serve a single tenant, called an ***organization*** in the FortiEDR system, and work as described in all the previous chapters of this guide.

Note – Prior to V3.0, the FortiEDR system only supported a single tenant (organization).

In a multi-organization FortiEDR system, someone with Administrator rights can perform operations and handle data for all organizations in the system. For example, think of a multi-organization environment like a hotel chain, which has a parent company along with hotels in various cities. In this scenario, the ABC Hotel corporate entity represents the *main organization*, and each ABC Hotel branch location represents a separate, discrete organization. For example, ABC Hotel Los Angeles, ABC Hotel New York, ABC Hotel Boston and so on.

FortiEDR uses *organizations* to distinguish between tenants in a multi-tenant environment. Each organization uses the same FortiEDR user interface and shares the same FortiEDR database.

Multi-organization and User Roles

FortiEDR uses a series of predefined roles to control access to organizational data, as follows:

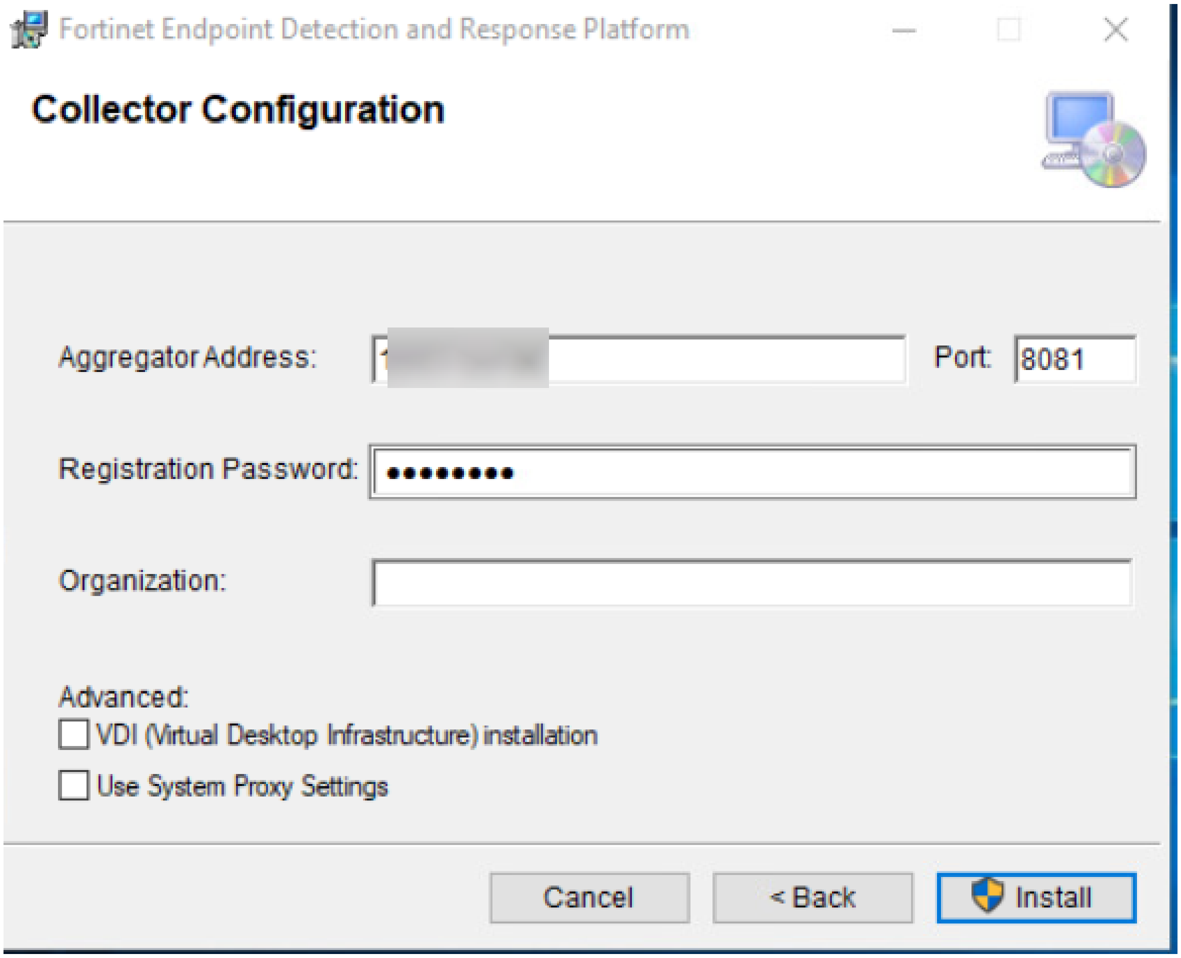
- **Administrator**: Is the highest-level super user that can perform all operations in the FortiEDR Central Manager console for all organizations. This role can access all organizations in the system, and also includes the same privileges as the Local Administrator and User roles.
  In a FortiEDR multi-organization system, the system comes with one predefined Administrator user. More than one Administrator role is permitted.

  Note – There must always be at least one Administrator in the system.
- **Local Administrator**: Is a super user that can perform all operations in the FortiEDR Central Manager console for a single organization. This role can only access its own organization's data, and also includes the same privileges as the User role. More than one Local Administrator role is permitted per organization.
- **User**: This user is allowed to view all information and to perform actions for its **own organization**, such as to mark security events as handled, change policies and define Exceptions. This user is similar to the Local Administrator. However, this user cannot access the **ADMINISTRATION** tab, which is described in Administration on page 252.

Component Registration in a Multi-organization Environment

Collector Registration

Each organization has its own registration password. The Collector installer specifies the Collector organization name. If the **Organization** field is left empty during installation, the Collector is added to the default Hoster account, as shown below:



Fortinet Endpoint Detection and Response Platform

Collector Configuration

Aggregator Address: [redacted] Port: 8081

Registration Password: ●●●●●●●●●

Organization:

Advanced:

□ VDI (Virtual Desktop Infrastructure) installation

□ Use System Proxy Settings

After registration, the Collector receives the organization ID. You can rename the organization if preferred.

To specify the organization when installing from a command line, run the following command:

```
msiexec…\qn ORG=<organization name> AGG=
```

For more details about Collector installation, see Installing FortiEDR Collectors on page 26.

Core Registration

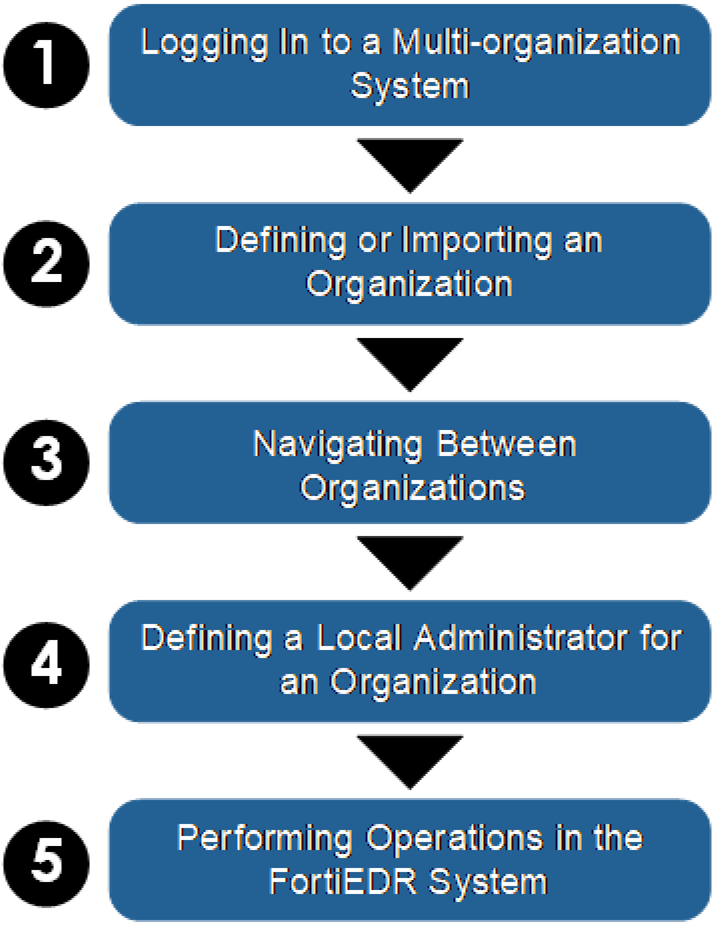
Most Cores are shared between organizations. It is possible to install a Core that belongs only to your organization by installing it on-premises. In this case, you must specify the organization during the Core installation process.

Collectors that do not belong to an organization cannot see that organization’s organization-specific Core.

For more details about Core installation, see Installing the FortiEDR Core on page 397.

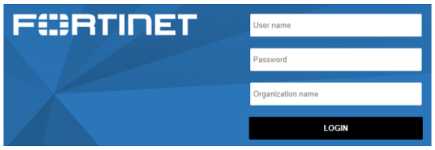
Workflow

The following general workflow applies for Administrators when working in a FortiEDR multi-organization system:


1
Logging In to a Multi-organization System
2
Defining or Importing an Organization
3
Navigating Between Organizations
4
Defining a Local Administrator for an Organization
5
Performing Operations in the FortiEDR System

Step 1 – Logging In to a Multi-organization System

For a FortiEDR multi-organization system, a user must also specify the organization when logging in to the system.

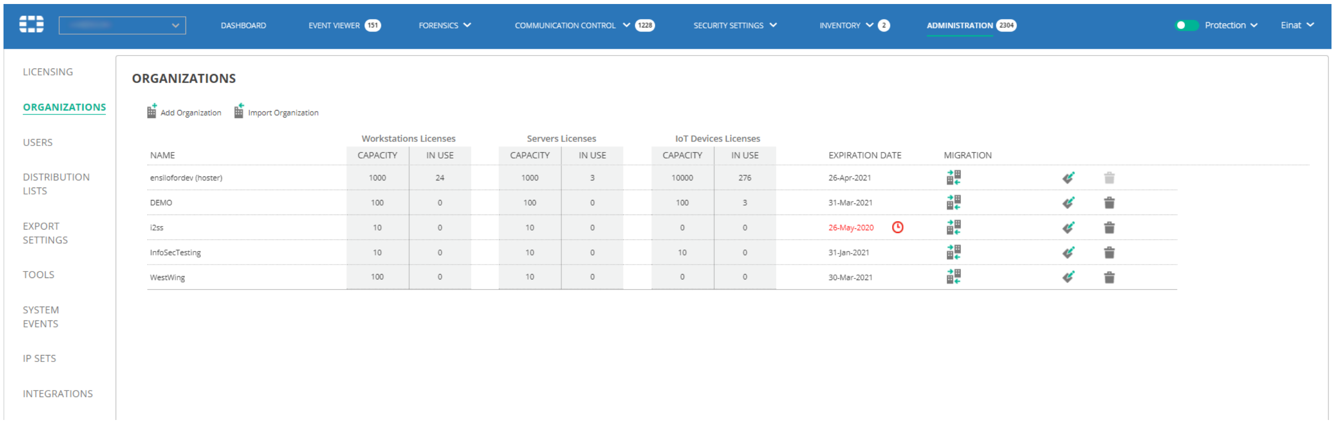


By default, Administrators are logged in to the main organization, and do not need to specify an organization in the **Organization Name** dropdown list.

A Local Administrator or regular User must specify the organization when logging in. The user must be defined for an organization in order to log in to that organization.

Step 2 – Defining or Importing an Organization

The **ORGANIZATIONS** page lists all the organizations defined in the FortiEDR system.



ORGANIZATIONS

	Workstations Licenses		Servers Licenses		IoT Devices Licenses			
NAME	CAPACITY	IN USE	CAPACITY	IN USE	CAPACITY	IN USE	EXPIRATION DATE	MIGRATION
ensilofordev (hoster)	1000	24	1000	3	10000	276	26-Apr-2021	
DEMO	100	0	100	0	100	3	31-Mar-2021	
i2ss	10	0	10	0	0	0	26-May-2020	
InfoSecTesting	10	0	10	0	10	0	31-Jan-2021	
WestWing	100	0	10	0	0	0	30-Mar-2021	

The **Default (hoster)** organization is predefined in the system. This organization represents the main organization in the system, such as the ABC Hotel chain described before. The Default (hoster) main organization cannot be deleted.

The Default (hoster) organization can be accessed by an Administrator and the Local Administrator that you define for it.

Note – In a single-organization system, the Default (hoster) organization is the only organization. To set up a multi-organization system, see Moving from a Single-organization to Multi-organization Structure in FortiEDR on page 346.

The Organizations window contains the following information:

Field	Definition
Name	Specifies the name of the organization.
Workstation Licenses Capacity	For the organization, specifies the number of workstation licenses allocated to the organization.
Worksstation Licenses in Use	Specifies the number of workstation licenses in use (installed).
Servers Licenses Capacity	For the organization, specifies the number of servers allocated to the organization.
Servers Licenses in Use	Specifies the number of servers in use (installed).
IoT Devices Capacity	For the organization, specifies the maximum number of IoT devices that can be detected in the organization.

Field	Definition
IoT Devices in Use	Specifies the number of IoT devices detected in the organization.
Expiration Date	Specifies the expiration date of licenses for the organization.

Click the Edit button in an organization row to edit the properties of that organization.

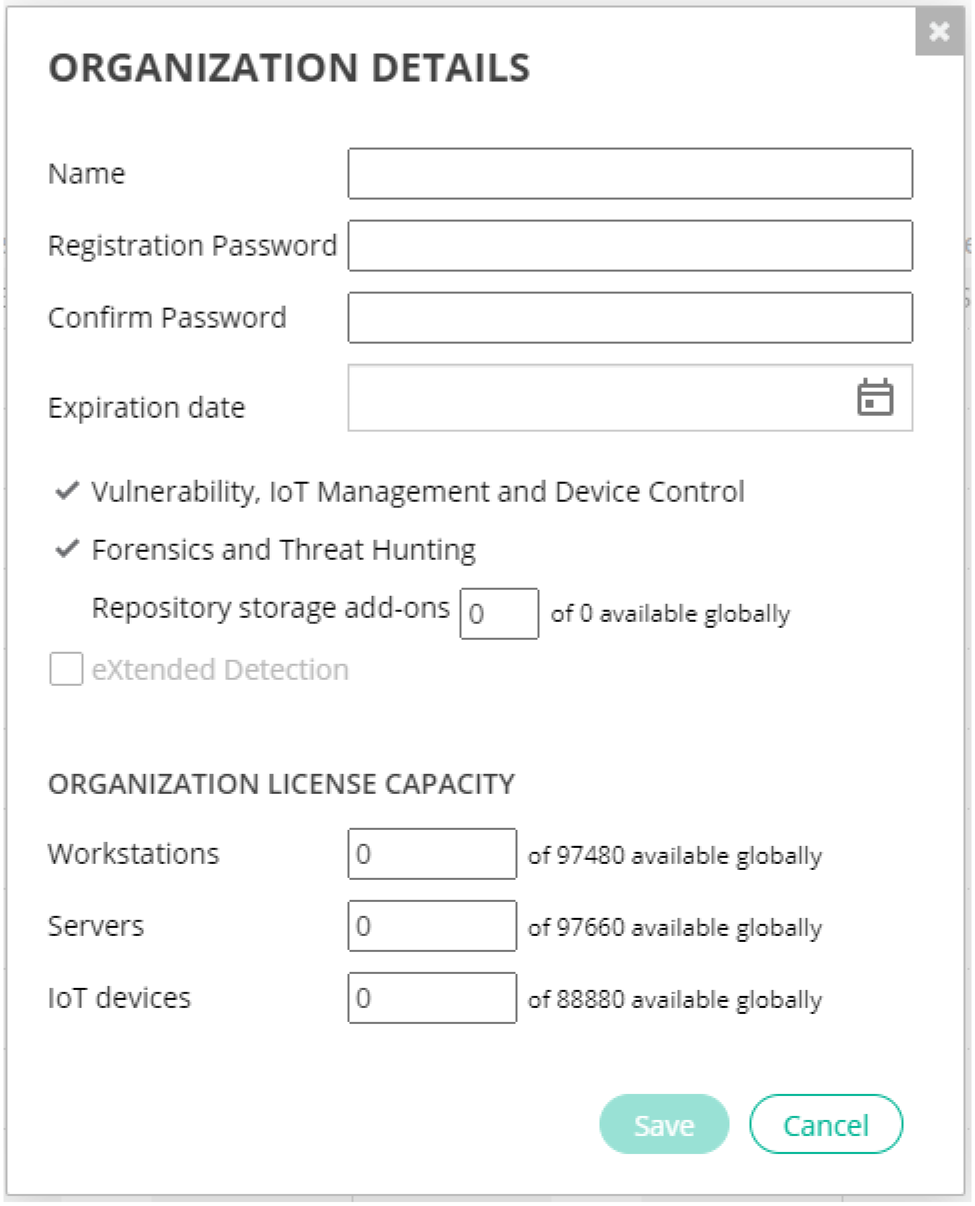
You can delete an organization as long as it does not have any workstations or servers in use. Click the **Delete** button in an organization row to delete that organization.

Click the **Migrate Organization** button in an organization row to migrate that organization. For more details, see Migrating an Organization on page 349.

To define an organization:

1. Click the **ADMINISTRATION** tab and then click **ORGANIZATIONS** in the left pane. The **ORGANIZATIONS** page displays.

2. Click the Add Organization button. The following window displays:



ORGANIZATION DETAILS

Name

Registration Password

Confirm Password

Expiration date

✓ Vulnerability, IoT Management and Device Control

✓ Forensics and Threat Hunting

Repository storage add-ons 0 of 0 available globally

□ eXtended Detection

ORGANIZATION LICENSE CAPACITY

Workstations 0 of 97480 available globally

Servers 0 of 97660 available globally

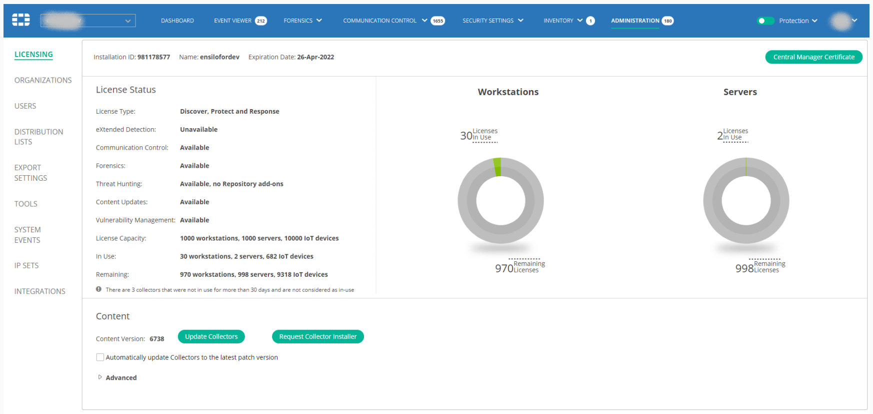
IoT devices 0 of 88880 available globally

All fields in this window are mandatory.

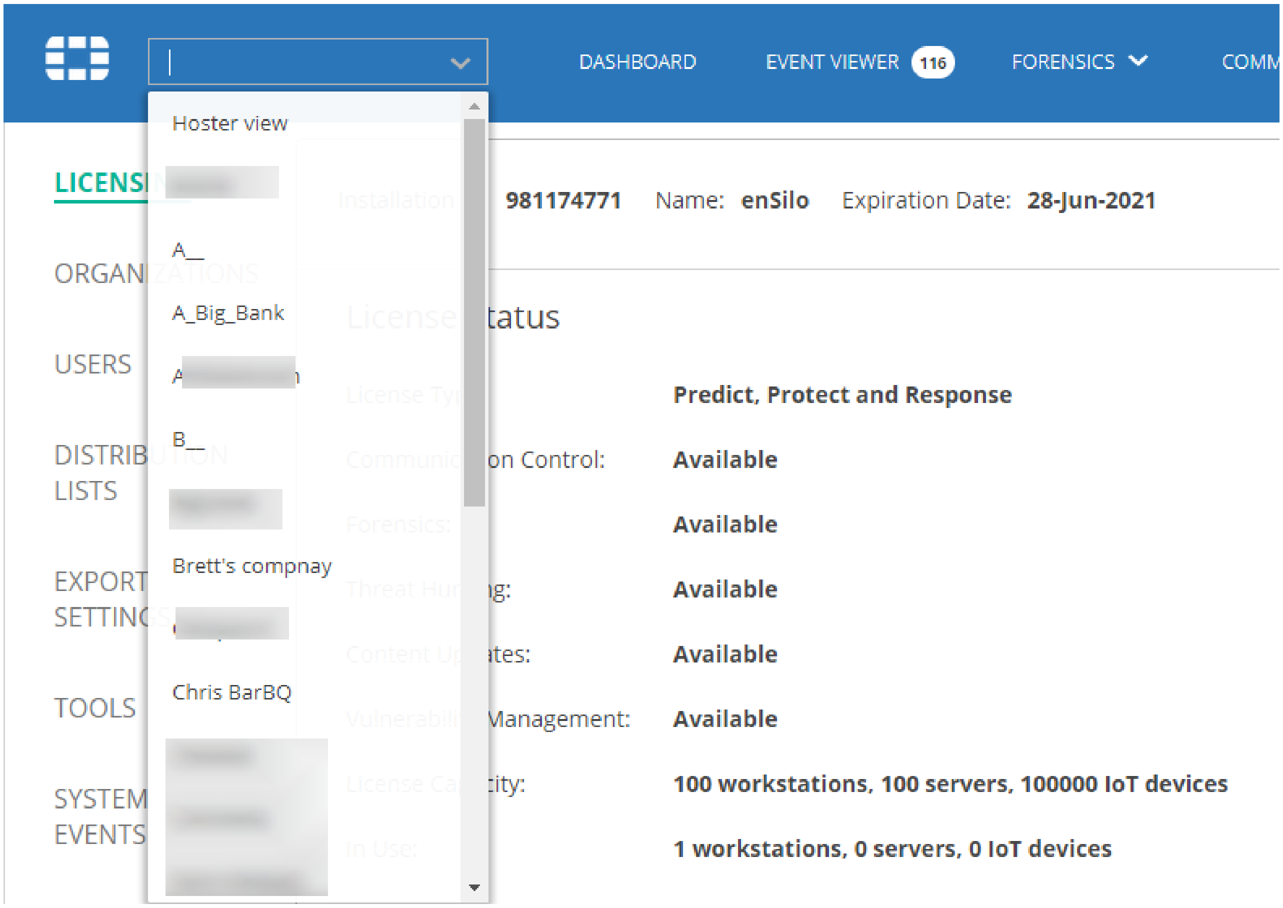
3. Fill in all fields in this window, as follows:

Field	Definition
Name	A free-text field that specifies the name of the organization. For example, a hotel branch location like ABC Hotel Los Angeles.
Registration Password	Specifies the registration password for the organization. Each organization can have a different registration password. You set the value for this password.

Field	Definition
	Supported special characters in the password: !, #, %, &, ', +, -, ., /, :, <, =, >, ?, @, [, \,], ^, _, `, {, |, }, ~, and , You can display the registration password for an organization by selecting **ADMINISTRATION > TOOLS > COMPONENT AUTHENTICATION > DISPLAY.** **Note** – If third-party software attempts to stop the FortiEDR Collector service, the system prompts for the registration password. This is the same password used when installing the Collector. If an incorrect password is supplied at the prompt, the message Access Denied displays on the Collector device. In this case, the FortiEDR Collector service is not stopped. For more details about the required password to supply in this situation, refer to Component Authentication on page 295.
Expiration Date	Specifies when this license expires. Notifications are sent to you beforehand. Each organization can have its own expiration date. **Note** – If the Default (hoster) organization expiration date is earlier than that for the organization, then the expiration date for the Default (hoster)organization applies. Whenever there is an expiration date conflict, the earlier date always applies.
Vulnerability, IoT Management, and Device Control	Check this checkbox for the organization to have access to these features. This option is only available on setups that have purchased a Discover and Protect license or Discover, Protect and Response license. **Note** – The various license types in FortiEDR enable access to different FortiEDR features. The Administrator can configure the various organizations in a multi-tenant environment to each have access to different features in the product. For example, Organization A may have access to the Threat Hunting feature and Organization B may not.
Forensics and Threat Hunting	Check this checkbox to provide the organization access to these features. This option is only available on setups that have purchased a **Discover, Protect and Response** or **Protect and Response** license. • **Repository storage add-ons**: Specifies the number of repository add ons, out of the total number of add on purchases, to enable this organization to use. • **eXtended Detection**: Check this checkbox to give the organization access to this feature. This option is only available on setups that have purchased an eXtended Detection add on. See more details on license types in Launching the FortiEDR Central Manager for the First Time on page 21.

Field	Definition
Workstations / Servers / IoT Devices License Capacity	Specifies the number of license seats for the organization, meaning the number of Collectors that can be installed in this organization. Before allocating licenses to an organization, you may need to verify the number of available licenses that can be distributed. All currently unallocated licenses are available for allocation to an organization. You cannot enter a number that is greater than the number of licenses available for allocation. **Note** – The License Capacity field in the Licenses window shows the total number of license seats for the entire FortiEDR system, which are divided into Workstations, Servers and IoT Devices. The Default (hoster) organization initially receives the total allocation of licenses. The Administrator is responsible for allocating these licenses among organizations. In a single-organization FortiEDR system, licenses do not need to be allocated between organizations, as there is only one organization.  DASHBOARD EVENT VIEWER 212 FORENSICS COMMUNICATION CONTROL 1655 SECURITY SETTINGS INVENTORY 1 ADMINISTRATION 180 Protection LICENSING ORGANIZATIONS USERS DISTRIBUTION LISTS EXPORT SETTINGS TOOLS SYSTEM EVENTS IP SETS INTEGRATIONS Central Manager Certificate Workstations 30 Licenses In Use 970 Remaining Licenses Servers 2 Licenses In Use 998 Remaining Licenses Update Collectors Request Collector Installer Installation ID: **981178577** Name: **ensilofordev** Expiration Date: **26-Apr-2022** License Status License Type: **Discover, Protect and Response** eXtended Detection: **Unavailable** Communication Control: **Available** Forensics: **Available** Threat Hunting: **Available, no Repository add-ons** Content Updates: **Available** Vulnerability Management: **Available** License Capacity: **1000 workstations, 1000 servers, 10000 IoT devices** In Use: **30 workstations, 2 servers, 682 IoT devices** Remaining: **970 workstations, 998 servers, 9318 IoT devices** There are 3 collectors that were not in use for more than 30 days and are not considered as in-use Content Content Version: **6738** □ Automatically update Collectors to the latest patch version ▷ **Advanced**

4. Click the **Save** button. Note that it may take a minute or so to create the organization.
   After creating the organization, the organization appears as a new row in the Organization dropdown list.



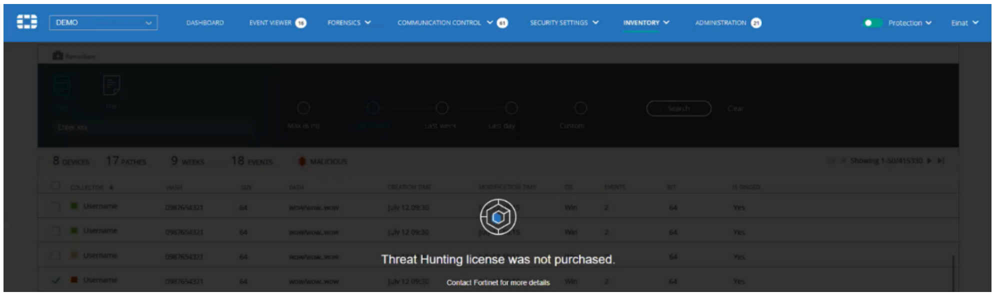
Hoster view
[redacted]
A__
A_Big_Bank
[redacted]
B__
[redacted]
Brett's compnay
[redacted]
Chris BarBQ
[redacted]

Installation ... 981174771 Name: enSilo Expiration Date: 28-Jun-2021

License Status

License Ty...	Predict, Protect and Response
Communic...on Control:	Available
Forensics:	Available
Threat Hun...ng:	Available
Content Up...ates:	Available
Vulnerabili... Management:	Available
License Ca...ity:	100 workstations, 100 servers, 100000 IoT devices
In Use:	1 workstations, 0 servers, 0 IoT devices

Note – If a user attempts to use a feature that is not available with their license, a warning message displays. For example, as shown below.



Threat Hunting license was not purchased.
Contact Fortinet for more details

Moving from a Single-organization to Multi-organization Structure in FortiEDR

In a single-organization system, the Default (hoster) organization is the only organization.

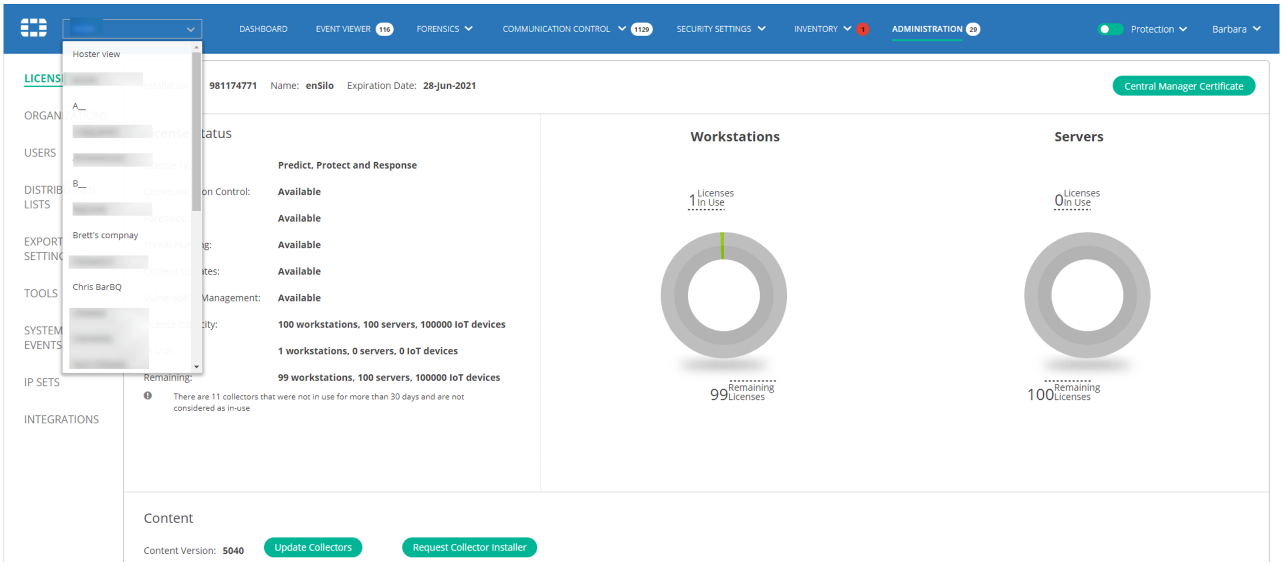
To create a multi-organization (multi-tenant) system, an Administrator simply needs to add one or more organizations to a single-organization system. When there are multiple organizations in the system, you can select the organization of interest in the **Organization** dropdown menu that appears at the top left of the window, as described below.

Step 3 - Navigating Between Organizations

In a multi-organization system, all types of information are now organized per organization.

Administrators can view information in the FortiEDR system for a specific organization or for all organizations together. To do so, use one of the following methods:

a. Select the **Hoster view** in the **Organization** dropdown menu at the top left of the window to display information for all organizations together. For more details about Hoster view, see Hoster View on page 357.
b. Select the organization of interest in the **Organization** dropdown list.



Hoster view
[redacted]
A_
[redacted]
[redacted]
B_
[redacted]
Brett's compnay
[redacted]
Chris BarBQ
[redacted]

Installation: 981174771 Name: enSilo Expiration Date: 28-Jun-2021

License Status

License Type: Predict, Protect and Response
Communication Control: Available
Forensics: Available
Threat Hunting: Available
Content Updates: Available
Vulnerability Management: Available
License Capacity: 100 workstations, 100 servers, 100000 IoT devices
In Use: 1 workstations, 0 servers, 0 IoT devices
Remaining: 99 workstations, 100 servers, 100000 IoT devices

There are 11 collectors that were not in use for more than 30 days and are not considered as in-use

Workstations: 1 Licenses In Use, 99 Remaining Licenses

Servers: 0 Licenses In Use, 100 Remaining Licenses

Content

Content Version: 5040

In Hoster view, each row in the Organizations pane represents a different organization. Note that after you select an organization, the entire user interface only shows information for that organization.

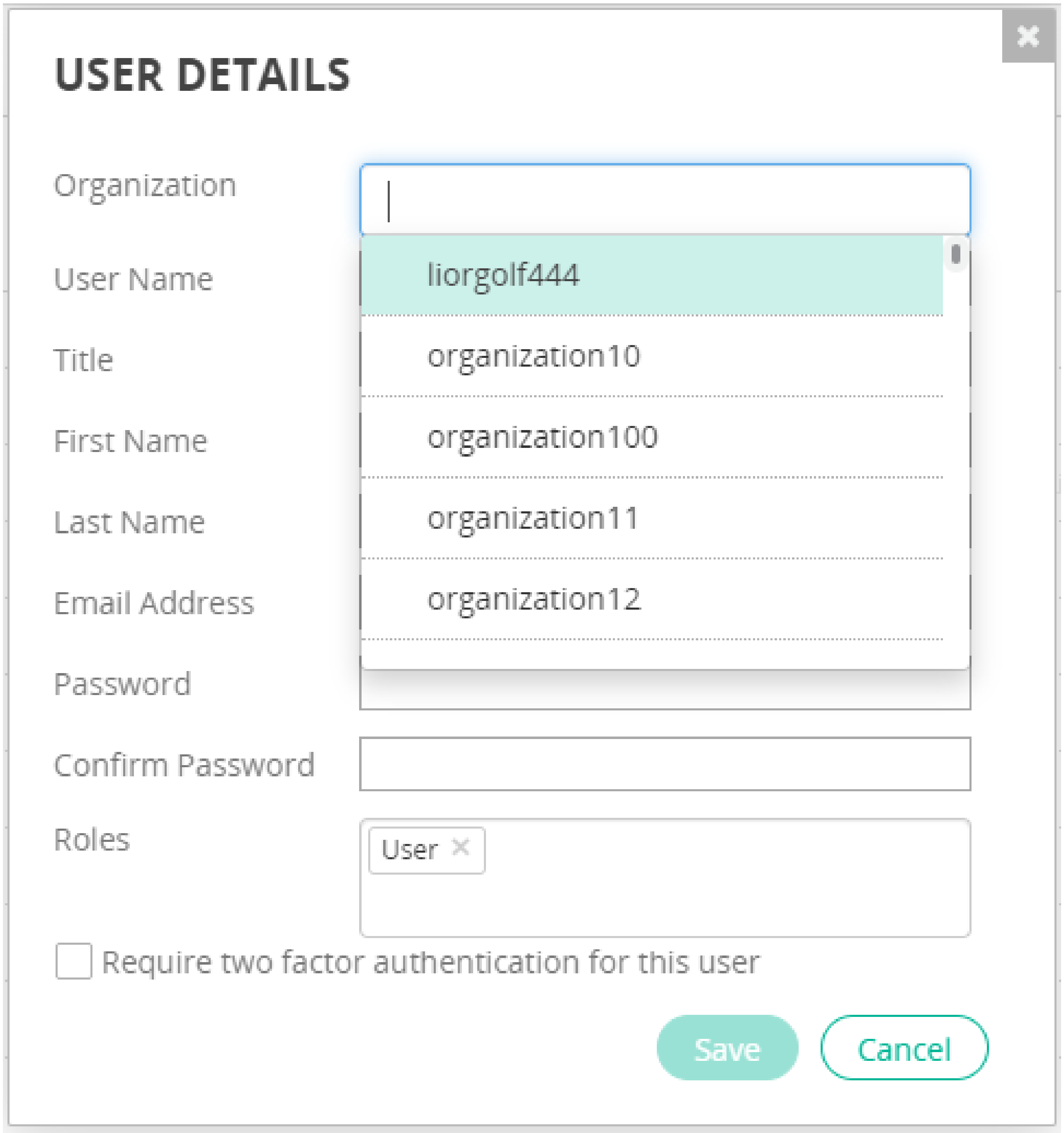
Note – If that multiple web browser tabs or windows are opened on the same device and each of them navigates to a different organization on the FortiEDR Central Manager Console, they all show the data of the same organization, which is the last organization that was selected in the Organization dropdown list. In this case, the dropdown may look as if it points to Organization A however the data would be of Organization B.

Step 4 – Defining a Local Administrator for an Organization

Administrators can create one or more Local Administrators for an organization. You should define at least one Local Administrator for each organization.

To define a Local Administrator:

1. Click the **ADMINISTRATION** tab and then click **USERS** in the left pane.
2. Click the Add User button.
3. Fill in the displayed window, as described in Users on page 260, and then click **Save**. Be sure to select **Local** Administrator in the Roles field.
   In addition, you must specify the organization for the Local Administrator in the **Organization** field, as shown below.



Step 5 – Performing Operations in the FortiEDR System

Administrators can perform all of the operations described from Security Settings on page 54 to Forensics on page 204 in this guide using the user interface of the FortiEDR Central Manager for all organizations in the system.

Administrators can monitor the system per organization or using Hoster view, which shows data for all organizations together.

Migrating an Organization

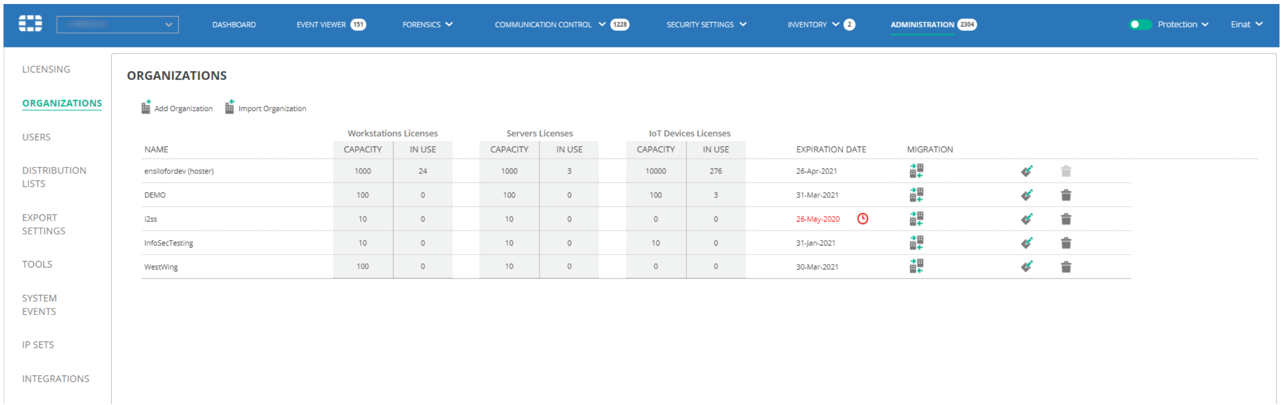
FortiEDR’s Consolidation feature enables you to copy all the data and definitions within an organization from one environment to another environment. This feature copies an organization from one environment (source setup/environment) to another (destination setup/environment). The copy operation adds to the content in the destination environment, and does not replace the target’s existing content.

Note that this feature is only available to Administrators.

Organization migration involves three steps, which are described in detail in the procedure below.

To migrate an organization:

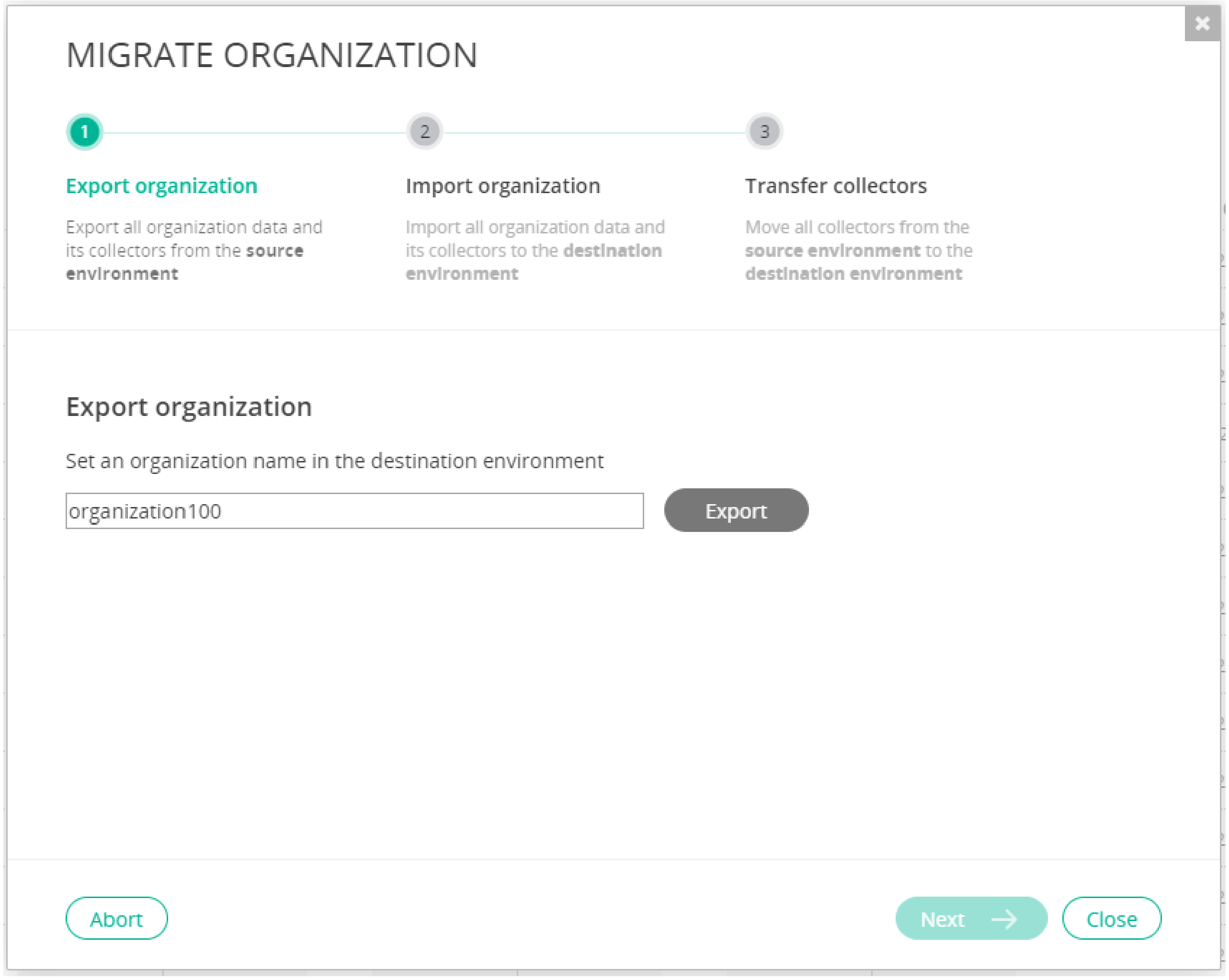
1. Click the **ADMINISTRATION** tab and then click **ORGANIZATIONS** in the left pane. The Organizations window displays.



ORGANIZATIONS

	Workstations Licenses		Servers Licenses		IoT Devices Licenses			
NAME	CAPACITY	IN USE	CAPACITY	IN USE	CAPACITY	IN USE	EXPIRATION DATE	MIGRATION
ensilofordev (hoster)	1000	24	1000	3	10000	276	26-Apr-2021	
DEMO	100	0	100	0	100	3	31-Mar-2021	
i2ss	10	0	10	0	0	0	26-May-2020	
InfoSecTesting	10	0	10	0	10	0	31-Jan-2021	
WestWing	100	0	10	0	0	0	30-Mar-2021	

2. Click the **Migrate organization** button in the row of the source organization that you want to copy to another environment. The following window displays:



MIGRATE ORGANIZATION

1 **Export organization**

Export all organization data and its collectors from the **source environment**

2 **Import organization**

Import all organization data and its collectors to the **destination environment**

3 **Transfer collectors**

Move all collectors from the **source environment** to the **destination environment**

Export organization

Set an organization name in the destination environment

organization100

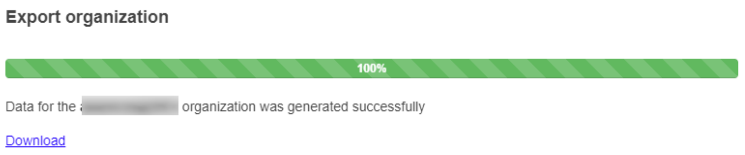
From this window, you perform three steps to migrate the organization to another environment:

- **i.** Export the Organization: This step exports all the data of the selected organization to a zip file.
- **ii.** This step imports all the organization's data using the zip file exported in step 1. Note that this step is performed on the destination environment.
- **iii.** This step moves all the Collectors of the selected organization from the source environment to the destination environment.

3. In the **Export organization** field, specify the name of the organization to appear for this data in the destination environment. Make sure that you assign an organization name that does not already exist in the destination environment.
4. Click the **Export** button. All the data and definitions for the organization are exported to a zip file. The zip file is named as follows: **source organization name_environment name_FortiEDR_timestamp_Export.zip**, as shown in the example below:

   ad_localhost.localdomain_enSilo_Feb.05.2019_Export.zip

   After the export completes, a Download link displays in the window:



Export organization

Data for the [redacted] organization was generated successfully

Download

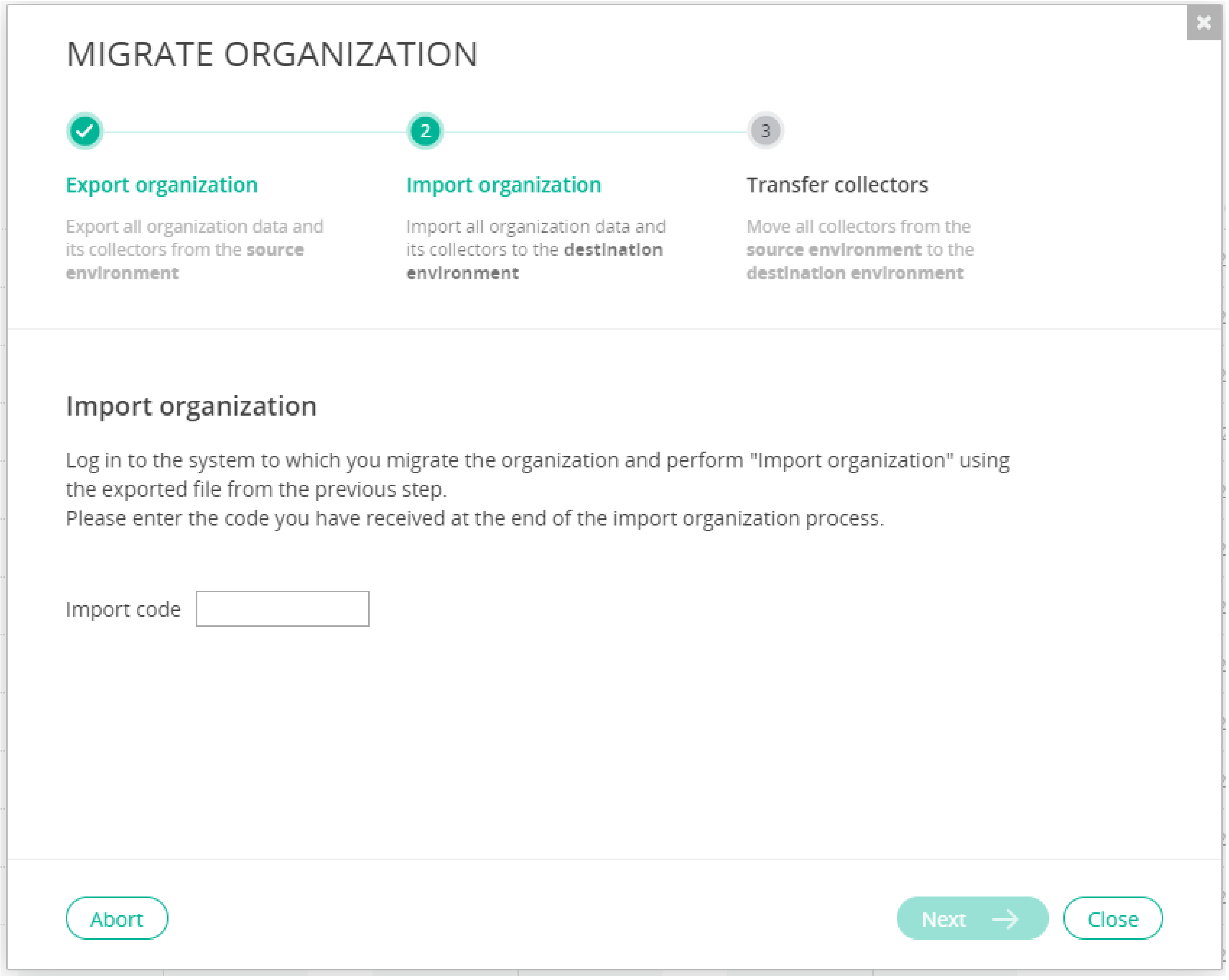
Note – You can cancel the migration process at any time by clicking the **Abort** button.

5. Click the **Download** link to download the exported zip file.

   Note – Click the **Close** button if you want to close this window and continue the migration process at a later time. This action saves the relevant organizational data. You can later continue this migration process by using the **Continue Migration** Cont. button.

   If you click the **Close** button before downloading the exported zip file, a warning displays. In this case, you must perform the migration process again from the beginning.

6. Click **Next.** The following window displays:



MIGRATE ORGANIZATION

Export organization

Export all organization data and its collectors from the **source environment**

Import organization

Import all organization data and its collectors to the **destination environment**

Transfer collectors

Move all collectors from the **source environment** to the **destination environment**

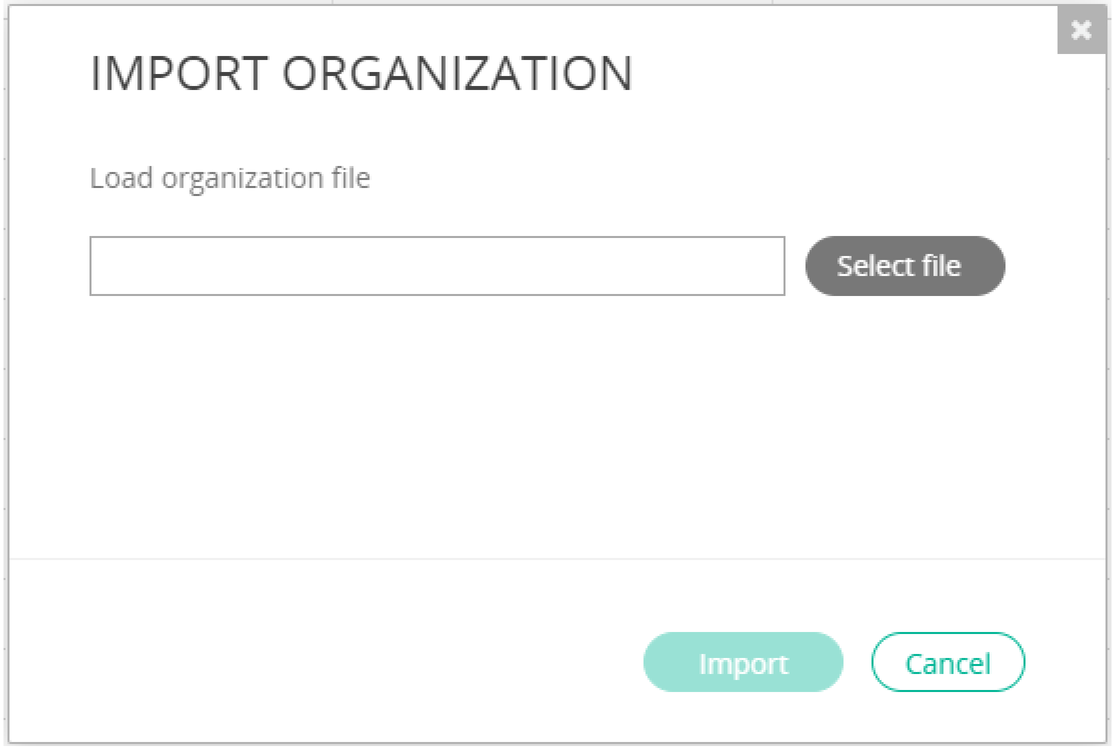
Import organization

Log in to the system to which you migrate the organization and perform "Import organization" using the exported file from the previous step.
Please enter the code you have received at the end of the import organization process.

Import code

7. Log in to the destination environment.
8. Click the **ADMINISTRATION** tab and then click **ORGANIZATIONS** in the left pane.

9. In the **ORGANIZATIONS** page, click the **Import Organization** button. The following window displays:



10. Select the exported zip file to load and then click Import. This step copies all the data and environment definitions of the exported organization.

Notes – You cannot import an exported organization that has a name that already exists in the destination environment.

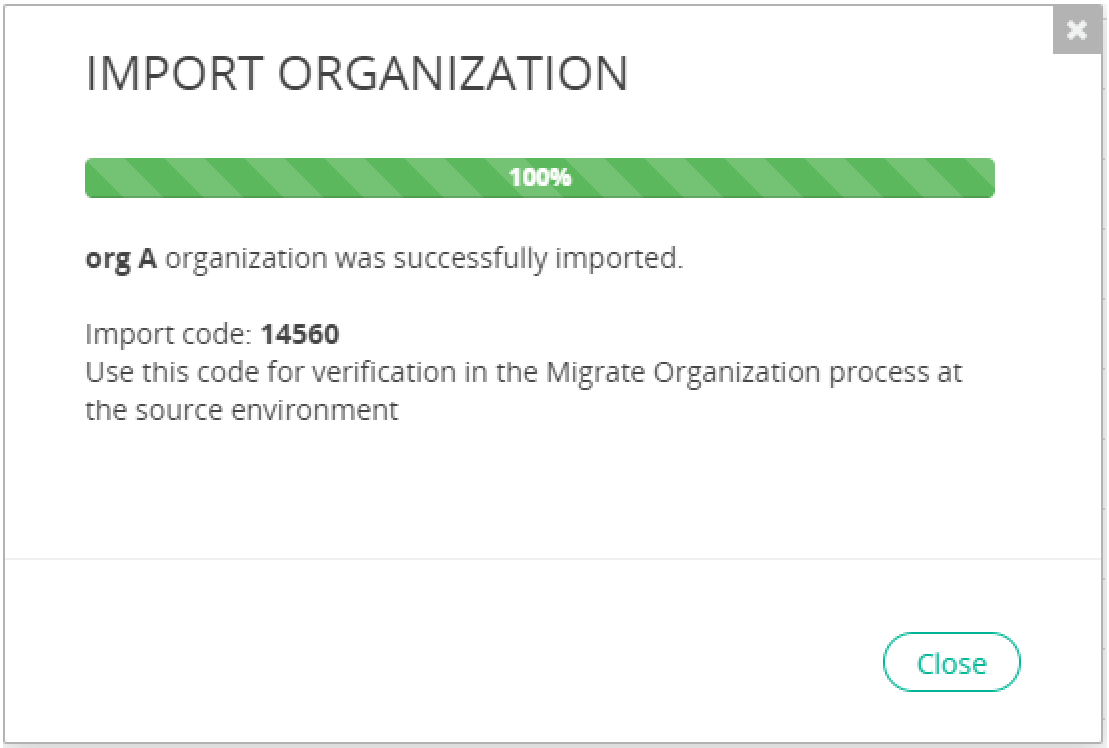
To import:

The FortiEDR platform version must be the same in both the source and destination environments.

The content version must be the same in both the source and destination environments. You can see the Content Version at the bottom of the Licensing window (see page 187).

You must have sufficient workstation and server licenses in the destination environment.

At the end of the import process, the Import Organization window displays a code. Write down this code, as it will be entered later as part of the migration process.

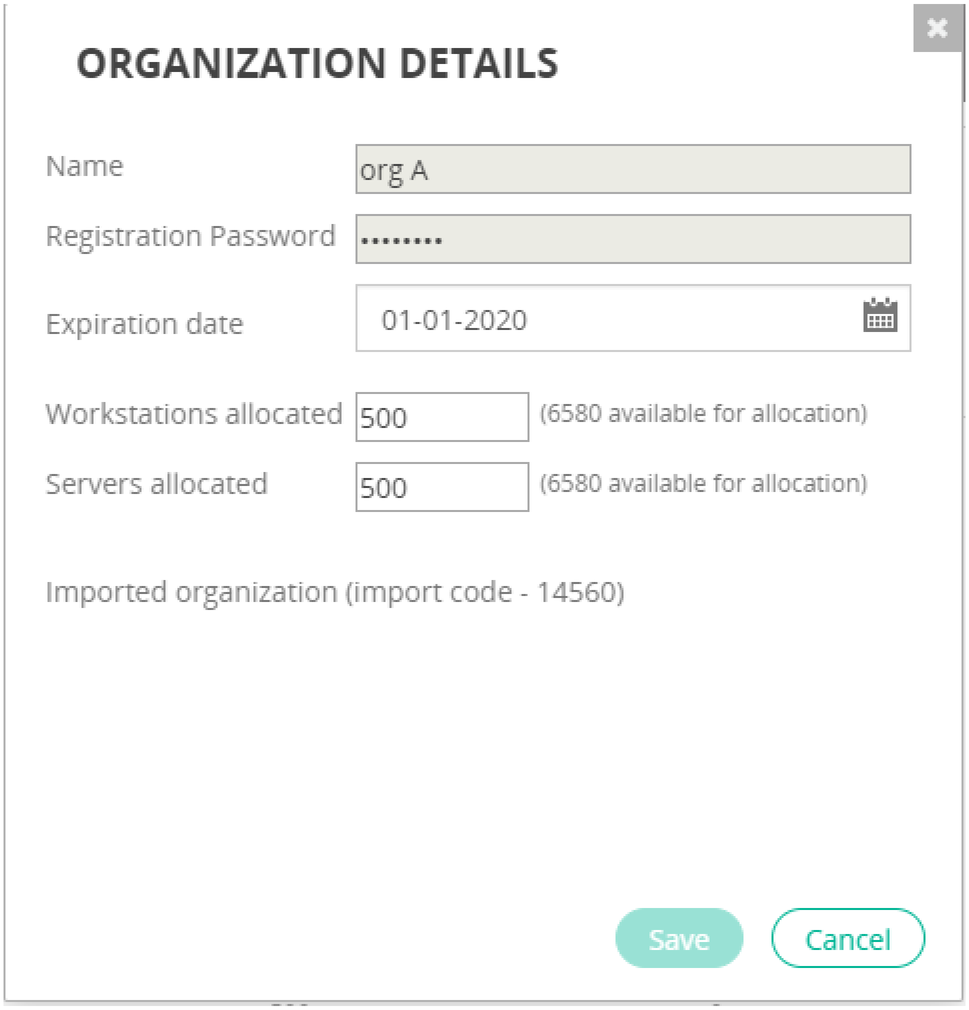


IMPORT ORGANIZATION

org A organization was successfully imported.

Import code: **14560**
Use this code for verification in the Migrate Organization process at the source environment

Note – The Import code also displays in the Organization Details window, which you can display at any time by clicking the Edit button in an organization row in the Organizations window.



ORGANIZATION DETAILS

Name: org A

Registration Password: ••••••••

Expiration date: 01-01-2020

Workstations allocated: 500 (6580 available for allocation)

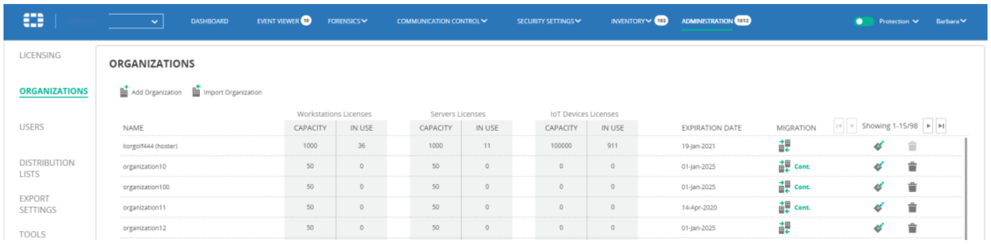
Servers allocated: 500 (6580 available for allocation)

Imported organization (import code - 14560)

Note that the name of the organization cannot be changed in this window, and is read only.

11. In step 2 of the Migrate Organization window, enter or copy the import code into the **Import code** field.

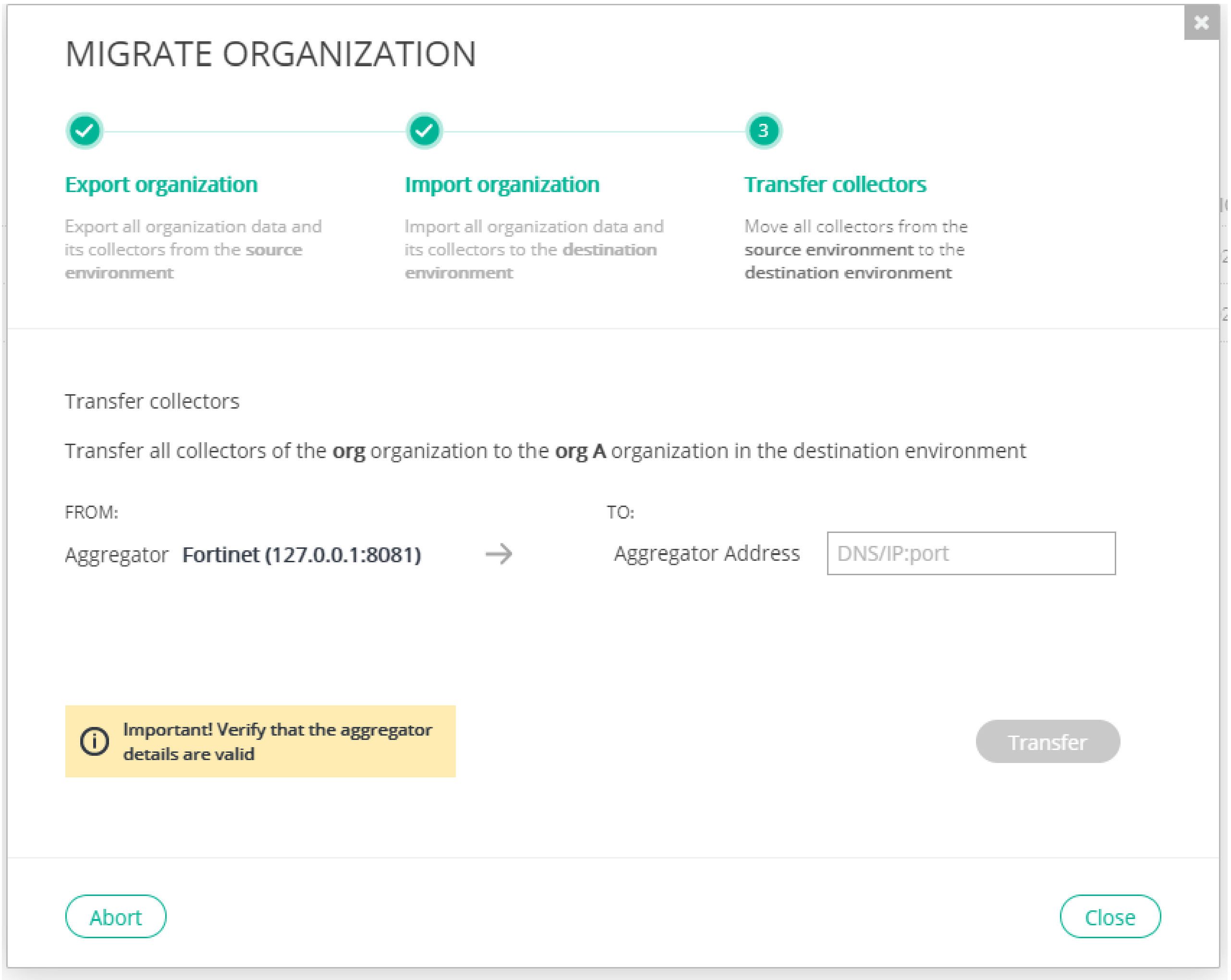
Note – If you previously closed the Migrate Organization window, then click the Continue Migration Cont. button in the source organization row in the ORGANIZATIONS page.



ORGANIZATIONS

	Workstations Licenses		Servers Licenses		IoT Devices Licenses			
NAME	CAPACITY	IN USE	CAPACITY	IN USE	CAPACITY	IN USE	EXPIRATION DATE	MIGRATION
liorgolf444 (hoster)	1000	36	1000	11	100000	911	19-Jan-2021	
organization10	50	0	50	0	0	0	01-Jan-2025	Cont.
organization100	50	0	50	0	0	0	01-Jan-2025	Cont.
organization11	50	0	50	0	0	0	14-Apr-2020	Cont.
organization12	50	0	50	0	0	0	01-Jan-2025	

12. Click **Next.** The following window displays:



MIGRATE ORGANIZATION

Export organization
Export all organization data and its collectors from the **source environment**

Import organization
Import all organization data and its collectors to the **destination environment**

Transfer collectors
Move all collectors from the **source environment** to the **destination environment**

Transfer collectors

Transfer all collectors of the **org** organization to the **org A** organization in the destination environment

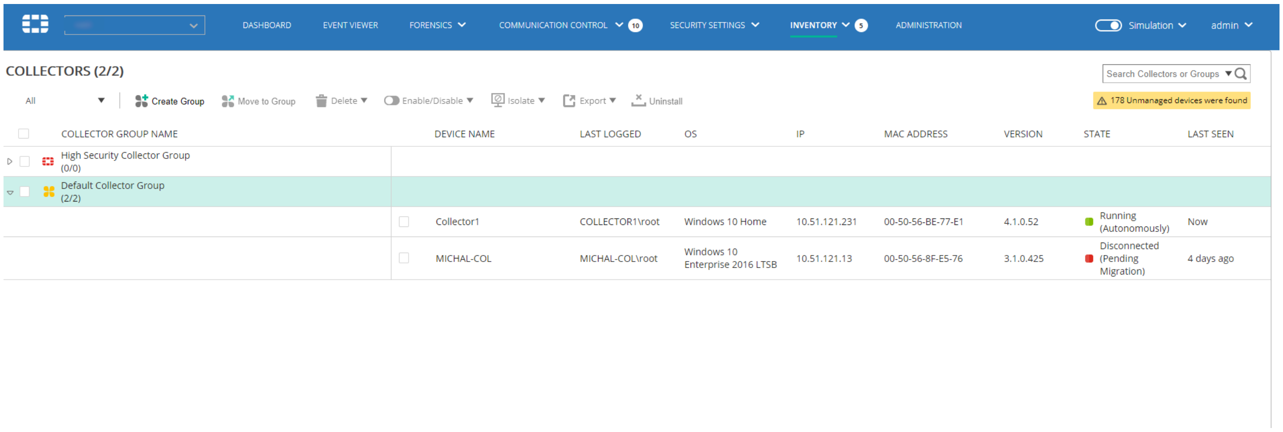
FROM:
Aggregator **Fortinet (127.0.0.1:8081)** →

TO:
Aggregator Address DNS/IP:port

Important! Verify that the aggregator details are valid

In this window, you move the Collectors from the source environment to the destination environment. The Collectors cannot be registered to both environments at the same time.

Note that until this step is completed, the Collectors are still registered to the organization in the source environment and their status and security events are displayed there. In the destination environment, Collectors are displayed with the Pending Migration state, as shown in the Inventory window. This state indicates that the Collector has not yet been transferred from the source environment to this environment. Collectors in the Pending Migration state are still registered to the source environment.

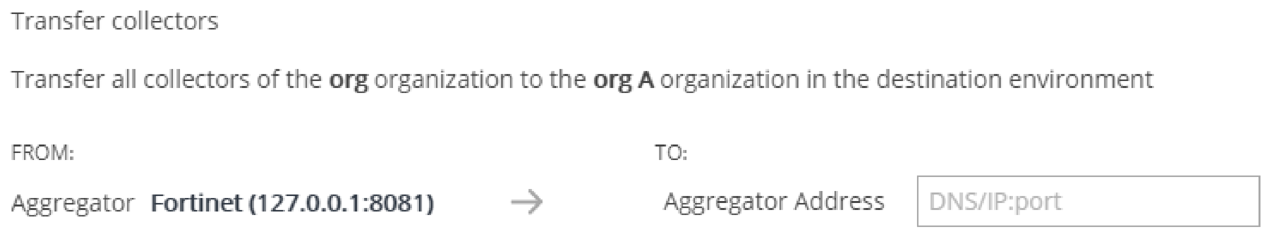


COLLECTORS (2/2)

⚠ 178 Unmanaged devices were found

COLLECTOR GROUP NAME	DEVICE NAME	LAST LOGGED	OS	IP	MAC ADDRESS	VERSION	STATE	LAST SEEN
High Security Collector Group (0/0)								
Default Collector Group (2/2)								
	Collector1	COLLECTOR1\root	Windows 10 Home	10.51.121.231	00-50-56-BE-77-E1	4.1.0.52	🟩 Running (Autonomously)	Now
	MICHAL-COL	MICHAL-COL\root	Windows 10 Enterprise 2016 LTSB	10.51.121.13	00-50-56-8F-E5-76	3.1.0.425	🟥 Disconnected (Pending Migration)	4 days ago

13. Specify the **Aggregator Address** in the **To** field. Each Collector is connected to one Aggregator. In this field, you specify the IP address or DNS name and the port of the Aggregator that will service the Collectors in the destination environment.



Transfer collectors

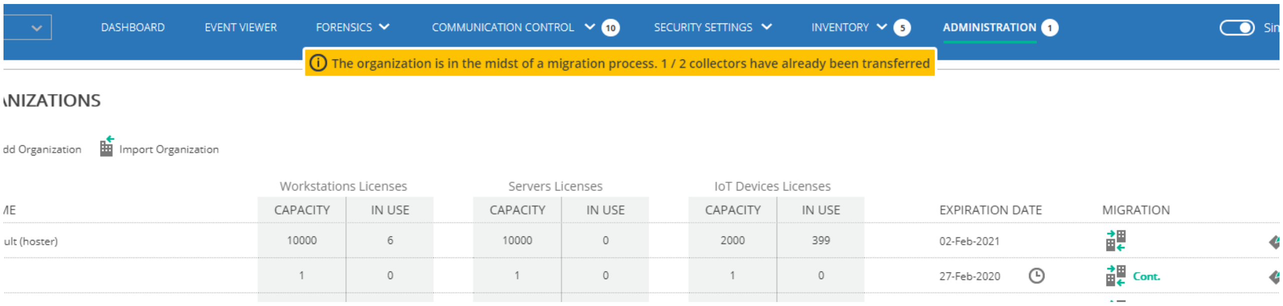
Transfer all collectors of the **org** organization to the **org A** organization in the destination environment

FROM: → TO:

Aggregator **Fortinet (127.0.0.1:8081)**

Aggregator Address DNS/IP:port

14. Click the **Transfer** button. The Collectors are transferred from the organization in the source environment to the organization in the destination environment. A progress indicator counter displays as the Collectors are transferred.



ⓘ The organization is in the midst of a migration process. 1 / 2 collectors have already been transferred

NIZATIONS

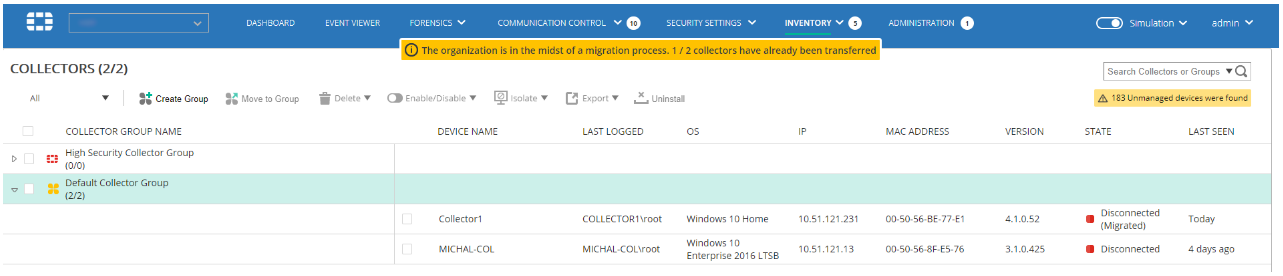
	Workstations Licenses		Servers Licenses		IoT Devices Licenses			
IE	CAPACITY	IN USE	CAPACITY	IN USE	CAPACITY	IN USE	EXPIRATION DATE	MIGRATION
ult (hoster)	10000	6	10000	0	2000	399	02-Feb-2021	
	1	0	1	0	1	0	27-Feb-2020	Cont.

Note – The progress indicator counter continues to display until the organization is deleted in the source environment, which is recommended after all Collectors have been transferred from the source environment to the destination environment. See step 16 below.

If you click the Abort button at this step, any Collectors already transferred from the source environment to the destination environment remain in the destination environment.

After a Collector has been transferred from the source environment to the destination environment, its state is **Migrated** in the source environment, and is **Running** (functional) in the destination environment.

Note – Collector protection remains in effect throughout the entire migration process.



The organization is in the midst of a migration process. 1 / 2 collectors have already been transferred

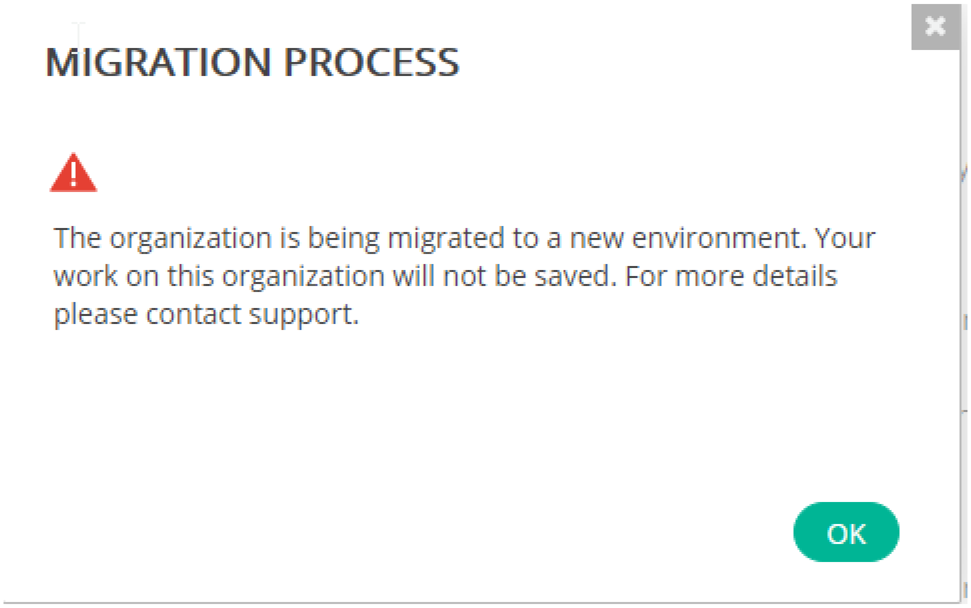
COLLECTORS (2/2)

183 Unmanaged devices were found

COLLECTOR GROUP NAME	DEVICE NAME	LAST LOGGED	OS	IP	MAC ADDRESS	VERSION	STATE	LAST SEEN
High Security Collector Group (0/0)								
Default Collector Group (2/2)								
	Collector1	COLLECTOR1\root	Windows 10 Home	10.51.121.231	00-50-56-BE-77-E1	4.1.0.52	🟥 Disconnected (Migrated)	Today
	MICHAL-COL	MICHAL-COL\root	Windows 10 Enterprise 2016 LTSB	10.51.121.13	00-50-56-8F-E5-76	3.1.0.425	🟥 Disconnected	4 days ago

15. [Optional] Click the **Stop Transfer** button to pause the Collector transfer process. You can resume the transfer process by clicking the Transfer button again.

    IMPORTANT – If a user enters the source organization while a migration process is in progress for it, a warning displays. Any changes made by this user will not be migrated or included in the destination organization. Any changes made to an organization while it is being migrated are ultimately lost.



MIGRATION PROCESS

The organization is being migrated to a new environment. Your work on this organization will not be saved. For more details please contact support.

16. After all the Collectors were successfully migrated from the organization on the source environment to the organization on the destination environment, delete the source organization. To do so, select the **Administration** tab and then click **Organizations** in the left pane. In the Organizations window, click the **Delete** button in the row of the source organization to be removed.

    Note – Collector protection and functionality remain throughout the entire migration process.

Hoster View

When you select Hoster view in the Organization dropdown list, all windows in the user interface are affected. In general, this view shows aggregated data for all organizations.

However, some data is only available in Hoster view, such as the following:

- **Export Settings**: In a multi-organization system, SMTP-related information is only displayed in Hoster view.
- Tools – Periodic Scan

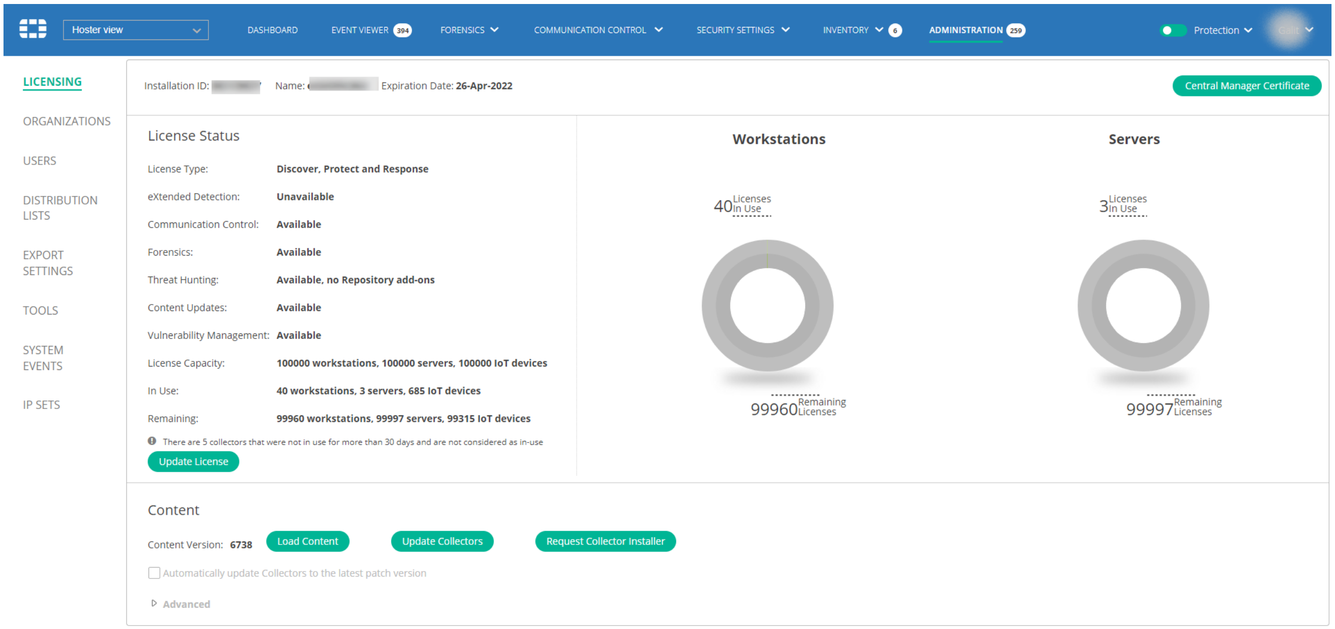
In addition, there are some special cases where you cannot view administration data in Hoster view, and can only view data for a specific organization, such as the following:

- Component Authentication
- Automatic Updates
- End User Notifications

Many of the windows that display aggregated data for all organizations have some special features when displaying data in Hoster view. In general, in Hoster view, these windows have an additional column or field, and require that you specify the organization in order to add the item. Several examples are provided below. The examples below are not all-inclusive.

Licensing

When in Hoster view, the Licensing window shows aggregated information for all organizations.



Installation ID: [redacted] Name: [redacted] Expiration Date: **26-Apr-2022**

License Status

License Type:	**Discover, Protect and Response**
eXtended Detection:	**Unavailable**
Communication Control:	**Available**
Forensics:	**Available**
Threat Hunting:	**Available, no Repository add-ons**
Content Updates:	**Available**
Vulnerability Management:	**Available**
License Capacity:	**100000 workstations, 100000 servers, 100000 IoT devices**
In Use:	**40 workstations, 3 servers, 685 IoT devices**
Remaining:	**99960 workstations, 99997 servers, 99315 IoT devices**

There are 5 collectors that were not in use for more than 30 days and are not considered as in-use

Content

Content Version: **6738**

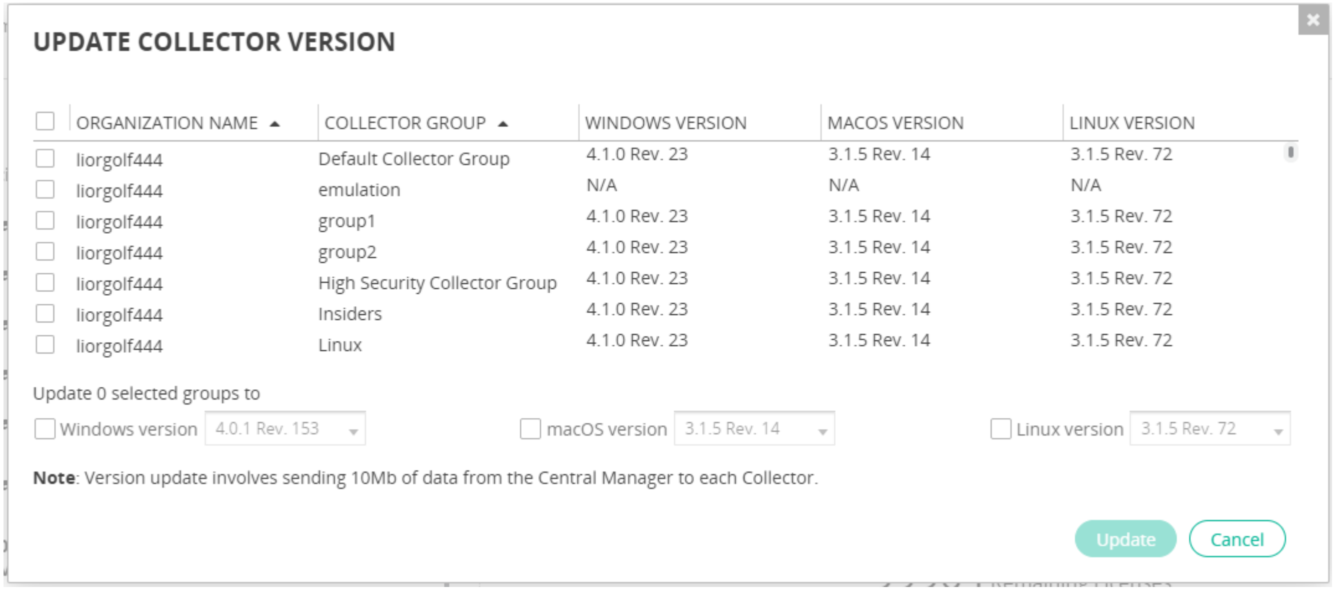
□ Automatically update Collectors to the latest patch version

For example, the Workstations and Servers diagrams indicate the number of allocated and available licenses for all workstations and servers, respectively, in the entire FortiEDR system. The Licenses in Use numbers represent the number of Collectors that have been installed out of the total permitted to be installed.

The Load Content option loads content to all organizations. Once loaded, the new configuration applies to all organizations, including new Collector installers. However, Collectors are not being updated yet.

When in this view, you cannot load content to a specific organization.

When you click the **Update Collectors** button in the Licensing window, the Update Collector Version window displays, and includes an **Organization Name** column. Use the checkboxes in this column to update the organization for a Collector Group. All other functionality in this window works in the standard manner.



UPDATE COLLECTOR VERSION

□	ORGANIZATION NAME ▲	COLLECTOR GROUP ▲	WINDOWS VERSION	MACOS VERSION	LINUX VERSION
□	liorgolf444	Default Collector Group	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□	liorgolf444	emulation	N/A	N/A	N/A
□	liorgolf444	group1	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□	liorgolf444	group2	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□	liorgolf444	High Security Collector Group	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□	liorgolf444	Insiders	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72
□	liorgolf444	Linux	4.1.0 Rev. 23	3.1.5 Rev. 14	3.1.5 Rev. 72

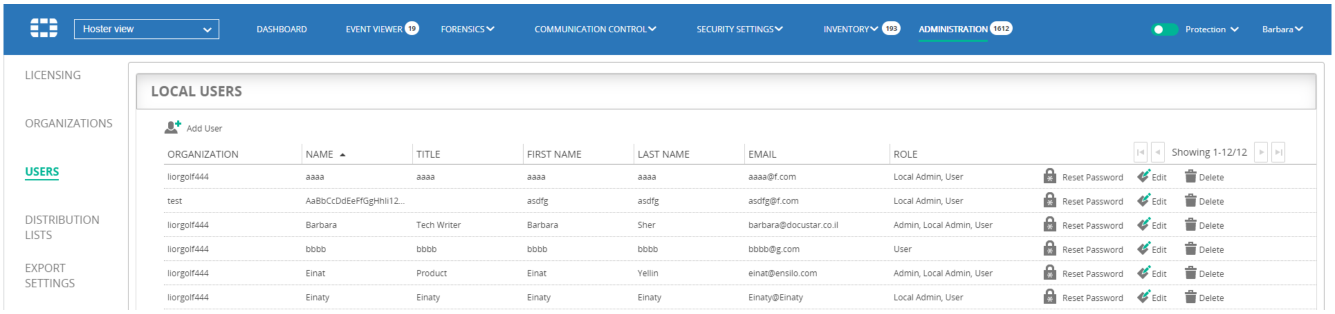
Update 0 selected groups to

□ Windows version 4.0.1 Rev. 153 □ macOS version 3.1.5 Rev. 14 □ Linux version 3.1.5 Rev. 72

Note: Version update involves sending 10Mb of data from the Central Manager to each Collector.

Users

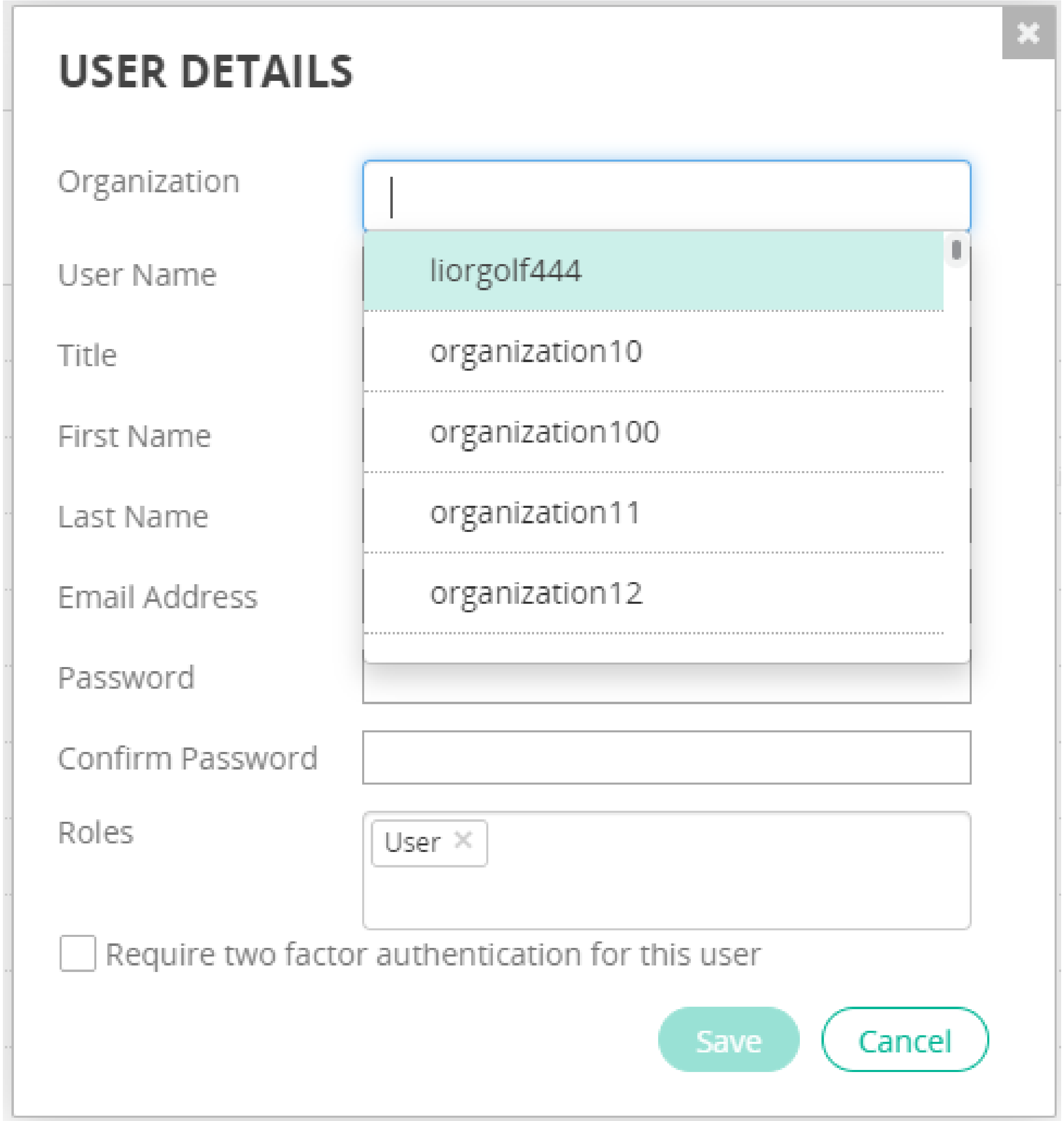
In Hoster view, this window includes an Organization column.



LOCAL USERS

ORGANIZATION	NAME ▲	TITLE	FIRST NAME	LAST NAME	EMAIL	ROLE			
liorgolf444	aaaa	aaaa	aaaa	aaaa	aaaa@f.com	Local Admin, User	Reset Password	Edit	Delete
test	AaBbCcDdEeFfGgHhIi12...		asdfg	asdfg	asdfg@f.com	Local Admin, User	Reset Password	Edit	Delete
liorgolf444	Barbara	Tech Writer	Barbara	Sher	barbara@docustar.co.il	Admin, Local Admin, User	Reset Password	Edit	Delete
liorgolf444	bbbb	bbbb	bbbb	bbbb	bbbb@g.com	User	Reset Password	Edit	Delete
liorgolf444	Einat	Product	Einat	Yellin	einat@ensilo.com	Admin, Local Admin, User	Reset Password	Edit	Delete
liorgolf444	Einaty	Einaty	Einaty	Einaty	Einaty@Einaty	Local Admin, User	Reset Password	Edit	Delete

When you click the Add User button from this window, the User Details window displays. The User Details window includes an Organization field that you must specify to add the user.



USER DETAILS

Organization

liorgolf444

organization10

organization100

organization11

organization12

User Name

Title

First Name

Last Name

Email Address

Password

Confirm Password

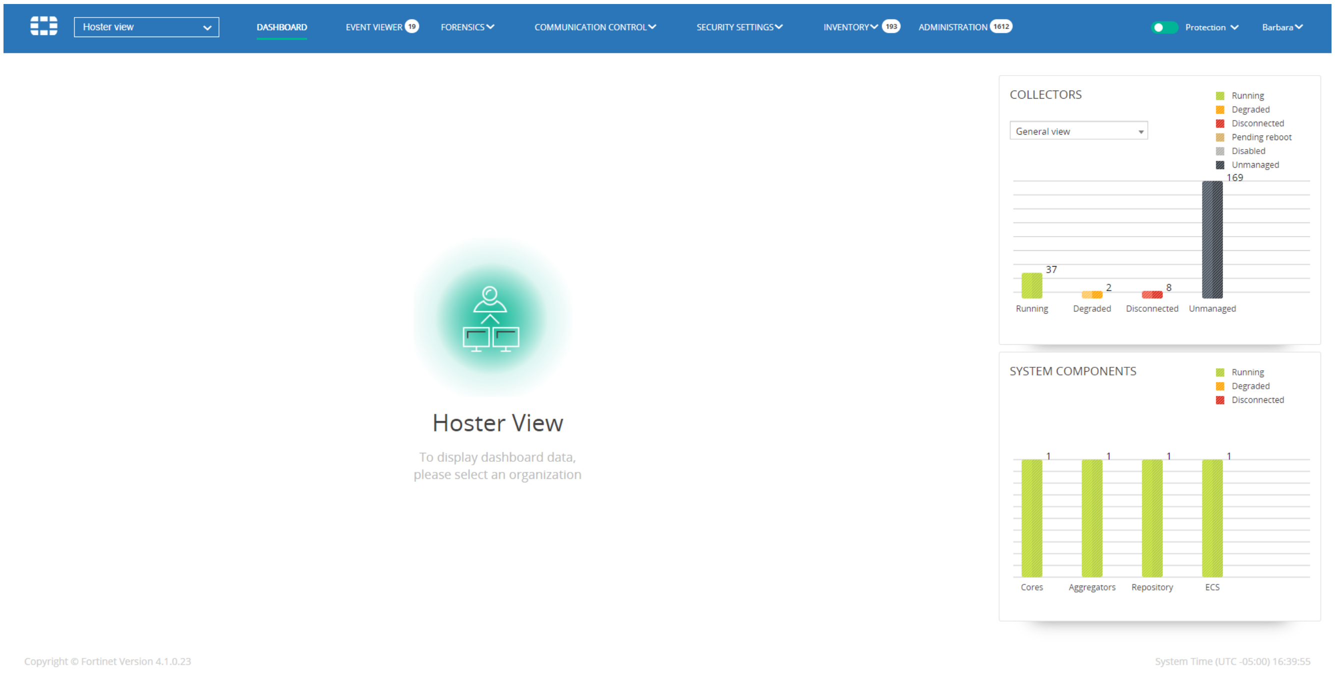
Roles

User ×

□ Require two factor authentication for this user

Dashboard

In Hoster view, some information does not display in the Dashboard. The information that does display is aggregated for all organizations, such as Collectors, System Components, Repositories and so on, as shown below.



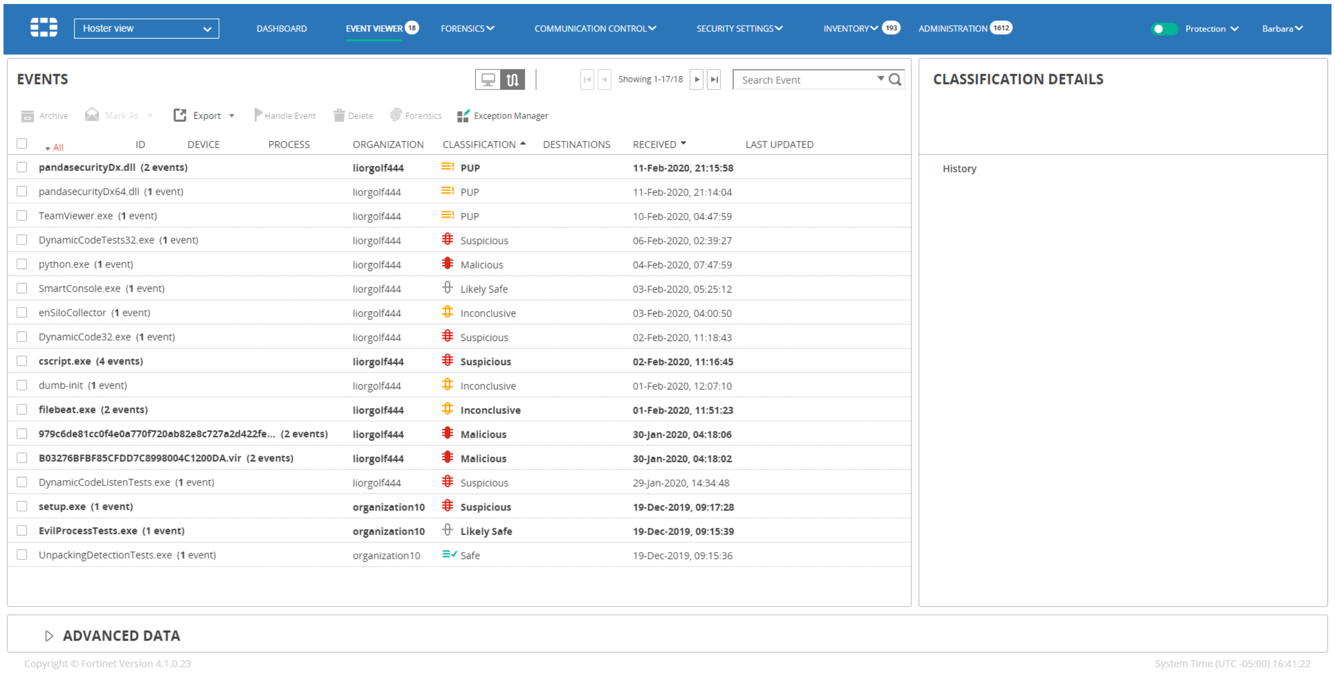
Hoster View

To display dashboard data, please select an organization

To view Dashboard information for a specific organization, you must select the organization of interest in the Organization dropdown list.

Event Viewer

In Hoster view, the Event Viewer displays the security events from all organizations. The **Organization** column indicates the organization in which the security event occurred.



EVENTS

☐ All	ID	DEVICE	PROCESS	ORGANIZATION	CLASSIFICATION ▲	DESTINATIONS	RECEIVED ▼	LAST UPDATED
☐ **pandasecurityDx.dll (2 events)**				**liorgolf444**	**PUP**		**11-Feb-2020, 21:15:58**	
☐ pandasecurityDx64.dll (1 event)				liorgolf444	PUP		11-Feb-2020, 21:14:04	
☐ TeamViewer.exe (1 event)				liorgolf444	PUP		10-Feb-2020, 04:47:59	
☐ DynamicCodeTests32.exe (1 event)				liorgolf444	Suspicious		06-Feb-2020, 02:39:27	
☐ python.exe (1 event)				liorgolf444	Malicious		04-Feb-2020, 07:47:59	
☐ SmartConsole.exe (1 event)				liorgolf444	Likely Safe		03-Feb-2020, 05:25:12	
☐ enSiloCollector (1 event)				liorgolf444	Inconclusive		03-Feb-2020, 04:00:50	
☐ DynamicCode32.exe (1 event)				liorgolf444	Suspicious		02-Feb-2020, 11:18:43	
☐ **cscript.exe (4 events)**				**liorgolf444**	**Suspicious**		**02-Feb-2020, 11:16:45**	
☐ dumb-init (1 event)				liorgolf444	Inconclusive		01-Feb-2020, 12:07:10	
☐ **filebeat.exe (2 events)**				**liorgolf444**	**Inconclusive**		**01-Feb-2020, 11:51:23**	
☐ **979c6de81cc0f4e0a770f720ab82e8c727a2d422fe... (2 events)**				**liorgolf444**	**Malicious**		**30-Jan-2020, 04:18:06**	
☐ **B03276BFBF85CFDD7C8998004C1200DA.vir (2 events)**				**liorgolf444**	**Malicious**		**30-Jan-2020, 04:18:02**	
☐ DynamicCodeListenTests.exe (1 event)				liorgolf444	Suspicious		29-Jan-2020, 14:34:48	
☐ **setup.exe (1 event)**				**organization10**	**Suspicious**		**19-Dec-2019, 09:17:28**	
☐ **EvilProcessTests.exe (1 event)**				**organization10**	**Likely Safe**		**19-Dec-2019, 09:15:39**	
☐ UnpackingDetectionTests.exe (1 event)				organization10	Safe		19-Dec-2019, 09:15:36	

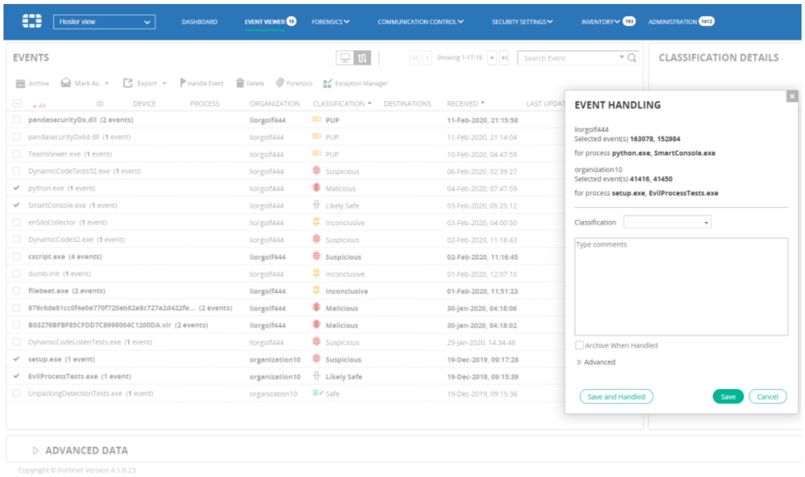
CLASSIFICATION DETAILS

History

Note – The same security event can occur in multiple organizations. In this case, it is displayed in separate rows per organization.

The various options in the toolbar can be applied on multiple organizations simultaneously. For example, you can archive security events from different organizations at once using the **Archive** button and you can export security events from different organizations using the **Export** button.

You can also use the **Handle Event** button to handle security events from multiple organizations. In Hoster view, for each security event selected in the Events window, the Event Handling window shows the organization name and security events selected for that organization (when you select security events in up to three organizations).



☐	All	ID	DEVICE	PROCESS	ORGANIZATION	CLASSIFICATION	DESTINATIONS	RECEIVED	LAST UPDAT
☐	pandasecurityDx.dll (2 events)				liorgolf444	PUP		11-Feb-2020, 21:15:58	
☐	pandasecurityDx64.dll (1 event)				liorgolf444	PUP		11-Feb-2020, 21:14:04	
☐	TeamViewer.exe (1 event)				liorgolf444	PUP		10-Feb-2020, 04:47:59	
☐	DynamicCodeTests32.exe (1 event)				liorgolf444	Suspicious		06-Feb-2020, 02:39:27	
✓	python.exe (1 event)				liorgolf444	Malicious		04-Feb-2020, 07:47:59	
✓	SmartConsole.exe (1 event)				liorgolf444	Likely Safe		03-Feb-2020, 05:25:12	
☐	enSiloCollector (1 event)				liorgolf444	Inconclusive		03-Feb-2020, 04:00:50	
☐	DynamicCode32.exe (1 event)				liorgolf444	Suspicious		02-Feb-2020, 11:18:43	
☐	cscript.exe (4 events)				liorgolf444	Suspicious		02-Feb-2020, 11:16:45	
☐	dumb-init (1 event)				liorgolf444	Inconclusive		01-Feb-2020, 12:07:10	
☐	filebeat.exe (2 events)				liorgolf444	Inconclusive		01-Feb-2020, 11:51:23	
☐	979c6de81cc0f4e0a770f720ab82e8c727a2d422fe... (2 events)				liorgolf444	Malicious		30-Jan-2020, 04:18:06	
☐	B03276BFBF85CFDD7C8998004C1200DA.vir (2 events)				liorgolf444	Malicious		30-Jan-2020, 04:18:02	
☐	DynamicCodeListenTests.exe (1 event)				liorgolf444	Suspicious		29-Jan-2020, 14:34:48	
✓	setup.exe (1 event)				organization10	Suspicious		19-Dec-2019, 09:17:28	
✓	EvilProcessTests.exe (1 event)				organization10	Likely Safe		19-Dec-2019, 09:15:39	
☐	UnpackingDetectionTests.exe (1 event)				organization10	Safe		19-Dec-2019, 09:15:36	

EVENT HANDLING

liorgolf444
Selected event(s) **163078, 152984**
for process **python.exe, SmartConsole.exe**

organization10
Selected event(s) **41416, 41450**
for process **setup.exe, EvilProcessTests.exe**

Classification

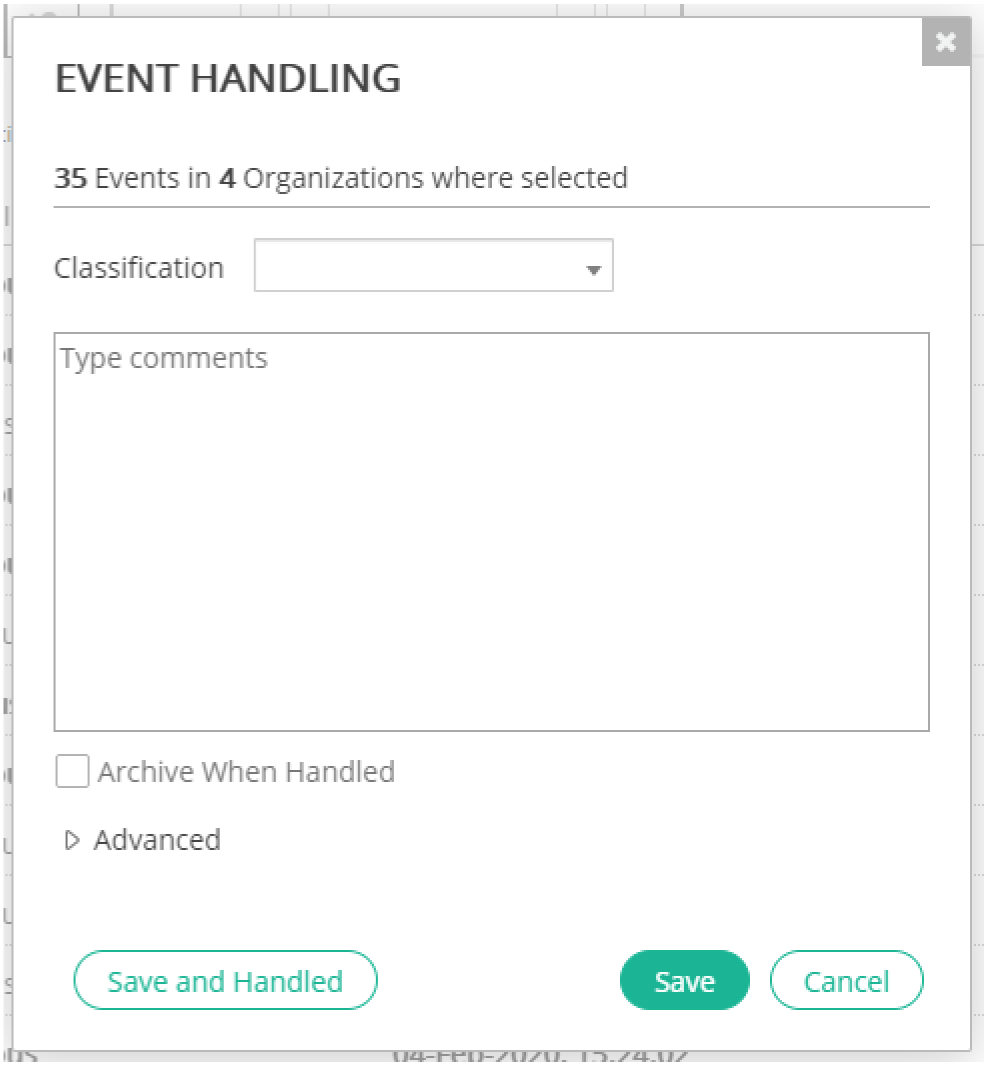
Type comments

☐ Archive When Handled

▷ Advanced

Save and Handled | Save | Cancel

If you select security events from more than three organizations, the Event Handling window displays the number of organizations and security events you selected in a summary line at the top of the window.



EVENT HANDLING

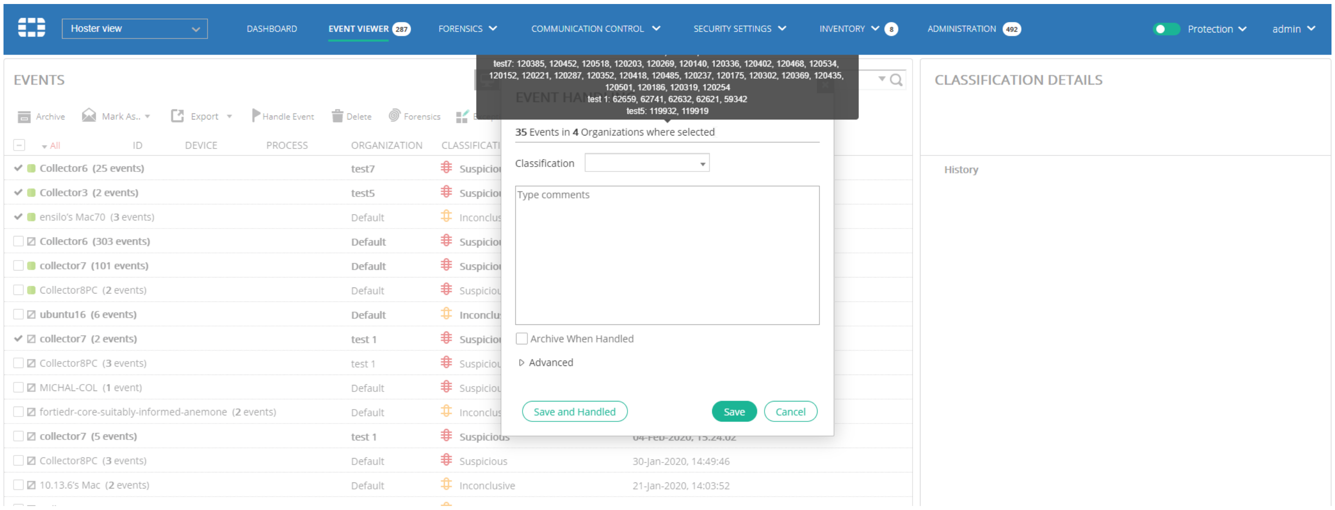
35 Events in **4** Organizations where selected

Classification

Type comments

□ Archive When Handled

In this case, when you hover over the summary line, the details of the selected security events display in a gray box. This box shows the name of the organization and its associated event IDs.



test7: 120385, 120452, 120518, 120203, 120269, 120140, 120336, 120402, 120468, 120534, 120152, 120221, 120287, 120352, 120418, 120485, 120237, 120175, 120302, 120369, 120435, 120501, 120186, 120319, 120254
test 1: 62659, 62741, 62632, 62621, 59342
test5: 119932, 119919

EVENT HANDLING

35 Events in **4** Organizations where selected

Classification

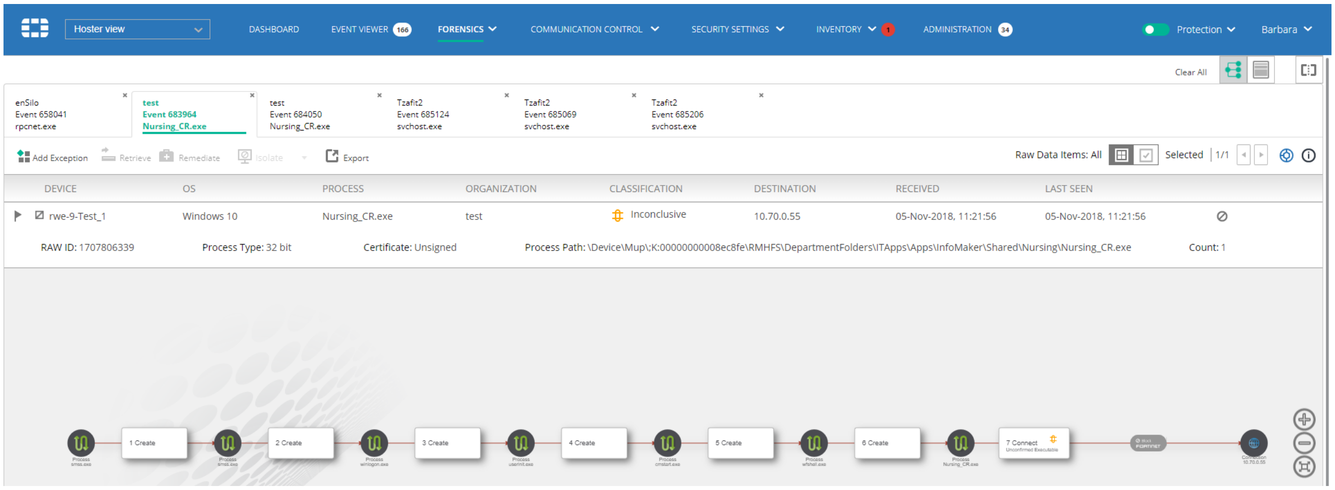
Type comments

□ Archive When Handled

All	ID	DEVICE	PROCESS	ORGANIZATION	CLASSIFICATI	
✓ Collector6 (25 events)				test7	Suspicio	
✓ Collector3 (2 events)				test5	Suspicio	
✓ ensilo's Mac70 (3 events)				Default	Inconclus	
□ Collector6 (303 events)				Default	Suspicio	
□ collector7 (101 events)				Default	Suspicio	
□ Collector8PC (2 events)				Default	Suspiciou	
□ ubuntu16 (6 events)				Default	Inconclu	
✓ collector7 (2 events)				test 1	Suspicio	
□ Collector8PC (3 events)				test 1	Suspiciou	
□ MICHAL-COL (1 event)				Default	Suspiciou	
□ fortiedr-core-suitably-informed-anemone (2 events)				Default	Inconclus	
□ collector7 (5 events)				test 1	Suspicious	04-Feb-2020, 15:24:02
□ Collector8PC (3 events)				Default	Suspicious	30-Jan-2020, 14:49:46
□ 10.13.6's Mac (2 events)				Default	Inconclusive	21-Jan-2020, 14:03:52

Forensics

You can select security events from multiple organizations in the Event Viewer and then click the Forensics button in the Event Viewer to display these security events in the Forensics window. Each security event tab in the Forensics window shows the name of the organization in which the security event occurred above the event ID.



enSilo
Event 658041
rpcnet.exe

test
Event 683964
Nursing_CR.exe

test
Event 684050
Nursing_CR.exe

Tzafit2
Event 685124
svchost.exe

Tzafit2
Event 685069
svchost.exe

Tzafit2
Event 685206
svchost.exe

DEVICE	OS	PROCESS	ORGANIZATION	CLASSIFICATION	DESTINATION	RECEIVED	LAST SEEN
rwe-9-Test_1	Windows 10	Nursing_CR.exe	test	Inconclusive	10.70.0.55	05-Nov-2018, 11:21:56	05-Nov-2018, 11:21:56

RAW ID: 1707806339 Process Type: 32 bit Certificate: Unsigned Process Path: \Device\Mup\;K:00000000008ec8fe\RMHFS\DepartmentFolders\ITApps\Apps\InfoMaker\Shared\Nursing\Nursing_CR.exe Count: 1

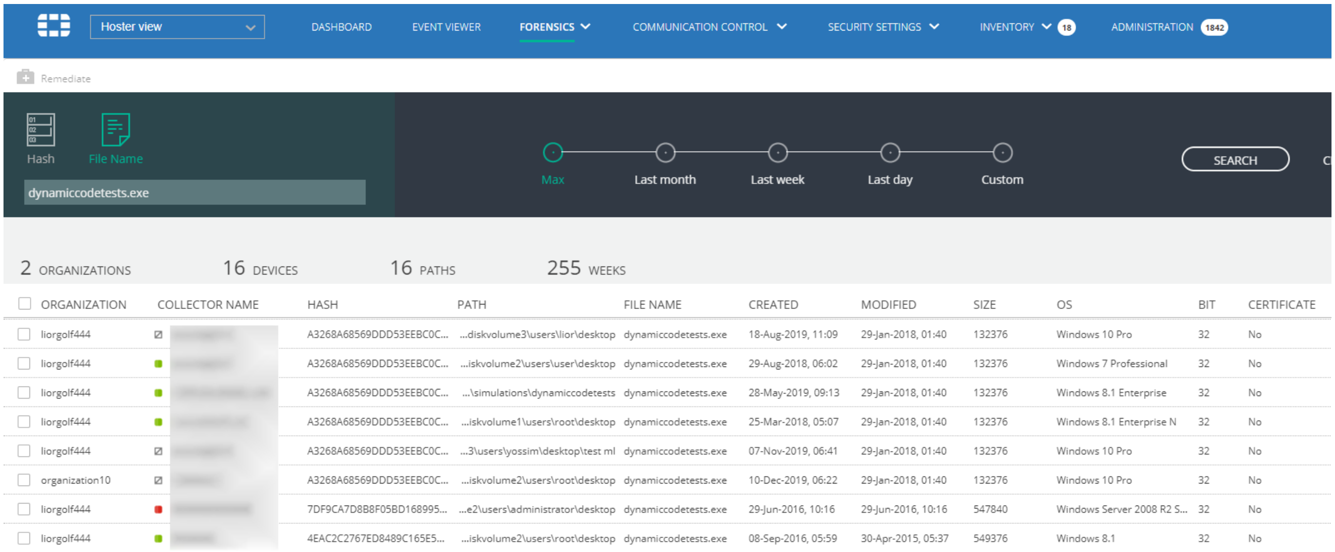
Communication Control

The Communication Control window is not available in Hoster view.

Threat Hunting

Threat Hunting (Legacy)

In Hoster view, this window includes an **Organization** column. In addition, you can hover over an entry in the Product column to display version information for the item.



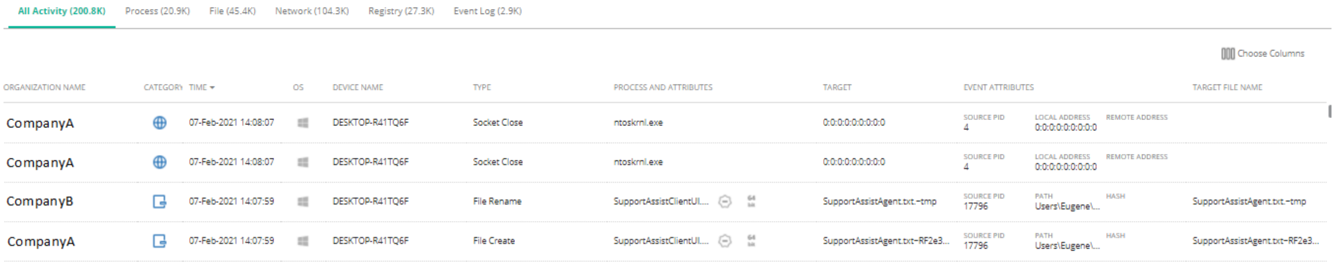
dynamiccodetests.exe

2 ORGANIZATIONS 16 DEVICES 16 PATHS 255 WEEKS

□	ORGANIZATION	COLLECTOR NAME	HASH	PATH	FILE NAME	CREATED	MODIFIED	SIZE	OS	BIT	CERTIFICATE
□	liorgolf444	☒ [redacted]	A3268A68569DDD53EEBC0C...	...diskvolume3\users\lior\desktop	dynamiccodetests.exe	18-Aug-2019, 11:09	29-Jan-2018, 01:40	132376	Windows 10 Pro	32	No
□	liorgolf444	🟩 [redacted]	A3268A68569DDD53EEBC0C...	...iskvolume2\users\user\desktop	dynamiccodetests.exe	29-Aug-2018, 06:02	29-Jan-2018, 01:40	132376	Windows 7 Professional	32	No
□	liorgolf444	🟩 [redacted]	A3268A68569DDD53EEBC0C...	...\simulations\dynamiccodetests	dynamiccodetests.exe	28-May-2019, 09:13	29-Jan-2018, 01:40	132376	Windows 8.1 Enterprise	32	No
□	liorgolf444	🟩 [redacted]	A3268A68569DDD53EEBC0C...	...iskvolume1\users\root\desktop	dynamiccodetests.exe	25-Mar-2018, 05:07	29-Jan-2018, 01:40	132376	Windows 8.1 Enterprise N	32	No
□	liorgolf444	☒ [redacted]	A3268A68569DDD53EEBC0C...	...3\users\yossim\desktop\test ml	dynamiccodetests.exe	07-Nov-2019, 06:41	29-Jan-2018, 01:40	132376	Windows 10 Pro	32	No
□	organization10	☒ [redacted]	A3268A68569DDD53EEBC0C...	...iskvolume2\users\root\desktop	dynamiccodetests.exe	10-Dec-2019, 06:22	29-Jan-2018, 01:40	132376	Windows 10 Pro	32	No
□	liorgolf444	🟥 [redacted]	7DF9CA7D8B8F05BD168995...	...e2\users\administrator\desktop	dynamiccodetests.exe	29-Jun-2016, 10:16	29-Jun-2016, 10:16	547840	Windows Server 2008 R2 S...	32	No
□	liorgolf444	🟩 [redacted]	4EAC2C2767ED8489C165E5...	...iskvolume2\users\root\desktop	dynamiccodetests.exe	08-Sep-2016, 05:59	30-Apr-2015, 05:37	549376	Windows 8.1	32	No

Threat Hunting

In Hoster view, this window includes an Organization column.

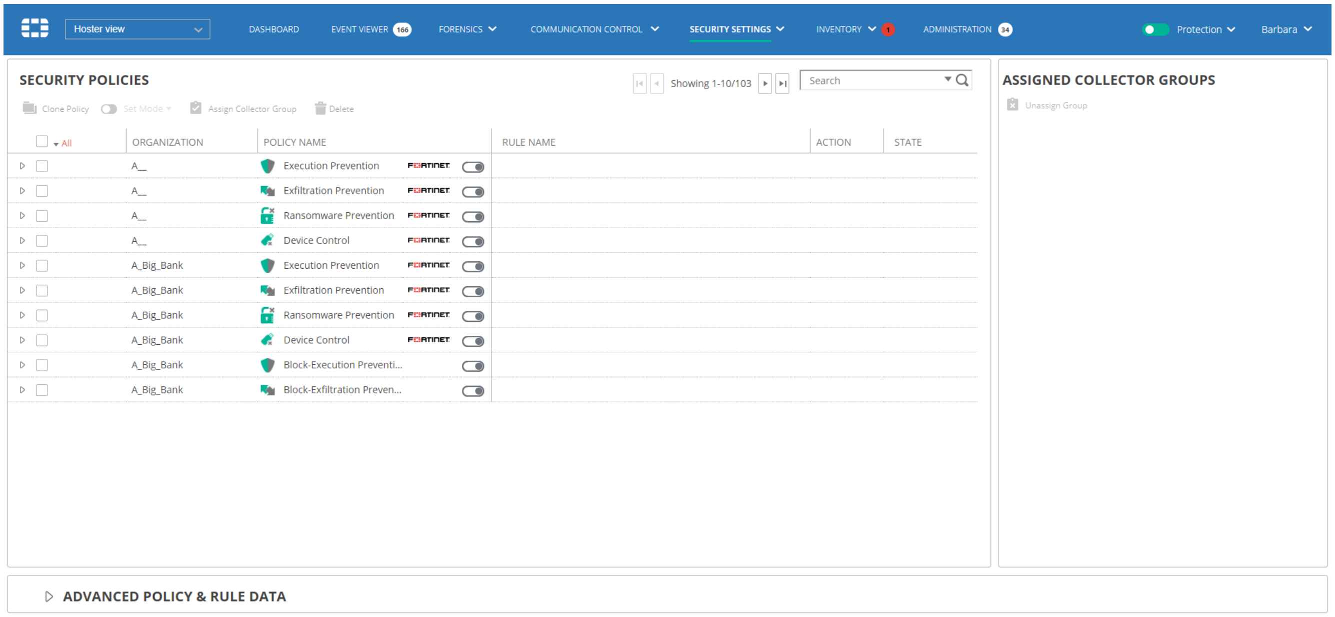


ORGANIZATION NAME	CATEGORY	TIME	OS	DEVICE NAME	TYPE	PROCESS AND ATTRIBUTES	TARGET	EVENT ATTRIBUTES	TARGET FILE NAME
CompanyA		07-Feb-2021 14:08:07		DESKTOP-R41TQ6F	Socket Close	ntoskrnl.exe	0:0:0:0:0:0:0:0:0	SOURCE PID 4 LOCAL ADDRESS 0:0:0:0:0:0:0:0:0 REMOTE ADDRESS	
CompanyA		07-Feb-2021 14:08:07		DESKTOP-R41TQ6F	Socket Close	ntoskrnl.exe	0:0:0:0:0:0:0:0:0	SOURCE PID 4 LOCAL ADDRESS 0:0:0:0:0:0:0:0:0 REMOTE ADDRESS	
CompanyB		07-Feb-2021 14:07:59		DESKTOP-R41TQ6F	File Rename	SupportAssistClientUI....	SupportAssistAgent.txt.~tmp	SOURCE PID 17796 PATH Users\Eugene\... HASH	SupportAssistAgent.txt.~tmp
CompanyA		07-Feb-2021 14:07:59		DESKTOP-R41TQ6F	File Create	SupportAssistClientUI....	SupportAssistAgent.txt~RF2e3...	SOURCE PID 17796 PATH Users\Eugene\... HASH	SupportAssistAgent.txt~RF2e3...

Security Settings

SECURITY POLICIES Page

In Hoster view, the **SECURITY POLICIES** page displays all policies from all organizations.



SECURITY POLICIES

All	ORGANIZATION	POLICY NAME		RULE NAME	ACTION	STATE
▷ □	A_	Execution Prevention	FORTINET			
▷ □	A_	Exfiltration Prevention	FORTINET			
▷ □	A_	Ransomware Prevention	FORTINET			
▷ □	A_	Device Control	FORTINET			
▷ □	A_Big_Bank	Execution Prevention	FORTINET			
▷ □	A_Big_Bank	Exfiltration Prevention	FORTINET			
▷ □	A_Big_Bank	Ransomware Prevention	FORTINET			
▷ □	A_Big_Bank	Device Control	FORTINET			
▷ □	A_Big_Bank	Block-Execution Preventi...				
▷ □	A_Big_Bank	Block-Exfiltration Preven...				

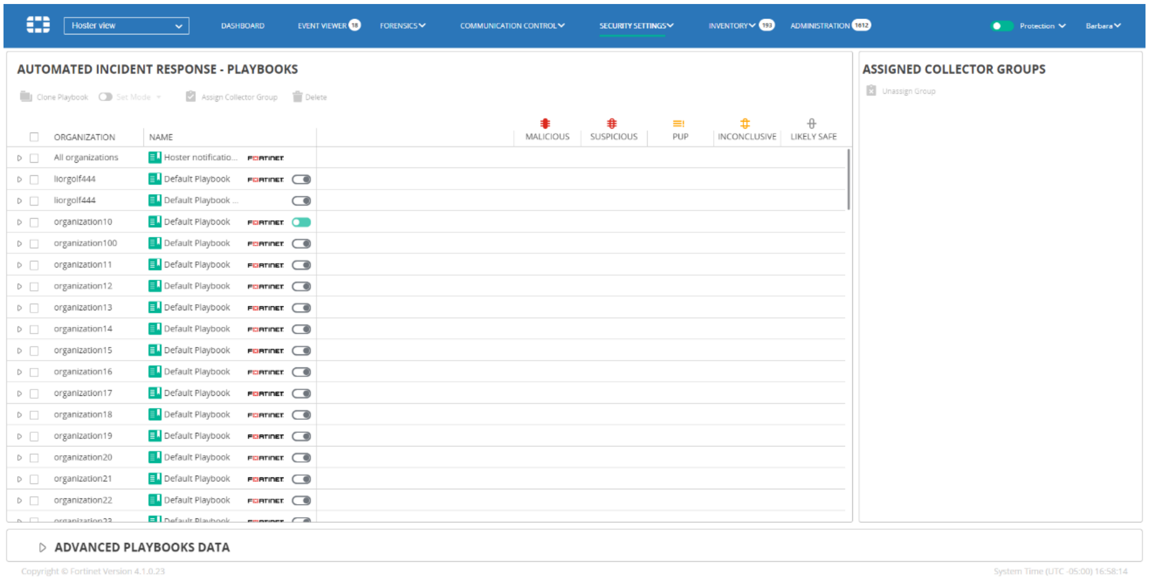
ASSIGNED COLLECTOR GROUPS

ADVANCED POLICY & RULE DATA

FortiEDR's multi-organization feature enables you to clone a security policy from one organization to another. To do so, you must be in Hoster view. When not in Hoster view, you can only clone a policy within the same organization.

AUTOMATED INCIDENT RESPONSE - PLAYBOOKS Page

In Hoster view, you can view all the notifications for the entire organization, based on the actions defined in the Hoster Notifications Playbook. This Playbook policy is only available in Hoster view.



AUTOMATED INCIDENT RESPONSE - PLAYBOOKS

	ORGANIZATION	NAME		MALICIOUS	SUSPICIOUS	PUP	INCONCLUSIVE	LIKELY SAFE
▷ □	All organizations	Hoster notificatio...	FORTINET					
▷ □	liorgolf444	Default Playbook	FORTINET					
▷ □	liorgolf444	Default Playbook ...						
▷ □	organization10	Default Playbook	FORTINET					
▷ □	organization100	Default Playbook	FORTINET					
▷ □	organization11	Default Playbook	FORTINET					
▷ □	organization12	Default Playbook	FORTINET					
▷ □	organization13	Default Playbook	FORTINET					
▷ □	organization14	Default Playbook	FORTINET					
▷ □	organization15	Default Playbook	FORTINET					
▷ □	organization16	Default Playbook	FORTINET					
▷ □	organization17	Default Playbook	FORTINET					
▷ □	organization18	Default Playbook	FORTINET					
▷ □	organization19	Default Playbook	FORTINET					
▷ □	organization20	Default Playbook	FORTINET					
▷ □	organization21	Default Playbook	FORTINET					
▷ □	organization22	Default Playbook	FORTINET					
▷ □	organization23	Default Playbook	FORTINET					

ASSIGNED COLLECTOR GROUPS

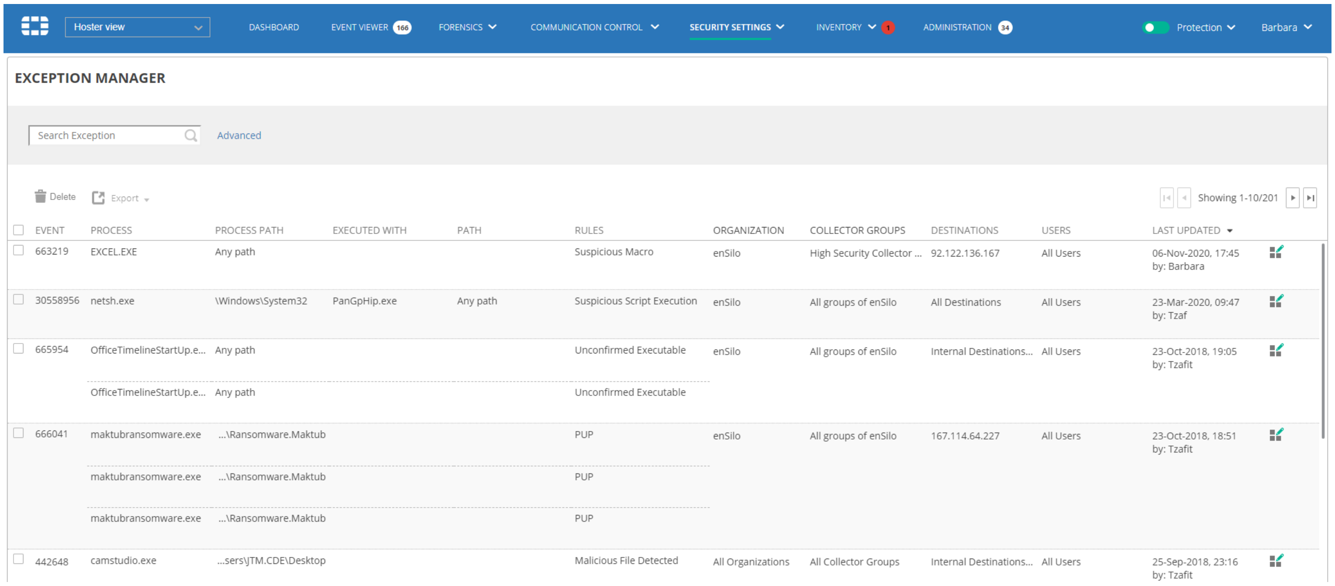
ADVANCED PLAYBOOKS DATA

Copyright © Fortinet Version 4.1.0.23

System Time (UTC -05:00) 16:58:14

Exception Manager

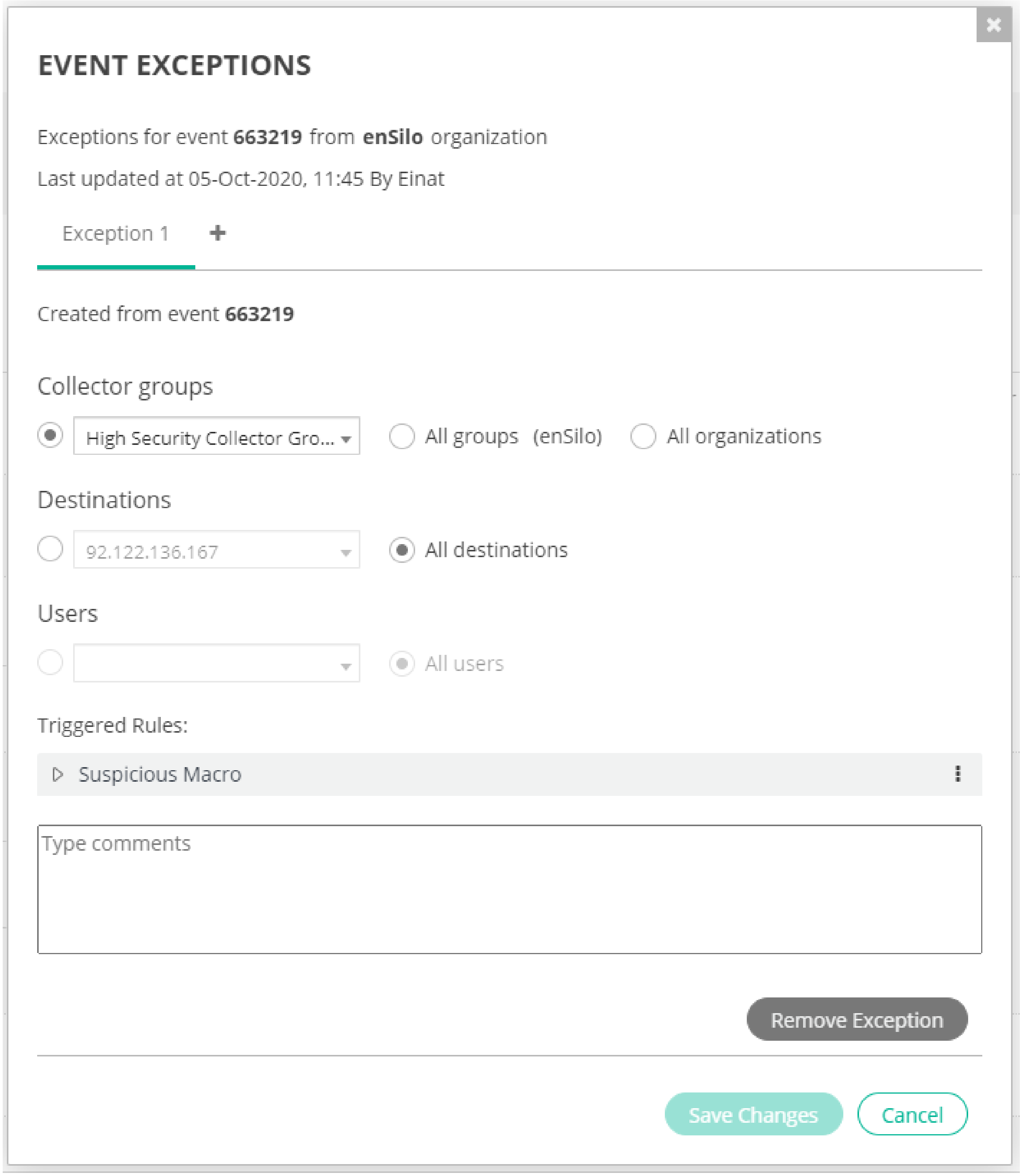
In Hoster view, the Exception Manager page displays all exceptions from all organizations.



EXCEPTION MANAGER

EVENT	PROCESS	PROCESS PATH	EXECUTED WITH	PATH	RULES	ORGANIZATION	COLLECTOR GROUPS	DESTINATIONS	USERS	LAST UPDATED
663219	EXCEL.EXE	Any path			Suspicious Macro	enSilo	High Security Collector ...	92.122.136.167	All Users	06-Nov-2020, 17:45 by: Barbara
30558956	netsh.exe	\Windows\System32	PanGpHip.exe	Any path	Suspicious Script Execution	enSilo	All groups of enSilo	All Destinations	All Users	23-Mar-2020, 09:47 by: Tzaf
665954	OfficeTimelineStartUp.e... OfficeTimelineStartUp.e...	Any path Any path			Unconfirmed Executable Unconfirmed Executable	enSilo	All groups of enSilo	Internal Destinations...	All Users	23-Oct-2018, 19:05 by: Tzafit
666041	maktubransomware.exe maktubransomware.exe maktubransomware.exe	...\Ransomware.Maktub ...\Ransomware.Maktub ...\Ransomware.Maktub			PUP PUP PUP	enSilo	All groups of enSilo	167.114.64.227	All Users	23-Oct-2018, 18:51 by: Tzafit
442648	camstudio.exe	...sers\JTM.CDE\Desktop			Malicious File Detected	All Organizations	All Collector Groups	Internal Destinations...	All Users	25-Sep-2018, 23:16 by: Tzafit

When creating an exception in Hoster view, the organization in which the security event occurred is also shown in the Exception Creation window, as well as the event ID.



EVENT EXCEPTIONS

Exceptions for event **663219** from **enSilo** organization

Last updated at 05-Oct-2020, 11:45 By Einat

Created from event **663219**

Collector groups

● High Security Collector Gro... ○ All groups (enSilo) ○ All organizations

Destinations

○ 92.122.136.167 ● All destinations

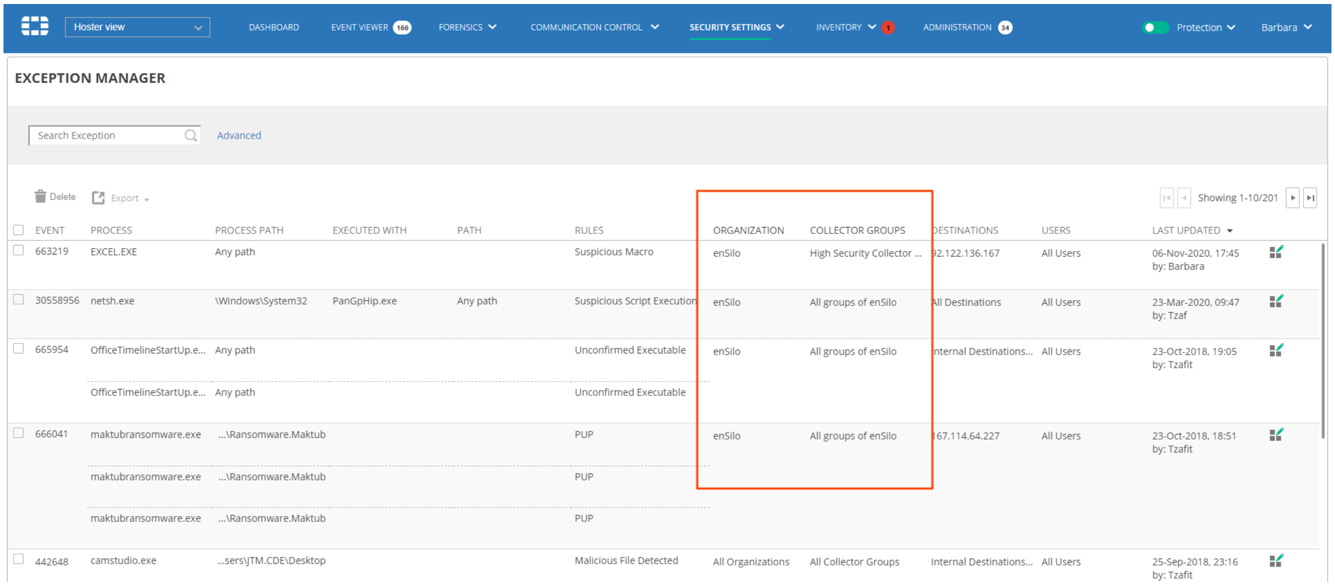
Users

○ ● All users

Triggered Rules:

Suspicious Macro

The Exception Manager page also shows the organization to which the exception applies. In addition, the Collector Groups column indicates the Collector Groups to which the exception applies.



EXCEPTION MANAGER

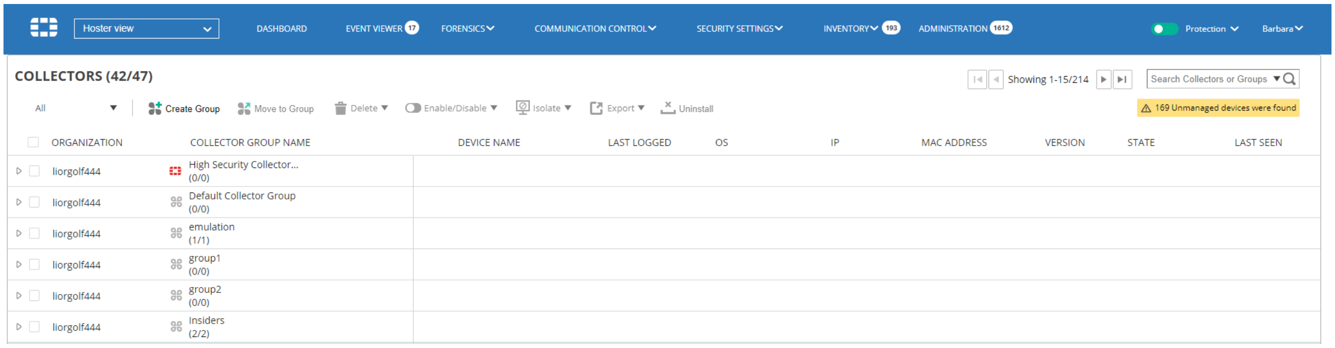
Showing 1-10/201

	EVENT	PROCESS	PROCESS PATH	EXECUTED WITH	PATH	RULES	ORGANIZATION	COLLECTOR GROUPS	DESTINATIONS	USERS	LAST UPDATED
□	663219	EXCEL.EXE	Any path			Suspicious Macro	enSilo	High Security Collector ...	92.122.136.167	All Users	06-Nov-2020, 17:45 by: Barbara
□	30558956	netsh.exe	\Windows\System32	PanGpHip.exe	Any path	Suspicious Script Execution	enSilo	All groups of enSilo	All Destinations	All Users	23-Mar-2020, 09:47 by: Tzaf
□	665954	OfficeTimelineStartUp.e...	Any path			Unconfirmed Executable	enSilo	All groups of enSilo	nternal Destinations...	All Users	23-Oct-2018, 19:05 by: Tzafit
		OfficeTimelineStartUp.e...	Any path			Unconfirmed Executable					
□	666041	maktubransomware.exe	...\Ransomware.Maktub			PUP	enSilo	All groups of enSilo	167.114.64.227	All Users	23-Oct-2018, 18:51 by: Tzafit
		maktubransomware.exe	...\Ransomware.Maktub			PUP					
		maktubransomware.exe	...\Ransomware.Maktub			PUP					
□	442648	camstudio.exe	...sers\JTM.CDE\Desktop			Malicious File Detected	All Organizations	All Collector Groups	Internal Destinations...	All Users	25-Sep-2018, 23:16 by: Tzafit

Inventory

COLLECTORS Page

In Hoster view, the **COLLECTORS** page shows all the Collectors from all organizations.



COLLECTORS (42/47)

Showing 1-15/214

⚠ 169 Unmanaged devices were found

	ORGANIZATION	COLLECTOR GROUP NAME	DEVICE NAME	LAST LOGGED	OS	IP	MAC ADDRESS	VERSION	STATE	LAST SEEN
▷ □	liorgolf444	High Security Collector... (0/0)								
▷ □	liorgolf444	Default Collector Group (0/0)								
▷ □	liorgolf444	emulation (1/1)								
▷ □	liorgolf444	group1 (0/0)								
▷ □	liorgolf444	group2 (0/0)								
▷ □	liorgolf444	Insiders (2/2)								

When in Hoster view, you can move Collectors between organizations using this window.

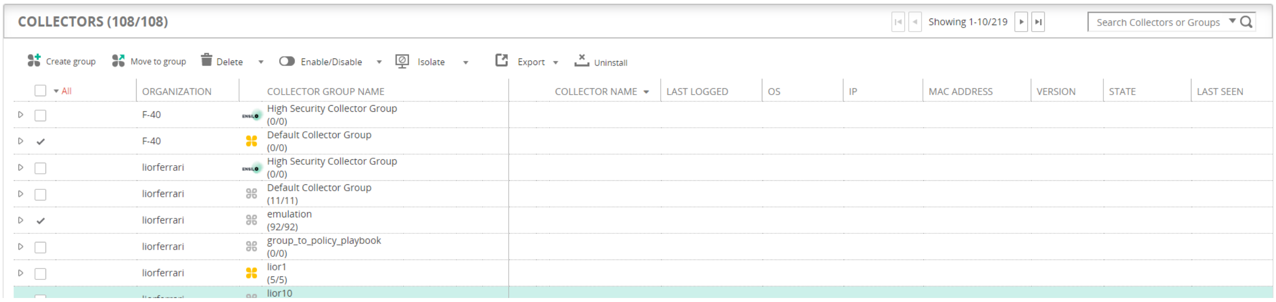
Note – Only Collectors from V3.0 and above can be in the non-default organization.

All older Collectors can only be installed in the default organization.

Only Collectors from V3.0 and above can be moved between organizations.

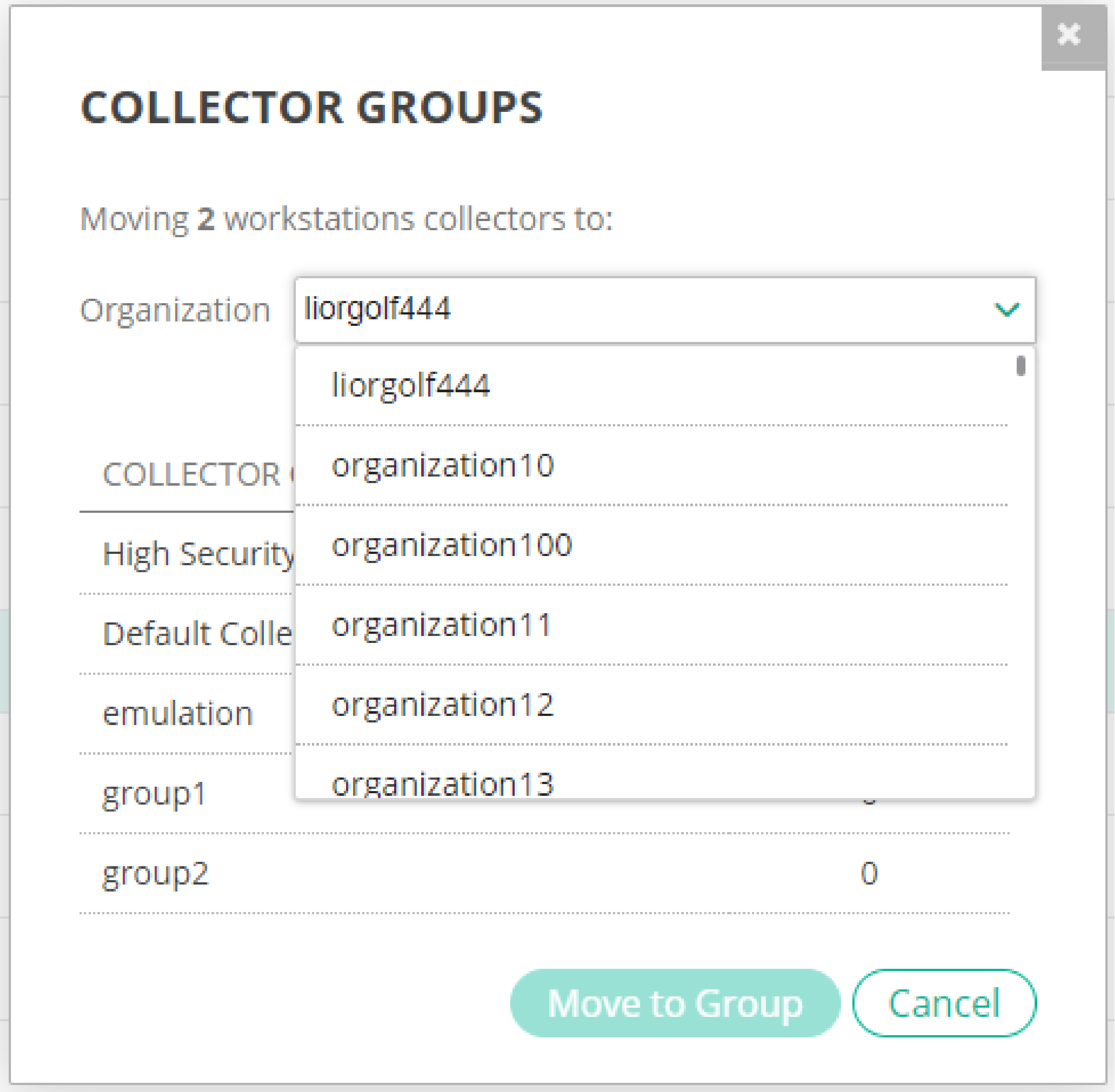
To move a Collector between organizations in Hoster view:

1. Check the checkbox of the Collector Group or check the checkbox(ex) of one or more Collectors.



	□ All	ORGANIZATION	COLLECTOR GROUP NAME	COLLECTOR NAME	LAST LOGGED	OS	IP	MAC ADDRESS	VERSION	STATE	LAST SEEN
▷	□	F-40	High Security Collector Group (0/0)								
▷	✓	F-40	Default Collector Group (0/0)								
▷	□	liorferrari	High Security Collector Group (0/0)								
▷	□	liorferrari	Default Collector Group (11/11)								
▷	✓	liorferrari	emulation (92/92)								
▷	□	liorferrari	group_to_policy_playbook (0/0)								
▷	□	liorferrari	lior1 (5/5)								
	□		lior10								

2. Click the Move to group button. The following window displays:



COLLECTOR GROUPS

Moving **2** workstations collectors to:

Organization liorgolf444

3. In the **Organization** field, select the organization to which to move the Collector(s).
4. Click **Move to Group.**

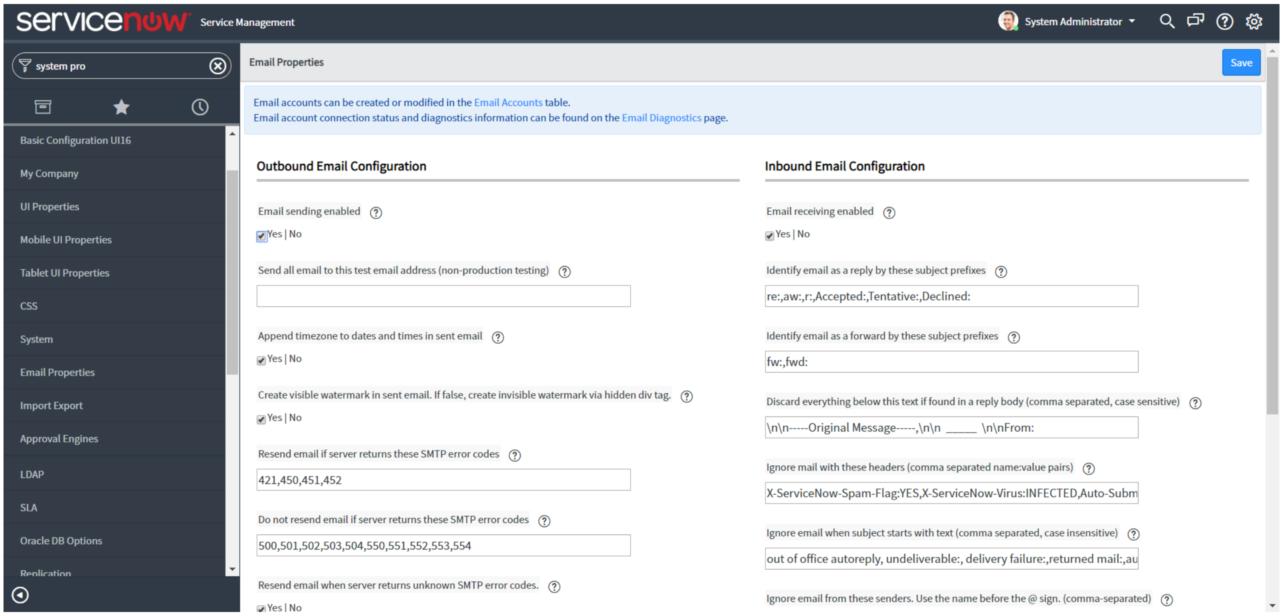
Appendix A – Setting up an Email Feed for Open Ticket

The Open Ticket feature enables you to send events to an event-management tool such as Jira or ServiceNow.

In order for the Open Ticket feature to work properly, you must set up a receiving email feed in the event-management tool to be used. This appendix provides an example that describes how to set up the required email feed in ServiceNow.

To set up an email feed in ServiceNow:

1. Launch ServiceNow.
2. In the window that opens, select **System Properties > Email Properties**. The following window displays:



Email Properties

Email accounts can be created or modified in the Email Accounts table.
Email account connection status and diagnostics information can be found on the Email Diagnostics page.

Outbound Email Configuration

Email sending enabled ?
☑ Yes | No

Send all email to this test email address (non-production testing) ?

Append timezone to dates and times in sent email ?
☑ Yes | No

Create visible watermark in sent email. If false, create invisible watermark via hidden div tag. ?
☑ Yes | No

Resend email if server returns these SMTP error codes ?
421,450,451,452

Do not resend email if server returns these SMTP error codes ?
500,501,502,503,504,550,551,552,553,554

Resend email when server returns unknown SMTP error codes. ?
☑ Yes | No

Inbound Email Configuration

Email receiving enabled ?
☑ Yes | No

Identify email as a reply by these subject prefixes ?
re:,aw:,r:,Accepted:,Tentative:,Declined:

Identify email as a forward by these subject prefixes ?
fw:,fwd:

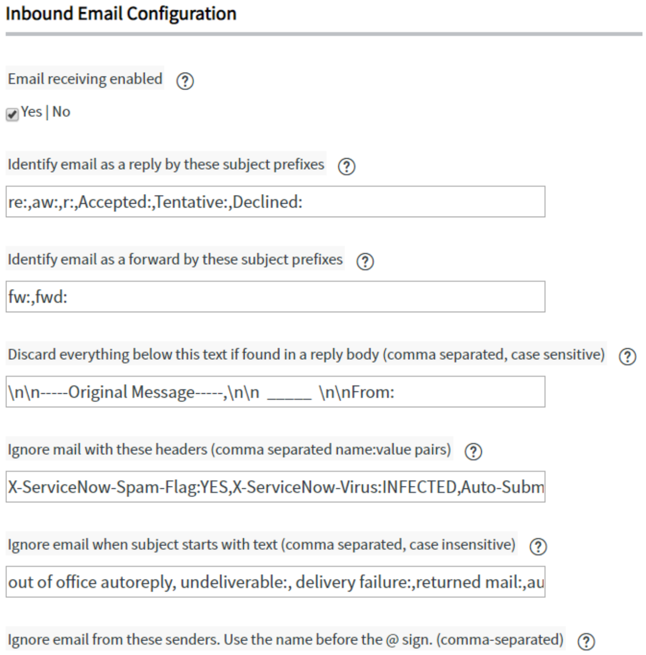
Discard everything below this text if found in a reply body (comma separated, case sensitive) ?
\n\n-----Original Message-----,\n\n _____ \n\nFrom:

Ignore mail with these headers (comma separated name:value pairs) ?
X-ServiceNow-Spam-Flag:YES,X-ServiceNow-Virus:INFECTED,Auto-Subm

Ignore email when subject starts with text (comma separated, case insensitive) ?
out of office autoreply, undeliverable:, delivery failure:,returned mail:,au

Ignore email from these senders. Use the name before the @ sign. (comma-separated) ?

3. In the Inbound Email Configuration area, check the **Email receiving enabled** checkbox.



Inbound Email Configuration

Email receiving enabled ?

☑ Yes | No

Identify email as a reply by these subject prefixes ?

re:,aw:,r:,Accepted:,Tentative:,Declined:

Identify email as a forward by these subject prefixes ?

fw:,fwd:

Discard everything below this text if found in a reply body (comma separated, case sensitive) ?

\n\n-----Original Message-----,\n\n _____ \n\nFrom:

Ignore mail with these headers (comma separated name:value pairs) ?

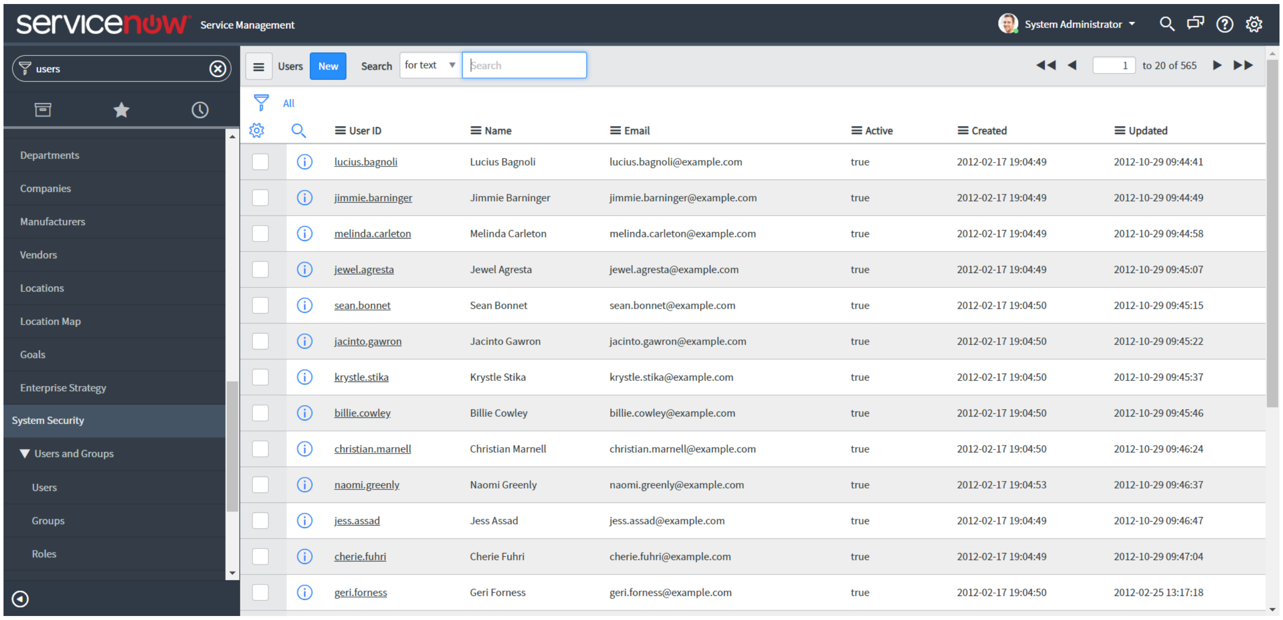
X-ServiceNow-Spam-Flag:YES,X-ServiceNow-Virus:INFECTED,Auto-Subm

Ignore email when subject starts with text (comma separated, case insensitive) ?

out of office autoreply, undeliverable:, delivery failure:,returned mail:,au

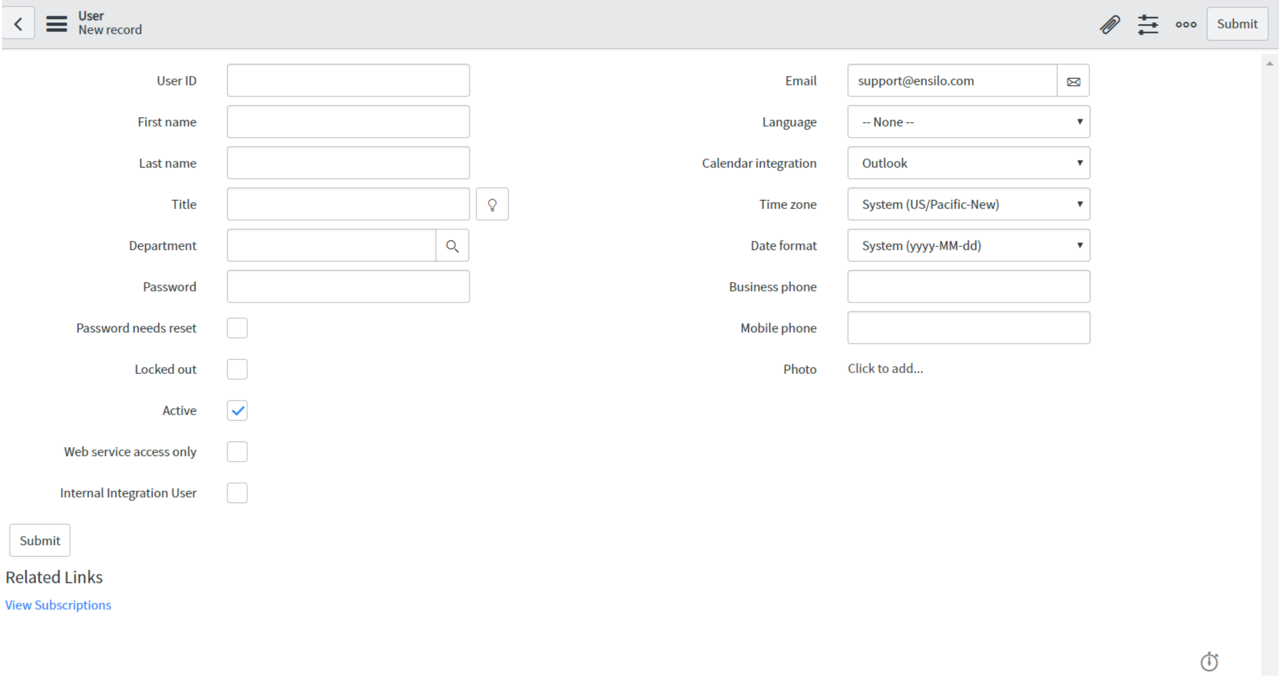
Ignore email from these senders. Use the name before the @ sign. (comma-separated) ?

4. In the left pane, select **System Security > Users and Groups > Users**. The following window displays:



User ID	Name	Email	Active	Created	Updated
lucius.bagnoli	Lucius Bagnoli	lucius.bagnoli@example.com	true	2012-02-17 19:04:49	2012-10-29 09:44:41
jimmie.barninger	Jimmie Barninger	jimmie.barninger@example.com	true	2012-02-17 19:04:49	2012-10-29 09:44:49
melinda.carleton	Melinda Carleton	melinda.carleton@example.com	true	2012-02-17 19:04:49	2012-10-29 09:44:58
jewel.agresta	Jewel Agresta	jewel.agresta@example.com	true	2012-02-17 19:04:49	2012-10-29 09:45:07
sean.bonnet	Sean Bonnet	sean.bonnet@example.com	true	2012-02-17 19:04:50	2012-10-29 09:45:15
jacinto.gawron	Jacinto Gawron	jacinto.gawron@example.com	true	2012-02-17 19:04:50	2012-10-29 09:45:22
krystle.stika	Krystle Stika	krystle.stika@example.com	true	2012-02-17 19:04:50	2012-10-29 09:45:37
billie.cowley	Billie Cowley	billie.cowley@example.com	true	2012-02-17 19:04:50	2012-10-29 09:45:46
christian.marnell	Christian Marnell	christian.marnell@example.com	true	2012-02-17 19:04:50	2012-10-29 09:46:24
naomi.greenly	Naomi Greenly	naomi.greenly@example.com	true	2012-02-17 19:04:53	2012-10-29 09:46:37
jess.assad	Jess Assad	jess.assad@example.com	true	2012-02-17 19:04:49	2012-10-29 09:46:47
cherie.fuhri	Cherie Fuhri	cherie.fuhri@example.com	true	2012-02-17 19:04:49	2012-10-29 09:47:04
geri.forness	Geri Forness	geri.forness@example.com	true	2012-02-17 19:04:50	2012-02-25 13:17:18

5. Click the New button to create a new user. The following window displays:



User
New record

Submit

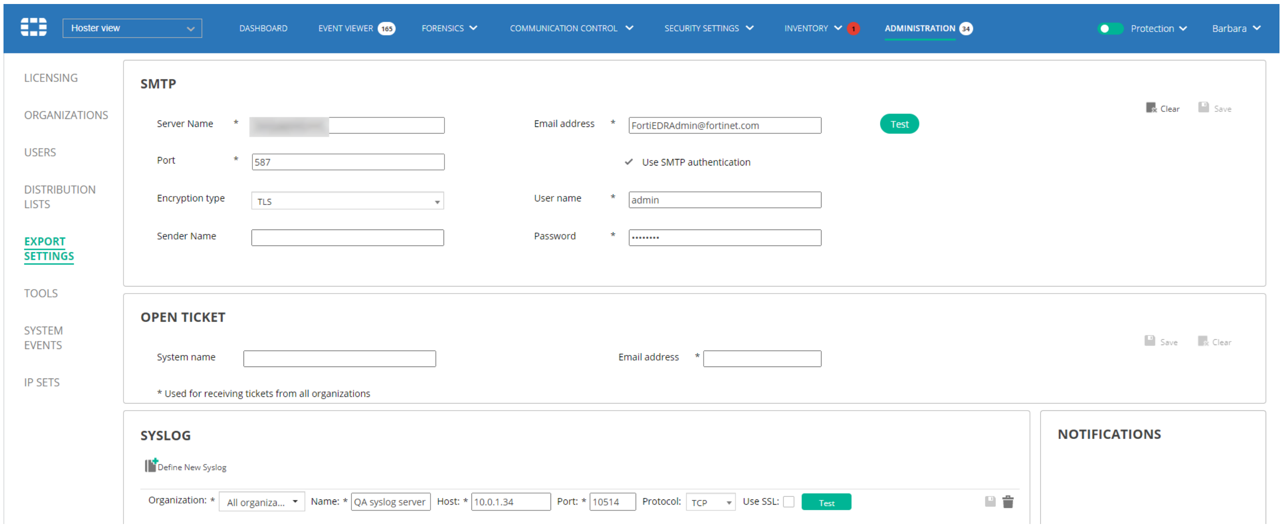
User ID		Email	support@ensilo.com
First name		Language	-- None --
Last name		Calendar integration	Outlook
Title		Time zone	System (US/Pacific-New)
Department		Date format	System (yyyy-MM-dd)
Password		Business phone	
Password needs reset	□	Mobile phone	
Locked out	□	Photo	Click to add...
Active	☑		
Web service access only	□		
Internal Integration User	□		

Submit

Related Links

View Subscriptions

6. In the **Email** field, enter the email address of the FortiEDR messaging system. This email address is specified in the Email Address field of the FortiEDR Open Ticket settings, which can be accessed by selecting **Administration > Export Settings** in the FortiEDR user interface, as shown below:



SMTP

Server Name *	[redacted]	Email address *	FortiEDRAdmin@fortinet.com
Port *	587	✓ Use SMTP authentication	
Encryption type	TLS	User name *	admin
Sender Name		Password *	••••••••

OPEN TICKET

System name		Email address *	

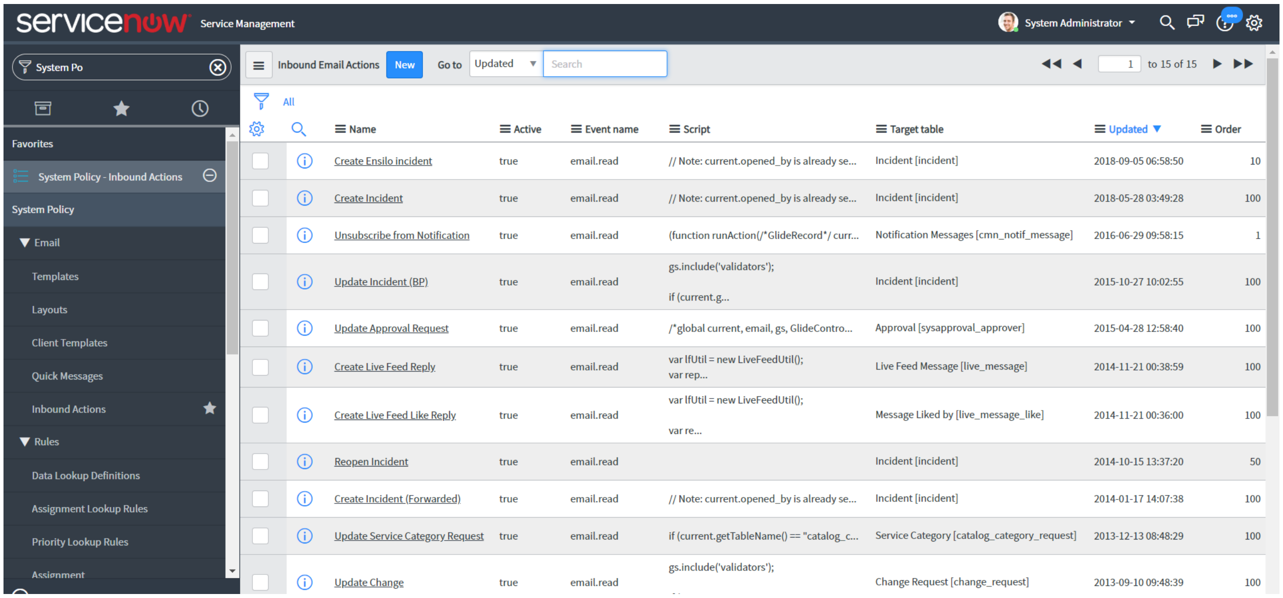
* Used for receiving tickets from all organizations

SYSLOG

Define New Syslog

Organization: * All organiza... Name: * QA syslog server Host: * 10.0.1.34 Port: * 10514 Protocol: TCP Use SSL: □

7. In the left pane, select **System Policy > Email > Inbound Actions**. The following window displays:

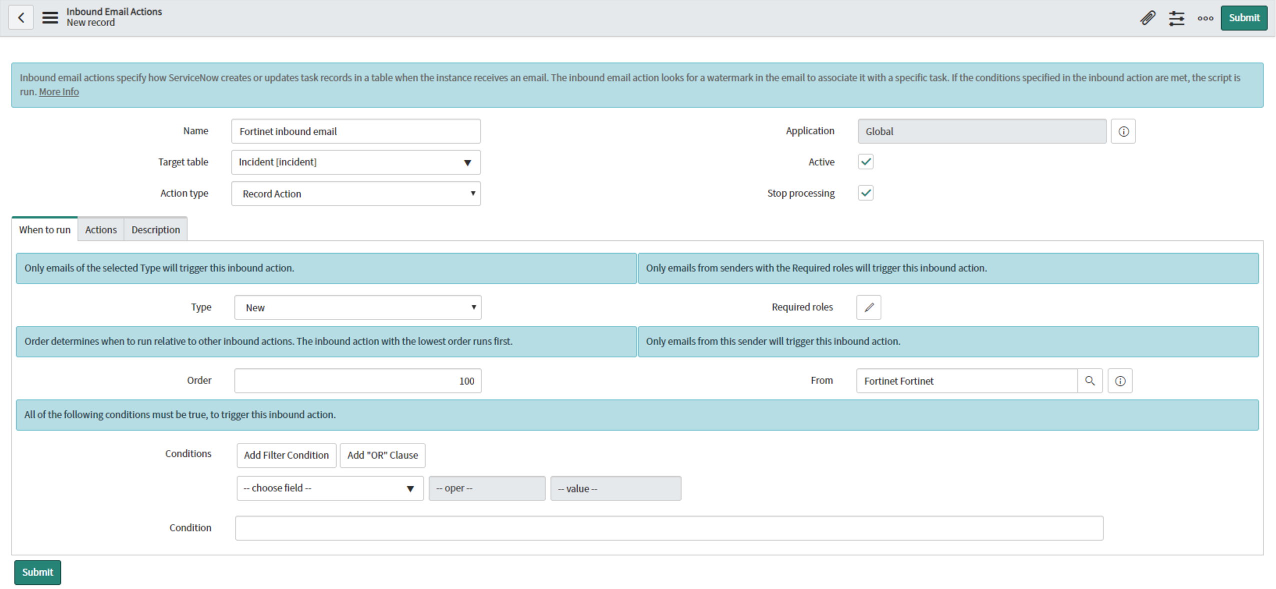


Name	Active	Event name	Script	Target table	Updated	Order
Create Ensilo incident	true	email.read	// Note: current.opened_by is already se...	Incident [incident]	2018-09-05 06:58:50	10
Create Incident	true	email.read	// Note: current.opened_by is already se...	Incident [incident]	2018-05-28 03:49:28	100
Unsubscribe from Notification	true	email.read	(function runAction(/*GlideRecord*/ curr...	Notification Messages [cmn_notif_message]	2016-06-29 09:58:15	1

Update Incident (BP)	true	email.read	gs.include('validators');
			if (current.g...
				Incident [incident]	2015-10-27 10:02:55	100

Update Approval Request	true	email.read	/*global current, email, gs, GlideContro...	Approval [sysapproval_approver]	2015-04-28 12:58:40	100
Create Live Feed Reply	true	email.read	var lfUtil = new LiveFeedUtil(); var rep...	Live Feed Message [live_message]	2014-11-21 00:38:59	100
Create Live Feed Like Reply	true	email.read	var lfUtil = new LiveFeedUtil(); var re...	Message Liked by [live_message_like]	2014-11-21 00:36:00	100
Reopen Incident	true	email.read		Incident [incident]	2014-10-15 13:37:20	50
Create Incident (Forwarded)	true	email.read	// Note: current.opened_by is already se...	Incident [incident]	2014-01-17 14:07:38	100
Update Service Category Request	true	email.read	if (current.getTableName() == "catalog_c...	Service Category [catalog_category_request]	2013-12-13 08:48:29	100
Update Change	true	email.read	gs.include('validators');	Change Request [change_request]	2013-09-10 09:48:39	100

8. Click the New blue button to create new inbound email actions. The following window displays:



Inbound email actions specify how ServiceNow creates or updates task records in a table when the instance receives an email. The inbound email action looks for a watermark in the email to associate it with a specific task. If the conditions specified in the inbound action are met, the script is run. More Info

Name	Fortinet inbound email	Application	Global
Target table	Incident [incident]	Active	☑
Action type	Record Action	Stop processing	☑

Only emails of the selected Type will trigger this inbound action.

Type: New

Only emails from senders with the Required roles will trigger this inbound action.

Required roles:

Order determines when to run relative to other inbound actions. The inbound action with the lowest order runs first.

Order: 100

Only emails from this sender will trigger this inbound action.

From: Fortinet Fortinet

All of the following conditions must be true, to trigger this inbound action.

Conditions: -- choose field -- | -- oper -- | -- value --

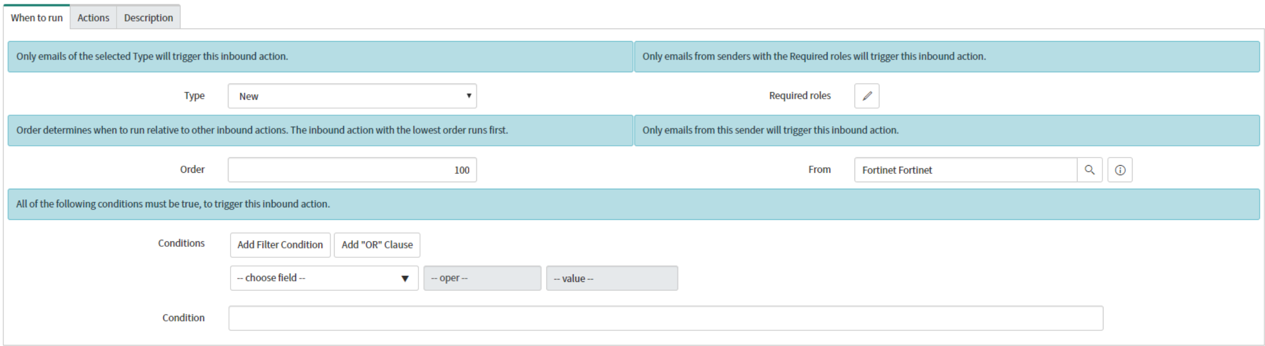
Condition:

9. Fill in the following fields in this window:

Field	Definition
Name	Enter a free-text name for the inbound email feed. For example, **Fortinet inbound email**.
Target table	Select **Incident [incident]** in the dropdown list.
Action type	Select **Record Action** in the dropdown list.

Field	Definition
Active	Check this checkbox to select it.
Stop Processing	Check this checkbox to select it.

10. In this window, select the **When to run** tab and then in the **From** field, select the FortiEDR user created in step 6.



Only emails of the selected Type will trigger this inbound action.

Type: New

Only emails from senders with the Required roles will trigger this inbound action.

Required roles

Order determines when to run relative to other inbound actions. The inbound action with the lowest order runs first.

Order: 100

Only emails from this sender will trigger this inbound action.

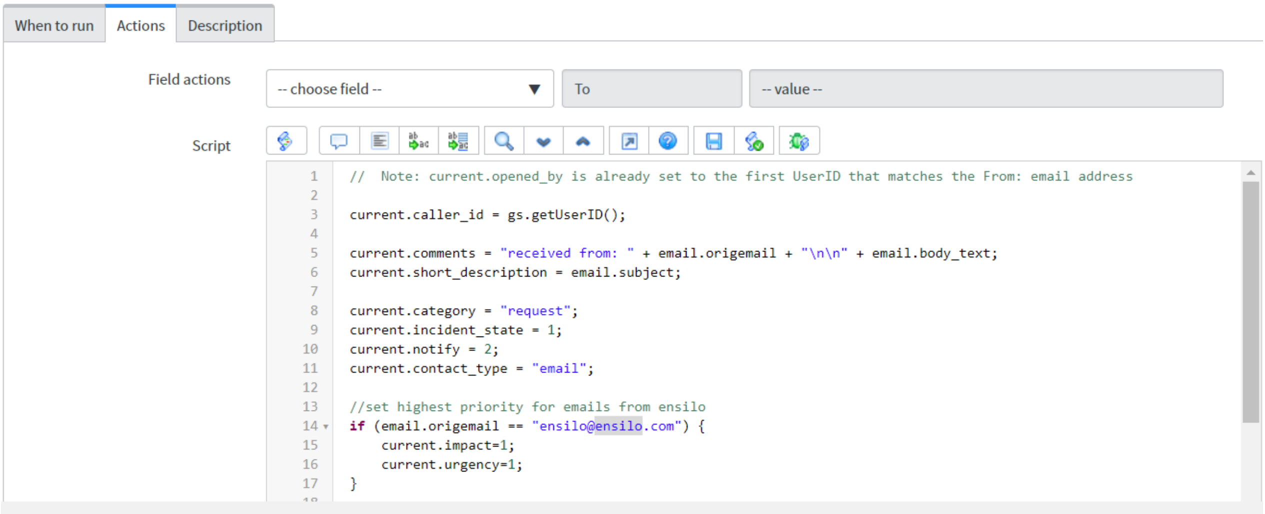
From: Fortinet Fortinet

All of the following conditions must be true, to trigger this inbound action.

Conditions:

Condition

11. Select the Actions tab and then paste the provided JavaScript (see below) into the email body. You can modify this script, as needed.



```
//  Note: current.opened_by is already set to the first UserID that matches the From: email address

current.caller_id = gs.getUserID();

current.comments = "received from: " + email.origemail + "\n\n" + email.body_text;
current.short_description = email.subject;

current.category = "request";
current.incident_state = 1;
current.notify = 2;
current.contact_type = "email";

//set highest priority for emails from ensilo
if (email.origemail == "ensilo@ensilo.com") {
    current.impact=1;
    current.urgency=1;
}
```

The JavaScript includes the following code:

```
//  Note: current.opened_by is already set to the first UserID that matches the From: email address
current.caller_id = gs.getUserID();
current.comments = “received from: “ + email.origemail + “\n\n” + email.body_text;
current.short_description = email.subject;
current.category = “request”;
current.incident_state = 1;
current.notify = 2;
current.contact_type = “email”;
```

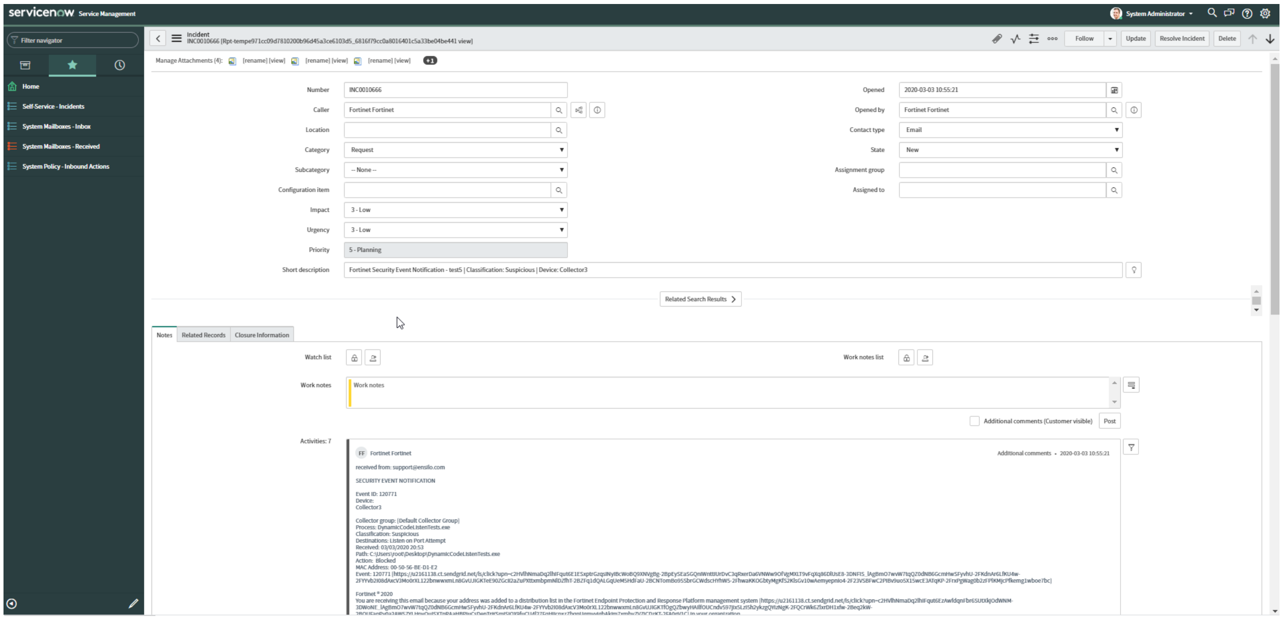
```
//set highest priority for emails from ensilo
if (email.origemail == "DoNotReply@ensilo.com") {
    current.impact=1;

    current.urgency=1;
}

if (email.body.assign != undefined)
    current.assigned_to = email.body.assign;

if (email.importance != undefined) {
    if (email.importance.toLowerCase() == "high")
        current.priority = 1;
}

if (email.body.priority != undefined)
    current.priority = email.body.priority;
//parsing fields from message body example
var severityStart = email.body_text.indexOf('Severity:') + 9;
var classificationStart = email.body_text.indexOf('Classification:') + 15;
var destinitionStart = email.body_text.indexOf('Destinations:');

var severity = email.body_text.slice(severityStart, classificationStart -15 );
var classification = email.body_text.slice(classificationStart, destinitionStart);
 current.insert();
```

12. When pasting in the JavaScript, make sure that:
    - The emails address highlighted in yellow (see above) is the same as that specified in Email Address field of the FortiEDR Open Ticket settings (see step 6).
    - You set the current.impact and current.urgency fields highlighted in light blue to specify the impact and urgency values for ServiceNow.
      Various types of information can be extracted from the email sent by FortiEDR. For example, the text highlighted in pink in the JavaScript (see above) is an example of how to extract the classification value of this event from the email.
13. Click the **Submit** button in the ServiceNow window. This completes the email feed setup.
    When FortiEDR sends an email to ServiceNow, a JSON file is attached to it. This JSON file contains the raw data for the event. Once received, you should save this raw data to the ticket.
    The following shows a sample JSON file:

```
//parsing fields from attachment example
if (sys_email.hasAttachments()){
    var att = new GlideRecord("sys_attachment");
    att.addEncodedQuery("table_name=sys_email^table_sys_id=" + sys_email.getValue("sys_
id"));
```

```
    att.query();
    while (att.next()){
        if (att.file_name == "event.json" ) {
            var sa = new GlideSysAttachment();

            var binData = sa.getBytes(att);
            var strData = Packages.java.lang.String(binData);
            var parser = new JSONParser();
            var parsed = parser.parse(strData);
            current.comments =("EventId from JSON: " + parsed.EventId);
            }
    }
}
```

The following shows how an event appears when received in ServiceNow, after being sent from FortiEDR:



INC0010666 [Rpt-tempe971cc09d7810200b96d45a3ce6103d5_6816f79cc0a8016401c5a33be04be441 view]

Number: INC0010666

Caller: Fortinet Fortinet

Location:

Category: Request

Subcategory: -- None --

Configuration item:

Impact: 3 - Low

Urgency: 3 - Low

Priority: 5 - Planning

Short description: Fortinet Security Event Notification - test5 | Classification: Suspicious | Device: Collector3

Opened: 2020-03-03 10:55:21

Opened by: Fortinet Fortinet

Contact type: Email

State: New

Assignment group:

Assigned to:

Work notes: Work notes

☐ Additional comments (Customer visible)

Activities: 7

Additional comments • 2020-03-03 10:55:21

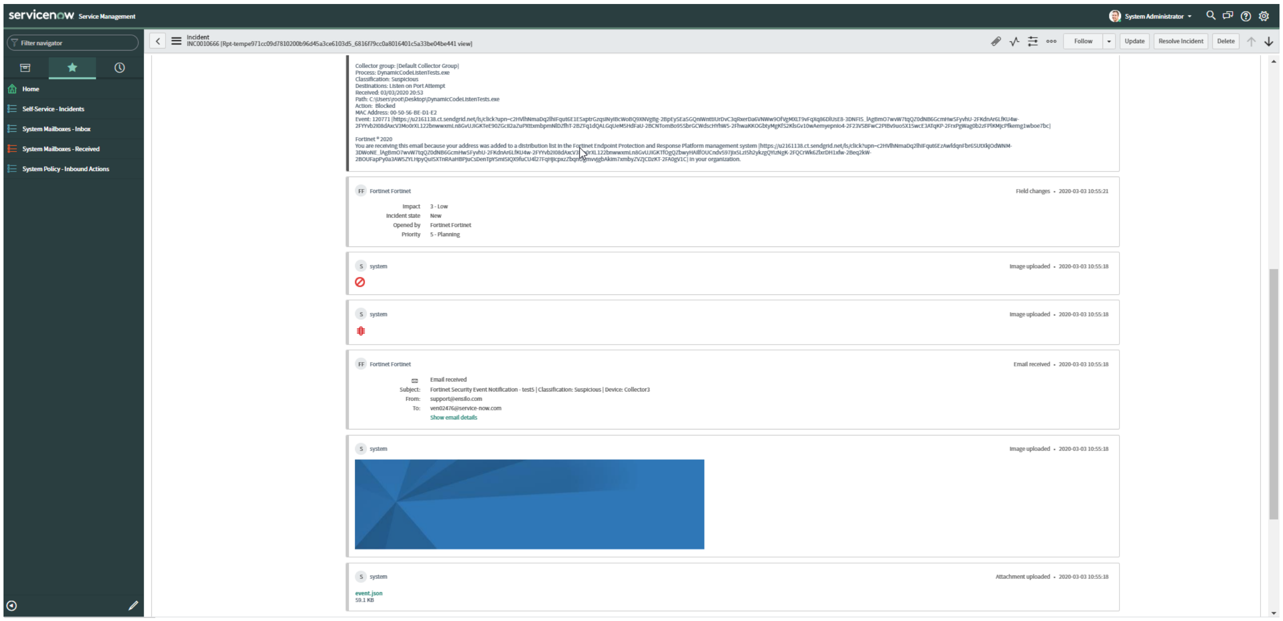
received from: support@ensilo.com

SECURITY EVENT NOTIFICATION

Event ID: 120771
Device:
Collector3

Collector group: [Default Collector Group]
Process: DynamicCodeListenTests.exe
Classification: Suspicious
Destinations: Listen on Port Attempt
Received: 03/03/2020 20:53
Path: C:\Users\root\Desktop\DynamicCodeListenTests.exe
Action: Blocked
MAC Address: 00-50-56-BE-D1-E2
Event: 120771 [https://u2161138.ct.sendgrid.net/ls/click?upn=c2HVlhNmaDq2lhIFqut6E1ESxptrGzqsINyIBcWoBQ9XNVgBg-2BpEySEaSGQnIWnttIUrDvC3qRxerDa6VNWw9OfVgMXLT9vFqXq86DlUsE8-3DNFIS_lAgBmO7wvW7tqQZ0dNB6GcmHwSFyvhU-2FKdnAr6LfKU4w-
2FYYvb2I08dAxcV3Mo0rXL122bnwwxmLn8GvUJIGKTeE90ZGcII2aZuPXttxmbpmNlDZfhT-2BZFq1dQALGqUeM5HdFaU-2BCNTomBo95SbrGCWdscHYhW5-2FhwaKKOGbtyMgKfS2KlsGv10wAemyepnIo4-2F23VSBFwC2PIBv9uo5X15wcE3ATqKP-2FrxPgWag0b2zFPlKMJcPfkemg1wboe7bc]

Fortinet ® 2020
You are receiving this email because your address was added to a distribution list in the Fortinet Endpoint Protection and Response Platform management system [https://u2161138.ct.sendgrid.net/ls/click?upn=c2HVlhNmaDq2lhIFqut6EzAwfdqnFbr6SUtXkjOdWNM-
3DWoNE_lAgBmO7wvW7tqQZ0dNB6GcmHwSFyvhU-2FKdnAr6LfKU4w-2FYYvb2I08dAxcV3Mo0rXL122bnwwxmLn8GvUJIGKTfOgQZbwyHAIlfOUCndv597JIx5LzI5h2ykzgQYIzNgK-2FQCrWk6ZlxrDH1xfw-2Beq2kW-
2BQUFapPy0a2AW5ZYLHpvQuISXTpRAaHBPluCsDepTpYSmISIOX9fuCU4l27FqHlicnxz7bqpUgmvvlqhAkIm7xmhyZVZlCDzKT-2FA0gV1C] In your organization.



Incident
INC0010666 [Rpt-tempe971cc09d7810200b96d45a3ce6103d5_6816f79cc0a8016401c5a33be04be441 view]

Collector group: [Default Collector Group]
Process: DynamicCodeListenTests.exe
Classification: Suspicious
Destinations: Listen on Port Attempt
Received: 03/03/2020 20:53
Path: C:\Users\root\Desktop\DynamicCodeListenTests.exe
Action: Blocked
MAC Address: 00-50-56-BE-D1-E2
Event: 120771 [https://u2161138.ct.sendgrid.net/ls/click?upn=c2HVlhNmaDq2lhIFqut6E1ESxptrGzqsINyIBcWoBQ9XNVgBg-2BpEySEaSGQnIWnttIUrDvC3qRxerDa6VNWw9OfVgMXLT9vFqXq86DlUsE8-3DNFIS_lAgBmO7wvW7tqQZ0dNB6GcmHwSFyvhU-2FKdnAr6LfKU4w-2FYYvb2I08dAxcV3Mo0rXL122bnwwxmLn8GvUJIGKTeE90ZGcII2aZuPXttxmbpmNlDZfhT-2BZFq1dQALGqUeM5HdFaU-2BCNTomBo95SbrGCWdscHYhW5-2FhwaKKOGbtyMgKfS2KlsGv10wAemyepnIo4-2F23VSBFwC2PIBv9uo5X15wcE3ATqKP-2FrxPgWag0b2zFPlKMjcPfkemg1wboe7bc]

Fortinet ® 2020
You are receiving this email because your address was added to a distribution list in the Fortinet Endpoint Protection and Response Platform management system [https://u2161138.ct.sendgrid.net/ls/click?upn=c2HVlhNmaDq2lhIFqut6EzAwfdqnFbr6SUtXkjOdWNM-3DWoNE_lAgBmO7wvW7tqQZ0dNB6GcmHwSFyvhU-2FKdnAr6LfKU4w-2FYYvb2I08dAxcV3Mo0rXL122bnwwxmLn8GvUJIGKTfOgQZbwyHAllfOUCndv597JIx5LzI5h2ykzgQYIzNgK-2FQCrWk6ZlxrDH1xfw-2Beq2kW-2BOUFapPy0a3AW5ZYLHpyQuISXTnRAaHBPJuCsDenTpYSmISIQX9fuCU4l27FqHJIcpxzZbqnOgmvvjgbAkIm7xmbyZVZJCDzKT-2FA0gV1C] in your organization.

FF Fortinet Fortinet — Field changes • 2020-03-03 10:55:21

Impact	3 - Low
Incident state	New
Opened by	Fortinet Fortinet
Priority	5 - Planning

S system — Image uploaded • 2020-03-03 10:55:18

S system — Image uploaded • 2020-03-03 10:55:18

FF Fortinet Fortinet — Email received • 2020-03-03 10:55:18

✉	Email received
Subject:	Fortinet Security Event Notification - test5 | Classification: Suspicious | Device: Collector3
From:	support@ensilo.com
To:	ven02476@service-now.com
	Show email details

S system — Image uploaded • 2020-03-03 10:55:18

S system — Attachment uploaded • 2020-03-03 10:55:18

event.json
59.1 KB

Appendix B - Lucene Syntax

The FortiEDR Threat Hunting free-text query is based on Lucene syntax. This syntax consists of terms and operators, as described below. For more details about the use of this query, see Threat Hunting on page 222.

Terms

A *free-text term* is a single word (for example NetworkService or CryptSvc) or a phrase surrounded by double quotes (for example, ”NetworkService -p -s CryptSvc”) that searches for all the words in a phrase (in the same order) regardless of the field in which the words appear.

A *Field: Value* term is a combination of a field and a value.

A list of available fields is provided in the query box, which is an automatically-complete dropdown list.

Examples

Where the Source command line contains the value NetworkService:

```
Source.CommandLine: NetworkService
```

Where the value of the remote IP is 10.151.121.130:

```
RemoteIP: 10.151.121.130
```

Operators

Operators enable you to customize the search and/or to create more complex queries.

Operators are case insensitive.

Operators	Definition
OR , ||	The query should match either one of the terms/values.
AND, &&	The query should match both of the terms/values.
NOT, !	The query should not match the term/value.
exists	The query should match when the field value is not null.
+ –	The term following this operator must be present.
•	The term following this operator must not be present.

Example

Where the Event includes either the RemoteIP field that contains 10.151.121.130 or the Remote Port field that contains 443

```
RemoteIP: 10.151.121.130 OR RemotePort: 443
```

Where the ProductName field contains both Microsoft and Windows

```
Source.File.ProductName: (microsoft AND windows)
```

Where the ProductName field contains Microsoft and does not include Windows

```
Source.File.ProductName: (microsoft -windows)
```

Where the Product Name field contains the exact phrase “Microsoft Windows”

```
Source.File.ProductName: "microsoft windows"
```

Where the field Behavior has any non-null value

```
_exists_: Behavior
```

Where the field PID does not include the value 5292

```
Source.PID: (NOT 5292)
```

Where the Event does not include the value 5292 in any of the Event fields

```
NOT 5292
```

Wildcards

Wildcard searches can be run on individual terms using a **?** (question mark) to replace a single character, and an ***** (asterisk) to replace zero or more characters:

```
Progr?m Fil*
```

Note that wildcard queries may consume huge amounts of memory and perform poorly.

Ranges

Ranges can be specified for date, numeric or string fields. The inclusive ranges are specified with square brackets

[min TO max] and exclusive ranges with curly brackets {min TO max}.

Numbers 1..5

```
count:[1 TO 5]
```

Numbers from 10 upwards

```
count:[10 TO *]
```

Dates before 2012

```
date:{* TO 2012-01-01}
```

Ranges of IPs

```
RemoteIP: [140.100.100.0 TO 140.100.100.255]
```

Reserved Characters

Should you need to use any of the characters that function as operators in the query itself (and not as operators), then you should escape them with a leading backslash (\). For instance, to search for **c:\Windows\**, write the query as **c\:\\Windows\\**.

Reserved characters are +,-, =, &&, ||, >, <, !, ( ), { }, [ ], ^, ", ~, *, ?, :, \ and /.

Appendix C – ON PREMISE DEPLOYMENTS

This chapter describes how to install the FortiEDR backend components for on premise deployments.

Installing FortiEDR components on-premise

In this section we will guide you through on-premise deployment of FortiEDR components.

Before you start the FortiEDR installation process, please make sure that:

- All devices, workstations, virtual machines and servers on which a FortiEDR component will be installed comply with the system requirements provided on Installing FortiEDR on page 19.
- You have read and selected the most suitable deployment option for you.
- FortiEDR Core, FortiEDR Aggregator and FortiEDR Central Manager use ports 555, 8081 and 443, respectively. Ensure that these ports are not blocked by your firewall product (if one is deployed).
  As a security best practice, it is recommended to update the firewall rules so that they only have a narrow opening. For example:
  - Only open the TCP outbound port 555 to the Core IP address.
  - Only open the TCP outbound port 8081 to the Aggregator IP address.

Install the system components top-down in the following order:

1. Installing the FortiEDR Central Manager and FortiEDR Aggregator on the Same Machine on page 383
2. Installing the FortiEDR Threat Hunting Repository on page 389
3. Installing the FortiEDR Core on page 397
4. Installing FortiEDR Collectors on page 26

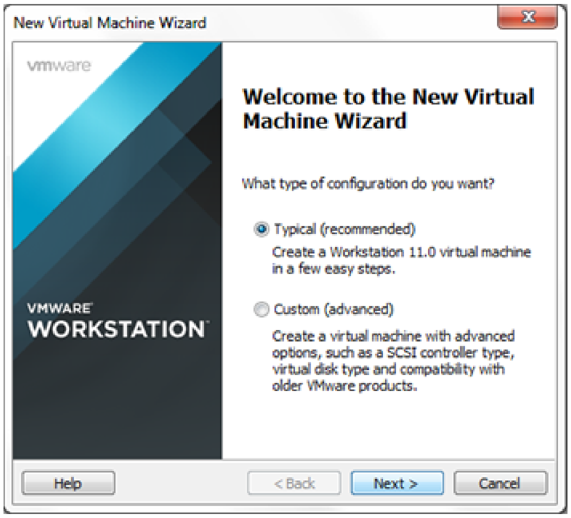
Installing the FortiEDR Central Manager and FortiEDR Aggregator on the Same Machine

The following describes how to install both the FortiEDR Central Manager and the FortiEDR Aggregator on the same machine.

The same ISO file is provided for installing both the FortiEDR Central Manager and the FortiEDR Aggregator. Both of these can be installed on the same machine or separately. To install these components on different machines, see Installing the FortiEDR Central Manager and FortiEDR Aggregator on Different Machines on page 388.

The procedure below describes how to install the FortiEDR Central Manager on a VMware-based virtual server.

1. Create a new virtual server by selecting **File > New Virtual Machine**.

2. 

New Virtual Machine Wizard

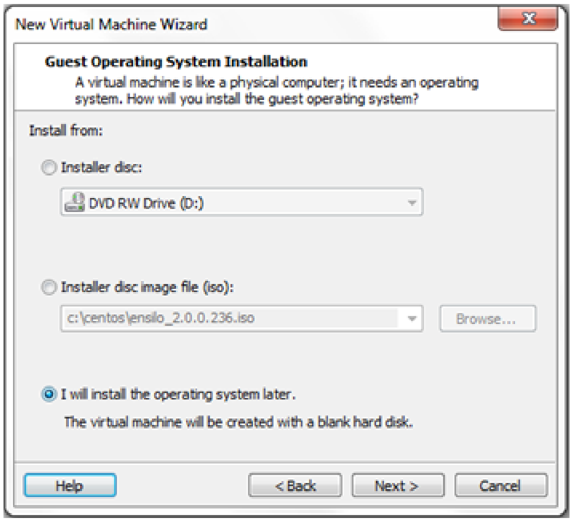
Welcome to the New Virtual Machine Wizard

What type of configuration do you want?

● Typical (recommended)
Create a Workstation 11.0 virtual machine in a few easy steps.

○ Custom (advanced)
Create a virtual machine with advanced options, such as a SCSI controller type, virtual disk type and compatibility with older VMware products.

Select the **Typical** option and select **Next**

3. 

New Virtual Machine Wizard

Guest Operating System Installation
A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system?

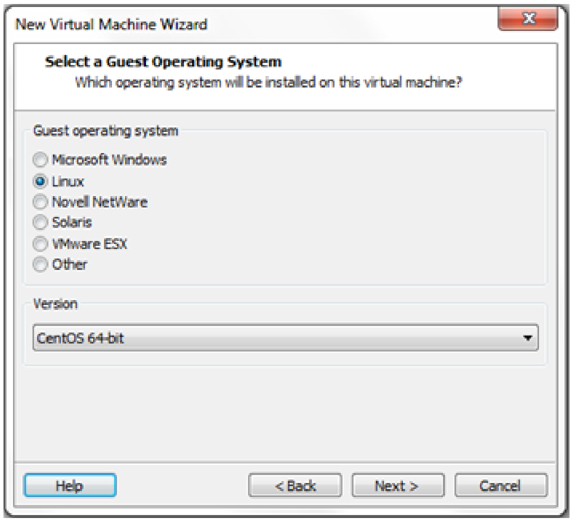
Install from:

○ Installer disc:
DVD RW Drive (D:)

○ Installer disc image file (iso):
c:\centos\ensilo_2.0.0.236.iso

● I will install the operating system later.
The virtual machine will be created with a blank hard disk.

Select the **I will install the operating system later** option and click **Next.**

4. 

New Virtual Machine Wizard

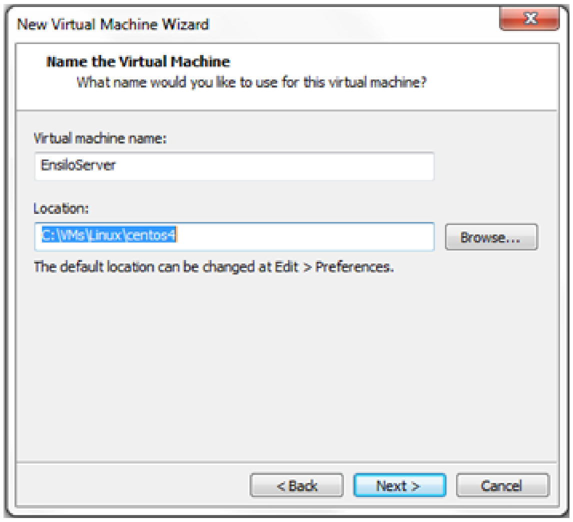
Select a Guest Operating System
Which operating system will be installed on this virtual machine?

Guest operating system
○ Microsoft Windows
● Linux
○ Novell NetWare
○ Solaris
○ VMware ESX
○ Other

Version
CentOS 64-bit

Select the Linux radio button. In the **Version** field, select **CentOS 7 64-bit** and click **Next.**

5.



New Virtual Machine Wizard

Name the Virtual Machine

What name would you like to use for this virtual machine?

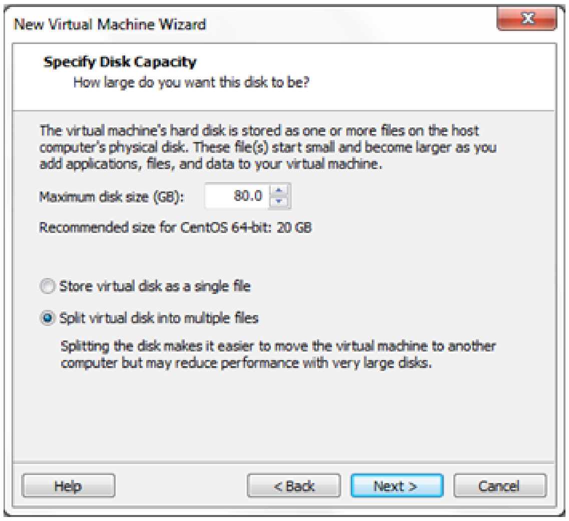
Virtual machine name: EnsiloServer

Location: C:\VMs\Linux\centos4

The default location can be changed at Edit > Preferences.

Specify a name such as FortiEDRCentralManager for the virtual machine and the location in which to store the provided ISO file and click **Next**.

6.



New Virtual Machine Wizard

Specify Disk Capacity

How large do you want this disk to be?

The virtual machine's hard disk is stored as one or more files on the host computer's physical disk. These file(s) start small and become larger as you add applications, files, and data to your virtual machine.

Maximum disk size (GB): 80.0

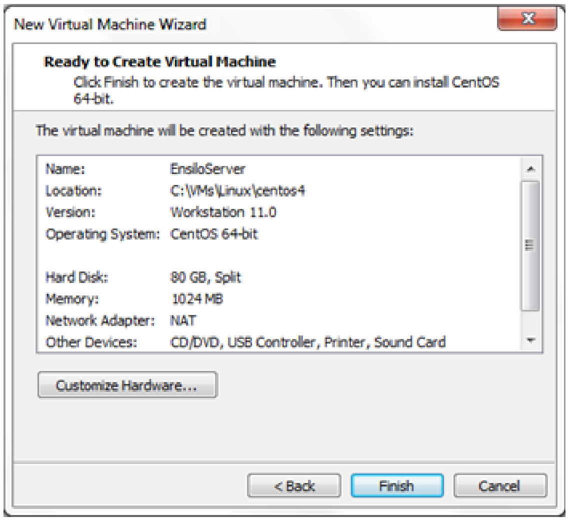
Recommended size for CentOS 64-bit: 20 GB

○ Store virtual disk as a single file

● Split virtual disk into multiple files

Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.

Change the **Maximum disk size** according to system requirements listed in Installing FortiEDR on page 19, leave the default option as **Split virtual disk into multiple files** and click **Next**.

7. 

New Virtual Machine Wizard

Ready to Create Virtual Machine

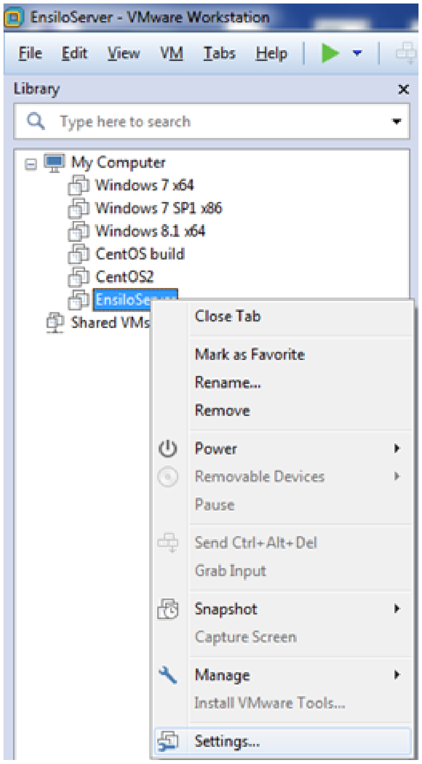
Click Finish to create the virtual machine. Then you can install CentOS 64-bit.

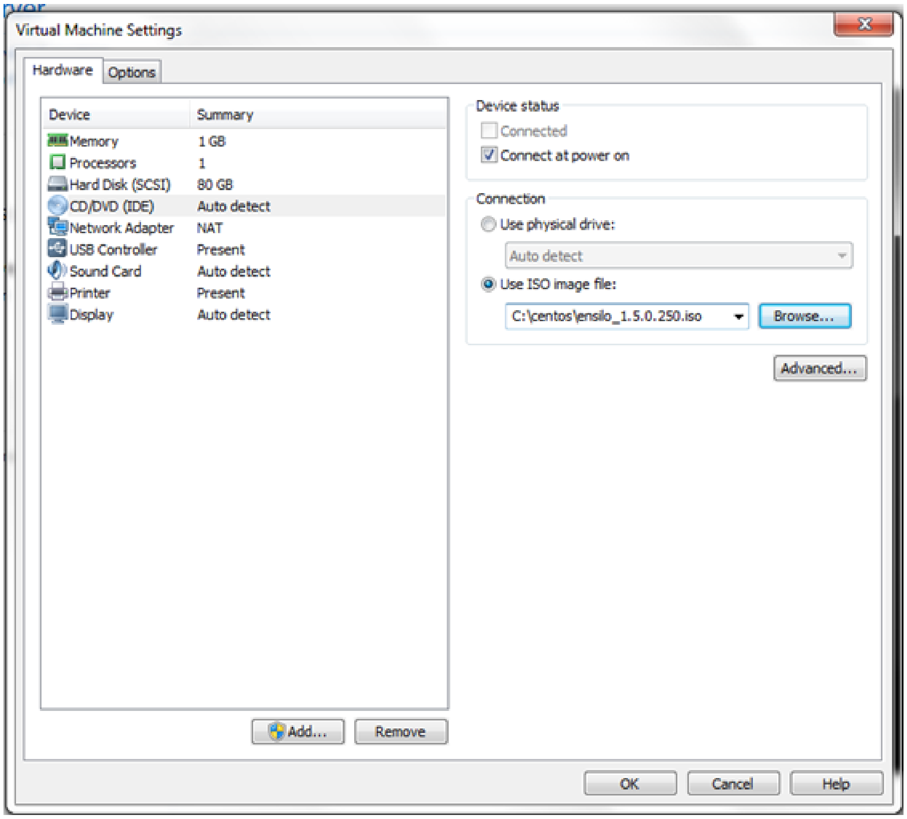
The virtual machine will be created with the following settings:

Name:	EnsiloServer
Location:	C:\VMs\Linux\centos4
Version:	Workstation 11.0
Operating System:	CentOS 64-bit
Hard Disk:	80 GB, Split
Memory:	1024 MB
Network Adapter:	NAT
Other Devices:	CD/DVD, USB Controller, Printer, Sound Card

Click **Finish**

8. Right-click the new machine and select the **Settings** option



9. 

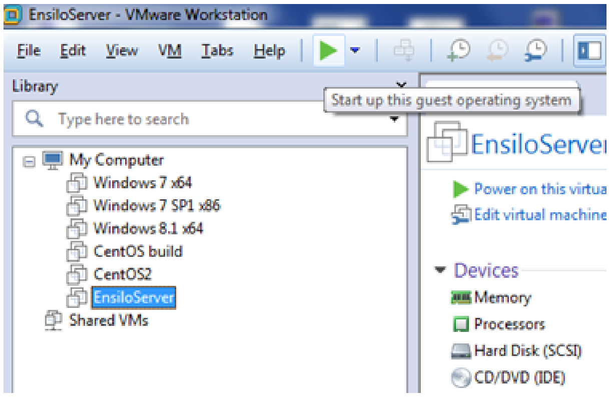
Device	Summary
Memory	1 GB
Processors	1
Hard Disk (SCSI)	80 GB
CD/DVD (IDE)	Auto detect
Network Adapter	NAT
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

Device status
□ Connected
☑ Connect at power on

Connection
○ Use physical drive:
Auto detect
● Use ISO image file:
C:\centos\ensilo_1.5.0.250.iso

Select the **Memory** option and change the RAM according to system requirements listed in Installing FortiEDR on page 19.

10. Select the **Processors** option and change the value according to system requirements listed in Installing FortiEDR on page 19.
11. Select the **CD/DVD** option and then select the **Use ISO image file** option on the right.
12. Click the **Browse** button and select the ISO file provided by Fortinet for the FortiEDR Central Manager. Click **OK**.
13. Start the virtual machine.



The virtual machine automatically starts the installation process, which may take a few minutes.

14. Wait until a success message is displayed requesting that you reboot.
15. Reboot the virtual machine.
16. Log into the virtual machine in order to continue the installation process.

```
Login: root
```

Change the root password, by entering any password you want. Then re-type it. The password must be strong enough according to Linux standards.

17. Enter `fortiedr config`
18. At the prompt, enter your `hostname` and click **Next**. (Note: This can be any hostname)
19. At the prompt, select the role of the virtual machine. For this installation, which installs both the FortiEDR Central Manager and FortiEDR Aggregator on the same machine, select **Both** and click **Next**
20. A list of network interfaces on this virtual machine displays. At the **Pick your primary interface** prompt, select the interface to be used as the primary network interface through which all FortiEDR Cores and FortiEDR Collectors will reach this server, and then click **Next**.
21. At the **Do you want to use DHCP** prompt, select **No** to configure the IP of this virtual machine manually, and then click **Next**.
22. At the prompt, enter the IP address of the machine that you are installing. Use the following format: `xxx.xxx.xxx.xxx/yyyy`, where `yyyy` is the routing prefix of the subnet.
23. At the prompt, enter the default gateway and click **Next**.
24. At the **Please set your DNS server** prompt, enter a valid IP address and click **Next**. Use the following format: `xxx.xxx.xxx.xxx/yyyy`, where `yyyy` is the routing prefix of the subnet.
25. At the prompt, select **No** for debug mode.
26. At the **Please set the date** prompt, verify the date and click Next. The installer automatically presents the current date. You can change this date, if necessary.
27. At the **Please set your Time** prompt, set the time and click **Next**.
28. At the prompt, select the timezone and country in which the server is being installed.
29. Wait a few moments while the installation processes, until you see the Installation completed successfully message.
30. Log in for the first time, as described on Launching the FortiEDR Central Manager for the First Time on page 21.

Installing the FortiEDR Central Manager and FortiEDR Aggregator on Different Machines

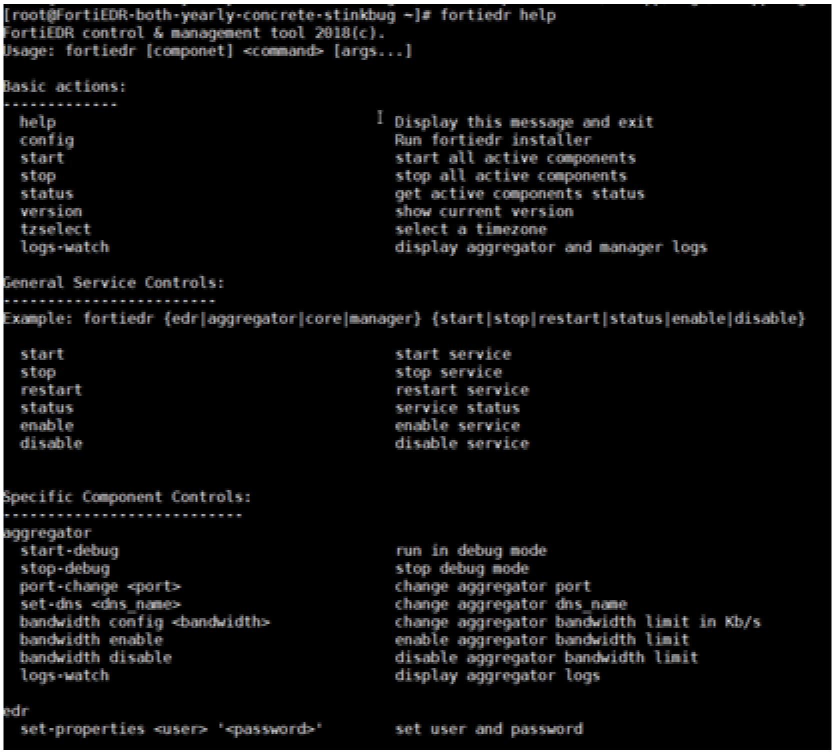
- To install only the FortiEDR Central Manager component, perform the entire procedure for Installing the FortiEDR Central Manager and FortiEDR Aggregator on the Same Machine on page 383
- To install only the FortiEDR Aggregator component, perform steps 1 through 19 Installing the FortiEDR Central Manager and FortiEDR Aggregator on the Same Machine on page 383. Then, perform the steps described below:
  a. At the **Please enter the management IP address** prompt, enter the IP address to be used for communicating with the FortiEDR Central Manager and click **Next**
  b. At the **Please enter your registration password** prompt, enter the user and password used to register the FortiEDR Aggregator with the FortiEDR Central Manager and click **Next**.
  c. Perform steps 21 through 29 of Installing the FortiEDR Central Manager and FortiEDR Aggregator on the Same Machine on page 383

After you have finished the successful installation of FortiEDR Central Manager, please refer to Launching the FortiEDR Central Manager for the First Time on page 21.

FortiEDR CLI Commands

The following describes additional commands that you can perform in the FortiEDR Core, Repository Server, FortiEDR Central Manager or FortiEDR Aggregator CLI.

At the prompt, type `fortiedr` or `fortiedr` help to display them.



```
[root@FortiEDR-both-yearly-concrete-stinkbug ~]# fortiedr help
FortiEDR control & management tool 2018(c).
Usage: fortiedr [componet] <command> [args...]

Basic actions:
--------------
  help                                    Display this message and exit
  config                                  Run fortiedr installer
  start                                   start all active components
  stop                                    stop all active components
  status                                  get active components status
  version                                 show current version
  tzselect                                select a timezone
  logs-watch                              display aggregator and manager logs

General Service Controls:
-------------------------
Example: fortiedr {edr|aggregator|core|manager} {start|stop|restart|status|enable|disable}

  start                                   start service
  stop                                    stop service
  restart                                 restart service
  status                                  service status
  enable                                  enable service
  disable                                 disable service


Specific Component Controls:
----------------------------
aggregator
  start-debug                             run in debug mode
  stop-debug                              stop debug mode
  port-change <port>                      change aggregator port
  set-dns <dns_name>                      change aggregator dns_name
  bandwidth config <bandwidth>            change aggregator bandwidth limit in Kb/s
  bandwidth enable                        enable aggregator bandwidth limit
  bandwidth disable                       disable aggregator bandwidth limit
  logs-watch                              display aggregator logs

edr
  set-properties <user> '<password>'      set user and password
```

After you have finished the successful installation of FortiEDR Central Manager, refer to the Launching the FortiEDR Central Manager for the First Time on page 21.

Installing the FortiEDR Threat Hunting Repository

The FortiEDR Threat Hunting feature (described in Threat Hunting on page 222) requires a license and the installation of the Threat Hunting repository, as described below. The installation of the FortiEDR Manager is a prerequisite for installing the Repository server.

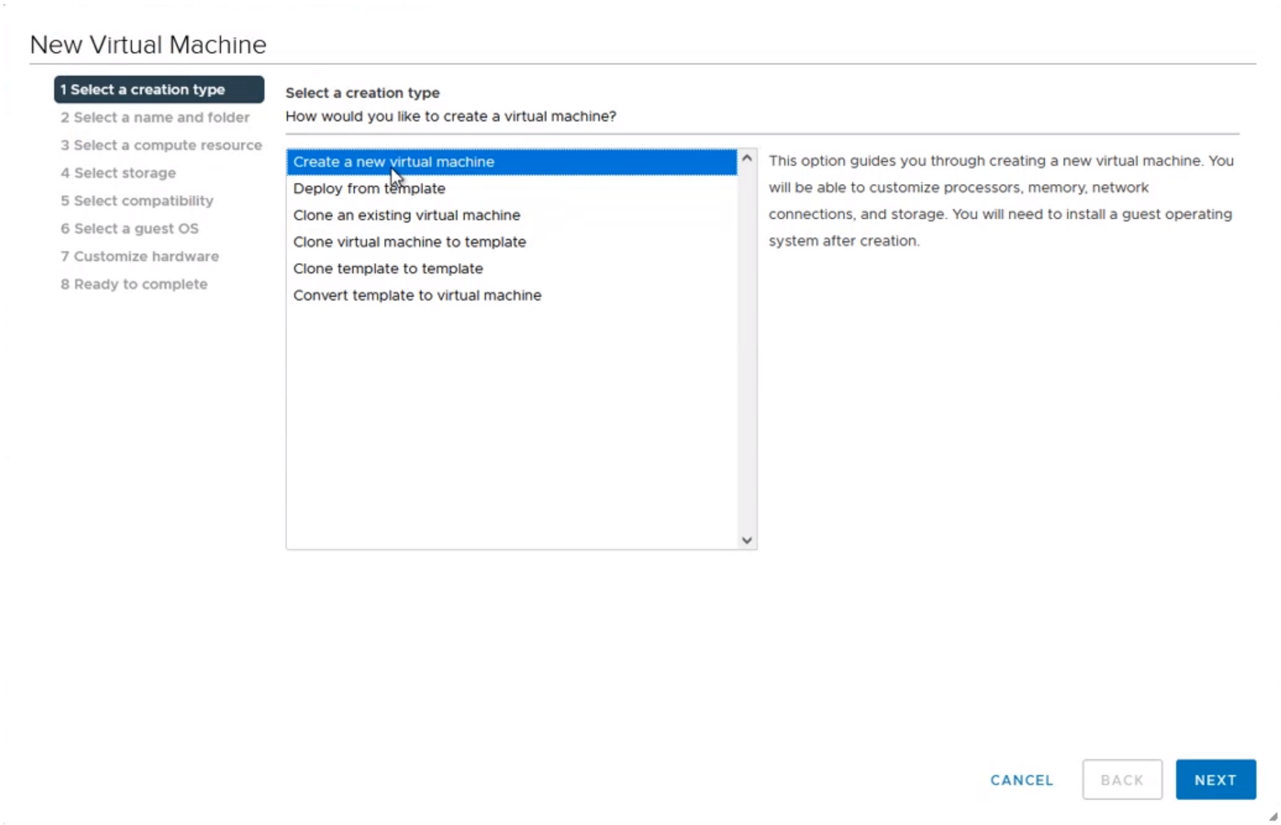
Installation of FortiEDR Threat Hunting is comprised of the following steps:

1. Creating a Virtual Machine on page 389
2. Installing an Operating System ISO on page 391
3. Installing a FortiEDR Repository Software ISO on page 395

Creating a Virtual Machine

To create a virtual machine

1. Create a new virtual server. For example, by selecting **File > New Virtual Machine…**, then selecting **Create a new virtual machine** and clicking **NEXT**.



New Virtual Machine

1 Select a creation type
2 Select a name and folder
3 Select a compute resource
4 Select storage
5 Select compatibility
6 Select a guest OS
7 Customize hardware
8 Ready to complete

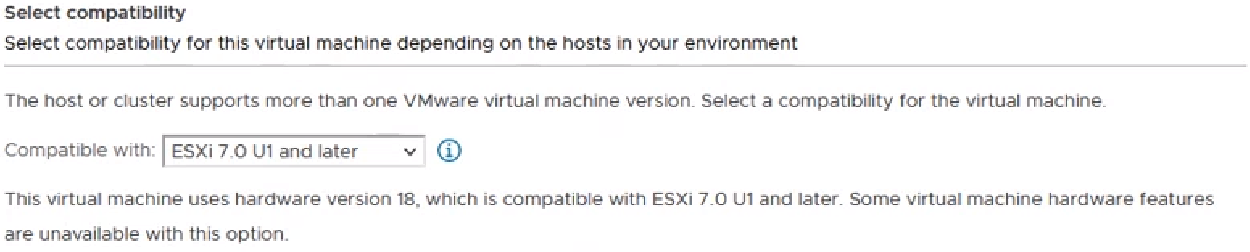
Select a creation type

How would you like to create a virtual machine?

Create a new virtual machine
Deploy from template
Clone an existing virtual machine
Clone virtual machine to template
Clone template to template
Convert template to virtual machine

This option guides you through creating a new virtual machine. You will be able to customize processors, memory, network connections, and storage. You will need to install a guest operating system after creation.

2. Enter the desired **virtual machine name.** For example, **FortiEDR-TH-Repository** and click **NEXT**.
3. Enter the virtual machine settings, as follows:
   - In the **Select storage** step, select the storage where the virtual machine disk should be stored on and click **NEXT**.
   - In the **Select Compatibility** step, select **ESXi 7.0 U1 and later** and click **NEXT**.



Select compatibility

Select compatibility for this virtual machine depending on the hosts in your environment

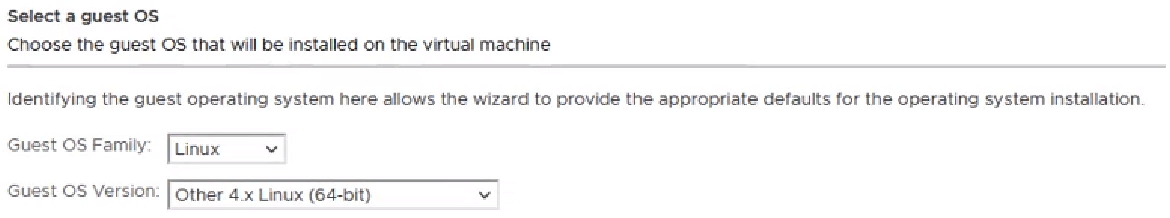
The host or cluster supports more than one VMware virtual machine version. Select a compatibility for the virtual machine.

Compatible with: ESXi 7.0 U1 and later

This virtual machine uses hardware version 18, which is compatible with ESXi 7.0 U1 and later. Some virtual machine hardware features are unavailable with this option.

   - At the **Select a guest OS step:**
     - In the Guest OS family field, select **Linux**.
     - In the Guest OS version field, select **Other 4.x Linux (64-bit).**

- ◦ Click **Next**. The following displays:



Select a guest OS

Choose the guest OS that will be installed on the virtual machine

Identifying the guest operating system here allows the wizard to provide the appropriate defaults for the operating system installation.

Guest OS Family: Linux

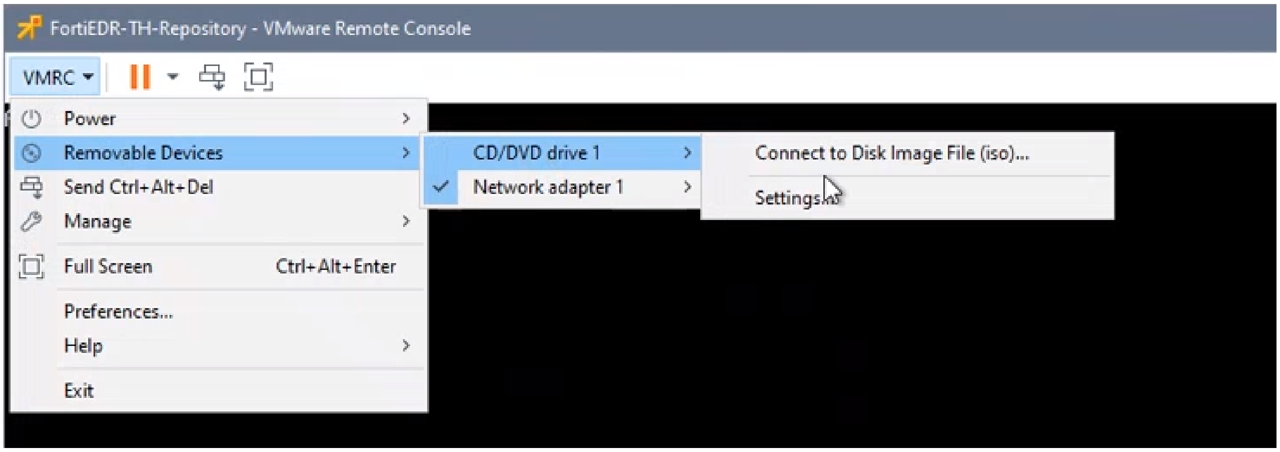
Guest OS Version: Other 4.x Linux (64-bit)

- In the **Customize hardware** step, do the following:
  - In the **CPU** field, enter the number of CPUs, as specified in System Requirements on page 19
  - In the **Memory** field, enter amount of memory in GB, as specified in the System Requirements on page 19
  - In the **New Hard disk**, enter the SSD disk size in GB, as specified in the System Requirements on page 19. It is highly recommended to use SSD.
  - Add an OS disk. In the **New Hard disk**:
    - Enter the OS disk size in GB, as specified in System Requirements on page 19
    - In the **Disk Provisioning** field, select **Thin Provision.**
  - Add a DATA disk. In the **New Hard disk**:
    - Enter the **DATA disk size** in GB, as specified in System Requirements on page 19
    - It is highly recommended to use SSD.
    - In the **Disk Provisioning** field, enter **Thick Provision Eager Zeroed.**
  - In the **New Network** field choose **VMXNET3**
- To complete the creation of a virtual machine, select **Finish.**

Installing an Operating System ISO

To install an operating system ISO:

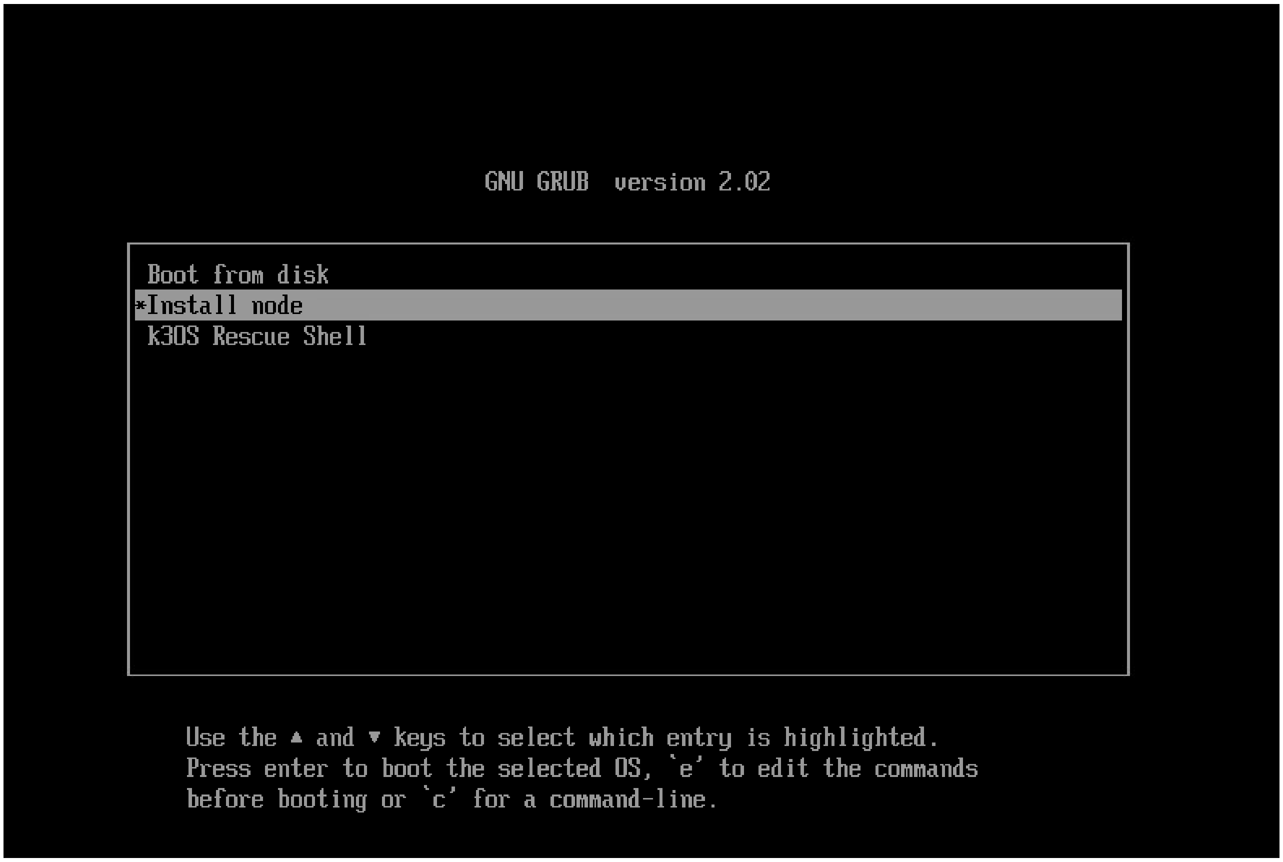
1. Select the newly created virtual machine and click Launch Remote Console.
2. In the **VMRC** menu, select **Removable Device > CD/DVE drive 1 > Connect to Disk Image File (iso)….**



3. Select the **FortiEDR_Repository_OSInstaller** ISO file and click **Open**
   Note: ISO should remain mounted

Another option instead of completing the two steps described above is to upload the ISO from the VMWare datastore (this is possible if the ISO has already been uploaded there).

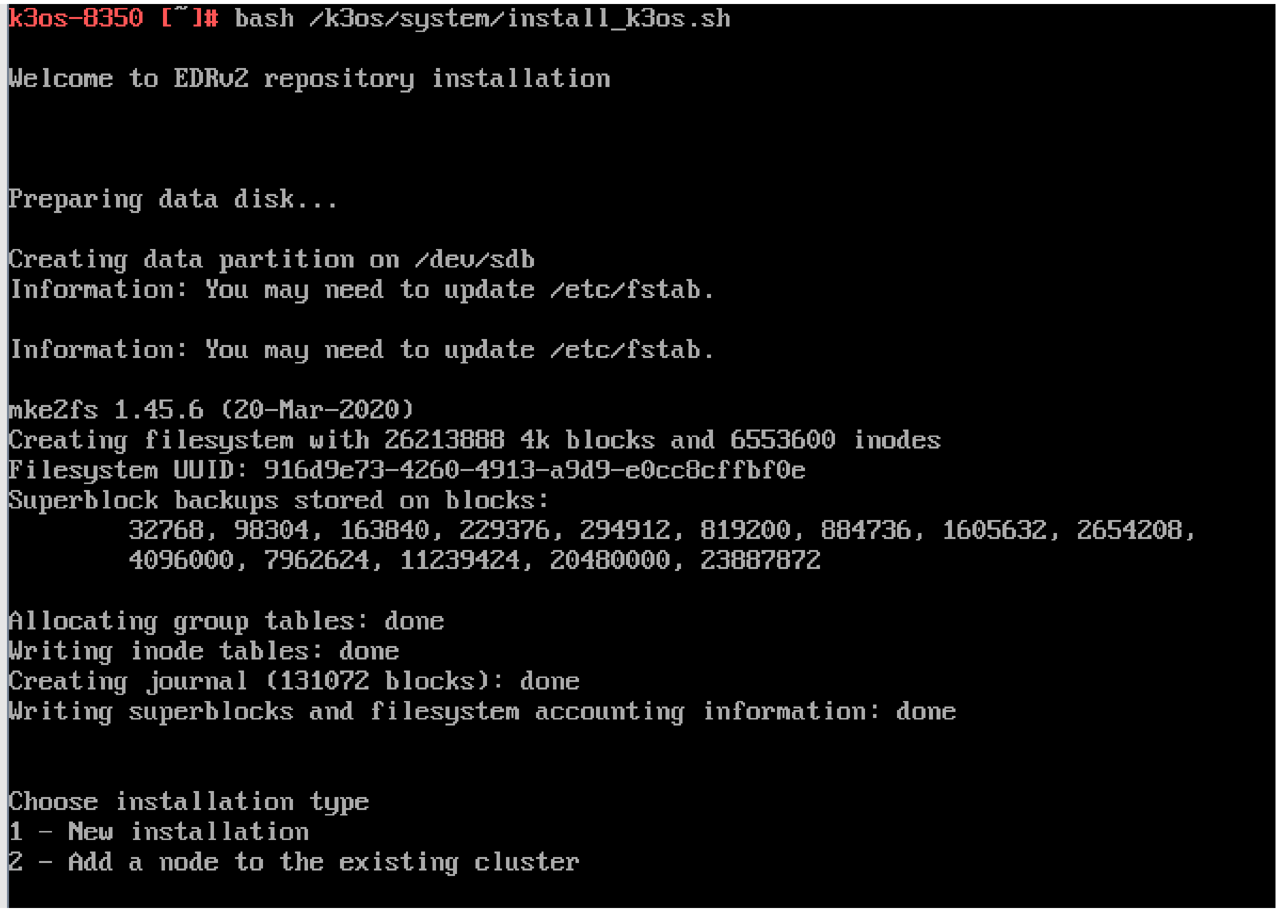
4. Restart the Virtual Machine. The virtual machine starts and the following menu is displayed:



```
GNU GRUB  version 2.02

 Boot from disk
*Install node
 k3OS Rescue Shell

Use the ▲ and ▼ keys to select which entry is highlighted.
Press enter to boot the selected OS, `e' to edit the commands
before booting or `c' for a command-line.
```

5. Select the **Install Node** option
6. Log in using the **rancher** user (without the password) and run the following commands in order to start the K8S node installation:

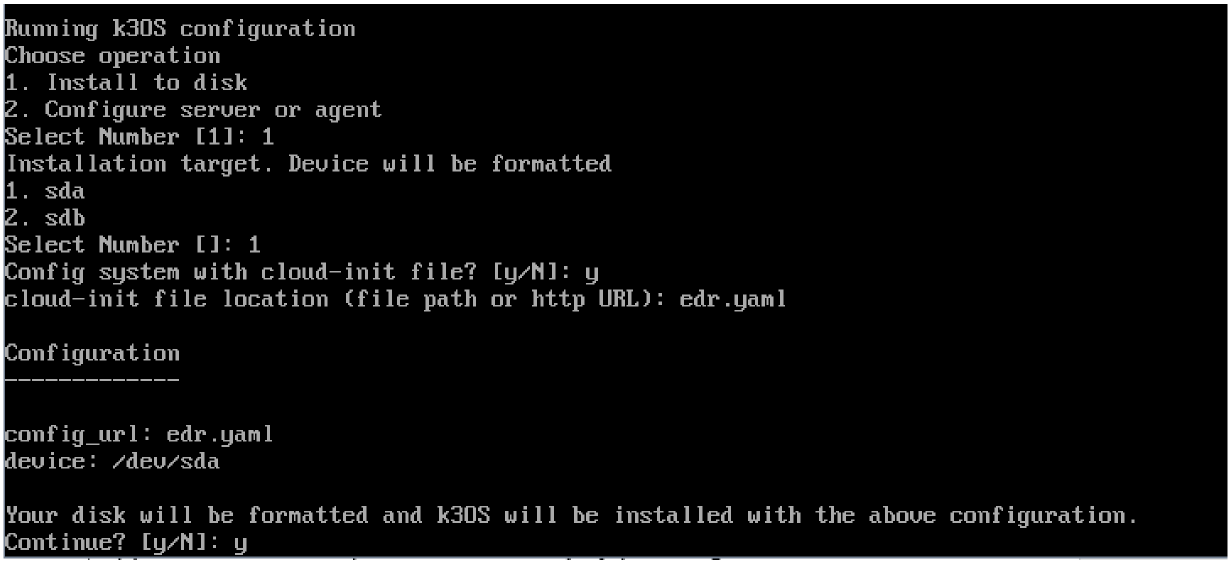
```
sudo su –
bash /k3os/system/install_k3os.sh
```



```
k3os-8350 [~]# bash /k3os/system/install_k3os.sh

Welcome to EDRv2 repository installation



Preparing data disk...

Creating data partition on /dev/sdb
Information: You may need to update /etc/fstab.

Information: You may need to update /etc/fstab.

mke2fs 1.45.6 (20-Mar-2020)
Creating filesystem with 26213888 4k blocks and 6553600 inodes
Filesystem UUID: 916d9e73-4260-4913-a9d9-e0cc8cffbf0e
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
        4096000, 7962624, 11239424, 20480000, 23887872

Allocating group tables: done
Writing inode tables: done
Creating journal (131072 blocks): done
Writing superblocks and filesystem accounting information: done


Choose installation type
1 - New installation
2 - Add a node to the existing cluster
```

7. For a new installation, enter **1**.
8. Complete the **k3os** installation by providing the following parameters:
   - When prompted to enter the **SSH password**, enter the password to be used for the rancher user. A strong password must be entered.
   - At the **k8s cluster token** prompt, enter the token to be used if additional nodes will be connected in the future. This token will be used by additional nodes in order to connect to this **k8s** cluster.
   - At the **Use DHCP (yes/no)** prompt, enter **no**.
     Note: Using DHCP causes a malfunction of the FortiEDR Repository server so that it is in an **Offline** state after the installation. When prompted, enter the IP, Mask and Gateway details of the virtual machine.
   - When prompted to select an operation, approve the default (**1. Install to disk**) by pressing Enter.
   - To select the **sda** disk as the OS disk, enter **1**.
   - At the **Config system with cloud-init file** prompt, enter **y**.
   - When asked to provide a Cloud-init file location (file path or http URL), enter **edr.yaml**.

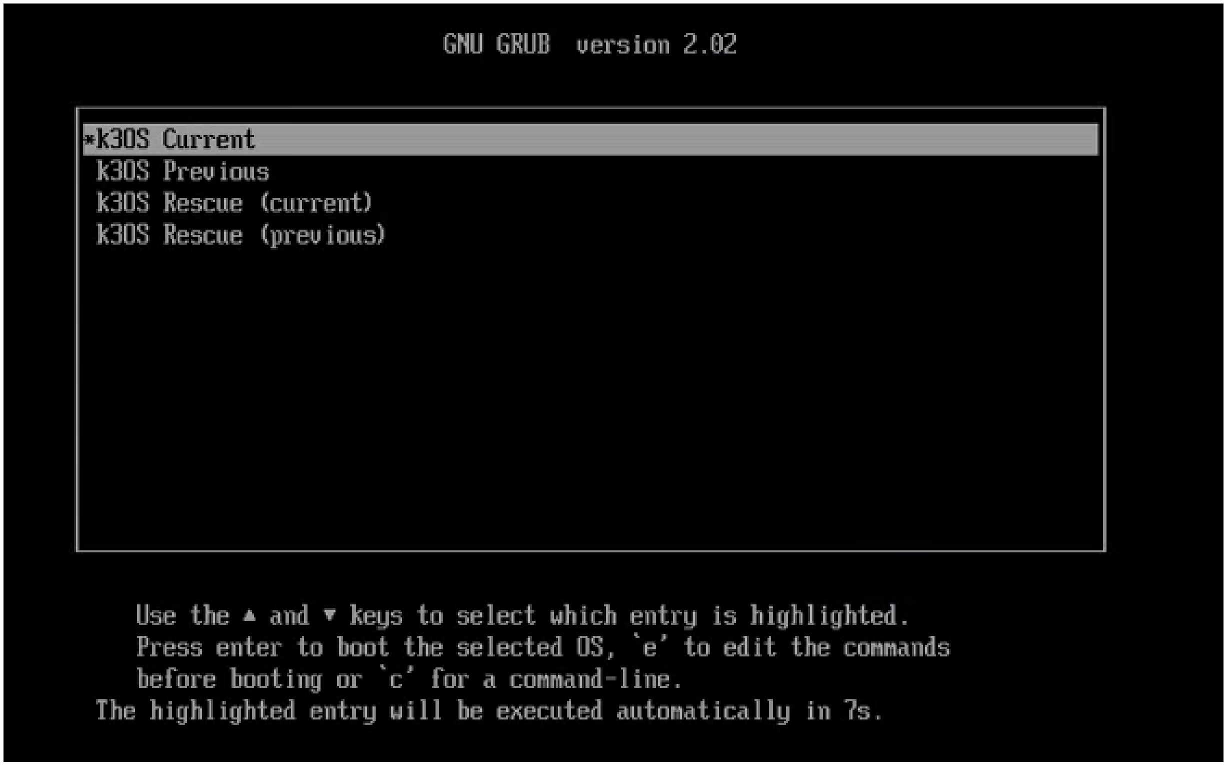
- When prompted to continue, enter **y**.



```
Running k3OS configuration
Choose operation
1. Install to disk
2. Configure server or agent
Select Number [1]: 1
Installation target. Device will be formatted
1. sda
2. sdb
Select Number []: 1
Config system with cloud-init file? [y/N]: y
cloud-init file location (file path or http URL): edr.yaml

Configuration
-------------

config_url: edr.yaml
device: /dev/sda

Your disk will be formatted and k3OS will be installed with the above configuration.
Continue? [y/N]: y
```

This may take a while. At the end, the Virtual Machine will restart automatically.

- In the menu, approve the default (**k30S Current**).



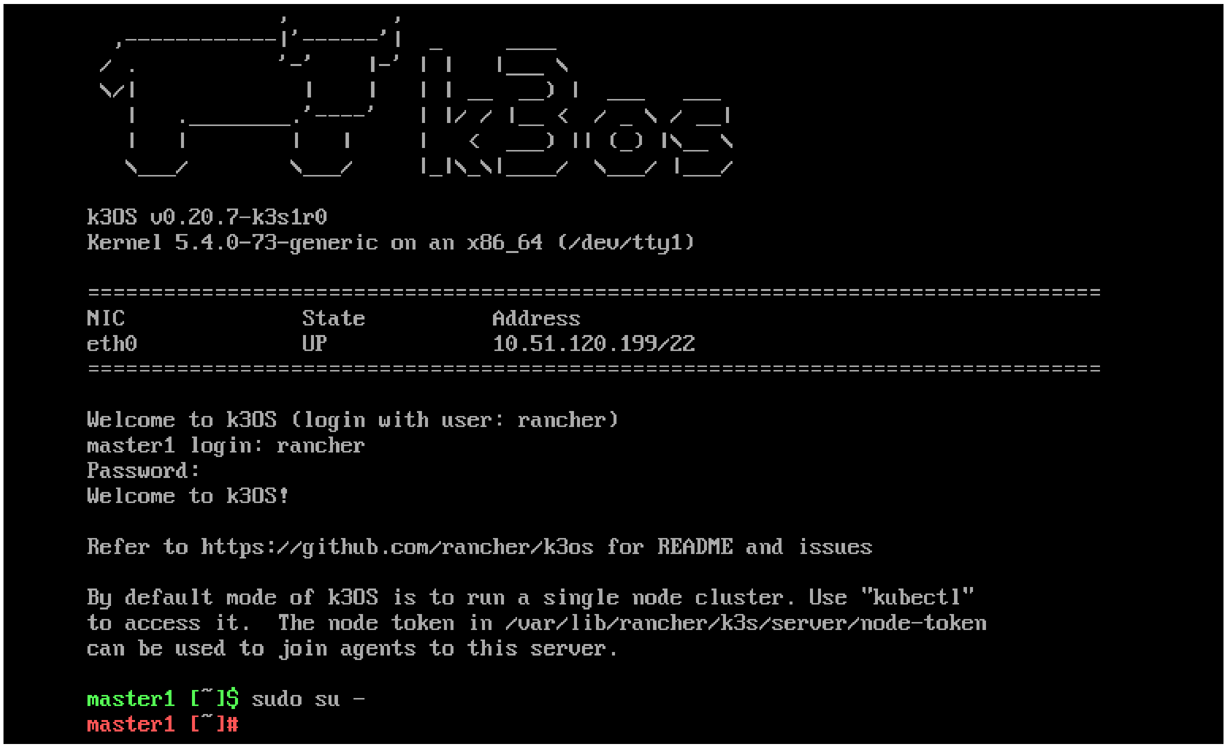
```
                         GNU GRUB  version 2.02

   *k3OS Current
    k3OS Previous
    k3OS Rescue (current)
    k3OS Rescue (previous)

      Use the ▲ and ▼ keys to select which entry is highlighted.
      Press enter to boot the selected OS, `e' to edit the commands
      before booting or `c' for a command-line.
   The highlighted entry will be executed automatically in 7s.
```

The system will start. This might take a few minutes while OS data is copied to the Virtual Machine

- Log in with the **rancher** name and the password set previously.

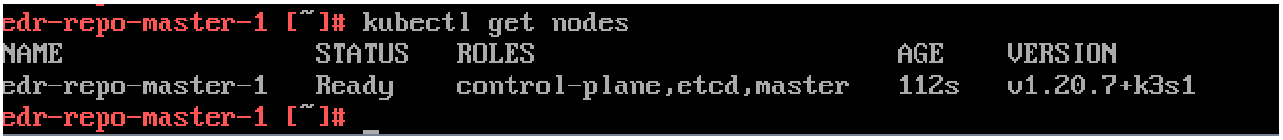
  ISO should be disconnected before continuing

- Run the `sudo su -` command



```
k3OS v0.20.7-k3s1r0
Kernel 5.4.0-73-generic on an x86_64 (/dev/tty1)

================================================================================
NIC                 State           Address
eth0                UP              10.51.120.199/22
================================================================================

Welcome to k3OS (login with user: rancher)
master1 login: rancher
Password:
Welcome to k3OS!

Refer to https://github.com/rancher/k3os for README and issues

By default mode of k3OS is to run a single node cluster. Use "kubectl"
to access it.  The node token in /var/lib/rancher/k3s/server/node-token
can be used to join agents to this server.

master1 [~]$ sudo su -
master1 [~]#
```

9. Check that the installation was successful by running the `kubectl get nodes` command and checking that the status of **edr-repo-master1** is **Ready**, as shown below:

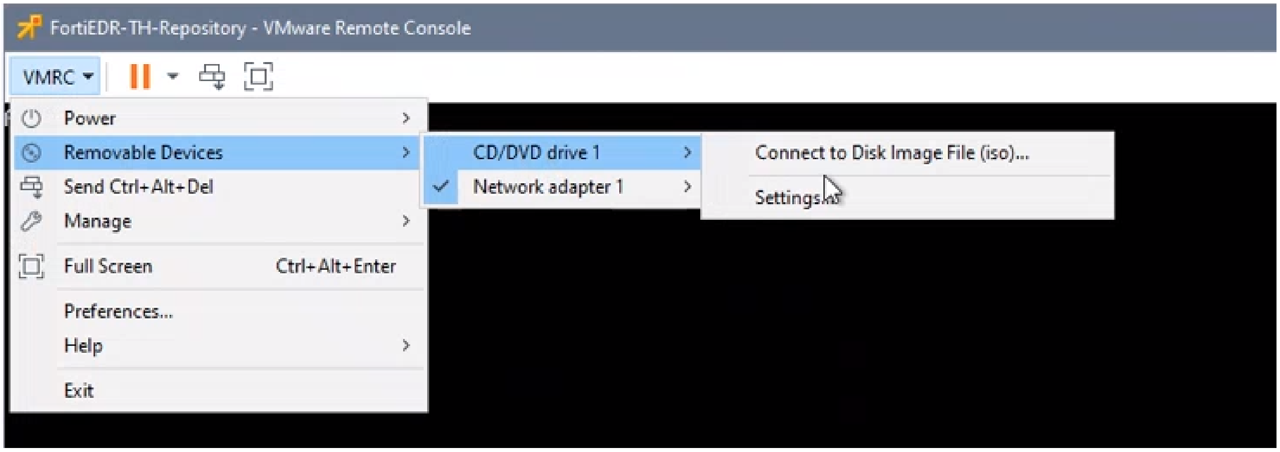


```
edr-repo-master-1 [~]# kubectl get nodes
NAME                STATUS   ROLES                       AGE    VERSION
edr-repo-master-1   Ready    control-plane,etcd,master   112s   v1.20.7+k3s1
edr-repo-master-1 [~]# _
```

Installing a FortiEDR Repository Software ISO

To install the FortiEDR Repository Software ISO, launch the **FortiEDR_RepositoryInstaller ISO file:**

1. From the **VMRC** menu, select **Removable Device > CD/DVD drive 1 > Connect to Disk Image File (iso)...**



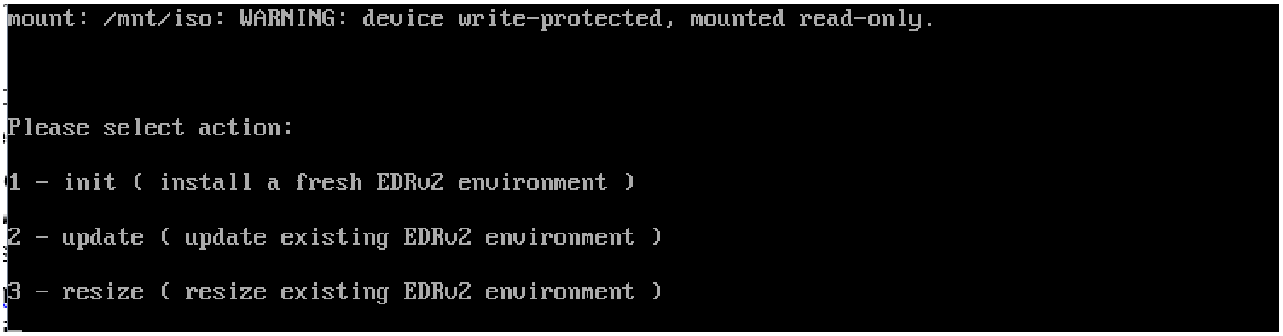
2. Select the FortiEDR_RepositoryInstaller ISO file and click on **Open**.

   Another option instead of the two steps described above is to upload the ISO from the VMWare datastore (this is possible if the ISO has already been uploaded there).

3. Run the following command:

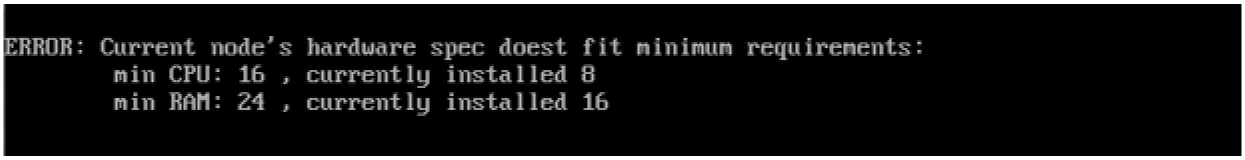
   ```
   bash /k3os/system/install_edr2.sh
   ```

   Select **init** (1) for a new installation.

   ```
   mount: /mnt/iso: WARNING: device write-protected, mounted read-only.


   Please select action:

   1 - init ( install a fresh EDRv2 environment )

   2 - update ( update existing EDRv2 environment )

   3 - resize ( resize existing EDRv2 environment )
   ```

   Existing virtual machine specifications (CPU and RAM) are being validated. If one is found to be lower than the minimum requirements for proper functioning of the FortiEDR Repository, the following warning appears and the installation is aborted:

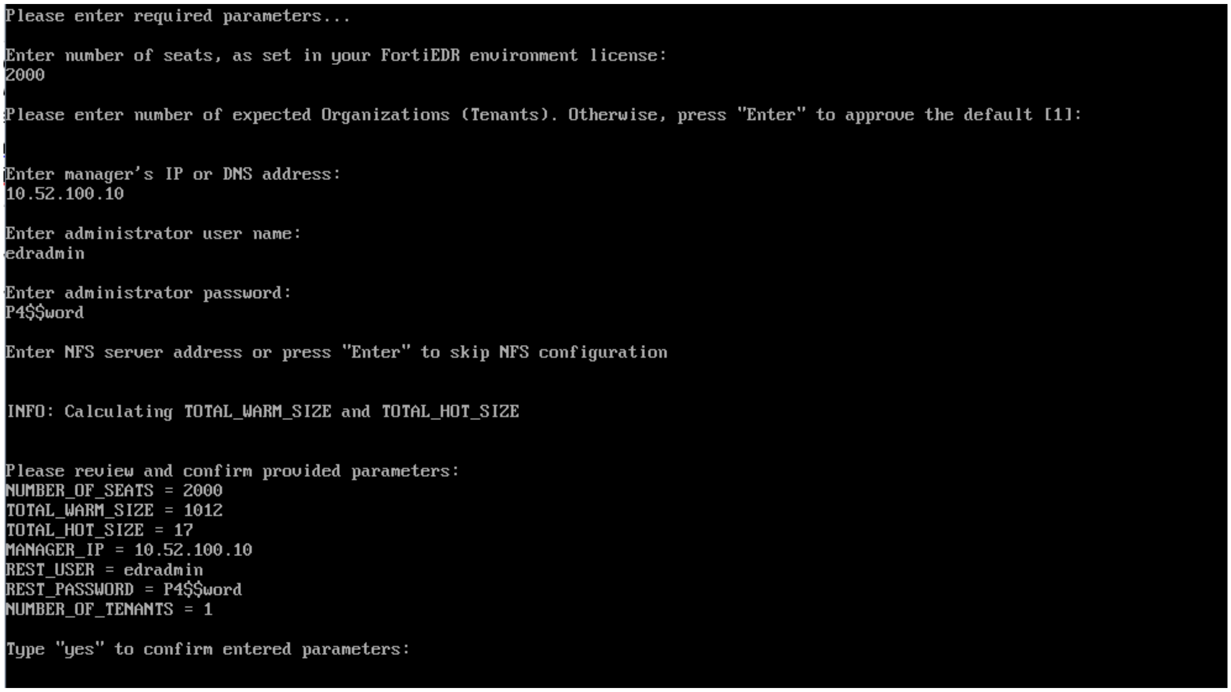
   

   ```
   ERROR: Current node's hardware spec doest fit minimum requirements:
           min CPU: 16 , currently installed 8
           min RAM: 24 , currently installed 16
   ```

   Wait until required docker images import from ISO to local image storage (might take few minutes).

4. Complete the FortiEDR Repository software installation by providing the following parameters:
   - When prompted to enter the **number of seats**, enter the number of seats of your FortiEDR License (workstations and servers).
   - When prompted to specify whether the repository will be used by a **Managed Security Service Provider (MSSP)**, approve the default if you are not an MSSP or provide the number of expected organizations (meaning Tenants), if you are.
   - When prompted for the FortiEDR Manager details, provide its IP and the credentials of one of the FortiEDR Console administrators that have RestAPI permissions.
   - Review the displayed configuration. Type **yes** to approve it or if the parameters are not correct, press the **Enter**

key to restart the configuration process.



```
Please enter required parameters...

Enter number of seats, as set in your FortiEDR environment license:
2000

Please enter number of expected Organizations (Tenants). Otherwise, press "Enter" to approve the default [1]:


Enter manager's IP or DNS address:
10.52.100.10

Enter administrator user name:
edradmin

Enter administrator password:
P4$$word

Enter NFS server address or press "Enter" to skip NFS configuration


 INFO: Calculating TOTAL_WARM_SIZE and TOTAL_HOT_SIZE


Please review and confirm provided parameters:
NUMBER_OF_SEATS = 2000
TOTAL_WARM_SIZE = 1012
TOTAL_HOT_SIZE = 17
MANAGER_IP = 10.52.100.10
REST_USER = edradmin
REST_PASSWORD = P4$$word
NUMBER_OF_TENANTS = 1

Type "yes" to confirm entered parameters:
```

Installation may take several minutes

Installing the FortiEDR Core

Preparing for the FortiEDR Core Installation

The workstation, virtual machine or server on which the FortiEDR Core will be installed, must meet the following requirements:

- Complies with the requirements described in the System Requirements section on Installing FortiEDR on page 19.
- Has connectivity to a Local Area Network (for wired users) or a Wireless Network (for wireless users). If there is no connectivity, consult your IT support person.
- Has connectivity to the FortiEDR Aggregator. You can check this by browsing to the Aggregator's IP address. For problems connecting, see Troubleshooting on page 336.
- Has connectivity to the FortiEDR Reputation Server at `35.186.218.233`.
- If the FortiEDR Core is deployed on your organization's premises (on-premises) and you use a web proxy to filter requests, then before running the installer, set the system proxy to work with an HTTPS connection, as follows:
  - Edit the file **/etc/environment** to have a proxy address configuration, https_proxy or PAC address.
    For example: `https_proxy=https://192.168.0.2:443`
    (for PAC): `https_proxy=pac+http://192.168.200.100/sample.pac`, where the sample.pac file contains an HTTPS address of the proxy.
  - If the definitions of the system proxy are placed somewhere other than /etc/environment, then:
    - Copy the definitions to the file **/etc/environment**. Note that this affects all processes on the Linux system.
    - Define a specific environment variable for the FortiEDR Linux Core with the name **nslo_https_proxy** at the file **/etc/environment**

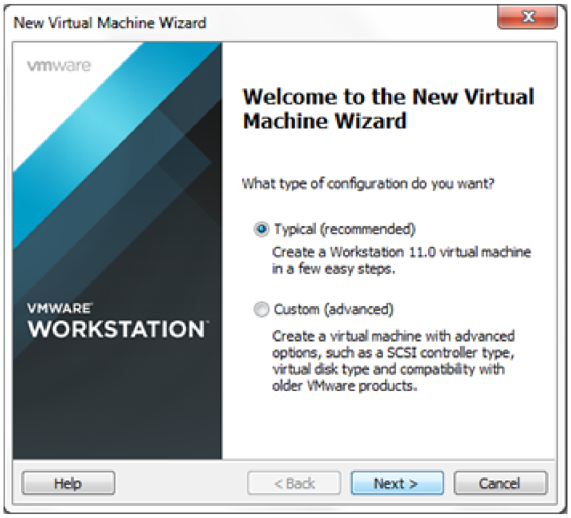
For example: `nslo_https_proxy=https://192.168.0.2:443`

(for PAC): `nslo_https_proxy=pac+http://192.168.200.100/sample.pac`

Note: For more details about installing a Core in a multi-organization environment, see the Core Registration section on page 255.

Installing the FortiEDR Core

The following describes how to install the FortiEDR Core.

1. Create a new virtual serve by selecting **File > New Virtual Machine**.
2. 

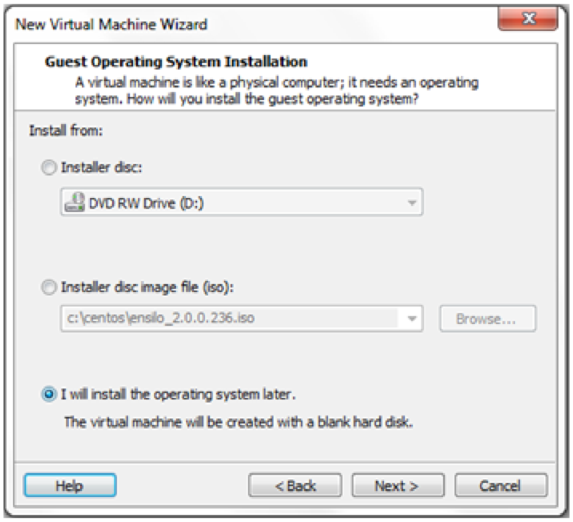
Welcome to the New Virtual Machine Wizard

What type of configuration do you want?

● Typical (recommended)
Create a Workstation 11.0 virtual machine in a few easy steps.

○ Custom (advanced)
Create a virtual machine with advanced options, such as a SCSI controller type, virtual disk type and compatibility with older VMware products.

Select the **Typical** option and click **Next**.

3. 

Guest Operating System Installation
A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system?

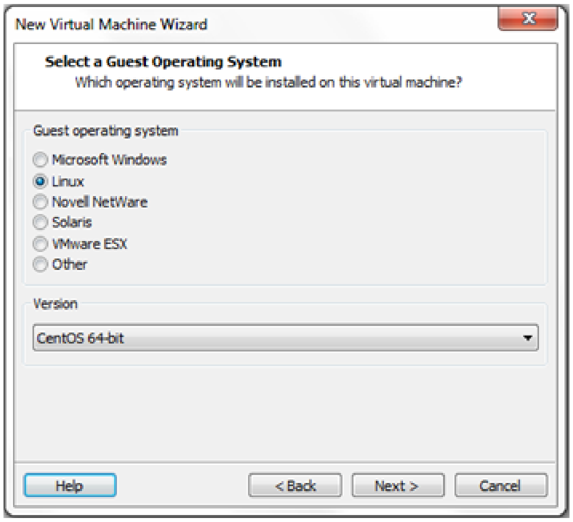
Install from:

○ Installer disc:
DVD RW Drive (D:)

○ Installer disc image file (iso):
c:\centos\ensilo_2.0.0.236.iso

● I will install the operating system later.
The virtual machine will be created with a blank hard disk.

Select the **I will install the operating system later** option and click **Next**.

4. 

New Virtual Machine Wizard

Select a Guest Operating System

Which operating system will be installed on this virtual machine?

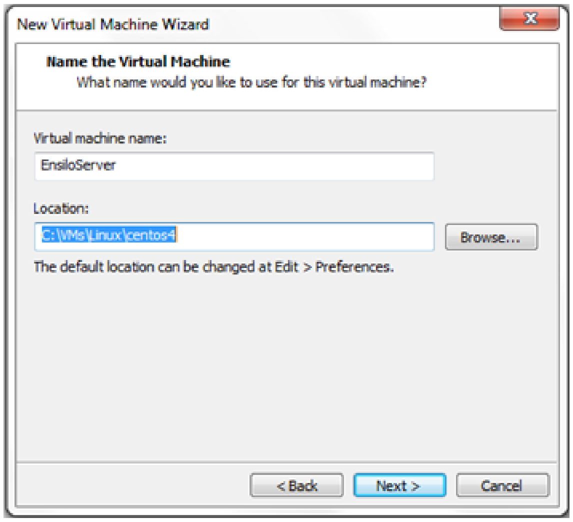
Guest operating system

○ Microsoft Windows
● Linux
○ Novell NetWare
○ Solaris
○ VMware ESX
○ Other

Version

CentOS 64-bit

Select the **Linux** radio button. In the **Version** field, select **CentOS 64-bit** and click **Next**. Alternatively, you can select a different generic Linux 64-bit in the **Version** field.

5. 

New Virtual Machine Wizard

Name the Virtual Machine

What name would you like to use for this virtual machine?

Virtual machine name:

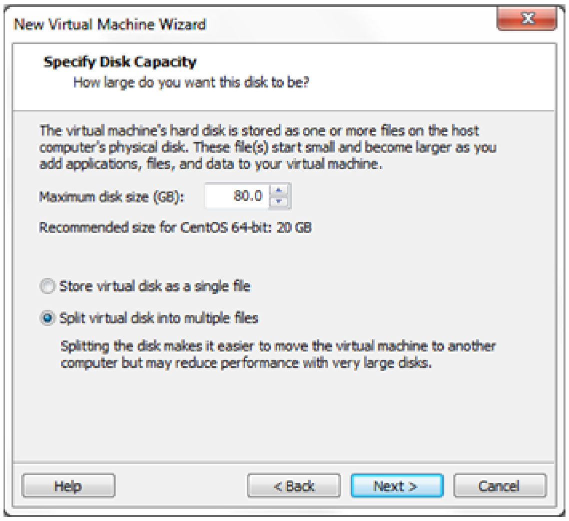
EnsiloServer

Location:

C:\VMs\Linux\centos4

The default location can be changed at Edit > Preferences.

Specify a name for the virtual machine such as *FortiEDRCore* and the location in which to store the provided ISO file and click **Next**.

6. 

New Virtual Machine Wizard

Specify Disk Capacity

How large do you want this disk to be?

The virtual machine's hard disk is stored as one or more files on the host computer's physical disk. These file(s) start small and become larger as you add applications, files, and data to your virtual machine.

Maximum disk size (GB): 80.0

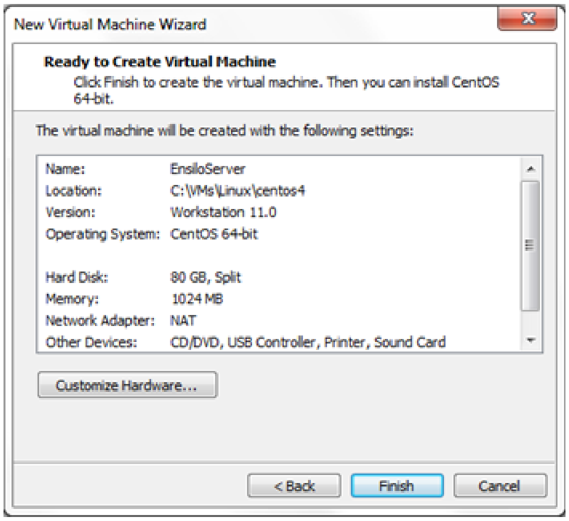
Recommended size for CentOS 64-bit: 20 GB

○ Store virtual disk as a single file

● Split virtual disk into multiple files

Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.

Change the **Maximum disk size** to **80** GB, leave the default option as **Split virtual disk into multiple files** and click **Next**.

7. 

New Virtual Machine Wizard

Ready to Create Virtual Machine

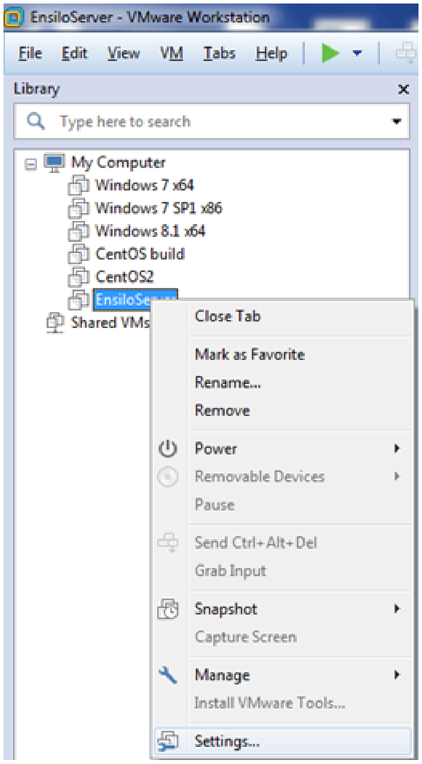
Click Finish to create the virtual machine. Then you can install CentOS 64-bit.

The virtual machine will be created with the following settings:

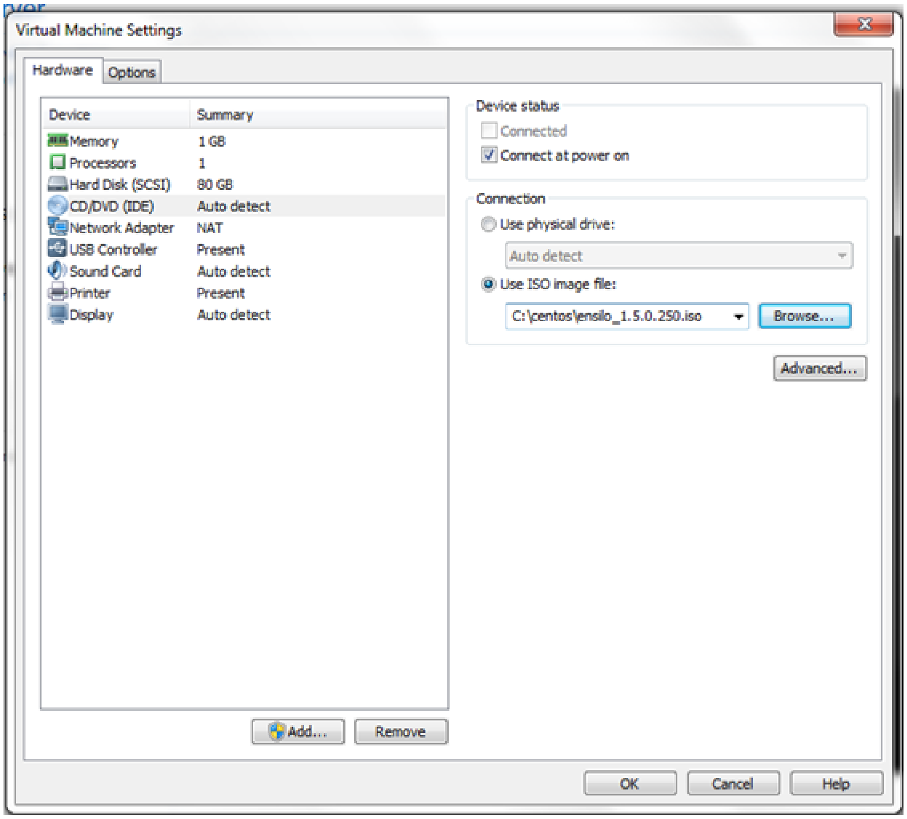
Name:	EnsiloServer
Location:	C:\VMs\Linux\centos4
Version:	Workstation 11.0
Operating System:	CentOS 64-bit
Hard Disk:	80 GB, Split
Memory:	1024 MB
Network Adapter:	NAT
Other Devices:	CD/DVD, USB Controller, Printer, Sound Card

Click **Finish**

8. Right-click the new machine and select the **Settings** option.



9.



Device	Summary
Memory	1 GB
Processors	1
Hard Disk (SCSI)	80 GB
CD/DVD (IDE)	Auto detect
Network Adapter	NAT
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

Device status

□ Connected

☑ Connect at power on

Connection

○ Use physical drive:

Auto detect

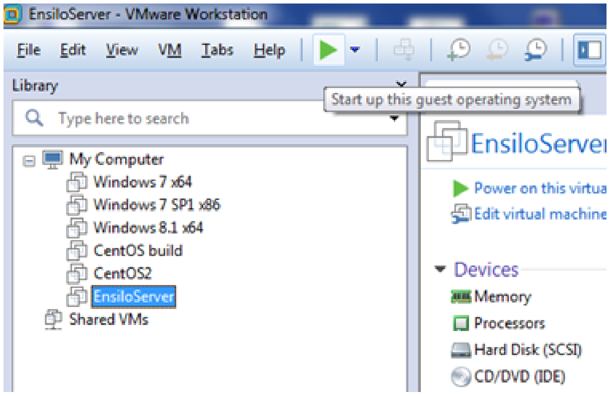
● Use ISO image file:

C:\centos\ensilo_1.5.0.250.iso

Select the **Memory** option and change the RAM to at least 8 GB.

10. Select the **Processors** option and change the value to a total of at least two CPU Cores.

11. Select the CD/DVD option and then select the **Use ISO image** file option on the right.
12. Click the **Browse** button and select the ISO file provided by Fortinet for the FortiEDR Core. Click **OK**.
13. Start the virtual machine. For example, by using the button shown below:



The virtual machine automatically starts the installation process, which may take a few minutes.

14. Wait until a success message is displayed requesting that you reboot.
15. Reboot the virtual machine.
16. Log into the virtual machine in order to continue the installation process.
`Login: root`
Change the root password, by entering any password you want and then retype it. The password must be strong enough according to Linux standards.
17. Enter `fortiedr config`.
18. At the prompt, enter your hostname (any hostname) and click **Next**.
19. At the prompt, select the role of the virtual machine. For this installation, select **CORE** and click **Next**.
20. At the prompt, enter the registration password.
Note that if this is a multi-tenant setup and this Core is to belong only to a specific organization, then the password should match the registration password that was provided upon creating that organization (listed under **ADMINISTRATION > ORGANIZATIONS** tab of the FortiEDR Central Manager).
21. At the prompt, enter the Aggregator external IP address followed by the port (optional). If a port is not provided, the default port 8081 is used.
22. At the prompt, enter this machine's external IP address followed by the port (optional). If a port is not provided, the default port 555 is used.
23. At the prompt, enter the Organization name. For a non-multi-tenant setup, this must be left empty.
24. A list of network interfaces on this virtual machine displays. At the Pick your primary interface prompt, select the interface to be used as the primary network interface through which all FortiEDR Cores and FortiEDR Collectors will reach this server, and then click **Next**.
25. At the Do you want to use DHCP prompt, do one of the following:
    a. Select `Yes` to use DHCP and click **Next**. Proceed to step 29 below.
    b. Select `No` to configure the IP of this virtual machine manually, and then click **Next**. Perform steps 26 through 34 below.
26. At the prompt, enter the IP address of the machine that you are installing.
Use the following format: `xxx.xxx.xxx.xxx/yyyy`, where `yyyy` is the routing prefix of the subnet.
27. At the prompt, enter the default gateway and click **Next**.
28. At the Please set your DNS server prompt, enter a valid IP address and click **Next**.
Use the following format: `xxx.xxx.xxx.xxx/yyyy`, where `yyyy` is the routing prefix of the subnet.
29. At the prompt, select **No** for debug mode.
30. At the `Please set the date` prompt, verify the date and click **Next**. The installer automatically presents the current date. You can change this date, if necessary.

31. At the `Please set your Time` prompt, set the time and click **Next**.
32. At the prompt, select the `timezone` and `country` in which the server is being installed.
33. At the `Do you want to enable Web proxy` prompt, select one of the following:
    - **No** (the default)
    - **Yes** (only for an on-premises Core installation, which should be configured to pass a web proxy)
34. Wait a few moments while the installation processes, until you see the `Installation completed successfully` message.
35. To verify that core installation succeeded, use the `fortiedr status` and `fortiedr version` commands.
36. Verify that the FortiEDR Core details are listed in the **INVENTORY** tab of the FortiEDR Central Manager.

Upgrading FortiEDR Components

This section describes how to upgrade the components in the FortiEDR system.

Upgrading to a newer build number (major.minor.patch.build) can be done in any order. However, upgrading to newer major/minor versions (major.minor.patch.build) should be done top-down in the following order:

1. Installing the FortiEDR Central Manager and FortiEDR Aggregator on the Same Machine on page 383
2. Installing the FortiEDR Threat Hunting Repository on page 389
3. Installing the FortiEDR Core on page 397
4. Installing FortiEDR Collectors on page 26

Upgrading the Central Manager

The required upgrade file is provided to you by Fortinet. Use it to perform the procedure below. If both the Central Manager and the Aggregator are installed on the same machine, you only need to perform this procedure once to upgrade both components.

1. Copy the **FortiEDRInstaller_x.x.x.xxx.x** file to the Central Manager machine. You can place the file anywhere on the Linux machine. For example, **FortiEDRInstaller_Management_Agg__5.0.x.y.x.**
2. Change the **chmod 755** permission and the **pathc** name in order to enable you to run the upgrade, as shown below:
   ```
   [root@dan ~]# chmod 755 FortiEDRInstaller_Management_Agg__5.0.x.y.x
   ```
3. Run the upgrade, as shown below:
   ```
   [root@dan ~]# ./ FortiEDRInstaller_Management_Agg__5.0.x.y.x
   ```
4. Wait for the upgrade to complete, as shown below:
   ```
   FortiEDR installation 5.0.x.y finished successfully
   [root@dan ~]#
   ```

Upgrading the Aggregator

The procedure for upgrading the Aggregator is the same as that for updating the Central Manager. You only need to perform the procedure a second time if the Aggregator is installed on a different machine than the Central Manager.

For more details, you may refer to Upgrading the Central Manager on page 403.

Upgrading the Core

1. Copy the **FortiEDRCoreInstaller_x.x.x.x.x** file to the Central Manager machine. You can place the file anywhere on the Linux machine. For example, **FortiEDRCoreInstaller_3.1.1.90.x.**
2. Change the **chmod 755** permission and the **patch** name in order to enable you to run the upgrade, as shown below:

   ```
   [root@dan ~]# chmod 755 FortiEDRCoreInstaller_3.1.1.90.x
   ```
3. Run the upgrade, as shown below:

   ```
   [root@dan ~]# ./ ./ FortiEDRCoreInstaller_3.1.1.90.x
   ```
4. Wait for the upgrade to complete, as shown below:

   ```
   FortiEDR patch 3.1.1.90 finished
   [root@dan ~]#
   ```

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