

# Sysdig with SUSE Rancher

## Getting Started Guide

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# 1 Introduction

## 1.1 Motivation

SUSE Rancher enables you to accelerate your digital transformation by unifying your cloud native application landscape, ensuring consistent operations and workload management from core to cloud to edge. Sysdig Secure gives you enhanced visibility and is designed to enable DevOps teams simplify security in cloud native environments, from development through production.

Together, Sysdig Secure provides a number of capabilities to help you securely run your applications in your SUSE Rancher Kubernetes landscape:

- **Secure the build** – Automate image scanning in CI/CD pipelines and registries, efficiently flag vulnerabilities and owners, and block risky images.
- **Detect and respond to threats** – Identify threats across containers and cloud services and prevent intrusion and lateral movement. Respond quickly and conduct forensics using detailed activity audits.
- **Continuously validate cloud configurations and compliance** – Identify misconfigurations and compliance violations, and measure progress with detailed reports. Save time with out-of-the-box policies for standards such as PCI, NIST, HIPAA, and SOC 2.
- **Monitor and troubleshoot infrastructure and services** – Maximize performance and availability using Kubernetes and cloud monitoring with full Prometheus compatibility.

## 1.2 Scope

This guide will help you take the first steps to integrate SUSE Rancher with the Sysdig Secure SaaS solution.


## 1.3 Audience

This document is intended for DevOps and DevSecOps engineers, security professionals, and developers who are responsible for enabling security across containers, clusters, and cloud.

## 2 Technical overview

Sysdig security and monitoring capabilities for SUSE Rancher are enabled by deploying the Sysdig agent on the nodes of your cluster. Relevant data and metadata are collected and available in the Sysdig SaaS backend and accessible via the Sysdig user interface (UI). The Sysdig UI also provides the ability to customize aspects like policies, alerts, visualizations, permissions, etc.

Minimum requirements:

- A Sysdig cloud account. You can get started with a free trial by visiting <https://sysdig.com/start-free> (<https://sysdig.com/start-free/>) .
- A SUSE Rancher cluster with a RKE, K3s, or any CNCF-certified Kubernetes cluster. Clusters can be located on-premises or in the cloud. You can also begin with community Rancher.
- Outbound Internet access (at least port 6443). This allows collected information to be sent to the Sysdig back end.

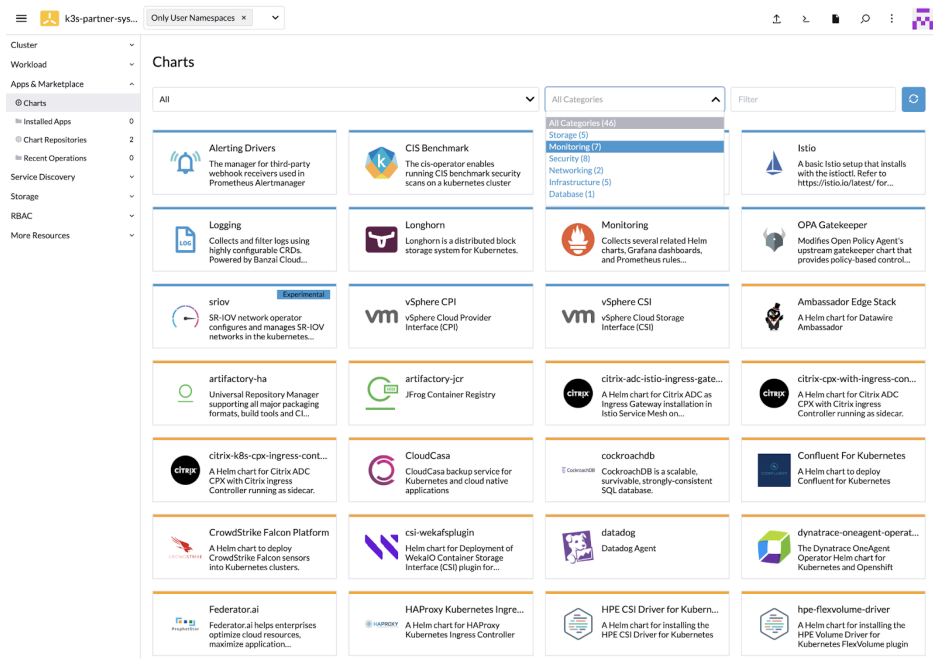
You can find the prerequisites for the Sysdig agent install on Kubernetes in [the Sysdig documentation](https://docs.sysdig.com/en/docs/installation/sysdig-agent/agent-installation/agent-install-kubernetes/#agent-install-kubernetes) (<https://docs.sysdig.com/en/docs/installation/sysdig-agent/agent-installation/agent-install-kubernetes/#agent-install-kubernetes>) .

## 3 Installation

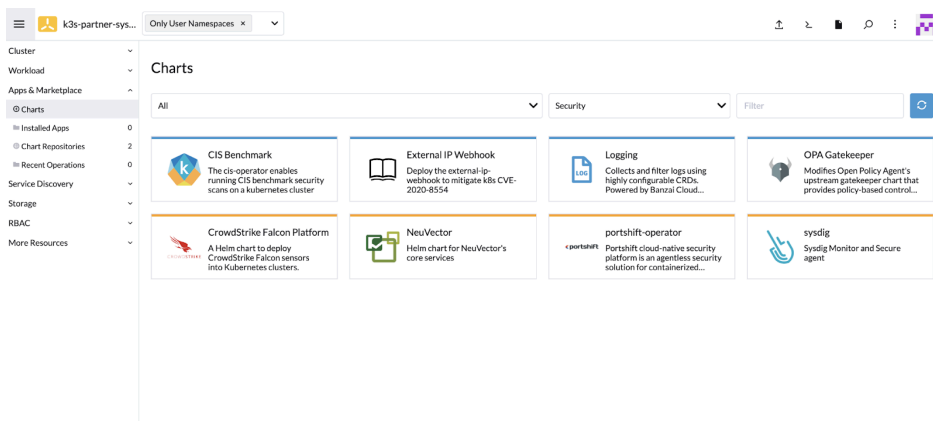
Get started by installing the Sysdig agent in your cluster. This can be done by leveraging automation through the SUSE Rancher Apps & Marketplace or by a manual process.

### 3.1 Install from the SUSE Rancher Apps & Marketplace

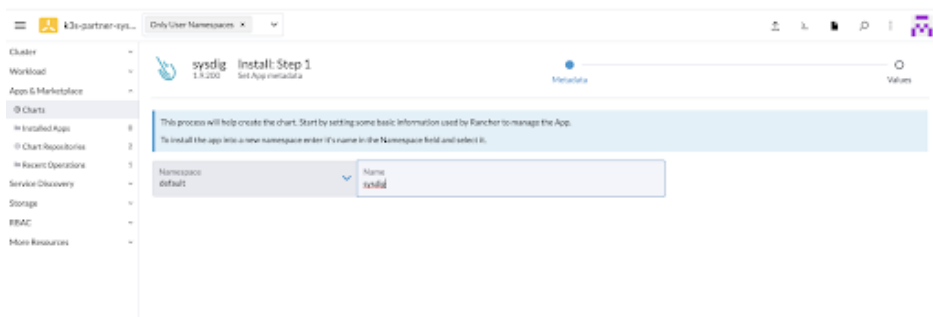
From the top-left Rancher menu select “Apps & Marketplace.” From here, you will be taken to the Charts page.



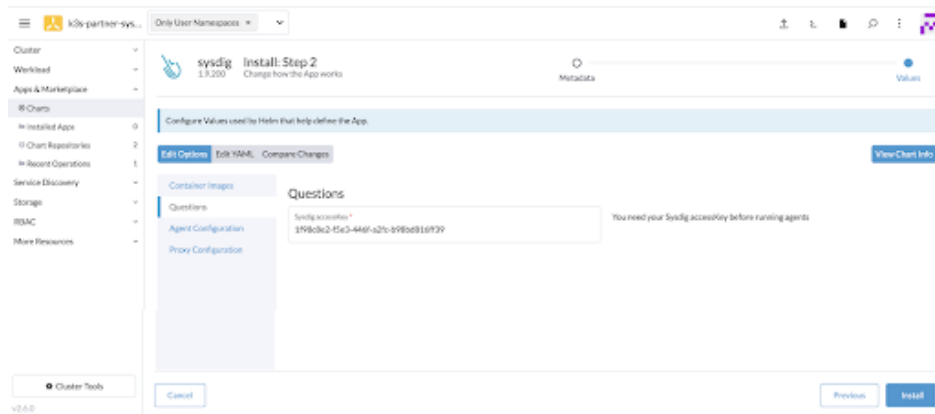
Locate and select Sysdig Monitor & Secure, which will automate installation of the Sysdig agent via the Sysdig Helm chart (<https://github.com/sysdiglabs/charts-rancher>) [↗](#).



In the UI, specify a namespace.



And provide the Sysdig access key (<https://docs.sysdig.com/en/docs/administration/administration-settings/agent-installation-overview-and-key/#agent-installation-overview-and-key>) [↗](#).



Once you initiate the Helm chart, within 15 minutes you should begin seeing data and activity in your Sysdig UI.

### 3.2 Install using generic/manual steps

To install the Sysdig agent using manual steps, follow the instructions in [the Sysdig documentation \(https://docs.sysdig.com/en/docs/installation/sysdig-agent/agent-installation/agent-install-kubernetes/steps-for-rancher/#steps-for-rancher\)](https://docs.sysdig.com/en/docs/installation/sysdig-agent/agent-installation/agent-install-kubernetes/steps-for-rancher/#steps-for-rancher) [↗](#).

## 4 Demo / Use case

Sysdig Secure runtime security provides policy-driven detections, based on open-source [Falco \(https://falco.org\)](https://falco.org) [↗](#). Using out-of-the-box and custom policies, you can automate detection and alerting of suspicious and unexpected activity across containers, clusters, and clouds.

In this example use case, we will create a custom runtime security policy that will detect when a shell is spawned in a container with an attached terminal. Commands being executed with a terminal inside a running container can be an indicator of a potential infiltration or attack.

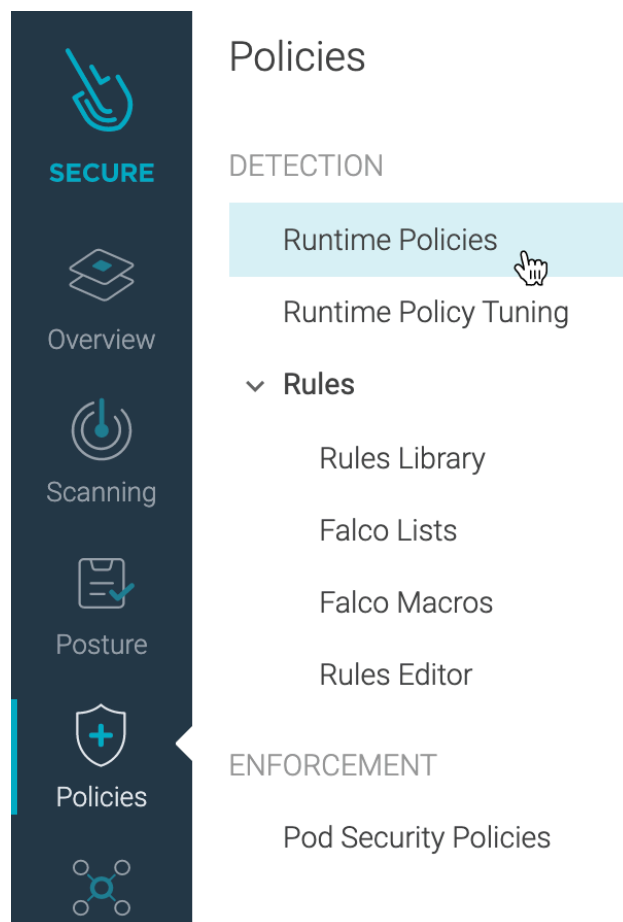


## Note

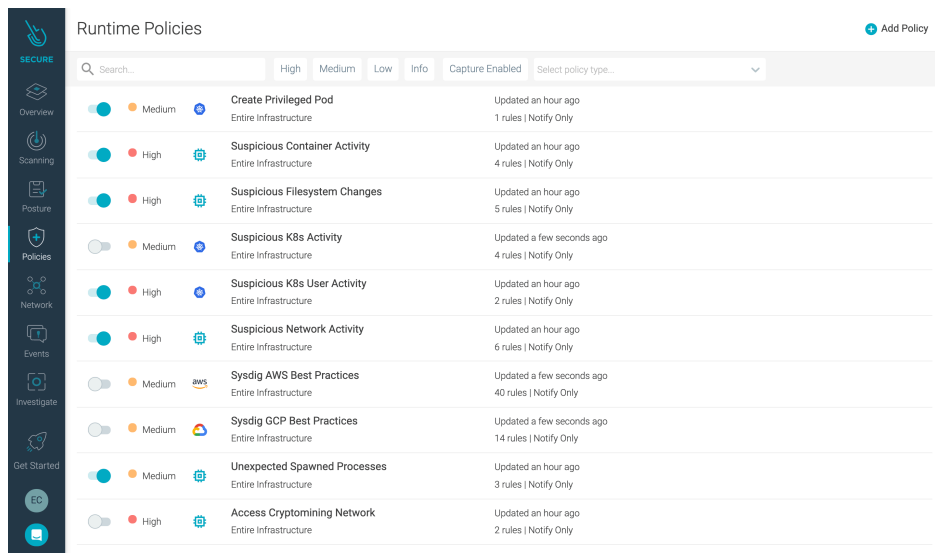
For this example we are creating a **simple** custom rule that can be inhibited by other rules; thus we strongly recommend disallowing “Suspicious Container Activity” default rule before adding the new rule (Policies > Runtime Policies > Suspicious Container Activity). After the experiment you may want to reactivate it again.

### 4.1 Create the custom runtime security policy

Log into Sysdig Secure and, in the Sysdig UI on the left panel, select Policies > Runtime Policies.



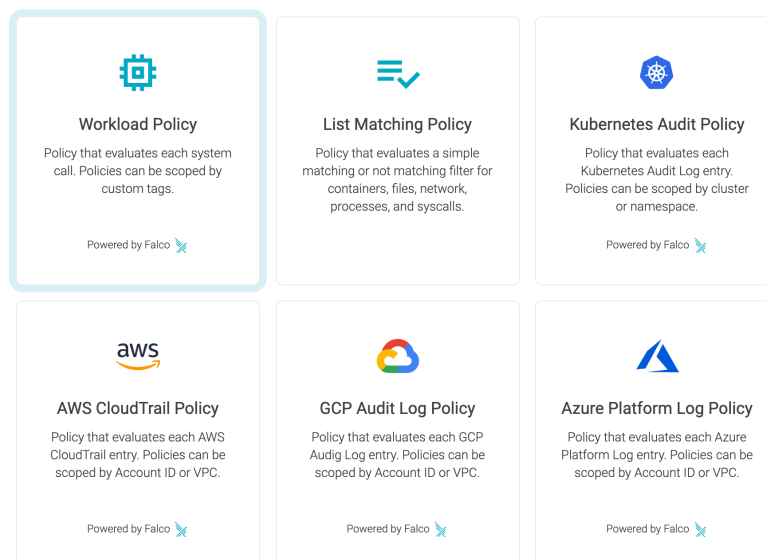
This opens the **Runtime Policies** page, where you can see the pre-defined policies.



To create your own, custom policy, first select Add Policy in the upper right corner. Then, in the pop-up screen, select Workload Policy.

What type of policy do you want to create?

×



In the New Policy screen, enter a name and a description:

New Policy > Terminal shell in a container

Cancel Save

Name Terminal shell in a container

Description A shell was spawned by a program in a container with an attached terminal.

Keep the policy defaults: Enabled with severity level of High.<sup>i</sup> You can customize the scope of this rule, indicating where it should apply. In this example, the scope is contained to a namespace, called terminal-shell-in-container. You can also set this to a broader scope, such as `kubernetes.cluster.name`, for example.

Enabled ☒

Severity High

Scope Custom Scope

kubernetes.namespace.name is terminal-shell-in-container AND Clear All

Select a label

Next, you'll want to assign a rule to use with the policy. Select Import from Library.

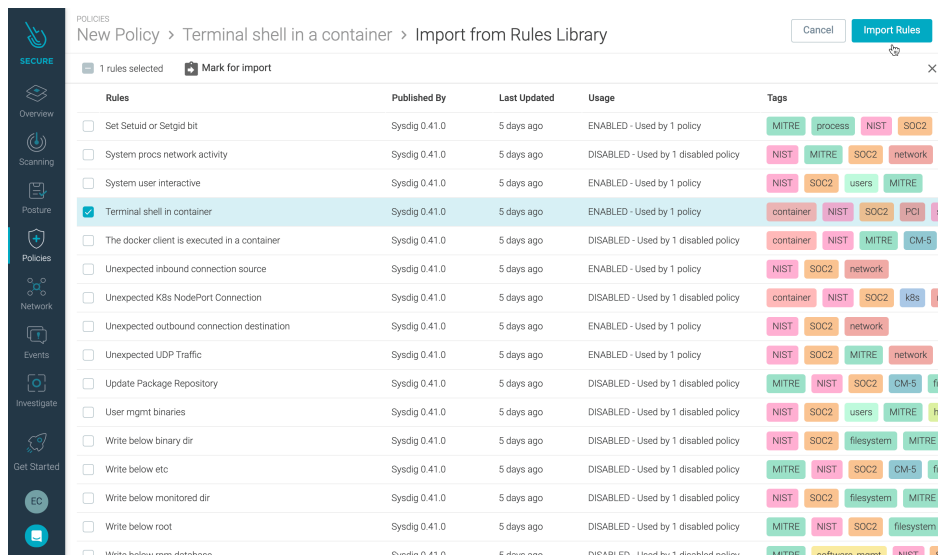
Policy Rules

Rules Import from Library New Rule

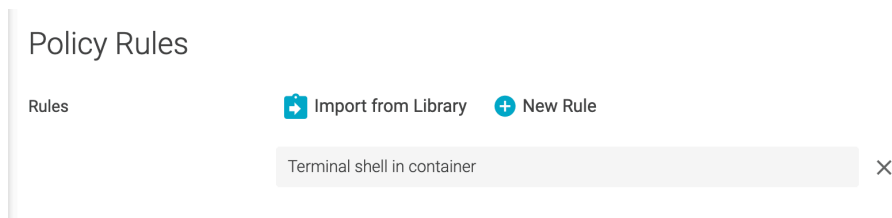
No rules selected - Add rules to your policy from the library or create your own...

Find and select "Terminal shell in a container" from the Rules Library, then click Import Rules.



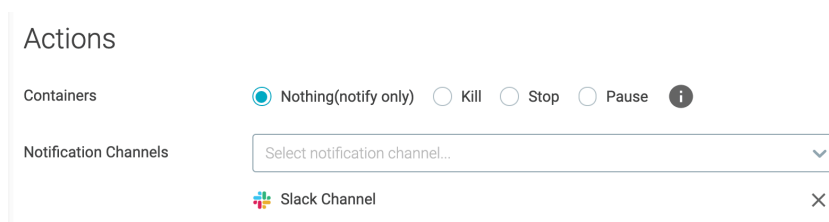


You should now see the "Terminal shell in a container" rule assigned to your policy.



Next, under Actions, you can choose whether you'd like to kill, stop, or pause the container when the policy is triggered. For this example, leave this set to Nothing. Read more about Actions [here \(https://docs.sysdig.com/en/docs/sysdig-secure/policies/manage-policies/#define-actions\)](https://docs.sysdig.com/en/docs/sysdig-secure/policies/manage-policies/#define-actions).

Your email is the default notification channel, but you can configure additional options under settings > notification channels. For example, you can choose to send notifications to a Slack Channel. You can also leave this blank.



Next, you can enable a Capture to record system call data surrounding an event. For this example, toggle on the capture, provide a file name, and choose the number of seconds before and after the event to record. For example, 10 seconds before, and 20 seconds after the event.

Capture ☒


File Name

Storage

secs before,  secs after the event

Filter

Finally, to create the policy, click Save.

Runtime Policies > Terminal shell in container 

[Cancel](#) [Save](#)

Name

Description

Enabled ☒

Severity


Scope

[Clear All](#)

Policy Rules

Rules [Import from Library](#) [New Rule](#)

Actions

Containers ☒ Nothing(notify only) ☐ Kill ☐ Stop ☐ Pause ☐ 

Notification Channels

☒ Slack Channel

Capture ☒

File Name

Storage

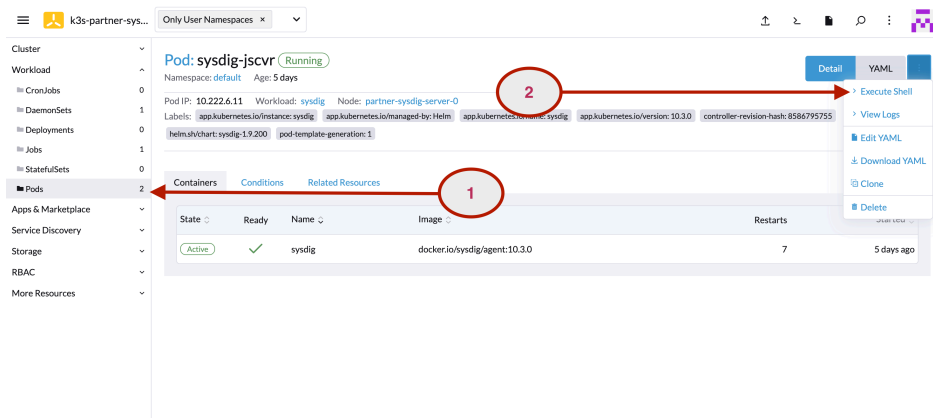
secs before,  secs after the event

Filter

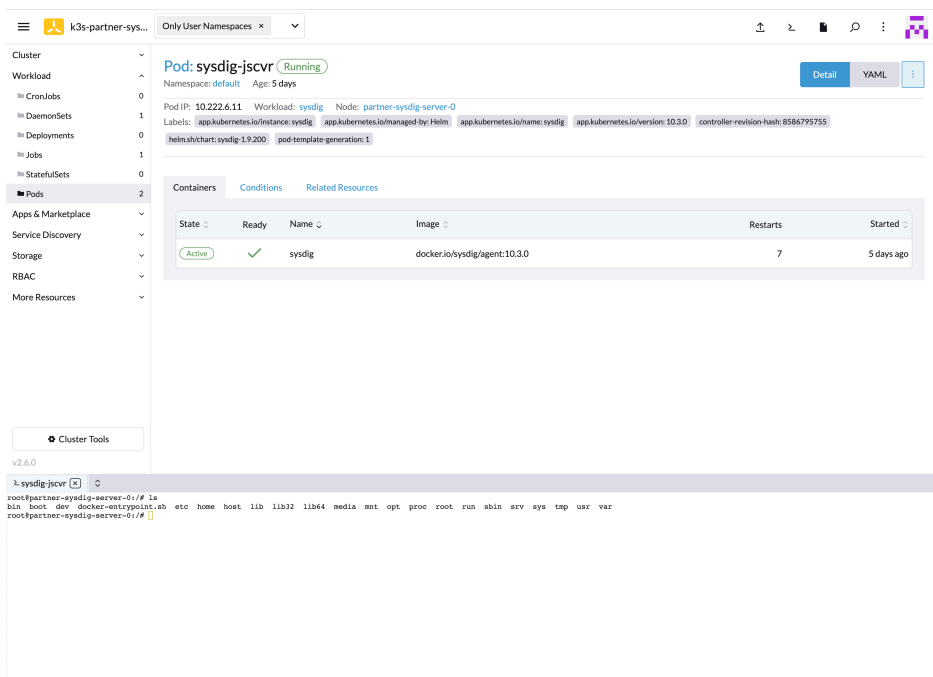
## 4.2 Trigger a Test Event

You can trigger a test event to observe how Sysdig Secure detects the terminal shell in a container event and drill into the captured information to help you investigate the incident.

First, open a terminal shell from any container that is running in your SUSE Rancher cluster. Simply go to the Workloads section and get into any Pod with a running container. Just for example purposes, the Sysdig agent pod will do.



From the right menu you can click the Execute Shell option, and a new terminal shell will be shown at the bottom of the screen.

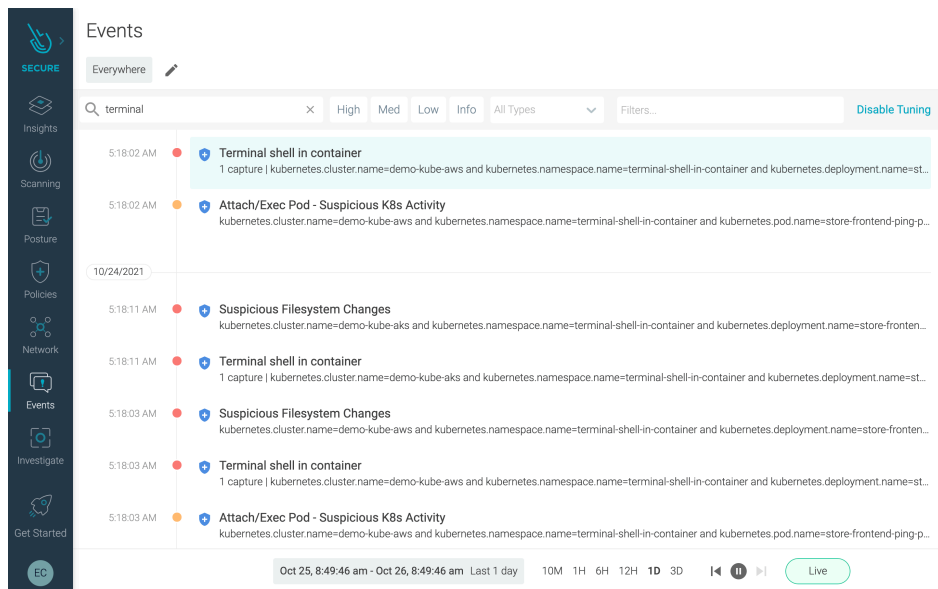


That is enough to be caught red-handed by Sysdig Secure.

You can also type a few commands in the terminal to generate additional data that will be captured by Sysdig.

### 4.3 Viewing and Investigating the Event

Once the runtime security policy created above is triggered, click Events in the left pane to view more information about event.



Next, click the "Terminal shell in a container" entry to open and view additional information about the event. You can scroll through this panel to see information, such as:

- Information about the policy and rule(s) triggered.
- Details about where the activity took place in your cluster (Scope), including which container as well as the detected process (in this case, bash).
- “Tags” that indicate violated compliance standards, etc.

Triggered on Mon Oct 25 2021 at 5:18:02 AM | a day ago

**Terminal shell in container**

High Severity Event ID: 16b145406c9aa318299715822c7999ac

[Respond](#)

Image Excluded: sysdiglabs/workshop-forensics-1-phpping

Actions

Capture covering 05:17:52 - 05:18:22 AM

Policy & Triggered Rules [Edit Policy](#)

name Terminal shell in container

ruleType Falco - Syscall

ruleName Terminal shell in container

A shell was spawned in a container with an attached terminal (user=www-data user\_loginuid=-1 k8s\_store-frontend-ping-php\_store-frontend-ping-php-7588976944-mnhck\_terminal-shell-in-container\_e1d632b0-7e85-46e7-a5ff-5c3af75ad085\_0 (id=d101a2aff53a) shell=bash parent=runc cmdline=bash terminal=34833 container\_id=d101a2aff53a image=sysdiglabs/workshop-forensics-1-phpping)

container

NIST\_800-53\_AU-6(8)

SOC2\_CC6.1

Dig deeper by clicking Respond at the top of this panel and selecting View Activity Audit.

**Terminal shell in container**

High Severity Event ID: 16b145406c9aa318299715822c7999ac

[Respond](#)

View Activity Audit

View Capture with Inspect

Download Capture

Delete Capture

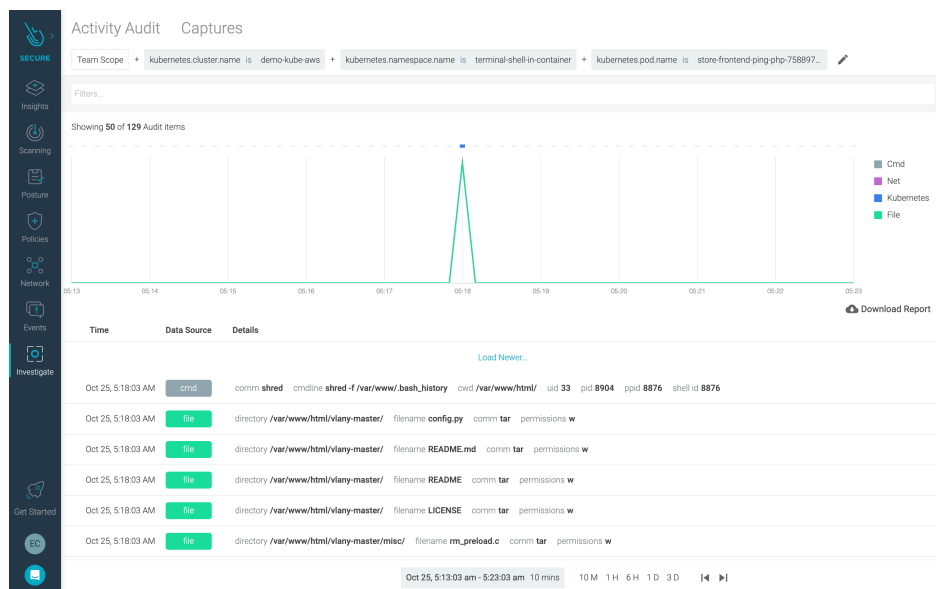
Image Excluded: sysdiglabs/workshop-forensics-1-phpping

Capture covering 05:17:52 - 05:18:22 AM

[Edit Policy](#)

name Terminal shell in container

In the **Activity Audit** screen you will find details about the incident, including commands issued, file activity, network activity, and kube-exec activity.



Click any line item to see additional details, such as user, host, and scope.

## kubernetes details



### time

October 25, 5:18:01.785 AM

### kubernetes resource

resource pods

name store-frontend-ping-php-7588976944-mnhck

subResource exec

command bash

container store-frontend-ping-php

### kubernetes user and group

user marydoe

groups dev

groups system:authenticated

### sources addresses

#### scope

kubernetes.namespace.name terminal-shell-in-container

kubernetes.deployment.name store-frontend-ping-php

kubernetes.pod.name store-frontend-ping-php-7588976944-mnhck

containerid d101a2aff53a

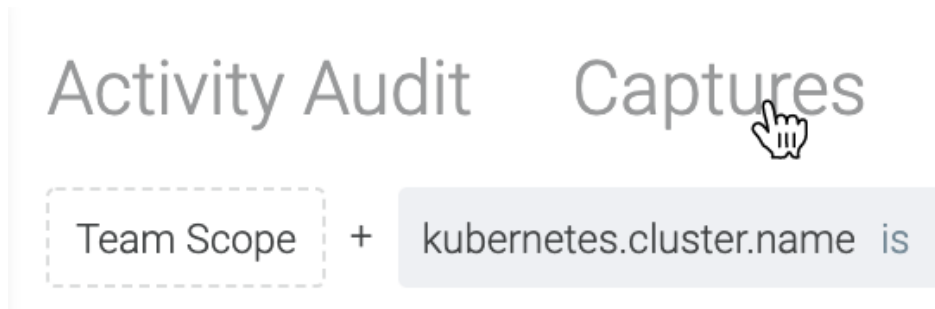
#### host

hostName ip-172-20-54-228

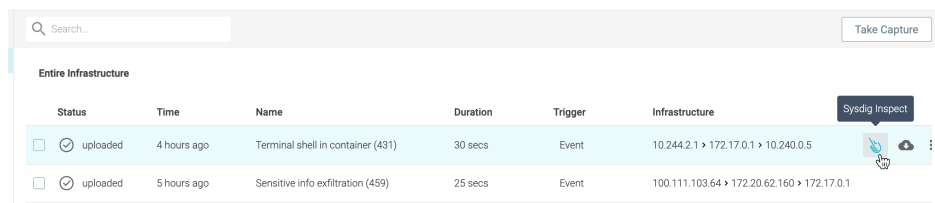
hostMac 02:59:c3:ae:f2:c7

In addition to the Activity Audit, you can also open the Capture file created when the incident triggered to drill into further details, such as the contents of files written and/or read.

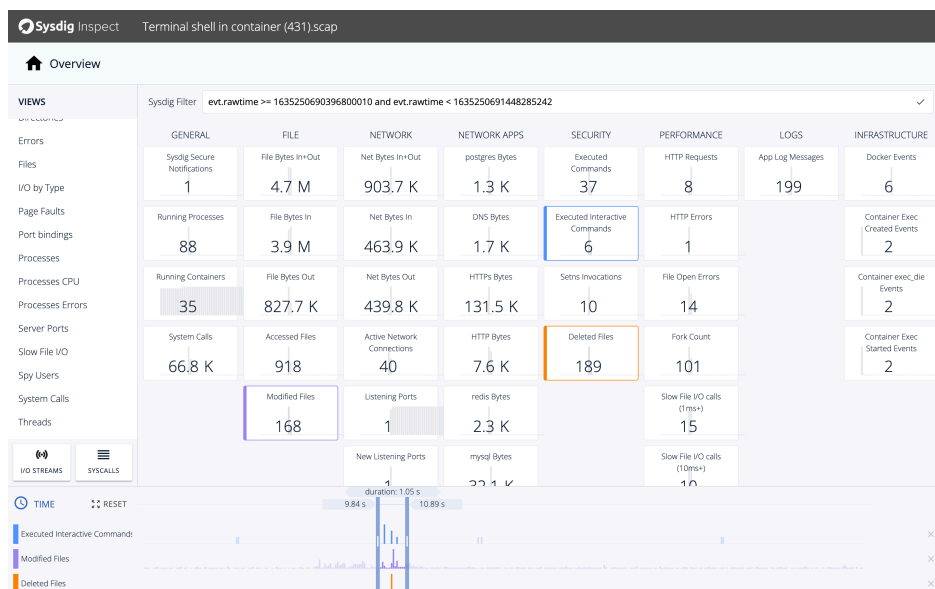
Next, select Captures from the top of the **Activity Audit** page.



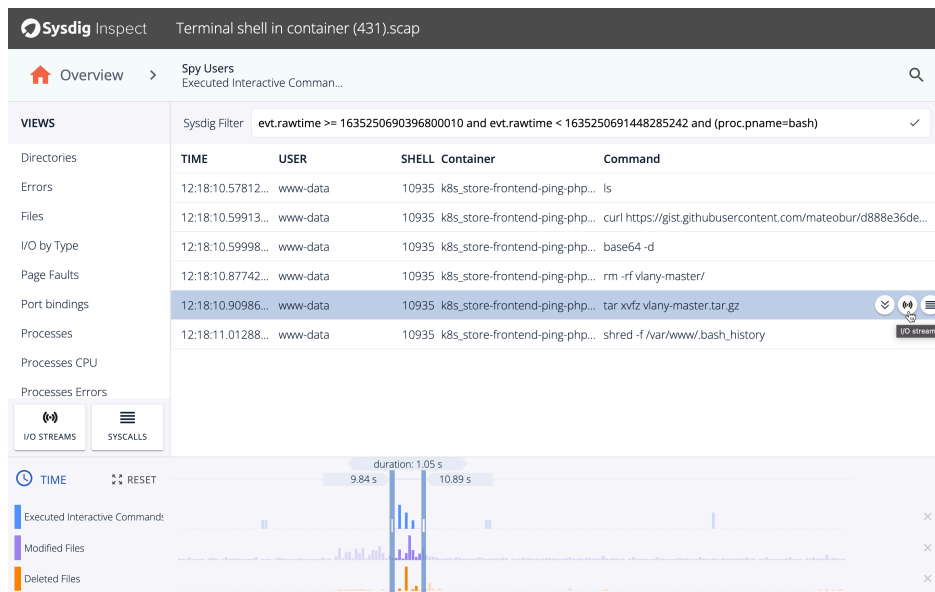
Then, to the right of the "Terminal shell in a container" capture file, click the shovel icon to open the capture automatically with Sysdig Inspect.



A new tab opens to present you with a set of tiles that categorize the available details within the capture file. You can select any of these tiles to identify where the activity is within the timeline and drag the bars at the bottom to narrow into a specific area within the file.



Click one of the tiles, such as Executed Interactive Commands, to view further information about that particular activity and continue to drill down to investigate the incident.



## 5 Summary

Security and monitoring are critical capabilities required to ensure uninterrupted operation and provide protection for applications and data running in your Kubernetes landscape.

Sysdig integrated with SUSE Rancher enables you to embed security into your DevOps workflows, from build through production. With powerful automation to enhance Kubernetes and container security, you can quickly identify threats and reduce your risk profile.

## 6 Additional resources

Learn more about the capabilities of Sysdig together with SUSE Rancher with these additional references.

- Sysdig and SUSE Rancher solution page (<https://sysdig.com/partners/suse-rancher>)
- Sysdig Secure DevOps Platform product page (<https://sysdig.com/secure-devops-platform/>)
- Kubernetes Security Guide ([https://dig.sysdig.com/c/pf-kubernetes-security-guide?x=u\\_WFRi](https://dig.sysdig.com/c/pf-kubernetes-security-guide?x=u_WFRi))





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