

Cloud Security Assessment Report **u**pwind CLOUD SECURITY ASSESSMENT REPORT

# Key Findings

# A) Cloud Security Posture Assessment (CSPM) - Basic Phase

## One RDS Instance has been identified as being directly accessible from the internet.

Misconfigurations & Exposure:

The RDS database instance is directly accessible from the internet, exposing it to unauthorized access and potential data breaches, malicious

```
attacks, or denial-of-service exploits. This misconfiguration violates security best practices, which recommend restricting access to trusted IP
ranges, isolating the database in a private subnet within a VPC, and implementing strict network controls to reduce exposure and enhance
security.
                   ... Critical
Severity
                   14 hours ago (Mar 31st, 2025 23:02)
Risk category
× Clear filters
 Q Search anything
                                 Cloud account v | Identifier v | Resource name v
 Showing 1 row
 Resource 1
                                  Last scan
                                                                       Ticket
                                                                                                            Actions
        upwind-demo-db
                                                                                                               < □ Ø
                                     14 hours ago
        AWS Demo / = us-east-:...
```

The control plane API endpoint is a critical interface for managing your Amazon EKS cluster. By default, this endpoint can be accessed from

Leaving the EKS API endpoint publicly accessible with a CIDR range of 0.0.0.0/0 significantly increases the risk of unauthorized access.

anywhere on the internet. To ensure the security of your cluster, its recommended to restrict access to the API endpoint.

Malicious actors could exploit this access to steal sensitive data, disrupt critical services running in your EKS cluster, or deploy malicious resources that compromise your workloads. Severity Medium

Two EKS API Endpoints have been identified as Internet Accessible.

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Last seen
                              14 hours ago (Mar 31st, 2025 23:02)
              Risk category
               Actions ~
                                                                                                           × Clear filters
                                         Cloud account V Identifier V Resource name V
              Q Search anything
               Showing 2 rows
               Resource ↑
                                          Last scan
                                                                         Ticket
                                                                                                       Actions
                     only-for-you
                                                                                                          ← D ®
                                             14 hours ago
                     🕶 AWS Demo / 👙 us-east-1...
                     upwind-cluster-1
                                                                                                          ← D 🕸
                                             14 hours ago
                     AWS Lambda Functions have been identified with standard default encryption for environment variables -
we recommend using CMKs to encrypt these variables to meet compliance requirements.
              The AWS Lambda function is configured with default encryption for environment variables at rest, which may not meet the organizations
              security standards for protecting sensitive data. Default encryption relies on AWS-managed keys and does not offer the additional control
```

 Findings 
 □ 
 ✓ Actions ~ Q Search anything Cloud account v | Identifier v | Resource name v × Clear filters

Last scan

Ticket

Kubernetes Deployment

Kubernetes Deployment

Mubernetes Deployment

Actions

☆ 7 findings

★ 7 findings

★ 5 findings

and monitoring available with customer-managed keys (CMKs). Best practices recommend using CMKs to encrypt sensitive environment

variables to enhance security, enable key rotation, and meet compliance requirements.

14 hours ago (Mar 31st, 2025 23:02)

- Medium

upwind-cs-lambda-ucsc-5b3abda632ae68dd

■ AWS Demo / 

us-east-1 / 

upwind-cluster-1 / 

microservices

AWS Demo / 👙 us-east-1 / 🕲 upwind-cluster-1 / [] microservices

MS Demo / 

us-east-1 / 

upwind-cluster-1 / 

kube-system

was a second or continuous properties.

make a second

MAWS Demo / eu-central-1 cf-templates-mfwalvkiwdcb-eu-central-1

■■ CVE-2021-44790 | Apache HTTP Server Remote Code ... 1 Finding 💮 🖵 🐧 🏮

productcatalogservice 7 Findings

frontend 5 Findings

Severity

Last seen Risk category

Showing 6 rows

Resource 1

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                                                                                                                                                         MS Demo / us-east-1
All assets listed here are publicly exposed assets with critical/high vulnerabilities, and we recommend
remediation immediately for 88 CVEs total.
                                                                                                    vulnerable-apache 8 Findings
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              # 8 findings
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Kubernetes Deployment

MS Demo / 

us-east-1 / 

upwind-cluster-1 / 

microservices

microservices
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■ AWS Demo / 

us-east-1 / 

upwind-cluster-1 / 

microservices

microservic
                                                                                                    currencyservice 17 Findings
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■ AWS Demo / 

us-east-1 / 

upwind-cluster-1 / 

microservices

upwind-cluster-1 / 

microservices

upwind-cluster-1 / 

microservices

upwind-cluster-1 / 

upwind-cluster
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```

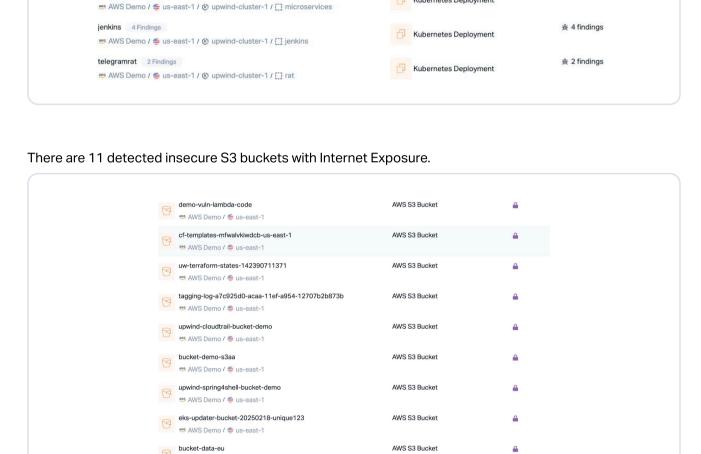
兼 4 findings cartservice 4 Findings Kubernetes Deployment MS Demo / 

us-east-1 / 

upwind-cluster-1 / 

microservices

microservices ★ 5 findings Kubernetes Deployment



We recommend remediating all findings associated with these CVEs, as these are all Critical or High CVEs

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. . . .

. + . . .

AWS S3 Bucket

兼 1 finding

兼 1 finding

兼 31 findings

★ 6 findings

養 4 findings

兼 1 finding

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★ 1 finding

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1 resource

1 resource

6 resources

4 resources

1 resource

(%) 1 image

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(%) 8 images

[o] 6 images

(e) 4 images

1 image

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(%) 1 image

(%) 1 image

(o) 1 image

(c) 1 image

(%) 1 image

(o) 1 image

(o) 1 image

(c) 1 image

(%) 1 image

(o) 1 image

### CVE-2023-31484 | CPAN Perl SSL Verification Bypass 1 Finding ... CVE-2023-32559 | NodeJs Module Policy Privilege Esca... 1 Finding ... CVE-2023-36632 1 Finding

CVE-2022-3715 | Base Heap Overflow 1 Finding

... CVE-2022-2880 1 Finding

CVE-2022-28948 | Go-Yaml Denial Of Service 1 Finding

CVE-2024-25062 | libxml2 Denial Of Service 1 Finding

CVE-2019-18276 | Bash Privilege Escalation 1 Finding

**Critical Vulnerabilities with Internet Exposure:** 

.... CVE-2021-42013 1 Finding

CVE-2023-44487 31 Findings

CVE-2022-41721 6 Findings

-III CVE-2018-6829 4 Findings

-- CVE-2011-4116 1 Finding

... CVE-2021-41773 1 Finding

-- CVE-2022-2309 1 Finding

-1 CVE-2022-24975 1 Finding

... CVE-2024-24806 1 Finding

... CVE-2025-27113 1 Finding

Detect generative AI platforms being used.

with Internet exposure.

Data Insights:

```
None found at this time.
Identify suspicious CloudTrail activity:
Access to an S3 Bucket was found
                       A public access was configured to an S3 bucket by deleting Public Access Block. Removing this block significantly increases the risk of unauthorized access to the buckets
                       contents. Public access blocks are crucial for preventing accidental or malicious exposure of sensitive data stored in S3 buckets. The absence of these blocks reduces the
                       security layer, making it easier for attackers to access and expioit the data. Detecting the deletion of public access blocks is essential to identify and mitigate unauthorized
                       access attempts that could lead to severe security breaches, including data loss, service disruption, and data exfiltration.
                                                          AWSReservedSSO_Up
windSandboxOwner_
eb29aadac2503334
IAM Role
                                                                                                      Mozilla/5.0 (Macintosh; PutBucketPublicAcces
                       56
```

The CloudTrail log entry shows that the PutBucketPublicAccessBlock event was initiated from the source address 67.160.33.183 using the user agent Mozilla/5.0 (Macintosh; Intel Mac OS X 10\_15\_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/133.0.0.0 Safari/537.36 initiated by

josh.lee@upwind.io (granted permission by IAM Role AWSReservedSSO\_UpwindSandboxOwner\_eb29aadac2503334 ) on

arn:aws:s3:::eks-updater-bucket-20250218-unique123

**2**6

#### Benny Volodarsky benny.volodarsky@upwind.io Identity provider Google Cloud Identity 0

₼ Authorization graph △ All accounts

Benny Volodarsky

CloudTrail log

■ Detection details

Kind

Path

Source Threat ID

50

Category

Framework

Check

Last scan

Control status

Control name

♀ Findings 
 ✓

Q Search anything

**Identity Insights:** 

MITRE tactic 0

aws:s3:::eks-updater-bucket-20250218-unique123.

... Critical

AWS S3 Bucket

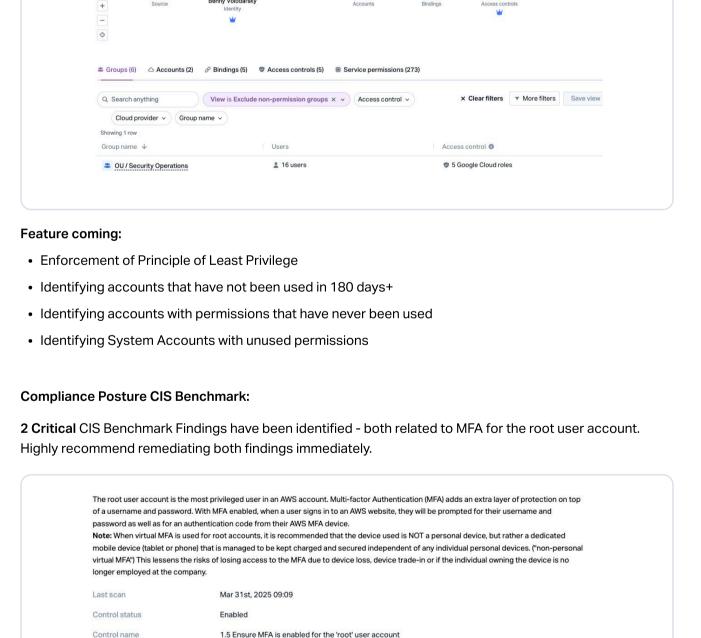
uwd-82816a77fdb9dac8

Management Exposure Violations

Collection > Data from Cloud Storage

MS Demo

0 @ Logs



1. Identity and Access Management

MFA is disabled for the root user account 1 Finding

upwindinternal / # us-east-1

CIS Amazon Web Services foundations Version 2.0 | Revision 1.0

Cloud account v Identifier v Resource kind v Resource name v

arn:aws:iam::627244208106:root 1 day ago

The root user account is the most privileged user in an AWS account. MFA adds an extra layer of protection on top of a user name and password. With MFA enabled, when a user signs in to an AWS website, they will be prompted for their user name and password as well as for an authentication code from their AWS MFA device. For Level 2, it is recommended that the root user account be protected with a hardware MFA.

1.6 Ensure hardware MFA is enabled for the 'root' user account

Mar 31st, 2025 09:09

Customer-managed IAM policies grant full administrative access

1. Identity and Access Management

Enabled

Last scan

Actions

Ø []

1 day ago

Framework CIS Amazon Web Services foundations Version 2.0 | Revision 1.0 ♀ Findings 
 ✓ Cloud account v | Identifier v | Resource kind v | Resource name v Q Search anything

```
Hardware MFA is not set for the root user account 1 Finding
                                                                                                                       Actions
                   Resource name
                                                                                                     Last scan
                                                                                                                                            辈
                          <root_account>
                                                            arn:aws:iam:us-east-1:6272442... 1 day ago
                                                                                                                          ÷ D %
                          w upwindinternal / wus-east-1
16 High Findings have been found for various CIS Benchmarks.
                 This check verifies that AWS-managed IAM policies attached to users, groups, or roles do not grant administrative-level access by avoiding
                 policies with "Action": "*" over "Resource": "*". AWS-managed policies are pre-defined by AWS, and although convenient, they should be carefully
                 reviewed to avoid overly permissive access. This check reinforces best practices by ensuring that AWS-managed policies adhere to the
                 principle of least privilege, reducing the risk of unintended actions by limiting access to only necessary permissions.
                                                  Mar 31st, 2025 09:09
                 Control status
                                                  Enabled
                                                  1.16 Ensure IAM policies that allow full "*:*" administrative privileges are not attached
                 Control name
                 Category
                                                  1. Identity and Access Management
                                                  CIS Amazon Web Services foundations Version 2.0 | Revision 1.0
                 Framework

♀ Findings 
  ✓
                  Q Search anything
                                                   Cloud account v | Identifier v | Resource kind v | Resource name v |
                                                                                                                                  × Clear filters
                  Check
                                                                                                           Last scan
                                                                                                                                 Actions
                        Ensure No AWS-Managed IAM Policies Grant Full Administrative Privile... 2 Findings 1 day ago
                                                                                                                                     ₩ □
```

Security groups provide stateful filtering of ingress and egress network traffic to AWS resources. It is recommended that no security group allows unrestricted ingress access to remote server administration ports, such as SSH to port 22 and RDP to port 3389 . Control status Enabled 5.3 Ensure no security groups allow ingress from ::/0 to remote server administration ports Category 5. Networking Framework CIS Amazon Web Services foundations Version 2.0 | Revision 1.0 ♀ Findings 
 ✓ Q Search anything × Clear filters Cloud account 

Identifier 

Resource kind Resource name v Security groups allow ingress from 0.0.0.0/0 to administration ports 6 Findings Last scan Resource name Actions NeptuneToOpensearchIntegra... arn:aws:ec2:us-east-1:627244... 1 day ago NeptuneStream-HTTPSAcces... arn:aws:ec2:us-east-1:627244... 1 day ago <- □ 30 upwindinternal / # us-east-1... NeptuneToOpensearchIntegra... arn:aws:ec2:us-east-1:627244... 0 <- □ Ø upwindinternal / # us-east-1... NeptuneToOpensearchIntegra... arn:aws:ec2:us-east-1:627244... <- □ Ø upwindinternal / us-east-1... NeptuneToOpensearchIntegra... arn:aws:ec2:us-east-1:627244... <- □ Ø .... upwindinternal / = us-east-1... production-us-east-1-eks-nod... arn:aws:ec2:us-east-1:627244... <- □ Ø 🅶 upwindinternal / 🎂 us-east-1...

**u**pwind CLOUD SECURITY ASSESSMENT REPORT

# **Key Findings**

# B) Kubernetes Security Posture Assessment (KSPM) - Advanced Phase

**K8s Misconfigurations:** 

Control status

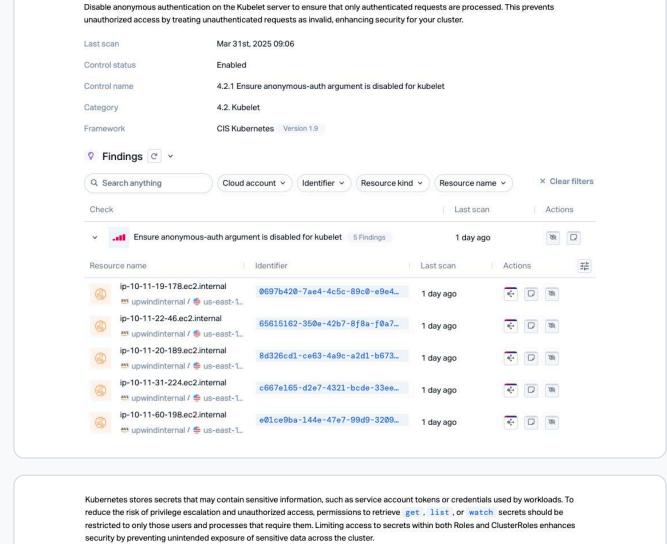
Control name

Category

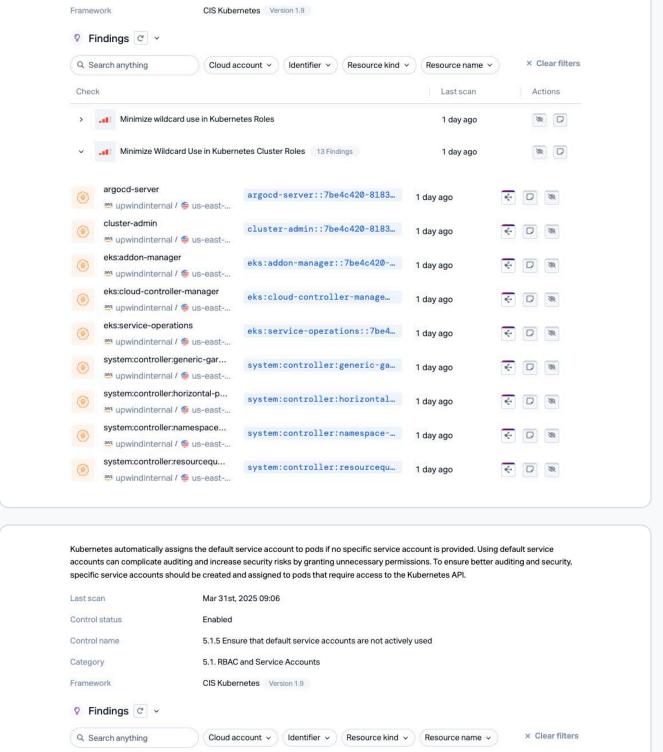
Enabled

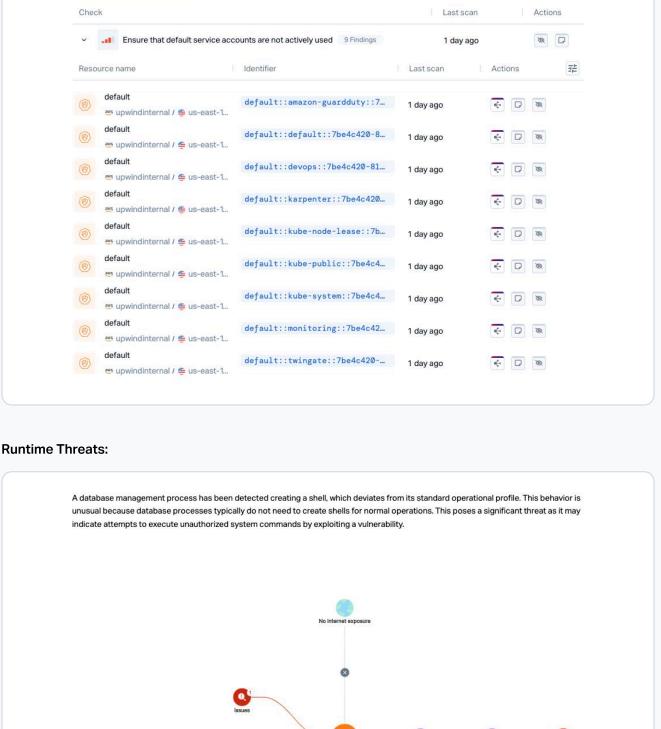
5.1.2 Minimize access to secrets

5.1. RBAC and Service Accounts



Category 5.1. RBAC and Service Accounts CIS Kubernetes Version 1.9 Framework × Clear filters Q Search anything Cloud account v | (Identifier v ) | Resource kind v | Resource name v | Check Actions Last scan Minimize access to secrets in Kubernetes Roles 11 Findings 38 D 1 day ago Minimize access to secrets in Kubernetes ClusterRoles 20 Findings 1 day ago Ø D Actions Resource name Identifier Last scan 莊 admin::7be4c420-8183-4381-bf... 1 day ago upwindinternal / = us-east-... argocd-notifications-controller argood-notifications-control... 4 D 8 upwindinternal / # us-east-... Kubernetes Roles and ClusterRoles define access permissions to resources and actions within the cluster. The use of the \* wildcard in these roles grants unrestricted permissions across all resources, which can lead to unintended privilege escalation, especially as new resources are introduced over time. To follow the principle of least privilege, explicit resource and action definitions should be used instead or wildcards to ensure controlled and secure access management. Control status Control name 5.1.3 Minimize wildcard use in Roles and ClusterRoles





# 50

□ Detection details

```
Severity
              Resource
                                tsdb-orgs01
                                Kubernetes StatefulSet
                                Path
              MITRE tactic 0
                                Execution > Command and Scripting Interpreter
                                 ↓ O · ★ W
              Risk overview
              Source
                                Sensor
                                uwd-25ee1e738fca2a81
              --- Resource risk analysis >
                  The resource has an active internet egress communication, last seen 2 minutes ago. <u>View connections</u>
               The resource has no additional threat detections.
                  The resource has 7 critical-severity and 93 other-severity vulnerabilities.
               The resource is highly privileged due to its Kubernetes security context.
              Show more
              Last executed process
             Name
                              sh -c envdir "/run/etc/wal-e.d/env" wal-g wal-push "pg_wal/0000001B000073DF0000000CD"
             Command
                              Terminated
             Process tree
                              View process tree
Runtime Exploit Funnel:
Prioritize vulnerabilities based on exploitability.
              Productivity funnel

    Total CVEs

    Upwind Prioritized CVEs

                                                Critical CVEs
                93 investigations & patches saved x 4 hours per investigation =
                           372
                                                        16
                                                                                    1
                           Hours
                                                       Days
                                                                                 Month
                           95% Saving time
```

**API Catalog:** 

Endpoint | 2 endpoints

performance and stability.

```
1. Investigate data ingestion processes: Identify the source of these large payloads and optimize data flow to reduce individual
2. Adjust Elasticsearch configuration: Consider increasing the http.max_content_length setting in Elasticsearch to
   accommodate\ larger\ payloads\ if\ necessary.\ However,\ ensure\ this\ change\ aligns\ with\ your\ infrastructure\ capabilities\ and
3. Implement data chunking: Break down large payloads into smaller chunks and send them as separate requests to the Bulk
4. Monitor Elasticsearch performance: Regularly monitor Elasticsearch performance metrics, including indexing throughput
   and latency, to identify and address potential bottlenecks.
 Unauthorized API Access  Security insights
Endpoint | POST /cluster-components/register
□ CWE-306 | Missing Authentication for Critical Function
Unauthorized Access to Sensitive API Endpoints
\textbf{Multiple attempts to access the } \textbf{/cluster-components/register} \ \ \textbf{API endpoint resulted in 401 Unauthorized errors.} \ \textbf{This}
indicates\ potential\ attempts\ by\ unauthorized\ entities\ to\ register\ cluster\ components, posing\ a\ significant\ security\ risk.
7 requests to /cluster-components/register resulted in 401 Unauthorized errors. Example request ID: bea@be8c-
e3c0-4083-834f-0a6bb9824c2d
Strengthen \ authentication \ mechanisms \ for \ the \ \ / \textbf{cluster-components/register} \ \ endpoint. \ Implement \ robust \ authorization
checks to ensure only legitimate entities can register cluster components. Consider using multi-factor authentication and
strong password policies.
```

Same Elasticsearch Bulk API Receiving Excessive Payloads Operops insights

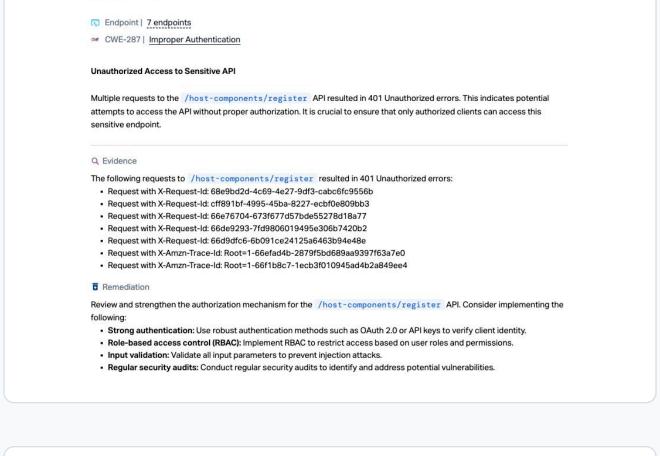
Multiple requests to the Elasticsearch Bulk API are exceeding the maximum payload size, resulting in 413 Request Entity Too Large errors. This indicates potential issues with data ingestion processes and can significantly impact Elasticsearch

 $Requests \ with \ route \ IDs \ rt-27e3e597dbe70fda \ and \ rt-d1567338bc6aebb1 \ to \ the \ /bulk \ endpoint \ have \ Content-point \ for \ f$ 

Length headers exceeding 100MB, leading to 413 errors in the responses.

Unauthorized Access to Sensitive API Security insights

Excessive Payloads Impacting Elasticsearch Performance



```
● Junauthorized Access to GCP Container Clusters Endpoint  Security insights
Endpoint | GET /v1/organizations/{-}/container/projects/{-}/clusters

    □ CWE-287 | Improper Authentication
    □ CWE-287 | Improper Authentication

\textbf{The /vl/organizations/\{orgId\}/container/projects/\{projectId\}/clusters \textbf{ API endpoint is vulnerable to a project of the pr
\textbf{Multiple requests to this endpoint, which is responsible for retrieving information about GCP container clusters, were successful and the property of the 
despite lacking proper authentication headers. This indicates a critical security vulnerability as it allows unauthorized users to
access sensitive information about your Kubernetes clusters, potentially leading to further attacks.
Q Evidence
 any authentication headers, and some of these requests received successful responses (200 OK).
 Immediately implement proper authentication mechanisms for the
     /v1/organizations/\{orgId\}/container/projects/\{projectId\}/clusters \ \ API\ endpoint.\ Consider\ using\ industry-projects/\{projectId\}/clusters \ \ API\ endpoint.\ API\ endpo
   standard authentication methods such as API keys, OAuth 2.0, or JWT to ensure that only authorized clients can access this
 endpoint.
```



## Compliance and Risk Prioritization

#### Frameworks Evaluated:

- · CIS Benchmarks (CSPM).
- PCI, HIPAA, or NIST (optional extensions).

### Risk Severity Scoring:

· Categorized by critical, high, medium, and low severity.

## Attack Path Analysis:

• Map attack paths from misconfigurations and vulnerabilities to potential exploitation.

## Next Steps and Recommendations

## Immediate Remediation Suggestions:

- · Actions to reduce public exposure.
- Patching guidance for critical CVEs.
- · Misconfiguration fixes.

## Ongoing Monitoring:

Recommend continuous runtime and posture monitoring.

## AWS MP Integration:

• Guidance on how to transact for \$0/\$1 via AWS MP.

## Final Output

This document provides a standardized Cloud Security Assessment format that clearly defines scope, deliverables, and actionable outcomes. It is designed for easy consumption by channel partners and end-customers, while highlighting Upwind's capabilities and cloud-native strengths.