

Cloud-Guard – AWS Misconfiguration Mitigation Tool

Sai Pavan Rangu , Vishwanatham Neelam



AMRITA
VISHWA VIDYAPEETHAM

Introduction

- CloudGuard is an automated cloud security tool that scans, detects, and fixes vulnerabilities in AWS infrastructure.
- It simplifies cloud protection by ensuring real-time compliance and safety with minimal user effort..

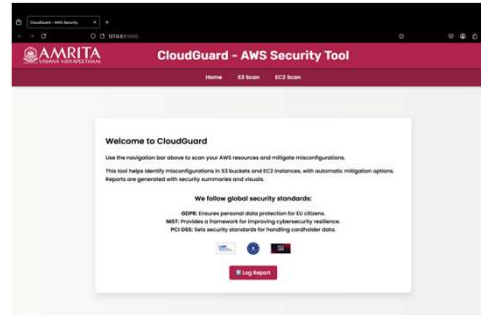
Motivation

- To eliminate human errors and misconfigurations in cloud infrastructure through automated security checks.
- To provide real-time threat detection and mitigation, ensuring continuous cloud protection with minimal effort.

Objective

- To automate the security auditing process for AWS cloud services, making it faster and more accurate.

Front-end Web



Methodology

- Analyzed common AWS security issues, focusing on S3 and EC2 misconfigurations.
- Developed a Flask-based web tool using Python and Boto3 for cloud integration.
- Implemented real-time scanning, vulnerability detection, and mitigation logic.
- Tested the tool across various AWS setups to ensure reliability and effectiveness

Tools & Applications

- | | | |
|----------|---------|-------|
| • Python | • Boto3 | • S3 |
| • Flask | • AWS | • EC2 |

Results

```
[2025-03-31 09:16:03] - S3 Bucket 'mighty3': CORS is configured.
[2025-03-31 09:16:03] - S3 Bucket 'mycyberproject': Public access is fully blocked.
[2025-03-31 09:16:03] - S3 Bucket 'mycyberproject': CORS is configured.
[2025-03-31 09:16:03] - S3 Bucket 'sample-0011': Public access is fully blocked.
[2025-03-31 09:16:03] - S3 Bucket 'sample-0011': CORS is configured.
[2025-03-31 09:16:03] - S3 Bucket 'sampletest21': Public access is NOT fully blocked.
[2025-03-31 09:16:03] - S3 Bucket 'sampletest21': No CORS configuration.
[2025-03-31 09:16:03] - S3 Bucket 'werty-111': Public access is fully blocked.
[2025-03-31 09:16:03] - S3 Bucket 'werty-111': CORS is configured.
[2025-03-31 09:16:03] - S3 Bucket 'sampletest21': Mitigated public access.
[2025-03-31 09:16:03] - S3 Bucket 'amritavishwa123': Public access is fully blocked.
[2025-03-31 09:16:03] - S3 Bucket 'amritavishwa123': CORS is configured.
[2025-03-31 09:16:03] - S3 Bucket 'aws-cloudtrail-logs-957118323453-273307f3': Public access is fully blocked.
```

- **CloudGuard** effectively automates cloud security by detecting and mitigating AWS misconfigurations in real-time.
- It simplifies security management, reduces manual effort, and ensures better protection for cloud-based systems

