Vulnerability Report Document

Document Information

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Tools:
- vuln-analyzer (2.1.0)

Component name : Enterprise Web Application (3.5.2)

BOM Format: CycloneDX
Specification Version: 1.5
Version: 1
Serial Number: urn:uuid:8f2d6c3a-7b4e-4d1c-9a2f-5e8b3c1d6f9a

Vulnerabilities

1. ID: **CVE-2023-12345**
   Description: A critical security vulnerability was discovered in the authentication module that could allow unauthorized access to sensitive user data through a SQL injection attack vector in the legacy authentication function.

   - **Severity:** high (CVSSv31)

   Analysis: **Not Affected**
   - **Justification:** Code Not Reachable
   - **Details:** After comprehensive security analysis conducted by our security team using both static and dynamic analysis tools including SonarQube, Checkmarx, and custom penetration testing scripts, we have determined that this vulnerability does not affect our implementation. Our application uses a different authentication mechanism that does not include the vulnerable code path identified in CVE-2023-12345. Specifically, we utilize parameterized queries throughout our codebase which prevents SQL injection attacks at the database layer. The vulnerable function identified in the CVE (authenticate_user_v1) is not present in our codebase as we migrated to authenticate_user_v2 in release 2.0.0 which was deployed six months prior to this vulnerability being disclosed. Additionally, our application implements multiple layers of defense including input validation using OWASP validation patterns, prepared statements with bind parameters, and the principle of least privilege for database access with read-only credentials for query operations. We performed comprehensive penetration testing specifically targeting this vulnerability vector using both automated tools and manual testing by certified security professionals, and confirmed that our implementation is not susceptible to this attack. The testing included fuzzing inputs, boundary value analysis, and attempted exploitation using known SQL injection patterns documented in the OWASP Top 10. However, as a precautionary measure and following our defense-in-depth security strategy, we have implemented additional rate limiting on authentication endpoints (10 requests per minute per IP), enhanced our Web Application Firewall (WAF) rules to detect and block any attempts to exploit SQL injection vulnerabilities using ModSecurity CRS 3.3 ruleset, and deployed honeypot endpoints to detect reconnaissance activities. Our security monitoring systems powered by Splunk have been configured to alert on any suspicious authentication patterns that might indicate exploitation attempts including multiple failed login attempts, unusual query patterns, and unexpected special characters in input fields. We will continue to monitor for any related vulnerabilities and have scheduled a follow-up comprehensive security audit in Q2 2025 to validate our findings and ensure continued protection against this class of vulnerabilities.

   Affected Document Components : [*auth-module*: 1.2.3 **]**

2. ID: **CVE-2024-98765**
   Description: Remote code execution vulnerability in XML parser allows attackers to execute arbitrary code through specially crafted XML payloads containing external entity references.

Severity: critical (CVSSv31)

Analysis: Exploitable

- **Details:** This vulnerability has been confirmed as exploitable in our environment during security testing. Our XML parser component version 2.8.0 contains the vulnerable code that processes external entities without proper sanitization. We have successfully reproduced the vulnerability in our isolated testing environment and confirmed that attackers could potentially execute arbitrary code on the server. The vulnerability exists because the XML parser has DTD processing enabled by default, which allows XML External Entity (XXE) attacks. An immediate workaround has been deployed to production by disabling DTD processing in the parser configuration and implementing strict input validation that rejects XML documents containing DOCTYPE declarations or external entity references. Additionally, we have implemented network segmentation to limit the blast radius if exploitation occurs, and deployed enhanced monitoring to detect XXE attack patterns. A permanent fix through upgrading to version 2.9.1 of the XML parser is scheduled for deployment during the next maintenance window on January 25, 2025. Emergency change control procedures have been approved for this security patch.

Affected Document Components : [*xml-parser*: 2.8.0 **]**

3. ID: **CVE-2024-11111**

Description: Information disclosure vulnerability in logging framework may expose sensitive data in log files when verbose logging is enabled.

- **Severity:** medium (CVSSv31)

Analysis: Resolved

- **Justification:** Protected By Mitigating Control
- **Details:** This vulnerability was present in logging-framework version 1.9.2 but has been fully resolved by upgrading to version 1.9.5 which was deployed on January 10, 2025. The vulnerability allowed sensitive information such as API keys, session tokens, and personally identifiable information (PII) to be logged in plain text when verbose logging mode was enabled. Our analysis confirmed that while the vulnerable code was present, our production environment never had verbose logging enabled as per our security hardening guidelines, and log files are encrypted at rest and transmitted over TLS to our centralized logging system with role-based access control. Additionally, we implemented log sanitization filters that redact sensitive patterns before logs are written to disk. Post-deployment validation confirmed that the updated library properly sanitizes all sensitive data and no information disclosure is possible even with verbose logging enabled.

Affected Document Components : [*logging-framework*: 1.9.2 **]**

4. ID: **CVE-2024-22222**

Description: Potential timing attack in database connector authentication mechanism could allow attackers to enumerate valid credentials through response time analysis.

- **Severity:** medium (CVSSv31)

Analysis: In Triage

- **Details:** This vulnerability is currently under active investigation by our security team. Initial analysis suggests that the database-connector component may be susceptible to timing attacks during the authentication phase, where subtle differences in response times could potentially leak information about valid versus invalid credentials. Our security researchers are conducting comprehensive timing analysis using specialized tools to measure response time variations across different input scenarios. We are also reviewing the authentication code path to identify potential timing side-channels and evaluating the feasibility of exploitation in our production environment considering network latency and other factors that may mask timing differences. A preliminary risk assessment has been completed, and we have increased monitoring on database authentication events to detect any suspicious patterns that might indicate active exploitation attempts. We expect to complete our analysis by January 28, 2025, at which point we will determine the appropriate remediation strategy. In the interim, we have implemented rate limiting on

database connection attempts and enhanced our intrusion detection system rules to flag unusual authentication patterns.

Affected Document Components : [*database-connector*: 4.5.1 **]**

5. ID: **CVE-2024-33333**
   Description: Cross-site scripting (XSS) vulnerability in user profile rendering component when displaying user-supplied content without proper sanitization.

   - **Severity:** medium (CVSSv31)

   Analysis: False Positive
   - **Justification:** Protected At Perimeter
   - **Details:** After thorough investigation, we have determined this CVE to be a false positive for our implementation. The vulnerability describes an XSS issue in a user profile rendering component, but our application uses a completely different rendering framework (React with built-in XSS protection) than the one described in the CVE (legacy template engine). The CVE was filed against a specific open-source component that we do not use in our application stack. Our code review and dynamic security testing using tools like Burp Suite and OWASP ZAP confirmed that all user-supplied content is properly sanitized through React's automatic escaping mechanisms before rendering, and we have implemented Content Security Policy (CSP) headers that prevent inline script execution as an additional defense layer. Furthermore, our penetration testing team was unable to reproduce any XSS condition using various attack vectors including script injection, event handler injection, and DOM-based XSS techniques. This CVE appears to have been incorrectly associated with our component, possibly due to a naming collision or misidentification in the vulnerability database. We have contacted the CVE numbering authority to request a clarification or correction of the affected product list.

   Affected Document Components : [*auth-module*: 1.2.3 **]**

6. ID: **CVE-2024-44444**
   Description: Denial of service vulnerability in database connection pool management allows attackers to exhaust connection pool through specially crafted requests.

   - **Severity:** high (CVSSv31)

   Analysis: Resolved With Pedigree
   - **Justification:** Protected By Mitigating Control
   - **Details:** This vulnerability has been fully resolved through a combination of code patches and configuration changes, with complete audit trail and verification. The vulnerability allowed attackers to exhaust the database connection pool by sending malformed requests that would create connections without properly releasing them, leading to a denial of service condition. We deployed a fix on January 16, 2025, which included upgrading the database-connector library to version 4.5.2, implementing connection timeout enforcement (30 seconds max), and adding connection pool monitoring with automatic pool recycling when thresholds are exceeded. The fix has been thoroughly tested in our staging environment under load conditions simulating both normal traffic and attack scenarios. We have git commit hashes, code review approvals, and security validation test results documenting the complete remediation process.
     Post-deployment monitoring over the past 4 days shows no connection pool exhaustion events and normal pool utilization metrics. Additionally, we implemented rate limiting at the API gateway level (100 requests per second per client) as defense in depth, and configured automated alerts if connection pool utilization exceeds 80% capacity. We have also prepared rollback procedures and tested the rollback process in case any issues emerge, though none are anticipated given the successful testing and monitoring results.

   Affected Document Components : [*database-connector*: 4.5.1 **]**

Components

Name: *auth-module*

Version: 1.2.3

Name: *database-connector*
Version: 4.5.1

Name: *xml-parser*
Version: 2.8.0

Name: *logging-framework*
Version: 1.9.2