



# SECURITY ASSESSMENT

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Submitted to: Development Team  
Security Analyst: Security Analyst Team

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# Security Engagement Summary

## Engagement Overview

The company Development team has requested the Vulnerability assessment from the security Analyst for better understanding of security risks in the web-application developed and also the understanding of risks which will be posing to the organization.

The main goal of this engagement by the development team is for the better understanding of security risks associated with the web-application and what security risk the web application is posing to the organization. Also, they wanted to understand what mitigations are possible to increase the security posture and reduce risk to the organization.

The engagement is completed by the Security analyst with proper information provided by the developmet team.

The assessment should be carried out once per quarter.

## Scope

The systematic review of security weakness of the application developed is must necessary for the application to be secure.

The vulnerability report or assessment gives an idea on how secure system is and how we can make our application more stable. The application developed

The development team have developed an application before we market the software it is essential for the company to be aware of the security vulnerability.

## Executive Risk Analysis

The risk of vulnerability listed in Executive Summary gives the overall risk. We can work on the highest priority first and consider the low-risk vulnerability later.

The risk levels were indicated to indicate if there are any immediate security risk so that we can work the solution as soon as possible to secure our data.

The executive summary form has been attached here for complete explanation:

## Executive Recommendation

The Executive Summary form describes in brief the remediation effort. We have a medium risk which should be remediated first. The solution is described below.

Executive report:

**Assessment Date:**

03/18/2021

**Report Date**

03/18/2021

**Prepared By:**

Ranjitha Manjunath

**Executive Board**

Development Team

**Notable Risk**

Infomational,Medium,Low

**PURPOSE/SCOPE**

The development team have developed an application before we market the software it is essential for the company to be aware of the security vulnerability.

**SYSTEM DESCRIPTION**

The main goal of this engagement by the development team is for the better understanding of security risks associated with the web-application and what security risk the web application is posing to the organization. Also, they wanted to understand what mitigations are possible to increase the security posture and reduce risk to the organization.

**PROBLEM/OPPORTUNITY****Vulnerability 1: Risk: Medium**

Cross-Domain misconfiguration

**Vulnerability 2: Risk: Low**

Cross-Domain Javascript Source File Inclusion

**Vulnerability 3: Risk: Informational**

Information Disclosure – Suspicious Comments

**Vulnerability 4: Risk: Informational**

Time stamp Disclosure

**SOLUTION/PRODUCT**

Solution to Vulnerability 1:

Use Ip-whitelisting, making sure the data is unavailable in unauthenticated manner. The Access-Control-Allow-Origin HTTP header should be configured to restrictive set of domains.

Solution to Vulnerability 2:

Ensure JavaScript source files are loaded from only trusted sources. Also, make sure the sources can't be controlled by end users of the application.

Solution to Vulnerability 3:

Remove all comments that return information that may help an attacker and fix any underlying problems they refer to.

Solution to Vulnerability 4:

Manually confirm that the timestamp data is not sensitive, and that the data cannot be aggregated to disclose exploitable patterns.

#### **POTENTIAL IMPACTS**

With the solutions provide we can have a secure application where there will be secure transmission of data and no unauthorized third-party interactions.

By not taking the preventive measure we could be exposed to Information like personal or unauthorized data exposure

#### **EXECUTION PLAN**

The recommended action would be to work according to the risk level and mitigate the issue as solution is provided above.

# Significant Vulnerability Summary

## High Risk Vulnerabilities

- NO VULNERABILITY

## Medium Risk Vulnerabilities

- CROSS DOMAIN MISCONFIGURATION

## Low Risk Vulnerabilities

- CROSS DOMAIN JAVASCRIPT SOURCE FILE INCLUSION

# Significant Vulnerability Detail

## Information Disclosure - Suspicious Comments

### Informational Risk

#### Vulnerability detail

- The Vulnerability has Informational risk.
- The vulnerability was found following a pattern: **\bSELECT\b** and detected in the element starting with: **“function\_createForOfIteratorHelper(t,e){var n;if(“undefined”==typeof Symbol|null==t[Symbol.iterator]){id(Array.isArray(t))|(n=**, see evidence field for the suspicious comment.
- The probability of exploit is not high as we can remove the comments which leads information for the attacker.
- This won't affect anyone as this is just informational.
- Solution is to remove all comments that return information for the attacker and fix any underlying problems they refer to.

The screenshot displays the OWASP ZAP 2.10.0 interface. The top pane shows the HTTP response details for a request to `http://localhost:3000/polyfills-es5.js`. The response is an application/javascript file with a content length of 173623 bytes. The bottom pane shows an alert titled "Information Disclosure - Suspicious Comments" with a risk level of "Informational" and a confidence of "Low". The alert description states: "The response appears to contain suspicious comments which may help an attacker. Note: Matches made within script blocks or files are against the entire content not only comments." The "Other Info" section provides the pattern used for detection: `\bSELECT\b` and the specific code snippet found in the response: `function_createForOfIteratorHelper(t,e){var n;if(“undefined”==typeof Symbol|null==t[Symbol.iterator]){id(Array.isArray(t))|(n=`.

# Timestamp Disclosure - Unix(23)

## Informational Risk

<<

### Vulnerability detail

- The Vulnerability has Informational risk.
- The timestamp was disclosed by application/web server – Unix. The Evidence was identified when 33333333, which evaluates to: 1971-01-21 14:15:33
- Discuss the probability of exploit/attack.
- The probability of this risk is not high.
- This won't affect anyone as this is just informational.
- Remediation is to manually confirm that the timestamp data is not sensitive, and that the data cannot be aggregated to disclose exploitable patterns.

The screenshot displays the OWASP ZAP interface. The top pane shows an HTTP response from 'http://localhost:3000/styles.css'. The response headers include 'Access-Control-Allow-Origin: \*', 'X-Content-Type-Options: nosniff', 'X-Frame-Options: SAMEORIGIN', 'Feature-Policy: payment 'self'', 'Accept-Ranges: bytes', 'Cache-Control: public, max-age=0', 'Last-Modified: Thu, 18 Jun 2020 20:26:44 GMT', 'ETag: W/"7e2ee-172c91cbfa0"', 'Content-Type: text/css; charset=UTF-8', 'Content-Length: 516846', 'Vary: Accept-Encoding', 'Date: Thu, 18 Mar 2021 10:29:19 GMT', and 'Connection: keep-alive'. The body contains CSS code with a timestamp disclosure vulnerability. The bottom pane shows the 'Alerts' tab with a list of alerts. The selected alert is 'Timestamp Disclosure - Unix (23)', which is informational. The details pane for this alert shows the URL 'http://localhost:3000/styles.css', the risk level 'Informational', the confidence 'Low', the parameter '33333333', the CWE ID '200', the WASC ID '13', the source 'Passive (10096 - Timestamp Disclosure)', and the description 'A timestamp was disclosed by the application/web server - Unix'. The evidence shows the timestamp '33333333, which evaluates to: 1971-01-21 14:15:33'. The solution suggests manually confirming that the timestamp data is not sensitive and cannot be aggregated to disclose exploitable patterns. The reference is 'http://projects.webappsec.org/w/page/13246936/Information%20Leakage'.



# Cross Domain Misconfiguration(30)

Medium

## Vulnerability detail

- The Vulnerability has Medium risk.
- The CORS misconfiguration on the webserver permits cross domain read requests from arbitrary third party domains, using unauthenticated APIs on this domain. Web server implementations don't permit arbitrary third parties to read the response from authenticated APIs.
- The probability of exploit is medium. The vulnerability should be taken care as soon as possible.
- The departments and Company will be affected much from this as the domain will be cross configured.
- Solution is to ensure sensitive data is unavailable in an unauthenticated manner by using IP address white listing

The screenshot displays the OWASP ZAP 2.10.0 interface. The top panel shows the 'Request' and 'Response' tabs. The 'Response' tab is active, displaying an HTTP/1.1 200 OK response with headers including 'Access-Control-Allow-Origin: \*', 'X-Content-Type-Options: nosniff', 'X-Frame-Options: SAMEORIGIN', 'Feature-Policy: payment 'self'', 'Accept-Ranges: bytes', 'Cache-Control: public, max-age=0', 'Last-Modified: Thu, 18 Mar 2021 18:28:56 GMT', 'ETag: W/"785-178469903be"', 'Content-Type: text/html; charset=UTF-8', and 'Content-Length: 1925'. The body of the response contains HTML code, including a copyright notice for Bjoern Kimminich and a meta tag with the name 'description' and content 'Probably the most modern and sophisticated insecure web application'.

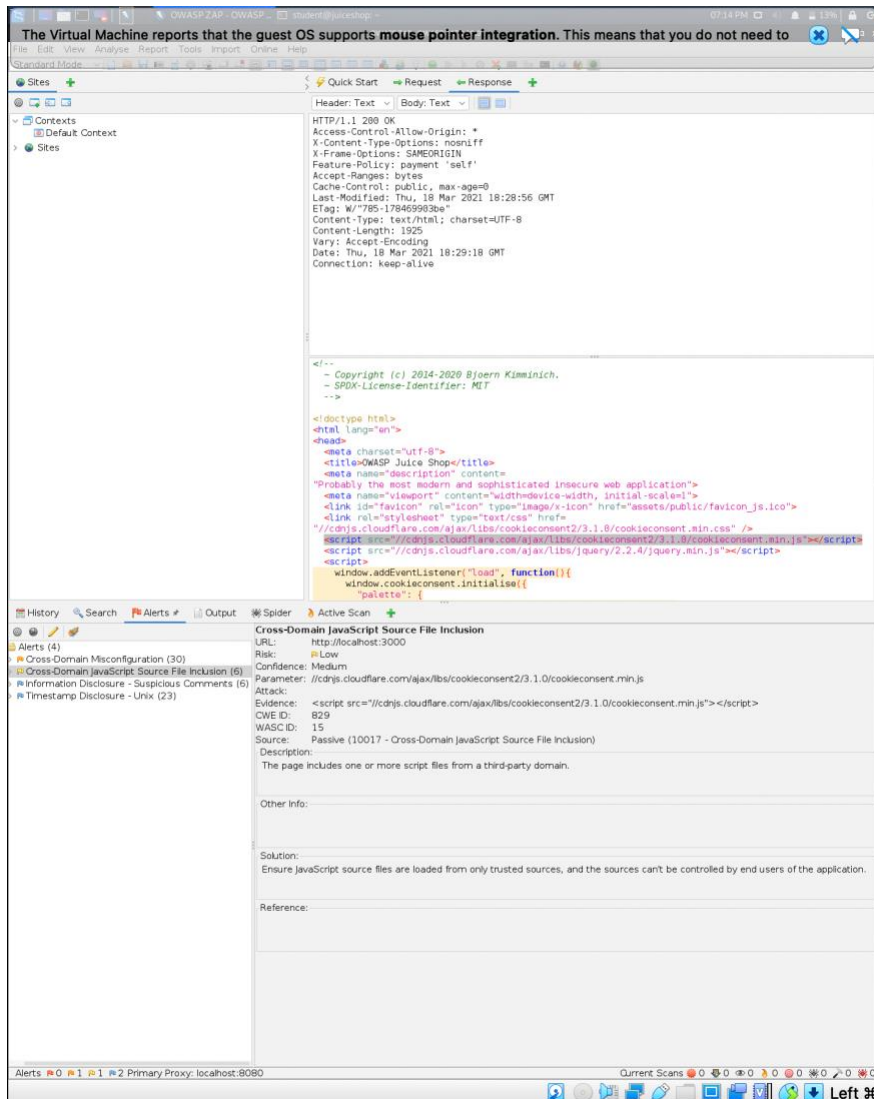
The bottom panel shows the 'Alerts' tab, which lists several alerts. The 'Cross-Domain Misconfiguration (30)' alert is selected, showing details such as the URL 'http://localhost:3000', Risk 'Medium', Confidence 'Medium', and Source 'Passive (10098 - Cross-Domain Misconfiguration)'. The description states: 'Web browser data loading may be possible, due to a Cross Origin Resource Sharing (CORS) misconfiguration on the web server'. The 'Other Info' section provides further context: 'The CORS misconfiguration on the web server permits cross-domain read requests from arbitrary third party domains, using unauthenticated APIs on this domain. Web browser implementations do not permit arbitrary third parties to read the response from authenticated APIs, however. This misconfiguration could be used by an'.

# Cross Domain JavaScript Source File Inclusion

Low

## Vulnerability detail

- The Vulnerability has Low risk.
- The page had one or more script files from a third-party domain.
- The probability of exploit is Low as the exploit might not give important information to the user.
- The department will be affected as they have to reconfigure few scripts.
- Solution is to ensure JavaScript files are loaded from only trusted sources and the sources can't be controlled by end users of the application.



# Methodology

The methodology for the assessment is followed by the steps described below:

**Initial Planning:** The Planning was done by development team for the assessment.

**Scanning:** OWASP ZAP tool was used to scan the port localhost:3000. We found one medium risk vulnerability which should be taken care. And a low risk which is not so important. There are two informational risks.

The exploitable risk is the Cross Domain misconfiguration which will lead to requests and unauthorized requests from third party access.

**Analysis:** According to the Vulnerability report, we have one vulnerability at medium risk which should be taken care of, if not it might cause minor injury to the company. The remediation is explained above.

**Remediation:** The remediation of medium risk is explained. Overall as we have one medium risk the application is not much vulnerable but if we see overall, we have to take care of making system secure by considering the informational and low risks.

OWASP ZAP gave complete report of all three vulnerabilities and Kali Linux was the platform used.

## Assessment Toolset Selection

Kali Linux - Platform

Virtual box – Environment setup

OWASP ZAP – Scanning tool

## Assessment Methodology Detail

Below are the screenshots of all the commands and reports:

