

Site: http://host.docker.internal:3000

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ZAP Version: 2.16.1

ZAP by **Checkmarx** 

## **Summary of Alerts**

Risk Level	Number of Alerts
High	0
Medium	2
Low	4
Informational	1
False Positives:	0

# **Summary of Sequences**

For each step: result (Pass/Fail) - risk (of highest alert(s) for the step, if any).

### **Alerts**

Name	Risk Level	Number of Instances
Content Security Policy (CSP) Header Not Set	Medium	3
Missing Anti-clickjacking Header	Medium	3
Insufficient Site Isolation Against Spectre Vulnerability	Low	9
Permissions Policy Header Not Set	Low	3
Server Leaks Information via "X-Powered-By" HTTP Response Header Field(s)	Low	3
X-Content-Type-Options Header Missing	Low	3
Storable and Cacheable Content	Informational	3

#### **Alert Detail**

Medium Content Security Policy (CSP) Header Not Set

Description

Content Security Policy (CSP) is an added layer of security that helps to detect and mitigate certain types of attacks, including Cross Site Scripting (XSS) and data injection attacks. These attacks are used for everything from data theft to site defacement or distribution of malware. CSP provides a set of standard HTTP headers that allow website owners to declare approved sources of content that browsers should be allowed to load on that page — covered types are JavaScript, CSS, HTML frames, fonts, images and embeddable objects such as Java applets, ActiveX, audio and video files.

URL http://host.docker.internal:3000

Method GET

Paramete

r

Attack

Evidence

Other Info

URL <a href="http://host.docker.internal:3000/robots.txt">http://host.docker.internal:3000/robots.txt</a>

Method GET

**Paramete** 

r

Attack

Evidence

Other Info

URL http://host.docker.internal:3000/sitemap.xml

Method GET

**Paramete** 

r

Reference

Attack

Evidence

Other Info

Instances 3

Solution Ensure that your web server, application server, load balancer, etc. is configured to set the

Content-Security-Policy header.

https://developer.mozilla.org/en-US/docs/Web/Security/CSP/

Introducing Content Security Policy

https://cheatsheetseries.owasp.org/cheatsheets/Content Security Policy Cheat Sheet.html

https://www.w3.org/TR/CSP/

https://w3c.github.io/webappsec-csp/

https://web.dev/articles/csp

https://caniuse.com/#feat=contentsecuritypolicy

https://content-security-policy.com/

CWE Id <u>693</u>
WASC Id 15
Plugin Id <u>10038</u>

Medium Missing Anti-clickjacking Header

Description

The response does not protect against 'ClickJacking' attacks. It should include either Content-

Security-Policy with 'frame-ancestors' directive or X-Frame-Options.

URL <a href="http://host.docker.internal:3000">http://host.docker.internal:3000</a>

Method GET

Paramete

x-frame-options

Attack

Evidence

Other Info

URL <a href="http://host.docker.internal:3000/robots.txt">http://host.docker.internal:3000/robots.txt</a>

Method GET

**Paramete** 

x-frame-options

Attack

Evidence

Other Info

URL <a href="http://host.docker.internal:3000/sitemap.xml">http://host.docker.internal:3000/sitemap.xml</a>

Method GET

**Paramete** 

x-frame-options

Attack

Evidence

Other Info

Instances 3

Modern Web browsers support the Content-Security-Policy and X-Frame-Options HTTP

headers. Ensure one of them is set on all web pages returned by your site/app.

Solution If you expect the page to be framed only by pages on your server (e.g. it's part of a

FRAMESET) then you'll want to use SAMEORIGIN, otherwise if you never expect the page to be framed, you should use DENY. Alternatively consider implementing Content Security Policy's

"frame-ancestors" directive.

Reference https://developer.mozilla.org/en-US/docs/Web/HTTP/Headers/X-Frame-Options

CWE Id <u>1021</u>
WASC Id 15

Plugin Id 10020

Description

Low Insufficient Site Isolation Against Spectre Vulnerability

Cross-Origin-Resource-Policy header is an opt-in header designed to counter side-channels

attacks like Spectre. Resource should be specifically set as shareable amongst different

origins.

URL http://host.docker.internal:3000

Method GET

Paramete

Cross-Origin-Resource-Policy

Attack

Evidence

Other Info

URL <a href="http://host.docker.internal:3000/robots.txt">http://host.docker.internal:3000/robots.txt</a>

Method GET

Paramete

Cross-Origin-Resource-Policy

Attack

Evidence

Other Info

URL <a href="http://host.docker.internal:3000/sitemap.xml">http://host.docker.internal:3000/sitemap.xml</a>

Method GET

Paramete

Cross-Origin-Resource-Policy

Attack

Evidence

Other Info

URL <a href="http://host.docker.internal:3000">http://host.docker.internal:3000</a>

Method GET

Paramete

Cross-Origin-Embedder-Policy

Attack

Evidence

Other Info

URL http://host.docker.internal:3000/robots.txt

Method GET

Paramete

Cross-Origin-Embedder-Policy

Attack

Evidence

Other Info

URL <a href="http://host.docker.internal:3000/sitemap.xml">http://host.docker.internal:3000/sitemap.xml</a>

Method GET

Paramete

Cross-Origin-Embedder-Policy

Attack

Evidence

Other Info

URL <a href="http://host.docker.internal:3000">http://host.docker.internal:3000</a>

Method GET

Paramete

Cross-Origin-Opener-Policy

Attack

Evidence

Other Info

URL http://host.docker.internal:3000/robots.txt

Method GET

**Paramete** 

Cross-Origin-Opener-Policy

Attack

Evidence

Other Info

URL http://host.docker.internal:3000/sitemap.xml

Method GET

**Paramete** 

r Cross-Origin-Opener-Policy

Attack

Evidence

Other Info

Instances 9

Ensure that the application/web server sets the Cross-Origin-Resource-Policy header appropriately, and that it sets the Cross-Origin-Resource-Policy header to 'same-origin' for all

web pages.

'same-site' is considered as less secured and should be avoided.

Solution

Description

If resources must be shared, set the header to 'cross-origin'.

If possible, ensure that the end user uses a standards-compliant and modern web browser that

supports the Cross-Origin-Resource-Policy header (https://caniuse.com/mdn-

http\_headers\_cross-origin-resource-policy).

Reference <a href="https://developer.mozilla.org/en-US/docs/Web/HTTP/Cross-Origin\_Resource\_Policy">https://developer.mozilla.org/en-US/docs/Web/HTTP/Cross-Origin\_Resource\_Policy</a>

CWE Id <u>693</u>
WASC Id 14

Plugin Id 90004

Low Permissions Policy Header Not Set

Permissions Policy Header is an added layer of security that helps to restrict from unauthorized access or usage of browser/client features by web resources. This policy ensures the user privacy by limiting or specifying the features of the browsers can be used by the web resources. Permissions Policy provides a set of standard HTTP headers that allow website owners to limit which features of browsers can be used by the page such as camera, microphone, location, full

screen etc.

URL http://host.docker.internal:3000

Method GET

Paramete

r

Attack

Evidence

Other Info

URL http://host.docker.internal:3000/robots.txt

Method GET

Paramete

r

Attack

Evidence

Other Info

URL http://host.docker.internal:3000/sitemap.xml

Method GET

Paramete

r

Attack

Evidence

Other Info

Instances 3

Solution Ensure that your web server, application server, load balancer, etc. is configured to set the

Permissions-Policy header.

https://developer.mozilla.org/en-US/docs/Web/HTTP/Headers/Permissions-Policy

https://developer.chrome.com/blog/feature-policy/

Reference <a href="https://scotthelme.co.uk/a-new-security-header-feature-policy/">https://scotthelme.co.uk/a-new-security-header-feature-policy/</a>

https://w3c.github.io/webappsec-feature-policy/

https://www.smashingmagazine.com/2018/12/feature-policy/

CWE Id <u>693</u>
WASC Id 15
Plugin Id <u>10063</u>

Low Server Leaks Information via "X-Powered-By" HTTP Response Header Field(s)

The web/application server is leaking information via one or more "X-Powered-By" HTTP

response headers. Access to such information may facilitate attackers identifying other frameworks/components your web application is reliant upon and the vulnerabilities such

components may be subject to.

URL <a href="http://host.docker.internal:3000">http://host.docker.internal:3000</a>

Method GET

Paramete

r

Description

Attack

Evidence X-Powered-By: Express

Other Info

URL http://host.docker.internal:3000/robots.txt

Method GET

Paramete

r

Attack

Evidence X-Powered-By: Express

Other Info

URL <a href="http://host.docker.internal:3000/sitemap.xml">http://host.docker.internal:3000/sitemap.xml</a>

Method GET

Paramete

r

Attack

Evidence X-Powered-By: Express

Other Info

Instances 3

Solution Ensure that your web server, application server, load balancer, etc. is configured to suppress

"X-Powered-By" headers.

https://owasp.org/www-project-web-security-testing-guide/v42/4-

Web Application Security Testing/01-Information Gathering/08-

Reference Fingerprint Web Application Framework

https://www.troyhunt.com/2012/02/shhh-dont-let-your-response-headers.html

CWE Id <u>497</u>
WASC Id 13
Plugin Id 10037

Low X-Content-Type-Options Header Missing

The Anti-MIME-Sniffing header X-Content-Type-Options was not set to 'nosniff'. This allows older versions of Internet Explorer and Chrome to perform MIME-sniffing on the response body, potentially causing the response body to be interpreted and displayed as a content type other than the declared content type. Current (early 2014) and legacy versions of Firefox will use the

declared content type (if one is set), rather than performing MIME-sniffing.

URL http://host.docker.internal:3000

Method GET

Paramete

x-content-type-options

Attack

Description

Evidence

This issue still applies to error type pages (401, 403, 500, etc.) as those pages are often still

Other Info

affected by injection issues, in which case there is still concern for browsers sniffing pages away from their actual content type. At "High" threshold this scan rule will not alert on client or

server error responses.

URL http://host.docker.internal:3000/robots.txt

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Method GET

Paramete

x-content-type-options

Attack

Evidence

Other Info

This issue still applies to error type pages (401, 403, 500, etc.) as those pages are often still

affected by injection issues, in which case there is still concern for browsers sniffing pages away from their actual content type. At "High" threshold this scan rule will not alert on client or

server error responses.

URL <a href="http://host.docker.internal:3000/sitemap.xml">http://host.docker.internal:3000/sitemap.xml</a>

Method GET

**Paramete** 

x-content-type-options

Attack

Evidence

Other Info

This issue still applies to error type pages (401, 403, 500, etc.) as those pages are often still affected by injection issues, in which case there is still concern for browsers sniffing pages away from their actual content type. At "High" threshold this scan rule will not alert on client or

server error responses.

Instances 3

Ensure that the application/web server sets the Content-Type header appropriately, and that it

sets the X-Content-Type-Options header to 'nosniff' for all web pages.

Solution If possible, ensure that the end user uses a standards-compliant and modern web browser that

does not perform MIME-sniffing at all, or that can be directed by the web application/web server

to not perform MIME-sniffing.

https://learn.microsoft.com/en-us/previous-versions/windows/internet-explorer/ie-developer/

Reference <u>compatibility/gg622941(v=vs.85)</u>

https://owasp.org/www-community/Security Headers

CWE ld 693

WASC Id 15

Plugin Id 10021

#### Informational Storable and Cacheable Content

The response contents are storable by caching components such as proxy servers, and may be retrieved directly from the cache, rather than from the origin server by the caching servers, in response to similar requests from other users. If the response data is sensitive, personal or user-specific, this may result in sensitive information being leaked. In some cases, this may even result in a user gaining complete control of the session of another user, depending on the configuration of the caching components in use in their environment. This is primarily an issue where "shared" caching servers such as "proxy" caches are configured on the local network. This configuration is typically found in corporate or educational environments, for instance.

URL http://host.docker.internal:3000

Method GET

Paramete

r

Description

Attack

Evidence

Other Info

In the absence of an explicitly specified caching lifetime directive in the response, a liberal

lifetime heuristic of 1 year was assumed. This is permitted by rfc7234.

URL <a href="http://host.docker.internal:3000/robots.txt">http://host.docker.internal:3000/robots.txt</a>

Method GET

Paramete

I

Attack

Evidence

Other Info

In the absence of an explicitly specified caching lifetime directive in the response, a liberal

lifetime heuristic of 1 year was assumed. This is permitted by rfc7234.

URL <a href="http://host.docker.internal:3000/sitemap.xml">http://host.docker.internal:3000/sitemap.xml</a>

Method GET

**Paramete** 

r

Attack

Evidence

Other Info

In the absence of an explicitly specified caching lifetime directive in the response, a liberal

lifetime heuristic of 1 year was assumed. This is permitted by rfc7234.

Instances 3

Validate that the response does not contain sensitive, personal or user-specific information. If it does, consider the use of the following HTTP response headers, to limit, or prevent the content

being stored and retrieved from the cache by another user:

Cache-Control: no-cache, no-store, must-revalidate, private

Solution Pragma: no-cache

Expires: 0

This configuration directs both HTTP 1.0 and HTTP 1.1 compliant caching servers to not store

the response, and to not retrieve the response (without validation) from the cache, in response

to a similar request.

https://datatracker.ietf.org/doc/html/rfc7234

Reference <a href="https://datatracker.ietf.org/doc/html/rfc7231">https://datatracker.ietf.org/doc/html/rfc7231</a>

https://www.w3.org/Protocols/rfc2616/rfc2616-sec13.html

CWE Id <u>524</u> WASC Id 13

Plugin Id <u>10049</u>

#### Sequence Details

With the associated active scan results.

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