Cyber Health Check Report

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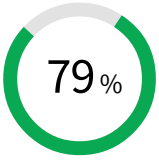
02 NOVEMBER 2023 09:50:20

Website Connection is insufficiently secured.

Web Domain is insufficiently or not secured.

Modern IP Address (IPv6) support is available.

Type	Score
 Website	 Sufficient

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Achieving a sufficiently secured result in this report means that a website, e-mail service, or internet connection complies with our curated internet hygiene baseline standards. More information about the curated internet hygiene baseline standards can be found at para 22 under the 'Authorisation of Use and Disclaimer of Internet Health Lookup Tools and Reports' in the Terms of Use. The information generated in this report is non-binding and meant to be informative in nature, and are not intended to exhaustively identify or definitively reflect the scanned domain's level of cybersecurity and/or resistance against cyberattacks. Users are encouraged to seek professional advice where required.

Secure Website Connection

Try harder! Your website connection is insufficiently secured.
Improve the security of your website connection to protect the data of your visitors against eavesdropping (theft of information) and tampering (altering of data for malicious activities).
Expand the checks below for more details:

HTTP Configuration Security (HTTPS)

HTTPS Existence

Scan Result:
Your website offers secure HTTPS configuration.

Web Server IP Address	**13.33.33.36**
HTTPS Existence	**Yes**

Check Description:

Hypertext Transfer Protocol Secure (HTTPS) enables secure data in transit communication between the client and the server. All your website contents should be delivered via HTTPS.

Validation:

The scanner checks if the URI instance of your website can be accessed by HTTPS protocol.

For more information:

[IETF] RFC 7230 - Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing (https URI Scheme)

[OWASP] Transport Layer Protection

Configuration Guides:

[AWS] Enable HTTPS traffic and verifying the certificates on AWS CloudHSM

[AWS] Using HTTPS with Amazon CloudFront

[AWS] Create HTTPS listener for AWS Application Load Balancer

[Google] Use Hypertext Transfer Protocol Secure (HTTPS) on your domain

[Microsoft] Enabling TLS 1.2

HTTPS Redirection

Scan Result:
Your web server is configured to redirect visitors from HTTP to HTTPS on the same domain.

Web Server IP Address	**13.33.33.36**
HTTPS Redirection	**Yes**

Check Description:

HTTPS redirection ensures that your website can only be accessed via HTTPS protocol. Your website (1) should automatically redirect visitors from HTTP to HTTPS or (2) offer support for only HTTPS.

During redirection, website should upgrade from HTTP to HTTPS on the same domain before URL forwarding (redirecting to another domain). Proper implementation of HTTPS redirection can protect user from potential vulnerabilities, such as;

- Downgrade attacks where attackers try to force the user's web browser to use HTTP instead of HTTPS.
- SSL stripping attacks where attackers intercept HTTPS traffic and downgrade it to HTTP, potentially redirecting users to malicious website.
- Man-in-the-Middle attacks where attackers intercept user's traffic and read or modify transmitted data.

This configuration also ensures that the HSTS policy will be accepted by the user's web browser.

Validation:

The scanner checks if your web server performs redirection to HTTPS on the same domain.

Example of correct redirection sequence;

- http://csa.gov.sg -> https://csa.gov.sg -> https://www.csa.gov.sg
- http://www.csa.gov.sg -> https://www.csa.gov.sg

For more information:

[Mozilla] HTTP Redirection

[OWASP] Transport Layer Protection

[OWASP] Insecure Transport

Configuration Guides:

[AWS] Configuring HTTP-to-HTTPS redirection for AWS Application Load Balancer

[Google] Setting up HTTP-to-HTTPS redirection for global external HTTP(S) load balancer

HTTP Strict Transport Security (HSTS)

Scan Result:

Your web server is configured with a HSTS policy.

Web Server IP Address	**13.33.33.36**
HSTS Options	**Strict-Transport-Security: max-age=31536000; includeSubDomains; preload**
Pass	**Yes**

Check Description:

HTTP Strict Transport Security (HSTS) is a response HTTP header that protects your website against protocol downgrade attacks. When HSTS is implemented, web browsers are informed that they should only interact with HTTPS connection. It is recommended to implement HSTS to force a secure connection.

Validation:

The scanner checks if your website offers HSTS. It checks for the existence of a “strict transport security header“ with max-age >= 1yr, and the existence of "include subdomains“ in your website’s response header.

For more information:

[IETF] RFC 6797 - HTTP Strict Transport Security (HSTS)

[Mozilla] HTTP Headers

[OWASP] HTTP Strict Transport Security Cheat Sheet

Configuration Guides:

[Internet Society] Configuring HSTS on Apache web server

[Internet Society] Configuring HSTS on NGINX web server

[Internet Society] Configuring HSTS on web server with CDN

[AWS] Adding security HTTP security headers on Amazon CloudFront - HSTS

[Google] Web security best practices - HSTS

[Microsoft] Configuring security headers with Azure Front Door

HTTP Compression

Scan Result:

Your web server is configured to enable HTTP Compression.

Web Server IP Address	**13.33.33.36**
HTTP Compression	**Enabled**

Impact:

With HTTP Compression enabled, your website is susceptible to BREACH (Browser Reconnaissance and Exfiltration via Adaptive Compression of Hypertext) - attacks. BREACH attacks steal information about how data is encrypted from HTTPS-enabled web applications.

Recommendation:

Check with your System Administrator or hosting provider to:

- Disable HTTP Compression
- Provide CSRF token for sensitive information
- Limit the rate of requests

Check Description:

HTTP Compression can be used to increase website performance. With HTTP Compression enabled, web pages are compressed before sending the responses out. However, the attackers take advantage of the compression size to monitor the traffic between your website and your visitors. Hence, HTTP Compression support is not recommended, and it should be disabled.

Validation:

The scanner checks if your website's response header for "Content-Encoding" supports HTTPS Compression.

For more information:

[IETF] RFC 7540 Hypertext Transfer Protocol Version 2 (HTTP/2) (Use of Compression)

[OWASP] Transport Layer Protection

Transport Layer Security (TLS)

TLS Protocols

Scan Result:

Your web server uses secure TLS protocols with strong security strength.

Web Server Address	**13.33.33.36**
Protocol	**TLS 1.3**
Strength	**Strong**

Web Server Address	**13.33.33.36**
Protocol	**TLS 1.2**
Strength	**Sufficient**

Check Description:

TLS Protocols are used to protect the data transmitted over the internet against eavesdropping. Websites should only support strong TLS Protocols to enhance secure data transmission and prevent data breaches.

Validation:

The scanner checks your web server's supported TLS Protocols and scores them based on their security strength. If no TLS Protocol is found, the system returns a bad score.

For more information:

The following TLS Protocols support are based on NIST Special Publication 800-52 Revision 2.

- **Best:** TLS 1.3
- **Sufficient:** TLS 1.2
- **Bad:** TLS 1.1, TLS 1.0, SSLv

For more information:

[IETF] RFC 8996 Deprecating TLS 1.0 and TLS 1.1

Configuration Guides:

[Internet Society] Configuring TLS 1.3 on Apache web server

[Internet Society] Configuring TLS 1.3 on NGINX web server

[Internet Society] Disabling TLS 1.0 and 1.1 on Apache web server

[Internet Society] Disabling TLS 1.0 and 1.1 on NGINX web server

[Internet Society] Disabling TLS 1.0 and 1.1 on web server with CDN

[Microsoft] Disabling TLS 1.0 and 1.1 for Microsoft 365

TLS Cipher Suites

Scan Result:

Your web server uses secure TLS Cipher Suites with strong security strength.

Web Server Address	**13.33.33.36**
Cipher	**TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256[X25519], TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384[secp256r1], TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256[secp256r1]**
Strength	**Sufficient**

Web Server Address	**13.33.33.36**
Cipher	**TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256[X25519], TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384[secp256r1], TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256[secp256r1]**
Strength	**Strong**

Check Description:

TLS Cipher Suites are used along with the TLS Protocols to protect the data transmitted over the internet against eavesdropping. Websites should only support strong TLS Cipher Suites to enhance secure data transmission and prevent data breaches.

Validation:

The scanner checks your web servers' supported TLS Cipher Suites and score them based on their security strength. It also includes the check for approved Ephemeral Ciphers curves. If your servers are using Ephemeral Ciphers with insecure curves, the Ciphers would be ranked as bad.

For more information:

[IANA] Transport Layer Security (TLS) Parameters

[IETF] RFC 5289 TLS Elliptic Curve Cipher Suites with SHA-256/384 and AES Galois Counter Mode (GCM)

[Mozilla] Security/Server Side TLS

[NIST] Special Publication 800-52 Revision 2 (Cipher Suites)

Configuration Guides:

[Internet Society] Configuring TLS cipher order on Apache web server

[Internet Society] Configuring TLS cipher order on NGINX web server

[Microsoft] Enabling TLS 1.2 support for Azure AD TLS 1.0/1.1 deprecation

TLS Compression

Scan Result:

Your web server is configured to disable TLS Compression.

Web Server IP Address	**13.33.33.36**
TLS Compression	**Disabled**

Check Description:

TLS Compression should be disabled to protect your website against CRIME (Compression Ratio Info-leak Made Easy) attacks in which sensitive information can be recovered by an attacker.

Validation:

The scanner checks if your web server has TLS compression support.

For more information:

[NIST] Special Publication 800-52 Revision 2 (Compression Methods)

[OWASP] Transport Layer Protection

Downgrade Attack Prevention

Scan Result:
Your web server supports downgrade attack prevention.

Web Server IP Address	**13.33.33.36**
Downgrade Attack Prevention	**Yes**

Check Description:

Downgrade Attack Prevention ensures that the client and the server communicate using secure protocol versions by preventing TLS downgrade. It is one of the mitigations against MITM (man in the middle) attacks in which attackers can obtain the data in transit information and use it for malicious activities. TLS Signaling Cipher Suite Value (SCSV) is used to prevent downgrade attacks so it should be supported by your web server.

Validation:

The cyber health lookup tool checks if your web server supports TLS_FALLBACK_SCSV mechanism.

For more information:

[NIST] Special Publication 800-52 Revision 2 (Fallback Signaling Cipher Suite Value (SCSV))

[OWASP] Transport Layer Protection

Secure Renegotiation

Scan Result:
Secure renegotiation is enabled on your web server.

Web Server IP Address	**13.33.33.36**
Secure Renegotiation	**Enabled**

Check Description:

Renegotiation is a process where parties wish to send more data even after the session has expired and therefore requires authentication. However, renegotiation can be susceptible to MITM (man in the middle) attacks. Only the latest protocol TLS 1.3 forbids renegotiation. To reduce the susceptibility to MITM attacks, secure renegotiation for TLS version 1.2 and below should be enabled.

Validation:

The scanner checks if the server has secure TLS renegotiation enabled.

For more information:

[IETF] RFC 5746 Transport Layer Security (TLS) Renegotiation Indication Extension (Server Behavior: Legacy (Insecure) Renegotiation)

[IETF] RFC 5746 Transport Layer Security (TLS) Renegotiation Indication Extension (Client Behavior: Legacy (Insecure) Renegotiation)

[NIST] Special Publication 800-52 Revision 2 (Renegotiation Indication)

[OWASP] WSTG v4.1 Testing for Weak SSL TLS Ciphers Insufficient Transport Layer Protection

Client-Initiated Renegotiation

Scan Result:
Client-initiated renegotiation is disabled on your web server.

Web Server IP Address	**13.33.33.36**
Client Initiated Renegotiation	**Disabled**

Check Description:

If Client-Initiated Renegotiation is enabled, your web server can be overloaded with renegotiation requests which open a window for Denial of Service.

Validation:

The scanner checks if the web server has disabled client-initiated renegotiation.

For more information:

[IETF] RFC 5746 Transport Layer Security (TLS) Renegotiation Indication Extension (Client Behaviour: Legacy (Insecure) Renegotiation)

[NIST] Special Publication 800-52 Revision 2 (Renegotiation Indication)

[NIST] CVE-2011-1473

[OWASP] WSTG v4.1 Testing for Weak SSL TLS Ciphers Insufficient Transport Layer Protection

Session Resumption

Scan Result:
Session resumption is enabled on your web server.

Web Server IP Address	**13.33.33.36**
Session Resumption	**Enabled**

Impact:

Enabling session resumption renders your web server to be susceptible to replay attacks. Replay attacks occur when a malicious actor eavesdrops on the secure network communication, intercepts it, and thereafter replays the data transmission between the web server and the visitor's browser for malicious activities.

Recommendation:

It is recommended to disable session resumption support if it is not necessary for the transactions. Otherwise, implement security controls such as frequent rotation of Session Ticket Encryption Keys, reducing session cache lifetimes, and secure handling of keys before, during, and after the usage.

Check with your System Administrator or your hosting provider regarding the removal of session resumption support or implementation of security controls for session resumption support.

Check Description:

Session resumption is a mechanism where an encrypted session between the client and the web server can be resumed. With session resumption support, the handshake between the client and your web server is significantly reduced. However, it can also open a window for replay attacks (data transmission is maliciously repeated) if not configured properly.

Validation:

The scanner checks if your web server does not support session resumption.

For more information:

[NIST] Special Publication 800-52 Revision 2 (Session Resumption and Early Data)

TLS Early Data Indication

Scan Result:

Early Data Indication is disabled on your web server.

Web Server IP Address	**13.33.33.36**
Early Data Indication	**Disabled**

Check Description:

Early Data Indication is a TLS extension for TLS 1.3 that helps to improve performance connection. However, it also opens a window for replay attacks (data transmission is maliciously repeated).

Validation:

The scanner checks if your web server does not support Early Data Indication.

For more information:

[NIST] Special Publication 800-52 Revision 2 (Session Resumption and Early Data)

[IETF] RFC 8446 The Transport Layer Security (TLS) Protocol Version 1.3 (0-RTT and Anti-Replay)

Certificate

Certificate Validity

Scan Result:

Your website certificates have valid dates.

Web Server Address	**13.33.33.36**
Serial Number	**569353318040777223696847377278950216 6**
Subject	**CN=*.hougangsec.moe.edu.sg**
Issuer	**CN=Amazon RSA 2048 M01,O=Amazon,C=US**
Validity	**22 Mar 2023 - 19 Apr 2024**

Check Description:

Valid certificate dates prove that your website's certificate is using the latest security standards and confirm the domain control of your organisation's identity. Your website certificate dates should be valid with a maximum 1 year or less validity period based on the National Cybersecurity Center of Excellence (NCCoE).

Validation:

The system checks if any of your website's certificate dates has expired.

For more information:

[CSA] Importance of Valid Digital Certificates

[NIST] Special Publication 1800-16A - Securing Web Transactions TLS Server Certificate Management (Validity Periods)

Configuration Guides:

[AWS] AWS Certificate Manager

[Google] Using Google-managed SSL certificates

[Microsoft] Adding and managing TLS/SSL certificates in Azure App Service

Public Key Algorithm

Scan Result:

Your website certificates uses secure public key algorithms.

Web Server Address	**13.33.33.36**
Serial Number	**569353318040777223696847377278950216 6**
Subject	**CN=*.hougangsec.moe.edu.sg**
Issuer	**CN=Amazon RSA 2048 M01,O=Amazon,C=US**
Public Key Algorithm	**_RSAPublicKey**
Strength	**Preferred**

Check Description:

A website's certificate contains a public key that is used to authenticate your web server's identity. The algorithm used to sign the public key must be secure enough to be resistant to certificate forgery attacks in which attackers can spy on the data being transmitted.

Validation:

The scanner checks if all your website's certificates use secure public key algorithms.

For more information:

The following algorithms are based on NIST Special Publication 800-131A Revision 2 (Table 2: Approval Status of Algorithms Used for Digital Signature Generation and Verification).

Good:

RSA

Key Size >= 2048 bits

Elliptic Curve

Key Size >= 224 bits

DSA

Key Size = (2048, 224), or (2048, 256) or (3072, 256) bits

Bad:

Other groups

Signature Hash Algorithm

Scan Result:

Your website certificates use secure signature hash algorithms.

Web Server IP Address	**13.33.33.36**
Serial Number	**569353318040777223696847377278950216 6**
Subject	**CN=*.hougangsec.moe.edu.sg**
Issuer	**CN=Amazon RSA 2048 M01,O=Amazon,C=US**
Hash Algorithm	**sha256**
Strength	**Preferred**

Check Description:

Hashing is used during the creation of a digital signature to provide integrity to the certificate. The signature hash algorithm must be secure enough to be resistant to certificate forgery attacks in which attackers can spy on the data being transmitted.

Validation:

The scanner checks if all your website's certificates use secure signature hash algorithms.

For more information:

The following algorithms are based on NIST Special Publication 800-131A Revision 2 (Table 8: Approval Status of Hash Functions).

Good: SHA-3 family (SHA3-224, SHA3- 256, SHA3-384, and SHA3-512), SHA-2 family (SHA224, SHA-256, SHA-384, SHA-512, SHA-512/224 and SHA-512/256)

Bad: Other groups

Valid Domain Name

Scan Result:
The domain name in your website certificates matches your website's domain name.

Web Server IP Address	**13.33.33.36**
Correct Domain Name	**Yes**

Check Description:

The domain name (subject name) of a website's certificate is used to identify to which the certificate is issued. Therefore, the domain name (subject name) of your website's certificate should match your website's domain name.

Validation:

The scanner checks if your website certificates match your website's domain name.

For more information:

[NIST] Special Publication 1800-16A - Securing Web Transactions TLS Server Certificate Management (Certificate Request Reviews – Registration Authority)

[OWASP] Transport Layer Protection Cheat Sheet (Use of Correct Domain Name)

Extended Validation (EV)

Scan Result:
Not all your website certificates have Extended Validation (EV).

Web Server IP Address	**13.33.33.36**
Extended Validation	**No**

Impact:

EV certificates provide a stronger identity assurance to your visitors as it would validate that the website domain is duly incorporated and in good standing.

Recommendation:

You can procure EV certificates from a certificate authority or check with your hosting provider regarding the procurement process.

Check Description: Extended Validation (EV) certificates provide a higher level of verifying the entity of the certificate requestor which ensures stronger identity assurance to website visitors by providing

recourse against fraudulent transactions in the website.

Validation:

The scanner checks if your website has EV certificates.

For more information:

[NIST] Special Publication 1800-16A - Securing Web Transactions TLS Server Certificate Management (Certificate Authorities)

[OWASP] Transport Layer Protection Cheat Sheet (Consider the use of Extended Certificates)

Legacy Symantec Anchor

Scan Result:

Your website certificates do not support a distrusted Symantec anchor.

Web Server IP Address	**13.33.33.36**
Legacy Symantec Anchor	**No**

Check Description:

Browser vendors are deprecating existing Symantec certificates. To comply with this requirement, your website certificates should not have a distrusted Symantec Anchor.

Validation:

The scanner checks if your website's certificate chain contains a distrusted Symantec Anchor.

For more information:

[NIST] Special Publication 1800-16A - Securing Web Transactions TLS Server Certificate Management (Crypto Agility)

[Google] Distrust of Symantec Anchor

[Mozilla] Delaying Symantec Certificate Distrust

[Apple] Distrust Symantec Certificate

HTTP Security Headers

X-Frame-Options

Scan Result:

Your web server offers X-Frame-Options.

Web Server IP Address	**13.33.33.36**
X-Frame-Options	**deny**
Pass	**Yes**

Check Description:

X-Frame-Options is a response HTTP header that protects your website against clickjacking in which attackers deceive users with hidden links that can be used to retrieve sensitive information.

Validation:

The scanner checks if your website offers X-Frame-Options.

It checks for the existence of "X-Frame-Options" in your website's response header with the valid values below:

- DENY
- SAME-ORIGIN

For more information:

[Mozilla] HTTP Headers

[OWASP] Secure Headers Project

Configuration Guides:

[Internet Society] Configure HTTP security headers on NGINX web server – X-Frame-Options

[Internet Security] Configuring HTTP security headers on your Apache web server – X-Frame-Options

[AWS] Adding security HTTP security headers on Amazon CloudFront – X-Frame-Options

[Google] Web security best practices – X-Frame-Options

[Microsoft] Configuring security headers with Azure Front Door

X-Content-Type-Options

Scan Result:

Your website offers X-Content-Type-Options.

Web Server IP Address	**13.33.33.36**
X-Content-Type-Options	**nosniff**
Pass	**Yes**

Check Description:

X-Content-Type-Options is a security protects your website against MIME-type sniffing (malicious manipulation of website contents).

Validation:

The scanner checks if your website offers X-Content-Type-Options. It checks for the existence of “x-content-type-options": "nosniff" in your website’s response header.

For more information:

[Mozilla] HTTP Headers

[OWASP] Secure Headers Project

Configuration Guides:

[Internet Society] Configure HTTP security headers on NGINX web server – X-Content-Type-Options

[Internet Security] Configuring HTTP security headers on your Apache web server – X-Content-Type-Options

[AWS] Adding security HTTP security headers on Amazon CloudFront – X-Content-Type-Options

[Google] Remediating Web Security Scanner findings – X-Content-Type-Options

Content-Security-Policy

Scan Result:

Your website offers Content-Security-Policy.

Web Server IP Address	13.33.33.36
Content-Security-Policy	default-src 'self' https://*.dcube.cloud/ ; script-src 'self' 'sha256-7tJzJRhCSII909o84m4q85UWUc5EDMrrjsQXbeH+qlc=' blob: https://assets.dcube.cloud https://*.wogaa.sg https://assets.adobedtm.com https://www.google-analytics.com https://cdnjs.cloudflare.com https://va.ecitizen.gov.sg https://*.cloudfront.net https://printjs-4de6.kxcdn.com https://unpkg.com https://wogadobeanalytics.sc.omtrdc.net https://connect.facebook.net https://graph.facebook.com https://facebook.com https://www.facebook.com https://*.googletagmanager.com https://*.licdn.com https://webchat.vica.gov.sg https://vica.gov.sg https://www.google.com/recaptcha/ https://www.gstatic.com/recaptcha/ https://static.zdassets.com https://ekr.zdassets.com https://*.zendesk.com https://*.zopim.com https://www.instagram.com https://script.wiz.gov.sg/widget.js https://script-staging.wiz.gov.sg/widget.js wss://*.zendesk.com wss://*.zopim.com https://*.dcube.cloud/ https://console-flex-api.ap.sabio.cloud ; object-src 'self' ; style-src 'self' 'unsafe-inline' https://fonts.googleapis.com/ https://*.cloudfront.net https://va.ecitizen.gov.sg https://*.wogaa.sg https://cdnjs.cloudflare.com https://datagovsg.github.io https://webchat.vica.gov.sg https://vica.gov.sg https://unpkg.com https://script.wiz.gov.sg/widget.css https://script-staging.wiz.gov.sg/widget.css https://assets.dcube.cloud/ https://console-flex-api.ap.sabio.cloud ; img-src * ; media-src * ; frame-src https://form.gov.sg/ https://wogaa.demdex.net/ https://*.youtube.com https://*.youtube-nocookie.com https://*.vimeo.com https://www.google.com https://checkfirst.gov.sg https://www.checkfirst.gov.sg https://docs.google.com https://nlb.ap.panopto.com https://www.google.com/recaptcha/ https://accounts.google.com https://www.gstatic.com/recaptcha/ https://data.gov.sg https://calendar.google.com https://datastudio.google.com https://lookerstudio.google.com https://*.fls.doubleclick.net https://www.facebook.com https://m.facebook.com/ https://www.instagram.com https://api.id.gov.sg/ ; frame-ancestors 'none' ; font-src * data: ; connect-src 'self' https://dpm.demdex.net https://*.google-analytics.com https://analytics.google.com https://*.googletagmanager.com https://stats.g.doubleclick.net https://*.wogaa.sg https://va.ecitizen.gov.sg https://ifaqs.flexanswer.com https://*.cloudfront.net https://fonts.googleapis.com https://cdnjs.cloudflare.com https://wogadobeanalytics.sc.omtrdc.net https://data.gov.sg https://api.isomer.gov.sg https://webchat.vica.gov.sg https://chat.vica.gov.sg https://vica.gov.sg https://s3-va-prd-vica.s3-ap-southeast-1.amazonaws.com wss://chat.vica.gov.sg https://api-vica-ana.vica.gov.sg/api/v1/response-ratings https://static.zdassets.com https://ekr.zdassets.com https://*.zendesk.com https://*.zopim.com https://ask.gov.sg https://staging.ask.gov.sg wss://*.zendesk.com wss://*.zopim.com https://*.dcube.cloud/ https://console-flex-api.ap.sabio.cloud ;
Pass	Yes

Check Description:

Content-Security-Policy is a response HTTP header that defends your website from code injection, XSS, clickjacking by informing the browsers what content sources can be trusted.

Validation:

The scanner checks if your web server has Content-Security-Policy.

It checks for the existence of "content-security-policy“ in your website’s response header.

For more information:

[Mozilla] HTTP Headers

[OWASP] Secure Headers Project

Configuration Guides:

[Internet Society] Configure HTTP security headers on NGINX web server – Content-Security-Policy

[AWS] Adding security HTTP security headers on Amazon CloudFront – Content-Security-Policy

[Google] Web security best practices – Content-Security-Policy

[Microsoft] Add security headers with Azure Front Door

X-Permitted-Cross-Domain-Policies

Scan Result:

Your website does not offer X-Permitted-Cross-Domain-Policies.

Web Server IP Address	**13.33.33.36**
X-Permitted-Cross-Domain-Policies	**None**
Pass	**No**

Impact:

Your website’s resources are susceptible to resource abuse by malicious actors for illicit purposes.

Recommendation:

Check with your System Administrator or your hosting provider to set X-Permitted-Cross-Domain-Policies as part of the response header on your web server or reverse proxy configuration.

Check Description:

X-Permitted-Cross-Domain-Policies is a response HTTP header that instructs the browsers on how requests should be handled across domains.

Validation:

The scanner checks if your website offers X-Permitted-Cross-Domain-Policies.

It checks for the existence of “x-permitted-cross-domain-policies“ in your website’s response header.

For more information:

[Mozilla] HTTP Headers

[OWASP] Secure Headers Project

Referrer-Policy

Scan Result:
Your website offers Referrer-Policy.

Web Server IP Address	**13.33.33.36**
Referrer-Policy	**no-referrer**
Pass	**Yes**

Check Description:

Referrer-Policy is a response HTTP header that prevents the leaking of internal URLs via the Referrer header.

Validation:

The scanner checks if your website offers Referrer Policy.

It checks for the existence of "referrer-policy" in your website's response header.

For more information:

[Mozilla] HTTP Headers

[OWASP] Secure Headers Project

Configuration Guides:

[Internet Society] Configure HTTP security headers on NGINX web server – Referrer-Policy

[Internet Society] Configuring HTTP security headers on your Apache web server – Referrer-Policy

[Google] Remediating Web Security Scanner findings – Referrer-Policy

Web Domain Security

Try harder! Your web domain is insufficiently or not secure because it is not signed and validated with Domain Name System Security Extensions (DNSSEC).
Implement DNSSEC to protect your visitors from DNS spoofing (redirection to malicious websites).
Expand the checks below for more details:

DNSSEC

DNSSEC Validity

Scan Result:
Your web domain's DNSSEC is either not signed or invalid.

Domain	**www.hougangsec.moe.edu.sg**
DNSSEC Status	**Unsigned**

Impact:
Without DNSSEC, your visitors are vulnerable to DNS spoofing (redirection to malicious websites).
Recommendation:
In order for your domain to implement DNSSEC properly, it must be DNSSEC signed, and your domain registrar and hosting provider must support DNSSEC. To help improve your website's credibility, check with your Domain Registrar and/or DNS Hosting Provider regarding your domain's DNSSEC support.

Check Description:

DNS Security Extensions (DNSSEC) adds an authentication layer to your DNS to guarantee that your visitors are directed to your website, preventing DNS spoofing or redirection to malicious websites. A domain's DNSSEC status has to be signed and validated to be secured.

Validation:

The scanner checks the DNSSEC status of your web domain.

Valid DNSSEC Status:

- **Secure DNSSEC (signed and validated)** indicates that the zone has been signed and the DS record has been published and configured correctly.

Invalid DNSSEC Status:

- **Indeterminate DNSSEC** indicates an unknown status. The verification is unable to determine if there is a DNSSEC Resource Record.
- **Unsigned DNSSEC** indicates that the DNSSEC is not fully deployed. It could be caused by a partial deployment of DS Record. Zone owners need to upload their DS Record to the registrar for it to be considered fully deployed.
- **Bogus DNSSEC** may indicate an attack, but it could also be caused by a configuration error by your domain provider.

For more information:

[CSA] Technical Advisory on DNSSEC

[ICANN] What is DNSSEC?

[IETF] RFC 4035 - Protocol Modifications for the DNS Security Extensions (Determining Security Status of Data)

[NIST] Special Publication 800-81-2 - Secure Domain Name System (DNS) Deployment Guide (9.7.1 Recording and Communicating Results of Signature Verification)

Configuration Guides:

[Internet Society] Configuring DNSSEC for web server using either Apache or NGINX

[AWS] Configuring DNSSEC for a domain

[AWS] Configuring DNSSEC signing and validation with Amazon Route 53

[Google] Setting up DNSSEC Security for Google Domains

[Microsoft] Overview of DNSSEC

Modern IP Address

Great job! Your web server is reachable via IPv6.
Having IPv6 is beneficial in the long run for your web server to be able to connect to other devices over IPv6.
Expand the checks below for more details.

IPv6

IPv6 Existence

Scan Result:
Your web server has IPv6 support.

Domain	**www.hougangsec.moe.edu.sg**
IPv6 Address	**2600:9000:229f:5e00:7:e937:5f40:93a1**

Check Description:

IPv6 is the latest version of the Internet Protocol which will eventually replace IPv4. In order for other devices to discover your website over IPv6, a DNS record type AAAA is pointed to your web server's IPv6 address.

Validation:

The scanner checks if your web server has at least one AAAA DNS record type.

For more information:

[ICANN] What is IPv6?

[IETF] RFC 3596 - DNS Extensions to Support IP Version 6 (New resource record definition and domain)

[Internet Society] IPv6

[NIST] Special Publication 800-119 - Guidelines for the Secure Deployment of IPv6 (3.7.2 DNS Specification Overview)

Configuration Guides:

[Internet Society] – Configuring IPv6 on your Apache web server

[Internet Society] – Configuring IPv6 on your NGINX web server

[Internet Society] – Configuring IPv6 on web server with CDN

[AWS] Designing an IPv6 AWS Cloud network

[Microsoft] Configuring IPv6 in Windows

IPv6 Reachability

Scan Result:
Your web servers are reachable over IPv6.

IPv6 Address	**2600:9000:229f:5e00:7:e937:5f40:93a1**

Check Description:

IPv6 is the latest version of the Internet Protocol which will eventually replace IPv4. Having IPv6 correctly configured enables your web servers to be able to connect to devices that support it.

Validation:

IPv6 Existence is a pre-requisite for this check. If IPv6 Existence is passed, the scanner checks if your web servers are reachable over IPv6.

For more information:

[ICANN] What is IPv6?

[IETF] RFC 3596 - DNS Extensions to Support IP Version 6 (New resource record definition and domain)

[Internet Society] IPv6

[NIST] Special Publication 800-119 - Guidelines for the Secure Deployment of IPv6 (3.7.2 DNS Specification Overview)