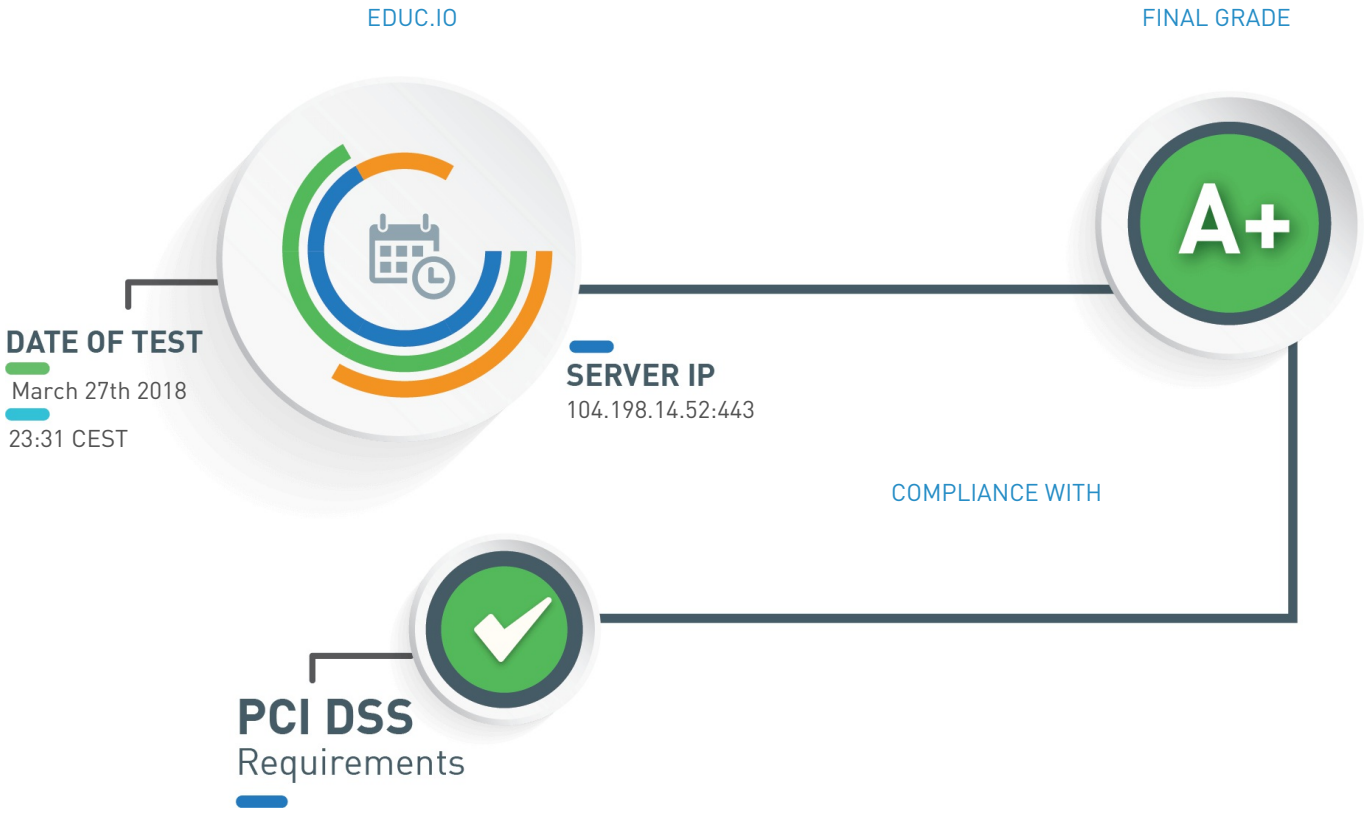
SSL/TLS Server Test of educ.io:443 (HTTPS)

Test SSL/TLS implementation of any service on any port for compliance with PCI DSS requirements, HIPAA guidance and NIST guidelines.



Assessment Executive Summary

TEST HIGHLIGHTS

The server configuration seems to be good, but is not entirely compliant with NIST guidelines and HIPAA guidance.	Information
The server prefers cipher suites supporting Perfect-Forward-Secrecy.	Good configuration
The server provides HTTP Strict Transport Security.	Good configuration

SSL Certificate Overview

RSA CERTIFICATE INFORMATION

Issuer	Let's Encrypt Authority X3
Trusted	Yes
Common Name	educ...
Key Type/Size	RSA 2048 bits
Signature Algorithm	sha256WithRSAEncryption
Subject Alternative Names	DNS:educ.io, DNS:www.educ.io
Transparency	No
Validation Level	DV
CRL	No
OCSP	http://ocsp.int-x3.letsencrypt.org
OCSP Must-Staple	No
Supports OCSP Stapling	No
Valid From	March 8th 2018, 06:11 CET
Valid To	June 6th 2018, 07:11 CEST

CERTIFICATE CHAIN

educ.io — Server certificate

Key Type/Size	RSA 2048 bits
Signature Algorithm	sha256WithRSAEncryption
SHA256	46d31173e7d6f9acb947d416eefcc88cda633aac6a16e34c2c8cd534dcf99bf1
PIN	NXhYinRE1Kft7MiNlNurR9nHT0+Sjvm6JOgPltvcY94=
Expires in	70 days

Let's Encrypt Authority X3 — Intermediate CA

Key Type/Size	RSA 2048 bits
Signature Algorithm	sha256WithRSAEncryption
SHA256	e6e6a1bc74844586ea47eaa25b282758b987047fb7e2d0db782ee71691fa05d2
PIN	YLh1dUR9y6Kja30RrAn7JKnbQG/uEtLMkBgFF2Fuihg=
Expires in	1,086 days

DST Root CA X3 — Self-signed, Root CA

Key Type/Size	RSA 2048 bits
Signature Algorithm	sha1WithRSAEncryption
SHA256	e756e3cf7da06f498ecd6abca535297f6adb087142855e030e88e3323611e66a

PIN	Vjs8r4z+80wjNcr1YKepWQboSIRi63WsWXhIMN+eWys=
Expires in	1,283 days

Test For Compliance With PCI DSS Requirements

Reference: PCI DSS 3.1 - Requirements 2.3 and 4.1

CERTIFICATES ARE TRUSTED

All the certificates provided by the server are trusted. Good configuration

SUPPORTED CIPHERS

List of all cipher suites supported by the server:

TLSV1.2

TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA	Good configuration
TLS_RSA_WITH_AES_128_CBC_SHA	Good configuration
TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA	Good configuration
TLS_RSA_WITH_AES_256_CBC_SHA	Good configuration
TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256	Good configuration
TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256	Good configuration
TLS_RSA_WITH_AES_128_GCM_SHA256	Good configuration
TLS_RSA_WITH_AES_128_CBC_SHA256	Good configuration
TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384	Good configuration
TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384	Good configuration
TLS_RSA_WITH_AES_256_GCM_SHA384	Good configuration
TLS_RSA_WITH_AES_256_CBC_SHA256	Good configuration

TLSV1.1

TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA	Good configuration
TLS_RSA_WITH_AES_128_CBC_SHA	Good configuration
TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA	Good configuration
TLS_RSA_WITH_AES_256_CBC_SHA	Good configuration

TLSV1.0

TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA	Good configuration
TLS_RSA_WITH_AES_128_CBC_SHA	Good configuration
TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA	Good configuration
TLS_RSA_WITH_AES_256_CBC_SHA	Good configuration

SUPPORTED PROTOCOLS

List of all SSL/TLS protocols supported by the server:

TLSv1.0	Deprecated. Dropped in June 2018
TLSv1.1	Good configuration
TLSv1.2	Good configuration

SUPPORTED ELLIPTIC CURVES

List of all elliptic curves supported by the server:

P-256 (prime256v1) (256 bits)	Good configuration
P-521 (secp521r1) (521 bits)	Good configuration
brainpoolP512r1 (512 bits)	Good configuration
brainpoolP384r1 (384 bits)	Good configuration
P-384 (secp384r1) (384 bits)	Good configuration
brainpoolP256r1 (256 bits)	Good configuration
secp256k1 (256 bits)	Good configuration
B-571 (sect571r1) (570 bits)	Good configuration
K-571 (sect571k1) (570 bits)	Good configuration
K-409 (sect409k1) (407 bits)	Good configuration
B-409 (sect409r1) (409 bits)	Good configuration
K-283 (sect283k1) (281 bits)	Good configuration
B-283 (sect283r1) (282 bits)	Good configuration

POODLE OVER TLS

The server is not vulnerable to POODLE over TLS. Not vulnerable

CVE-2016-2107

The server is not vulnerable to OpenSSL padding-oracle flaw (CVE-2016-2107). Not vulnerable

SERVER DOES NOT SUPPORT CLIENT-INITIATED INSECURE RENEGOTIATION

The server does not support client-initiated insecure renegotiation. Good configuration

ROBOT

The server is not vulnerable to ROBOT (Return Of Bleichenbacher's Oracle Threat) vulnerability. Not vulnerable

HEARTBLEED

The server version of OpenSSL is not vulnerable to Heartbleed attack. Not vulnerable

CVE-2014-0224

The server is not vulnerable to CVE-2014-0224 (OpenSSL CCS flaw). Not vulnerable

Test For Compliance With HIPAA

Reference: HIPAA of 1996, Guidance Specifying the Technologies and Methodologies that Render Protected Health Information Unusable, Unreadable, or Indecipherable to Unauthorized Individuals.

X509 CERTIFICATES ARE IN VERSION 3

All the X509 certificates provided by the server are in version 3. Good configuration

SERVER DOES NOT SUPPORT OCSP STAPLING

The server does not support OCSP stapling for its RSA certificate. Its support allows better verification of the certificate validation status.

Non-compliant with HIPAA guidance

SUPPORTED PROTOCOLS

List of all SSL/TLS protocols supported by the server:

TLSv1.0	Good configuration
TLSv1.1	Good configuration
TLSv1.2	Good configuration

SUPPORTED CIPHERS

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TLSV1.1

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TLS_RSA_WITH_AES_128_CBC_SHA	Good configuration
TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA	Good configuration
TLS_RSA_WITH_AES_256_CBC_SHA	Good configuration

TLSV1.0

TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA	Good configuration
TLS_RSA_WITH_AES_128_CBC_SHA	Good configuration
TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA	Good configuration

TLS_RSA_WITH_AES_256_CBC_SHA	Good configuration

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B-409 (sect409r1) (409 bits)	Good configuration
K-283 (sect283k1) (281 bits)	Good configuration
B-283 (sect283r1) (282 bits)	Good configuration

TLSV1.1 SUPPORTED

The server supports TLSv1.1 which is mandatory to comply with HIPAA guidance. Good configuration

TLSV1.2 SUPPORTED

The server supports TLSv1.2 which is the only SSL/TLS protocol that currently has no known flaws or exploitable weaknesses. Good configuration

EC_POINT_FORMAT EXTENSION

The server supports the EC_POINT_FORMAT TLS extension. Good configuration

Test For Compliance With NIST Guidelines

Reference: NIST Special Publication 800-52 Revision 1 - Section 3

NIST Update to Current Use and Deprecation of TDEA abrogates 3DES authorized in the NIST guidelines. Information

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TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256	Good configuration
TLS_RSA_WITH_AES_128_GCM_SHA256	Good configuration
TLS_RSA_WITH_AES_128_CBC_SHA256	Good configuration
TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384	Good configuration
TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384	Good configuration
TLS_RSA_WITH_AES_256_GCM_SHA384	Good configuration
TLS_RSA_WITH_AES_256_CBC_SHA256	Good configuration

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TLS_RSA_WITH_AES_128_CBC_SHA	Good configuration
TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA	Good configuration
TLS_RSA_WITH_AES_256_CBC_SHA	Good configuration

TLSV1.0

TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA	Good configuration
TLS_RSA_WITH_AES_128_CBC_SHA	Good configuration
TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA	Good configuration
TLS_RSA_WITH_AES_256_CBC_SHA	Good configuration

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EC_POINT_FORMAT EXTENSION

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Test For Industry Best-Practices

DNSCAA

This domain does not have a Certification Authority Authorization (CAA) record.

Information

CERTIFICATES DO NOT PROVIDE EV

The RSA certificate provided is NOT an Extended Validation (EV) certificate.

Information

SERVER HAS CIPHER PREFERENCE

The server enforces cipher suites preference.

Good configuration

SERVER PREFERRED CIPHER SUITES

Preferred cipher suite for each protocol supported (except SSLv2). Expected configuration are ciphers allowed by PCI DSS and enabling PFS:

TLSv1.0	TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA	
TLSv1.0	TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA	Good configuration
TLSv1.1	TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA	
TLSv1.1	TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA	Good configuration
TLSv1.2	TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256	
TLSv1.2	TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256	Good configuration

SERVER PREFERS CIPHER SUITES PROVIDING PFS

For TLS family of protocols, the server prefers cipher suite(s) providing Perfect Forward Secrecy (PFS).

Good configuration

ALWAYS-ON SSL

The HTTP version of the website redirects to the HTTPS version.

Good configuration

SERVER PROVIDES HSTS WITH LONG DURATION

The server provides HTTP Strict Transport Security for more than 6 months:

31536000 seconds

Good configuration

SERVER DOES NOT PROVIDE HPKP

The server does not enforce HTTP Public Key Pinning that helps preventing man-in-the-middle attacks.

Information

TLS_FALLBACK_SCSV

The server supports TLS_FALLBACK_SCSV extension for protocol downgrade attack prevention.

Good configuration

SERVER DOES NOT SUPPORT CLIENT-INITIATED SECURE RENEGOTIATION

The server does not support client-initiated secure renegotiation.

Good configuration

SERVER-INITIATED SECURE RENEGOTIATION

The server supports secure server-initiated renegotiation.

Good configuration

SERVER DOES NOT SUPPORT TLS COMPRESSION

TLS compression is not supported by the server.

Good configuration