

2755238 - How to convert a certificate into the appropriate format with OpenSSL

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Release Status	Released to Customer	Category	Problem
Component	BC-JAS-SEC (Security, User Management)	Released On	05.04.2019

Please find the original document at <https://launchpad.support.sap.com/#/notes/2755238>

Symptom

Your business requires a different certificate format other than Base64 encoded X.509. OpenSSL Tool can be used to convert the certificates into the appropriate format.

Note: OpenSSL is an open source tool that is not provided or supported by SAP.

Environment

- SAP NetWeaver Application Server Java
- OpenSSL Tool

Resolution

The PEM format is the most common format used for certificates. Extensions used for PEM certificates are cer, crt, and pem. They are Base64 encoded ASCII files. The DER format is the binary form of the certificate. DER formatted certificates do not contain the "BEGIN CERTIFICATE/END CERTIFICATE" statements. DER formatted certificates most often use the '.der' extension.

- **Convert x509 to PEM:**
openssl x509 -in certificatename.cer -outform PEM -out certificatename.pem
- **Convert PEM to DER:**
openssl x509 -outform der -in certificatename.pem -out certificatename.der
- **Convert DER to PEM:**
openssl x509 -inform der -in certificatename.der -out certificatename.pem

The PKCS#7 or P7B format is stored in Base64 ASCII format and has a file extension of .p7b or .p7c. A P7B file only contains certificates and chain certificates (Intermediate CAs), not the private key. The most common platforms that support P7B files are Microsoft Windows and Java Tomcat.

- **Convert PEM to P7B:**
openssl crl2pkcs7 -nocrl -certfile certificatename.pem -out certificatename.p7b -certfile CACert.cer
- **Convert PKCS7 to PEM:**
openssl pkcs7 -print_certs -in certificatename.p7b -out certificatename.pem

The PKCS#12 or PFX format is a binary format for storing the server certificate, intermediate certificates, and the private key in one encryptable file. PFX files usually have extensions such as .pfx and .p12. PFX files are typically used on Windows machines to import and export certificates and private keys.

- **Convert PFX to PEM:**
openssl pkcs12 -in certificatename.pfx -out certificatename.pem
- **Convert PFX to PKCS#8 (this requires 2 commands):**

1. **Convert PFX to PEM:**

```
openssl pkcs12 -in certificatename.pfx -nocerts -nodes -out certificatename.pem
```

2. **Convert PEM to PKCS8:**

```
openssl pkcs8 -in certificatename.pem -topk8 -nocrypt -out certificatename.pk8
```

- **Convert P7B to PFX (this requires 2 commands):**

1. **Convert P7B to CER:**

```
openssl pkcs7 -print_certs -in certificatename.p7b -out certificatename.cer
```

2. **Convert CER and Private Key to PFX:**

```
openssl pkcs12 -export -in certificatename.cer -inkey privateKey.key -out certificatename.pfx -certfile cacert.cer
```

See Also

[OpenSSL Cryptography and SSL/TLS Toolkit](#)

Keywords

PEM, PKCS7, P7B, DER, X509, CER, PFX, PKCS8, openssl x509, openssl pkcs7, openssl pkcs12, openssl pkcs8, openssl crl2pkcs7, openssl commands

Products

SAP NetWeaver all versions

Other Components

Component	Descripción
BC-SEC	Security - Read KBA 2985997 for subcomponents
BC-JAS-SEC-CPG	Cryptography
BC-SEC-SSL	Secure Sockets Layer Protocol

This document refers to

SAP Note/KBA	Title
	OpenSSL Cryptography and SSL/TLS Toolkit

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