Genesys Knowledge Center Deployment Guide

Transport Layer Security (TLS) with Genesys Servers

12/14/2025

Transport Layer Security (TLS) with Genesys Servers

Genesys Knowledge Center Server and Genesys Knowledge Center CMS supports the Transport Layer Security (TLS) protocol to secure data exchanged with other Genesys components. For details about TLS, see the Genesys Security Deployment Guide.

Configure TLS between Genesys Knowledge Center Server and Genesys Knowledge Center CMS

If Genesys Knowledge Center Server or Load-Balancer have been used for Servers Cluster configured to run in TLS mode, you'll need to ensure that its root certificate has been added to the trusted store of JDK/JRE used by Genesys Knowledge Center CMS. Without this CMS it will not possible to establish a connection with Knowledge Center Server for background operations.

Configuring TLS for Genesys Servers

To configure the TLS parameters for Genesys servers, see Introduction to Genesys Transport Layer Security.

Configuring TLS Options

For connections with other Genesys servers, configure **Connections** of the Knowledge Center Cluster (8.5.1+) application through secure ports. The Genesys Knowledge Center Server or CMS nodes includes the following TLS-related configuration options in its security section.

Parameter Name	Acceptable Values	Purpose
tls	Boolean value. Possible values are "1"/"0", "yes"/"no", "on"/"off", "true"/"false". Example: • "tls=1"	Client: 1 - perform TLS handshake immediately after connecting to server. 0 – do not turn on TLS immediately but autodetect can still work.
provider	"PEM", "MSCAPI", "PKCS11" Not case-sensitive. Example: • "provider=MSCAPI"	Explicit selection of security provider to be used. For example, MSCAPI and PKCS11 providers can contain all other parameters in their internal database. This parameter allow configuration of TLS through security provider

Parameter Name	Acceptable Values	Purpose
		tools.
certificate	PEM provider: path to a X.509 certificate file in PEM format. Path can use both forward and backward slash characters. MSCAPI provider: thumbprint of a certificate – string with hexadecimal SHA-1 hash code of the certificate. Whitespace characters are allowed anywhere within the string. PKCS11 provider: this parameter is ignored. Examples: • "certificate= C:\certs\client-cert-3-cert.pem" • "certificate=A4 7E A6 E4 7D 45 6A A6 2F 15 BE 89 FD 46 F0 EE 82 1A 58 B9"	Specifies location of X.509 certificate to be used by application. MSCAPI provider keeps certificates in internal database and can identify them by hash code; so called thumbprint. In Java, PKCS#11 provider does not allow selection of the certificate; it must be configured using provider tools. **Note:** When using autodetect (upgrade) TLS connection, this option MUST be specified in application configuration, otherwise Configuration Server would return empty TLS parameters even if other options are set.
certificate-key	PEM provider: path to a PKCS#8 private key file without password protection in PEM format. Path can use both forward and backward slash characters. • MSCAPI provider: this parameter is ignored; key is taken from the entry identified by "certificate" field. • PKCS11 provider: this parameter is ignored. Examples: • "certificate-key= C:\certs\client-cert-3-key.pem"	Specifies location of PKCS#8 private key to be used in pair with the certificate by application. MSCAPI provider keeps private keys paired with certificates in internal database. In Java, PKCS#11 provider does not allow selection of the private key; it must be configured using provider tools.
trusted-ca	PEM provider: path to a X.509 certificate file in PEM format. Path can use both forward and backward slash characters. MSCAPI provider: thumbprint of a certificate – string with hexadecimal SHA-1 hash code of the certificate. Whitespace characters are allowed anywhere within the string. PKCS11 provider: this parameter is ignored. Examples: • "trusted-ca= C:\certs\ca.pem"	Specifies location of a X.509 certificate to be used by application to validate remote party certificates. The certificate is designated as Trusted Certification Authority certificate and application will only trust remote party certificates signed with the CA certificate. MSCAPI provider keeps CA certificates in internal database and can identify them by hash code; so called thumbprint. In Java, PKCS#11 provider does not allow selection of the CA certificate; it must be configured using provider tools.

Parameter Name	Acceptable Values	Purpose
	• "trusted-ca=A4 7E A6 E4 7D 45 6A A6 2F 15 BE 89 FD 46 F0 EE 82 1A 58 B9"	
tls-mutual	Boolean value. Possible values are "1"/"0", "yes"/"no", "on"/"off", "true"/"false". Example: • "tls-mutual=1"	Has meaning only for server application. Client applications ignore this value. When turned on, server will require connecting clients to present their certificates and validate the certificates the same way as client applications do.
tls-crl	All providers: path to a Certificate Revocation List file in PEM format. Path can use both forward and backward slash characters. Example: • "tls-crl= C:\certs\crl.pem"	Applications will use CRL during certificate validation process to check if the (seemingly valid) certificate was revoked by CA. This option is useful to stop usage of leaked certificates by unauthorized parties.
tls-target-name-check	"host" or none. Not case-sensitive. Example: • "tls-target-name-check=host"	When set to "host", enables matching of certificate's Alternative Subject Name or Subject fields against expected host name. PSDK supports DNS names and IP addresses as expected host names.
cipher-list	String consisting of space-separated cipher suit names. Information on cipher names can be found online. Example: • "cipher-list= TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA TLS_ECDH_RSA_WITH_3DES_EDE_CBC_SHA"	Used to calculate enabled cipher suites. Only ciphers present in both the cipher suites supported by security provider and the cipher-list parameter will be valid.
fips140-enabled	Boolean value. Possible values are "1"/"0", "yes"/"no", "on"/"off", "true"/"false". Example: • "fips140-enabled=1"	PSDK Java: when set to true, effectively is the same as setting "provider=PKCS11" since only PKCS11 provider can support FIPS-140. If set to true while using other provider type, PSDK will throw exception.
sec-protocol	String value. Possible values are "SSLv23", "SSLv3", "TLSv1", "TLSv11", "TLSv12".	Starting with PSDK release 8.5.1, an application can specify the exact protocol to send and accept secure connection

Parameter Name	Acceptable Values	Purpose
	Example: • "sec-protocol=TLSv1"	requests on one or more of its connections.

See Configuring Trusted Stores below for details about configuration for a specific type of store (PEM, JKS, MSCAPI).

Configuring Trusted Stores

PEM Trusted Store

PEM stands for "Privacy Enhanced Mail", a 1993 IETF proposal for securing email using public-key cryptography. That proposal defined the PEM file format for certificates as one containing a Base64-encoded X.509 certificate in specific binary representation with additional metadata headers.

PEM certificate trusted store works with CA certificate from an X.509 PEM file. It is a recommended trusted store to work on Linux systems.

Complete the steps below to work with the PEM certificate trusted store:

Start

1. Configure TLS for Genesys servers to use certificates signed by CA certificate **certificateCA.crt**.
2. Place the trusted CA certificate in PEM format on the Genesys Knowledge Center Server application host. To convert a certificate of another format to .pem format you can use the OpenSSL tool. For example:
   - Convert a DER file (.crt .cer .der) to PEM:
     ```
     openssl x509 -inform der -in certificateCA.crt -out certificateCA.pem
     ```
   - Convert a PKCS#12 file (.pfx .p12) containing a private key and certificates to PEM:
     ```
     openssl pkcs12 -in certificateCA.pfx -out certificateCA.pem -nodes
     ```
     You can add **-nocerts** to only output the private key or add **-nokeys** to only output the certificates.
3. In Genesys Administrator, navigate to **Provisioning > Environment > Applications** and open your Knowledge Center Server application.
4. Click the **Options** tab and navigate to the security section.
5. Set the **trusted-ca-type** option to PEM.
6. Set the **trusted-ca** option to the path and file name for your trusted CA in PEM format on the Genesys Knowledge Center Server application host.
7. Click **Save & Close**.

End

JKS Trusted Store

A Java KeyStore (JKS) is a repository of security certificates used, for instance, in SSL/TLS encryption. The Java Development Kit provides a tool named keytool to manipulate the keystore.

Complete the steps below to work with the JKS certificate trusted store:

Start

1. Configure TLS for Genesys servers to use certificates signed by CA certificate **certificateCA.crt**.
2. Import the CA certificate to an existing Java keystore using keytool:
   - Run the `keytool` command with option `-alias` set to `root`:
     ```
     keytool -import -trustcacerts -alias root -file certificateCa.crt -keystore
     /path/to/keysore/keystore.jks
     ```
   - Enter the keystore password in command line prompt - for example:
     ```
     Enter keystore password: somepassword
     ```
3. In Genesys Administrator, navigate to **Provisioning > Environment > Applications** and open your Knowledge Center Server application.
4. Click the **Options** tab and navigate to the security section.
5. Set the **trusted-ca-type** option to JKS.
6. Set the **trusted-ca** option to the path and file name for your JKS trusted storage type on the Genesys Knowledge Center Server application host.
7. Set the **trusted-pwd** option to the password defined for your keystore in Step 2.
8. Click **Save & Close**.

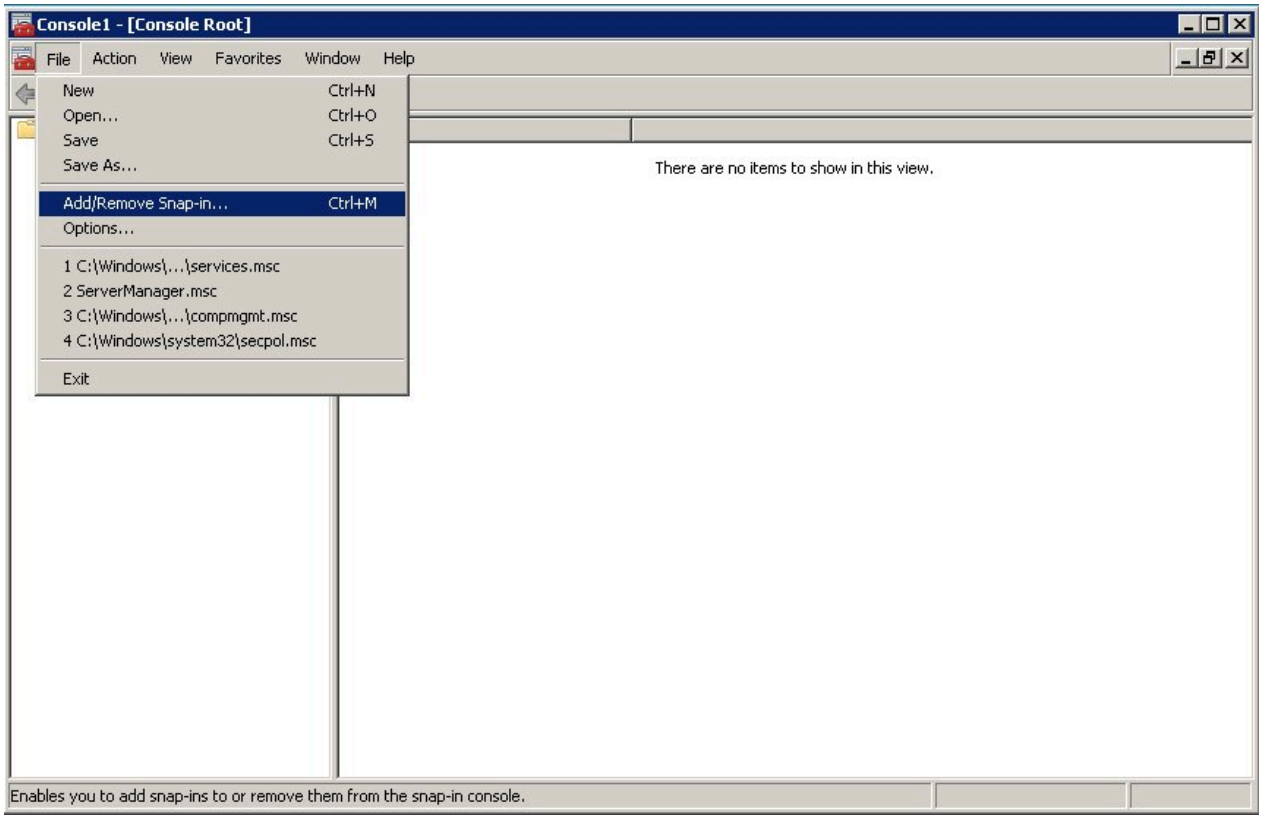
End

MSCAPI Trusted Store

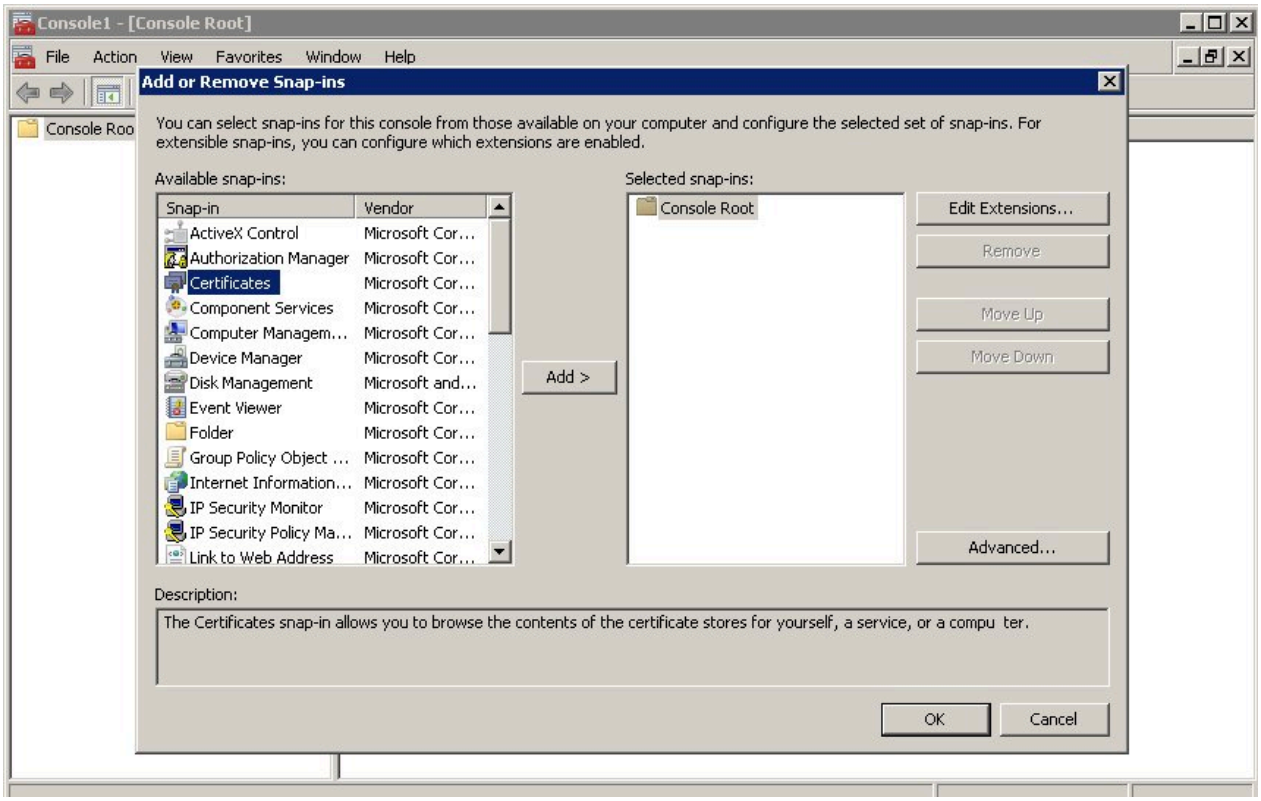
Complete the steps below to work with the MSCAPI certificate trusted store:

Start

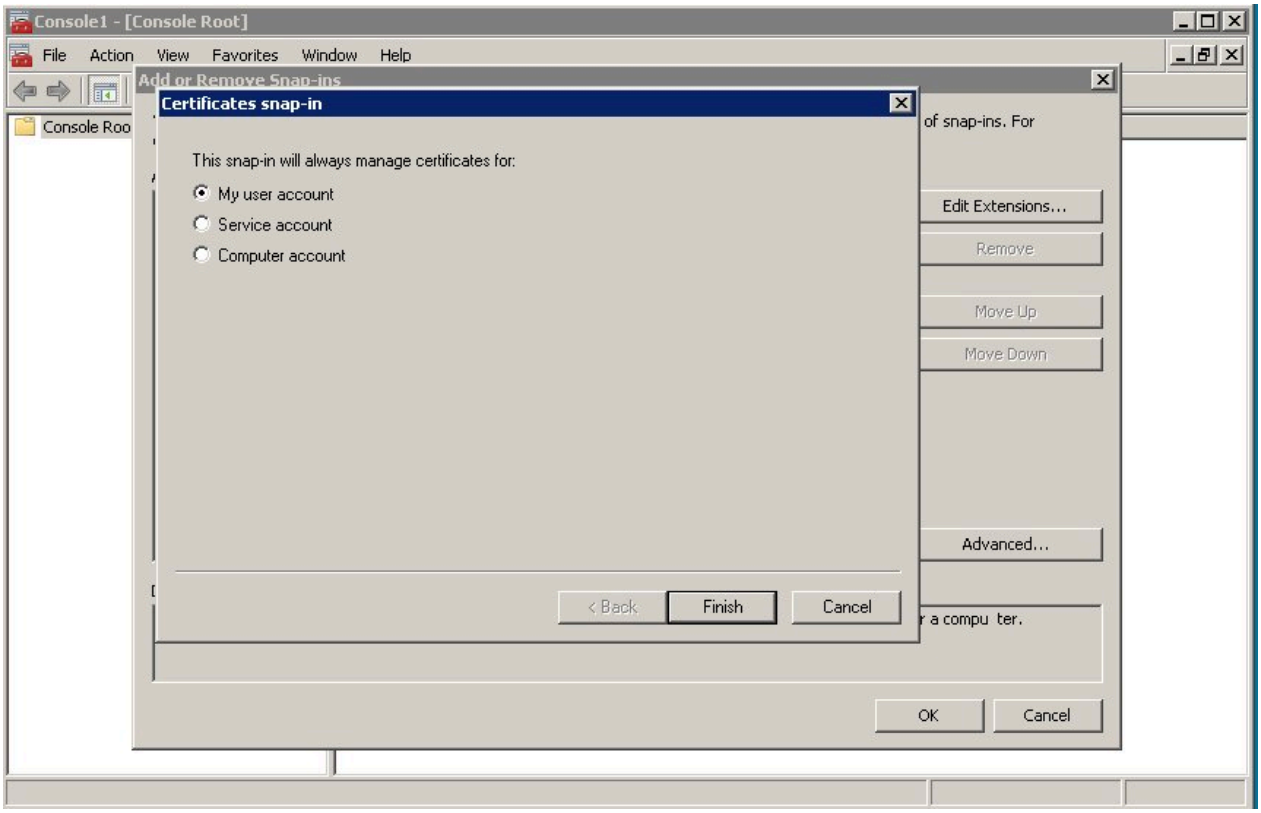
1. Configure and tune TLS for Genesys servers to use certificates signed by the same CA.
2. If the Knowledge Center Server is running on a different host, copy the trusted CA certificate to this host.
3. Import the CA certificate to WCS via Certificates Snap-in on the Knowledge Center Server host by launching the MMC console. Enter `mmc` at the command line.
4. Select **File > Add/Remove Snap-in...** from the main menu.



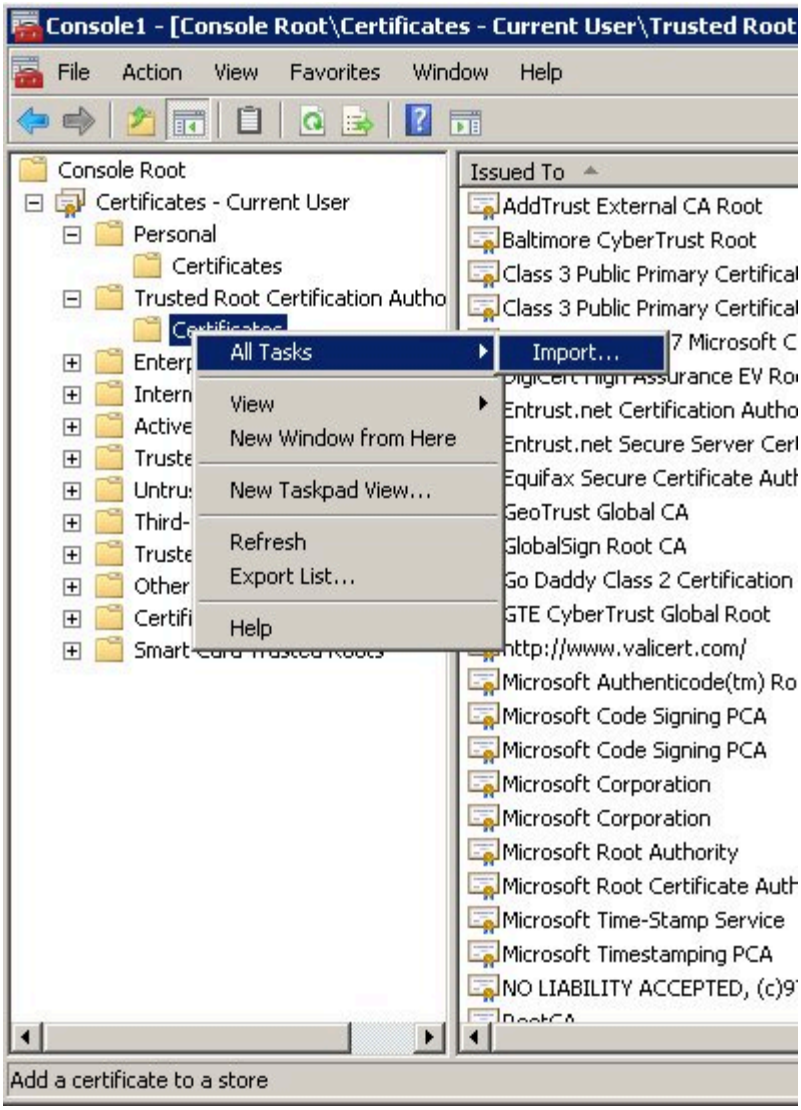
5. Select **Certificates** from the list of available snap-ins and click **Add**.



6. Select the account to manage certificates for and click **Finish**. It is important to place certificates under the correct Windows account. Some applications are run as services under the Local Service or System account, while others are run under user accounts. The account chosen in MMC must be the same as the account used by the application which certificates are configured for, otherwise the application will not be able to access this WCS storage.



7. Click **OK**.
8. Import a certificate. Right-click the "Trusted Root Certification Authorities/Certificates" folder and choose `All Tasks > Import...` from the context menu. Follow the steps presented by the Certificate Import Wizard. Oonce finished the imported certificate appears in the certificates list.



9. In Genesys Administrator, navigate to **Provisioning > Environment > Applications** and open your Knowledge Center Server application.
10. Click the **Options** tab and navigate to the security section.
11. Set the **trusted-ca-type** option to MSCAP.
12. Click **Save & Close**.

End