

Document Version: 1.3 – 2021-03-24

SAP Document Compliance: e-Invoicing for India - Integration of SAP ERP or SAP S/4HANA with GST Suvidha Provider: Neo

Typographic Conventions

Type Style	Description
<i>Example</i>	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options. Textual cross-references to other documents.
Example	Emphasized words or expressions.
EXAMPLE	Technical names of system objects. These include report names, program names, transaction codes, table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE.
Example	Output on the screen. This includes file and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.
Example	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
<Example>	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
EXAMPLE	Keys on the keyboard, for example, F2 or ENTER .

Document History

Version	Date	Change
1.0	2020-02-19	First release of the GSP Integration Template
1.1	2020-03-19	Updated screenshots and minor changes
1.2	2020-08-26	<ul style="list-style-type: none">Updated the section Prerequisites with the master note details and SAP Help document for Initial Setup of SAP Cloud Integration for Neo environment.Rearranged the sequence of the content in the section Configuration Steps in SAP Cloud Integration.Updated content and screen shots in the section Adapt and Deploy SAP Cloud Integration Flow.Added a new section Useful Links
1.3	2021-03-24	<ul style="list-style-type: none">Updated the complete document to reflect the latest SAP Branding changes for SAP Business Technology Platform(BTP), SAP Cloud Integration and Integration Flow.Updated section 4.2 Deploy IRP User Credentials per GSTIN.Updated Section 4.4.1 'Adapt and Deploy GSP Integration Template' with details on new field userGSTIN_publicAPI and updated sample configuration in step 6 - Configure.

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1 Glossary

The table below lists the terms and abbreviations used throughout this document:

Term	Description
GST	Goods and Services Tax
GSP	GST Suvidha Provider
GSTIN	Goods and Services Taxpayer Identification Number
IRN	Invoice Reference Number
IRP	Invoice Registration Portal
NIC	National Informatics Centre

2 Introduction

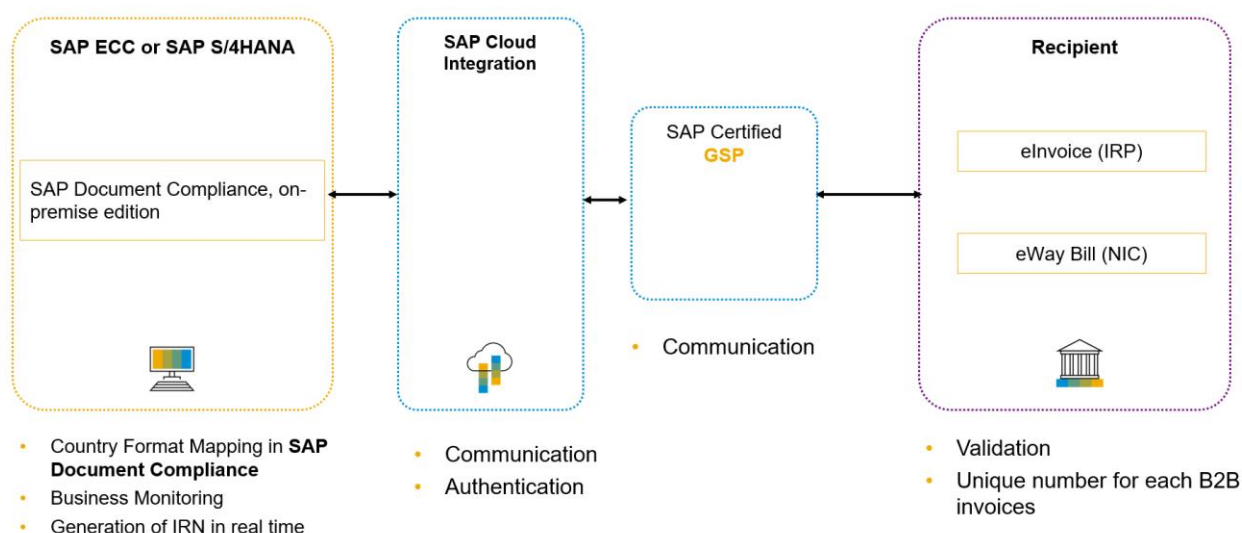
Using the SAP solution for eInvoice India, you can generate Invoice Reference number (IRN) as per the legal compliance in India.

The eInvoice solution requires the integration between SAP ERP or SAP S/4HANA and GSP(s). The following documentation describes the steps to adapt and deploy SAP Cloud Integration flow to establish communication between SAP ERP or SAP S/4HANA and GSP(s).

Note:

* If you are using SAP certified GSP, you get the GSP specific pre-built integration flow and the documentation to implement the integration flow from your respective GSP(s). We recommend that you use the document provided by your GSP to implement the integration flows. To view the list of SAP certified GSPs use the SAP Note [2889709](#).

* If you are using non-SAP certified GSP, use this document to adapt the [GSP Integration Template](#) as per your company needs.



Note:

SAP offers two Cloud environments, namely **Neo** and **Cloud Foundry** and this document is intended for the setting-up of eInvoice India integration for Neo environment.

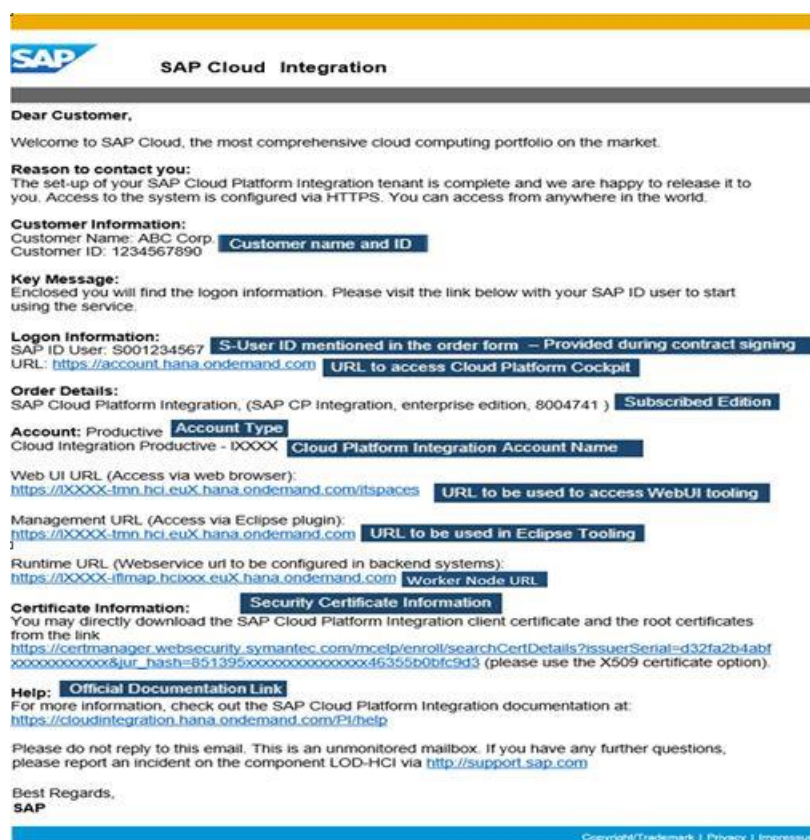
3 Prerequisites

- You have installed in the test and productive systems all necessary SAP Notes for the eInvoice Solution. Refer note: [2884058](#)
- You have performed all initial setup steps described in [Initial Setup of SAP Cloud Integration in the Neo Environment](#).
- You have received the following information from your [GST Suvidha Provider \(GSP\)](#):
 - GSP integration manual
 - Certificates for SSL handshake

Note:

With SAP eInvoice solution, you get two Cloud Integration tenants.

We recommend that you use one tenant for development/testing and another for production.



4 Configuration Steps in SAP Cloud Integration

Perform the following steps:

1. [Import SSL Certificates from GSP to SAP Cloud Integration Tenant](#)
2. [Deploy IRP User Credentials per GSTIN](#)
3. [Deploy IRP Public Key Certificate](#)
4. [Adapt and Deploy SAP Cloud Integration Flow](#)
5. [Client Certificate-based Authentication Settings](#)

Note:

The SSL certificate upload, setting-up of user credentials, IRP Public Key Certificate Upload and authentication setup are all required to be done only during the initial set up of the eInvoice Integration scenario. Subsequently, if there is an updated version of integration flow delivered, it is required to repeat only Step 4. However, in case there is a change in certificate from GSP or IRP, then step 1 or step 3 needs to be done accordingly.

4.1 Import SSL Certificates from GSP to SAP Cloud Integration Tenant

To set up an SSL connection between the SAP Cloud Integration Tenant and GST Suvidha Provider (GSP), you must import the required security certificates into SAP Cloud Integration Tenant Keystore.

Note:

You receive these certificates from your GSP.

Procedure

1. Access the SAP Cloud Integration

In the welcome mail, you will receive the Web UI url, for example, <https://IXXXXtmn.hci.euX.hana.ondemand.com/itspaces>

Use this URL to go to the WebUI of the tenant.

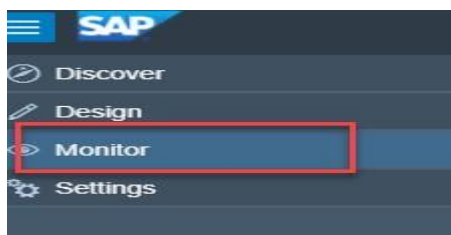
2. To logon, enter your S user.

Ensure the following:

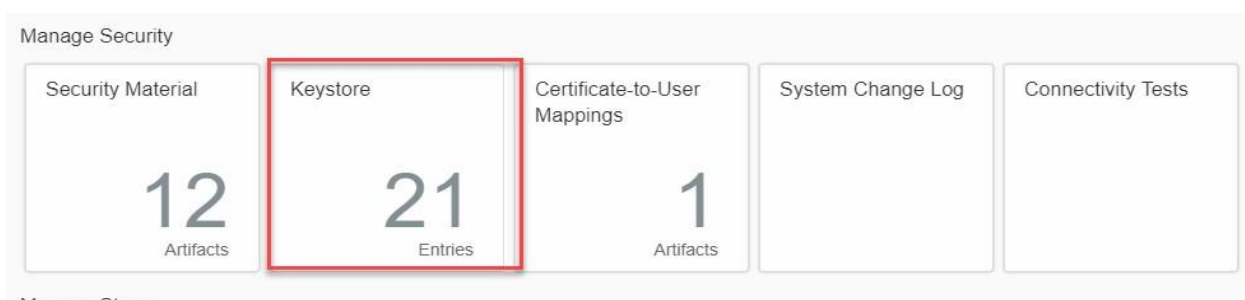
- You should assign ESBMessaging.Send role to the S user
- In case you have created additional user and using it for setting up the connection between SAP ERP or SAP S/4HANA and SAP Cloud Integration, you have to assign the ESBMessaging.Send role to it.

If you get *HTTP Status 403* error, contact your Tenant Administrator or write to service@sap.com.

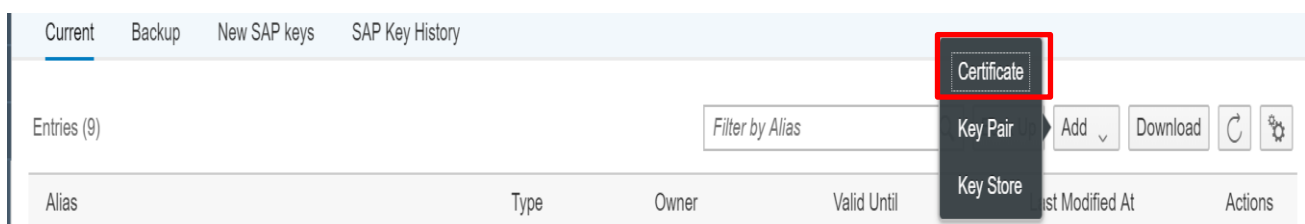
3. After successful login, from the menu in the upper left corner, choose *Monitor*.



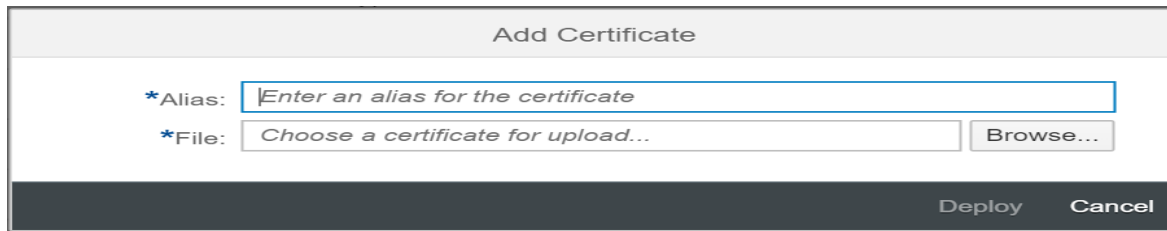
4. Choose *Manage Security* and then *Keystore*



5. Click Add > **Certificate** > **Add Certificate**



6. Enter an alias to identify the certificate. Browse the GSP SSL certificate from local desktop and then Deploy.



The 'Add Certificate' dialog box has a title bar 'Add Certificate'. It contains two fields: '*Alias:' with a text input field containing the placeholder 'Enter an alias for the certificate', and '*File:' with a text input field containing the placeholder 'Choose a certificate for upload...' and a 'Browse...' button to its right. At the bottom right, there are 'Deploy' and 'Cancel' buttons.

Note:

To perform above operation, you need to be a tenant administrator with role **AuthGroup.Administrator**.

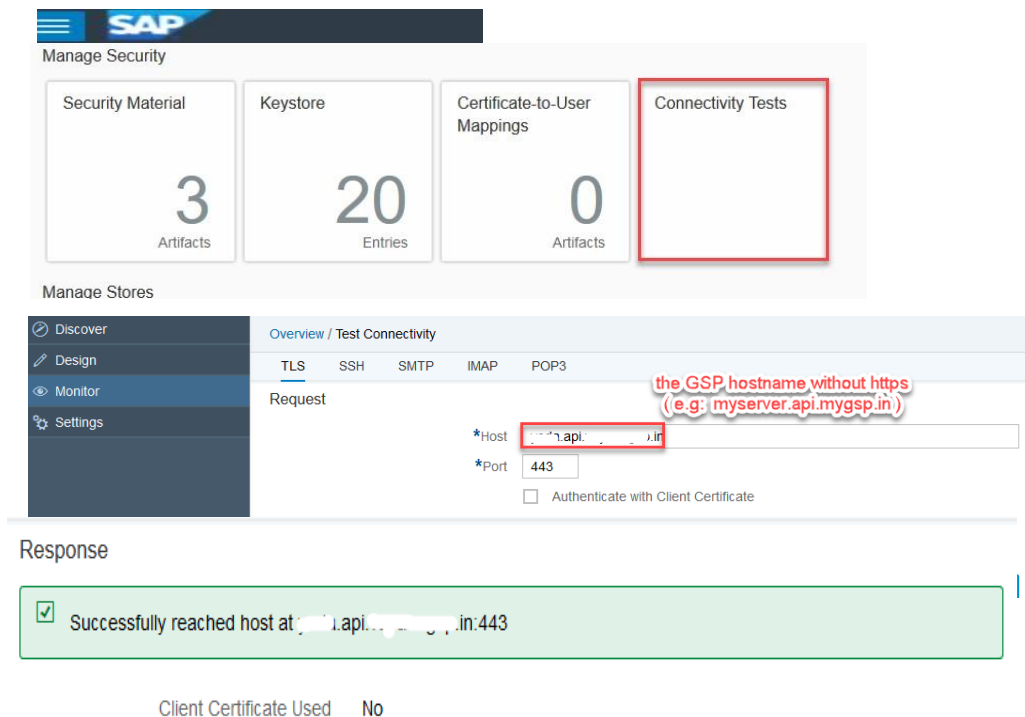
The certificate should be in Base-64 encoded X.509(.CER) format. Refer [here](#).

7. Check the connectivity with GSP.

You can perform the Connectivity test with the GSP by using the feature TLS Connectivity Test as mentioned [here](#).

1. Run connectivity test using the *Monitor-> Manage Security->Connectivity Tests*.
2. Enter the GSP Base URL without http(s). Enter port.
3. Click **Send**

On successful connection, system displays successful response message.



The screenshot shows the SAP 'Manage Security' interface. Under 'Manage Security', there are four tiles: 'Security Material' (3 Artifacts), 'Keystore' (20 Entries), 'Certificate-to-User Mappings' (0 Artifacts), and 'Connectivity Tests' (highlighted with a red box). Below this is the 'Manage Stores' section. On the left is a sidebar with 'Discover', 'Design', 'Monitor' (selected), and 'Settings'. The main area shows 'Overview / Test Connectivity' with tabs for 'TLS', 'SSH', 'SMTP', 'IMAP', and 'POP3'. The 'Request' section has fields for '*Host' (containing 'myserver.api.mygsp.in' with a red box and a red annotation 'the GSP hostname without https (e.g.: myserver.api.mygsp.in)'), '*Port' (443), and a checkbox for 'Authenticate with Client Certificate'. Below this is the 'Response' section, which shows a green box with a checkmark and the text 'Successfully reached host at myserver.api.mygsp.in:443'. At the bottom, it says 'Client Certificate Used No'.

4.2 Deploy IRP User Credentials per GSTIN

Add IRP User Credentials entries per GSTIN to the User Credentials Service of SAP Cloud Integration tenant by following the process mentioned [here](#)

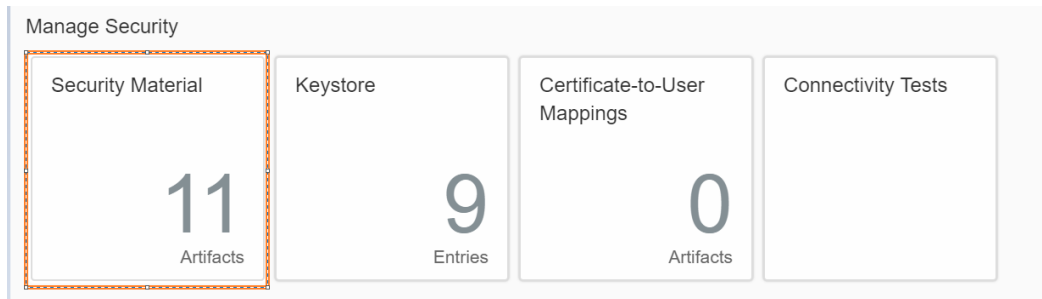
Note

To perform above operation, you need to be a tenant administrator with role **AuthGroup.Administrator**.

Refer [GSP Registration on IRP Portal](#) for details.

To add IRP User Credentials per GSTIN to SAP Cloud Integration:

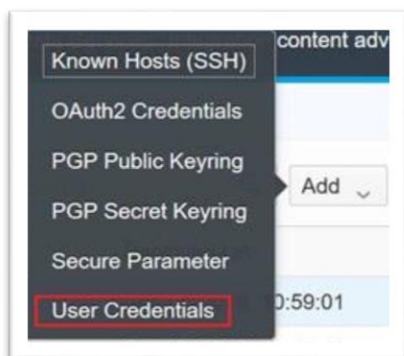
1. Go to Security material. Navigate to Monitor > Manage Security > Security Material.



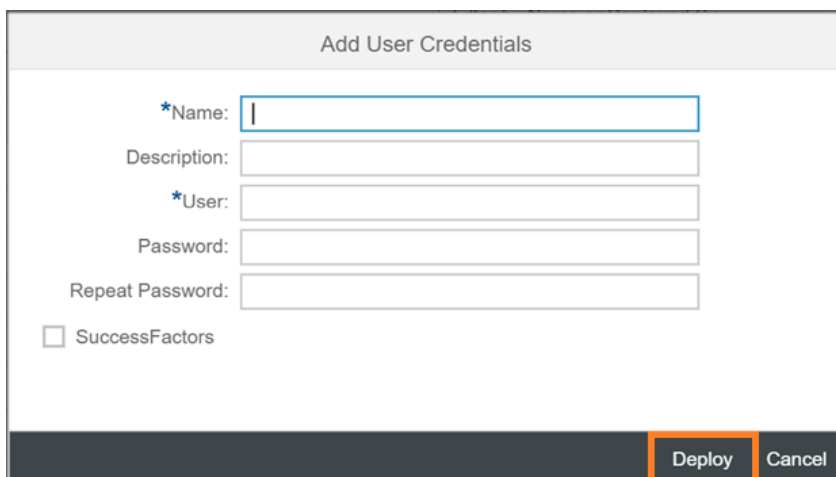
2. Add a new user credential.



3. Click User Credentials



4. Add and Deploy the user credentials



Note: In the Name field, enter the GSTIN of the business place to which the user belongs/ GSTIN of the business place with suffix '_einv'.

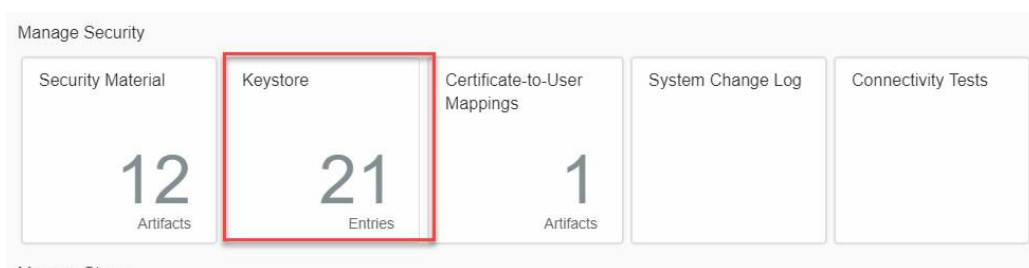
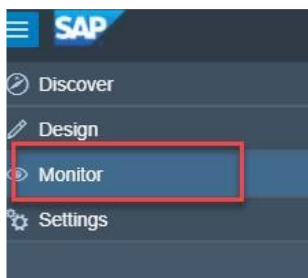
Name	GSTIN of the business place to which the user belongs/ GSTIN of the business place with suffix '_einv'
Description	Any relevant text (optional)
User	API User ID created in IRP portal (production) or received from GSP (pre-production)
Password/ Repeat password	Password

4.3 Deploy IRP Public Key Certificate

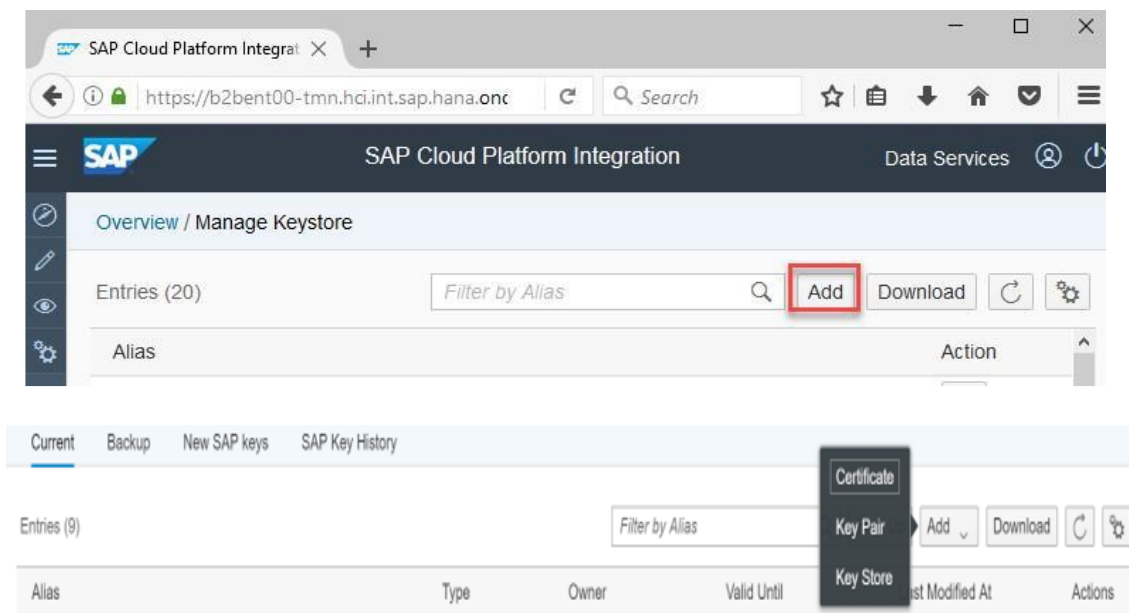
You need to add the IRP Public Key Certificate. You get this certificate from your GSP.

Follow the below steps to add the IRP Public Key Certificate to the SAP Cloud Integration KeyStore.

1. Navigate to **Monitor > Manage Security > Keystore**



2. Click Add > **Certificate** > **Add Certificate**



3. Enter an alias(**irpcert**) to identify the certificate. Browse the IRP Public Key Certificate from local desktop.

The screenshot shows the 'Add Certificate' dialog box. It has two main input fields: '*Alias:' and '*File:'. The '*Alias:' field contains the text 'irpcert'. The '*File:' field contains the text 'Choose a certificate for upload...' and a 'Browse...' button. At the bottom of the dialog, there are 'Deploy' and 'Cancel' buttons.

4. Click **Deploy**

Note

To perform the above operation, you need to be a tenant administrator with role **AuthGroup.Administrator**. The certificate should be in Base-64 encoded X.509(.CER) format. For more information, see [here](#).

4.4 Adapt and Deploy SAP Cloud Integration Flow

Use the following steps to adapt the integration flows as per your company needs.

1. Logon to SAP Cloud Integration through your P user or S user.

If you get *HTTP Status 403* error, contact your Tenant Administrator or write to service@sap.com

2. After successful login, from the menu in the upper left corner, choose *Discover*. Click on *All*.

3. In the subsequent screen, search for *ERP Integration with GST Suvidha Provider for India e-Invoice* catalog package .

The system displays the *ERP Integration with GST Suvidha Provider for India e-Invoice* catalog package.

4. Choose *Copy* button.

The system copies the package content to the tenant account.

5. From the menu in the upper left corner, choose *Click to work with content packages*.

The system displays the Design screen.

6. Click on the package *ERP Integration with GST Suvidha Provider for India e-Invoice* and in the subsequent screen choose ARTIFACTS.

The system displays different Integration Flows. The *ERP Integration with GST Suvidha Provider for India e-Invoice* content catalog package contains the following integration flows.

Integration Flow Name in WebUI	Description
GSP Integration Template	Template Integration Flow to be adapted to specific GSP
Router Integration Template	Routes elnvoice request from SAP ERP or SAP S/4HANA to specific GSP Integration Flow

7. Select the GSP Integration Template Integration Flow and adapt it. You adapt the template to use it for your GSP. For more information, see [Adapt GSP Integration Template Integration Flow](#).
8. Deploy the updated 'GSP Integration Template' Integration Flow
9. Deploy 'Router Integration Template' Integration Flow

Result

You have established the connection between *SAP ERP or SAP S/4HANA and your GST Suvidha Provider (GSP)*.

4.4.1 Adapt and Deploy GSP Integration Template

This template enables you to adapt the integration flow to specific GSP.

Use the following steps to adapt the GSP Integration Template Integration Flow

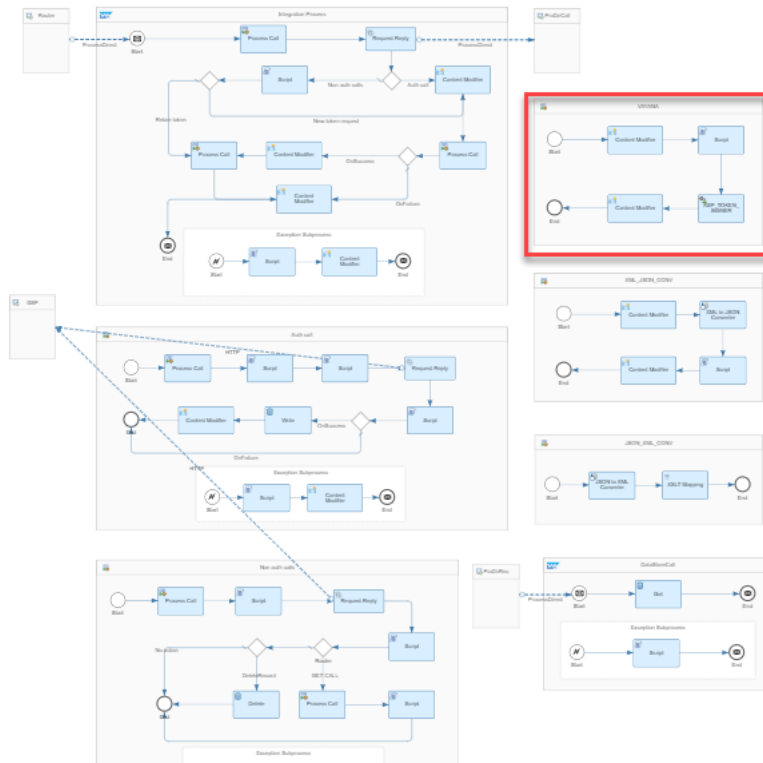
1. From the menu in the upper left corner, choose **Click to work with content packages**.

The system displays the Design screen.

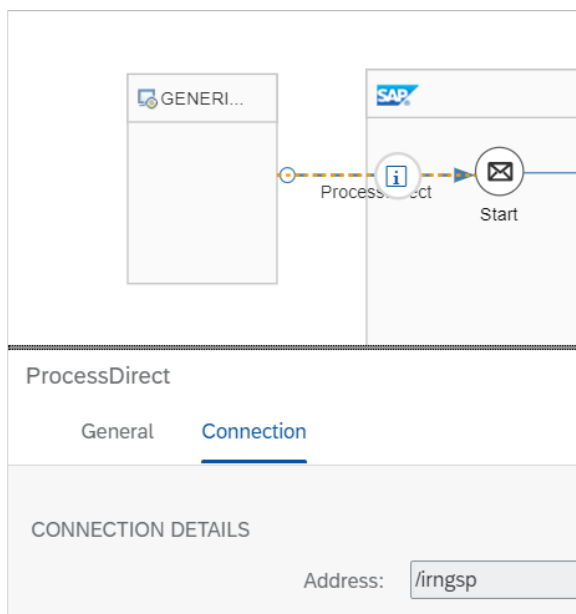
2. Select the GSP Integration Template Integration Flow.

The system displays the Integration Flow screen.

3. Click **Edit** and adapt the GSP specific authentication for the highlighted sections as shown in the below diagram.



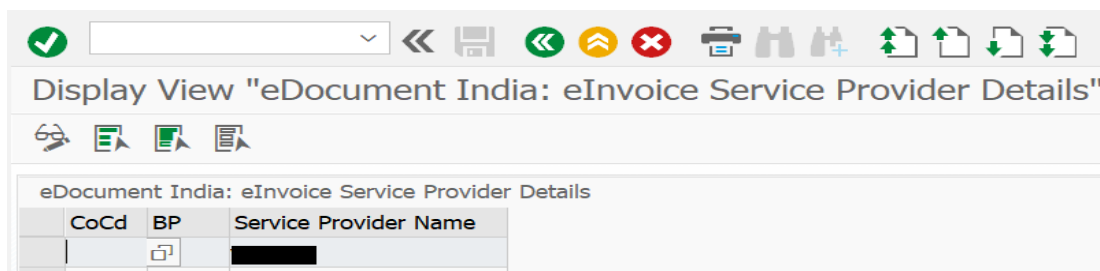
4. Click on the Process Direct as shown below.



5. Choose the connection tab. In the Address field replace the system populated GSP name with your company specific GSP name. Note that you should use the same GSP name as in the above screen in EDOINEINVGSPV view in SAP ERP or SAP S/4 HANA.

Note:

The value is case sensitive.



6. Click **Configure**.

Choose the tab More and modify the parameters as shown below

Type:	All Parameters
einvoice_auth_path:	<authentication_path_shared_by_gsp>
einvoice_base_url:	<base_url_shared_by_gsp>
einvoice_cancelEWB_path:	<cancelEWB_path_shared_by_gsp>
einvoice_cancelIRN_path:	<cancelIRN_path_shared_by_gsp>
einvoice_generateEWB_path:	<generateEWB_path_shared_by_gsp>
einvoice_generateIRN_path:	<generateIRN_path_shared_by_gsp>
einvoice_getEWBfromIRn_path:	<getEWBfromIRn_path_shared_by_gsp>
einvoice_getGSTIN_path:	<getGSTIN_path_shared_by_gsp>
einvoice_getIRNByDoc_path:	<getIRNByDoc_path_shared_by_gsp>
einvoice_getIRNDetails_path:	<getIRNdetails_path_shared_by_gsp>
einvoice_syncGSTIN_path:	<syncGSTIN_path_shared_by_gsp>
gsp_client-secret:	<clientSecret_shared_by_gsp>
gsp_clientid:	<clientId_shared_by_gsp>
irp_pk_alias:	ispcert
irp_token_expiry:	300
userGSTIN_publicAPI:	<GSTIN for syncGSTIN and getGSTIN API calls>

Note:

- In field irppkalias, you enter the alias(**irpcert**) of IRP Public Key Certificate.
You have already deployed IRP Public Key Certificate in KeyStore as described in section [Deploy IRP Public Key Certificate](#)
- In field userGSTIN_publicAPI, you enter one of the GSTIN which needs to be used for making public API calls such as getGSTIN and syncGSTIN and this field is mandatory only for public API calls
- You receive details about other fields from your GSP

Sample URLs as received from GSP:

- Authenticate IRN : <https://example.examplegsp.com/eivital/v1.03/auth>
- Generate IRN : <https://example.examplegsp.com/eicore/v1.03/Invoice>
- Cancel IRN : <https://example.examplegsp.com/eicore/v1.03/Invoice/Cancel>
- Generate eWayBill from IRN : <https://example.examplegsp.com/eiewb/v1.03/ewaybill>
- Cancel eWayBill : <https://example.examplegsp.com/ewaybillapi/v1.03/ewayapi>
- Get eWayBill Details By IRN : https://example.examplegsp.com/eiewb/v1.03/ewaybill/irn/<irn_no>

- Get IRN Details: https://example.examplegsp.com/eicore/v1.03/Invoice/irn/<irn_no>
- Get IRN Details by Document Details: <https://example.examplegsp.com/eicore/v1.03/Invoice/irnbydocdetails>
- Get GSTIN Details : <https://example.examplegsp.com/eivital/v1.03/Master/gstin/<gstn>>
- Sync GSTIN Details : <https://example.examplegsp.com/eivital/v1.03/Master/syncgstn/<gstn>>

Sample Integration Flow Configuration based on above URL details:

```
einvoice_base_url = https://example.examplegsp.com
einvoice_auth_path = /eivital/v1.03/auth
einvoice_generateIRN_path = /eicore/v1.03/Invoice
einvoice_cancelIRN_path = /eicore/v1.03/Invoice/Cancel
einvoice_generateEWB_path = /eiewb/v1.03/ewaybill
einvoice_cancelEWB_path = /ewaybillapi/v1.03/ewayapi
einvoice_getEWBfromIRn_path=/eiewb/v1.03/ewaybill/irn/
einvoice_getIRNDetails_path = /eicore/v1.03/Invoice/irn/
einvoice_getIRNByDoc_path = /eicore/v1.03/Invoice/irnbydocdetails
einvoice_getGSTIN_path = /eivital/v1.03/Master/gstin/
einvoice_syncGSTIN_path = /eivital/v1.03/Master/syncgstn/
```

7. Save your changes.
8. Click **Deploy** to deploy the modified integration flow.

4.4.2 Deploy Router Integration Template

This integration flow routes eInvoice request from SAP ERP or SAP S/4HANA to specific GSP Integration Flow.

1. Select the Router Integration Template Integration Flow.
2. Click **Deploy** to deploy the integration flow.

Note

After the deployment, check if the integration flow is in **Started** state. You can check this in the Web UI by choosing *Monitor->Manage Integration Content*.

After successful deployment, the endpoint URL is <https://<Tenant Runtime URL>/cxf/indiaeinvoiceedoc>
This URL needs to be maintained in the SOAManager configuration.

Configuration: Consumer Proxy 'CO_EDO_IN_EINV_TRANS', Logical Port 'EDOC_IN_EINV_PORT'

Save	Edit	Ping Web Service
------	------	------------------

Consumer Security	Messaging	Transport Settings	Message Attachments	Identifiable Business Context	Operation Settings	Administrative Information
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URL Access Path

☒ URL ☐ URL components

* URL:

Logon Language:

Proxy

Name of Proxy Host:	<input type="text"/>
Port Number of Proxy Host:	<input type="text"/>
User Name for Proxy Access:	<input type="text"/>
Password of Proxy User:	<input type="text"/>

Transport Binding

Make Local Call:	<input type="text" value="No Call in Local System"/>
* Transport Binding Type:	<input type="text" value="SOAP 1.1"/>
Maximum Wait for WS Consumer:	<input type="text" value="0"/>

4.5 Client Certificate-based Authentication Settings

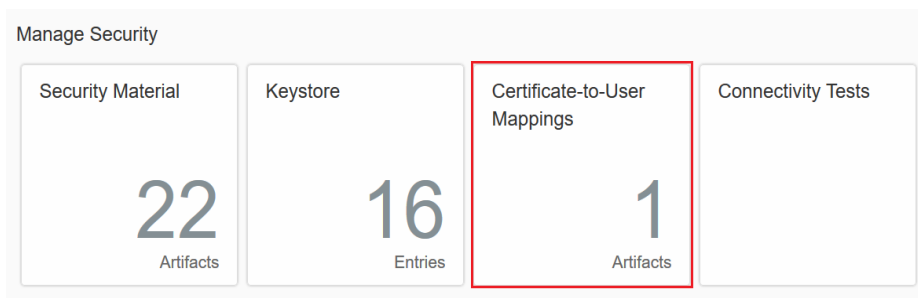
For inbound HTTP connections to SAP Cloud Integration, you define Authorization options for the communication user associated with the sender system to define how it accesses the Cloud Integration components. We recommend that you use Client-Certificate with certificate-to-user mapping. Using this option, authentication of a sender is performed based on a client certificate. With a certificate-to-user mapping, the certificate is mapped to a user, whose authorizations are checked on the tenant.

To enable certificate-based authentication between source system to SAP Cloud Integration, the certificate presented by source system should be signed by one of the Certification Authorities (CA) approved by SAP load balancer component. Self-signed certificates cannot be used.

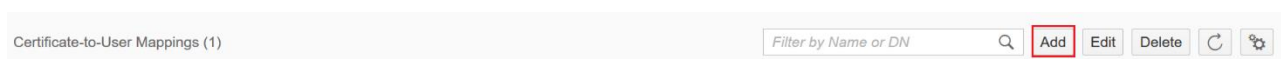
Refer to the below SAP help document on the list of supported CAs.

[Load Balancer Root Certificates Supported by SAP.](#)

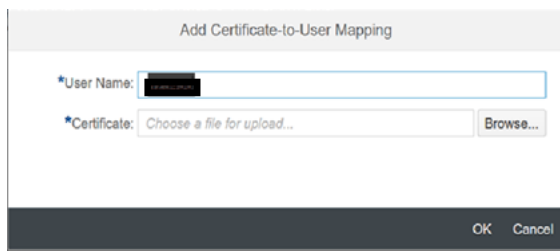
1. Navigate to Monitor->Manage Security-> Manage Certificate-to-User Mappings



2. Click on Add button



3. Enter the service user and deploy the client certificate obtained from SAP ERP.



The screenshot shows a dialog box titled "Add Certificate-to-User Mapping". It has two main input fields. The first is labeled "*User Name:" and contains the text "SAPERP...@sap.com". The second is labeled "*Certificate:" and contains the text "Choose a file for upload...". To the right of the second field is a button labeled "Browse...". At the bottom right of the dialog are two buttons: "OK" and "Cancel".

Note:

Ensure that the service user should have the ESBMessaging.Send role assigned to it.

For more information on how to obtain client certificate from SAP ERP, refer the section 'Configure Service Providers and Consumer Proxies' in 'SAP_Document_Compliance_e-Invoicing_for_India_Implementation_Guide' document attached to SAP Note [2884058](#).

5 Appendix

5.1 GSP Registration on IRP Portal

To access eInvoice APIs through GSPs, IRP expects taxpayers to register API Credentials per GSTIN for the specific GSP in the IRP portal.

1. For taxpayers already accessing E-way Bill production system via API.

The same Client Id and Client Secret, and Username and Password used for E-way Bill can be used for e-invoice APIs.

2. For taxpayers not accessing E-way Bill System via API:

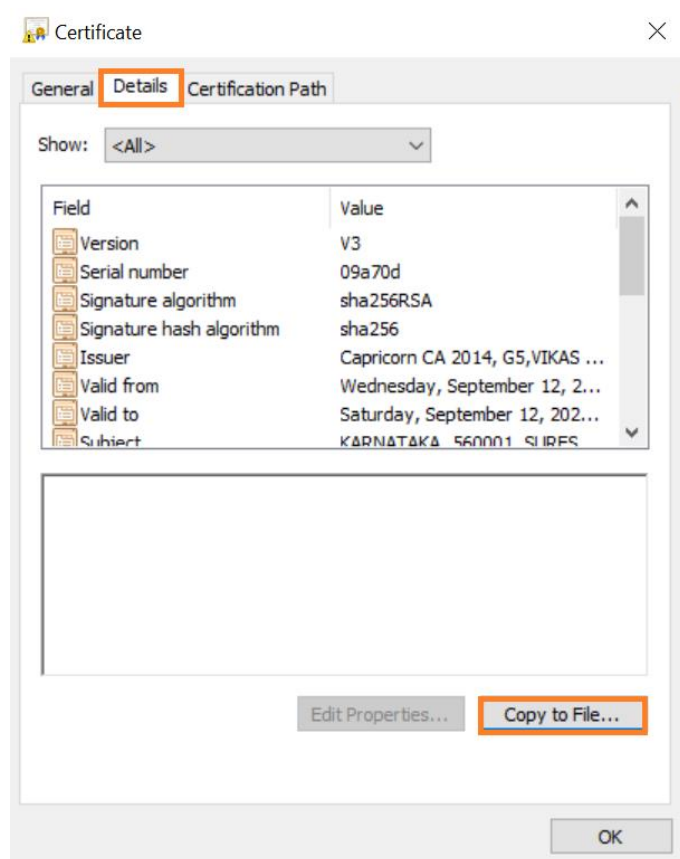
- o Pre-requisite is to register GSTIN in eInvoice system
- o Login using registered credentials to get the API username and password

Note: If pre-requisite is already done, then you can proceed with the login.

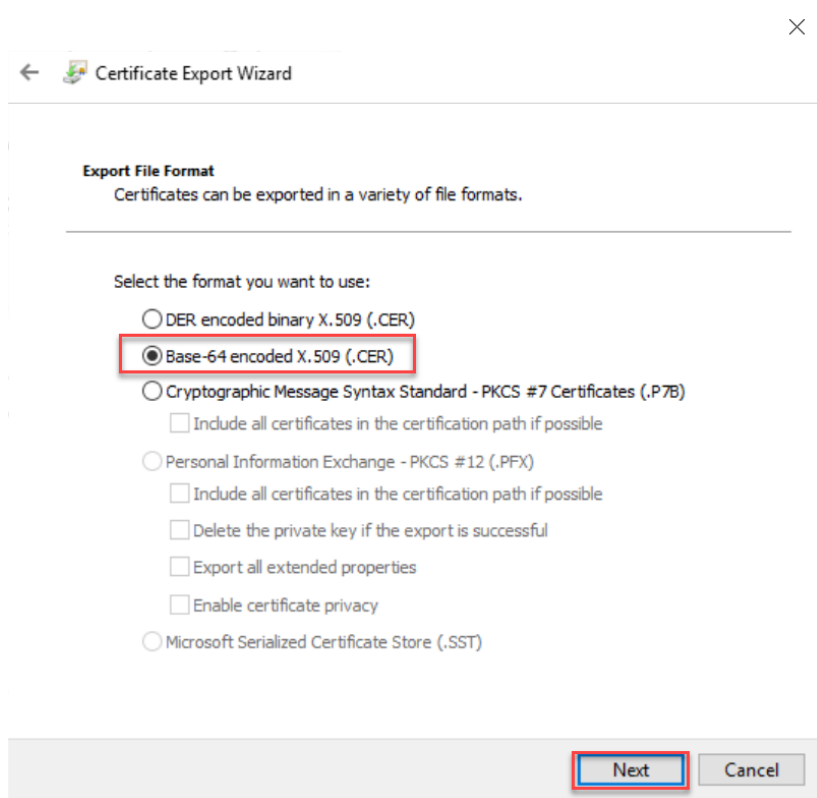
5.2 Exporting Certificate as Base-64 encoded X.509(.CER) format.

1. Double click the certificate. Goto Details -> Copy to File

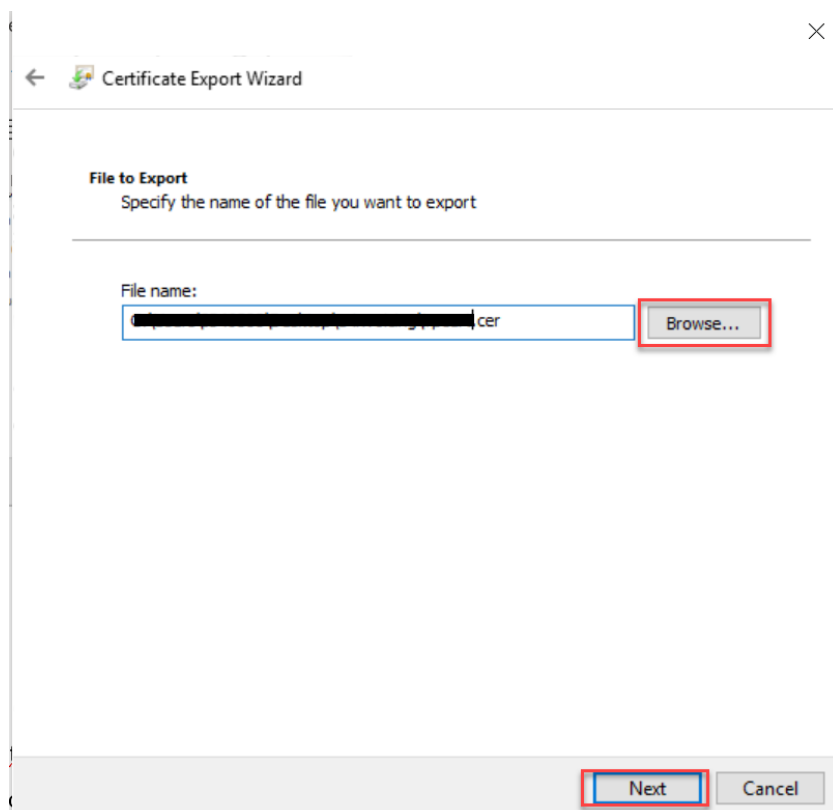
A new window opens. Click **Next**.



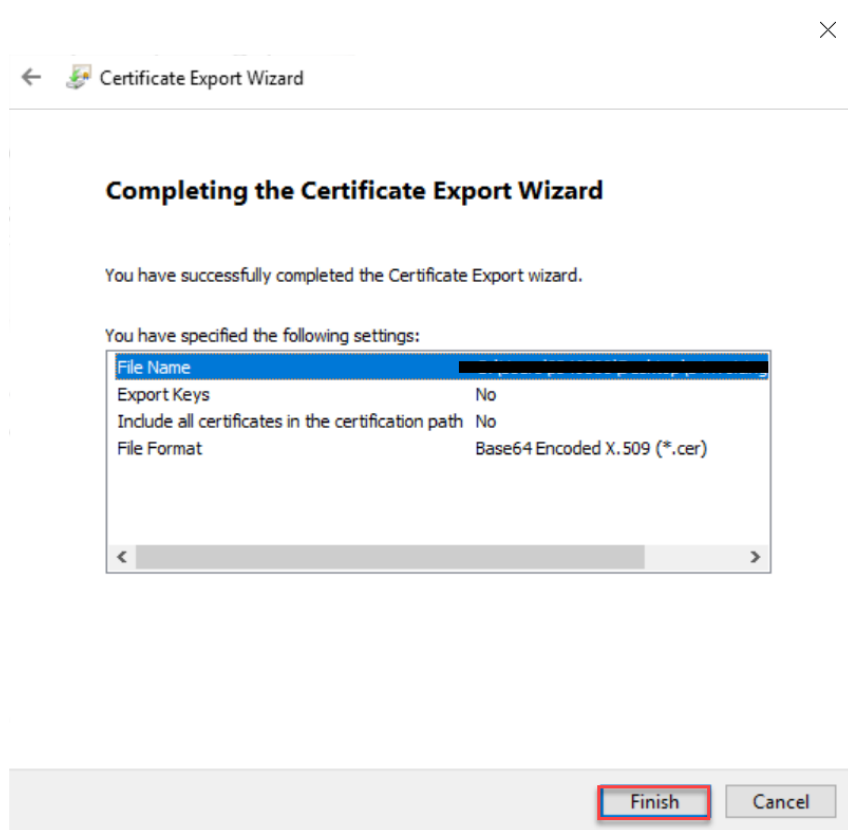
2. Select Base-64 encoded X.509(.CER) and click **Next**



3. Browse the path where the certificate has to be saved and click **Next**.



4. Click **Finish**. Certificate will be saved in the selected location.



5.3 Useful Links:

- SAP Cloud Integration:
https://help.sap.com/viewer/product/CLOUD_INTEGRATION/Cloud/en-US
- SAP Cloud Integration - Overview of Authorization Groups:
<https://help.sap.com/viewer/368c481cd6954bd5d0435479fd4eaf/Cloud/en-US/4b4ba1c553474259b5be661f4ef0702c.html>
- SAP Cloud Integration – User Credentials:
<https://help.sap.com/viewer/368c481cd6954bd5d0435479fd4eaf/Cloud/en-US/6912d63bbbc64aee8bbd4ff10314c60c.html>
- SAP Cloud Integration – Importing a Keystore:
<https://help.sap.com/viewer/368c481cd6954bd5d0435479fd4eaf/Cloud/en-US/0db193a325a94675928e717c9310734a.html>
- SAP Cloud Integration – Importing a Certificate:
<https://help.sap.com/viewer/368c481cd6954bd5d0435479fd4eaf/Cloud/en-US/03cf78a217574e7abd75bfbbba990c085.html>

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