



Integration Guide | PUBLIC
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Saudi Arabia Electronic Invoicing Setting Up SAP Cloud Integration (SAP S/4HANA Cloud) - Neo Environment

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2 Introduction

You use SAP Cloud Integration to establish the communication with external systems with whom you want to exchange electronic documents created with *SAP Document and Reporting Compliance*. This document lists the required setup steps you perform in the SAP ERP or SAP S/4HANA system* and the SAP Cloud Integration tenant so that the integration between the systems works.

The setup steps are typically done by an SAP Cloud Integration consulting team, which is responsible for configuring the SAP back-end systems and the connection with SAP Cloud Integration. This team may be also responsible for maintaining the integration content and certificates/credentials on the SAP Cloud Integration tenant.

i Note

This document describes functionality that is provided by the Integration Package itself, that is, by the artifacts that are deployed in the SAP Integration Suite tenant. It may happen, however, that in the SAP S/4HANA Cloud tenant the access to such functionality is only partially implemented. Additionally, it may also happen that the tax authority servers do not provide all services that are described in this document. Please refer to SAP S/4HANA Cloud documentation and to the relevant tax authority information, respectively.

For the sake of simplicity in this guide, we mention SAP back-end systems when something refers to both SAP ERP or SAP S/4HANA.

3 Prerequisites

Before you start with the activities described in this document, ensure that the following prerequisites are met.

1. SAP Cloud Integration test/productive tenants are live.
2. **Configurations for Electronic Documents**
For more information, see the documentation for Document and Reporting Compliance for Saudi Arabia on SAP Help Portal at https://help.sap.com/viewer/product/SAP_S4HANA_CLOUD. Select your product version. In the Product Assistance section, select a language and then select ► [Country/Region-Specific Functions](#) ► [Saudi Arabia](#) ► [General Functions](#) ► [Document and Reporting Compliance](#) ▾.
3. **Setup of SAP Cloud Integration**
Ensure that your SAP Cloud Integration test and production tenants are live, and users in the tenants have the rights to copy the integration package and to configure and deploy the integration flows.
When your tenants are provisioned, you receive an email with a Tenant Management (TMN) URL. You need this URL when configuring on your SAP S/4HANA Cloud tenant the communication with the SAP Cloud Integration tenant. To be able to deploy the security content you must be assigned the AuthGroup.Administrator role. If you are a first-time user, you must first set up your users (members) and their authorizations in the SAP BTP cockpit.
4. You have registered your VAT Number in the tax authority's (Fatoora) portal. For more information, please refer the following links:
 - [Fatoora portal user manual.pdf \(zatca.gov.sa\)](#) ➤
 - [E-invoicing Detailed Technical Guidelines.pdf \(zatca.gov.sa\)](#) ➤
 - [E-Invoicing \(zatca.gov.sa\)](#) ➤

3.1 Setup of Secure Connection

You establish a trustworthy SSL connection to set up a connection between the SAP S/4HANA Cloud tenant and the SAP Cloud Integration.

Outbound HTTP connections are required, and are supported with specific, public certificates.

You use [Maintain Client Certificates](#) app to manage the certificates required for a trustworthy SSL connection. The certificates include public certificates to support outbound connections, as well as trusted certificate authority (CA) certificates to support integration flow authentication.

Refer to the system documentation for more information regarding the certificate deployment to SAP S/4HANA Cloud tenant.

For more information, refer to [Operations guide for SAP Cloud Integration](#).

i Note

If you encounter any issues in the information provided in the SAP Cloud Integration product page, open a customer incident against the LOD-HCI-PI-OPS component.

Client Certificate

If you're using a client certificate, this must be signed by one of the root certificates supported by the load balancer. A self-signed certificate isn't suitable. For more information, see [Load Balancer Root Certificates Supported by SAP](#).

3.2 Setup of SAP Cloud Integration Tenants

SAP Cloud Integration test and productive tenants are live and users in the tenants have sufficient rights to copy the integration package and to configure and deploy the integration flow.

To be able to deploy the security content, you need the `AuthGroup.Administrator` role.

For the subsequent configuration of SAP S/4HANA Cloud, note down the URL of the tenant. It is the Tenant Management (TMN) URL which you received when the tenant was provisioned.

3.3 Retrieve and Save Public Certificates

You perform this action in the SAP S/4HANA Cloud tenant only if you are using certificate-based authentication. Not required for basic authentication.

Prerequisites

If you do not find any integration flows in your tenant then refer to [Copy Integration Flows \[page 12\]](#) and [Configure Integration Flows \[page 13\]](#).

Context

Find and save the public certificates from your SAP Cloud Integration runtime.

Procedure

1. Access the SAP BTP cockpit, and navigate to your subaccount (tenant) page.
2. Click the subscriptions link to display the subscriptions for your subaccount.
3. Select the subscription with suffix `iflmap` as this corresponds to your worker node within SAP Cloud Integration.

Alternatively, use the URL emailed to you with your SAP Cloud Integration subscription details. The URL has the following format <https://xxxxx.hana.ondemand.com/itspaces>.

4. In the *Operations* view, choose *Manage Integration Content* and select *All* to display the integration flows available.
5. Select an integration flow to display its details.
6. Copy the URL listed within the *Endpoints* tab, and paste the URL into your web browser.
7. When prompted by the *Website Identification* window, choose *View certificate*.
8. Select the root certificate, and then choose *Export to file* to save the certificate locally.
9. Repeat these steps for each unique root, intermediate and leaf certificate, and repeat for both your test and production tenants.

4 Configuration Steps in SAP Cloud Integration

Required steps in SAP Cloud Integration.

4.1 General Information

The package *SAP Document and Reporting Compliance: Electronic Invoice for Saudi Arabia* contains the following integration flows:

Integration Flows for Document and Reporting Compliance for Saudi Arabia

Integration Flow Name in WebUI	Project Name/Artifact Name
Saudi Arabia CSID Operations	com.sap.GS.SaudiArabia.CSIDOperations
Saudi Arabia CSID Utilities	com.sap.GS.SaudiArabia.CSIDUtilities
Saudi Arabia Invoice Clearance	com.sap.GS.SaudiArabia.InvoiceClearance
Saudi Arabia Invoice Reporting	com.sap.GS.SaudiArabia.InvoiceReporting
Saudi Arabia Send Invoice	com.sap.GS.SaudiArabia.SendInvoice

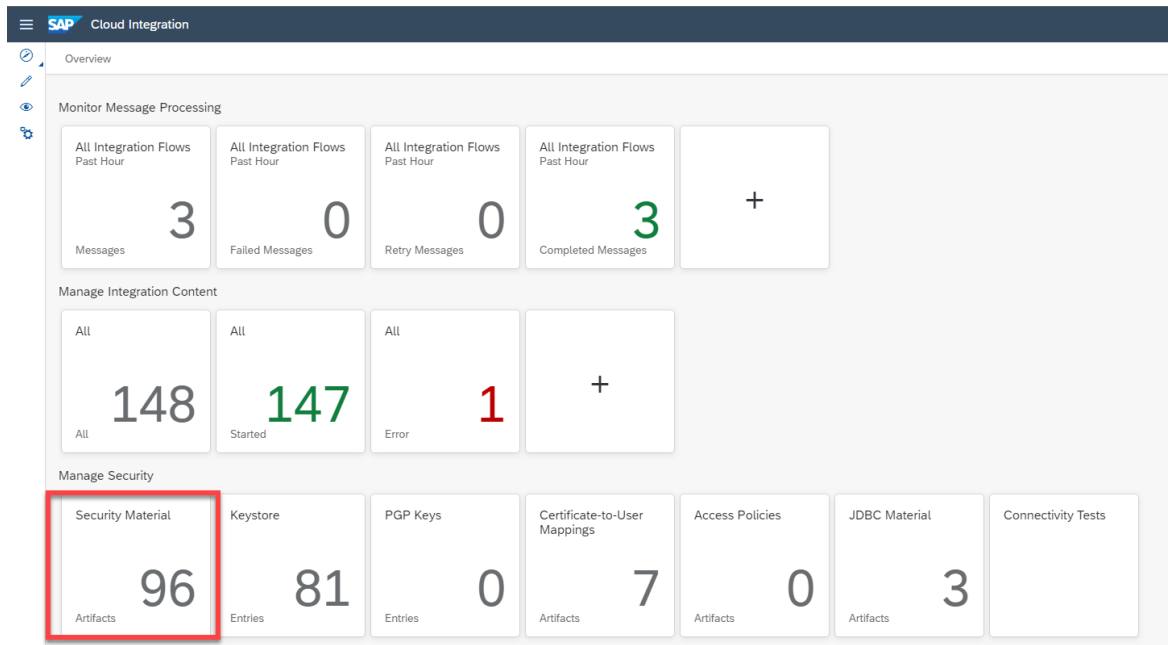
4.2 Deploy Credentials to Tenants

4.2.1 Basic Authentication

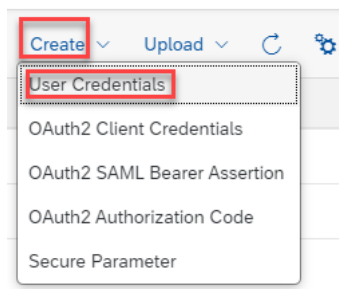
Procedure

Deploy the user ID and password to your SAP Cloud Integration tenant.

- a. In your browser, go to the [Overview](#) tab and choose [Security Material](#).



b. Choose *Create* on the right corner and choose *User Credentials*.



c. Enter the name, username and password, and deploy them.

Create User Credentials

Name: *

Description:

Type: *

User: *

Password:

Repeat Password:

[Deploy](#) [Cancel](#)

You need to add User Credentials as follows:

- Name : 'SCI_CREDENTIAL_ALIAS'
- Description : 'SCI Credential Alias'
- Type : 'User Credentials'
- User : <Tenant User ID>
- Password : <Tenant Password>

Note

Your **<Tenant User ID>** and your **<Tenant Password>** has to be replaced with the value of your SAP Cloud Integration tenant's User ID and Password respectively.

Your **<Tenant User ID>** should have **IntegrationOperationServer.read**, **NodeManager.deploycredentials**, **NodeManager.read**, **NodeManager.deploycontent** and **NodeManager.deploysecuritycontent** roles assigned to it. For the assignment of the above mentioned roles, please refer [Assigning Users and Roles](#).

The credentials maintained here are used to authenticate SAP Cloud Integration OData API calls for managing the security content. For example, creating Keypair and User Credentials (issued by tax authority) in SCI tenant, as part of onboarding process with the tax authority. For more information, please refer the following links:

- [Security Content | SAP Help Portal](#)
- [Overview | Security Content | SAP Business Accelerator Hub](#)

4.2.2 OAuth2 Client Credentials Authentication

Procedure

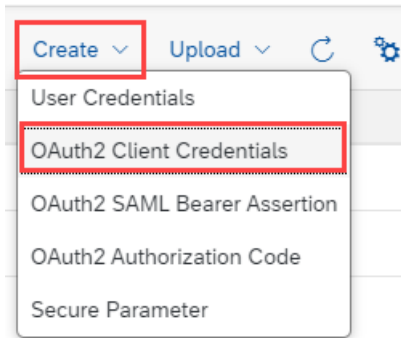
Deploy the Client ID and Client Secret to your SAP Cloud Integration tenant.

- In your browser, go to the [Overview](#) tab and choose [Security Material](#).

The screenshot shows the SAP Cloud Integration Overview page. The page is divided into several sections: Overview, Monitor Message Processing, Manage Integration Content, and Manage Security. The Security Material section is highlighted with a red box, showing 96 artifacts. Other sections include Messages (3), Failed Messages (0), Retry Messages (0), Completed Messages (3), All (148), Started (147), Error (1), Keystore (81), PGP Keys (0), Certificate-to-User Mappings (7), Access Policies (0), JDBC Material (3), and Connectivity Tests.

Section	Metric	Value
Messages	Messages	3
Failed Messages	Failed Messages	0
Retry Messages	Retry Messages	0
Completed Messages	Completed Messages	3
All	All	148
Started	Started	147
Error	Error	1
Security Material	Artifacts	96
Keystore	Entries	81
PGP Keys	Entries	0
Certificate-to-User Mappings	Artifacts	7
Access Policies	Artifacts	0
JDBC Material	Artifacts	3
Connectivity Tests		

- Choose [Create](#) on the right corner and choose [OAuth2 Client Credentials](#).



c. Enter the name, Token Service URL, Client ID and Client Secret, and deploy them.


Edit OAuth2 Client Credentials


Name: *

Description:


Token Service URL: *

Client ID: *

Client Secret: * 

Client Authentication: * 

Scope:

Content Type: 

Resource:

Audience:

[Deploy](#) [Cancel](#)

You need to add OAuth2 Client Credentials as follows:

- Name : 'SCI_OAUTH_ALIAS'
- Description : 'SCI OAuth2 Client Credentials Alias'
- Token Service URL : <Token Service URL>
- Client ID : <Client ID>
- Client Secret : <Client Secret>
- Client Authentication : 'Send as Request Header'
- Content Type : 'application/json'

Note

<Token Service URL>, <Client ID> and your <Client Secret> has to be replaced with the values *Client ID*, *Client Secret*, and *Token Endpoint* from your OAuth Client respectively. For creating a new OAuth Client, please follow the below steps,

1. Go to the SAP BTP cockpit and open the subaccount.
2. Choose **Security > OAuth**. Choose the *Clients* tab.
Note: The *Token Endpoint* (<Token Service URL>) can be taken from *Branding* tab, under *OAuth URLs* section.
3. Choose *Register New Client*. The ID is automatically generated.
4. Enter a name for the client.
5. In the *Subscription* field, select the appropriate Subaccount/Application.
6. In the *Authorization Grant* field, select *Client Credentials*.
7. In the *Secret* field, define a password of your choice.
8. Choose *Save*.

Your <Client ID> should have IntegrationOperationServer.read, NodeManager.deploycredentials, NodeManager.read, NodeManager.deploycontent and NodeManager.deploysecuritycontent roles assigned to it. For the assignment of the above mentioned roles, please refer *OAuth2.0* section in SAP Note [2773752](#).

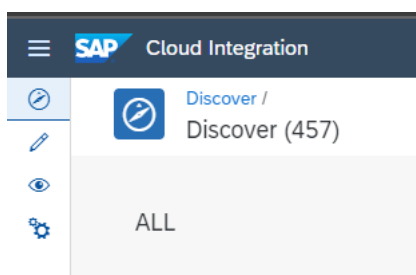
4.3 Copy Integration Flows

Context

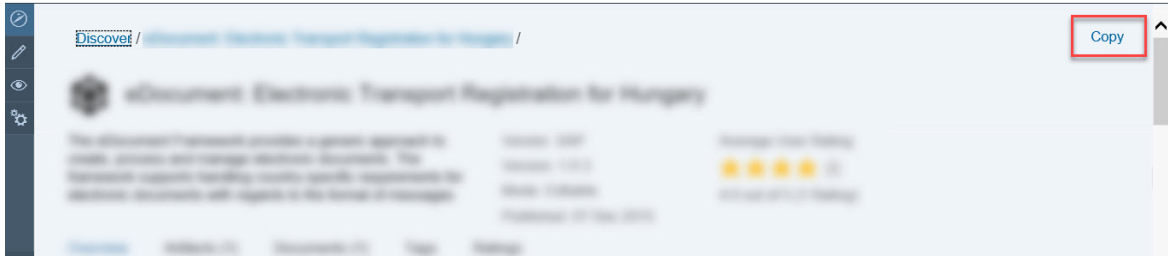
Copy all integration flows in the package *SAP Document and Reporting Compliance: Electronic Invoice for Saudi Arabia* to the target tenant as follows:

Procedure

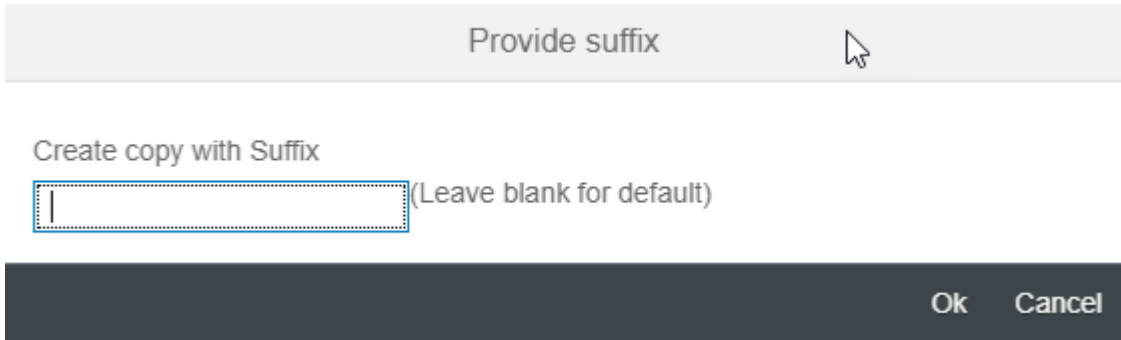
1. In your browser, go to the WebUI of the tenant (URL: <Tenant URL>/itspaces/#shell/catalog).
2. Choose **Discover > All**.



3. Search for *SAP Document and Reporting Compliance: Electronic Invoice for Saudi Arabia*.
4. Select the Package and choose *Copy*.



5. In the *Provide suffix* dialog box, leave the field blank, and choose *Ok*.



4.4 Configure Integration Flows

Context

You configure the package that you've copied as described in .

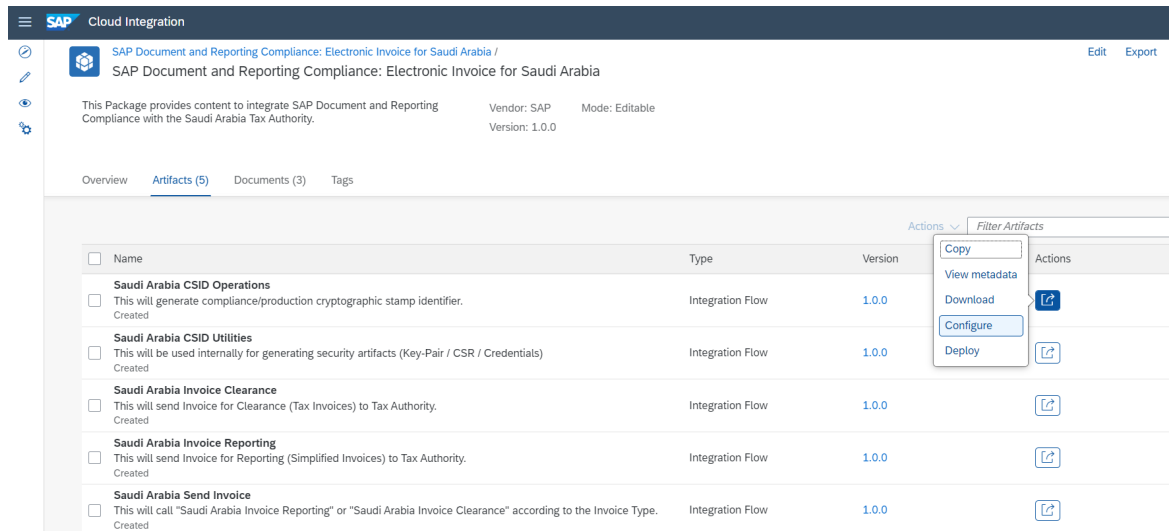
Procedure

1. Choose *Design* from the upper left corner of the page.
2. Click on the package that you copied from the original *SAP Document and Reporting Compliance: Electronic Invoice for Saudi Arabia* package.
3. Go to the *Artifacts* tab page.
4. There are five *Artifacts* in the integration package *SAP Document and Reporting Compliance: Electronic Invoice for Saudi Arabia*:
 - Saudi Arabia CSID Operations
 - Saudi Arabia CSID Utilities
 - Saudi Arabia Invoice Clearance
 - Saudi Arabia Invoice Reporting

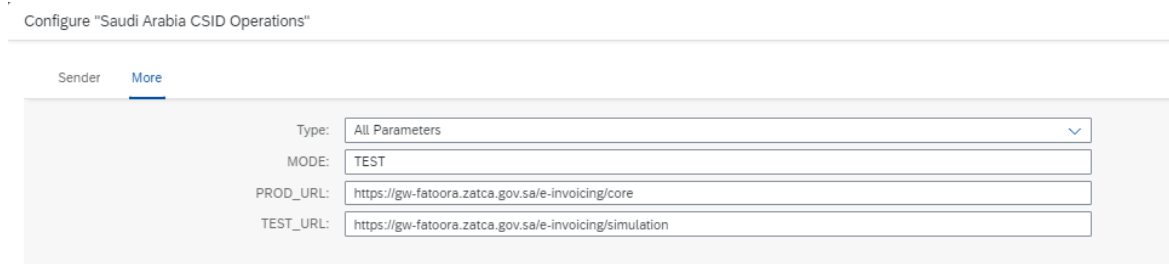
- Saudi Arabia Send Invoice

Take *Saudi Arabia CSID Operations* as an example, similar steps should be done for the other integration flows:

5. Choose **Actions** > **Configure** for the artifact you're configuring.



6. Choose **Configure** > **More** tab (in some versions it may be *Externalized Parameters*).



There are specific URLs you need to enter for different integration flows.

Parameter Name	Value
SCI_HOST	Your tenant URL. For example, <code>https://xxxxx.hana.ondemand.com</code>
PROD_URL	<code>https://gw-fatoora.zatca.gov.sa/e-invoicing/core</code>
TEST_URL	<code>https://gw-fatoora.zatca.gov.sa/e-invoicing/simulation</code>
Mode	TEST / PROD
Authentication	Basic / OAuth2 Client Credentials
Credential Name	SCI_CREDENTIAL_ALIAS / SCI_OAUTH_ALIAS

Note

For test systems, you can use the Mode as `TEST` and for production systems, you can use the Mode as `PROD`.

For Basic Authentication, use `SCI_CREDENTIAL_ALIAS` as credential name and for OAuth2 Client Credentials Authentication, use `SCI_OAUTH_ALIAS` as credential name.

7. Choose **Configure** > **Sender** tab.

- Use the `Address` parameter to set up the integration package address. Normally you don't have to change this field. In case you change the field, make sure to use the same address when configuring the logical ports in the next chapter.
- Use the `Authorization` parameter to configure the authorization type.

Value	Description
User Role	You want to use basic authentication (user/password).
Client Certificate	You want to use client certificate authentication.

- Use the `User Role` parameter to configure the role based on which the inbound authorization is checked. Choose [Select](#) to get a list of all available roles. The role `ESBMessaging.send` is provided by default.

The screenshot shows the configuration interface for "Saudi Arabia CSID Operations". The "Sender" tab is active. Under the "Connection" section, the following fields are visible:

- Sender: SAP_ERP (dropdown)
- Adapter Type: SOAP (dropdown)
- Address: /SaudiArabiaCSIDOperations (text input)
- Authorization: User Role (dropdown)
- User Role: ESBMessaging.send (text input) with a "Select" button next to it.

- Use the `Subject DN` and `Issuer DN` parameters to configure the Certificate based on which inbound authorization is checked. Choose [Select](#) and upload the required Certificate from your local machine.

Configure "Saudi Arabia CSID Operations"

Sender More

Sender: SAP_ERP

Adapter Type: SOAP

Connection

Address: /SaudiArabiaCSIDOperations

Authorization: Client Certificate

Subject DN Issuer DN

<SUBJECT_DN> <ISSUER_DN> **Select**

- Choose [Save](#) and [Deploy](#) to deploy it actively to server. Note down the URLs of the endpoints for each service.

i Note

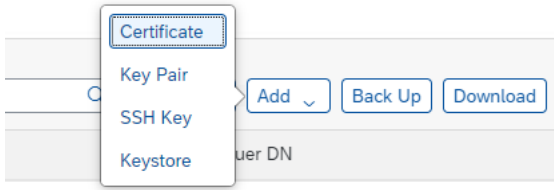
Depending on the version of your tenant, after pressing these buttons, a warning message can appear. You can ignore these messages by choosing [Close](#).

4.5 Retrieve and Save Server Certificate Chain of Tax Authority

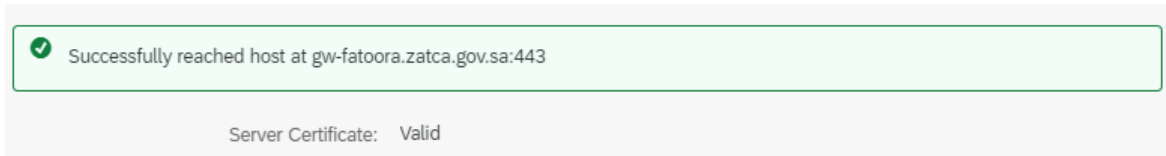
You can find and save the Server Certificate Chain from your Tax Authority

Procedure

- In your browser, navigate to the WebUI of the tenant (URL: <Tenant URL>/itspaces/shell/monitoring/).
- Under [Manage Security](#), choose [Connectivity Tests](#).
- Choose [TLS](#). Enter the following details:
 - Host: gw-fatoora.zatca.gov.sa
 - Port: 443
 - Clear the options **Authenticate with Client Certificate** and **Valid Server Certificate Required**.
- Choose [Send](#).
- Download and extract the Server Certificate Chain.
- Navigate to [Manage Security](#) from step 2. Choose [Keystore](#).
- Add all the extracted Certificates, one after another. Choose **► Add ► Certificate ►**. Browse and choose a certificate to upload. Choose [Add](#).



- Repeat steps 3 and 4 with the option **Valid Server Certificate Required** checked.



5 Configuration Steps for SAP S/4HANA Cloud

The following sections tell you the necessary configuration you do in SAP S/4HANA Cloud.

5.1 Configuring Communication System

Create a communication system that represents your SAP Integration Suite tenant.

Prerequisites

1. Live SAP Integration Suite test or productive tenant must be available.
2. Communication management setups are not transportable and must be explicitly maintained in quality and production systems.
3. The SAP S/4HANA Cloud user, who is following this guide, must be assigned to a business role that contains the business catalog `SAP_BCR_CORE_COM` (Communication Management) for accessing communication management apps.

Procedure

1. Login to your S/4HANA Cloud tenant with the Cloud User.
2. Find and launch the app *Communication Systems*.



3. Choose *New*, and in the pop-up window, enter the *System ID* and *System Name* of your communication system. Naming convention of *System ID* is `EDOC_<name of SAP Cloud Integration tenant>`. For example, if the tenant host name is `example-tmn.avt.eu1.hana.ondemand.com`, then System ID is `EDOC_EXAMPLE`.

New Communication System

System ID: * EDOC_EXAMPLE
System Name: * EDOC_EXAMPLE

Create

Cancel

4. Choose *Create*.
5. On the next page, enter the host name and port of your tenant. You can find the host name for your SAP Integration Suite tenant, as follows:
 1. From the menu on the left, choose *Monitor*.
 2. Select *Manage Integration Content (All)*.
 3. Search for the integration flow for the scenario you are configuring.
 4. Find the host name from the *Endpoints* tab.
 5. The composition of an endpoint URL is `https://<host name>/<path>`.

EDOC_EXAMPLE
EDOC_EXAMPLE

Changed By: Example ConfExpertBusNetint Editing Status: Draft
Changed On: 11.10.2022, 14:17

General Users for Inbound Communication Users for Outbound Communication Business Partners Communication Arrangements

General Data

System ID: * EDOC_EXAMPLE Notes:
System Name: * EDOC_EXAMPLE

Technical Data

General

Host Name: * UI Host Name:
Logical System: Business System:
Port:
Is Hub System:
Inbound Only:

6. Scroll down, and choose + next to *User for Outbound Communication*.

Users for Outbound Communication

Authentication Method	User Name / Certificate / Client ID
	<input type="text"/>

7. In the new pop-up window, select the appropriate authentication method to connect to your SAP Integration Suite tenant, as described in the Implementation Guide.

- For the authentication method *User Name and Password*, enter the user name and password of your SAP Integration Suite tenant user that allows the communication with SAP S/4HANA Cloud.
- For the authentication method *SSL Client Certificate*, select the *Default Client Certificate* type and choose *Create*.

i Note

If you want to create your own Client Certificate, please refer https://help.sap.com/docs/SAP_S4HANA_CLOUD/55a7cb346519450cb9e6d21c1ecd6ec1/cb18de0f63b648d1a44bfe9bec1a4415.html?locale=en-US.

8. Choose *Save*.

5.2 Configuring Communication Arrangement

Configuration steps for SAP S/4HANA Cloud Communication Arrangement.

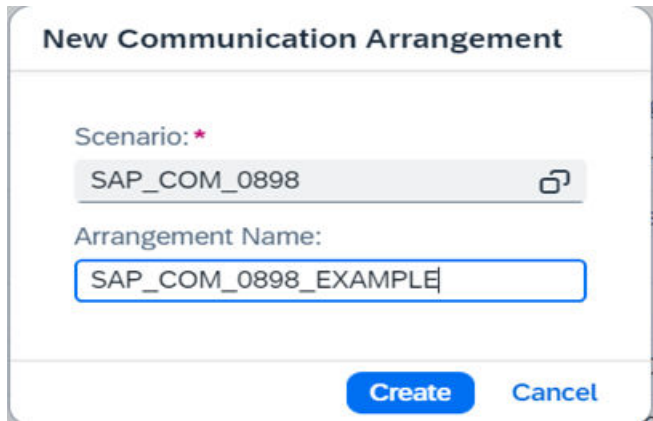
Procedure

1. Login to your S/4HANA Cloud tenant with the Cloud User.
2. Find and launch the app *Communication Arrangements*.



3. Choose *New*. In the new pop-up window, enter the *Scenario* as *SAP_COM_0898* (which is the one designated for communication with the tax authority via SAP Integration Suite package) and an *Arrangement Name*. For *Arrangement Name* it is recommended to choose a name like *SAP_COM_0898_<name of SAP Integration Suite tenant>*.

For example, SAP_COM_0898_EXAMPLE for tenant host name beginning with example-tmn.avt.eu1.hana.ondemand.com.



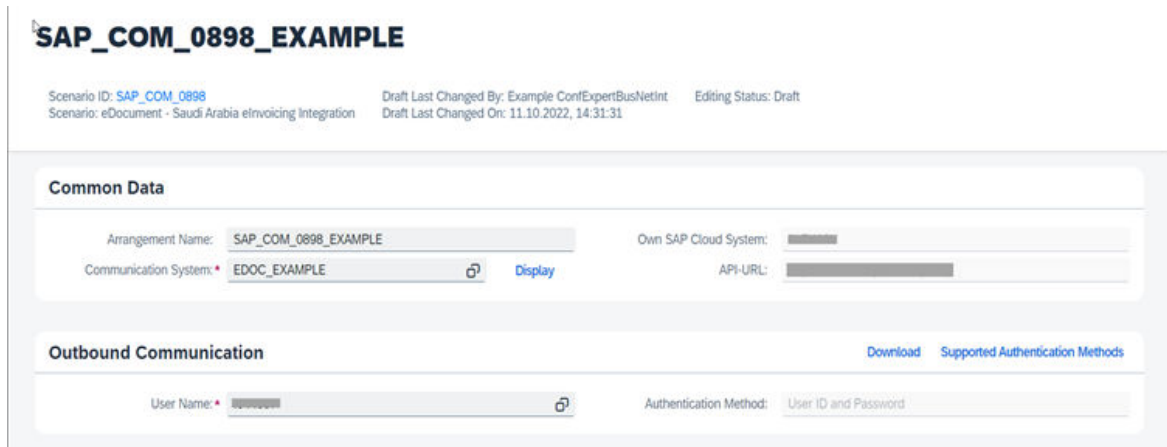
New Communication Arrangement

Scenario: *
SAP_COM_0898

Arrangement Name:
SAP_COM_0898_EXAMPLE

Create Cancel

4. Choose *Create*.
5. In the new window, choose the communication system (for example, EDOC_EXAMPLE) and Outbound Communication created in the previous step.



SAP_COM_0898_EXAMPLE

Scenario ID: SAP_COM_0898 Draft Last Changed By: Example ConfExpertBusNetInt Editing Status: Draft
Scenario: eDocument - Saudi Arabia eInvoicing Integration Draft Last Changed On: 11.10.2022, 14:31:31

Common Data

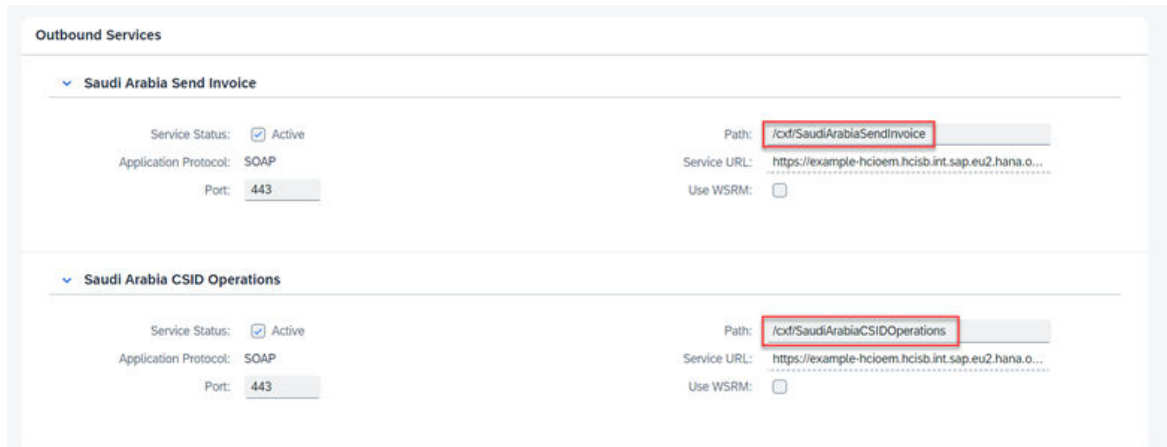
Arrangement Name: SAP_COM_0898_EXAMPLE Own SAP Cloud System:

Communication System: * EDOC_EXAMPLE Display API-URL:

Outbound Communication Download Supported Authentication Methods

User Name: Authentication Method: User ID and Password

6. For each outbound service, enter the *path* of the corresponding integration flow.



Outbound Services

▼ Saudi Arabia Send Invoice

Service Status: Active Path: /cdf/SaudiArabiaSendInvoice

Application Protocol: SOAP Service URL: https://example-hcioem.hcisb.int.sap.eu2.hana.o...

Port: 443 Use WSRM:

▼ Saudi Arabia CSID Operations

Service Status: Active Path: /cdf/SaudiArabiaCSIDOperations

Application Protocol: SOAP Service URL: https://example-hcioem.hcisb.int.sap.eu2.hana.o...

Port: 443 Use WSRM:



7. Choose *Save*.

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