Installation Guide | PUBLIC
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Portugal eInvoice: Setting Up SAP Cloud Integration (SAP ERP, SAP S/4HANA) - Neo environment

THE BEST RUN SAP

Content

1 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 Cloud Integration tenant. It may happen, however, that in the SAP back-end systems 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 the relevant SAP back-end systems 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.

2 Prerequisites

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

1. Document and Reporting Compliance: All relevant notes are installed in the test and/or productive systems.
2. SAP Cloud Integration test/productive tenants are live.
3. You have configured the connection from SAP back-end system to SAP Cloud Integration.

2.1 Implementation for Electronic Document Processing Framework

You have implemented and configured the Electronic Document Processing Framework in your test and productive systems. If you did not install the latest support package for your system, refer to the SAP Note 2134248 for the implementation guide of SAP Notes.

Application Help for Electronic Document Processing

For more information about features and country/region availability of each solution, see the application help documentation

- SAP S/4HANA: *Product Assitance* > *English* > *Local Version* > *<Region>* > *<Country/Region>* > *Cross-Application Functions* > *Document and Reporting Compliance*.
- SAP ERP: *Application Help* > *SAP Library* > *Local Version* > *<Region>* > *<Country/Region>* > *Cross-Application Functions* > *Document and Reporting Compliance*.

3 Connectivity Steps

3.1 Setup of Secure Connection

You establish a trustworthy SSL connection to set up a connection between the SAP back-end systems and the SAP Cloud Integration. For more information, see Connecting a Customer System to Cloud Integration.

Inbound HTTP connections are not required for Portugal. Outbound HTTP connections are required, and are supported with specific, public certificates.

You use SAP ERP Trust Manager (transaction `STRUST`) 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 back-end systems. In case of issues, refer to the following SAP notes:

- 2368112 Outgoing HTTPS connection does not work in AS ABAP
- 510007 Setting up SSL on Application Server ABAP

For more information, refer to Operating and Monitoring 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 are using a client certificate, this must be signed by one of the root certificates supported by the load balancer. A self-signed certificate is not suitable. For more information see Load Balancer Root Certificates Supported by SAP.

For information about creating your own certificate and get it signed by a trusted certificate authority (CA), see Authenticate Integration Flows [page 7].

3.1.1 Set Up SAP Cloud Integration Tenants

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.

3.1.2 Retrieve and Save Public Certificates

You perform this action in the back-end systems only if you are using certificate-based authentification. Not required for basic authentification.

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.

3.1.3 Upload the Certificates

Store the public certificates used for your productive and test tenants.

Context

You use the SAP ERP Trust Manager (transaction `STRUST`) to store and manage the certificates required to support connectivity between SAP back-end systems and SAP Cloud Integration.

Procedure

1. Access transaction `STRUST`.
2. Navigate to the PSE for **SSL Client (Anonymous)** and open it by double-clicking the PSE.
3. Switch to edit mode.
4. Choose the *Import certificate* button.
5. In the *Import Certificate* dialog box, enter or select the path to the required certificates and choose *Enter*. The certificates are displayed in the *Certificate* area.
6. Choose *Add to Certificate List* to add the certificates to the *Certificate List*.
7. Save your entries.

3.1.4 Authenticate Integration Flows

Create an own certificate and get it signed by a trusted certificate authority (CA) to support integration flow authentication.

Context

You use the SAP ERP Trust Manager (transaction `STRUST`) for this purpose.

This process is required only if you use certificate-based authentication (that is, you choose the **`X.509 SSL Client Certification`** option in your settings for SOAMANAGER).

Procedure

1. Access transaction `STRUST`.

2. Create your own PSE (for example, Client SSL Standard) and then generate a certificate sign request.
3. Export the certificate sign request as a `*.csr` file.
4. Arrange for the certificate to be signed by a trusted certificate authority (CA).

   If you are using a client certificate, this must be signed by one of the root certificates supported by the load balancer. A self-signed certificate is not suitable. For more information, see Load Balancer Root Certificates Supported by SAP.

   The CA may have specific requirements and request company-specific data, they may also require time to analyze your company before issuing a signed certicate. When signed, the CA provides the certificate for import.
5. Navigate to the PSE for **SSL Client Standard** and open it by double-clicking the PSE.
6. Switch to edit mode.
7. Choose the *Import certificate* button.
8. In the *Import Certificate* dialog box, enter or select the path to the CA-signed certificate and choose *Enter*. The certificate is displayed in the *Certificate* area.
9. Choose *Add to Certificate List* to add the signed certificate to the *Certificate List*.

   Ensure that you import the CA root and intermediate certificates to complete the import.
10. Save your entries.

    The certificates can now be used in the SOA Manager (transaction `SOAMANAGER`).

4 Configuration Steps in SAP Integration Suite

The following sections tell you the necessary configuration you do in SAP Integration Suite.

4.1 General Information

The package **SAP Document and Reporting Compliance: Electronic Invoicing for Portugal** contains the following integration flows:

Integration Flows for Electronic Documents for Portugal

Integration Flow Name in WebUI	Project Name/Artifact Name
Portugal Send Invoice	com.sap.GS.Portugal.SendInvoice
Portugal Receive Message	com.sap.GS.Portugal.ReceiveMessage

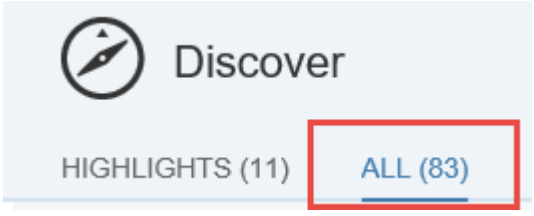
4.2 Copying Integration Flows

Context

Copy all integration flows in the package SAP Document and Reporting Compliance: Electronic Invoicing for Portugal 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 Invoicing for Portugal**.
4. Select the Package and choose *Copy*.

4.3 Configuring Integration Flows

Provides instructions for configuring integration flows.

You configure the package that you have copied as described in the step before.

There are 2 *Artifacts* in the integration package SAP Document and Reporting Compliance: Electronic Invoicing for Portugal:

- Portugal: Send Invoice
- Portugal: Receive Message

> **i** Note
>
> Not all external parameters exist for each integration flow. Configure only the ones which are available.

4.3.1 Configuring Portugal: Send Invoice

Provides instructions for configuring integration flow for Portugal: Send Invoice.

Procedure

1. Choose *Actions* > *Configure* > *More* tab (in some versions it may be *Externalized Parameters*)
   - Use the `Mode` parameter to set up the integration package usage mode:

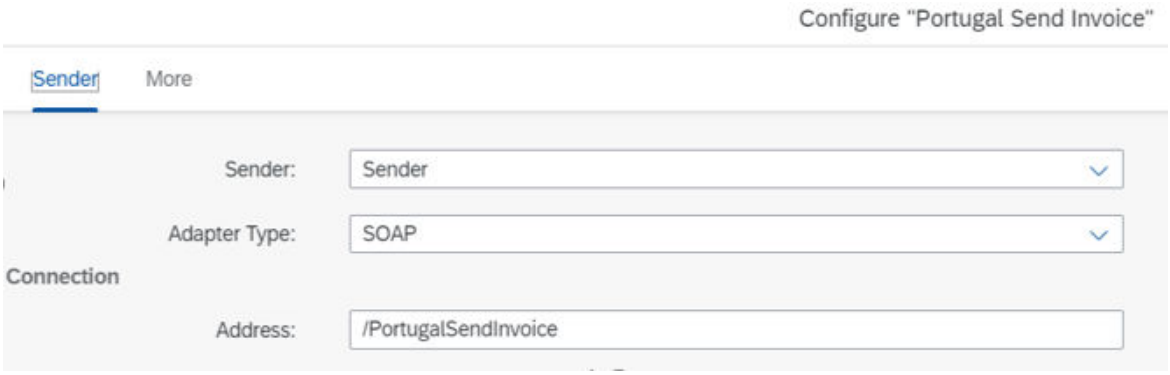
Value	Description
TEST	To use the test system of the service provider.
PROD	To use the productive (that is, legally binding) system of the service provider.

   - Use the `Enable Logging` parameter to configure whether you want to activate logging functionally for all the messages:

Value	Description
true	The system adds log files to a message.
false	Logging disabled.

- Use the `PROD_API_URL` and `TEST_API_URL` parameters to configure the URL address of the service provider API endpoint for productive and test system respectively.

2. Choose the *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.



3. Choose *Save* and *Deploy* to deploy it actively to server. Note down the URLs of the endpoints for each service.

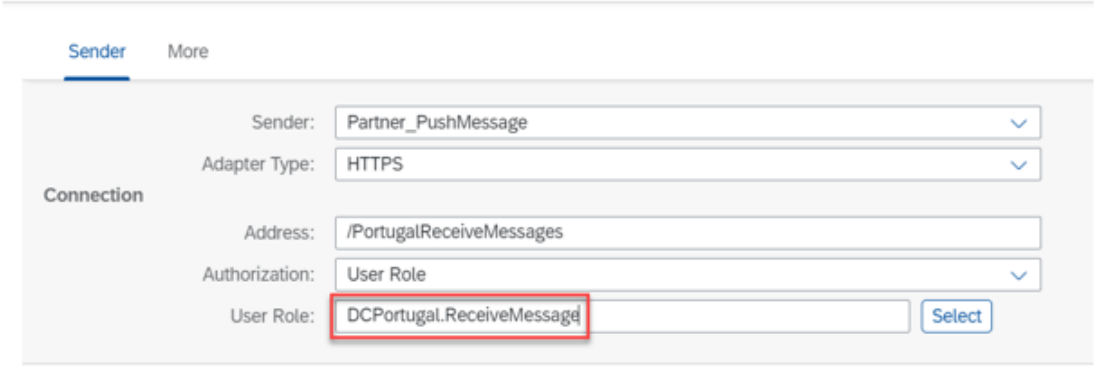
4.3.2 Configuring Portugal: Receive Message

Provides instructions for configuring integration flow for Portugal: Receive Message.

Procedure

1. Choose *Actions* > *Configure* > *More* tab (in some versions it may be *Externalized Parameters*)
   - Select *Partner_PushMessage* as sender.
   - Under Connections, use *DCPortugal.ReceiveMessage* as user role.

   > **i Note**
   >
   > If you choose a user role other than *DCPortugal.ReceiveMessage*, then ensure that you use the same role name when you create a custom role.



2. Choose *Save* and *Deploy* to deploy it actively to server. Note down the URLs of the endpoints for each service.

4.4 Service Provider

Provides a description of the service provider.

Saphety is one of the registered service providers for signing eInvoices in Portugal. SAP establishes communication with Saphety.

eSPAP (Entidade de Servicos Partihados da Administracao Publica, I.P.) is the Portuguese government organization responsible for eInvoice. It provides the formats of eInvoice for Portugal.

A customer is an organization with tax identification. A customer is identified in Saphety's network by its country code and tax identification, for example: PT123456789. Handling multiple tax identifications is possible. Each tax identification is a different customer.

Each customer requires a provisioning process.

4.4.1 Creating Technical User

Provides a description of how a service user enables the service provider to access the SAP Cloud Integration tenant.

Context

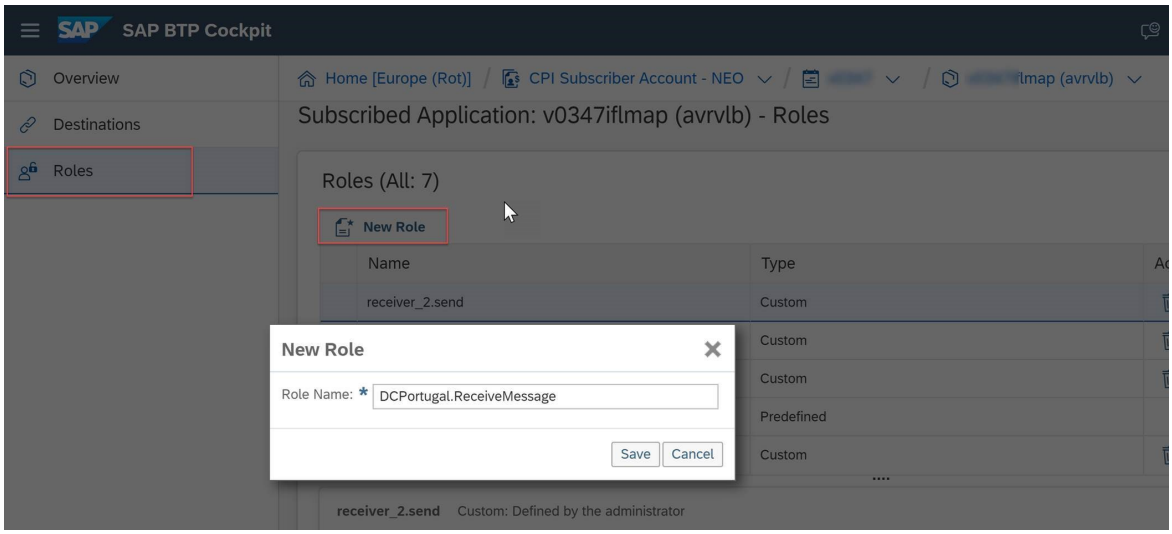
Users can be maintained in two ways in SAP Cloud Integration:

- The default settings where CPI authenticates itself with SAP ID Service. Follow these instructions: https://help.sap.com/viewer/368c481cd6954bdfa5d0435479fd4eaf/Cloud/en-US/f489d66b6edc4eb682e65076e0d873f8.html
- The custom settings where CPI authenticates itself against the custom SCP Identity Authentication Service (IAS). Follow these instructions: https://help.sap.com/viewer/6d6d63354d1242d185ab4830fc04feb1/Cloud/en-US/348deef7f29b40909b151c8dc9a11d53.html

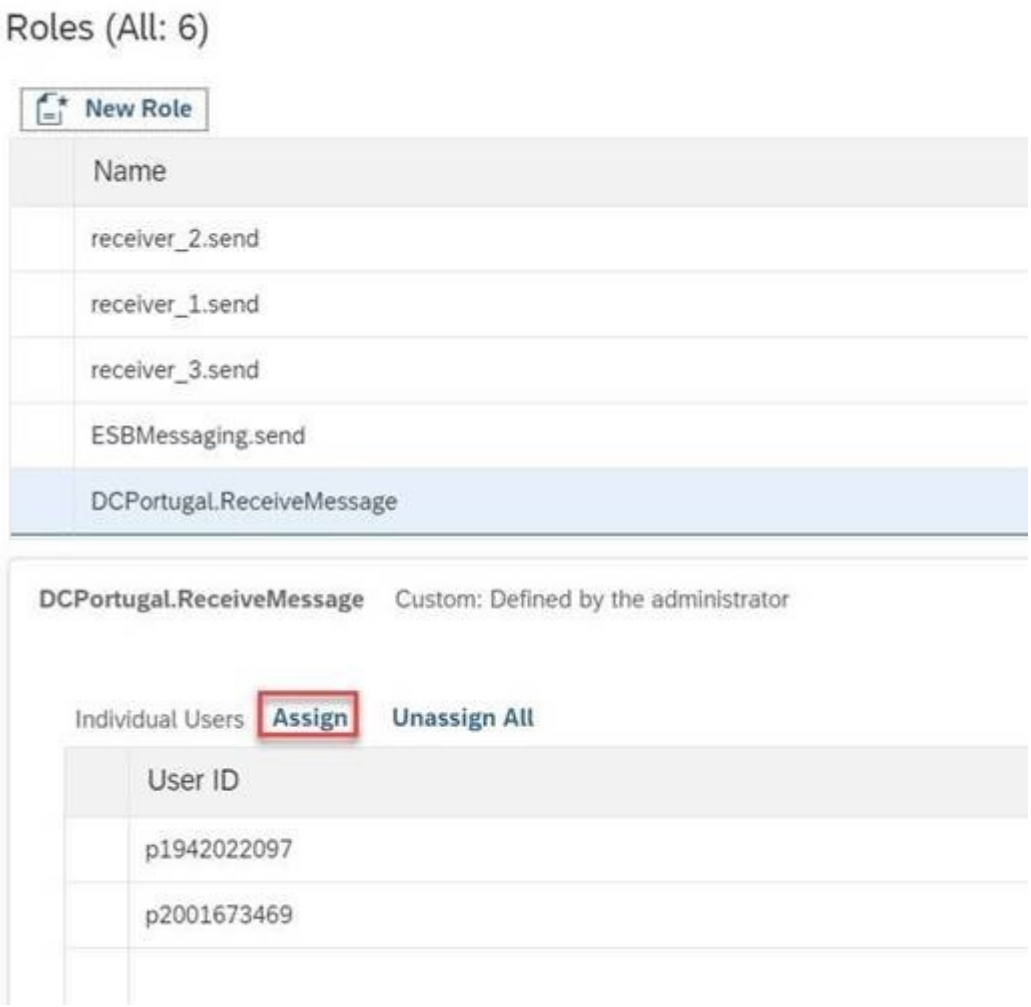
4.4.2 Creating Custom Role

Provides a description of how to authorize the technical user to access the endpoint.

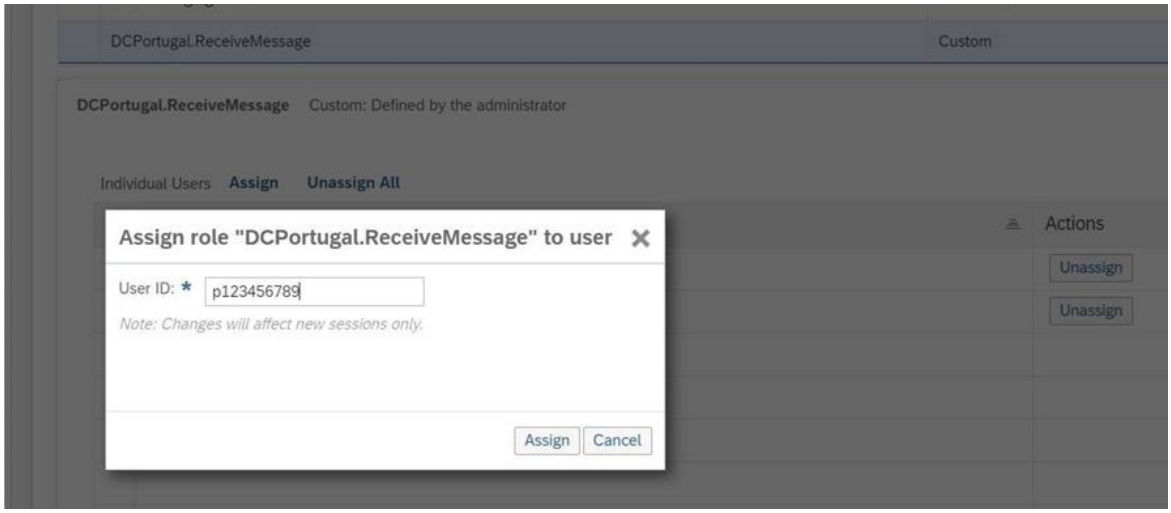
1. Access the SAP BTP cockpit and navigate to your subaccount (tenant) page.
2. Choose the *Subscriptions* link to display the subscriptions of your subaccount.
3. Choose the subscription with suffix **`iflmap`** as it corresponds to your worker node within SAP Cloud Integration. Alternatively use the URL e-mailed to you with your SAP Cloud Integration subscription details. The URL has the following format **`https://xxx.hana.ondemand.com/itspaces`**.
4. Choose *Roles* to display the roles for your SAP Cloud Integration worker node.
5. Choose *New Role* and enter the role name **`DCPortugal.ReceiveMessage`**. Choose *Save*.



6. Choose the created role and *Assign*



7. Enter the ID of the technical user.



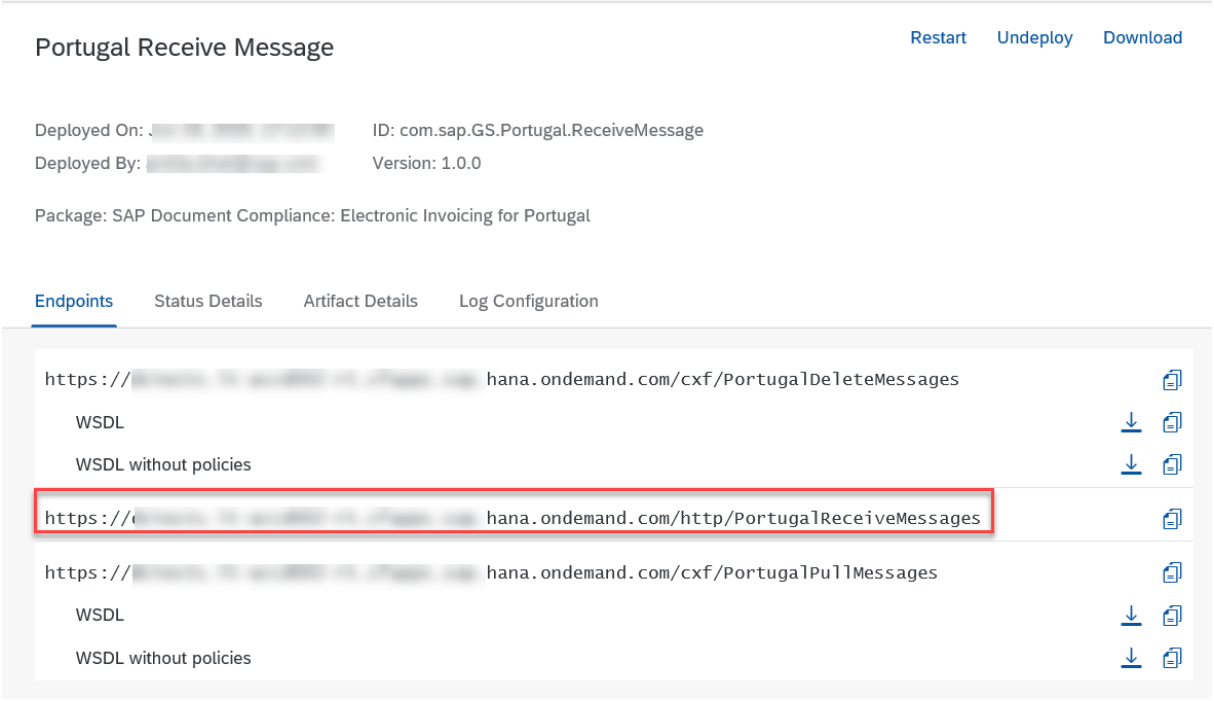
> ### Note
>
> Make sure that no other access is granted to the technical user.

4.4.3 Sharing Details with the Service Provider

Provides a description of how to share details with the service provider.

In SAP Cloud Integration, go to *Operations* > *Manage Integration Content* > *All* and search for *Portugal Receive Message*.

Share the following details with the service provider: Service URL (see highlighted part in screenshot), Technical User ID, Password.



⚠ Caution

- If the service provider informs you with the error code “404”, check if the integration flow was successfully deployed and the URL is available to receive the messages
- If the service provider informs with the error code “403”, check the following details:
  • The technical user is assigned with an appropriate role (DCPortugal.ReceiveMessage)
  •The user credentials are correct.

4.4.4 Creating Credentials

Provides a description of how to enter the credentials from the service provider in SAP Cloud Integration.

Context

To get access to the webservices provided by the service provider, the credentials received from the service provider are entered in SAP Cloud Integration.

Procedure

1. Access the SAP BTP cockpit and navigate to your subaccount (tenant).
2. Choose the *Subscriptions* link to display the subscriptions for your account
3. Choose the subscription with suffix **`iflmap`** as this corresponds to your worker node within SAP Cloud Integration. Alternatively, use the URL e-mailed to you with your SAP Cloud Integration subscription details. The URL has the following format **`https://xxx.hana.ondemand.com/itspaces`**.
4. Navigate to the *Manage Security* section and choose *Security Material*.
5. Choose *Add User Credentials* and enter the following data and choose *Deploy* to save the changes.

Option	Description
Name	**`<VAT_code>_<SystemType>`** where <VAT_code> is the company's VAT in the SAP system <SystemType> is TEST or PROD depending on the type of your tenant Example: PT123456789_TEST
Description	Enter the name of the company.
User	Enter the username from the service provider.
Password	Enter the password received from the service provider.

6. Choose *Deploy* to save the changes.

5 Configuration Steps in Back-End Systems

The following sections tell you the necessary configuration you do in SAP back-end systems to connect with SAP Cloud Integration.

5.1 Creating Logical Ports in SOAMANAGER

Required step for configuring the Integration Package for eDocument and SAP Cloud Integration.

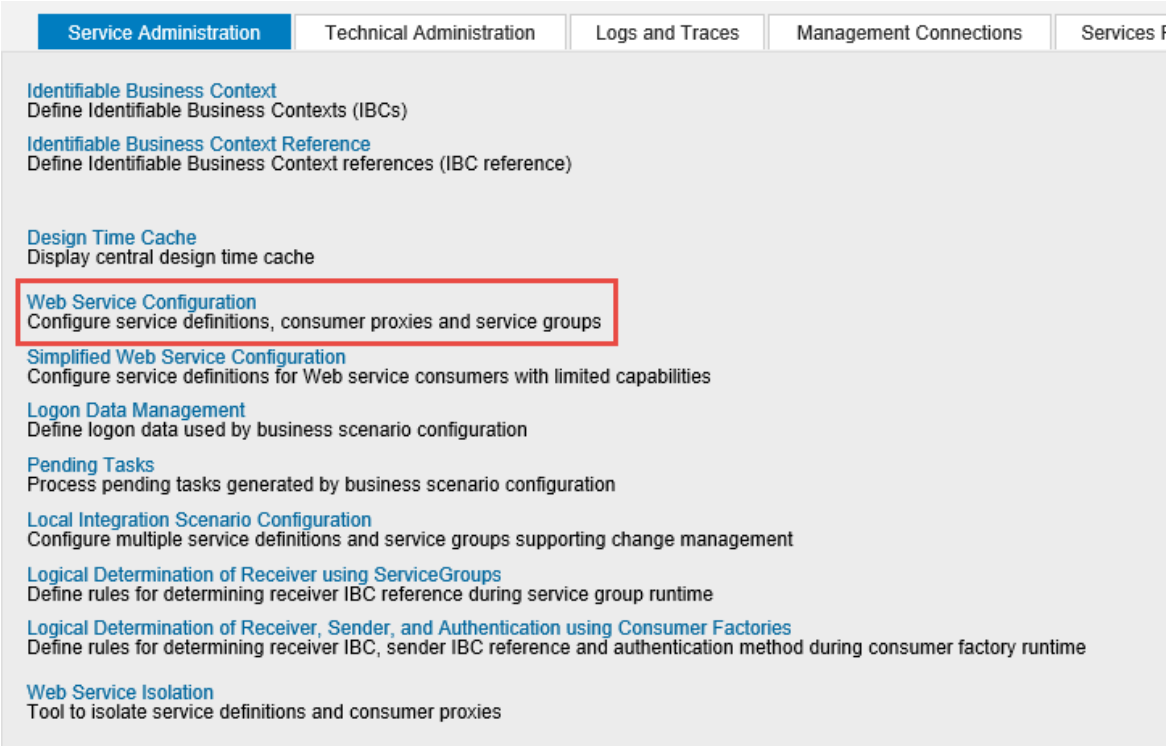
Context

You configure proxies which are needed to connect to the SAP Cloud Integration tenant via logical ports. In test SAP back-end systems, the logical ports are configured to connect to the test tenant. In productive SAP back-end systems, the logical ports are configured to connect to the productive SAP Cloud Integration tenant.

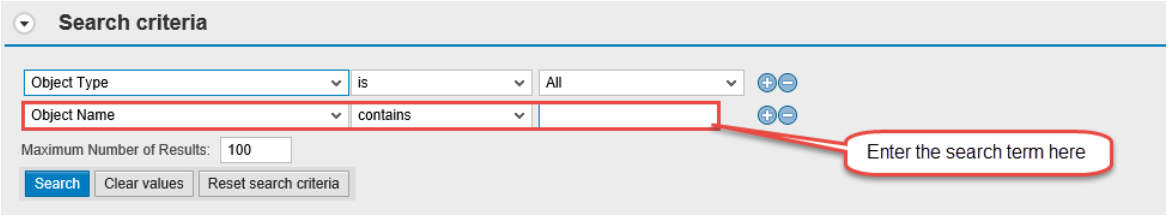
> **i** Note
>
> Depending on your release, the look-and-feel of the screens in your system may differ from the screenshots displayed below.

Procedure

1. In your SAP back-end system, go to the `SOAMANAGER` transaction and search for *Web Service Configuration* .



2. Find the proxies for SAP Document and Reporting Compliance (Electronic Document) for Portugal with search term `CO_EDO_PT*`.

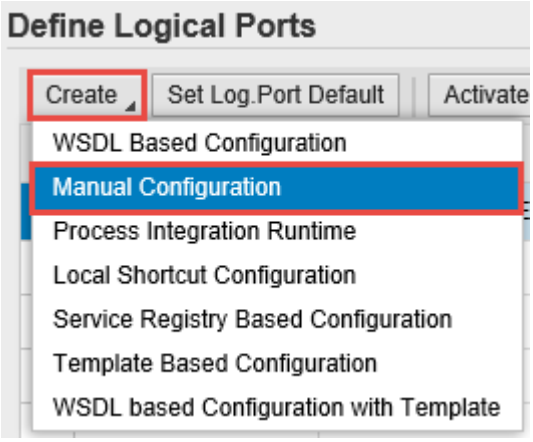


The following table lists the proxies and the logical port name, description and path for each proxy.

List of Proxies, Logical Port Names, and Paths

Proxy Name	Logical Port Name	Description	Path
CO_EDO_PT_SEND_INVOICE_V1_0	EDO_PT_SEND_INVOICE	eDocument Portugal - Send Invoice	/cxf/PortugalSendInvoice
CO_EDO_PT_SEND_CREDITNOTE_V1_0	EDO_PT_SEND_CREDITNOTE	eDocument Portugal – Send Credit Note	/cxf/PortugalSendInvoice
CO_EDO_PT_RECEIVE_MESSAGE_V1_0	EDO_PT_PULL_MESSAGE	eDocument Portugal – Pull Message	/cxf/PortugalPullMessages
CO_EDO_PT_RECEIVE_MESSAGE_V1_0	EDO_PT_DELETE_MESSAGE	eDocument Portugal – Delete Message	/cxf/PortugalDeleteMessages

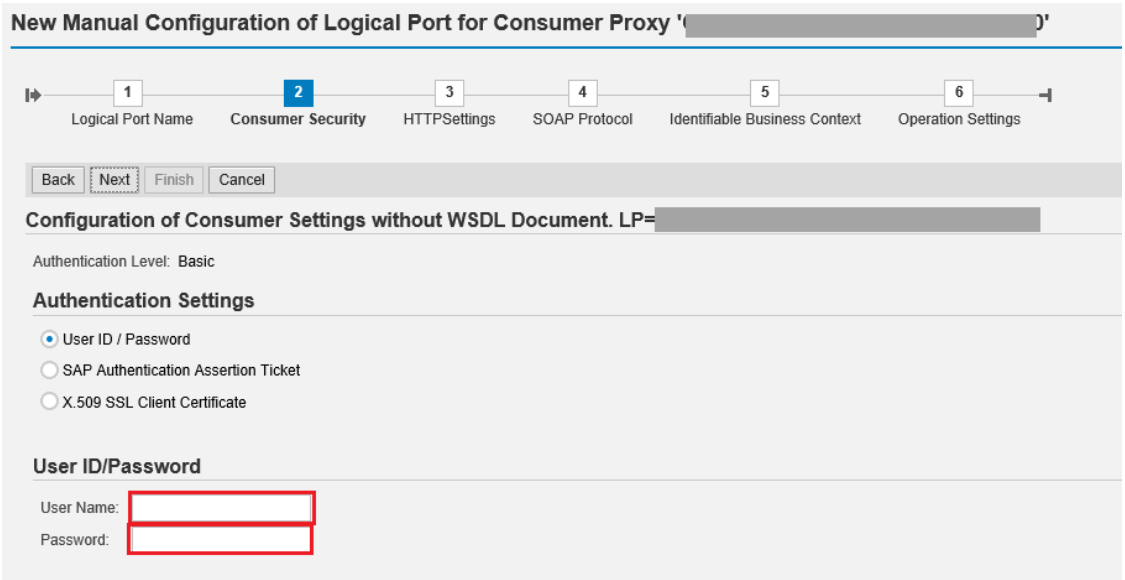
3. In the *Result List*, select a proxy from the list above and create a logical port for each proxy. Choose *Create* > *Manual Configuration*.



4. Enter the logical port name and a description.

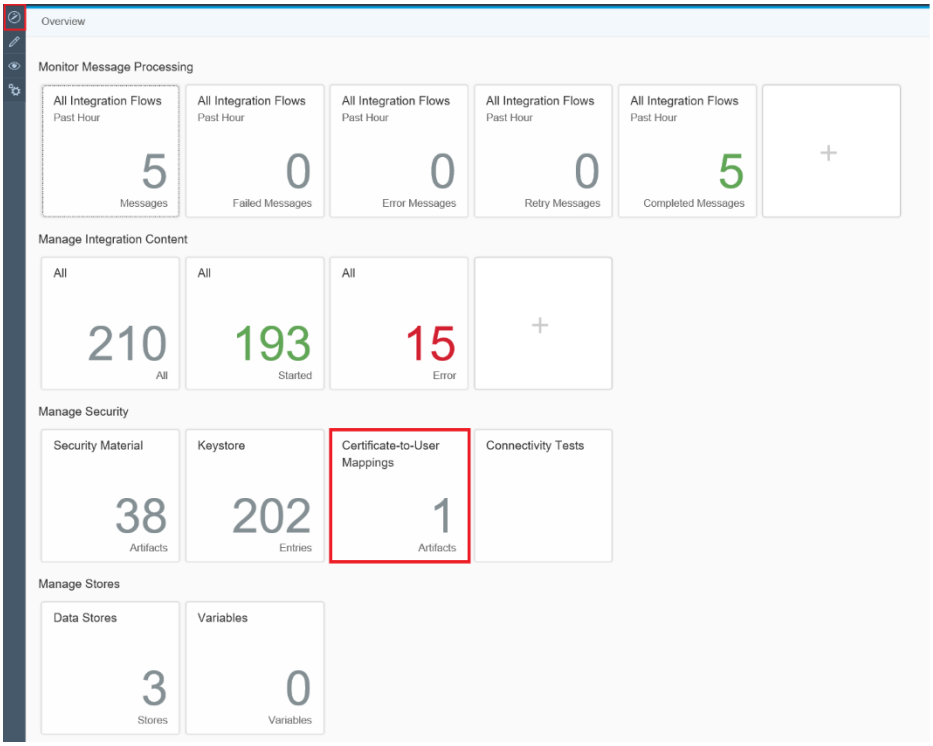
5. The configuration you do in the *Consumer Security* tab in the *Configuration* screen depends on the security being used in the communication between the SAP back-end system and SAP Cloud Integration.
   - If you use the basic authentication, select the *User ID / Password* and enter *User Name* and *Password*.
   - If you use certificate-based authentication, select *X.509 SSL Client Certification*. Ensure that the required certificates are available in the `STRUST` transaction.

> **i Note**
>
> If you do not see this option or cannot select it, check the SAP Notes 2368112 and 510007

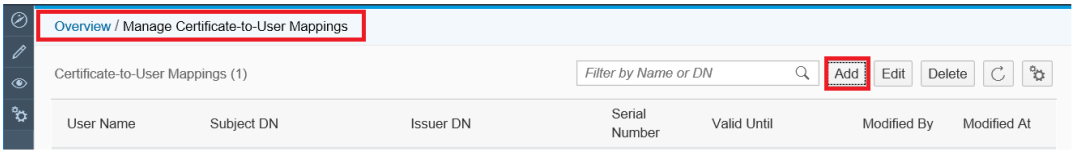


Additionally, you map the certificate to a user of your tenant with the `ESBMessaging.send` role. First, you export the certificate from the `STRUST` transaction. Save it locally and upload it to SAP Cloud Integration in the `Certificate-to-User Mappings`

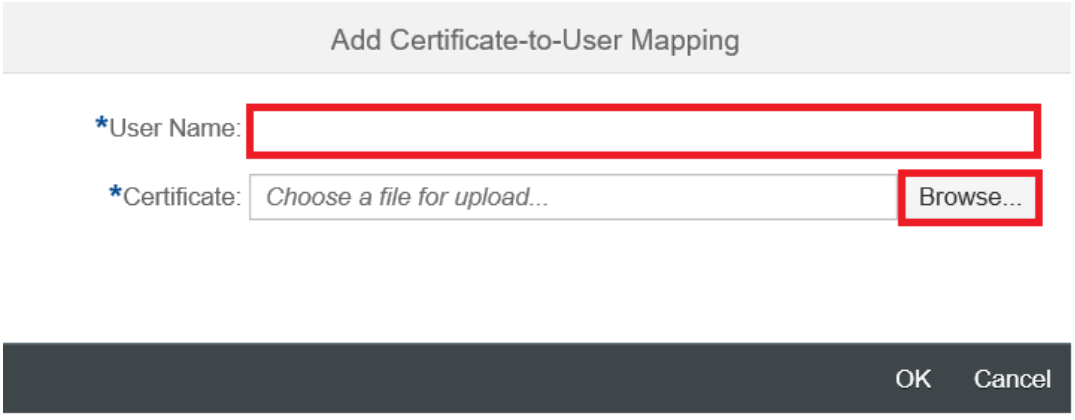
1. Export the SSL Client PSE of the `STRUST` transaction.
2. Go to SAP Cloud Integration under *Overview* > *Certificate-to-User Mappings*



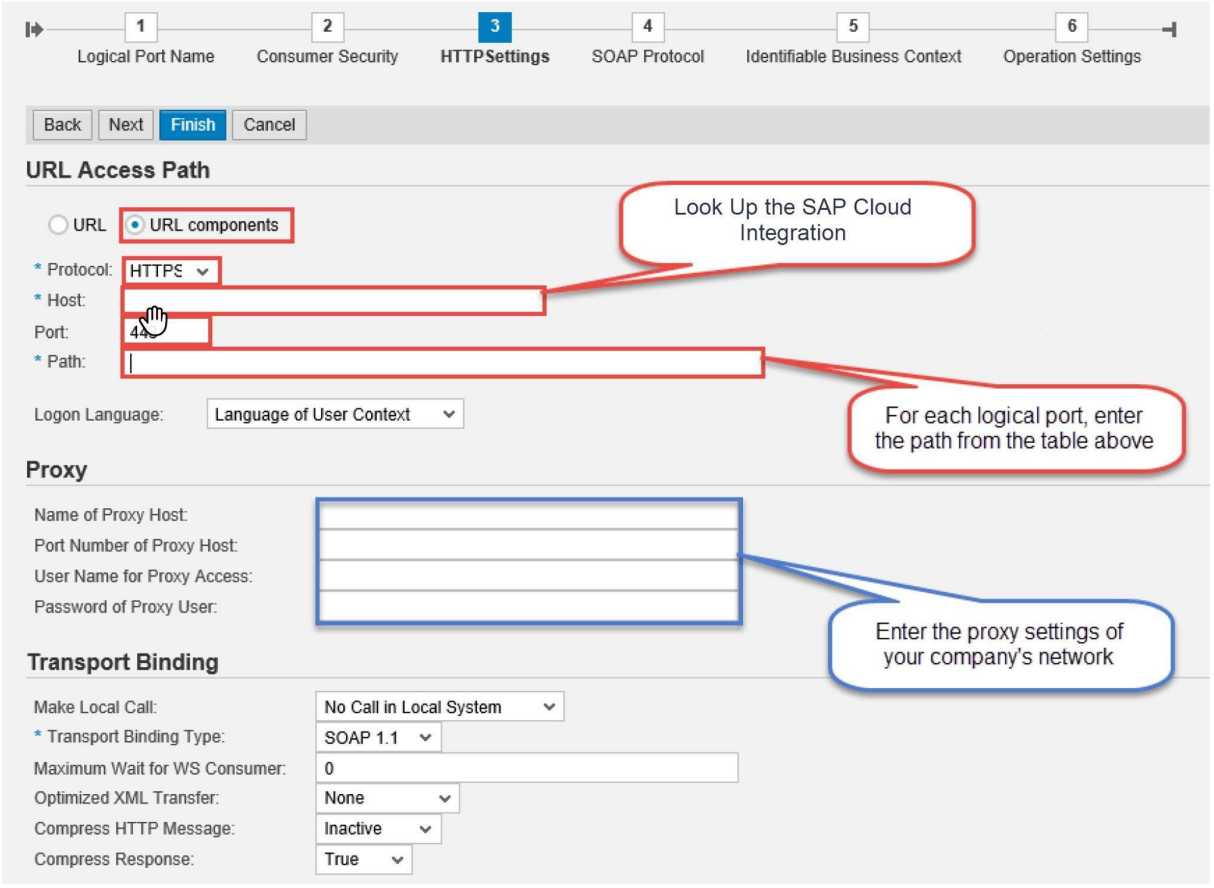
3. Choose *Add*.



4. Enter a user name with `ESBMessaging.send role`, upload the `SSL Client PSE` of the `STRUST` transaction and choose *OK*.

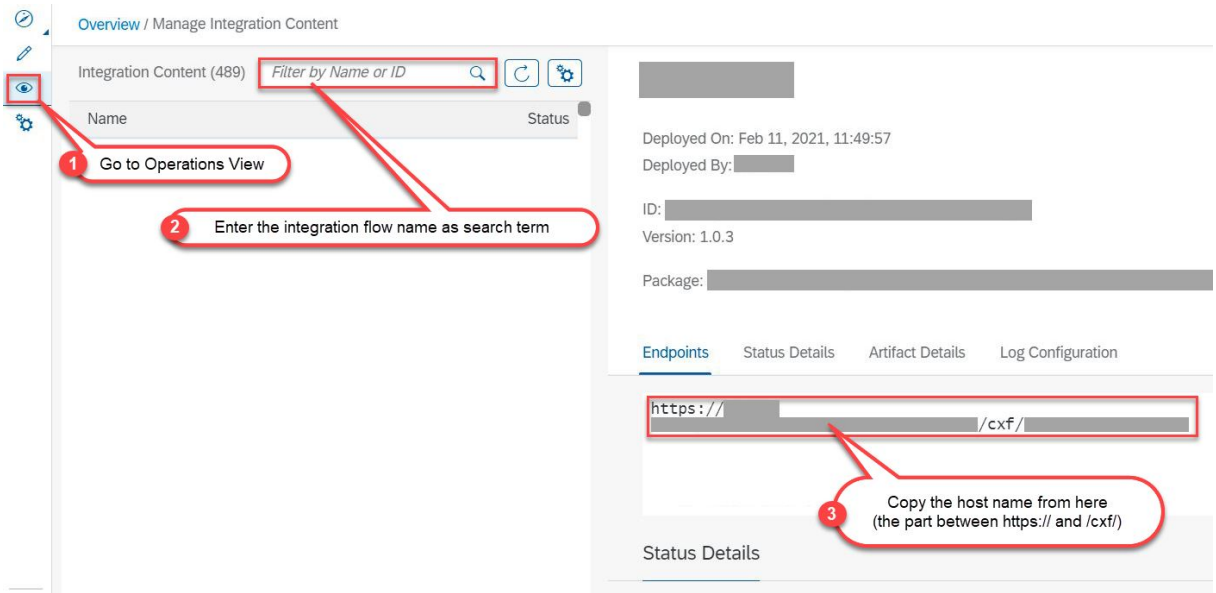


6. On the *HTTP Settings* tab, make the following entries:



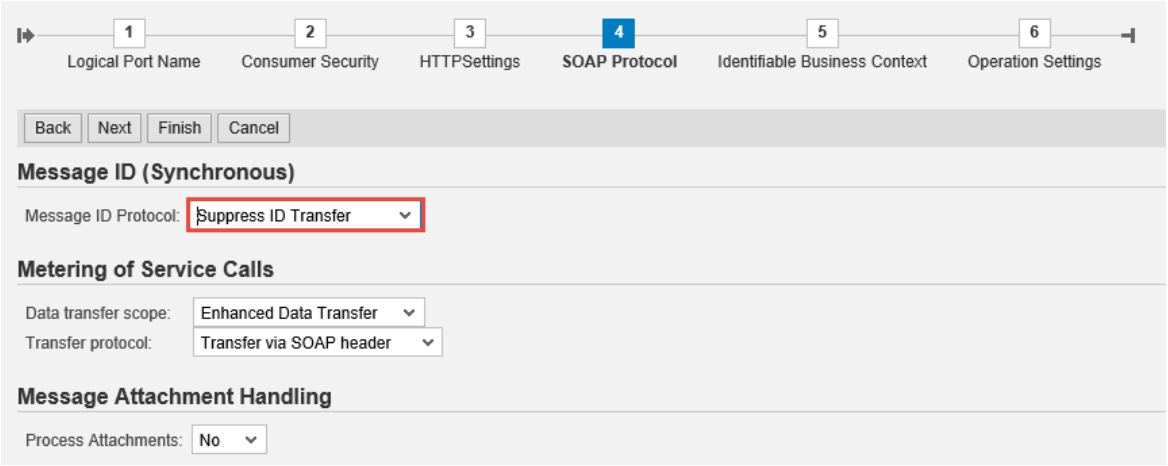
Port 443 is the standard port for the HTTPS protocol.

To find the Host, go to SAP Cloud Integration Web UI and under Managed Integration Content, go to *Monitor* > *All*. Use the search to find your integration flow as in the screenshot below:



> ### Note
>
> The entries for the proxy fields depend on your company's network settings. The proxy server is needed to enable the connection to the internet through the firewall.

7. On the *SOAP Protocol* tab, set *Message ID Protocol* to *Suppress ID Transfer*.



8. No settings are required in the *Identifiable Business Context* and *Operation Settings* tabs. Just select *Next* > *Finish*.

   SAP Cloud Integration does not support WebService Pin for testing your configuration.

   You can set up a HTTP connection in the `SM59` transaction. Maintain a host and a port of SAP Cloud Integration service and execute a connection test. In case of a successful connection, you receive an error with HTTP return code 500.

9. Remember to create logical port(s) for each proxy and to execute the following steps in the SAP back-end systems, see SAP Note 2898942 for more information.

   - Define the SOA service names and assign the logical ports to the combination of a SOA service name and a company code in `EDOSOASERV` view.
   - Assign the SOA service names you created before to an interface ID in `EDOINTV` view

6 Testing the Integration

Describes the steps to test the integration of SAP Document and Reporting Compliance (eDocument) with the integration scenario from SAP Cloud Integration.

Context

The best way to test if the integration works is to create and submit an eDocument from SAP backend system and see if that reaches the destination system, typically the tax authority's system.

Procedure

1. In the back-end system, go to the *eDocument Cockpit* (EDOC_COCKPIT) transaction, in the relevant process.
2. Select an eDocument and check the status of the eDocument in the Cockpit and perform the following actions, accordingly:
    - If the status of the eDocument is `Created`, the eDocument was created but not submitted yet. In this case, select it and choose *Submit*. This action triggers the creation of the XML and the subsequent communication with SAP Cloud Integration.
    - If the status is green or yellow, but not `Created`, the communication with SAP Cloud Integration was triggered and was probably successful. You can double-check if the message went through on the SAP Cloud Integration tenant. Alternatively, you can use a trace from the `SRT_UTIL` transaction to look at the XMLs transmitted via web services from the SAP back-end systems.
    - If the status is red, an error happened during the submission of the eDocument. Select the *Interface Field* to be directed to the Application Interface Platform (AIF) where you can check the log. Any communication errors are displayed there.

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