

CONFIGURING, DEPLOYING AND MONITORING WEBUI BASED SCENARIO USING SAP CLOUD PLATFORM INTEGRATION

Exercise02: SAP Cloud Platform Integration Components Used:

- SOAP Sender Adapter
- Aggregator
- Sequential Multicast
- PKCS7 Encryptor
- PKCS7 Signer
- PGP Encryptor
- PKCS7 Signature Verifier
- PKCS7 Decryptor
- PGP Decryptor
- Content Modifier
- SFTP Sender Adapter
- SFTP Receiver Adapter
- Exception Subprocess

INTEGRATION SCENARIO

Income Tax department has an online portal which uses Web services to expose data as described in the first exercise.

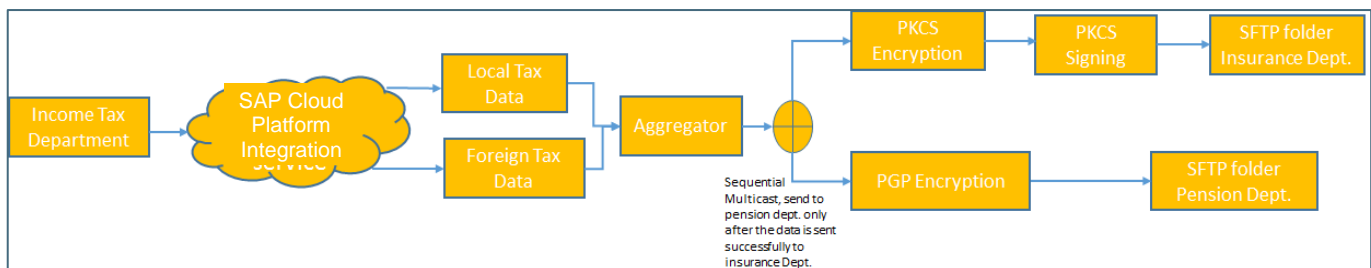
Use Case: User data with foreign assignment consist of two parts: the local part (based on the local currency) and the foreign part (based on the foreign currency). This is the case for those users, who are working at the same time in different countries. In this case the Income Tax department will send their data in two separate messages with a short delay (for example max. one minute). Both messages will then be merged into one. The merged message should then be encrypted, signed and then stored on the SFTP servers of the insurance and pension department.

Furthermore, data should be delivered to pension department, once this data is successfully delivered and verified at insurance department. Income tax department will be used PKCS encryption and signing to encrypt and ensure the authenticity of the insurance department data. For pension department data, only PGP encryption will be used.

Before Insurance department processed the data, it must first verify and decrypt the data using PKCS. Also, pension department must first decrypt the data using PGP before it is processed. After the decryption, a short message about the successful decryption should be added to the decrypted data.

If an error occurs during the overall process, an E-Mail notification should be sent to a responsible person or an administrator.

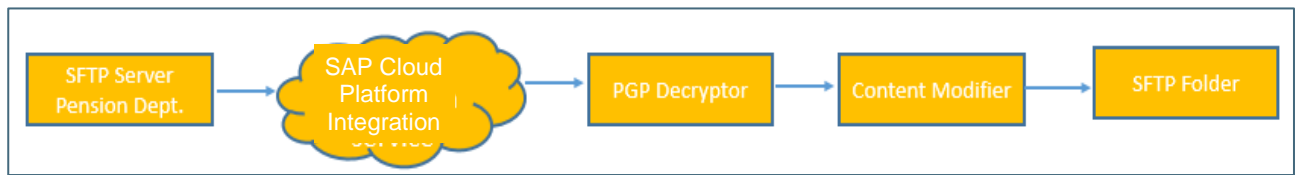
Exercise 02a will merge both messages into one, encrypt, sign and store the tax data into different folders on SFTP server for insurance and pension department.



Exercise 02b will verify and decrypt the insurance department tax data using PKCS, add a content modifier and store it to the SFTP folder.



Exercise 02c will decrypt the pension department tax data using PGP, add a content modifier and store it to the SFTP folder.

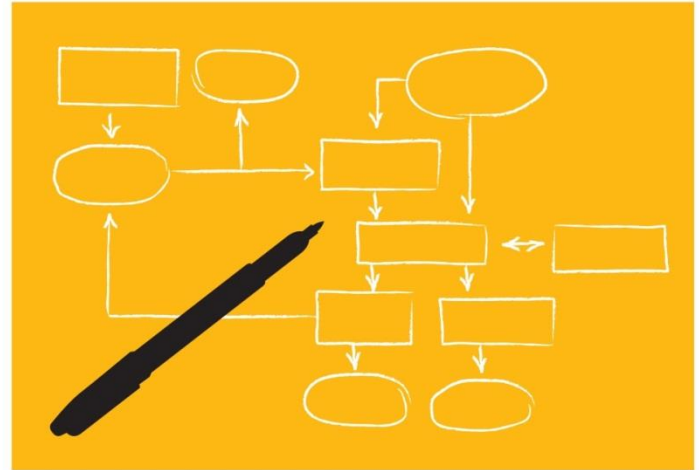


Welcome to the Integration Flow challenge!

In this exercise, your aim is to create an integration flow that solves a challenge (*described in the Integration scenario*).

And when you work your way through the exercise, our aim is that you learn:

1. How to access and work with the Cloud Platform Integration Web tooling
2. How to speed up your integration project by leveraging reference integration flows
3. How to customize a reference integration flow by configuring its connectivity and flow steps
4. Basic monitoring of an integration flow
5. Using Open-source tools to test your integration flow



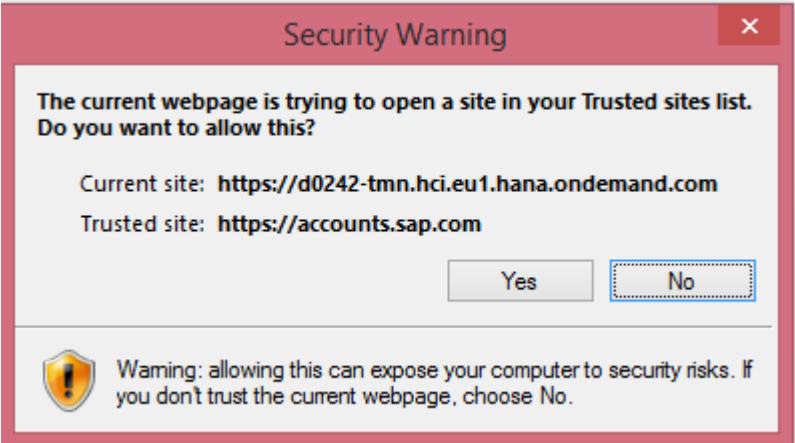
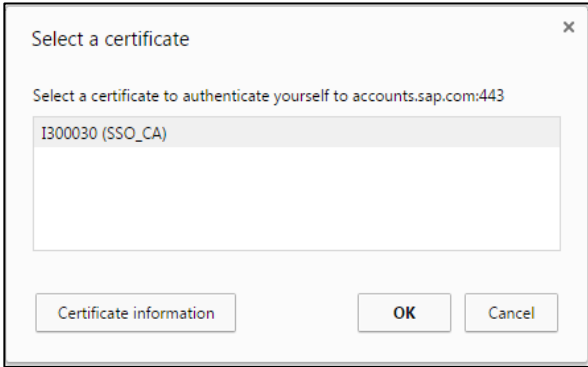
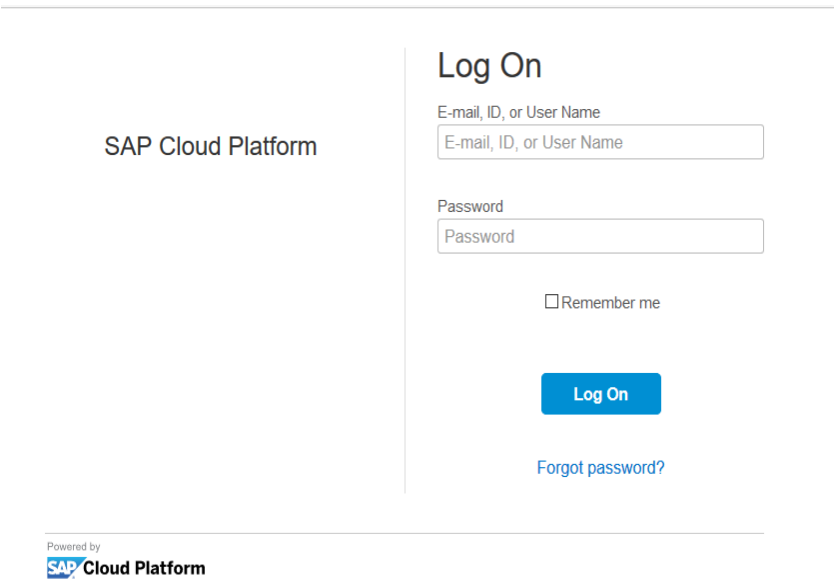
Exercise Files

Exercise Files are provided by the session moderator. Download and Extract them into one of your local folders for use later in your exercises and setup:

Note

1. In the exercise, we have used the notation XX to refer to the content created by you or your group uniquely. The session moderator shall assist you with assigning you/group the unique ID that you can use to replace XX.
2. In the exercise, we have used **d0242/d0243** as the example tenants. The final tenant details shall be provided by the session moderator.
3. Please note that colours and other visual appearance might differ slightly from the screenshot screens, as the CPI editor might have received feature upgrades since production of this content.

EXERCISE 02A

Explanation	Screenshot
<p>Follow these steps for integration flow creation in Web UI.</p>	
<p>1) Access the Web application using Google Chrome (or IE10 Browser)</p> <ol style="list-style-type: none"> Open Internet Explorer Copy the application URL or The URL that you can use will be assigned to you by the instructor. You will get a security warning if you want to open this site in your trusted sites list. <p>Accept it with 'Yes'</p>	 <p>A security warning dialog box titled "Security Warning" with a red close button. The text inside says: "The current webpage is trying to open a site in your Trusted sites list. Do you want to allow this?". Below this, it shows "Current site: https://d0242-tmn.hci.eu1.hana.ondemand.com" and "Trusted site: https://accounts.sap.com". At the bottom right are "Yes" and "No" buttons, with "No" being highlighted with a dashed border. At the bottom left is a shield icon with an exclamation mark and a warning message: "Warning: allowing this can expose your computer to security risks. If you don't trust the current webpage, choose No."</p>
<p>2) If you get displayed your Certificate List, click on 'Cancel'</p>	 <p>A dialog box titled "Select a certificate" with a close button. The text inside says: "Select a certificate to authenticate yourself to accounts.sap.com:443". Below this is a list box containing "I300030 (SSO_CA)". At the bottom are "Certificate information", "OK", and "Cancel" buttons.</p>
<p>3) You will now see the log-on screen for the SAP ID Service/SAP Cloud Platform.</p> <p>Enter the following credentials:</p> <p><i>User:</i> <Provided by instructor> <i>Password:</i> <Provided by instructor></p>	 <p>A screenshot of the SAP Cloud Platform log-on screen. On the left, it says "SAP Cloud Platform". On the right, under the heading "Log On", there are two input fields: "E-mail, ID, or User Name" and "Password". Below these is a "Remember me" checkbox. A blue "Log On" button is at the bottom right. Below the button is a link "Forgot password?". At the bottom left, it says "Powered by SAP Cloud Platform" with the SAP logo.</p>

- 4) Now you will have access to the Web application. Familiarize yourself with the environment and choose the **Design** area. Here, you will create an Integration Package to store your iFlows for different Exercises

Click on **Create**

Enter Details

- a) **Name:** Cloud Platform, Integration Service Workshop (Exercises) Group_XX

NOTE: Replace XX with the group number provided by the instructor

- b) **Short Description:** EKT Cloud Platform, Integration Service
- c) **Version:** 1.0.0
- d) **Vendor:** SAP

Design /

Create Import

Design

Design / New Package /

Cloud Platform, Integration Service Workshop (Exercises) Group_00

Header Overview Artifacts Documents Tags

*Name: Cloud Platform, Integration Service Workshop (Exercises) Group_00

*Technical Name: CloudPlatformIntegrationServiceWorkshopExercisesGroup00

*Short Description: EKT Cloud Platform, Integration Service

Version: 1.0.0

Vendor: SAP

- 5) Click on Save

SAP Cloud Platform Integration Data Services

Design / Cloud Platform, Integration Service Workshop (Exercises) Group_00 /

Save Cancel Delete Package

Cloud Platform, Integration Service Workshop (Exercises) Group_00

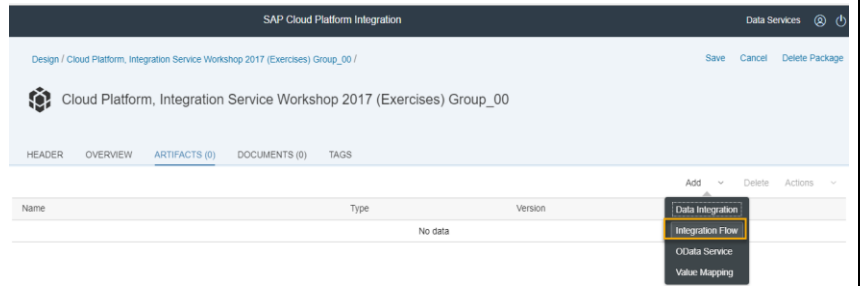
- 6) Navigate to **Artifacts** Tab

Design / Cloud Platform, Integration Service Workshop (Exercises) Group_00 /

Cloud Platform, Integration Service Workshop (Exercises) Group_00

Header Overview Artifacts Documents Tags

7) Click on **Add-> Integration Flow**



8) Select **Create** and enter following details:

- a. Name: **Exercise02a_XX**
- b. Description: **Exercise02a_WebUI_SOAP_Aggregator_SequentialMulticast_PKCS7_PGP_Encryptor_Signer_SFTP**
- c. Sender: **SOAP**
- d. Receiver: **SFTP**
- e. Click on **OK**

Note: Please remember to save after every action

Add integration flow artifact

☒ Create ☐ Upload

*Name:

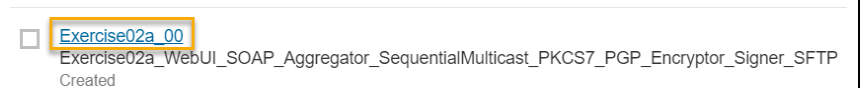
*ID:

Product Profile:

Description:

Sender: Receiver:

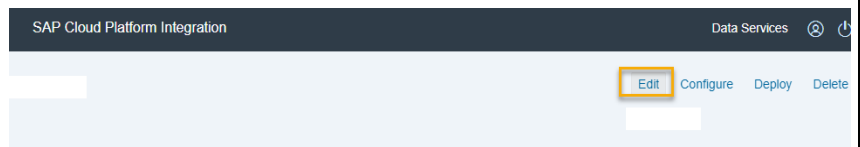
9) Click on **Exercise02a_XX**

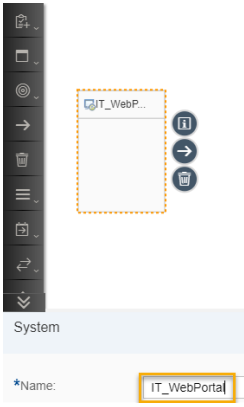

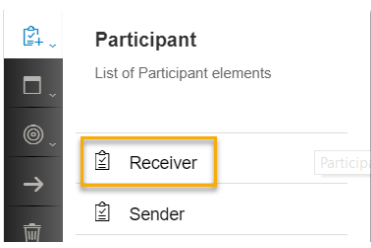
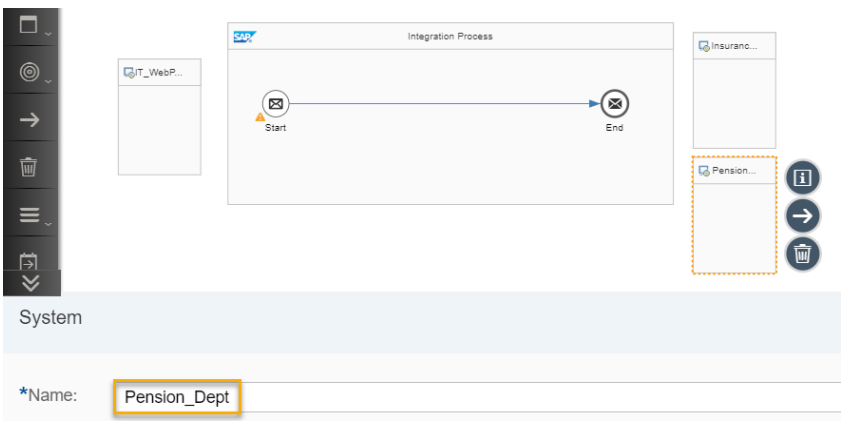



Define and edit integration flow

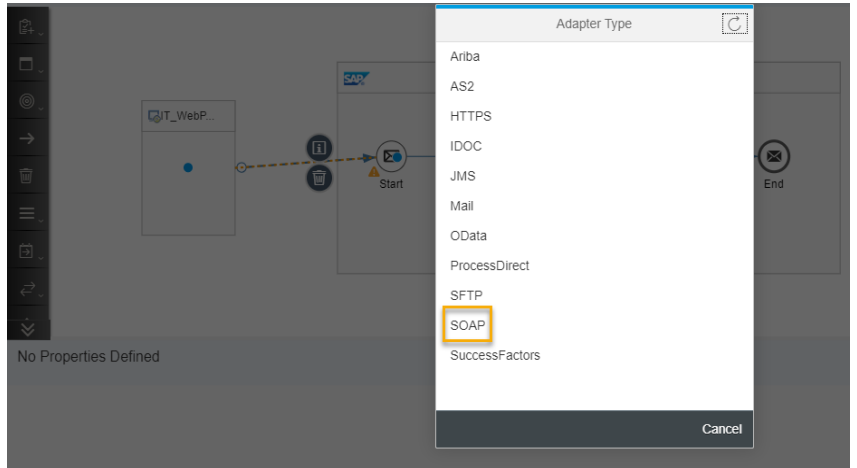
Follow steps to edit the integration flow

10) Click on **Edit** button on the upper corner in the right-hand side.



<p>11) Click on Sender system and set Name as IT_WebPortal</p>	
<p>12) Click on Receiver system and set Name as Insurance_Dept</p>	
<p>13) From the palette, select Participants -> Receiver and drop it on iFlow editor window outside the Integration Process</p>	
<p>14) Click on newly added Receiver system and set Name as Pension_Dept</p>	
<p>15) Click on IT_WebPortal sender system, select Connector and drag it to Start message step. This would open the sender adapter list.</p> <p>Select SOAP adapter</p>	

Select **SOAP 1.x** as Message Protocol



The screenshot shows the 'Message Protocol' configuration screen. The 'Message Protocol' dropdown is set to 'SOAP 1.x'. The 'General' tab is active, showing fields for Name, Channel Details, Adapter Details, and Message Protocol. The 'Adapter Type' is set to 'SOAP' and the 'Transport Protocol' is set to 'HTTP'.

16) Switch to **Connection** tab, enter the following details:

- Address: **/Exercise02_XX** (make sure this address is unique on tenant)
- Service Definition as **WSDL**
- URL to WSDL, click on **Select**
- Click on **Upload from File System**
- Select **userdata_wp.wsdl** (provided by instructor)
- Processing Settings as **WS Standard**
- Authorization as **User Role**

Save

The screenshot shows the 'SOAP' configuration screen, 'Connection' tab. The fields are filled with the exercise details: Address: /Exercise02_00, Service Definition: WSDL, URL to WSDL: /wsdl/userdata_wp.wsdl, Service: p1:taxService, Endpoint: p1:taxPort, Processing Settings: WS Standard, Authorization: User Role, and User Role: ESBMessaging.send.

- 17) Click on the empty space near Integration scenario, the following namespace mapping is added automatically in **Runtime Configuration**

xmlns:p1=http://sapcd.com/taxagt

Integration Process

SOAP

Start

Click Here

Integration Flow

General Runtime Configuration Error Configuration Resources Externalized Parameters Problems

*Product Profile: SAP Cloud Platform Integration OEM

Namespace Mapping: xmlns:p1=http://sapcd.com/taxagt

Allowed Header(s):

HTTP Session Handling: None

- 18) From the palette, select **Message Routing -> Aggregator** and drop it on the connection between **Start** message and **End** message in the Integration flow. This would automatically create the connections.

Set Name as **Tax Data Aggregation**

Hint: The Aggregator step is needed to merge both upcoming messages from income Tax Department into one

Aggregator

Aggregates several incoming message to a single one

Aggregator

Gather

Join

Integration Process

SOAP

Start

Tax Data Aggregation

End

Insurance...

Pension...

Aggregator

General Correlation Aggregation Strategy

Name: Tax Data Aggregation

19) Switch to **Correlation** Tab, enter the following details:

- a. Correlation Expression(XPath):
/tax:IncomeTaxMessage/UserData/TaxID

Aggregator

General **Correlation** Aggregation Strategy

*Correlation Expression (XPath):

20) Switch to **Aggregation Strategy** Tab, enter the following details:

1. Incoming Format:
XML (Same Format)
2. Aggregation Algorithm:
Combine
3. Last Message Condition (XPath):
/tax:IncomeTaxMessage/UserData/EOM='true'
4. Completion Timeout (in min):
1
5. Data Store Name:
TaxData

Aggregator

General Correlation **Aggregation Strategy**

*Incoming Format:

*Aggregation Algorithm:

*Last Message Condition (XPath):

*Completion Timeout (in min):

*Data Store Name:

Save

Hint: The correlation expression is used to define which messages should be aggregated together. By using the expression

/tax:IncomeTaxMessage/UserData/TaxID, you define that all messages with the same TaxID should be correlated.

Timeout period of one-minute means that between two messages the maximum waiting time should be one minute. If you send the first message and wait for more than one minute, then SAP CPI will assume that there are no more incoming messages and will process the first one. This behavior is very important to understand, because this will be simulated later during the test of the iFlow.

Using the Last Message Condition **/tax:IncomeTaxMessage/UserData/EOM='true'**, you define that the message containing the EOM = true should be the last of the correlated messages.

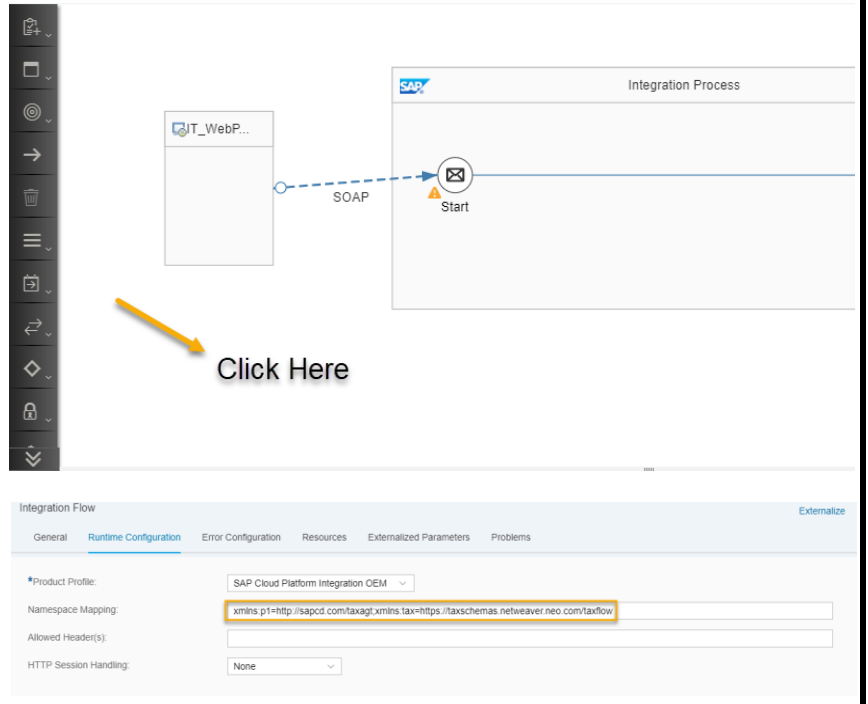
21) Namespace **xmlns:tax** needs to be added to the Runtime configuration.

Click on the empty area as shown

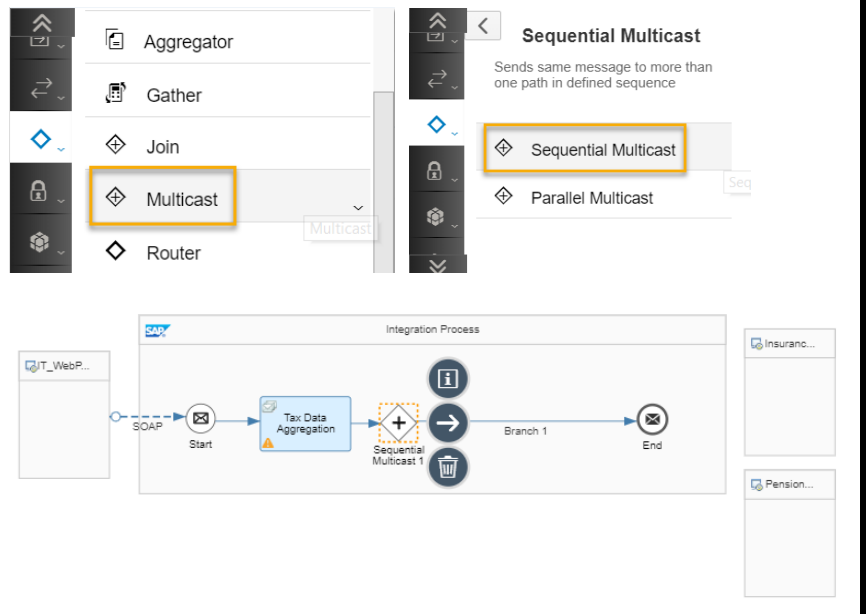
Navigate to Runtime Configuration

Copy and paste the below details

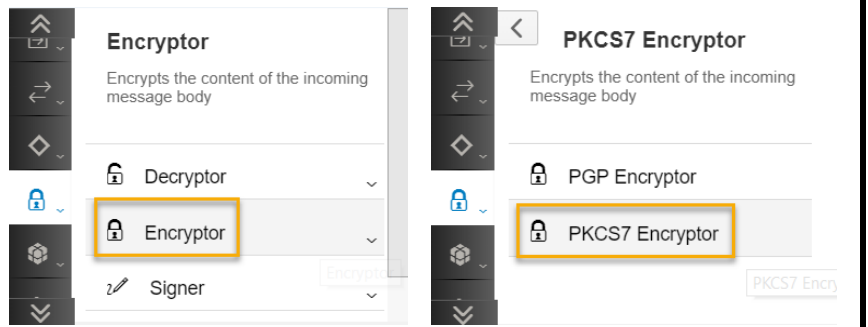
**xmlns:p1=http://sapcd.com/taxagt
t;xmlns:tax=https://taxschemas.netweaver.neo.com/taxflow**

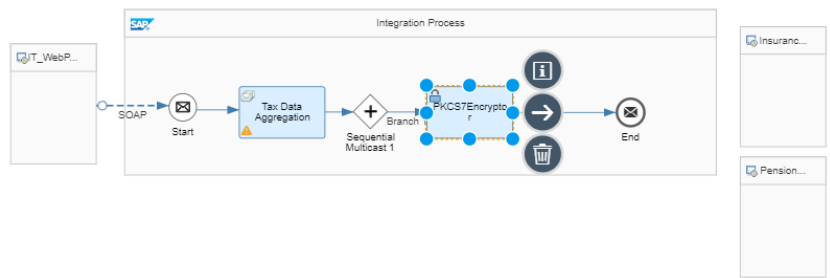


22) From the palette, select **Message Routing -> Multicast -> Sequential Multicast** and drop it on the connection between **Aggregator** and **End** message in the integration flow



23) From the palette, select **Security Elements -> Encryptor -> PKCS7 Encryptor** and drop it on the connection between **Sequential Multicast** and **End** message in the integration flow





- 24) From the palette, select **Security Elements -> Signer -> PKCS7 Signer** and drop it on the connection between **PKCS7 Encryptor** and **End** message in the integration flow



- 25) Select **PKCS7 Encryptor** and update the properties as shown in the screenshot

- Signatures:
Signed and Enveloped Data
- Content Encryption Algorithm:
AES/CBC/PKCS5Padding
- Receiver Public Key Alias:
id_rsa
- Signer Private Key Alias:
id_rsa

Save

26) Select **PKCS7 Signer** and update the properties as shown in the screenshot

a) Signer Private Key Alias:
id_rsa

Save

Integration Process

*Name: PKCS7Signer

*Block Size (in bytes): 2048

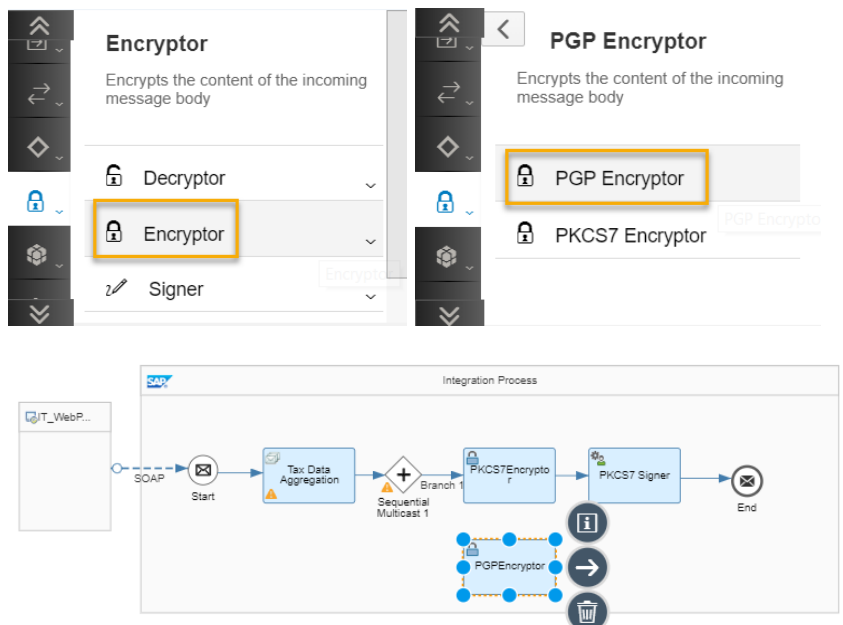
☒ Include Content in Signed Data

☐ Encode Signed Data with Base64

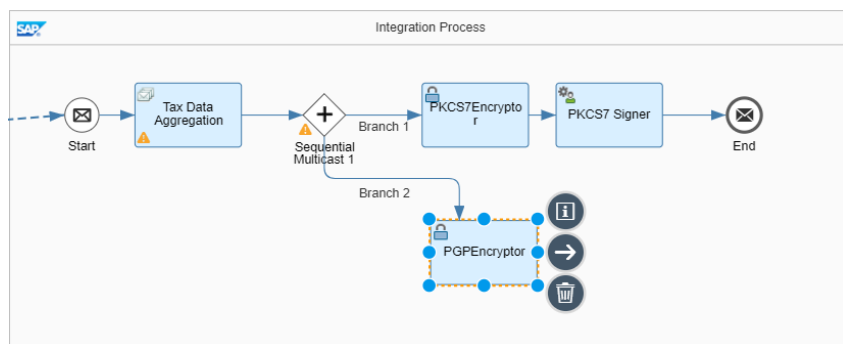
*Signer Parameters:

Private Key Alias	Signature Algorithm	Include Certificates	Include Signing Time
id_rsa	SHA512/R...	true	true

27) From the palette, select **Security Elements -> Encryptor -> PGP Encryptor** and drop it in the Integration Process as shown.



28) Click on **Sequential Multicast** step, select **Connector** and drag it to **PGP Encryptor** element step.



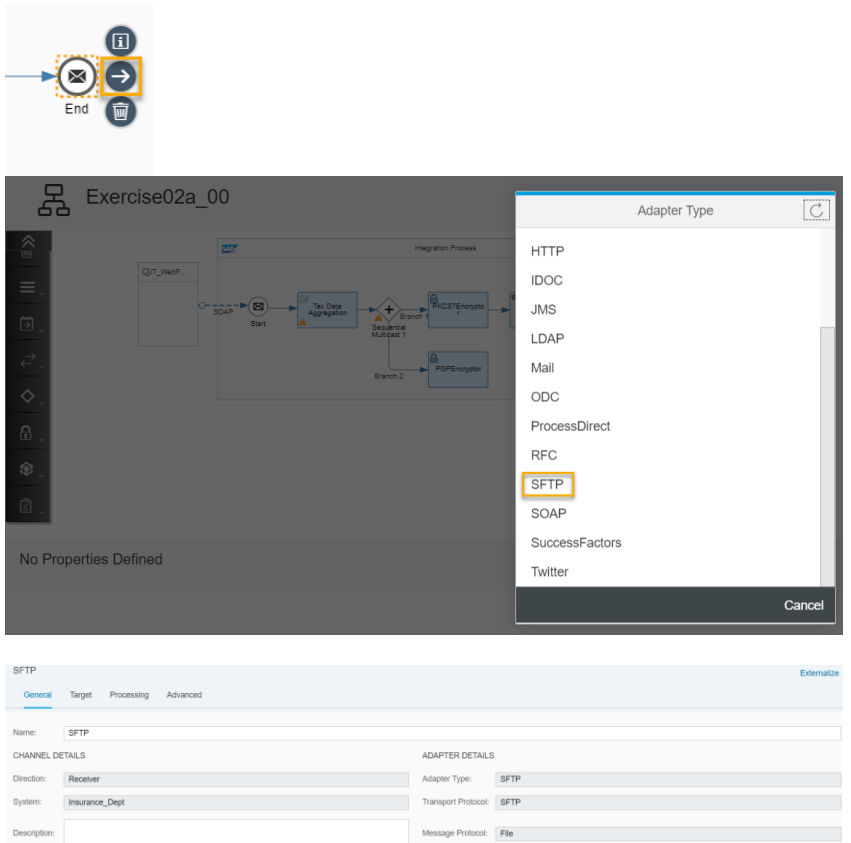
- 29) Select **PGP Encryptor** and retain all the properties to default values and click on **Add** button in **Encryption Key User IDs**

Enter the value
sap d0243.hci.sap.com



- 30) Click on **End** message step, select **Connector** and drag it to **Insurance_Dept** receiver system. This would open the receiver adapter list.

Select **SFTP** adapter



31) Switch to **Target** tab, enter the following details:

- a. **Directory:**
/CPI_EKT/Group_XX/outbox/Exercise02a/Insurance_Dept
- b. **File Name:**
Crypted_IncomeTax_Data.txt
- c. **Address:**
<provided by the Instructor>
- d. **Authentication:**
User Name/Password
- e. **Credential Name:**
Name of credential object which holds SFTP user and password, deployed on the tenant.
- f. **Automatically Disconnect:**
checked

Save

SFTP

General Target Processing Advanced

FILE ACCESS PARAMETERS

Directory: /CPI_EKT/Group_00/outbox/Exercise02a/Insurance_Dept

File Name: Crypted_IncomeTax_Data.txt

☐ Append Timestamp

CONNECTION PARAMETERS

*Address:

Authentication: User Name/Password

*Credential Name:

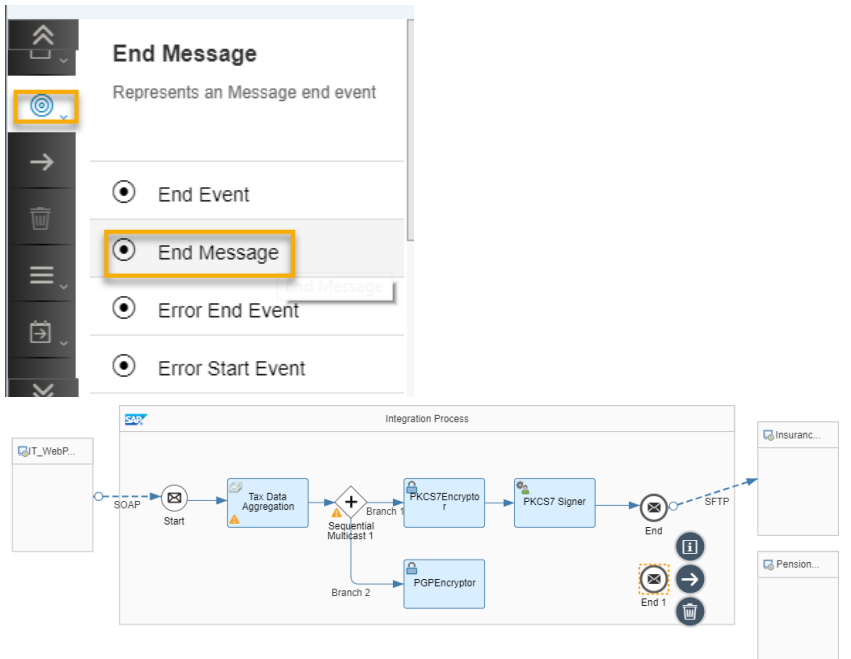
Timeout (In ms): 10000

Maximum Reconnect Attempts: 3

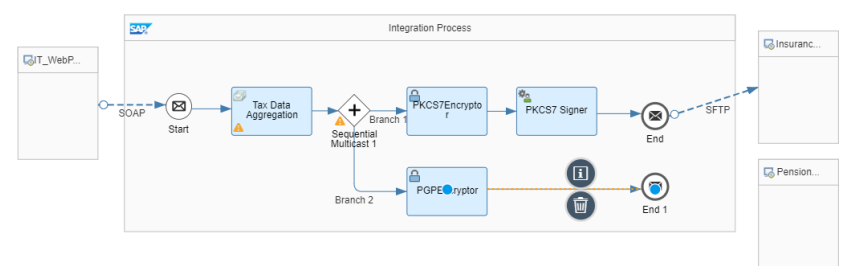
Reconnect Delay (In ms): 1000

☒ Automatically Disconnect

32) From the palette, select **Events** -> **End Message** and drop it in the Integration Process after **PGP Encryptor** as shown.



33) Connect **PGP Encryptor** and **End Message**



- 34) Click on **End 1** message step, select **Connector** and drag it to **Pension_Dept** receiver system. This would open the receiver adapter list.

Select **SFTP** adapter

The screenshot shows the SAP Integration Suite process editor. At the top, a message step labeled 'End 1' is highlighted with a yellow box. Below it, a connector icon is also highlighted. The main workspace shows a process diagram for 'Exercise02a_00' with steps like 'Start', 'Tax Data Assignment', and 'Branch'. A dialog box titled 'Adapter Type' is open, listing various adapters: HTTP, IDOC, JMS, LDAP, Mail, ODC, ProcessDirect, RFC, **SFTP** (highlighted with a yellow box), SOAP, SuccessFactors, and Twitter. Below the dialog, the 'SFTP' adapter configuration is shown with tabs for 'General', 'Target', 'Processing', and 'Advanced'. The 'General' tab is active, showing 'Name: SFTP', 'Channel Details' (Direction: Receiver, System: Pension_Dept), and 'Adapter Details' (Adapter Type: SFTP, Transport Protocol: SFTP, Message Protocol: File).

- 35) Switch to **Target** tab, enter the following details:

- Directory:**
/CPI_EKT/Group_XX/outbox/Exercise02a/Pension_Dept
- File Name:**
Crypted_IncomeTax_Data.txt
- Address:**
<provided by the Instructor>
- Authentication:**
User Name/Password
- Credential Name:**
Name of credential object which holds SFTP user and password, deployed on the tenant.
- Automatically Disconnect:**
checked

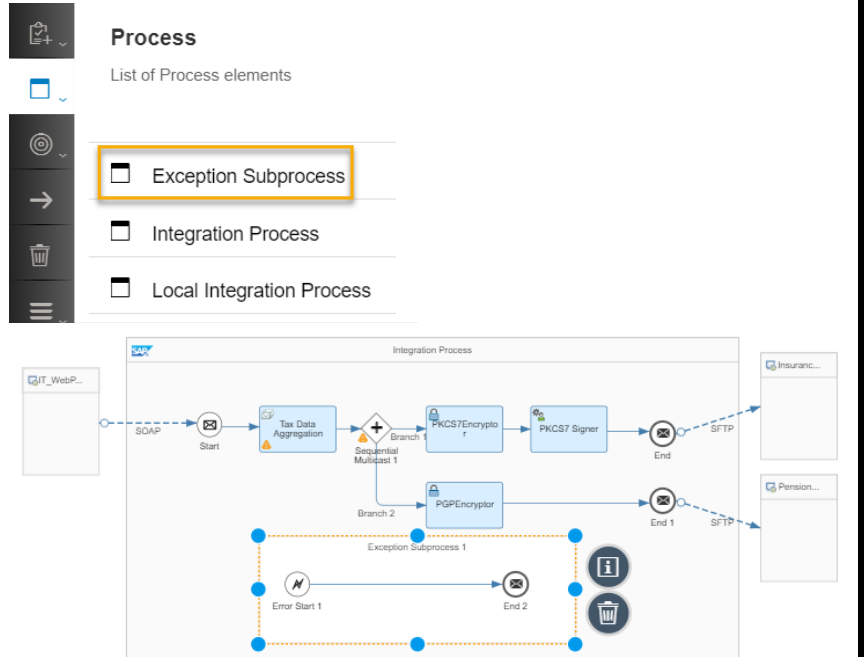
Save

The screenshot shows the 'SFTP' adapter configuration dialog, specifically the 'Target' tab. It contains the following fields and values:

- FILE ACCESS PARAMETERS**
 - Directory: /CPI_EKT/Group_00/outbox/Exercise02a/Pension_Dept
 - File Name: Crypted_IncomeTax_Data.txt
 - ☐ Append Timestamp
- CONNECTION PARAMETERS**
 - *Address: [Redacted]
 - Authentication: User Name/Password (dropdown)
 - *Credential Name: [Redacted]
 - Timeout (in ms): 10000
 - Maximum Reconnect Attempts: 3
 - Reconnect Delay (in ms): 1000
 - ☒ Automatically Disconnect

36) From the palette, select **Process -> Exception Subprocess** and drop it in the Integration Process as shown.

Hint: The Exception Subprocess element is needed to handle all errors, that may occur during the iFlow processing



37) From the palette, select **Message Transformers -> Content Modifier** and drop it on the connection between **Error Start 1** message and **End 2** message in the Exception Subprocess 1. This would automatically create the connections.

Switch to **Message Body** tab, enter the following text as Body:

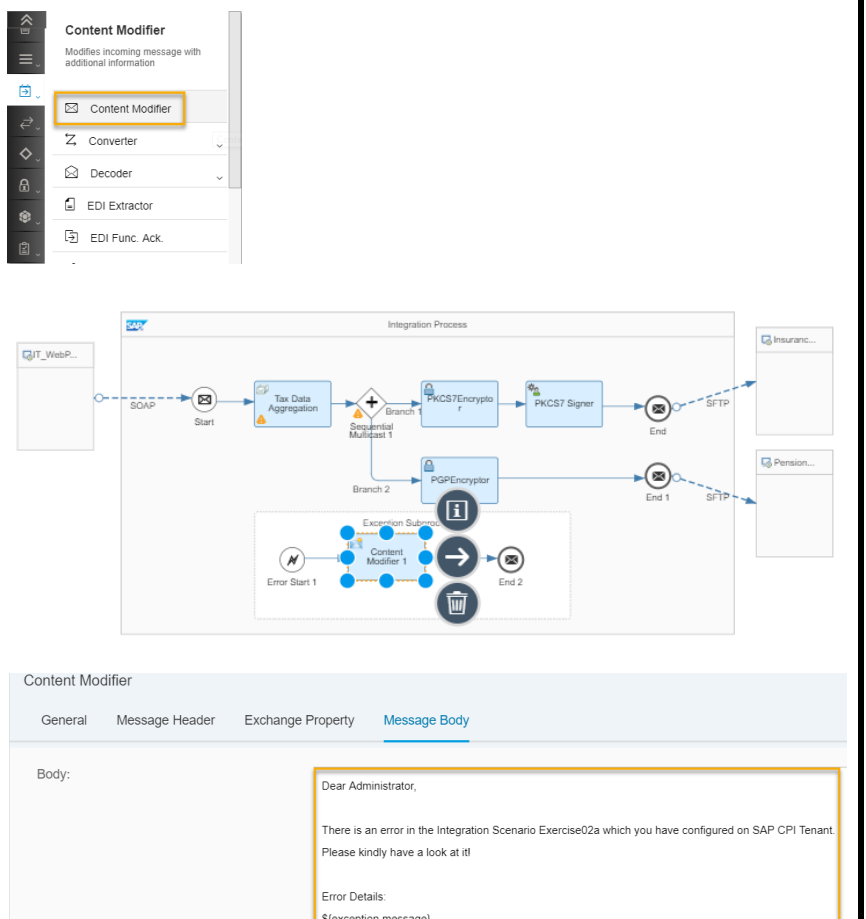
Dear Administrator,

**There is an error in the Integration Scenario Exercise02a which you have configured on SAP CPI Tenant.
Please kindly have a look at it!**

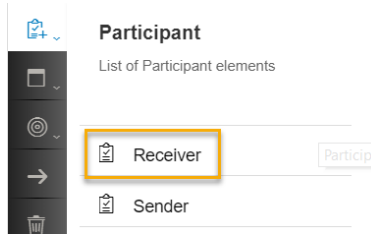
Error Details:
`${exception.message}`

Stack Trace:
`${exception.stacktrace}`

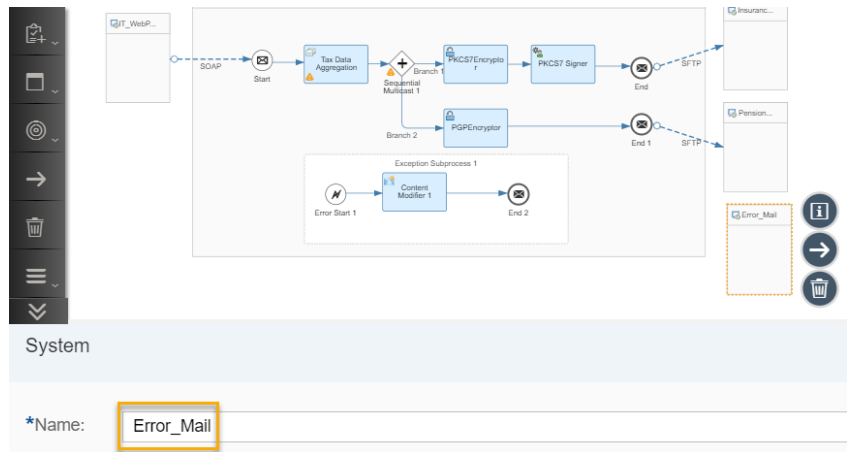
Hint: This text message will allow you to send the exception message as body of the E-Mail. Here you can also maintain each custom text of your choice



38) From the palette, select **Participants -> Receiver** and drop it on iFlow editor window outside the Integration Process



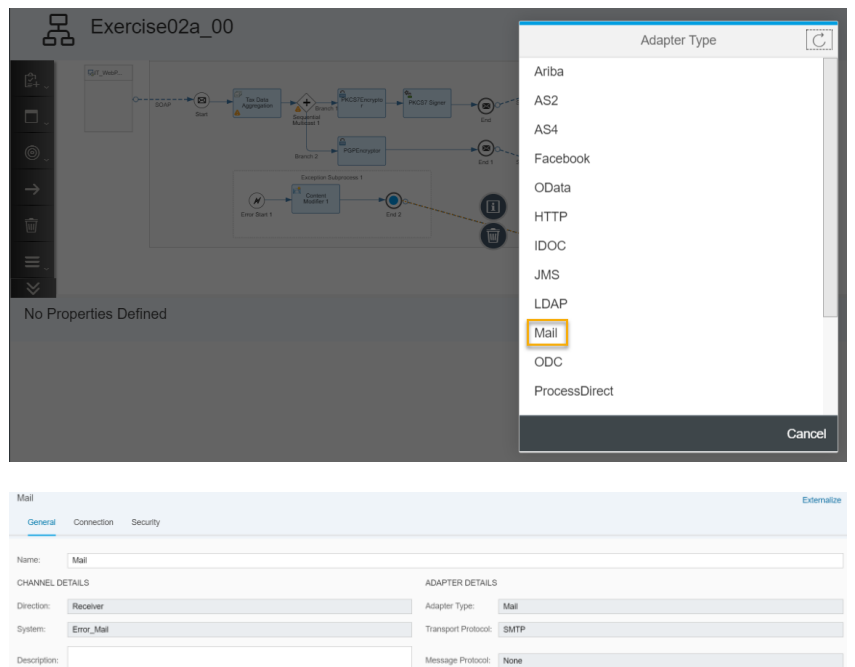
39) Click on newly added Receiver system and set Name as **Error_Mail**.



40) Click on **End 1** message step, select **Connector** and drag it to **Error_Mail** receiver system. This would open the receiver adapter list.



Select **Mail** adapter



41) Switch to **Connection** tab, enter the following details:

- Address: **smtp.gmail.com:587**
- Protection: **STARTTLS Mandatory**
- Authentication: **Plain User/Password**
- Credential Name: **Gmail_XX**
- From: Mail ID from where you want to send the mail.
(eg. testfrom@gmail.com)
- To: Mail ID where you want to receive the mail.
(eg. testto@gmail.com)
- Subject: **Error Notification Exercise02_XX**

Save

Mail

General **Connection** Security

CONNECTION DETAILS

*Address: smtp.gmail.com:587

Proxy Type: None

*Timeout (in ms): 30000

*Protection: STARTTLS Mandatory

*Authentication: Plain User/Password

*Credential Name: Gmail_00

MAIL ATTRIBUTES

*From: testfrom@gmail.com

*To: testto@gmail.com

Cc:

Bcc:

Subject: Error Notification Exercise02_00

Mail Body: \${in.body}

42) In **Monitor** tab, click on **Security Material** tab to deploy your Gmail account username and password using which you want to send an email. Then:

- Click in **Add -> User Credentials**
- Enter name as **Gmail_XX** and your gmail user and password.

Deploy the artifact.

SAP Cloud Platform Integration

Overview

Manage Security

Security Material 5 Artifacts

Keystore 21 Entries

Certificate-to-User Mappings 0 Artifacts

Connectivity Tests

SAP Cloud Platform Integration

Material

Filter by Name or Deployment

Type Status Dep

Keystore Deployed P00

Known Hosts (SSH)

OAuth2 Credentials

PGP Public Keyring

PGP Secret Keyring

Secure Parameter

User Credentials

Added On: 3, 2018, 10:45:57

Add User Credentials

*Name: Gmail_00

Description: Gmail Credentials

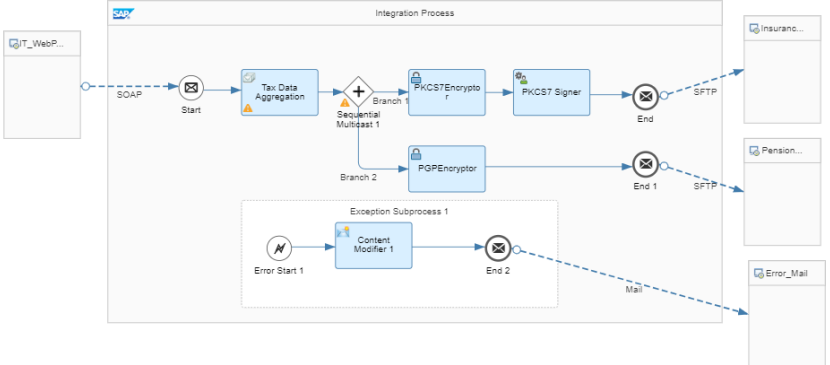
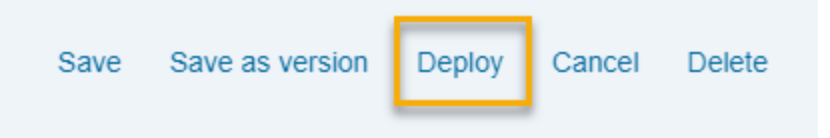
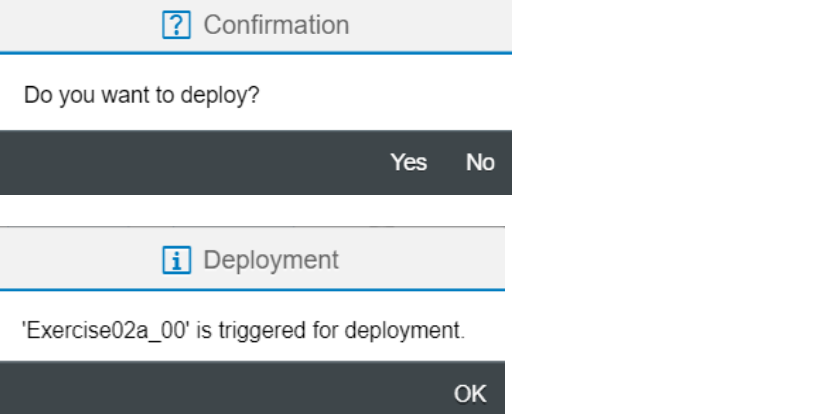
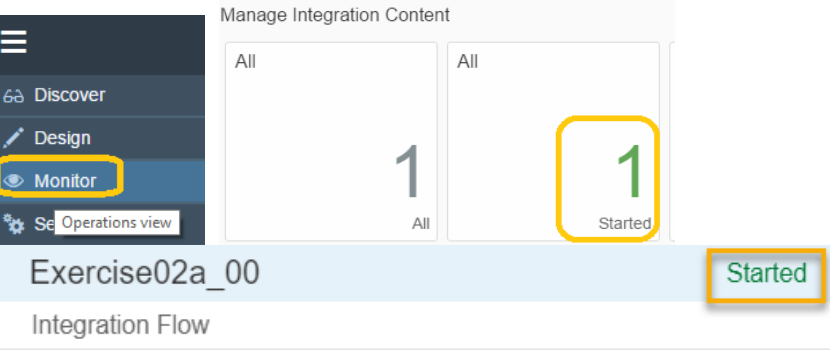
*User: <username>

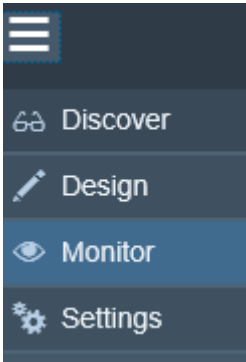
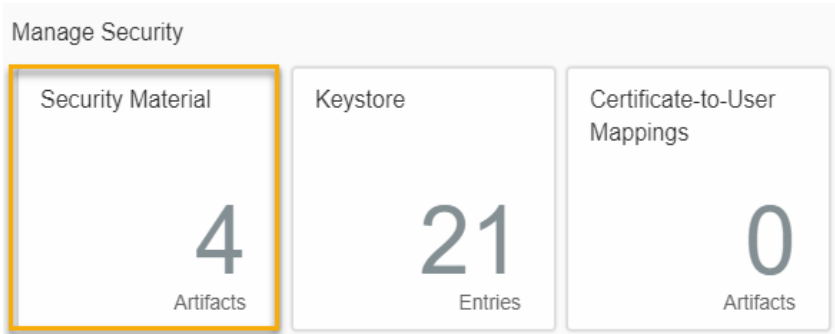
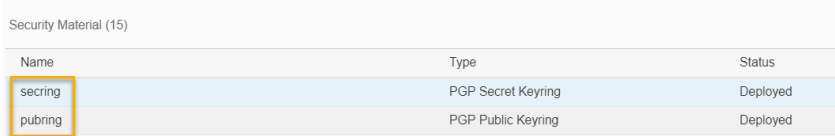
Password:

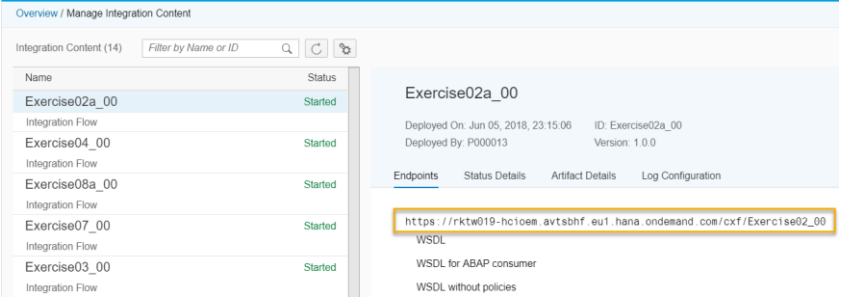
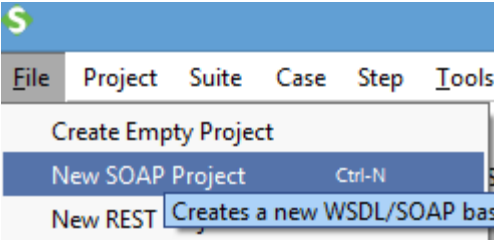
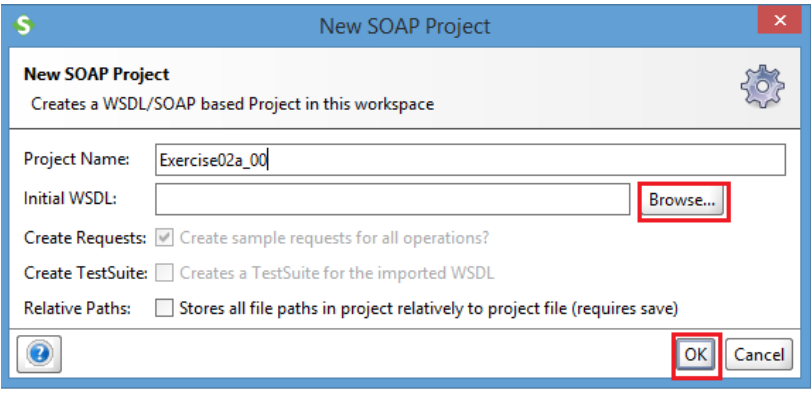
Repeat Password:

☐ SuccessFactors

Deploy Cancel

<p>43) Your integration flow should look like this.</p>	
<p>Deploy Integration Project on tenant:</p>	<p>Follow this step to deploy Integration Project on tenant.</p>
<p>44) Press Deploy in the Integration Flow Task Bar.</p>	
<p>45) You will receive a confirmation. Click on Yes.</p> <p>Once the deployment is completed successfully you will receive a 2nd notification.</p>	
<p>46) Verify if the deployment is successful:</p> <p>In the first level Menu Bar switch to Section Monitor and then click on All in Manage Integration Content.</p> <p>You should see an entry with your integration flow.</p> <p>Check the 'status'. It should be in status Started.</p>	
<p>Check Deployed PGP secure content</p>	<p>Follow these steps to check whether PGP secure content is deployed on the tenant or not.</p>

47) Navigate to the Monitor section										
48) Click Security Material										
49) You should see the PGP security material in Deployed status	 <table><tr><th>Name</th><th>Type</th><th>Status</th></tr><tr><td>secreting</td><td>PGP Secret Keyring</td><td>Deployed</td></tr><tr><td>pubring</td><td>PGP Public Keyring</td><td>Deployed</td></tr></table>	Name	Type	Status	secreting	PGP Secret Keyring	Deployed	pubring	PGP Public Keyring	Deployed
Name	Type	Status								
secreting	PGP Secret Keyring	Deployed								
pubring	PGP Public Keyring	Deployed								
<p>Test the Integration Scenario using SOAPUI. This test will consist of 3 test cases:</p> <p>a) In this first test case, you will <u>send two different messages within max. one minute with the same TaxID using SOAP UI to SAP Cloud Platform Integration. One containing the local currency EUR and EOF=false and the other message will contain foreign currency USD and EOF=true. This would allow you to test the Aggregator step which will merge both message into one and then encrypt it.</u></p> <p>b) For the second test case, the condition is exactly the same as for the first, with the only exception that you will <u>send the first message and wait for at least one minute and send the second message</u></p> <p>c) In the last test case, you will simulate and check the</p>	<p>Follow these steps to test the Integration Scenario</p>									

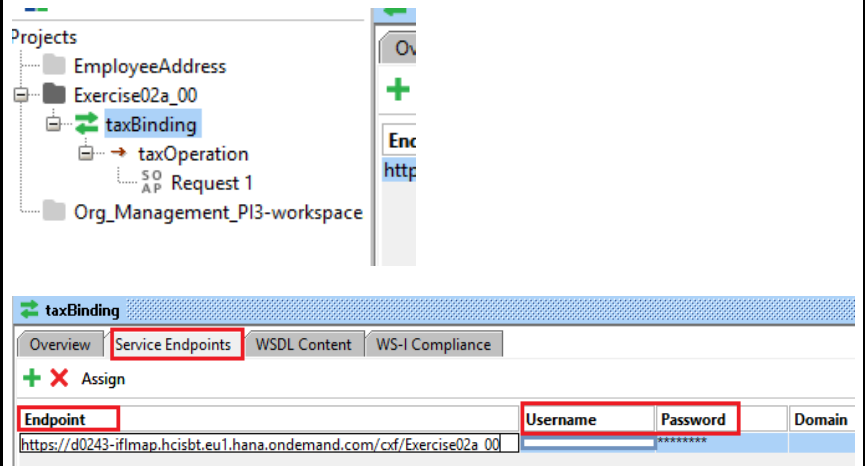
<p>difference between the End Message and End Error Message steps by sending one message without TaxID</p>	
<p>50) Before we test the interface using SOAP UI, we need the End Point URL of the deployed integration flow.</p>	
<p>51) Select your deployed artifact. On the right side, endpoint details are available Copy the endpoint URL</p>	
<p>Test Case a)</p>	<p>Send both messages within one minute</p>
<p>52) Open SOAP UI</p>	
<p>53) Create a new SOAP Project</p>	
<p>54) In the opened window:</p> <ol style="list-style-type: none"> Enter Exercise02a_XX as Project Name Choose to browse and search for the WSDL file userdata_wp.wsdl provided by your instructor 	

55) Navigate to the WSDL binding and maintain the following information in the **Service Endpoints** Tab

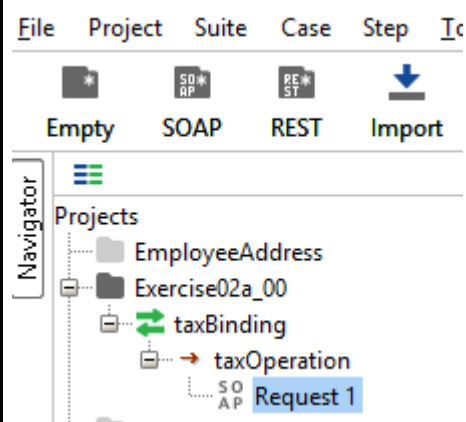
Endpoint:
<Deployed Integration Content
Endpoint as described in step
51>

User:
<your CPI tenant logon User
provided by the Instructor>

Password:
<your CPI tenant logon password
provided by the Instructor>




56) Double click the XML Request to open it



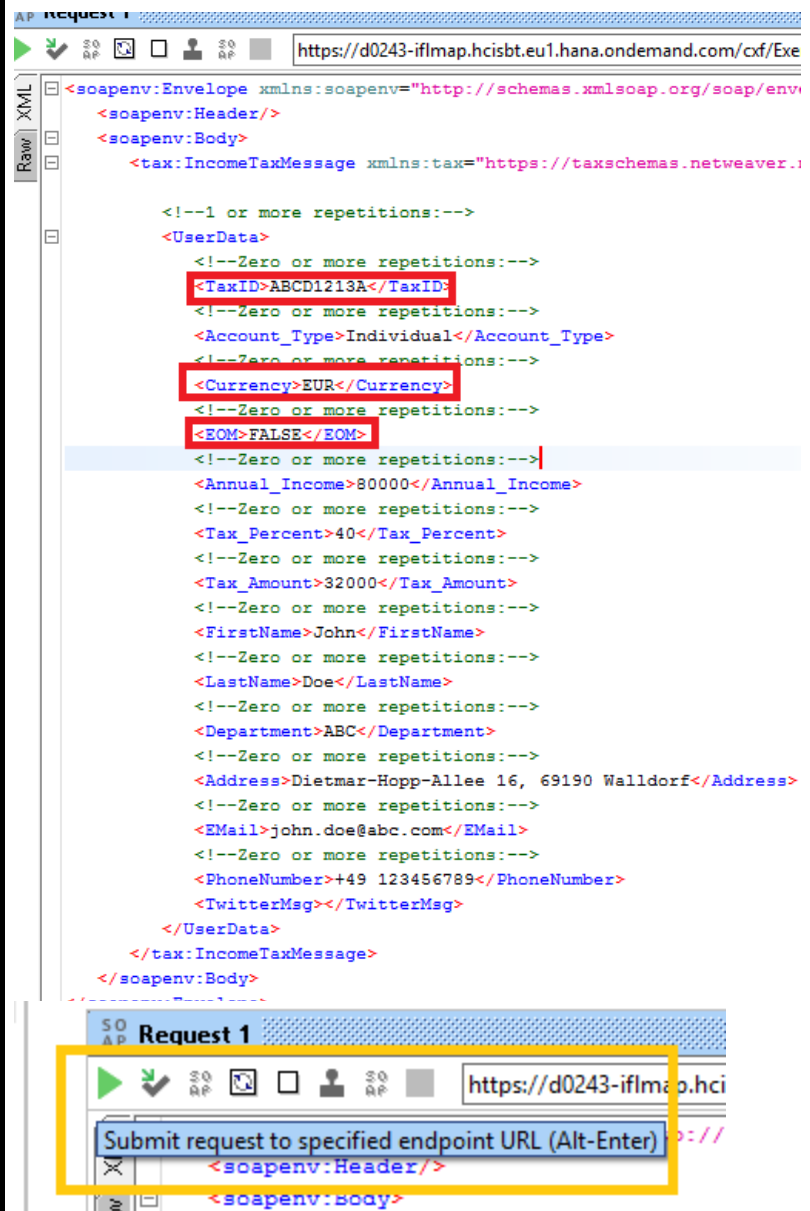
57) Copy and Paste the input text from file

TaxInput_test_soap_payload1.xml
I provided by the instructor

TaxID: ABCD1213A
Currency: EUR
EOM: false

And click on icon  to send request to the server.


You should get response 200 OK



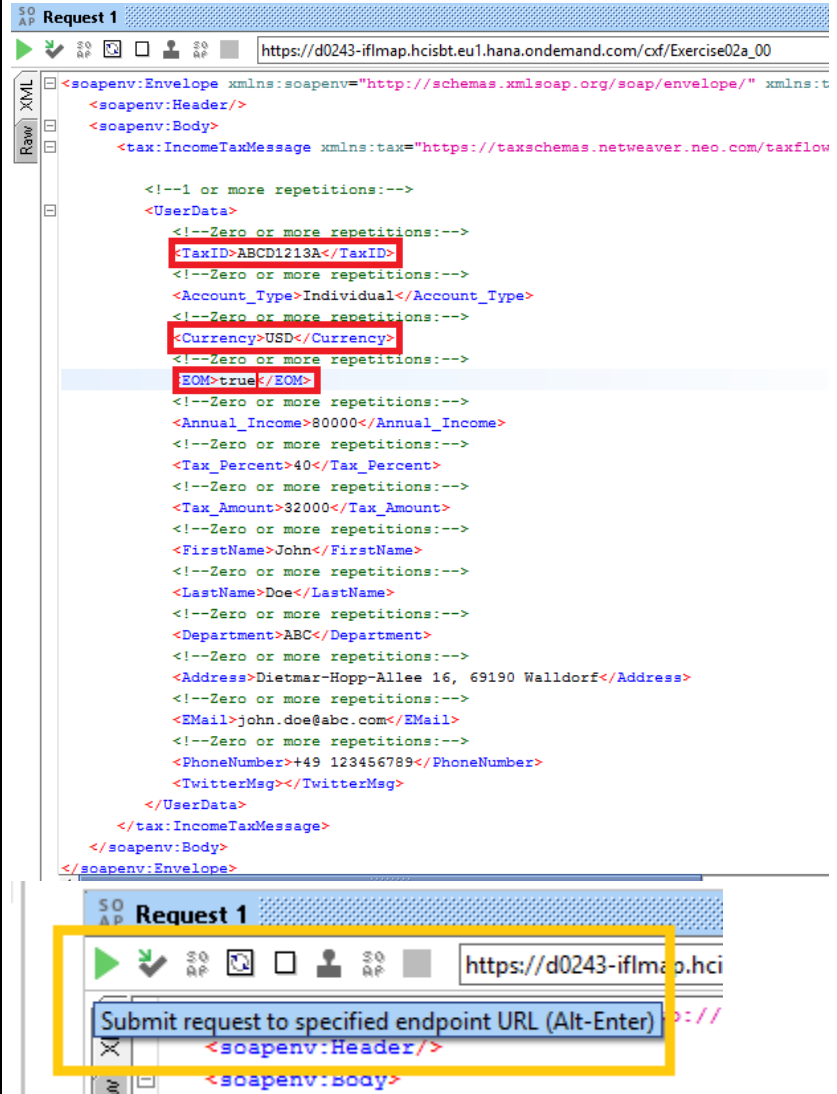
58) Copy and Paste the input text from file

TaxInput_test_soap_payload2.xml
I provided by the instructor

TaxID: ABCD1213A
Currency: USD
EOM: true

And click on icon  to send request to the server.

You should get response 200 OK



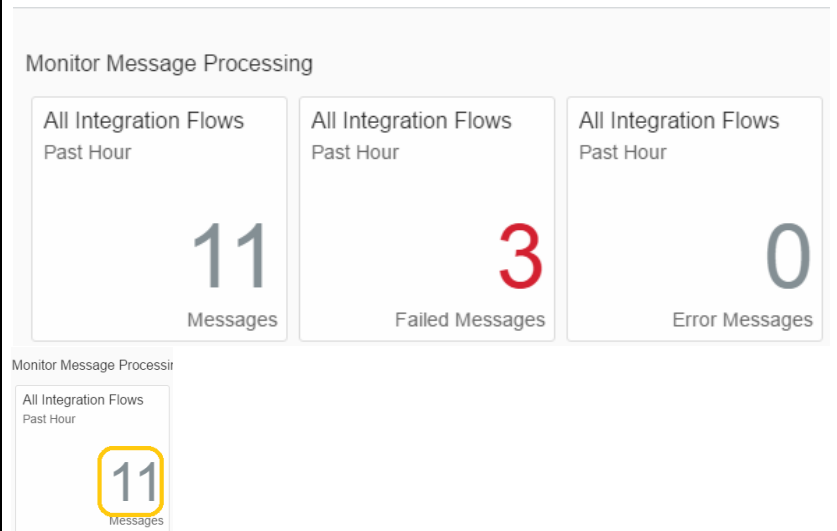
```
<?xml version='1.0' encoding='UTF-8'>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:t="https://taxschemas.netweaver.neo.com/taxflow">
  <soapenv:Header/>
  <soapenv:Body>
    <t:IncomeTaxMessage xmlns:tax="https://taxschemas.netweaver.neo.com/taxflow">
      <!--1 or more repetitions:-->
      <UserData>
        <!--Zero or more repetitions:-->
        <TaxID>ABCD1213A</TaxID>
        <!--Zero or more repetitions:-->
        <Account_Type>Individual</Account_Type>
        <!--Zero or more repetitions:-->
        <Currency>USD</Currency>
        <!--Zero or more repetitions:-->
        <EOM>true</EOM>
        <!--Zero or more repetitions:-->
        <Annual_Income>80000</Annual_Income>
        <!--Zero or more repetitions:-->
        <Tax_Percent>40</Tax_Percent>
        <!--Zero or more repetitions:-->
        <Tax_Amount>32000</Tax_Amount>
        <!--Zero or more repetitions:-->
        <FirstName>John</FirstName>
        <!--Zero or more repetitions:-->
        <LastName>Doe</LastName>
        <!--Zero or more repetitions:-->
        <Department>ABC</Department>
        <!--Zero or more repetitions:-->
        <Address>Dietmar-Hopp-Allee 16, 69190 Walldorf</Address>
        <!--Zero or more repetitions:-->
        <EMail>john.doe@abc.com</EMail>
        <!--Zero or more repetitions:-->
        <PhoneNumber>+49 123456789</PhoneNumber>
        <TwitterMsg></TwitterMsg>
      </UserData>
    </t:IncomeTaxMessage>
  </soapenv:Body>
</soapenv:Envelope>
```

59) Switch to Section **Monitor** -> Select **Messages**.

On this dashboard, you will find all the messages processed as per the status.

If there is any error, you will find the processing/ error log in the Error Messages section on the dashboard.

Click on All messages



Category	Count
All Integration Flows Past Hour (Messages)	11
All Integration Flows Past Hour (Failed Messages)	3
All Integration Flows Past Hour (Error Messages)	0

60) Here you will see 3 Messages with **Completed** status if the request you sent previously with SOAP UI was successfully processed.

Messages (3)		<div>Exercise02a_00</div> <div>Version: 1.0.0</div> <div>Processing Time: 13 sec 827 ms</div> <div>LOGS</div> <div>Message Processing Log</div>
Last Updated at	Status	
Sep 11, 2016, 21:29:40	Completed	
Exercise02a_00		
Sep 11, 2016, 21:29:38	Completed	
Exercise02a_00		
Sep 11, 2016, 21:29:26	Completed	
Exercise02a_00		

Check generated encrypted files with FileZilla

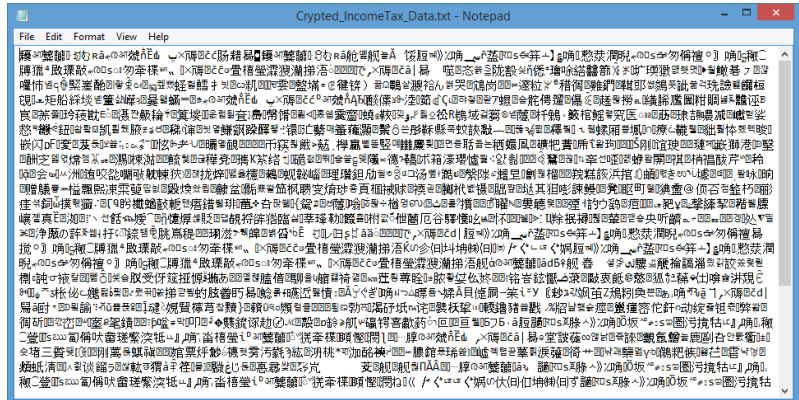
Follow these steps to check the encrypted files in the SFTP folders

61) Open FileZilla and connect to the **SFTP Server** using the credentials provided by your instructor

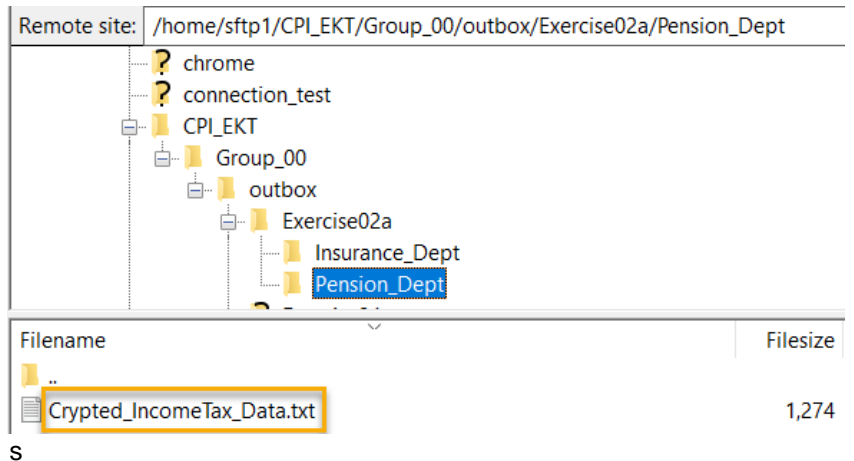
62) Check the encrypted file in the Insurance department folder

Remote site: /home/sftp1/CPI_EKT/Group_00/outbox/Exercise02a/Insurance_Dept	
<ul style="list-style-type: none"> chrome connection_test CPI_EKT <ul style="list-style-type: none"> Group_00 <ul style="list-style-type: none"> outbox <ul style="list-style-type: none"> Exercise02a <ul style="list-style-type: none"> Insurance_Dept Pension_Dept 	
Filename	Filesize
..	
Crypted_IncomeTax_Data.txt	7,294

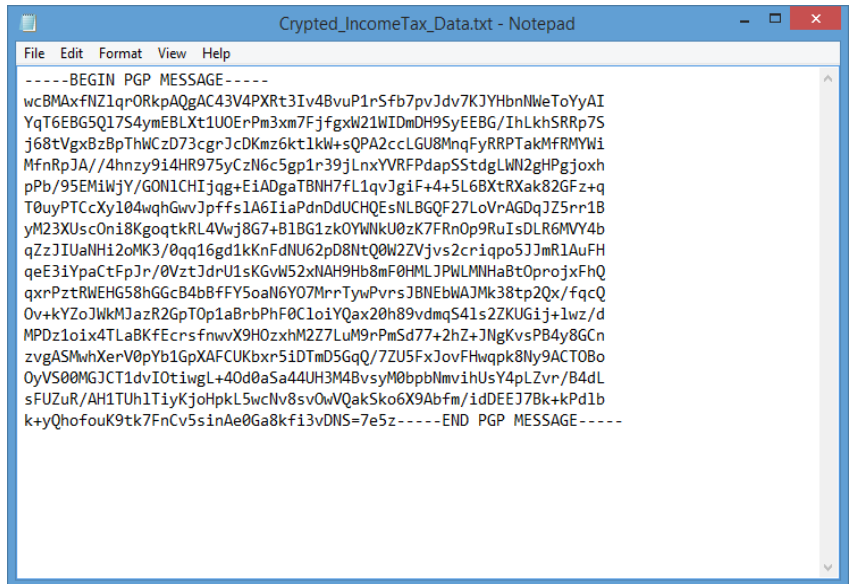
63) Open it and check the encrypted content



64) Check the encrypted file in the Pension department folder



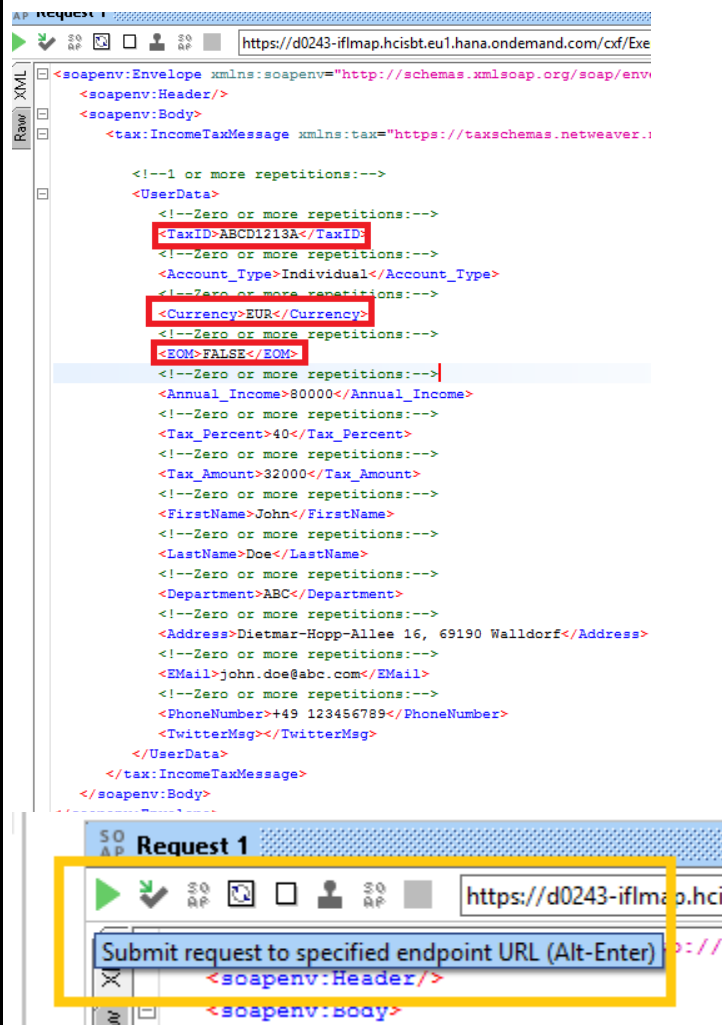
65) Open it and check the encrypted content



Test Case b)

Send the first message and wait for at least one minute and check the processed message in Monitoring

66) Please send the first message with SOAP UI as described previously in step 58



67) After one minute go to the Monitoring section as described in steps 59-60 and check the number of processed messages

Hint: As you can figure out, after one-minute SAP CPI stop to collect messages and proceed further with the overall message processing

Messages (2)		
Last Updated at	Status	
Sep 15, 2016, 21:57:22	Completed	Exercise02a_00
Exercise02a_00		Message Processing Log
Sep 15, 2016, 21:56:21	Completed	
Exercise02a_00		

Test Case c)

Simulate an error and check the behaviour of the Exception SubProcess, End Message and Error End Event

68) Please go back to SOAP UI and modify the first message content before you send it. Delete the value of the field **TaxID** and send the message

Hint: We want to simulate an error and check if the iFlow will run into the Exception Subprocess

Request 1

https://d0243-iflmap.hcisbt.eu1.hana.ondemand.com

```
<?xml version='1.0' encoding='UTF-8'>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
  <soapenv:Header/>
  <soapenv:Body>
    <tax:IncomeTaxMessage xmlns:tax="https://taxschemas.net/xmlns/tax">
      <!--1 or more repetitions-->
      <UserData>
        <!--Zero or more repetitions-->
        <TaxID/>
        <!--Zero or more repetitions-->
        <Account_Type>Individual</Account_Type>
        <!--Zero or more repetitions-->
        <Currency>EUR</Currency>
        <!--Zero or more repetitions-->
        <EOM>FALSE</EOM>
        <!--Zero or more repetitions-->
        <Annual_Income>80000</Annual_Income>
      </UserData>
    </tax:IncomeTaxMessage>
  </soapenv:Body>
</soapenv:Envelope>
```

69) Wait for a couple of minutes and then check your Email. You should have received an error notification email.

Open the Email and check its Body

Reply Reply All Forward IM
Wed 06-06-2018 00:45

S

Error Notification Exercise02_00

To

Dear Administrator,

There is an error in the Integration Scenario Exercise02a which you have configured on SAP CPI Tenant.
Please kindly have a look at it!

Error Details:
Invalid correlation key. Exchange[ID=vs4240654-58884-1527139636312-67-2]

Stack Trace:
org.apache.camel.CamelExchangeException: Invalid correlation key. Exchange[ID=vs4240654-58884-1527139636312-67-2]
at org.apache.camel.processor.aggregate.AggregateProcessor.doProcess(AggregateProcessor.java:295)
at org.apache.camel.processor.aggregate.AggregateProcessor.process(AggregateProcessor.java:266)
at org.apache.camel.processor.DelegateAsyncProcessor.process(DelegateAsyncProcessor.java:95)
at com.sap.it.op.agent.collector.camel.MplInterceptor\$MplAsyncProcessor.process(MplInterceptor.java:180)
at org.apache.camel.processor.DelegateAsyncProcessor.process(DelegateAsyncProcessor.java:95)
at org.apache.camel.processor.RedeliveryErrorHandler.process(RedeliveryErrorHandler.java:468)
at org.apache.camel.util.AsyncProcessorHelper.process(AsyncProcessorHelper.java:109)
at org.apache.camel.processor.RedeliveryErrorHandler.process(RedeliveryErrorHandler.java:344)
at org.apache.camel.processor.DefaultErrorHandler.process(DefaultErrorHandler.java:60)
at org.apache.camel.processor.CamelInternalProcessor.process(CamelInternalProcessor.java:172)
at org.apache.camel.processor.Pipeline.process(Pipeline.java:121)
at org.apache.camel.processor.Pipeline.process(Pipeline.java:83)
at org.apache.camel.processor.RedeliveryErrorHandler.process(RedeliveryErrorHandler.java:468)
at org.apache.camel.spring.spi.TransactionErrorHandler.processByErrorHandler(TransactionErrorHandler.java:220)
at org.apache.camel.spring.spi.TransactionErrorHandler.process(TransactionErrorHandler.java:101)

70) Then go back to SAP CPI Web Tooling, navigate to the Monitoring section as described in steps 59-60 and check the status of the processed messages

Status: Time: Artifact:

Completed Past Hour All Integration Flows

Messages (1)

Last Updated at Sep 16, 2016, 15:48:13 Exercise02a_00

Status Completed

Exercise02a_00

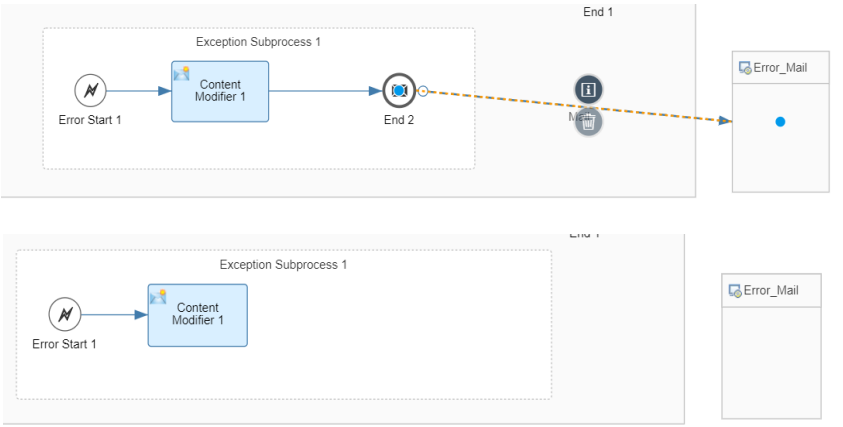
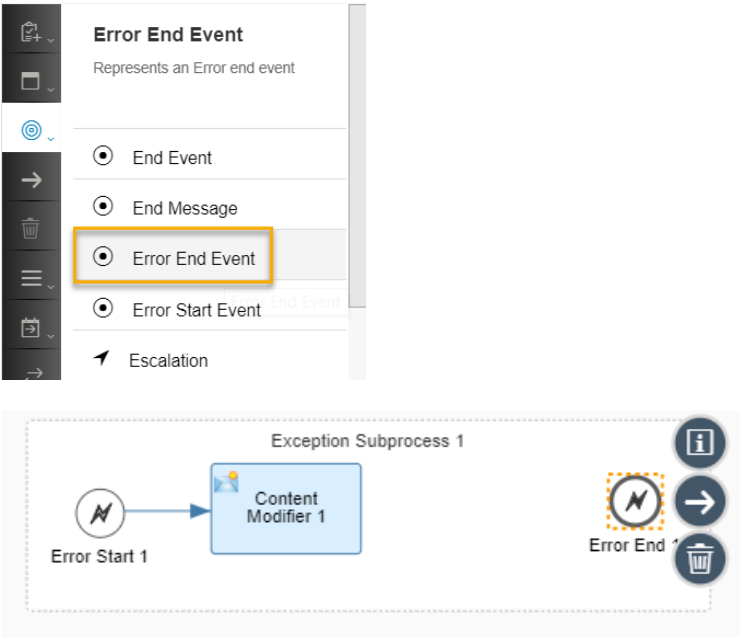
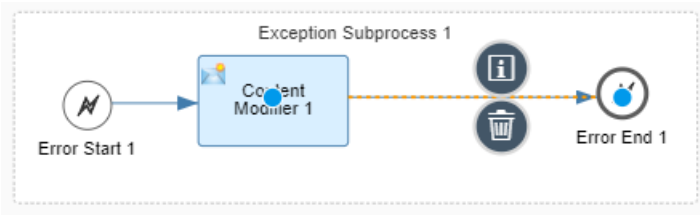
Version: 1.0.0

Processing Time: 133 ms

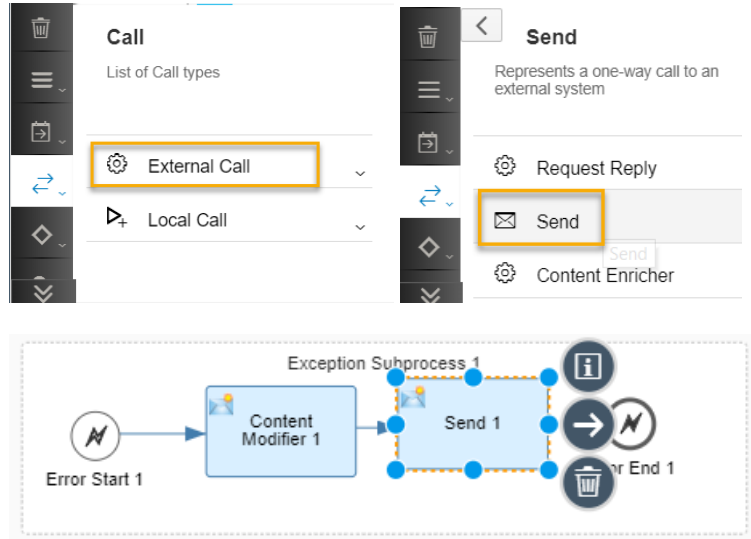
Error Details: org.apac

As you could figure out, the message is marked as successfully completed, although the processing run into error. This is related to the fact that we used

Please follow these steps to modify the **Exception Subprocess** and use the **Error End Event** in place of the **End Message** event

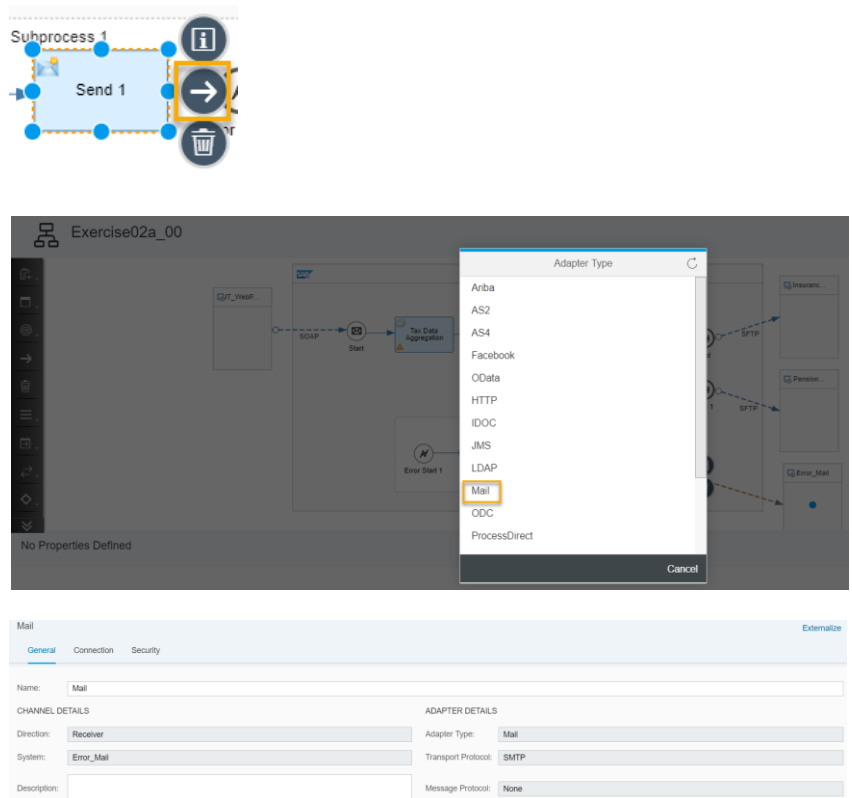
<p>the End Message event in our Exception Subprocess.</p> <p>To change this behavior, the Error End Event should be used instead. Therefore, we will modify our Exception Subprocess and use the Error End Event</p>	
<p>71) Please go back to CPI Web Tooling and open the iFlow of Exercise02a</p>	<p><input type="checkbox"/> Exercise02a_00 Exercise02a_WebUI_SOAP_Aggregator_SequentialMulticast_PKCS7_PGP_Encryptor_Signer_SFTP Created</p>
<p>72) In the Model Configuration Select the End Message event to Mail Adapter connector (in Exception Subprocess) and press the Delete button from the palette. Also delete End Message event</p> <p>This will result into the deletion of End Message event and the Mail adapter</p>	 <p>The top screenshot shows the 'Exception Subprocess 1' with an 'Error Start 1' event, a 'Content Modifier 1' activity, and an 'End 2' event. A dashed arrow connects 'End 2' to an 'Error Mail' connector. The bottom screenshot shows the same subprocess after the 'End 2' event and the 'Error Mail' connector have been deleted, leaving only 'Error Start 1' and 'Content Modifier 1'.</p>
<p>73) From the palette, select Events -> Error End Event and drop it in Exception Subprocess as shown in the screenshot.</p>	 <p>The top part of the screenshot shows the 'Error End Event' selected in the palette. The bottom part shows the 'Exception Subprocess 1' with 'Error Start 1' and 'Content Modifier 1'. The 'Error End Event' (a circle with a lightning bolt) has been added to the subprocess, and the 'Error Mail' connector has been deleted.</p>
<p>74) Connect Content Modifier to Error End Event</p>	 <p>The screenshot shows the 'Exception Subprocess 1' with 'Error Start 1' and 'Content Modifier 1'. A dashed arrow now connects 'Content Modifier 1' to the 'Error End 1' event.</p>

75) From the palette, select **Call -> External Call -> Send** and drop it on the connection between **Content Modifier** and **Error End Event** in the Exception Subprocess.



76) Click on **Send** step, select **Connector** and drag it to **Error_Mail** receiver system. This would open the receiver adapter list.

Select **Mail** adapter



77) Switch to **Connection** tab, enter the following details:

- a. Address: **smtp.gmail.com:587**
- b. Protection: **STARTTLS Mandatory**
- c. Authentication: **Plain User/Password**
- d. Credential Name: **Gmail_XX**
- e. From: Mail ID from where you want to send the mail.
(eg. testfrom@gmail.com)
- f. To: Mail ID where you want to receive the mail.
(eg. testto@gmail.com)
- g. Subject: **Error Notification Exercise02_XX**

Save

Mail

General **Connection** Security

CONNECTION DETAILS

*Address: smtp.gmail.com:587

Proxy Type: None

*Timeout (in ms): 30000

*Protection: STARTTLS Mandatory

*Authentication: Plain User/Password

*Credential Name: Gmail_00

MAIL ATTRIBUTES

*From: testfrom@gmail.com

*To: testto@gmail.com

Cc:

Bcc:

Subject: Error Notification Exercise02_00

Mail Body: \${in.body}

Deploy Integration Project on tenant:

Follow this step to deploy Integration Project on tenant.

78) Press **Deploy** in the Integration Flow Task Bar.

Save Save as version **Deploy** Cancel Delete

79) You will receive a confirmation. Click on **Yes**.

Once the deployment is completed successfully you will receive a 2nd notification.

Confirmation

Do you want to deploy?

Yes No

Deployment

'Exercise02a_00' is triggered for deployment.

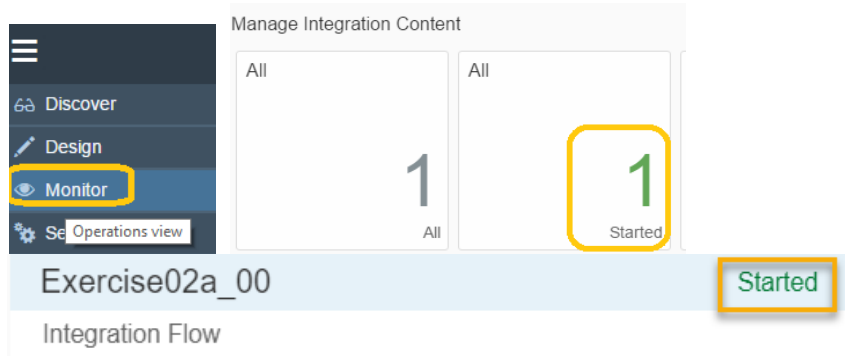
OK

80) Verify if the deployment is successful:

In the first level Menu Bar switch to Section **Monitor** and then click on **All** in **Manage Integration Content**.

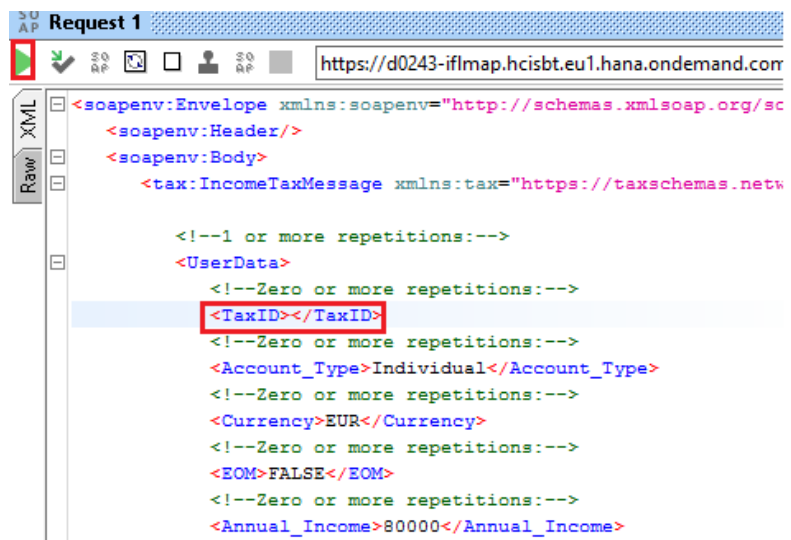
You should see an entry with your integration flow.

Check the 'status'. It should be in status **Started**.



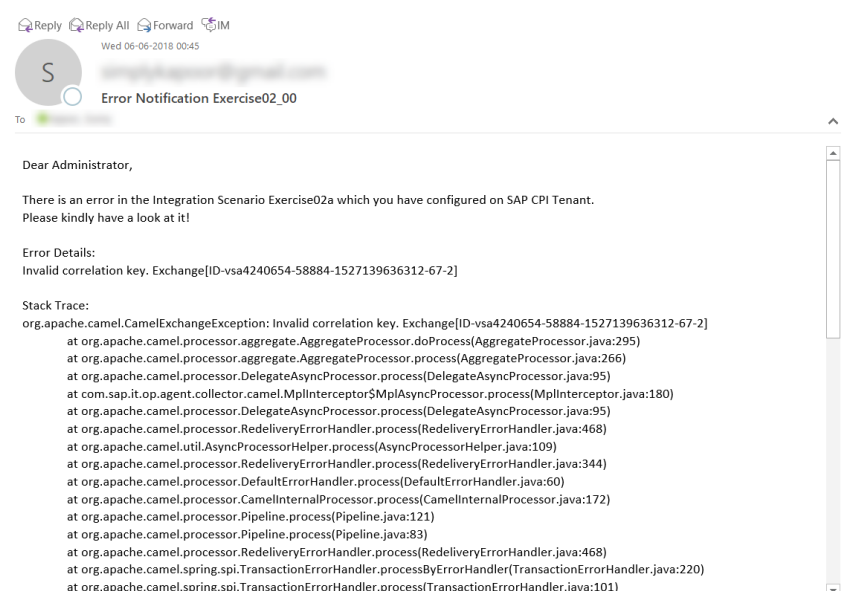
81) Please go back to SOAP UI and modify the first message content before you send it. Delete the value of the field **TaxID** and send the message

Hint: We want to simulate an error and check if the iFlow will run into the Exception Subprocess



82) Wait for a couple of minutes and then check your Email. You should have received an error notification email.

Open the Email and check its Body



83) Then go back to SAP CPI Web Tooling, navigate to the Monitoring section as described in steps 59-60 and check the status of the processed messages.

As you can see the status of the processed message has now been set to failed

Messages (9)

Last Updated at

Status

Sep 16, 2016, 16:10:59

Failed

[Exercise02a_00](#)

Sep 16, 2016, 15:48:13

Completed

[Exercise02a_00](#)

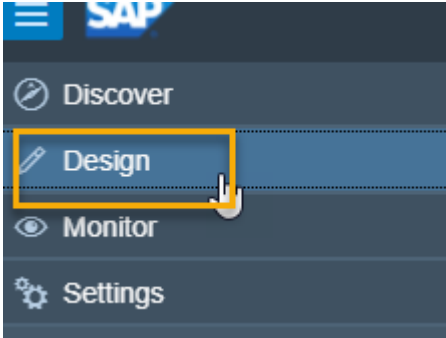
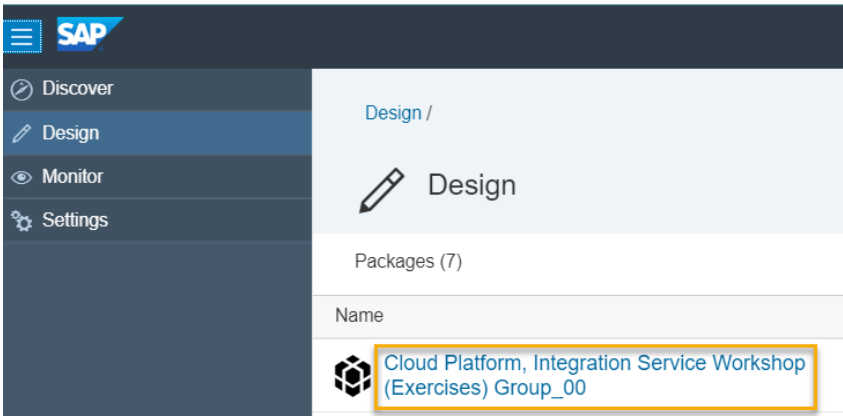
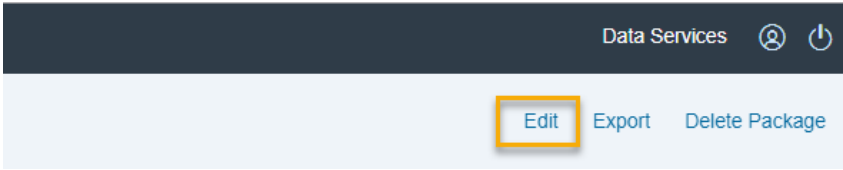
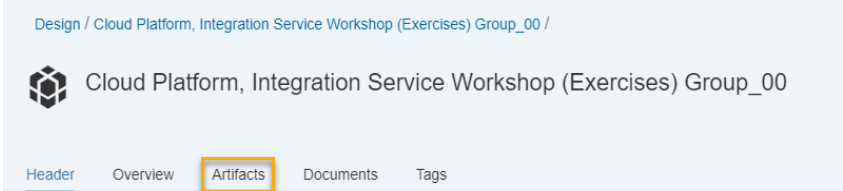
Exercise02a_00

Message Processing Log

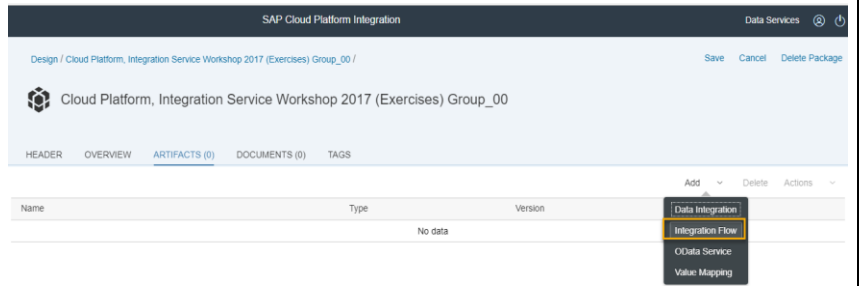
MPL Attachment

Payload

EXERCISE 02B

Explanation	Screenshot
Follow these steps for integration flow creation in Web UI.	
1) Navigate to Design tab	 A screenshot of the SAP Design Studio interface. The left sidebar shows a menu with four items: Discover, Design, Monitor, and Settings. The 'Design' item is highlighted with a blue background and a yellow rectangular box. A mouse cursor is pointing at the 'Design' item.
2) Select the package	 A screenshot of the SAP Design Studio interface. The left sidebar shows the 'Design' tab selected. The main area displays the 'Design' tab content, including a 'Design' icon and the text 'Design'. Below this, there is a section for 'Packages (7)' with a table. The table has a header row with 'Name' and a data row with the package name 'Cloud Platform, Integration Service Workshop (Exercises) Group_00'. The package name is highlighted with a yellow rectangular box.
3) Click on Edit	 A screenshot of the SAP Design Studio interface. The main area displays the 'Design' tab content. At the bottom right, there are three buttons: 'Edit', 'Export', and 'Delete Package'. The 'Edit' button is highlighted with a yellow rectangular box.
4) Navigate to Artifacts Tab	 A screenshot of the SAP Design Studio interface. The main area displays the 'Design' tab content. At the bottom, there is a navigation bar with four tabs: 'Header', 'Overview', 'Artifacts', and 'Documents'. The 'Artifacts' tab is highlighted with a yellow rectangular box.

5) Click on **Add-> Integration Flow**

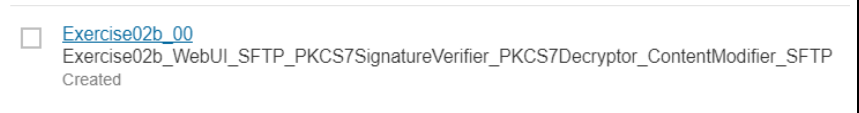


- 6) Select **Create** and enter the following details:
- a. Name: **Exercise02b_XX**
 - b. Description: **Exercise02b_WebUI_SFTP_PKCS7SignatureVerifier_PKCS7Decryptor_ContentModifier_SFTP**
 - c. Sender: **SFTP**
 - d. Receiver: **SFTP**
 - e. Click on **OK**

Note: Please remember to save after every action

The screenshot shows the 'Add integration flow artifact' form. It has two radio buttons: 'Create' (selected) and 'Upload'. Fields include: '*Name:' with value 'Exercise02b_00', '*ID:' with value 'Exercise02b_00', 'Product Profile:' with a dropdown showing 'SAP Cloud Platform Integration', and 'Description:' with the value 'Exercise02b_WebUI_SFTP_PKCS7SignatureVerifier_PKCS7Decryptor_ContentModifier_SFTP'. At the bottom, 'Sender:' is 'SFTP' and 'Receiver:' is 'SFTP'. There are 'OK' and 'Cancel' buttons at the bottom right. Below the form, there's a 'Data Services' header with a search icon and a 'Save' button highlighted, along with 'Cancel' and 'Delete Package' buttons.

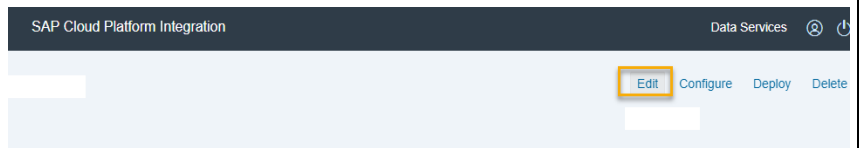
7) Click on **Exercise02b_xx**



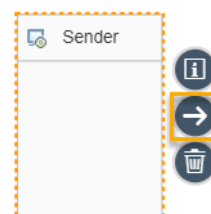
Define and edit integration flow

Follow steps to edit the integration flow

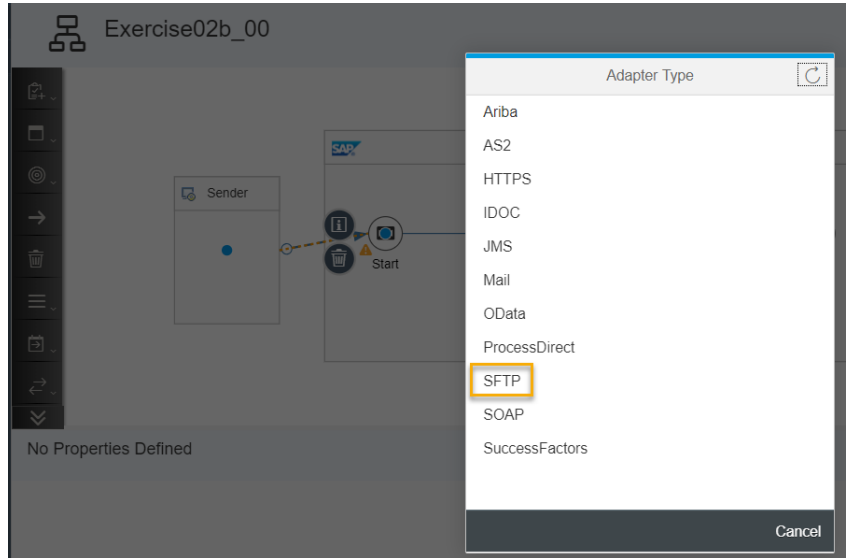
8) Click on **Edit** button on the upper corner in the right-hand side.



9) Click on **Sender** system, select **Connector** and drag it to **Start** message step. This would open the sender adapter list.



Select **SFTP** adapter



SFTP

General Source Processing Advanced Scheduler Externalize

Name: SFTP

CHANNEL DETAILS

Direction: Sender Adapter Type: SFTP

System: Sender Transport Protocol: SFTP

Description: Message Protocol: File

10) Switch to **Source** tab, enter the following details:

- Directory:**
/CPI_EKT/Group_XX/outbox/Exercise02a/Insurance_Dept
- File Name:**
Crypted_IncomeTax_Data.txt
- Address:**
<provided by the Instructor>
- Authentication:**
User Name/Password
- Credential Name:**
Name of credential object which holds SFTP user and password, deployed on the tenant.
- Automatically Disconnect:**
checked

Save

SFTP

General Source Processing Advanced Scheduler

FILE ACCESS PARAMETERS

Directory: /CPI_EKT/Group_00/outbox/Exercise02a/Insurance_Dept

File Name: Crypted_IncomeTax_Data.txt

CONNECTION PARAMETERS

*Address:

Authentication: User Name/Password

*Credential Name:

Timeout (in ms): 10000

Maximum Reconnect Attempts: 3

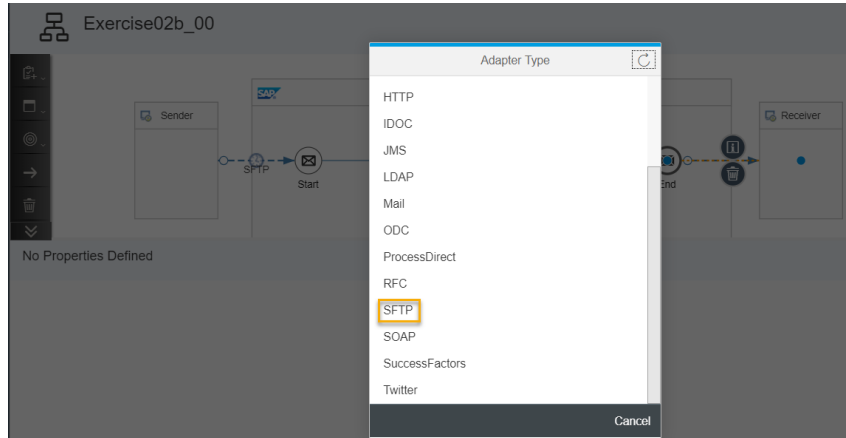
Reconnect Delay (in ms): 1000

☒ Automatically Disconnect

11) Click on **End** message step, select **Connector** and drag it to **Receiver** system.
This would open the receiver adapter list.



Select **SFTP** adapter



SFTP

General Target Processing Advanced Externalize

Name: SFTP

CHANNEL DETAILS

Direction: Receiver Adapter Type: SFTP

System: Receiver Transport Protocol: SFTP

Description: Message Protocol: File

12) Switch to **Target** tab, enter the following details:

- Directory:**
/CPI_EKT/Group_XX/outbox/Exercise02b
- File Name:**
IncomeTax_Data.txt
- Address:**
<provided by the Instructor>
- Authentication:**
User Name/Password
- Credential Name:**
Name of credential object which holds SFTP user and password, deployed on the tenant.
- Automatically Disconnect:**
checked

Save

SFTP

General Target Processing Advanced

FILE ACCESS PARAMETERS

Directory: /CPI_EKT/Group_00/outbox/Exercise02b

File Name: IncomeTax_Data.txt

☐ Append Timestamp

CONNECTION PARAMETERS

*Address: [Redacted]

Authentication: User Name/Password

*Credential Name: [Redacted]

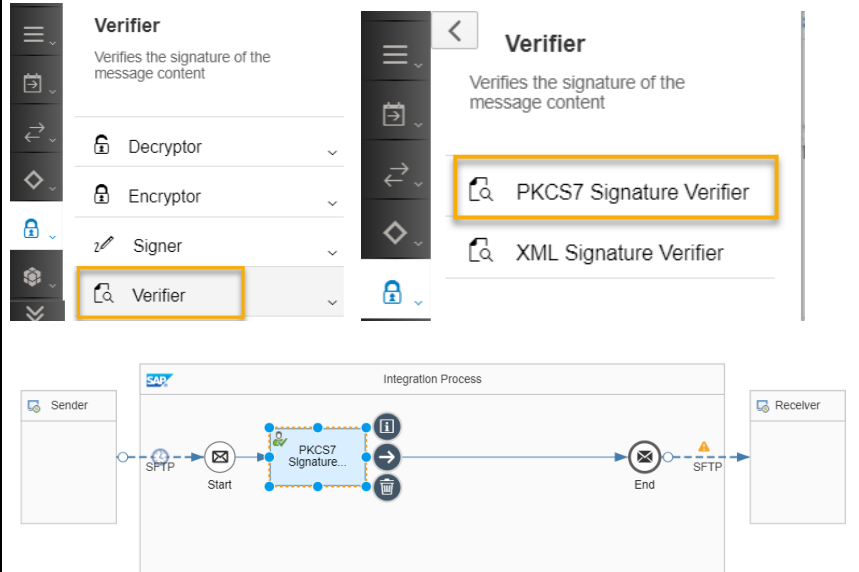
Timeout (in ms): 10000

Maximum Reconnect Attempts: 3

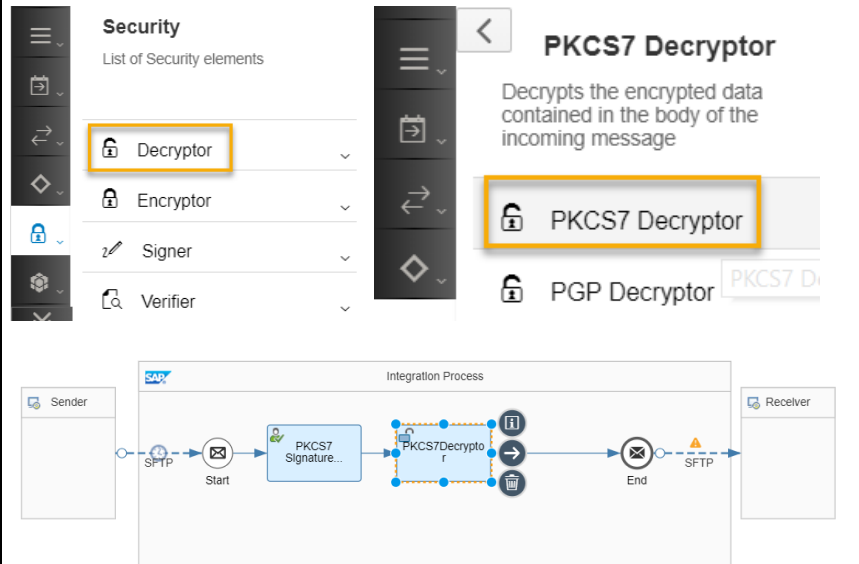
Reconnect Delay (in ms): 1000

☒ Automatically Disconnect

- 13) From the palette, select **Security Elements -> Verifier -> PKCS7 Signature Verifier** and drop it on the connection between **Start** and **End** message in the integration flow



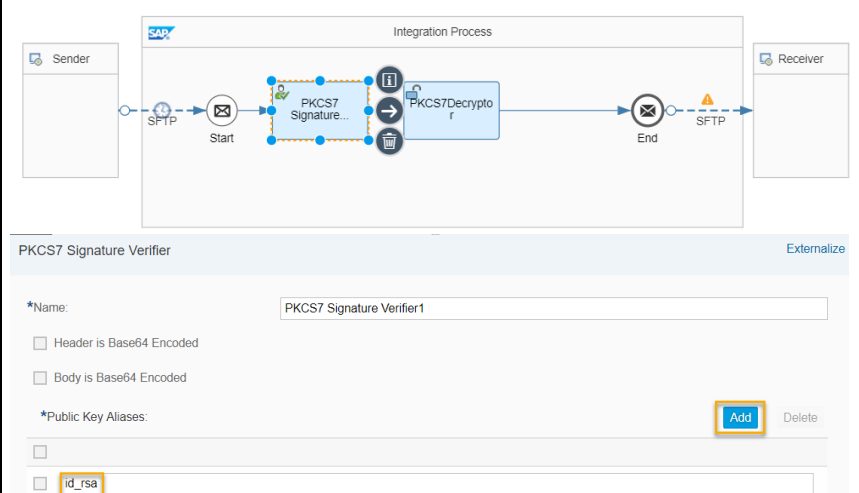
- 14) From the palette, select **Security Elements -> Decryptor -> PKCS7 Decryptor** and drop it on the connection between **PKCS7 Signature Verifier** and **End** message in the integration flow



- 15) Select **PKCS7 Signature Verifier** and update the properties as shown in the screenshot

- a) Public Key Aliases:
id_rsa

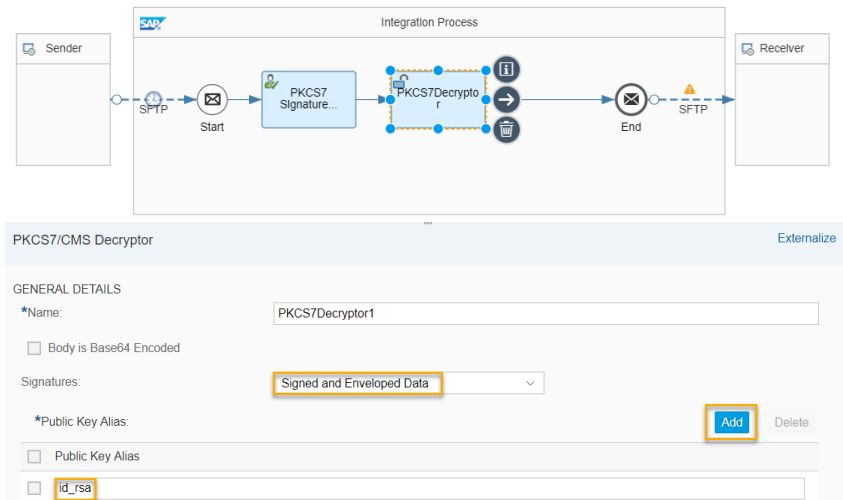
Save



16) Select **PKCS7 Decryptor** and update the properties as shown in the screenshot

- a) Signatures: **Signed and Enveloped Data**
- b) Public Key Alias: **id_rsa**

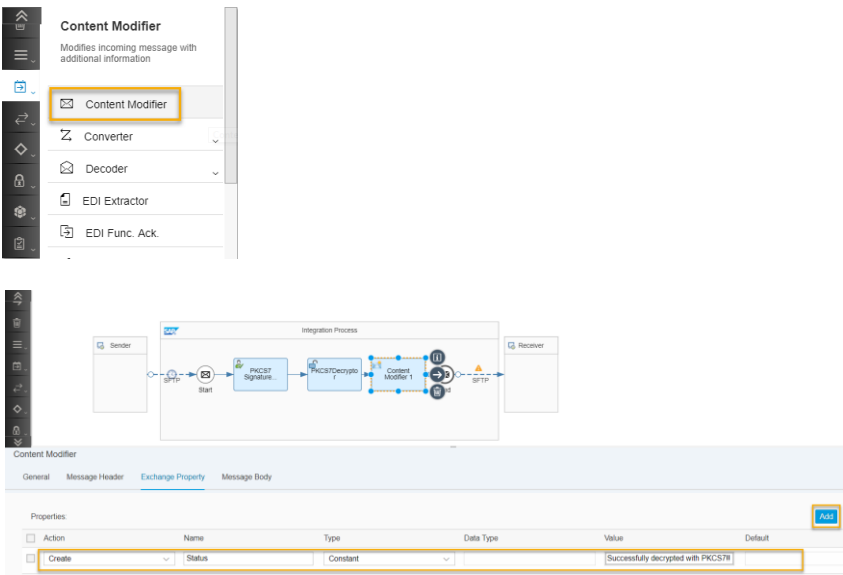
Save



17) From the palette, select **Message Transformers -> Content Modifier** and drop it on the connection between **PKCS7 Decryptor** and **End** message in the Integration flow. This would automatically create the connections.

Switch to **Exchange Property** tab, click on **Add** and add following properties:

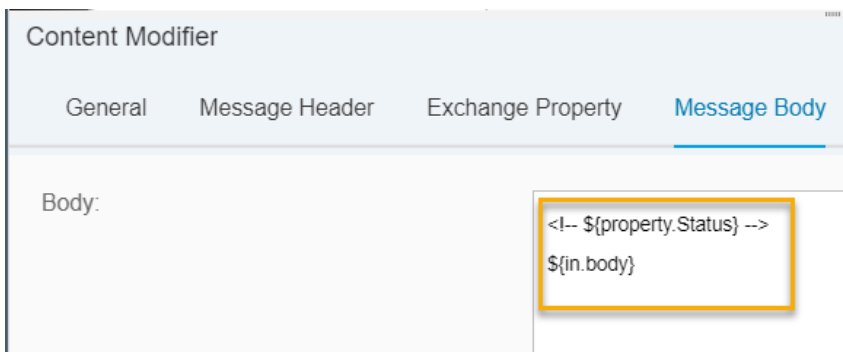
1. Action: **Create**
Name: **Status**
Type: **Constant**
Value: **Successfully decrypted with PKCS7!!**



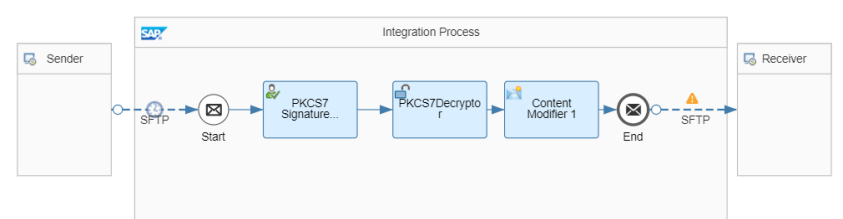
18) Switch to **Body** tab, enter the following expression to form a new message body:


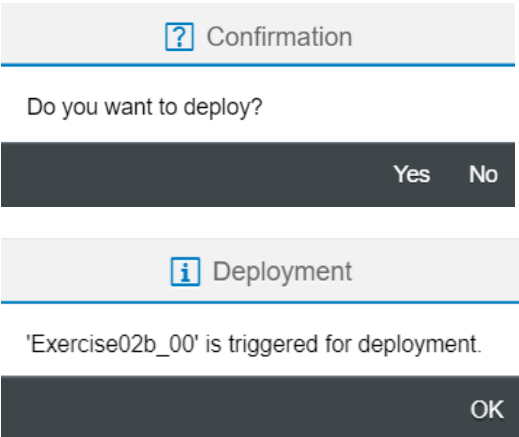
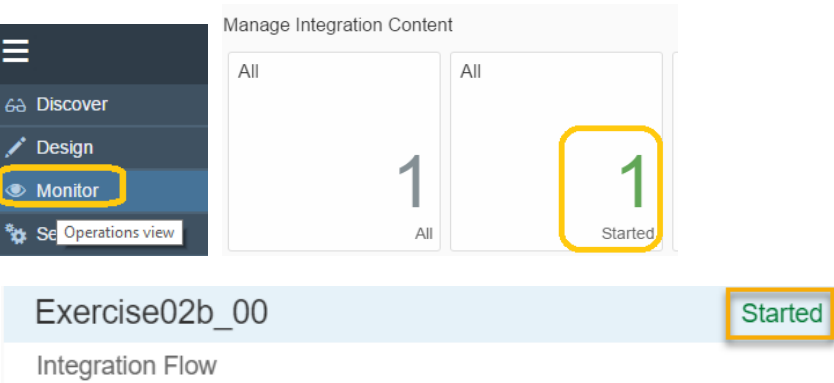
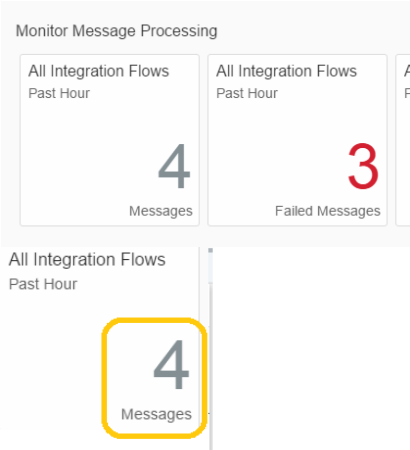
<!-- \${property.Status} --> \${in.body}

Click on Save to save the changes



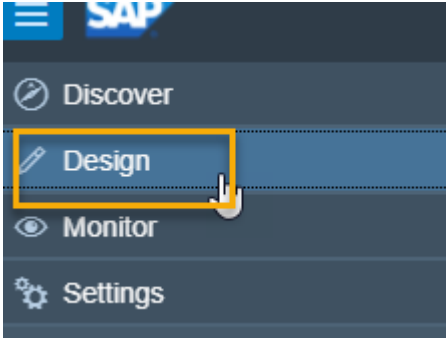
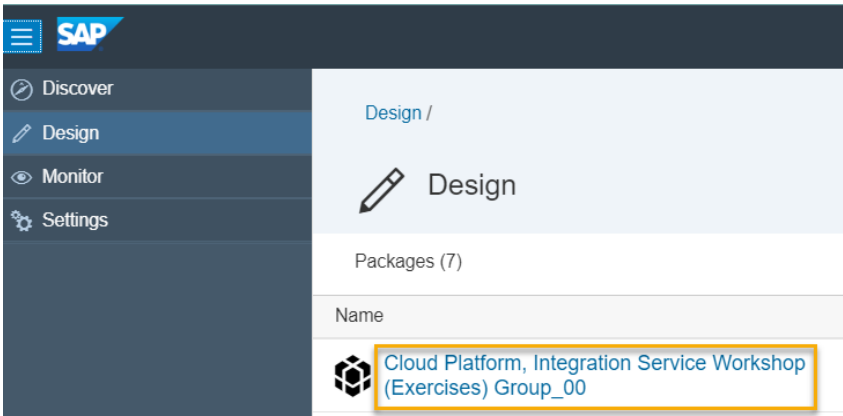
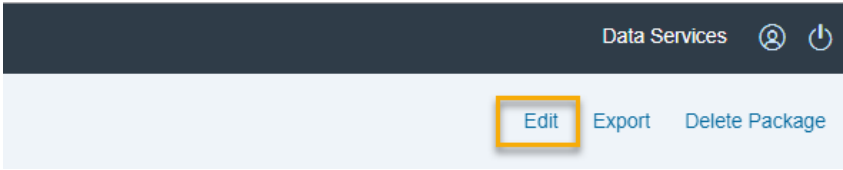
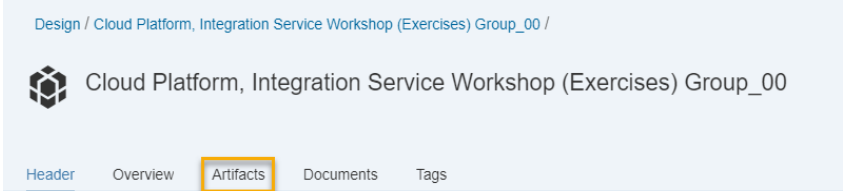
19) Your integration flow should look like this.

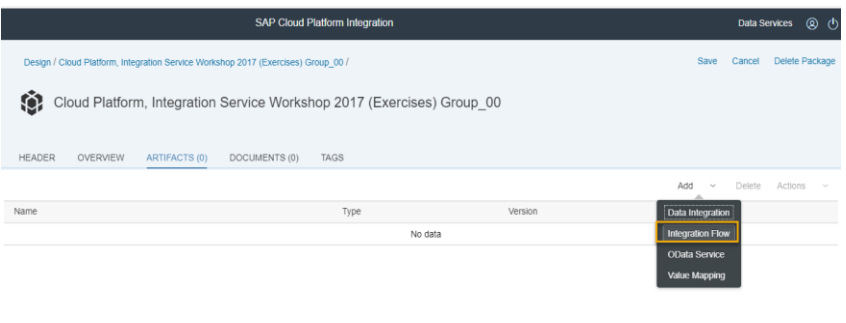
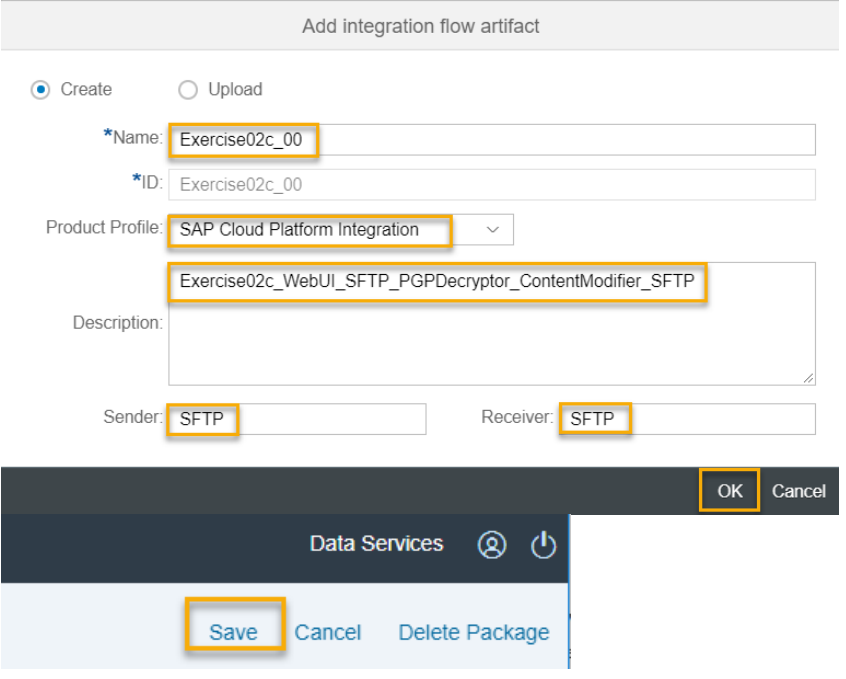

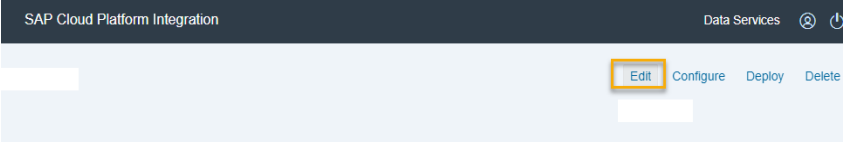



Deploy Integration Project on tenant:	Follow this step to deploy Integration Project on tenant.
20) Press Deploy in the Integration Flow Task Bar	
21) You will receive a confirmation. Click on Yes . Once the deployment is completed successfully you will receive a 2 nd notification.	
22) Verify if the deployment is successful: In the first level Menu Bar switch to Section Monitor and then click on All in Manage Integration Content . You should see an entry with your integration flow. Check the 'status'. It should be in status Started .	
Execute end to end scenario:	Follow steps to execute end to end scenario.
23) As this is a SFTP sender triggered iFlow, it would be executed immediately after the deployment.	
24) Switch to Section Monitor -> Select Messages On this dashboard you will find all the messages processed as per the status. If there is any error, you will find the processing/ error log in the Error Messages section on the dashboard. Click on All messages	

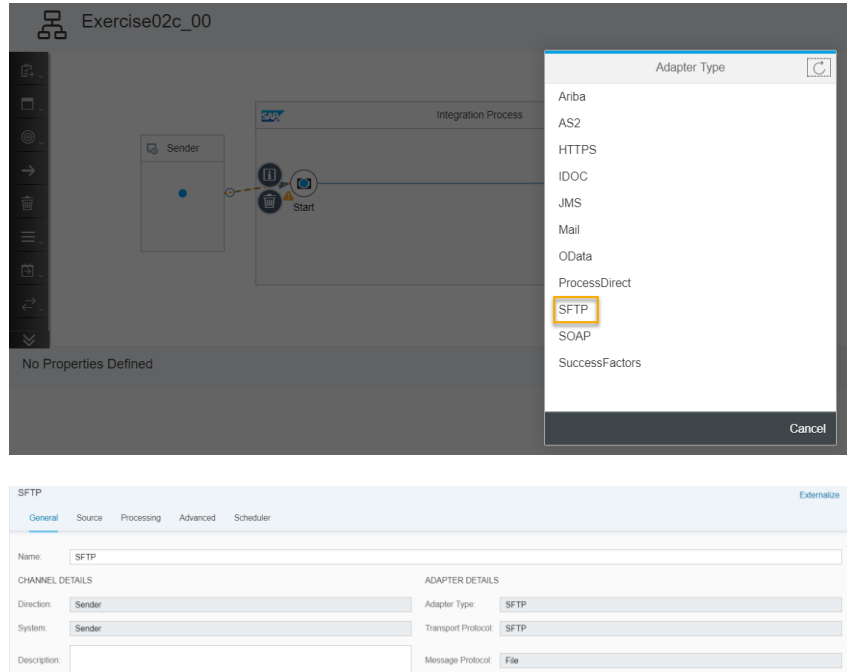
<p>25) If message is successful, it can be seen with Completed status.</p>	<div> <div>Exercise02b_00</div> <div> <div>Jun 06, 2018, 17:35:40</div> <div>Completed</div> <div>483 ms</div> </div> </div>				
<p>26) Open FileZilla and navigate to the folder with the decrypted file on the SFTP server</p>	<div> <div>Remote site: /home/sftp1/CPI_EKT/Group_00/outbox/Exercise02b</div> <div> <div>Group_00</div> <div>outbox</div> <div>Exercise02a</div> <div>Exercise02b</div> </div> <div> <table> <thead> <tr> <th>Filename</th><th>Filesize</th></tr> </thead> <tbody> <tr> <td>IncomeTax_Data.txt</td><td>1,657</td></tr> </tbody> </table> </div> </div>	Filename	Filesize	IncomeTax_Data.txt	1,657
Filename	Filesize				
IncomeTax_Data.txt	1,657				
<p>27) Open the file and check if it was successfully decrypted</p>	<pre> <?xml version="1.0"?> <!-- Successfully decrypted with PKCS7 !! --> <tax:IncomeTaxMessage xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"> <!--1 or more repetitions:--> - <UserData> <!--Zero or more repetitions:--> <TaxID>ABCD1213A</TaxID> <!--Zero or more repetitions:--> <Account_Type>Individual</Account_Type> <!--Zero or more repetitions:--> <Currency>EUR</Currency> <!--Zero or more repetitions:--> <EOM/> <!--Zero or more repetitions:--> <Annual_Income>80000</Annual_Income> <!--Zero or more repetitions:--> <Tax_Percent>40</Tax_Percent> <!--Zero or more repetitions:--> <Tax_Amount>32000</Tax_Amount> <!--Zero or more repetitions:--> <FirstName>John</FirstName> <!--Zero or more repetitions:--> <LastName>Doe</LastName> <!--Zero or more repetitions:--> <Department>ABC</Department> <!--Zero or more repetitions:--> <Address>Dietmar-Hopp-Allee 16, 69190 Walldorf</Address> <!--Zero or more repetitions:--> <Email>john.doe@abc.com</Email> <!--Zero or more repetitions:--> <PhoneNumber>+49 123456789</PhoneNumber> </UserData> </tax:IncomeTaxMessage> </pre>				

EXERCISE 02C

Explanation	Screenshot
Follow these steps for integration flow creation in Web UI.	
1) Navigate to Design tab	
2) Select the package	
3) Click on Edit	
4) Navigate to Artifacts Tab	

<p>5) Click on Add-> Integration Flow</p>	 <p>The screenshot shows the 'SAP Cloud Platform Integration' header with 'Data Services' on the right. Below the header, there's a breadcrumb 'Design / Cloud Platform, Integration Service Workshop 2017 (Exercises) Group_00 /' and buttons 'Save', 'Cancel', and 'Delete Package'. A table lists 'Cloud Platform, Integration Service Workshop 2017 (Exercises) Group_00'. Below this, tabs for 'HEADER', 'OVERVIEW', 'ARTIFACTS (0)', 'DOCUMENTS (0)', and 'TAGS' are visible. A table with columns 'Name', 'Type', and 'Version' shows 'No data'. To the right, a dropdown menu is open, showing options: 'Data Integration', 'Integration Flow' (highlighted), 'OData Service', and 'Value Mapping'.</p>
<p>6) Select Create and enter the following details:</p> <ol style="list-style-type: none"> Name: Exercise02c_XX Description: Exercise02c_WebUI_SFTP_PGPDecrptor_ContentModifie r_SFTP Sender: SFTP Receiver: SFTP Click on OK <p>Note: Please remember to save after every action</p>	 <p>The screenshot shows the 'Add integration flow artifact' form. It has two radio buttons: 'Create' (selected) and 'Upload'. Fields include: '*Name:' with value 'Exercise02c_00', '*ID:' with value 'Exercise02c_00', 'Product Profile:' with a dropdown showing 'SAP Cloud Platform Integration', and a description field with the text 'Exercise02c_WebUI_SFTP_PGPDecrptor_ContentModifie r_SFTP'. At the bottom, 'Sender:' and 'Receiver:' fields both have 'SFTP' entered. There are 'OK' and 'Cancel' buttons at the bottom right. Below the form, a 'Data Services' header is visible with 'Save', 'Cancel', and 'Delete Package' buttons.</p>
<p>7) Click on Excercise02c_xx</p>	 <p>The screenshot shows a list of artifacts. A checkbox is next to 'Exercise02c_00'. Below it, the full name 'Exercise02c_WebUI_SFTP_PGPDecrptor_ContentModifie r_SFTP' is displayed, followed by the status 'Created'.</p>
<p>Define and edit integration flow</p>	<p>Follow steps to edit the integration flow</p>
<p>8) Click on Edit button on the upper corner in the right-hand side.</p>	 <p>The screenshot shows the header of the integration flow editor. It includes the 'SAP Cloud Platform Integration' header and 'Data Services' on the right. Below, there are buttons for 'Edit' (highlighted), 'Configure', 'Deploy', and 'Delete'.</p>
<p>9) Click on Sender system, select Connector and drag it to Start message step. This would open the sender adapter list.</p>	 <p>The screenshot shows a 'Sender' system box. To its right, there are three circular icons: an information icon, a right-pointing arrow icon (highlighted), and a trash icon.</p>

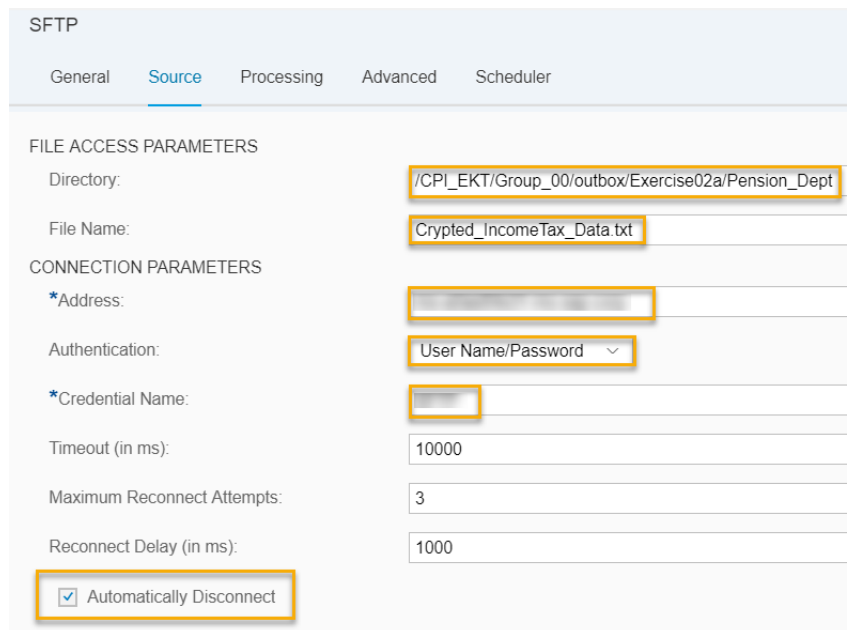
Select **SFTP** adapter



10) Switch to **Source** tab, enter the following details:

- Directory:**
/CPI_EKT/Group_XX/outbox/Exercise02a/Pension_Dept
- File Name:**
Crypted_IncomeTax_Data.txt
- Address:**
<provided by the Instructor>
- Authentication:**
User Name/Password
- Credential Name:**
Name of credential object which holds SFTP user and password, deployed on the tenant.
- Automatically Disconnect:**
checked

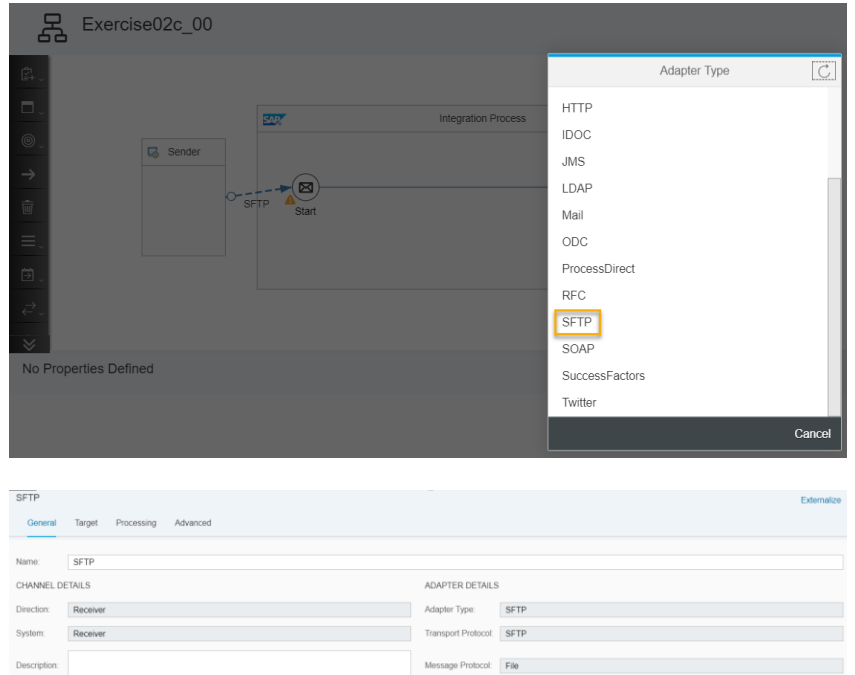
Save



11) Click on **End** message step, select **Connector** and drag it to **Receiver** system.
This would open the receiver adapter list.



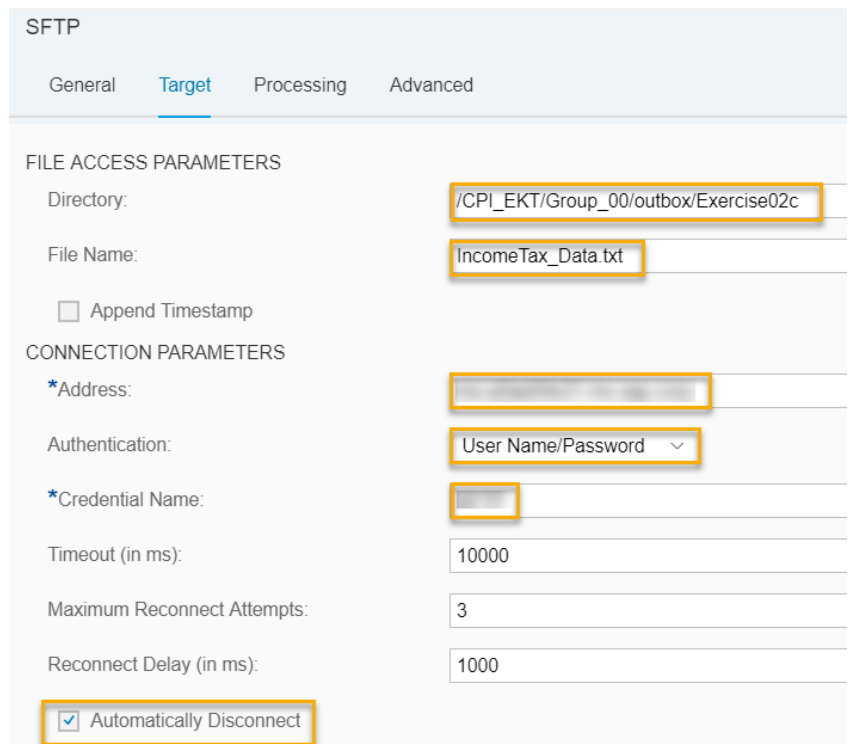
Select **SFTP** adapter



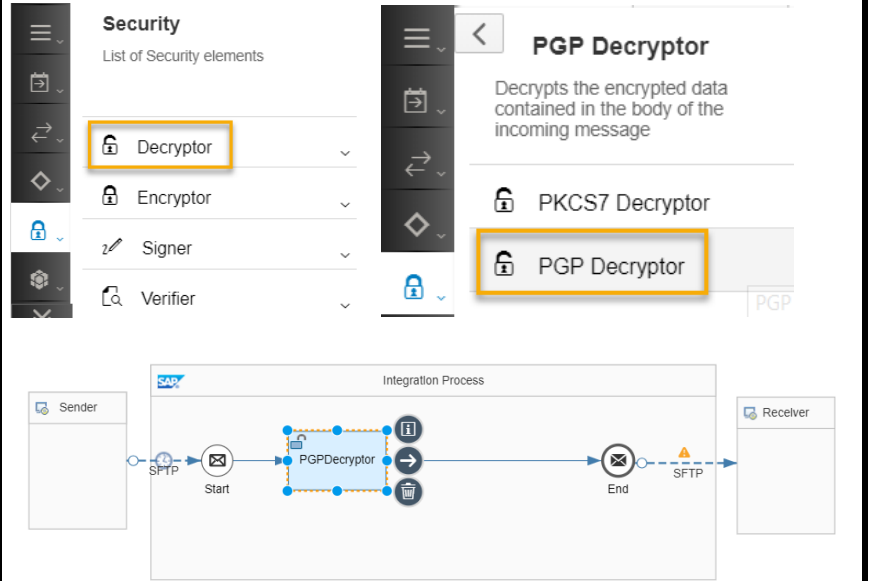
12) Switch to **Target** tab, enter the following details:

- a. **Directory:**
/CPI_EKT/Group_XX/outbox/Exercise02c
- b. **File Name:**
IncomeTax_Data.txt
- c. **Address:**
<provided by the Instructor>
- d. **Authentication:**
User Name/Password
- e. **Credential Name:**
Name of credential object which holds SFTP user and password, deployed on the tenant.
- f. **Automatically Disconnect:**
checked

Save



- 13) From the palette, select **Security Elements -> Decryptor -> PGP Decryptor** and drop it on the connection between **Start** and **End** message in the integration flow



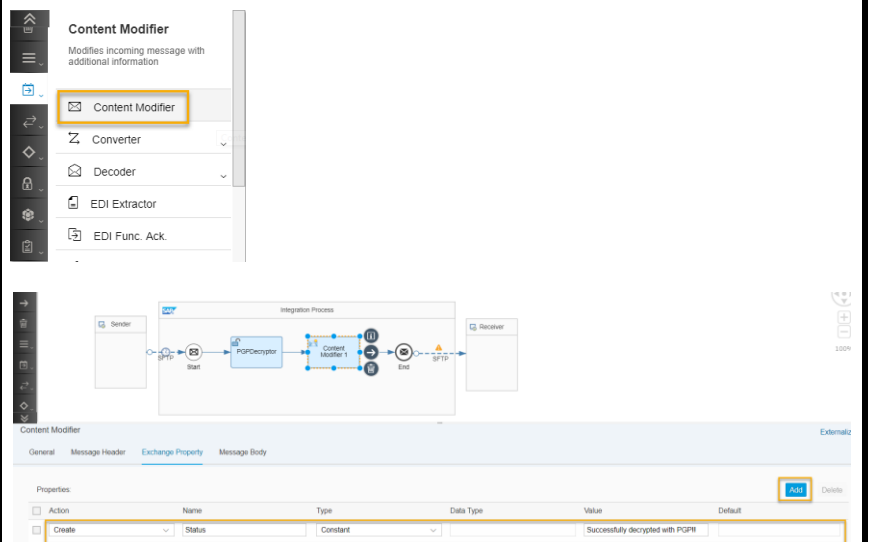
- 14) Keep the default values in the properties of **PGP Decryptor**
- Save

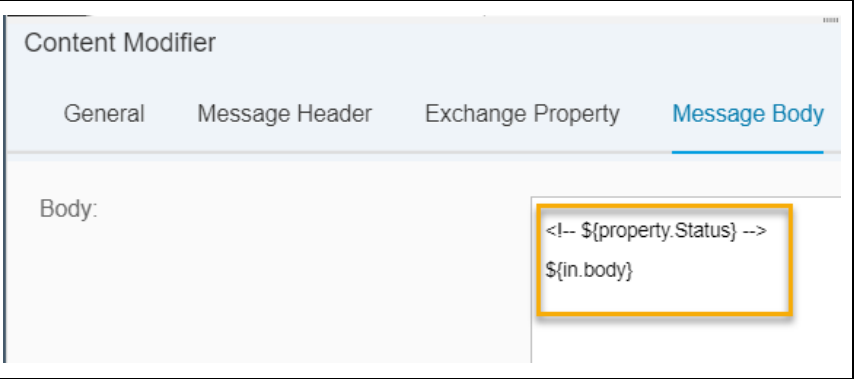
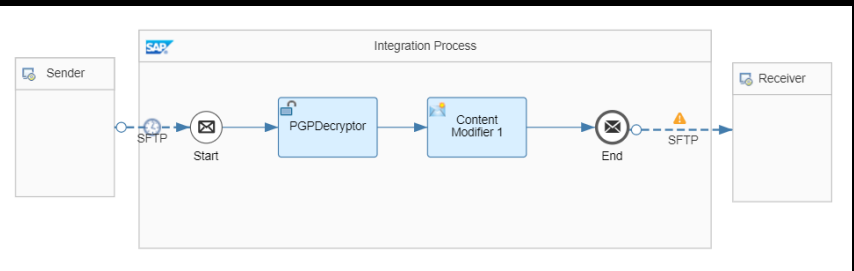
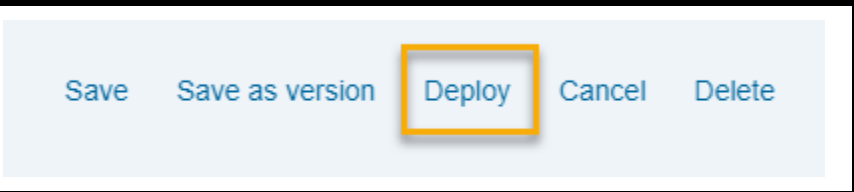
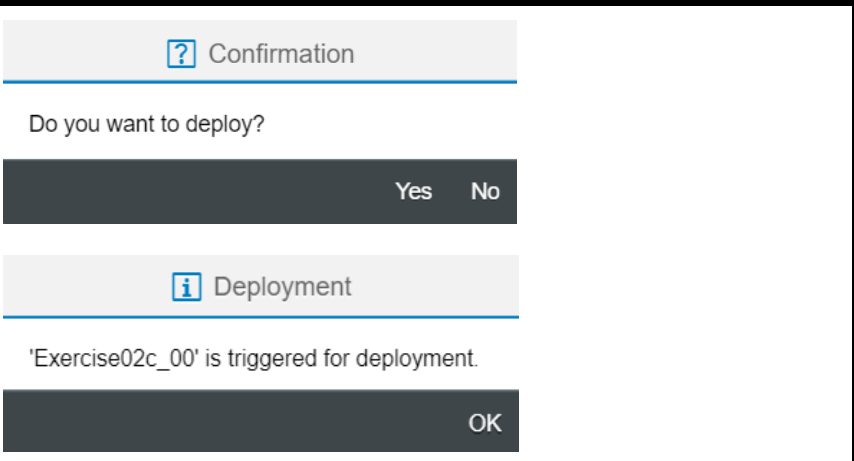
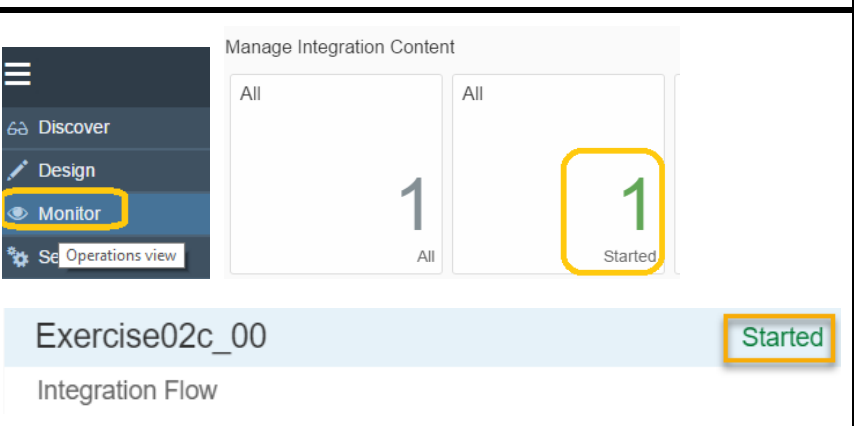


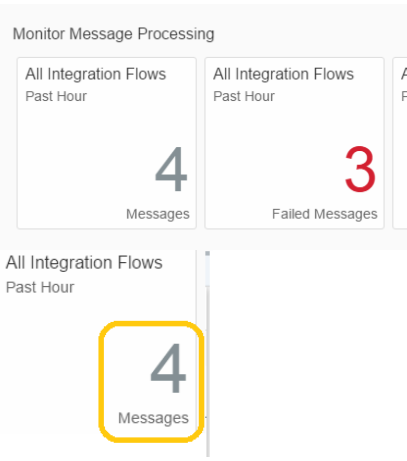
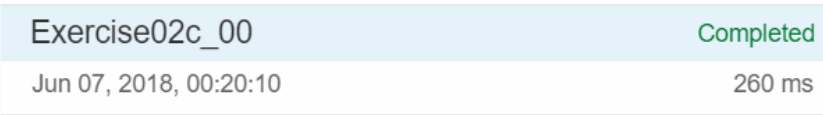
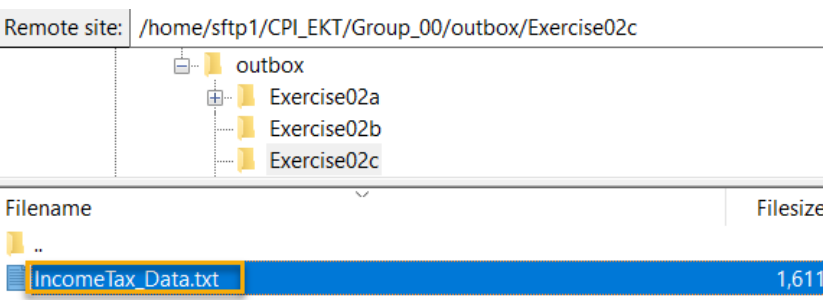
- 15) From the palette, select **Message Transformers -> Content Modifier** and drop it on the connection between **PGP Decryptor** and **End** message in the Integration flow. This would automatically create the connections.

Switch to **Exchange Property** tab, click on **Add** and add following properties:

1. Action: **Create**
Name: **Status**
Type: **Constant**
Value: **Successfully decrypted with PGP!!**



<p>16) Switch to Body tab, enter the following expression to form a new message body:</p> <pre><!-- \${property.Status} --> \${in.body}</pre> <p>Click on Save to save the changes</p>	
<p>17) Your integration flow should look like this.</p>	
<p>Deploy Integration Project on tenant:</p>	<p>Follow this step to deploy Integration Project on tenant.</p>
<p>18) Press Deploy in the Integration Flow Task Bar</p>	
<p>19) You will receive a confirmation. Click on Yes.</p> <p>Once the deployment is completed successfully you will receive a 2nd notification.</p>	
<p>20) Verify if the deployment is successful:</p> <p>In the first level Menu Bar switch to Section Monitor and then click on All in Manage Integration Content.</p> <p>You should see an entry with your integration flow.</p> <p>Check the 'status'. It should be in status Started.</p>	

Execute end to end scenario:	Follow steps to execute end to end scenario.
21) As this is a SFTP sender triggered iFlow, it would be executed immediately after the deployment.	
<p>22) Switch to Section Monitor -> Select Messages On this dashboard you will find all the messages processed as per the status. If there is any error, you will find the processing/ error log in the Error Messages section on the dash board.</p> <p>Click on All messages</p>	
23) If message is successful, it can be seen with Completed status.	
24) Open FileZilla and navigate to the folder with the decrypted file on the SFTP server	

25) Open the file and check if it was successfully decrypted

```
<?xml version="1.0"?>
<!-- Successfully decrypted with PGP !! -->
<tax:IncomeTaxMessage xmlns:soapenv="http://schemas.xmlsoap.org/soap"
  <!--1 or more repetitions:-->
  - <UserData>
    <!--Zero or more repetitions:-->
    <TaxID>ABCD1213A</TaxID>
    <!--Zero or more repetitions:-->
    <Account_Type>Individual</Account_Type>
    <!--Zero or more repetitions:-->
    <Currency>EUR</Currency>
    <!--Zero or more repetitions:-->
    <EOM/>
    <!--Zero or more repetitions:-->
    <Annual_Income>80000</Annual_Income>
    <!--Zero or more repetitions:-->
    <Tax_Percent>40</Tax_Percent>
    <!--Zero or more repetitions:-->
    <Tax_Amount>32000</Tax_Amount>
    <!--Zero or more repetitions:-->
    <FirstName>John</FirstName>
    <!--Zero or more repetitions:-->
    <LastName>Doe</LastName>
    <!--Zero or more repetitions:-->
    <Department>ABC</Department>
    <!--Zero or more repetitions:-->
    <Address>Dietmar-Hopp-Allee 16, 69190 Walldorf</Address>
    <!--Zero or more repetitions:-->
    <Email>john.doe@abc.com</Email>
    <!--Zero or more repetitions:-->
    <PhoneNumber>+49 123456789</PhoneNumber>
  </UserData>
</tax:IncomeTaxMessage>
```