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**EXTERNALIZE
PARAMETERS IN
SAP CPI**

SAP CPI

September 14, 2020 Sudarshan Patwardhan

SAP

Externalize Parameters in SAP CPI

This article helps you understand how to externalize any parameter in SAP CPI. It also covers different configuration scenarios using the externalized parameter to make you understand the conceptual as well as the technical aspects of Flow control. Go through my previous article to understand the basics of ProcessDirect Adapter.

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- 8. EXTERNAL CONFIGURATION OF PARAMETERS to Route via default Route (Route1)
- 9. FINAL VERDICT :

SCENARIO :

The demo will have a Producer Flow (named Main Flow) and Two Consumer Flows (Second Flow or Third Flow, one at a time). Two parameters will be externalized

1. **Switch_To_Flow2**: This is to decide if the Producer Flow has to extend to Consumer Flow (with value = true) or not (with value = false).
2. **Flow_Name**: This is to decide which Consumer Flow is to be called when Switch_To_Flow2 is true (address=/Flow2 will call Second Flow and address= /Flow3 will call Third Flow)

CREATING ARTIFACTS

Step 1: Create three artifacts as shown. **Main Flow** will be the Producer Flow from where we access Consumer flows (**Second flow** or **Third Flow**).



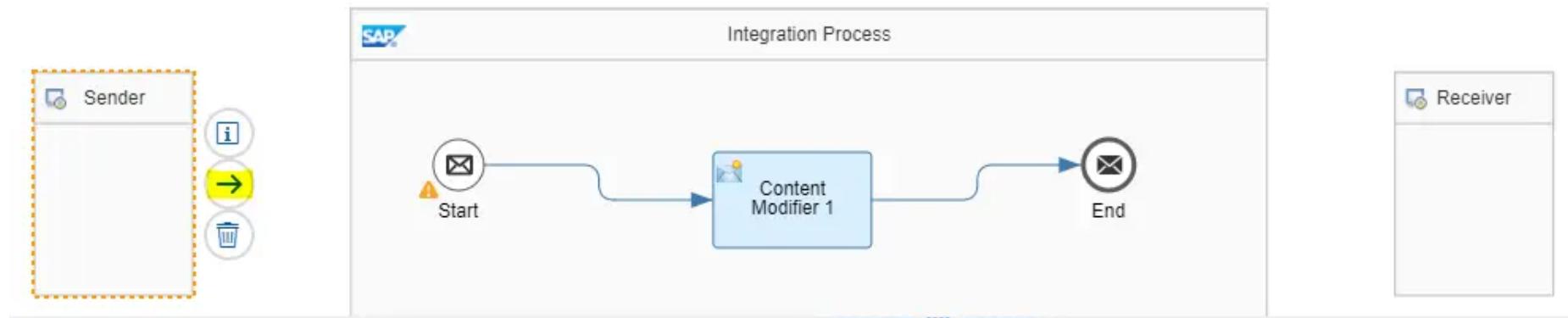
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<input type="checkbox"/> Name	Type	Version	Actions
Main Flow			
<input type="checkbox"/> Created	Integration Flow	Draft	
Second Flow			
<input type="checkbox"/> Created	Integration Flow	Draft	
Third Flow			
<input type="checkbox"/> Created	Integration Flow	1.0.0	

SETTING UP CONSUMER FLOW (SECOND FLOW)

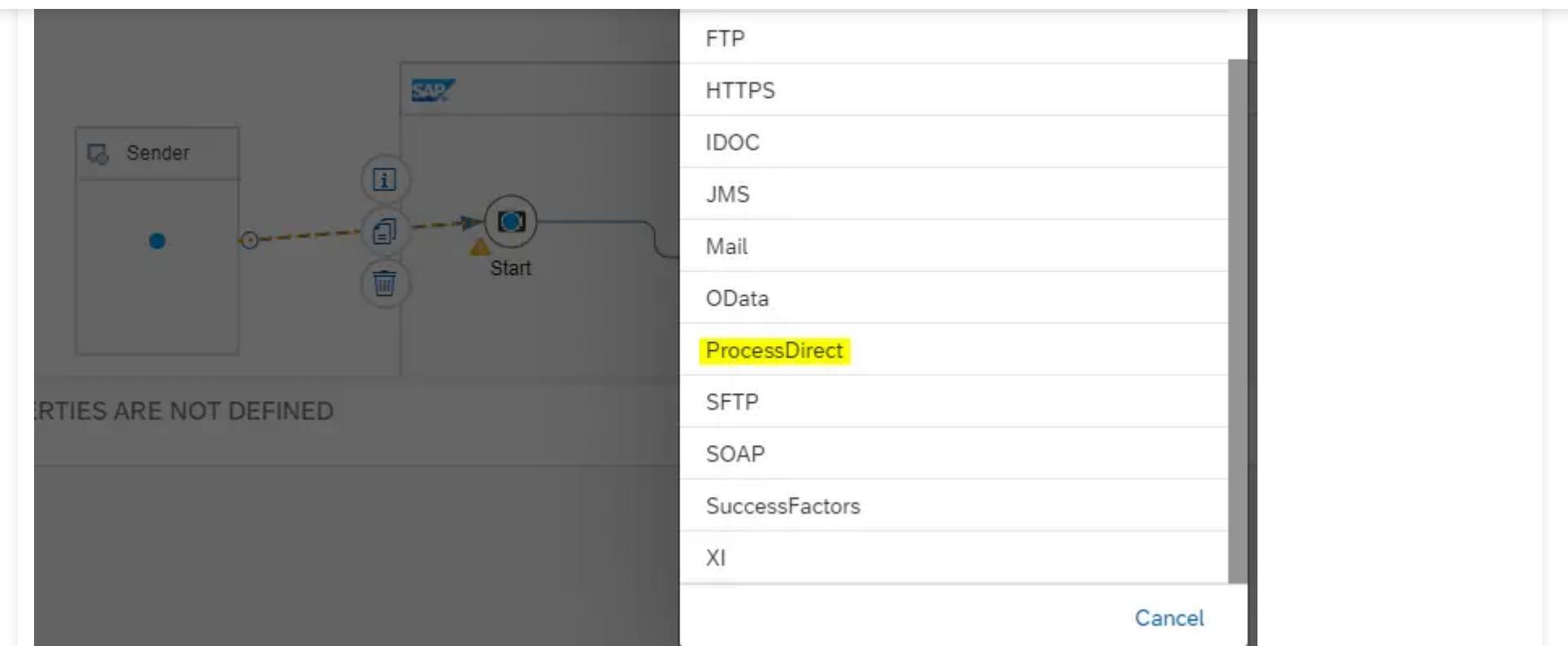
Step 2: Open the Second Flow and add a Content Modifier. Arrange the blocks as shown below.



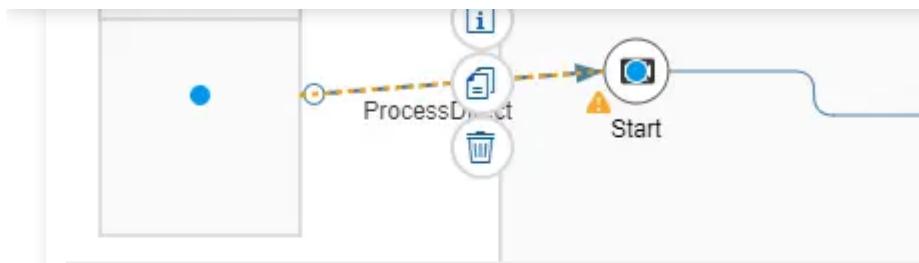
Step 3: Connect **Sender** to **Start**. From the Pop-up appearing, Choose **ProcessDirect** adapter.



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Step 4: In the Connection tab of the ProcessDirect, type the address as /Flow2 as in the below image.

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Direct

[General](#) [Connection](#)

CONNECTION DETAILS

Address: *

Step 5: Select Content Modifier. In the Message Body tab, Choose Type = Expression, and in **Body** type any custom message,

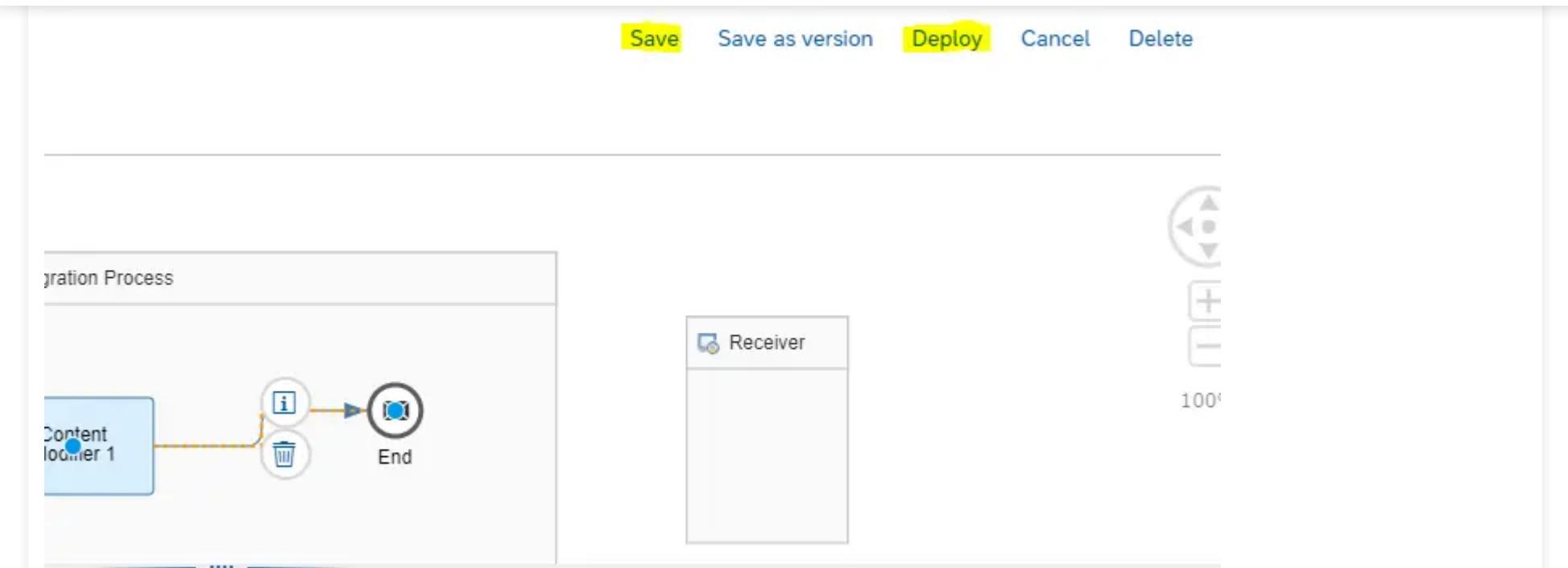
 `${in.body}`

Second Flow In Action

Content Modifier

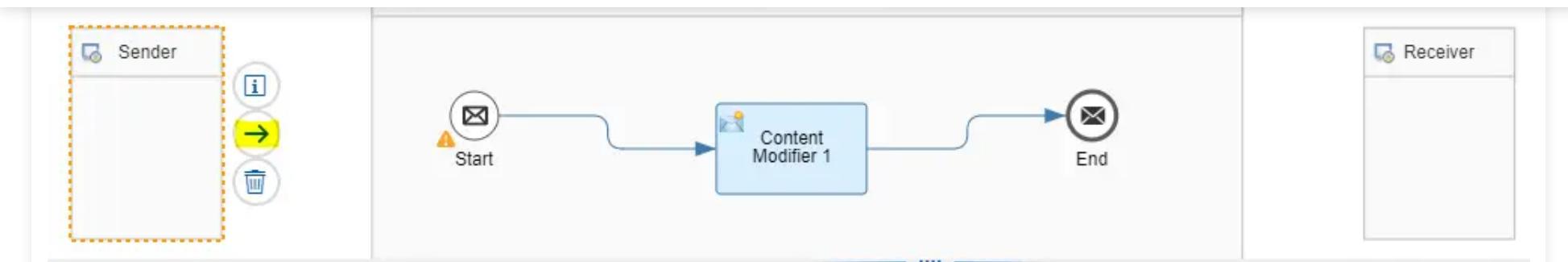
[General](#) [Message Header](#) [Exchange Property](#) [Message Body](#)Type: Body: `${in.body}`
 `Second Flow In Action`

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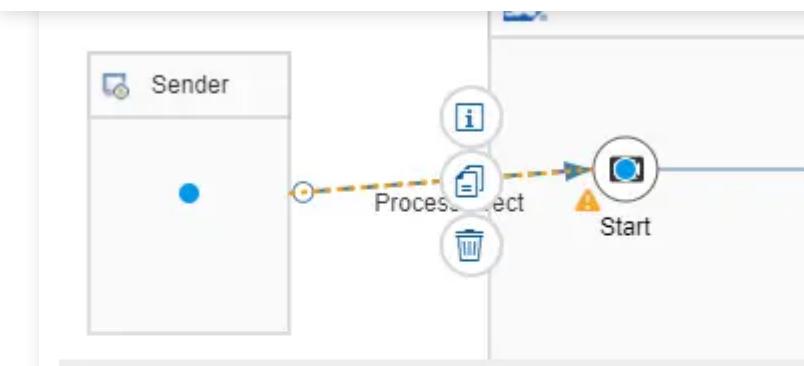
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SETTING UP CONSUMER FLOW (THIRD FLOW)

Step 7: Open **Third Flow** artifact. Connect Everything as done in Second Flow artifact.

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Step 8: Connect Sender to start. From the Pop-up, choose ProcessDirect adapter. In the **connection** tab, Type address as **/Flow3**.

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Direct

General  Connection

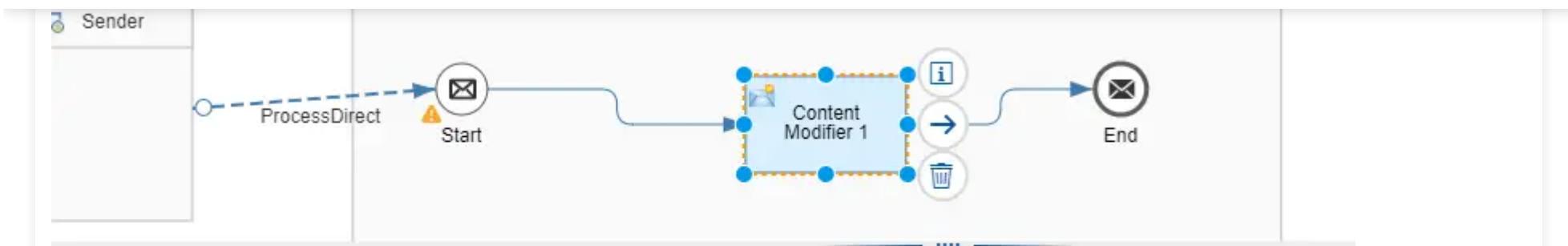
CONNECTION DETAILS

Address: * /Flow3

Step 9: Select Content Modifier. In the **Message Body** tab, type as shown below.

```
 ${in.body}
```

Third Flow In Action

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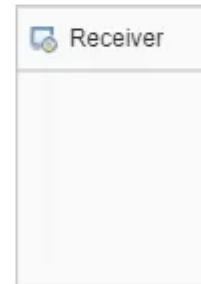
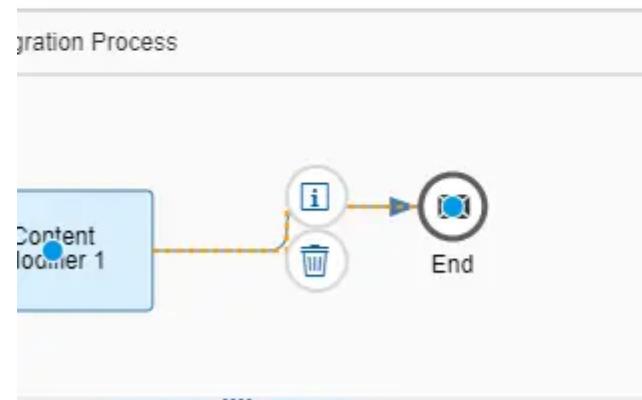
ifier

Message Header Exchange Property **Message Body**

Type: **Expression**

Body: \${in.body}
Third Flow In Action

Step 10 : Save and Deploy.

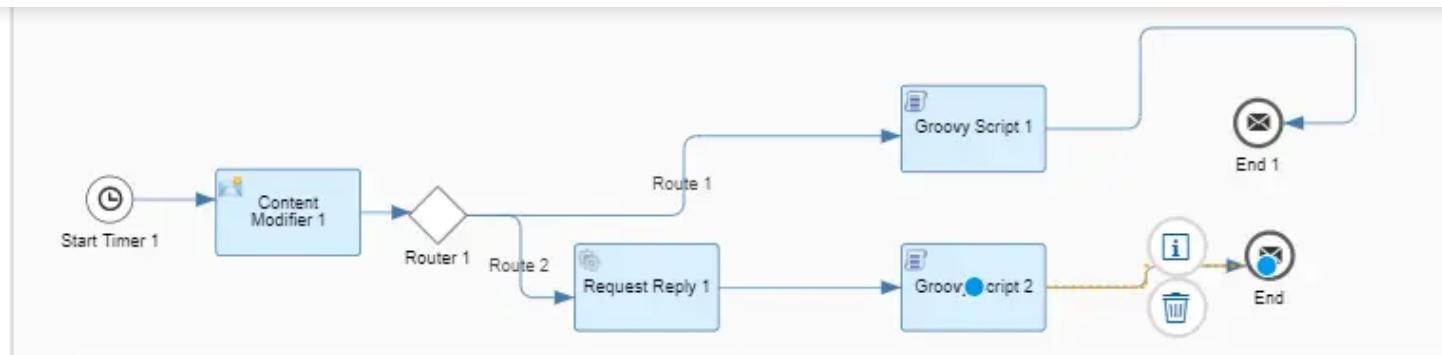
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SETTING UP PRODUCER FLOW (MAIN FLOW)

Step 11: Open Main Flow. Get below shown Blocks from the Pallet on your left and arrange as shown in the below image. The Configuration of each block will be shown in the upcoming steps.

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Step 12: Select **Timer**. In the **scheduler** tab, check **Run Once**. This is to make sure the flow gets triggered as soon as it is deployed.

Timer Start

General	Scheduler
<input checked="" type="radio"/> Run Once <input type="radio"/> Schedule on Day <input type="radio"/> Schedule to Recur	

Step 13: Select **Content Modifier**. In the **Exchange property** tab, create a property as shown below.

Name: Switch_To_Flow2 (This can be any Custom Name)

Type: Expression

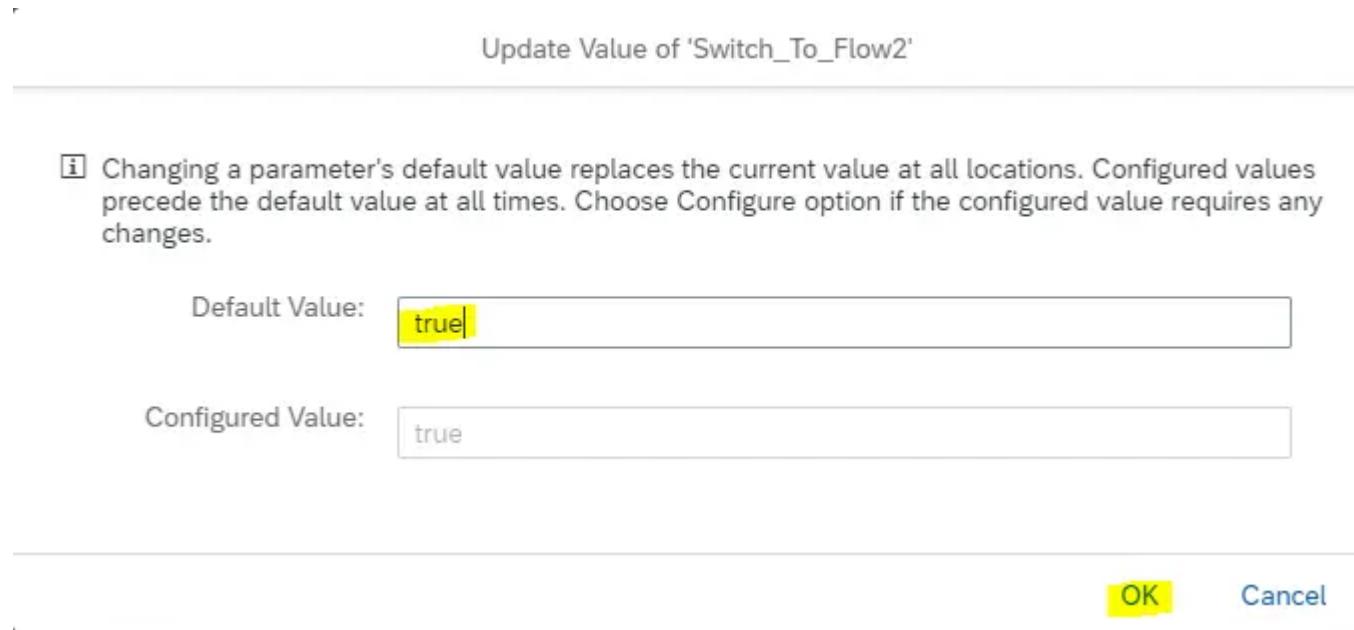
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General Message Header Exchange Property Message Body

Properties: Add Delete

Action	Name	Type	Data Type	Value	Default
<input type="checkbox"/> Create	Switch_To_Flow2	Expression		<Define Value>	

Step 14: Click on the <Define Value>. In the Pop Up appearing, Give Default **Value = true**. Click on **OK**.



Step 15: It should now look as below.

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Properties:						Add	Delete
Action	Name	Type	Data Type	Value	Default		
<input type="checkbox"/> Create	Switch_To_Flow2	Expression		true 			

Step 16: Select **Content Modifier**. In **Message Body** Tab, Write any custom message as Below.

Content Modifier

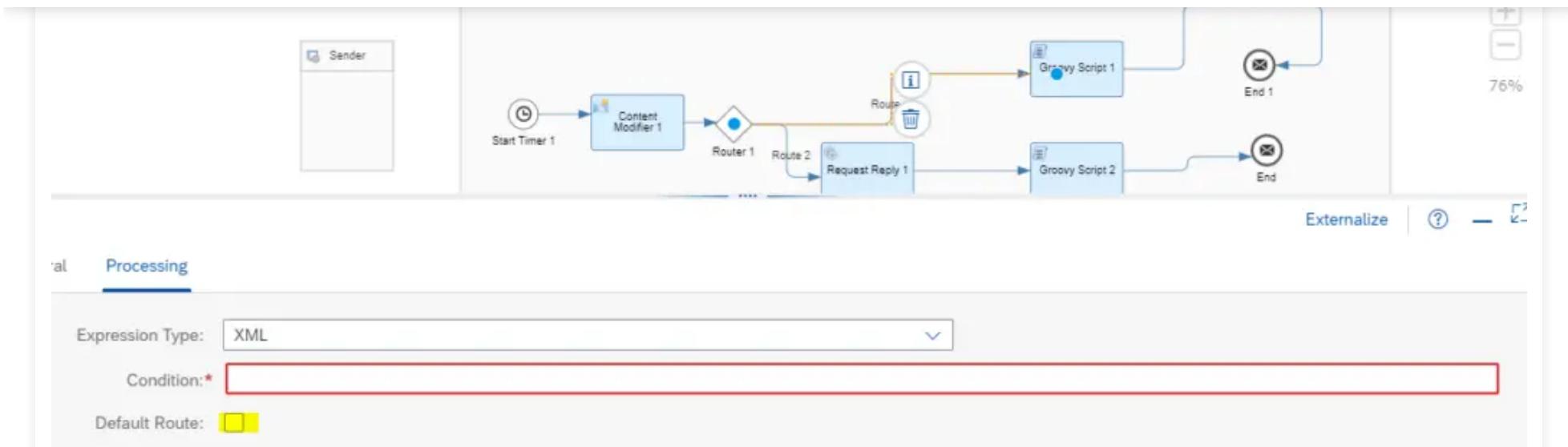
General Message Header Exchange Property **Message Body**

Type: **Constant**

Body: First Flow in Action

Step 17: Select Route1 and in the Processing tab, Check the Default Route button. This route will now act as the default Route.

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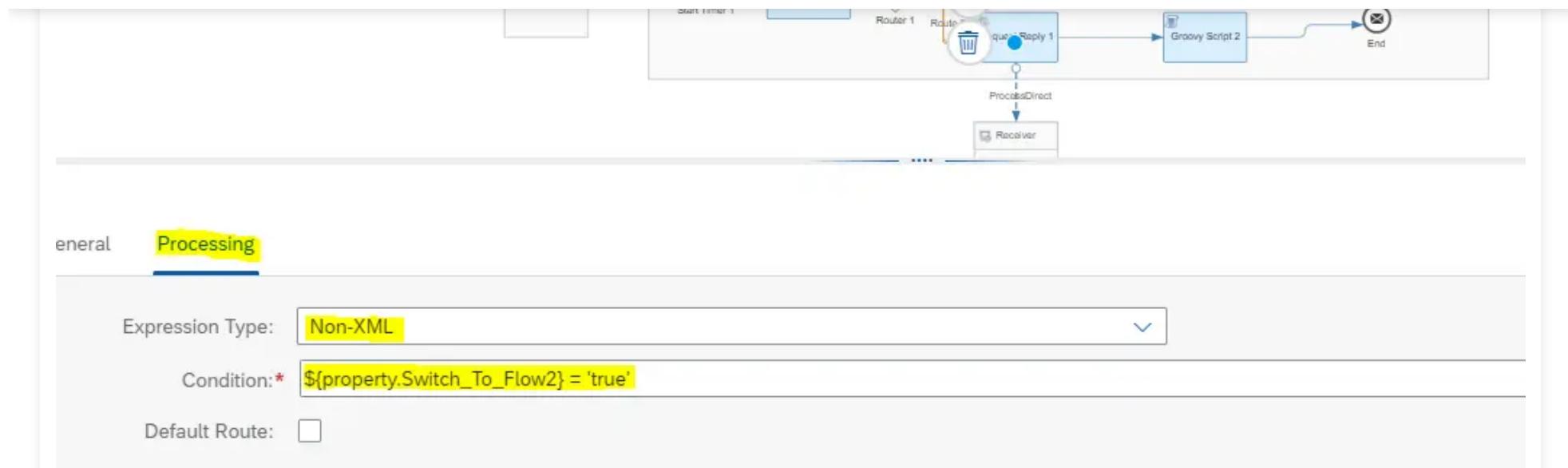
Step 18: Select **Route2**. In **processing** tab, Choose **Non-XML** expression type. In **Condition** field,

```
 ${property.Switch_To_Flow2} = 'true'
```



In case, the value of the externalized parameter (**Step14**) is **true**, the flow will take this path.

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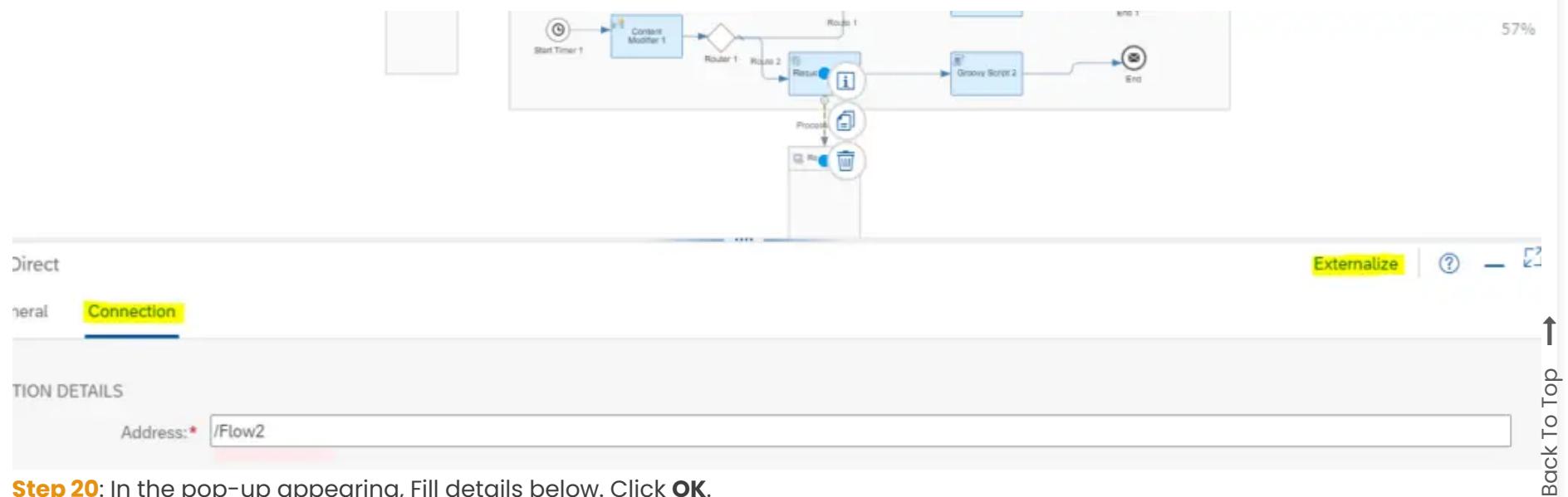
General Processing

Expression Type: Non-XML

Condition: * \${property.Switch_To_Flow2} = 'true'

Default Route:

Step 19: Connect Request-Reply to Receiver. From the Pop-up appearing, Choose **ProcessDirect** adapter. In The **connections** tab, click on **Externalize**.



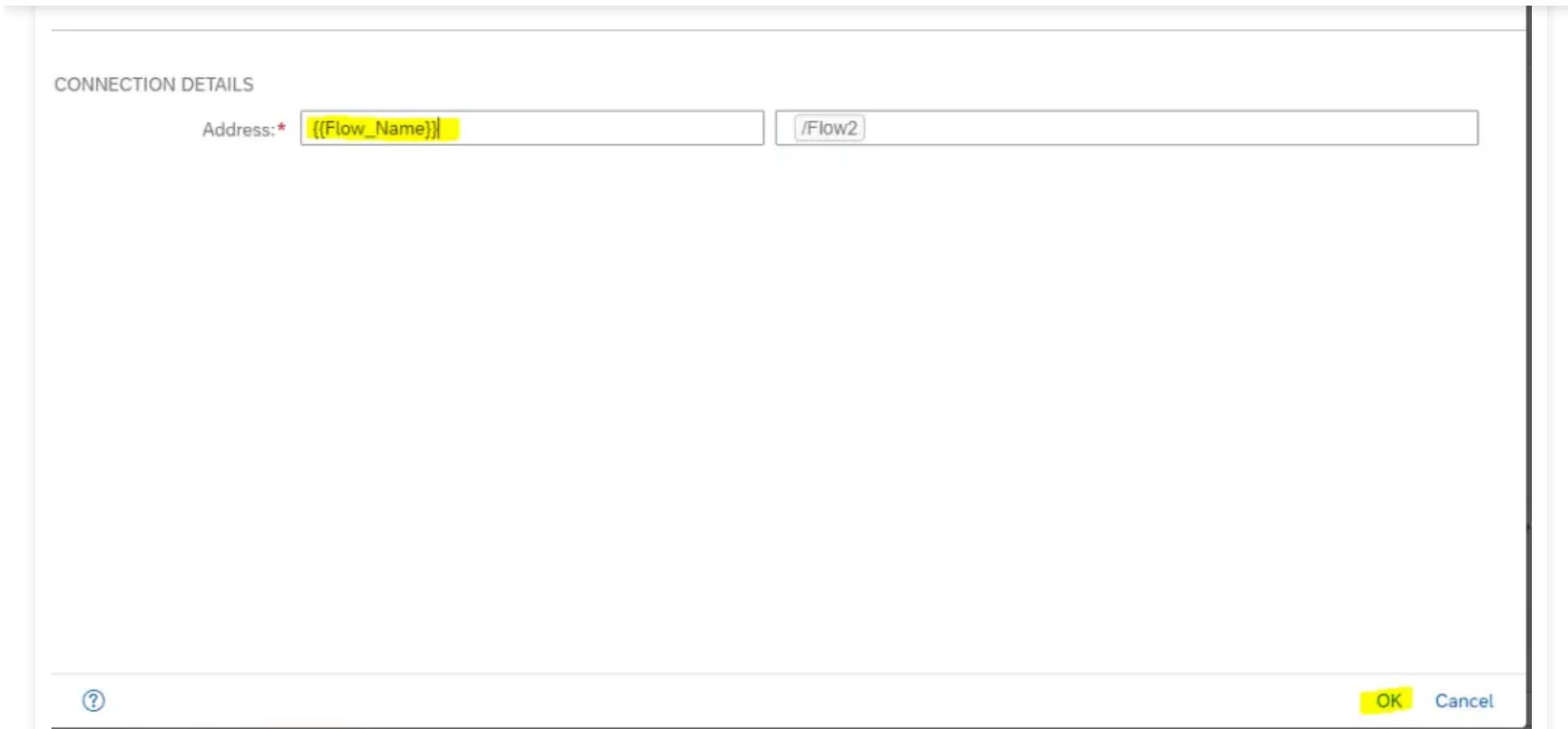
General Connection

Address: * /Flow2

Externalize

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Step 20: In the pop-up appearing, Fill details below. Click **OK**.

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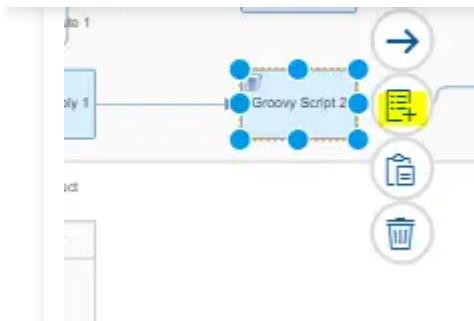
{Flow_Name} → This can be any custom Name

/Flow2 --> this is the address of the default consumer flow to be called (Second Flow or Third Flow)

Step 21: Select **Groovy Script**. Click on the below-highlighted icon.



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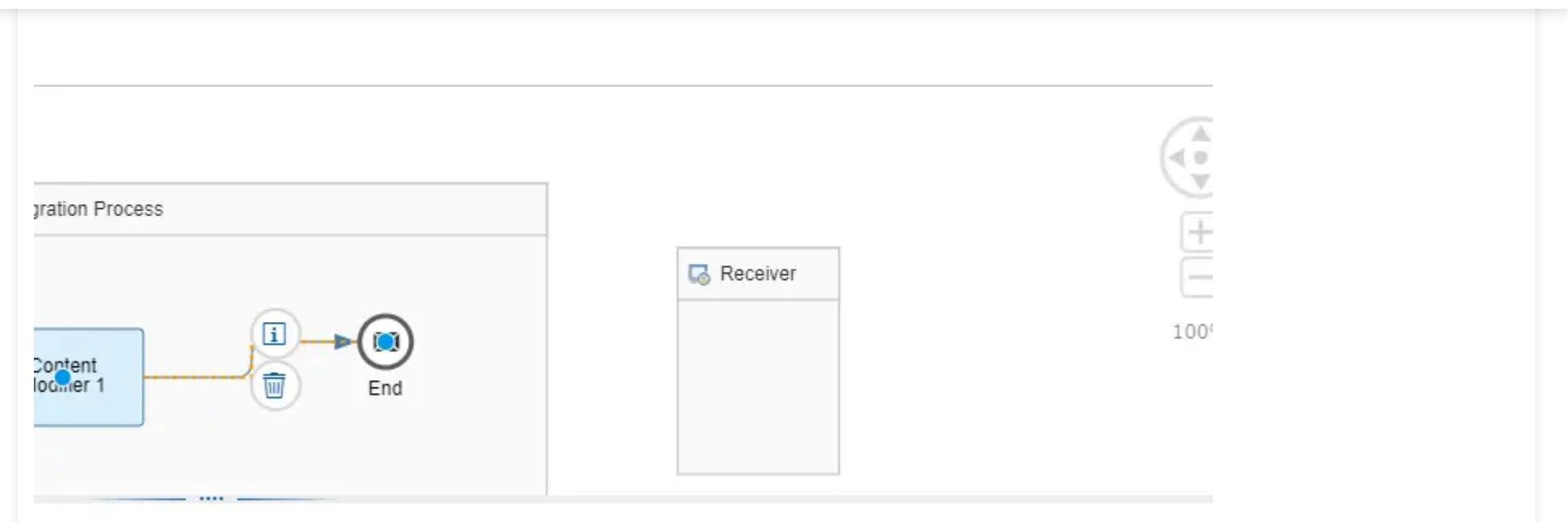
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Step 22: Remove the default coding and paste the following code. This is to log the payload.

```
import com.sap.gateway.ip.core.customdev.util.Message;
def Message processData(Message message) {
    def body = message.getBody(java.lang.String) as String;
    def messageLog = messageLogFactory.getMessageLog(message);
    if(messageLog != null){
        messageLog.setStringProperty("Logging#1", "Printing Payload As Attachment")
        messageLog.addAttachmentAsString("ResponsePayload1:", body, "text/plain");
    }
    return message;
}
```

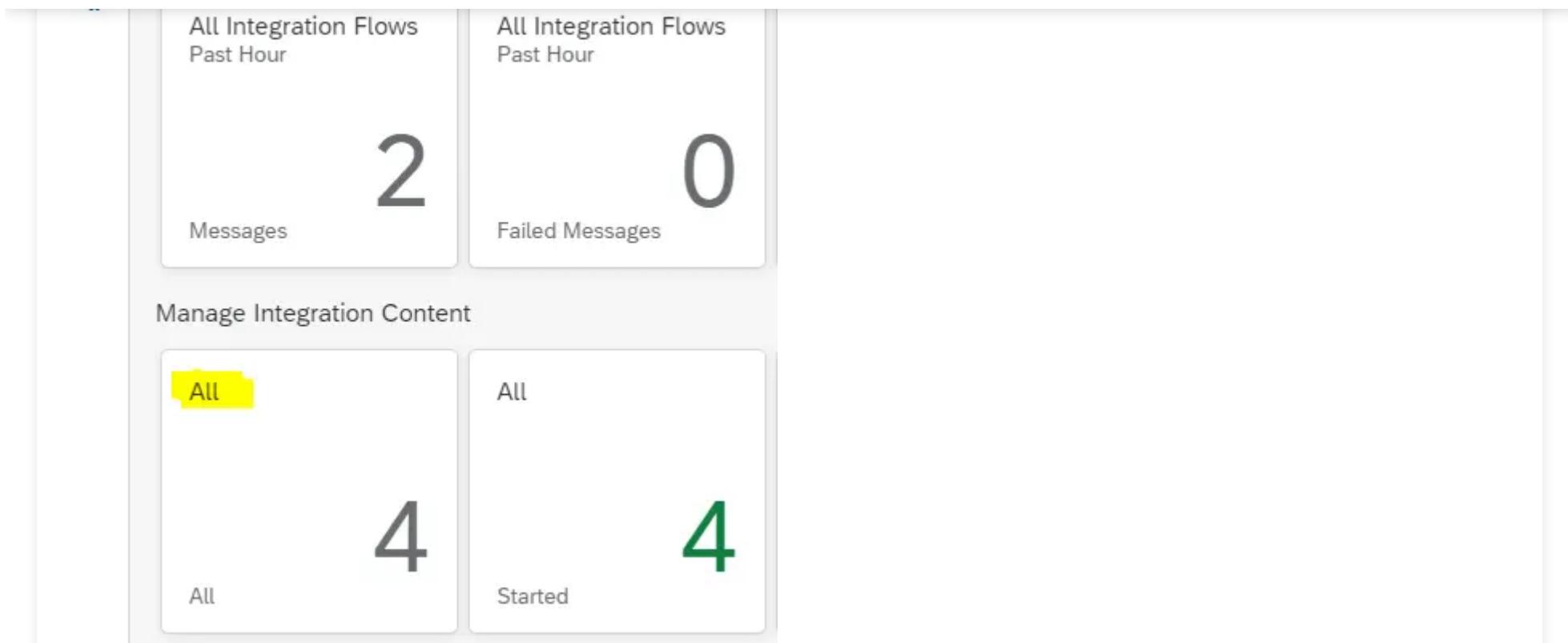
Step 23: Repeat *Step 21* and *Step 22* for another Groovy script as well.

Step 24: **Save** and **Deploy** the flow.

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MONITORING

Step 25: Go to **Overview Window**. Under **Manage Integration Content**, Click on **All**.

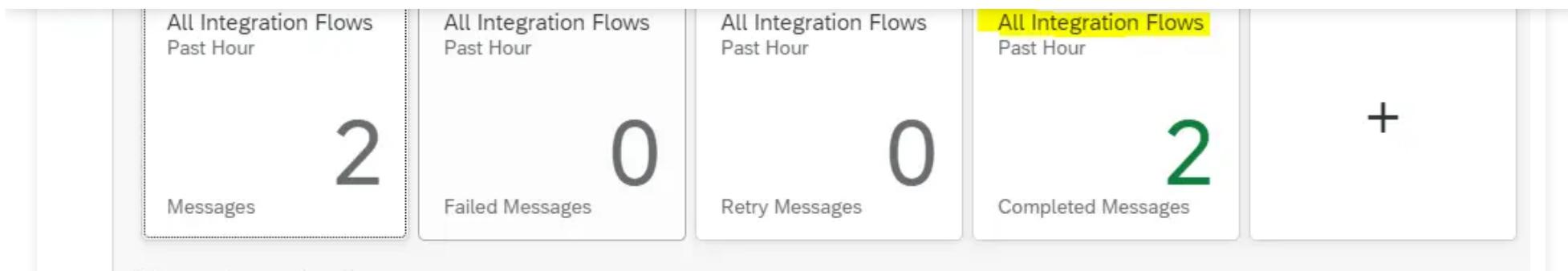
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Step 26: Make sure that all 3 Flows are **started**.

Integration Content (4)		Filter by Name or ID			
Name	Status				
Main Flow	Started				
Integration Flow					
Second Flow	Started				
Integration Flow					

Step 27: If all 3 flows are started, then go to the **Completed Messages** tile.

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Step 28: You should see the below two Flows in the **Completed** state. Click on **Main Flow** and Click on **Logs**.

Filter settings:

- Time: Past Hour
- Status: Completed
- Artifact: All Integration Flows
- ID: Message, Correlation or Application ID

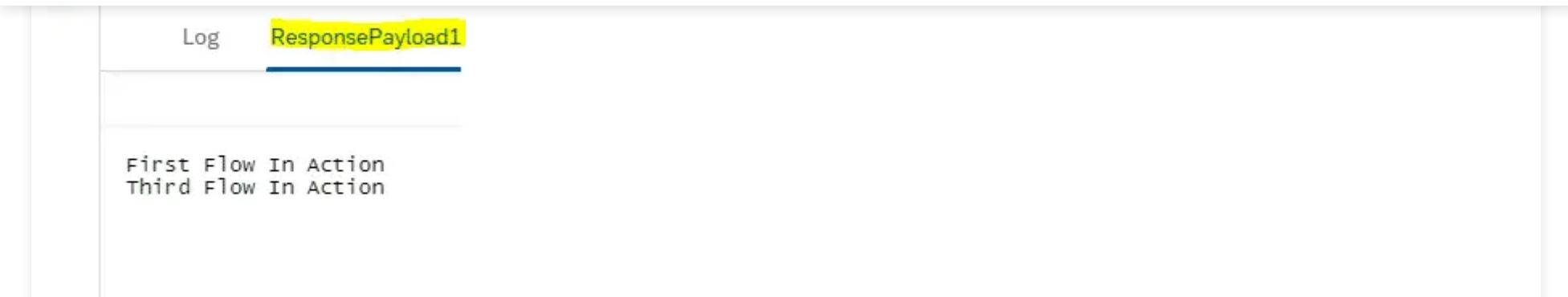
Message history:

Artifact Name	Status	Timestamp	Processing Time
Main Flow	Completed	Aug 27, 2020, 19:56:39	511 ms
Second Flow	Completed	Aug 27, 2020, 19:56:38	12 ms

Main Flow details:

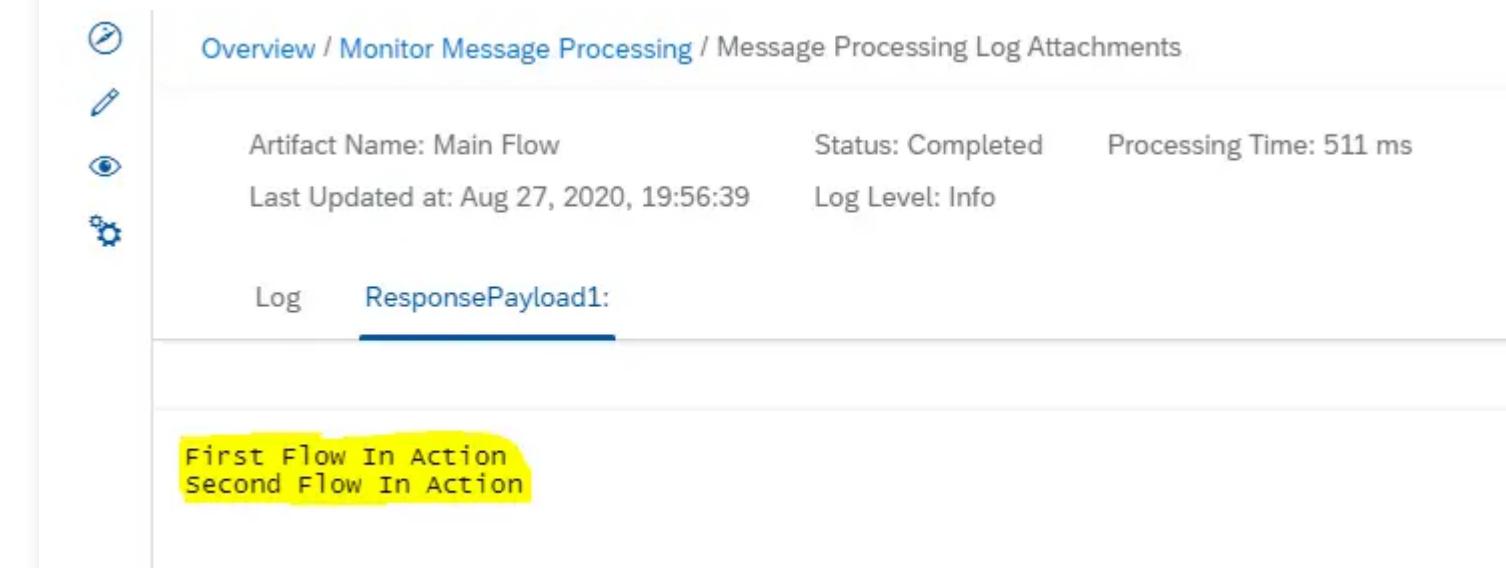
- Last Updated at: Aug 27, 2020, 19:56:39
- Status tab selected
- Logs tab selected (highlighted in yellow)
- Attachments tab
- Logs content: "Message processing completed successfully."
- Processing Time: 511 ms

Step 29 : Under **Attachments**, Click on **ResponsePayload1**.

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The screenshot shows the SAP CPI interface with the 'ResponsePayload1' tab selected. Below the tabs, there are two lines of text: 'First Flow In Action' and 'Third Flow In Action'. Both lines are highlighted with yellow boxes.

Step 30: If you have given the custom messages exactly shown in the above screenshots, you should see a response as below.



The screenshot shows the SAP CPI interface with the 'ResponsePayload1' tab selected. At the top, it shows 'Overview / Monitor Message Processing / Message Processing Log Attachments'. Below that, artifact details are listed: 'Artifact Name: Main Flow', 'Status: Completed', 'Processing Time: 511 ms', 'Last Updated at: Aug 27, 2020, 19:56:39', and 'Log Level: Info'. Further down, the 'ResponsePayload1:' tab is selected, displaying the same two custom messages: 'First Flow In Action' and 'Second Flow In Action'. The 'Second Flow In Action' message is also highlighted with a yellow box.

From the output, you can say that Second Flow is called. This was because we had given the default address of Second Flow (/Flow2) in **Step 20**. If u had given the default address of Third Flow (/Flow3), it would call Third Flow.

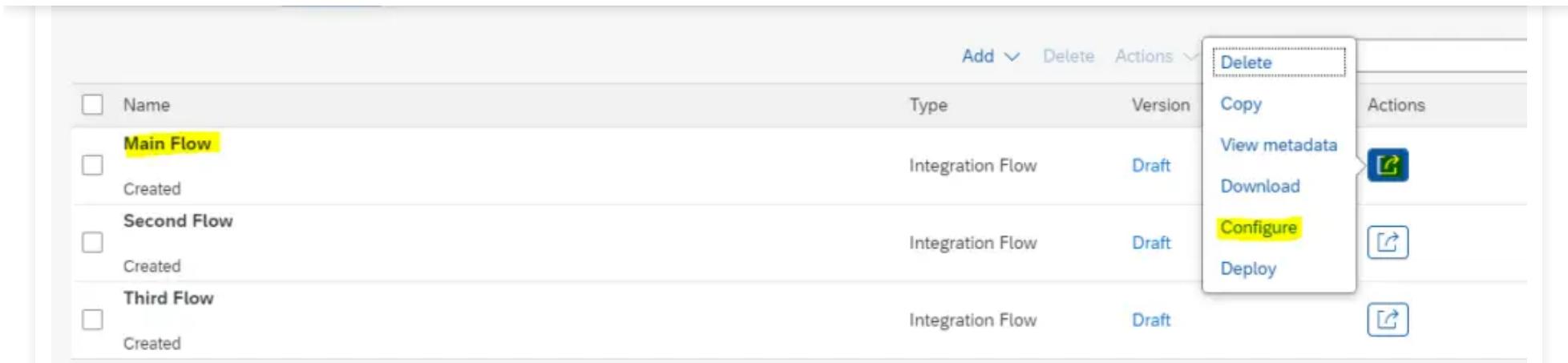


EXTERNAL CONFIGURATION OF PARAMETERS to call Different Consumer Flow (THIRD FLOW)

Step 31: Go to the artifacts tab in the Design window and Click on **Actions** of **Main Flow**. Select **Configure**.

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Name	Type	Version	Actions
Main Flow	Integration Flow	Draft	 Delete
Second Flow	Integration Flow	Draft	 Copy  View metadata  Download
Third Flow	Integration Flow	Draft	 Configure  Deploy
Created			 Deploy

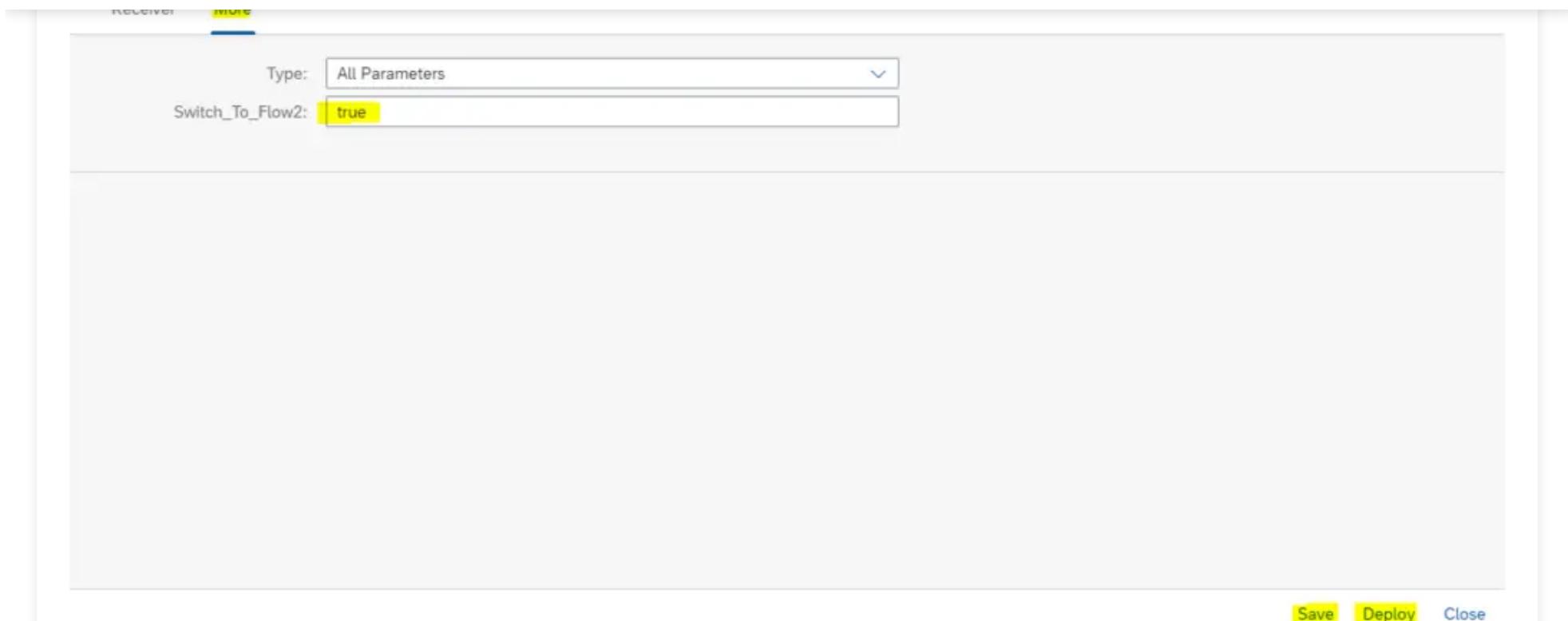
Step 32: In the Receiver tab of Pop up, Write the address as **/Flow3**. This overwrites the default value (/Flow2) and Directs the call to Third Flow.

Configure "Main Flow"



Receiver	More
Receiver: Receiver	
Adapter Type: ProcessDirect	
Connection	
Address: /Flow3	

Step 33: In the More tab, keep the value as truth itself. Click on **Save** and **Deploy**.

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Step 34: Now under ***Completed messages***, you will see Main Flow and Third Flow

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Main Flow

	Status	Properties	Logs	Attachments
Aug 28, 2020, 16:18:41	Completed	716 ms		
Flow3	Completed			
Aug 28, 2020, 16:18:40		5 ms		

Log Level: Info

Attachments

Name	Modified At	Size	Action
ResponsePayload1:	Aug 28, 2020, 16:18:40	1 KB	Download

Step 35: Click on **ResponsePayload1** of **Main Flow**. You will see the custom message from Main Flow and Custom Message From Third Flow.

Artifact Name: Main Flow

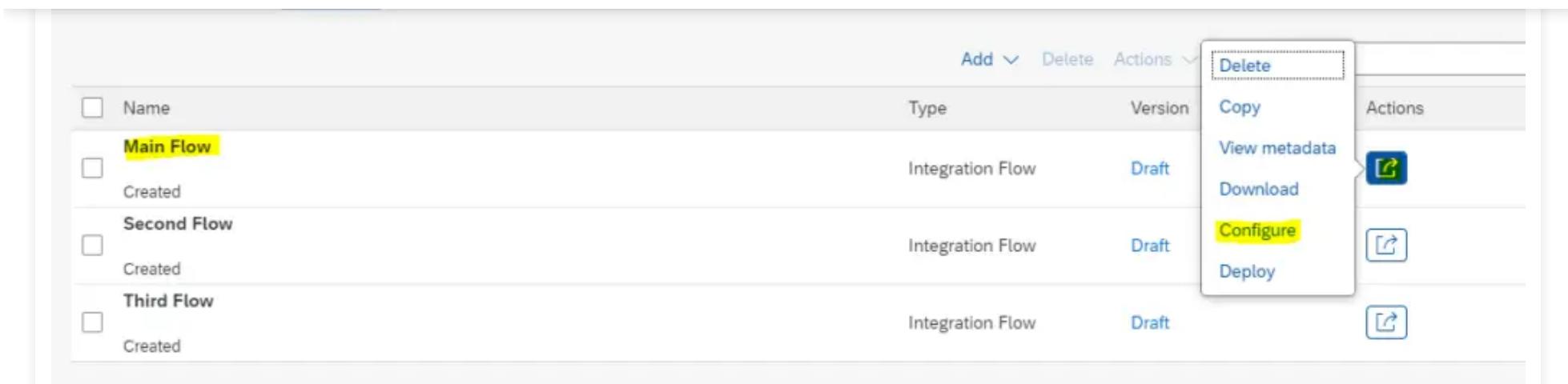
Last Updated at: Aug 28, 2020

Log ResponsePayload1

First Flow In Action
Third Flow In Action

EXTERNAL CONFIGURATION OF PARAMETERS to Route via default Route (Route1)

Step 36: Go to the **Artifacts** tab. Click on **Actions** of **Main Flow**. Select **Configure**.

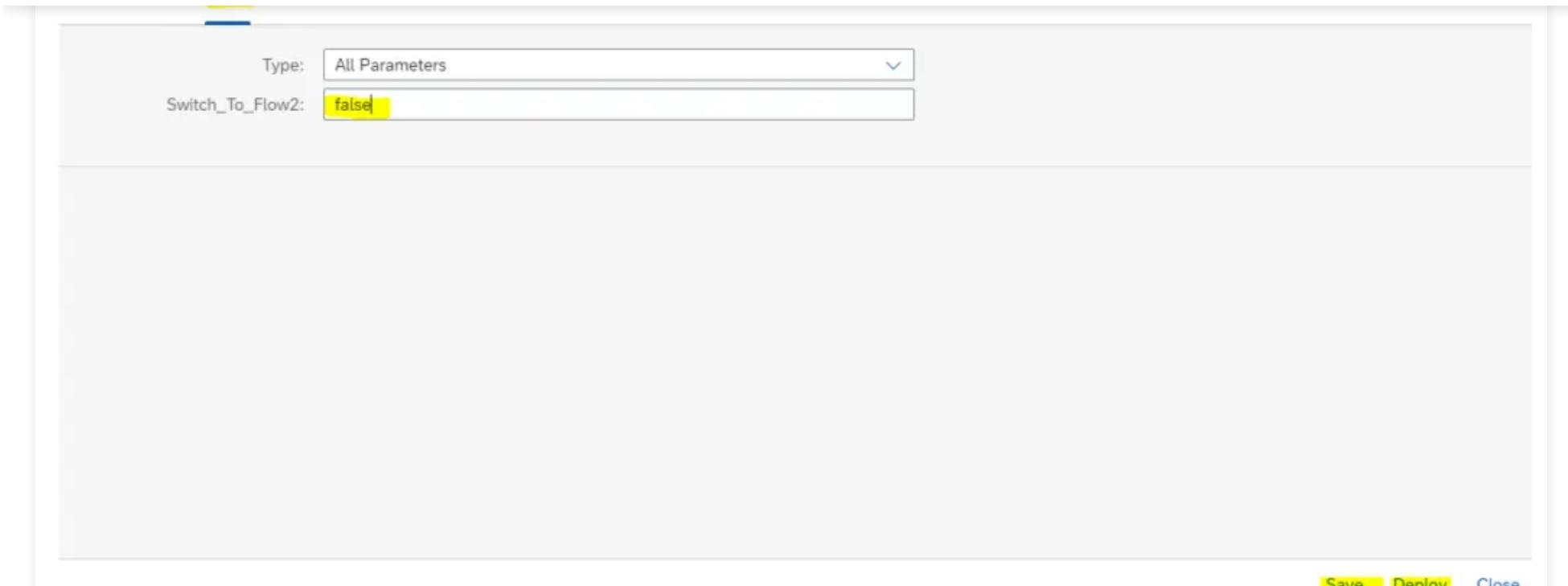
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The screenshot shows a list of integration flows in SAP CPI. There are three flows listed:

Name	Type	Version
Main Flow	Integration Flow	Draft
Second Flow	Integration Flow	Draft
Third Flow	Integration Flow	Draft

A context menu is open for the 'Main Flow'. The menu items are: Delete, Copy, View metadata, Download, Configure (highlighted in yellow), and Deploy.

Step 37: In **more**, type value as **false**. **Save** and **Deploy**.

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The screenshot shows a configuration interface for a CPI component. At the top, there is a dropdown menu labeled "Type:" with the option "All Parameters" selected. Below it, a parameter named "Switch_To_Flow2" is set to the value "false". In the bottom right corner of the interface, there are three buttons: "Save" (yellow), "Deploy" (green), and "Close" (blue).

Step 38: In the **Overview** tab, under **Monitor Message Processing**, Click on **Completed Messages** Tile.

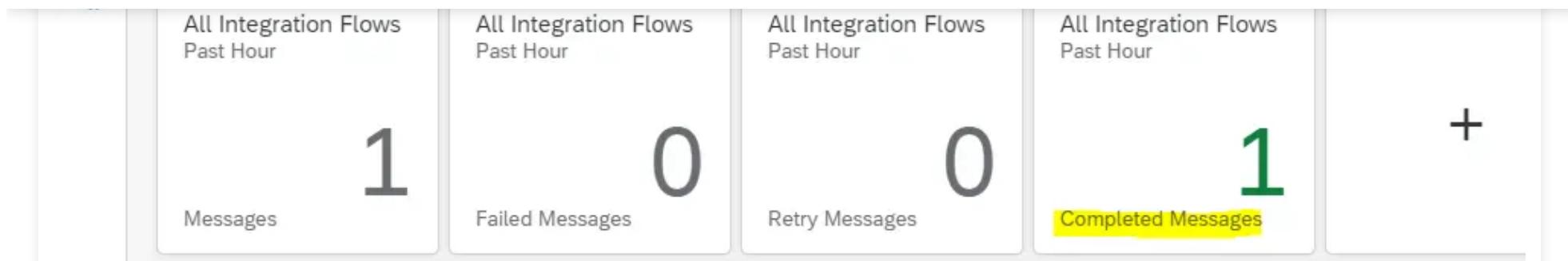
Excel Certification C

Don't miss this out if your job involves working with data or Excel

Jatan Shah

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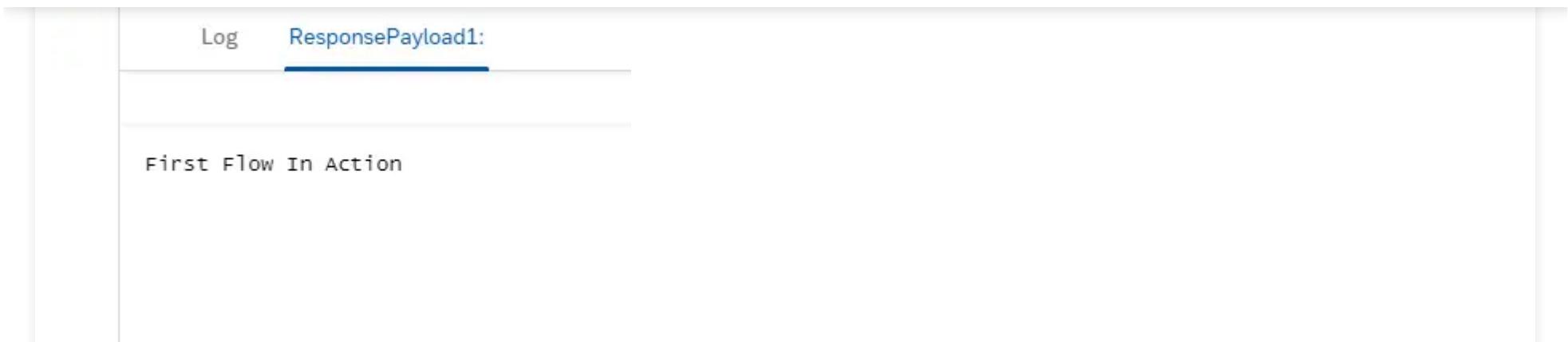
Step 39 : Now you will see only **Main Flow** is completed. It is not calling any other flows as the value is set to **false** in **Step 37**. This makes the flow to take default **Route1** in Main Flow.

Step 40: Click on **Logs** and then **ResponsePayload1** as highlighted.

The screenshot shows the SAP CPI interface with the following details:

- Messages (1)**: A list of one message.
- Main Flow**: Last Updated at: Sep 08, 2020, 16:25:55. Status: Completed. Last Run: Sep 08, 2020, 16:25:55, Duration: 464 ms.
- Logs**: The **Logs** tab is selected, showing the entry **ResponsePayload1:** text/plain.
- Attachments**: A list of attachments, including **ResponsePayload1:** (text/plain, 1 KB).

Step 41: Output will show only the Custom Message given in Main Flow.

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Tip: Externalize the parameters which require frequent value change to maintain Quality and save time during testing.

FINAL VERDICT :

In conclusion, I hope you enjoyed reading this article on “**Externalize Parameters in SAP CPI – A demo**”, If yes, then don’t forget to spread the word about it. Do send the feedback and to know more about it. Signing off sudarshan@recodehive.com

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