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SAP CPI

PROCESS DIRECT ADAPTER IN SAP CPI: DEMO

September 3, 2020 Sudarshan Patwardhan

SAP

ProcessDirect Adapter in SAP CPI

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INTRODUCTION

This article shows how to use a static ProcessDirect adapter in SAP CPI to access one artifact from other located under the same **tenant**. This adapter reduces the network latency as this doesn't go through load balancer network.

SETTING UP INTEGRATION FLOWS

Step 1: Create two **Artifacts** (Integration Flows) .

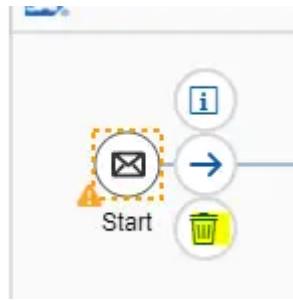
Header	Overview	Artifacts (2)	Documents	Comments	Tags
<div style="display: flex; justify-content: space-between;">AddDeleteActionsFilter Artifacts</div>					
<input type="checkbox"/> Name		Type	Version	Actions	
<input type="checkbox"/>	First Flow	Integration Flow	1.0.0		>
<input type="checkbox"/>	Created				
<input type="checkbox"/>	Second Flow	Integration Flow	1.0.0		>
<input type="checkbox"/>	Created				

Step 2 : Open the **First Flow** , click on **Edit**.

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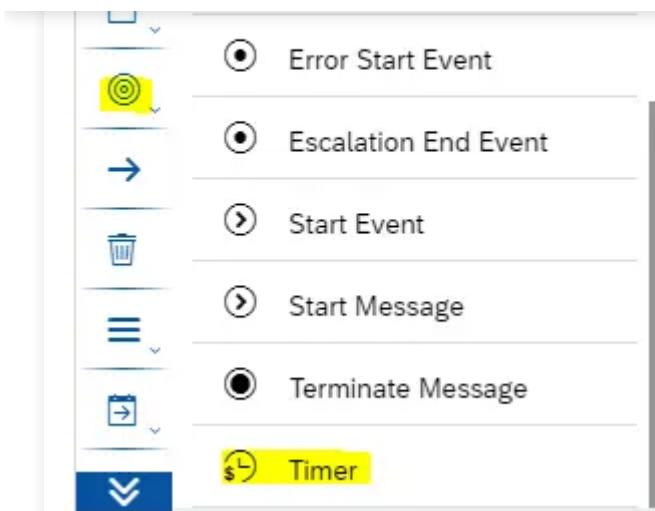
 MenuSimulation Mode  OFF

Step 3 : Delete the **Start** event. This is done to add a timer as trigger event.

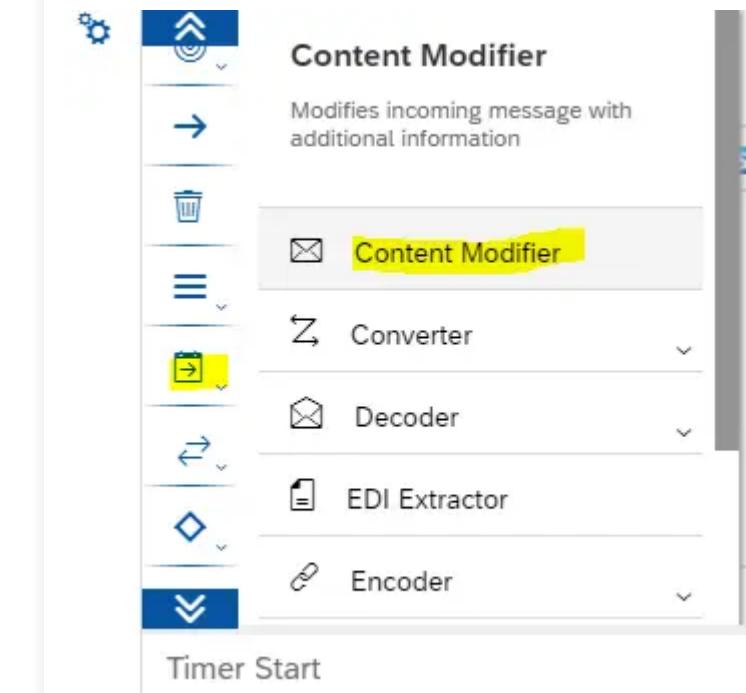


Step 4: Add a **Timer** from Pallet.

☰ Menu

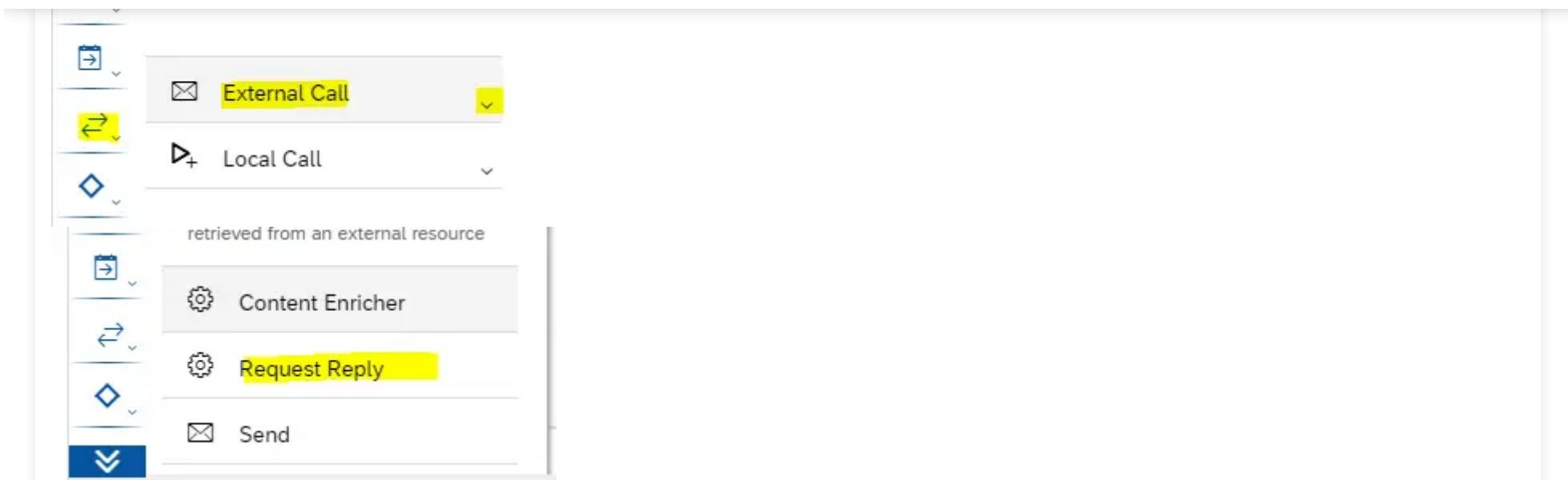


Step 5 : Include a **Content modifier** from Pallet to add custom message specific to the flow.

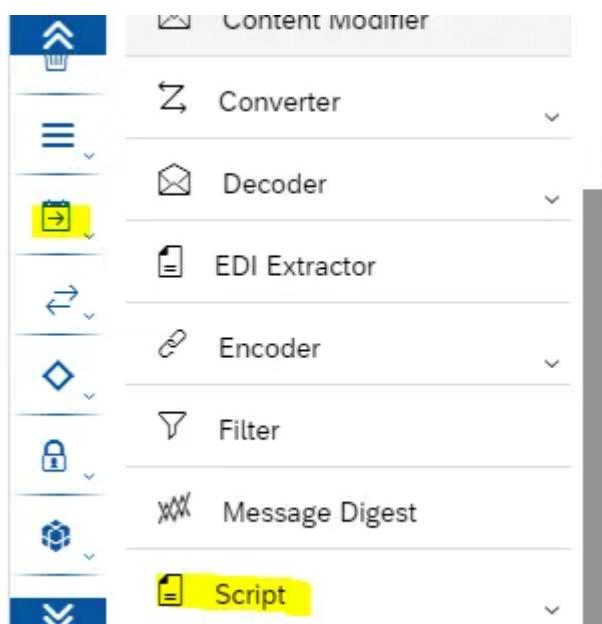


Timer Start

Step 6 : Add an **External Call -> Request Reply** from Pallet.

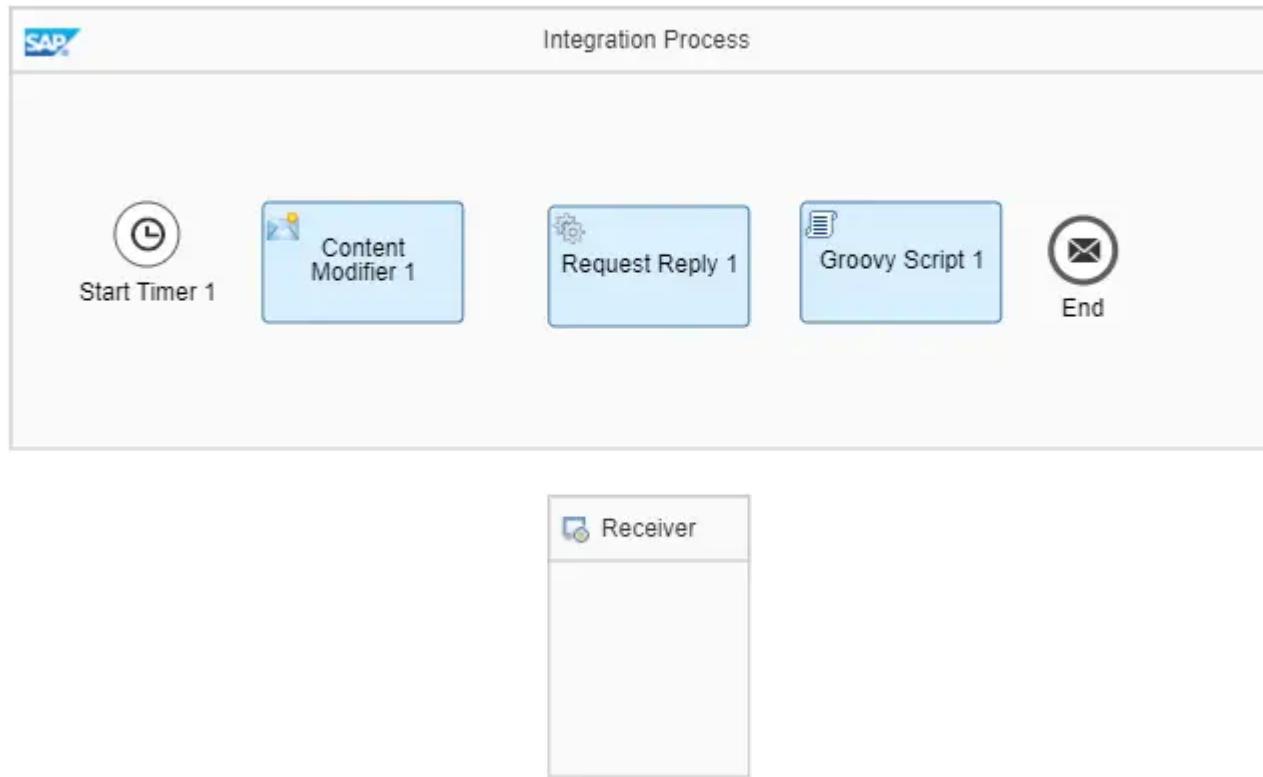
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Step 7 :Include a **Groovy Script** to log the payload.



 Menu JavaScript

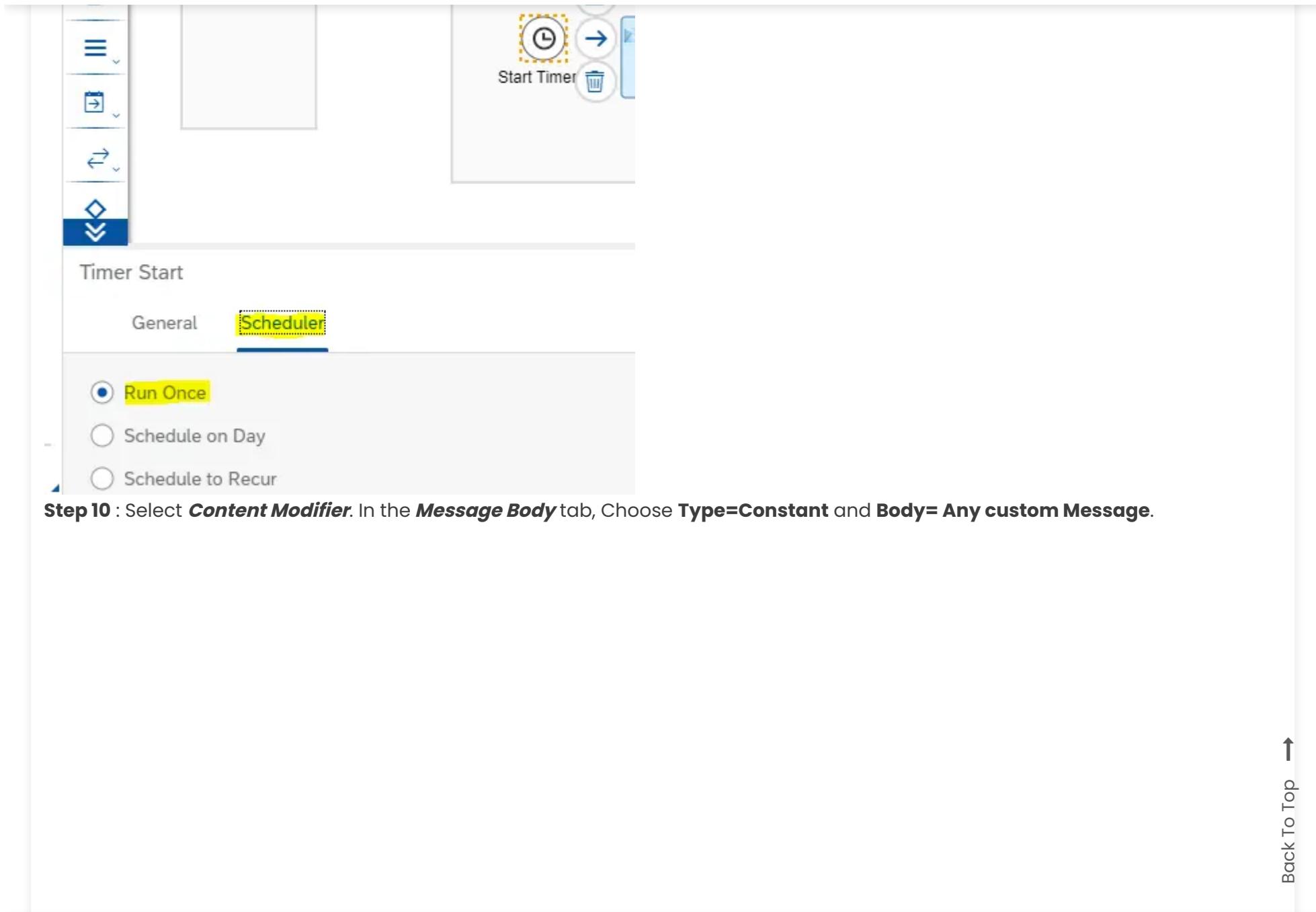
Step 8 : Arrange the above added blocks as shown below.



Configuring the Blocks

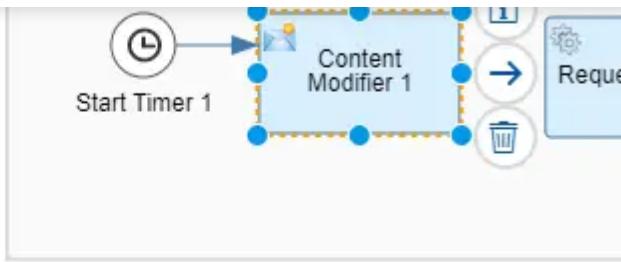
Step 9 : Select the **Timer** and in **Scheduler tab**, Choose **Run Once**. This makes sure that the Integration Flow is triggered as soon as ↑
the artifact is deployed.

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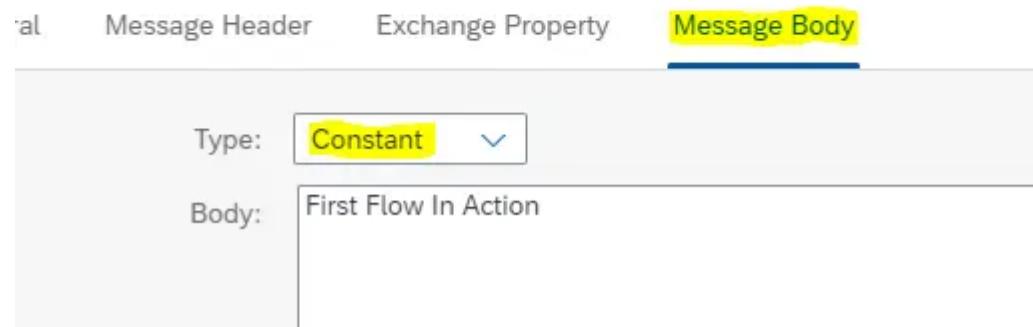
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The screenshot shows the SAP CPI ProcessDirect Adapter interface. On the left, there's a vertical toolbar with icons for Create, Import, Export, and a downward arrow. The main workspace has a large empty area and a central panel containing a 'Start Timer' step. This step is highlighted with a yellow dashed border. Below the workspace, the text 'Timer Start' is displayed. Underneath this, there are two tabs: 'General' and 'Scheduler'. The 'Scheduler' tab is active and highlighted with a blue underline. Within the 'Scheduler' tab, there are three radio button options: 'Run Once' (selected), 'Schedule on Day', and 'Schedule to Recur'. A yellow box highlights the 'Run Once' option.

Step 10 : Select **Content Modifier**. In the **Message Body** tab, Choose **Type=Constant** and **Body= Any custom Message**.

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odifier



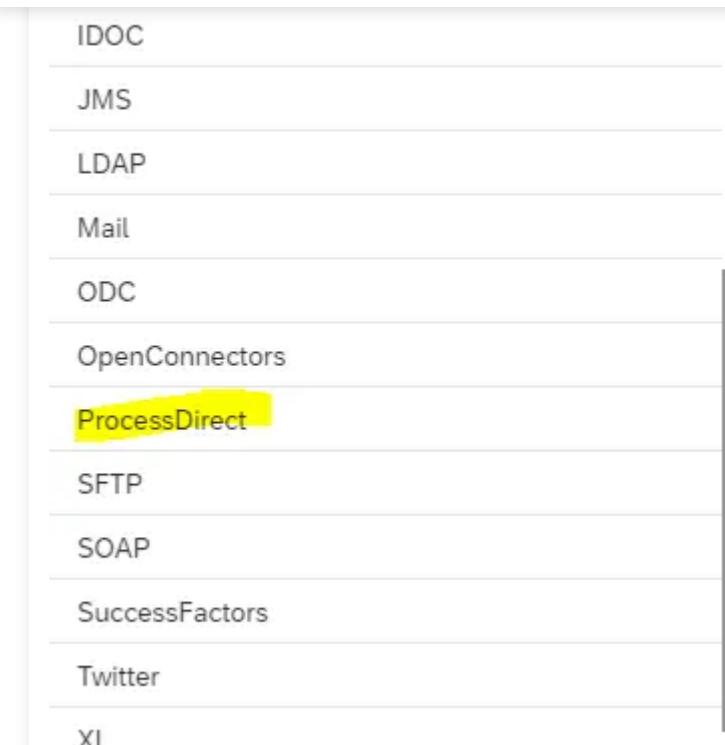
General Message Header Exchange Property **Message Body**

Type: Constant

Body: First Flow In Action

Step 11 : Select **Request Reply**. Connect it to the **Receiver**. A pop up will be displayed as below with all the available Adapter types.

Select **Process Direct**.

 Menu[Cancel](#)

Step 12 : Click on the **Adapter**. In **Connection** tab, type any address (/Second). This same address has to be used in the other flow which we are going to call (Covered in further steps).

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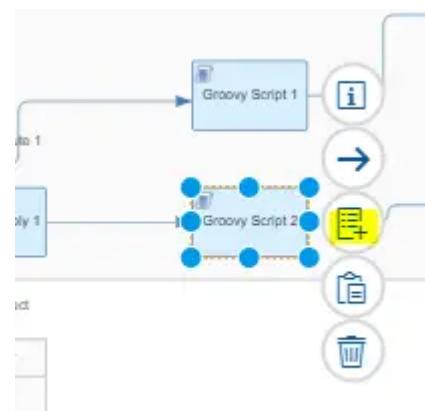
Next

General **Connection**

Connection Details

Address: * /Second

Step 13 : Select **Groovy Script**. Click on the icon highlighted below.



Step 14 : Remove the default code that appears and Paste the below given code and click on **OK**.

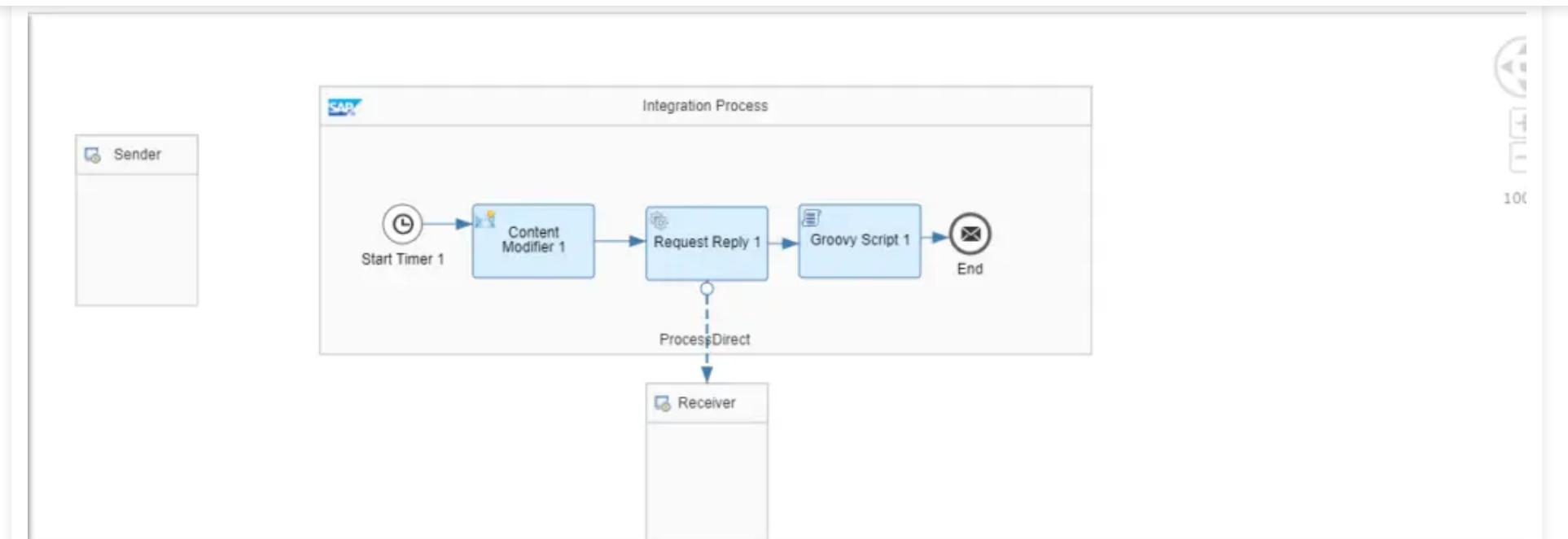
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```
def Message processData(Message message) {
    def body = message.getBody(java.lang.String) as String;
    def messageLog = messageLogFactory.getMessageLog(message);
    if(messageLog != null){
        messageLog.setStringProperty("Logging#1",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

The screenshot shows the SAP CPI Flow Designer interface. At the top, there are icons for edit, delete, and eye, followed by the path 'Main Flow / script1.groovy /' and the file name 'script1.groovy'. On the right, there are 'OK' and 'Cancel' buttons. The main area is a code editor with the following Groovy script:

```
1 import com.sap.gateway.ip.core.customdev.util.Message;
2 +
3 def Message processData(Message message) {
4     def body = message.getBody(java.lang.String) as String;
5     def messageLog = messageLogFactory.getMessageLog(message);
6     if(messageLog != null){
7         messageLog.setStringProperty("Logging#1", "Printing Payload As Attachment")
8         messageLog.addAttachmentAsString("ResponsePayload1:", body, "text/plain");
9     }
10 }
```

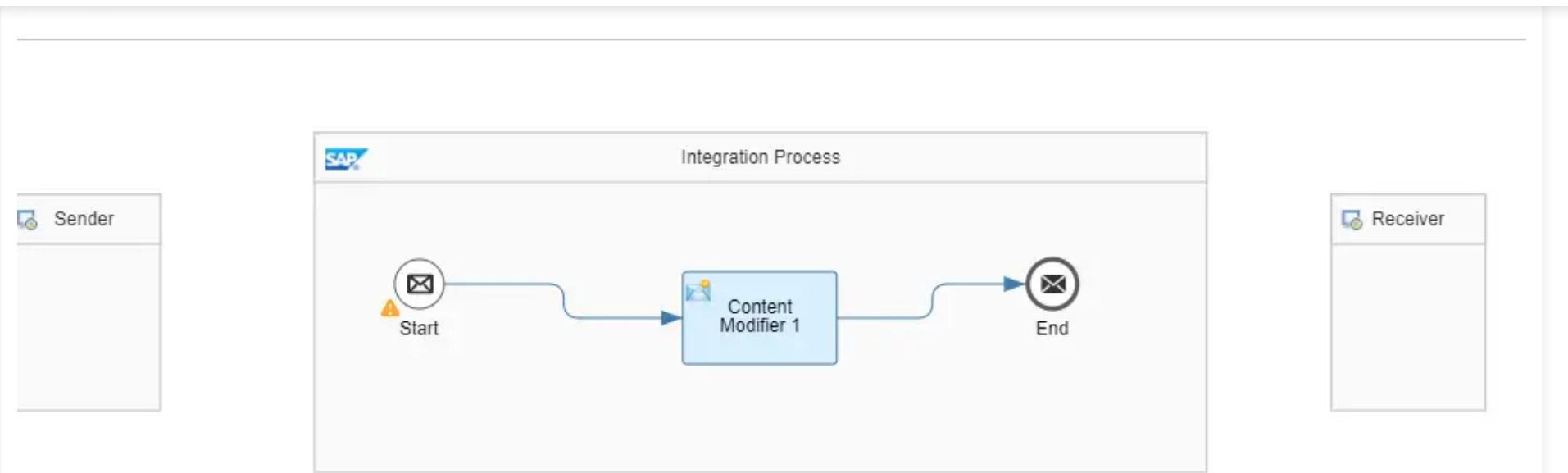
Step 15 : The Flow should look as below. **Save** the flow. **DO NOT DEPLOY** (as second flow which we are going to call is not set up yet).

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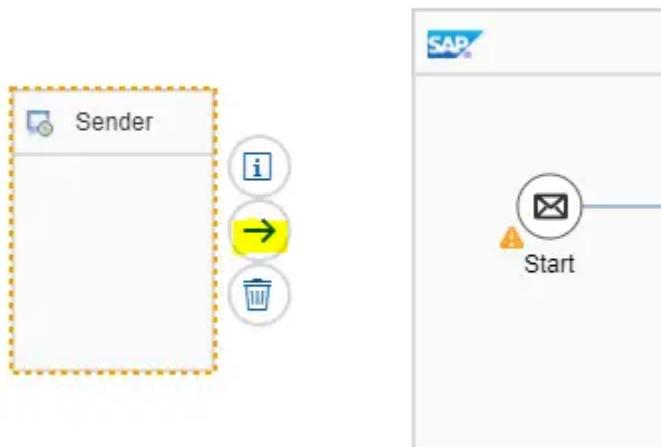
Step 16 : Open the **Second Flow** that you have created.

Artifact Catalog				
<input type="checkbox"/>	Name	Type	Version	Actions
<input type="checkbox"/>	First Flow	Integration Flow	Draft	
<input type="checkbox"/>	Created			
<input checked="" type="checkbox"/>	Second Flow	Integration Flow	1.0.0	
<input type="checkbox"/>	Created			

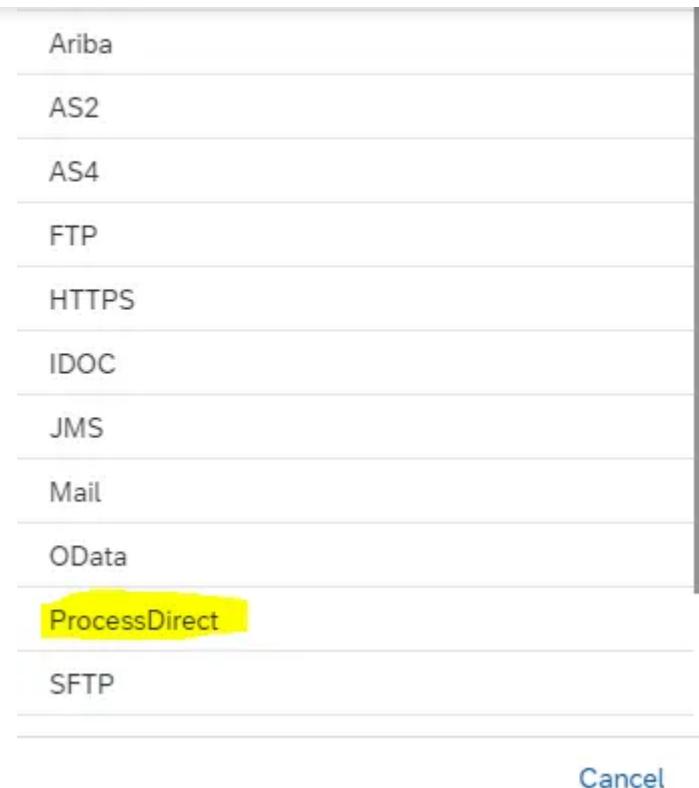
Step 17 : Add one **Content Modifier**.

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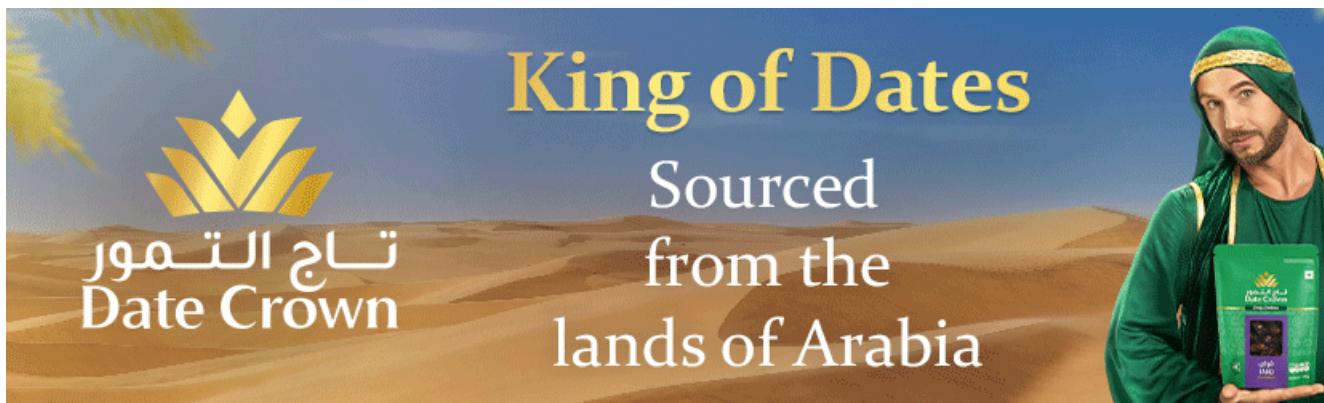
Step 18 : Connect from **Sender** to **Start**. From the Pop up window, choose **ProcessDirect** adapter.



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Step 19 : Select Adapter and in **Connection** tab, give the address exactly same as given in **Step 12** (/Second).



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irect

eral **Connection**

ION DETAILS

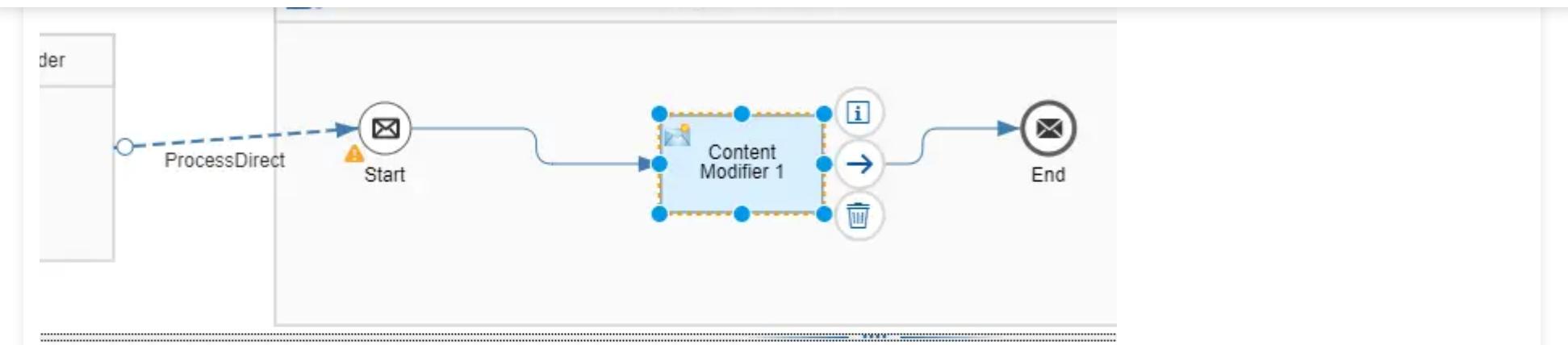
Address: * **/Second**

Step 20 : In *Message Body* of *Content Modifier*, Add the body as

`${in.body}`

this is to include the message body from the previous flow (Flow triggered).

Additionally you can add any other Custom message specific to current flow.

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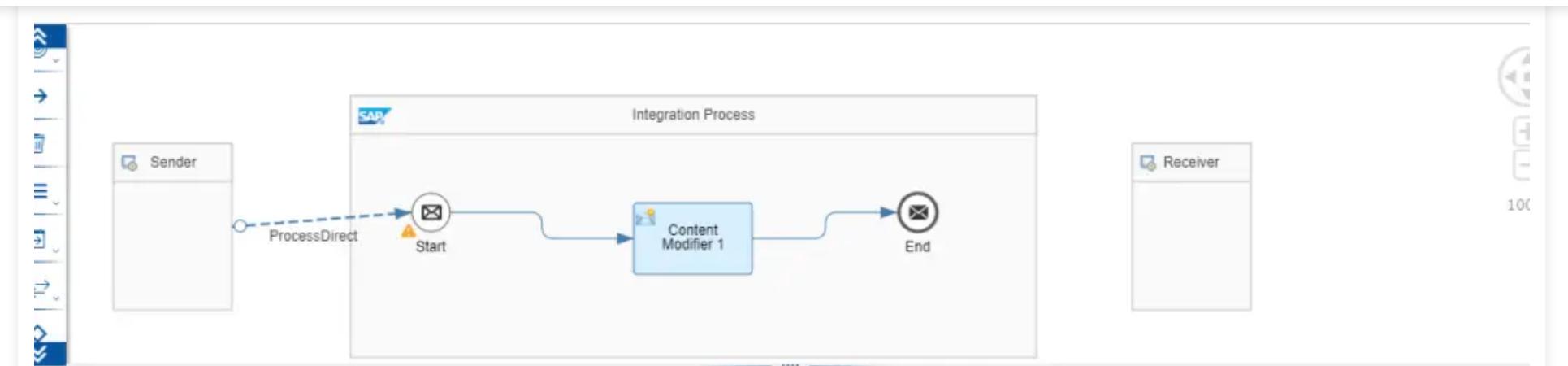
Message Header Exchange Property **Message Body**

Type: **Expression** ▾

Body: \${in.body}

Second Flow In Action

Step 21: The flow should look as below. **Save** and **Deploy**.

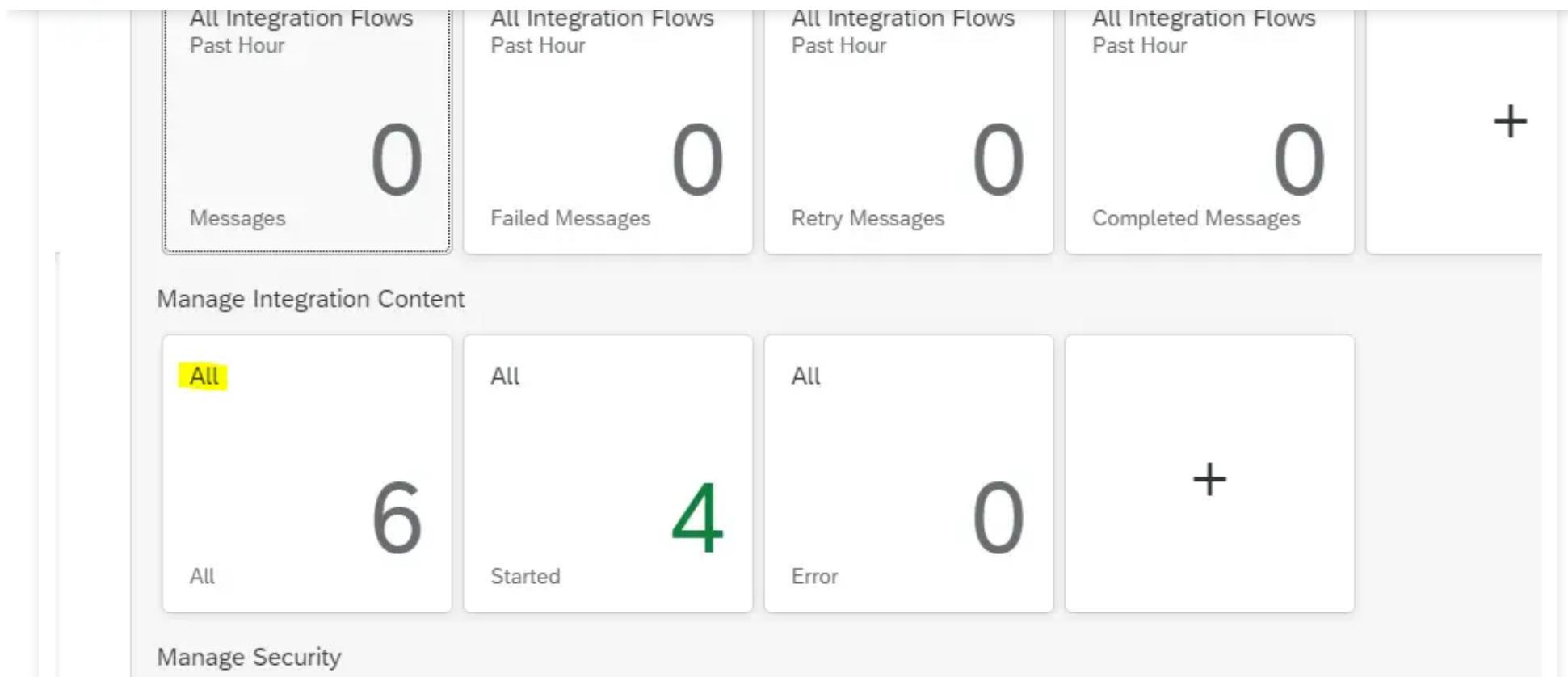
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Step 22 : Go back to the **First Flow**. **Deploy** the same.



MONITORING INTEGRATION FLOWS

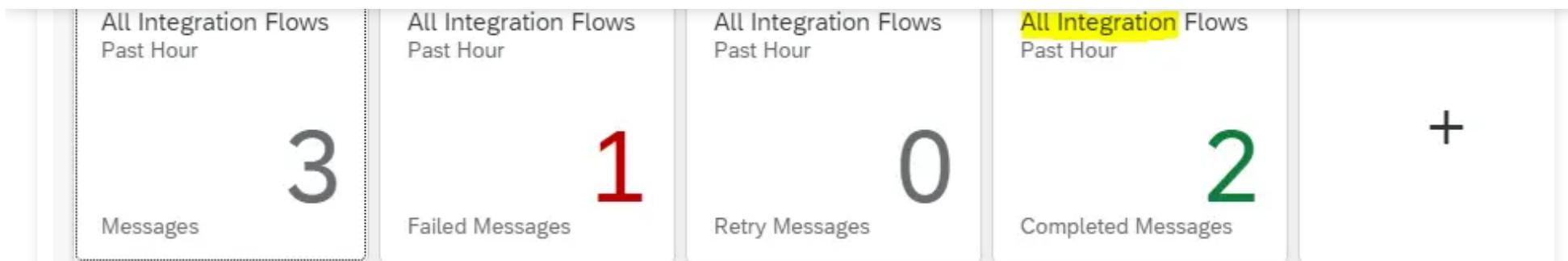
Step 23 : Go to **Overview** window. Click on **All** under **Manage Integration Content** as shown below.

 Menu

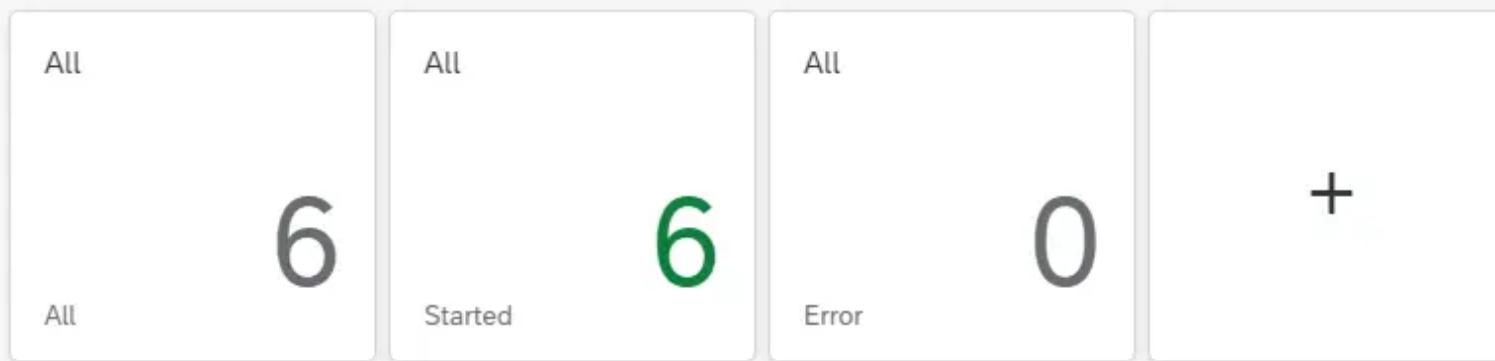
Step 24 : Check if both Flows are in **Started** status.

First Flow	Started
Integration Flow	
Second Flow	Started
Integration Flow	

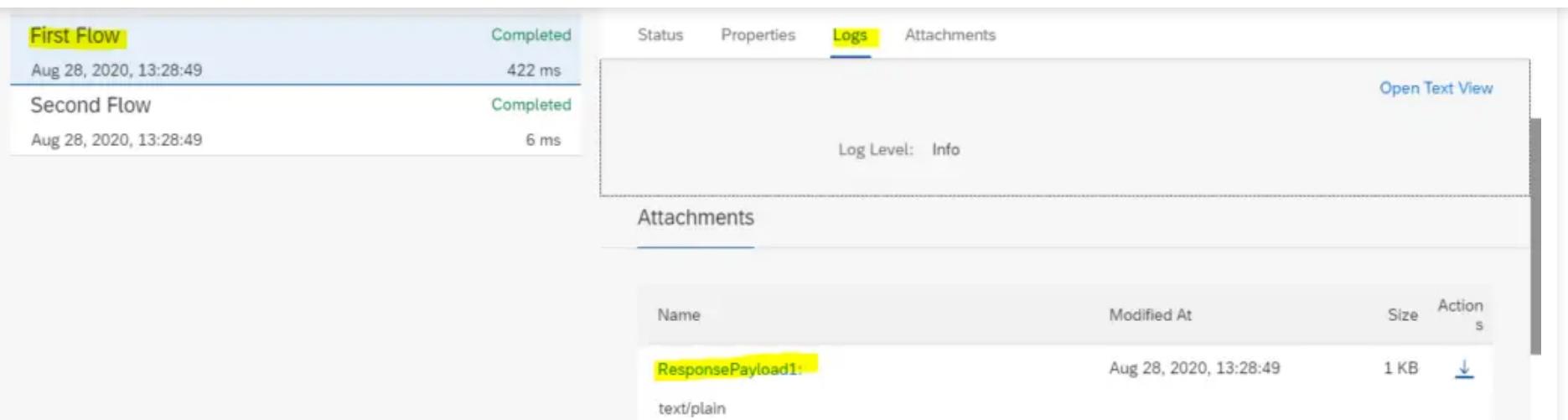
Step 25 : Once both flows are started, go to **Completed Messages**.

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Manage Integration Content

Manage Security

Step 26 : Click on First Flow (From where you have called the other flow). Click on **Logs**. Under Attachments, Click on **ResponsePayload1**.

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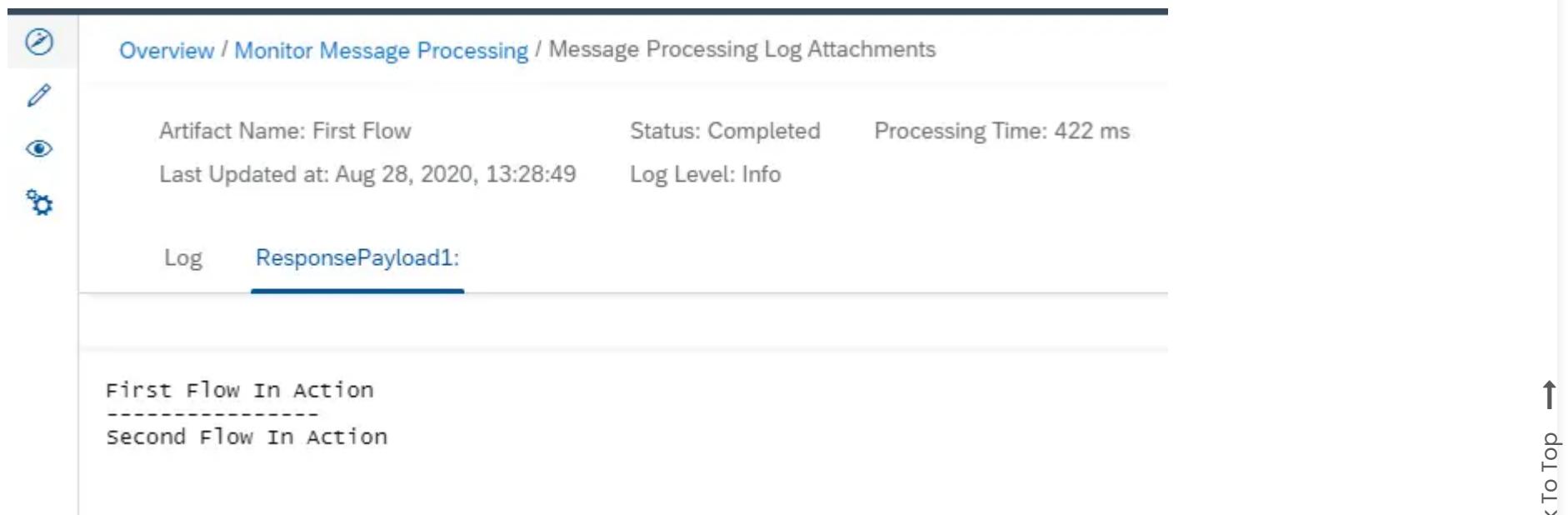
The screenshot shows a list of completed flows:

Flow Name	Status	Time	Duration
First Flow	Completed	Aug 28, 2020, 13:28:49	422 ms
Second Flow	Completed	Aug 28, 2020, 13:28:49	6 ms

The "Logs" tab is selected for the First Flow, displaying the log level as "Info".

The "Attachments" section shows a single file named "ResponsePayload1" with a size of 1 KB, modified at Aug 28, 2020, 13:28:49, and a text/plain content type.

Step 27 : You will see the below message if you have filled the body of Content Modifier exactly as shown in the screen shots above.
In general, the payload will have texts combined from both Flows.



The screenshot shows the details of the First Flow:

- Artifact Name: First Flow
- Status: Completed
- Processing Time: 422 ms
- Last Updated at: Aug 28, 2020, 13:28:49
- Log Level: Info

The "Attachments" section shows a file named "ResponsePayload1" with a size of 1 KB, modified at Aug 28, 2020, 13:28:49, and a text/plain content type.

The "Log" tab is selected, showing the output:

```
First Flow In Action
-----
Second Flow In Action
```

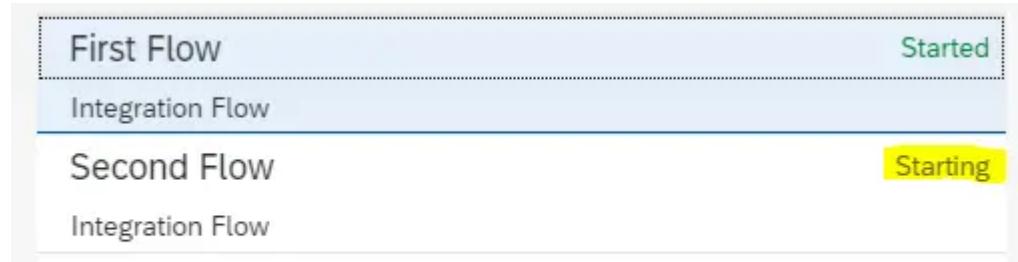
It is clear from the above output that the first artifact calls the second artifact and performs the activities in second artifact and takes the response back to first artifact to give as final output.

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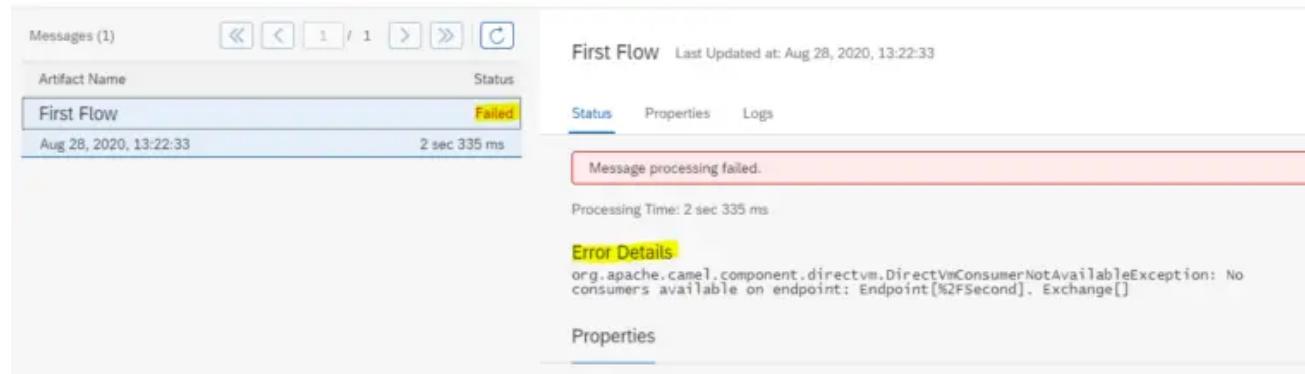
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COMMON ERROR

Deploy only the first flow but not the second flow (First Flow is started before the second Flow).



The Flow **Fails** with exception : **No Consumer available on endpoint** :(Endpoint Name). This is because the ProcessDirect adapter in First flow can't access the second flow unless the second flow is started.



Messages (1)  Status

Artifact Name	Status
First Flow	Failed

Last Updated at: Aug 28, 2020, 13:22:33

Status Properties Logs

Message processing failed.

Processing Time: 2 sec 335 ms

Error Details
org.apache.camel.component.directvm.DirectVmConsumerNotAvailableException: No consumers available on endpoint: Endpoint[%2FSecond]. Exchange[]

Properties

CONCLUSION

This article was intended to show basic configuration with ProcessDirect adapter.

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OPEN

What if there is a requirement to use more than one sub flow (only one at a time is allowed) and different flow has to be called at different time?. It is not recommended to go each time to main flow and change the address mentioned in adapter.

This can be overcome by **Externalizing the Address parameter**.

Externalizing the parameter will be covered in another post.

FINAL VERDICT :

In conclusion, I hope you enjoyed reading this article on "**ProcessDirect Adapter in SAP CPI – A Step by Step Guide- I**", If yes, then don't forget to spread a word about it. Do send the feedback and to know more about it. Signing off sudarshan@recodehive.com

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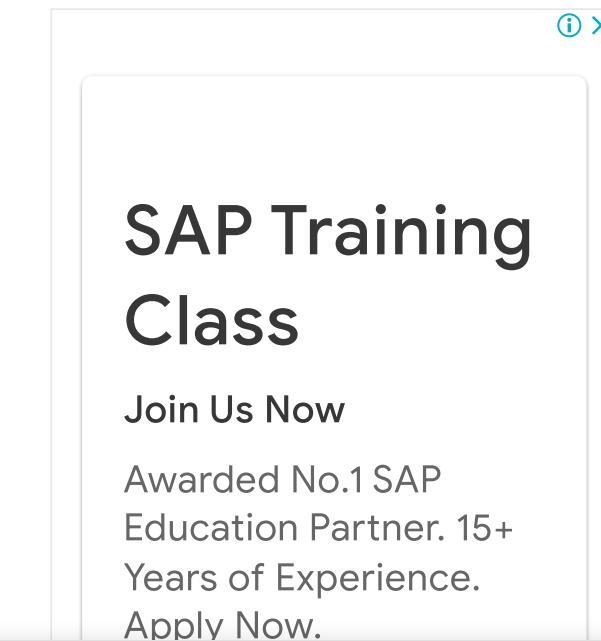
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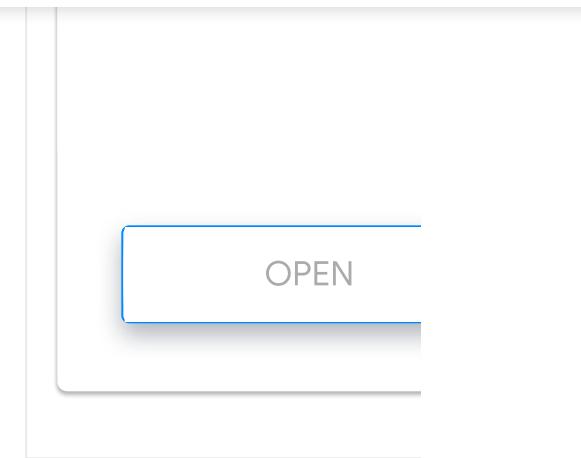
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A screenshot of a presentation slide titled "SAP Training Class". The slide has a light gray background with a white header bar. In the top right corner of the header bar are two small icons: a blue circle with an "i" and a blue "X". The main title "SAP Training Class" is centered in large, bold, dark gray font. Below the title, there is a section titled "Join Us Now" in bold black font. Underneath this, there is descriptive text: "Awarded No.1 SAP Education Partner. 15+ Years of Experience." followed by "Apply Now." at the bottom. The slide is framed by a thin gray border.

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