PUBLIC

Deep dive into SAP Cloud Platform Workflow Management – Model Investment Approval Workflow

DEV-264

Exercises / Solutions

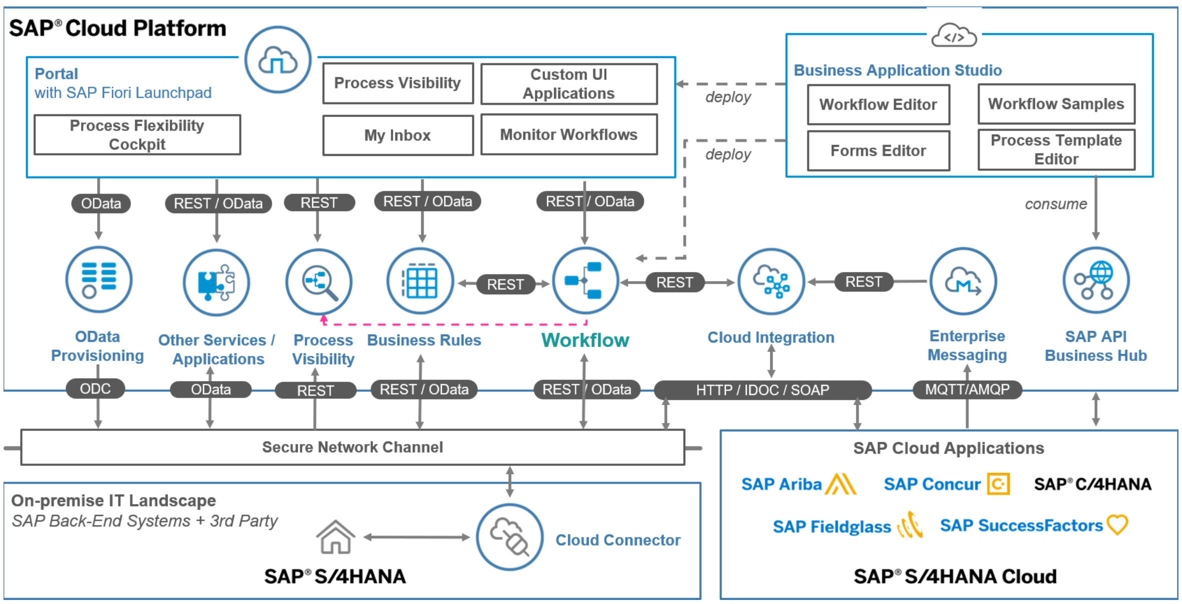
Venugopal Chembrakalathil / SAP SE

THE BEST RUN

TABLE OF CONTENTS

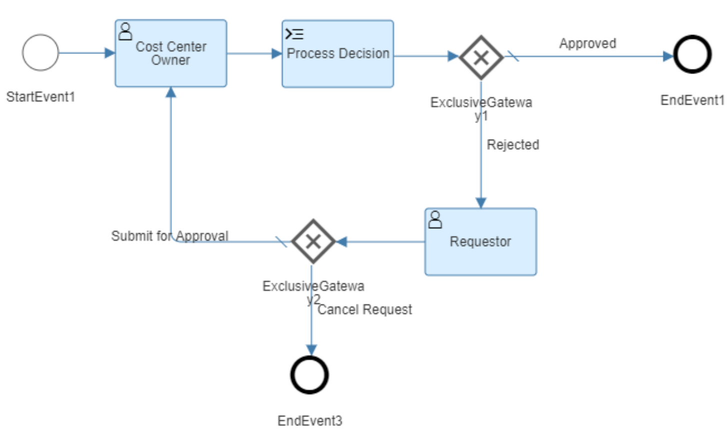
SAP Cloud Platform Workflow Management has Workflow capability, enable developers to model workflow based on BPMN 2.0 using SAP Cloud Platform Business Application Studio and deploy to Cloud platform accounts. A workflow consists of different activities, events and gateways. It provides fine granular REST/oData APIs to integrate with different line of business applications.

SAP Cloud Platform Workflow – the bigger picture



SCENARIO

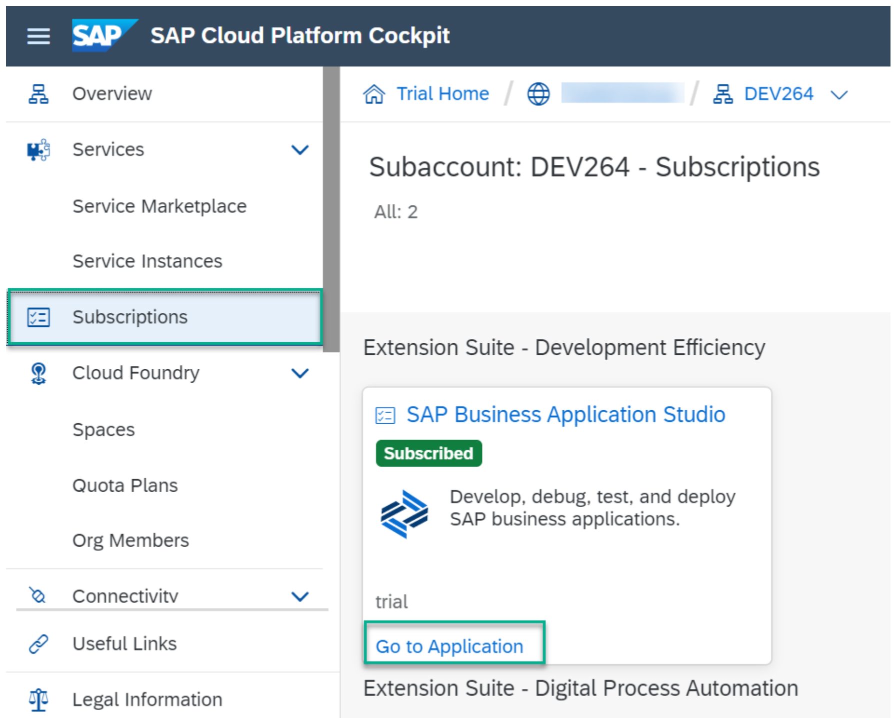
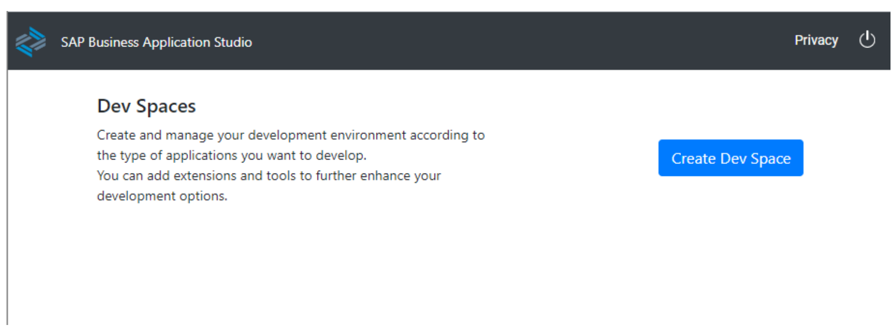
The scenario is an Investment Approval Workflow. A requestor creates a request for approval and Approver can decide Approve or Reject. A rejection enables the requestor to modify the request and submit or cancel the request.

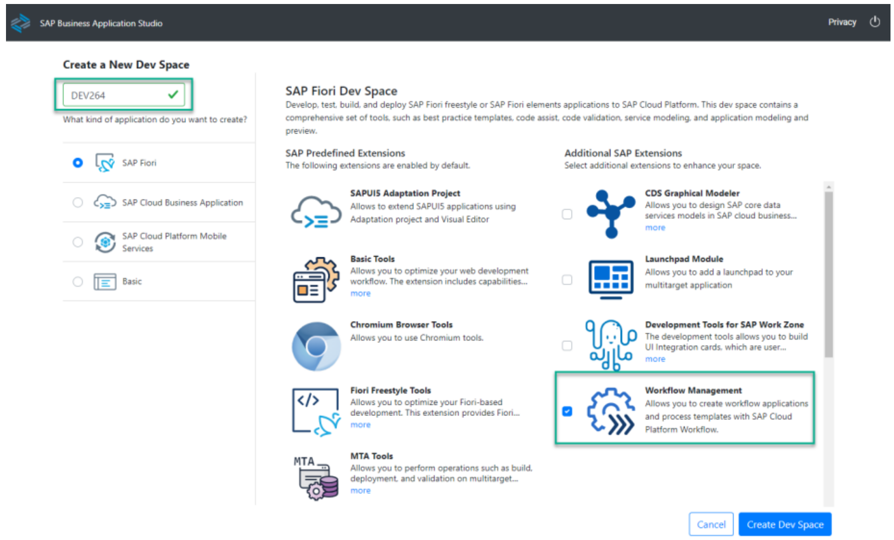
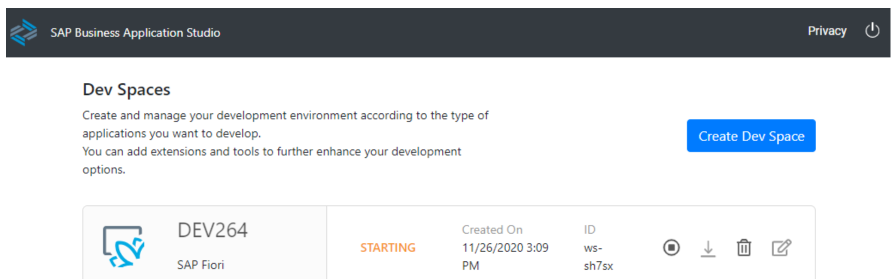
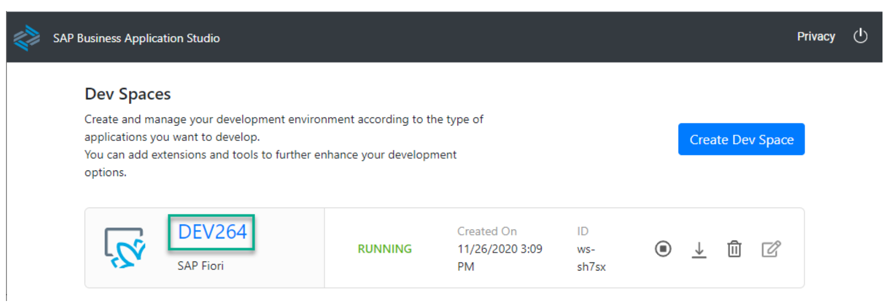


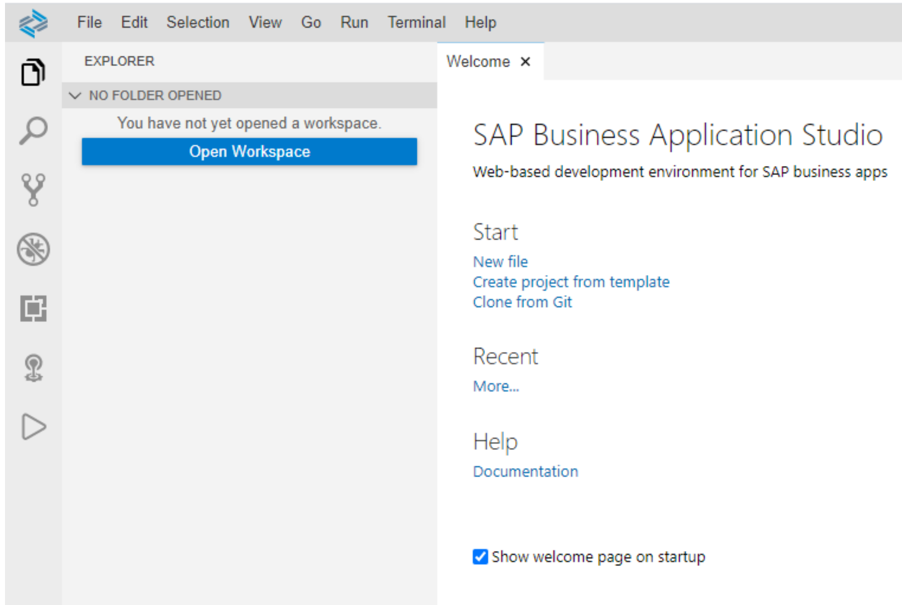
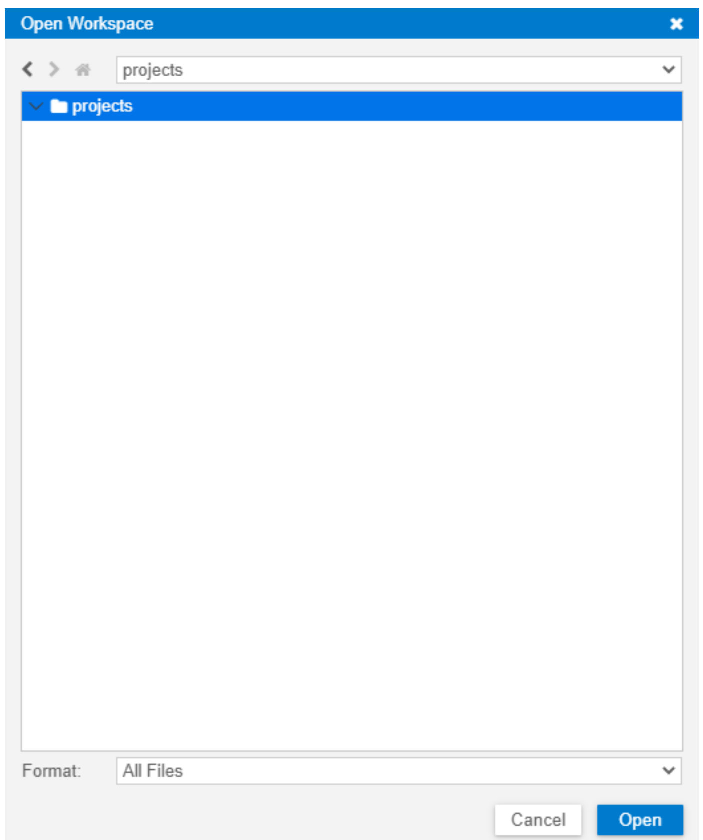
Prerequisite

Please setup your SAP Cloud Platform Trial account using setup guide.

MODEL WORKFLOW – INVESTMENT APPROVAL WORKFLOW

Explanation	**Screenshot**
1. Select **Subscriptions** in your Sub Account and you see the subscribed applications. 2. Select **SAP Business Application Studio** and click **Go to Application**. SAP Cloud Platform Business Application Studio will be opened in new browser window. Skip steps 3 to 7 If you have already created a dev space with Workflow Management extension.	
Create Workspace 3. Click **Create Dev Space** button.	

Explanation	Screenshot
4. Enter Dev Space 5. Select **Workflow Management** from Additional SAP Extensions. 6. Click **Create Dev Space**	
7. Setting up the Dev Space will take couple of minutes and show the status as **STARTING**. Wait until the status changing to **RUNNING**.	
8. Click your Dev Space.	

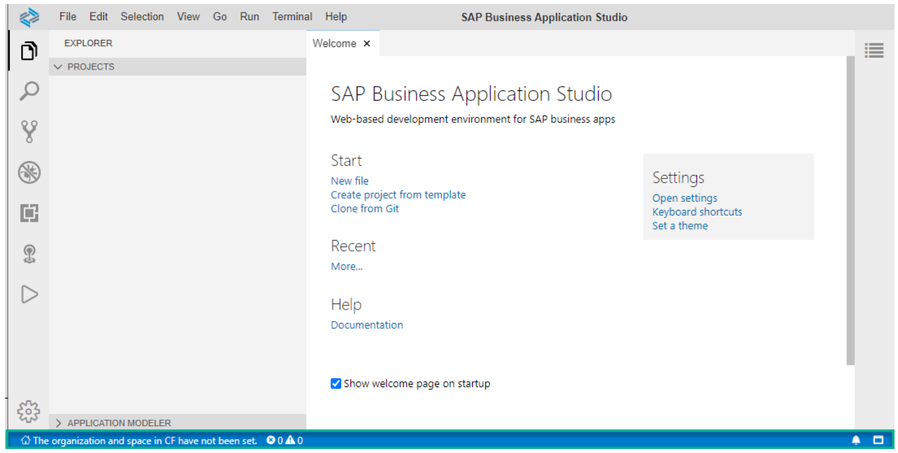
<table>
<tr><th>Explanation</th><th>Screenshot</th></tr>
<tr><td>9. Click Open Workspace.</td><td>
</td></tr>
<tr><td>10. Select Projects and click Open button.</td><td>
</td></tr>
</table>

<table>
<tr><th>Explanation</th><th>Screenshot</th></tr>
<tr><td>

Configure Cloud Foundry End Point

11. Click the message in the bottom to configure the endpoint for deployment.

</td><td>

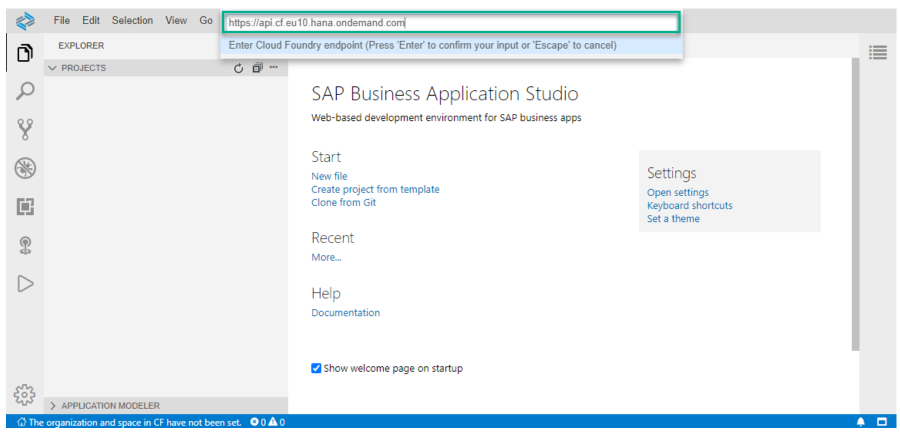


</td></tr>
<tr><td>

12.Select the **Cloud Foundry Endpoint**.

The URL might vary depends on which data center you are using.
Europe -eu10
US – us10
Singapore – ap21

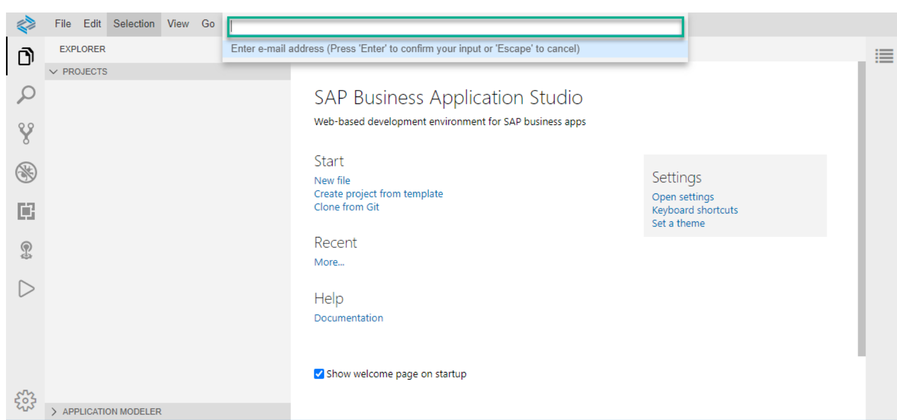
</td><td>



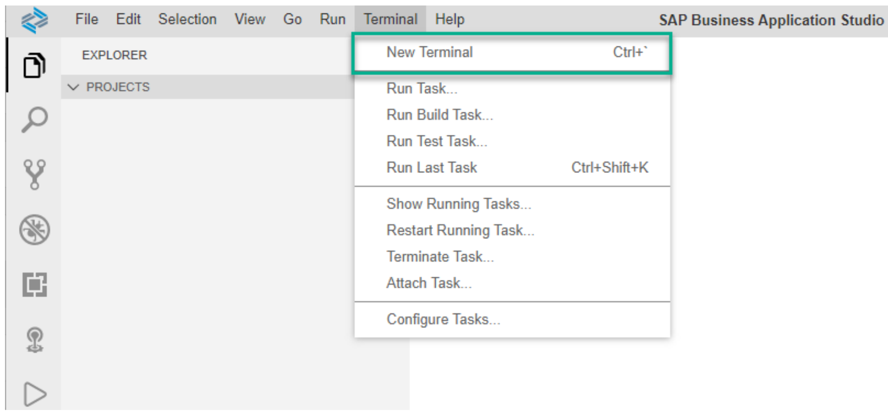
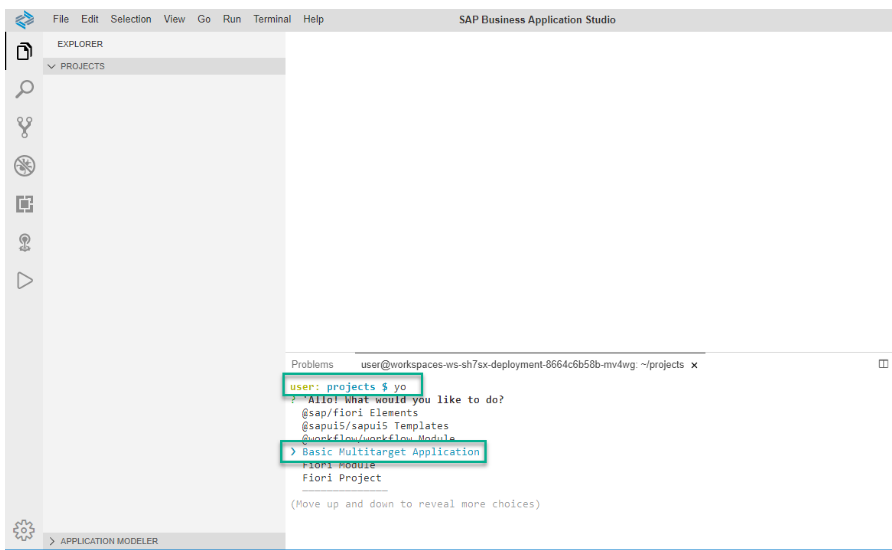
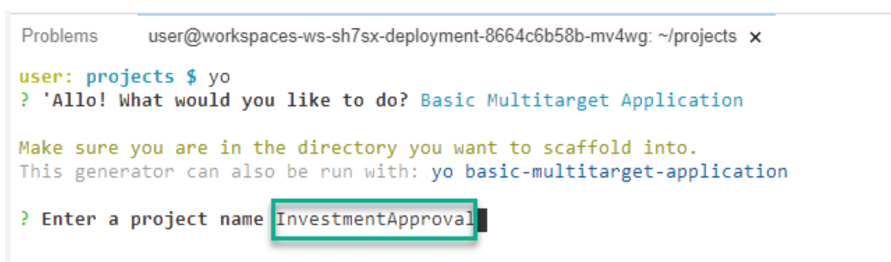
</td></tr>
<tr><td>

12. Enter your **e-mail** address used as your user in in Cloud Platform.
13. Subsequently enter your **password**, Cloud Platform Trial **Sub Account** and Cloud Foundry **Space**.

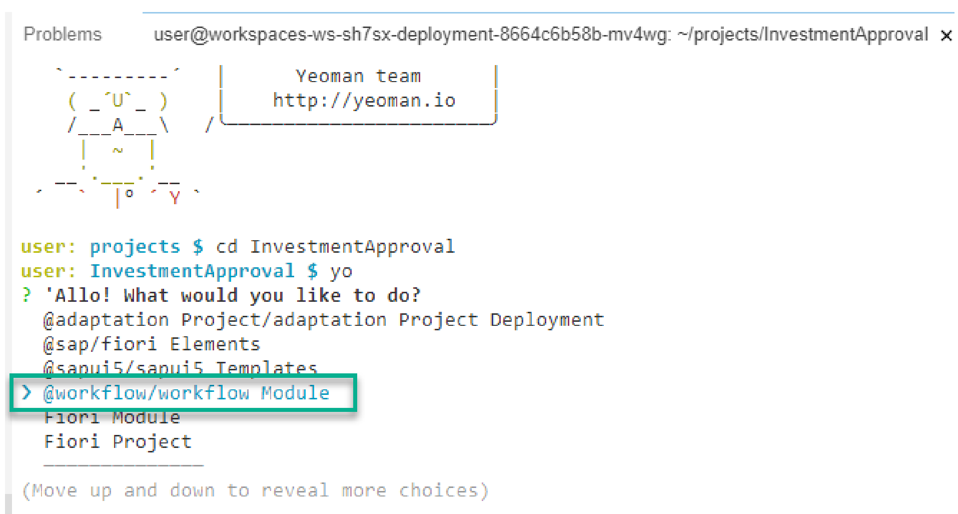
</td><td>

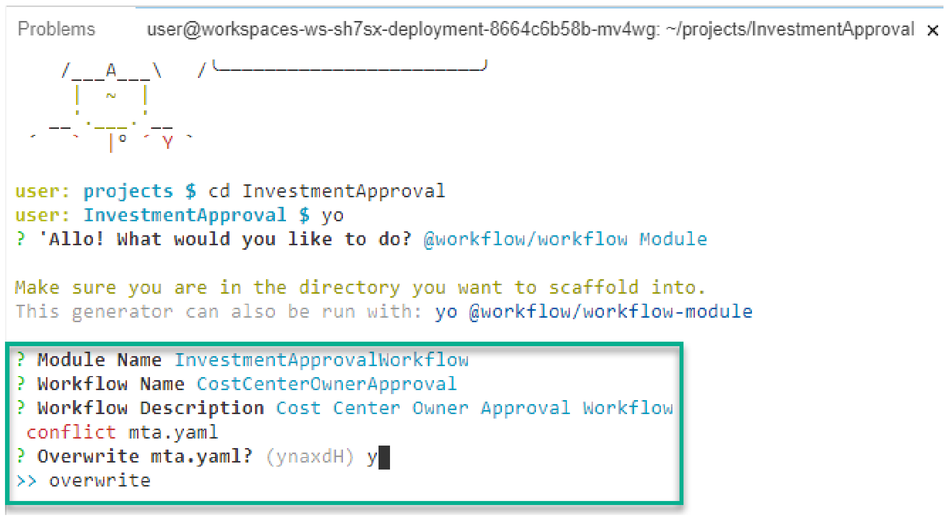
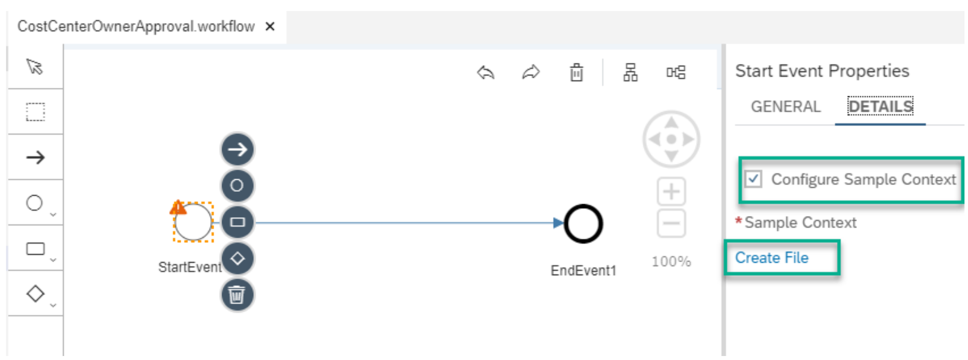


</td></tr>
</table>

Explanation	Screenshot
Create Multi Target Application Project 14. Select Terminal →New Terminal	
15. In the Terminal make sure you are in the projects directory. 16. Type **yo** and press enter key**.** 17. Select project type as **Basic Multitarget Application** by using up/down arrow key**.**	
18. Enter the **project name** for eg: InvestmentApproval.	

<table>
<tr><th>Explanation</th><th>Screenshot</th></tr>
<tr><td>19. Use cd InvestmentApproval to move the new project directory.

20. Type yo again in the newly created project directory.</td><td>
</td></tr>
<tr><td>21. Select @workflow/workflow Module from the list using up/down arrow keys.</td><td>
</td></tr>
</table>

Explanation	**Screenshot**
22. Enter the following **Module Name**: InvestmentApprovalWorkflow **Workflow Name**: CostCenterOwnerApproval **Workflow Description**: Cost Center Owner Approval Workflow **Overwrite mta.yaml**: y	
Configure Sample Context 23. The new workflow is opened in the workflow editor. 24. Select the **Start event** and Select **DETAILS** section of Start Event properties. 25. Check **Configure Sample Context**. 26. Click link **Create File.**	
27. Enter Name as **Sample Investment** A new file is opened a default sample context.	

<table>
<tr><th>Explanation</th><th>Screenshot</th></tr>
<tr><td>

28. Copy and paste the content from the file Sample Investment.json shared in the Git repository.

Please replace **FirstName, LastName, Email, UserId** with your details. User Id is your cloud platform trial user id.

The context has three Elements.

Request: Requestor info including Request Id

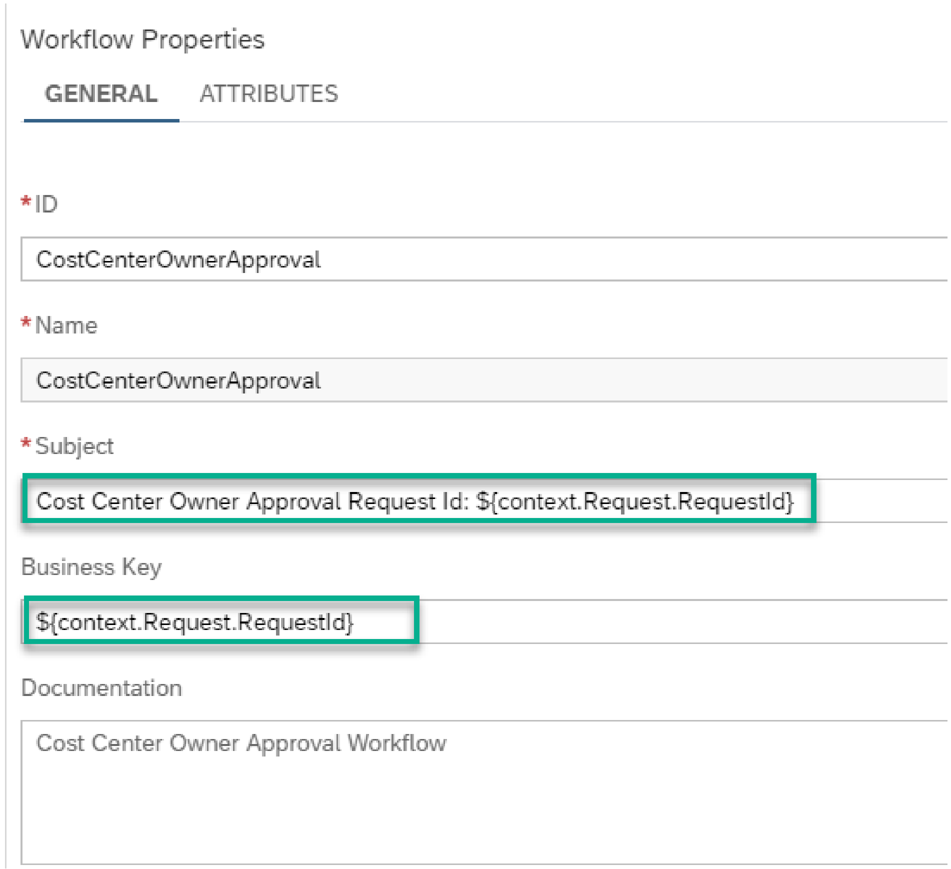
Investment: Details about the investment

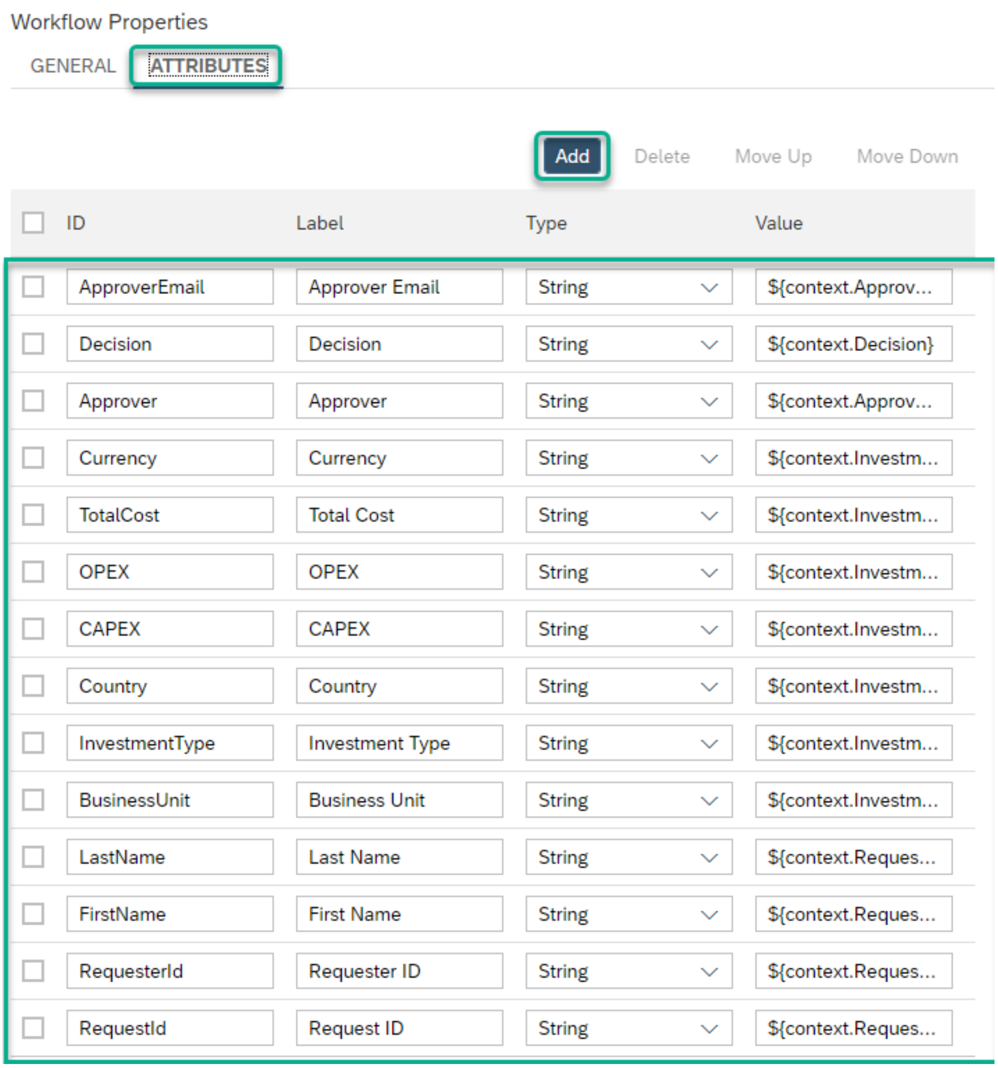
Approver: Cost Center Approver details.

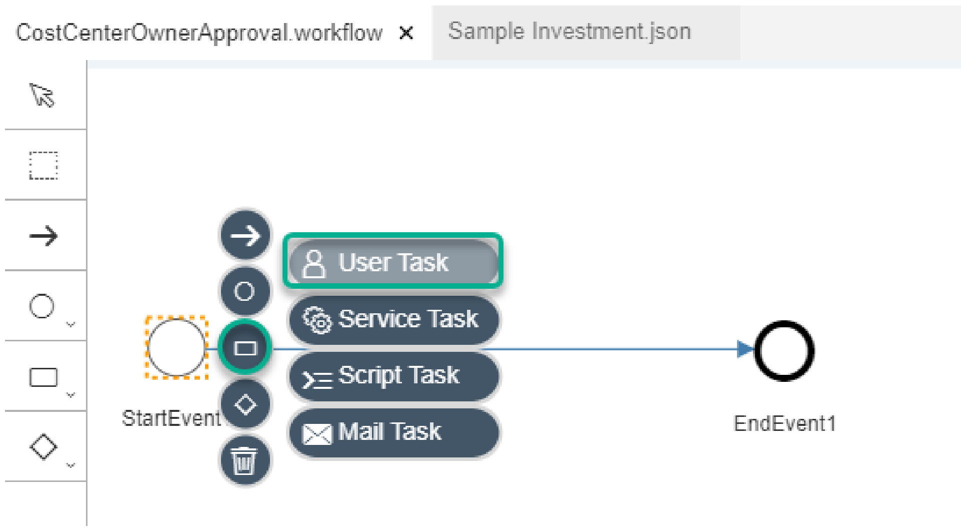
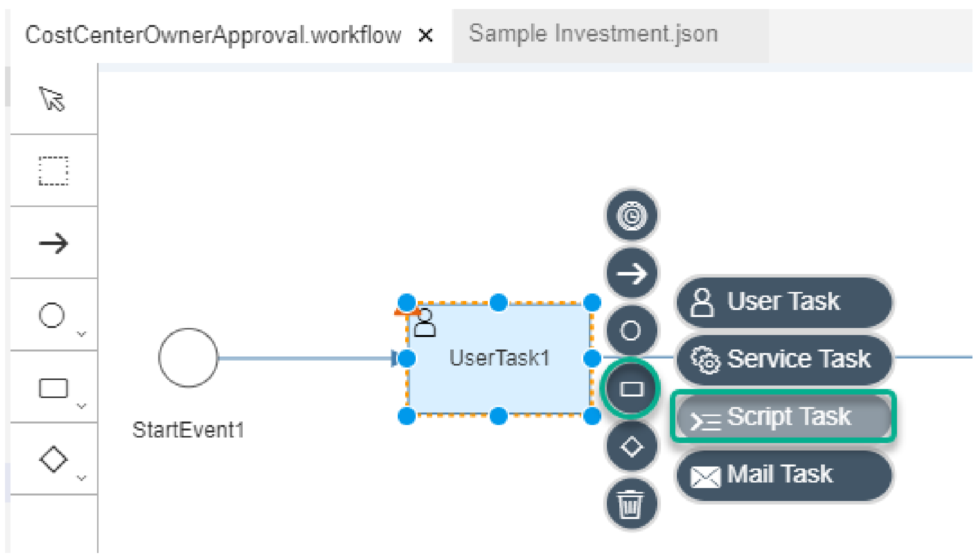
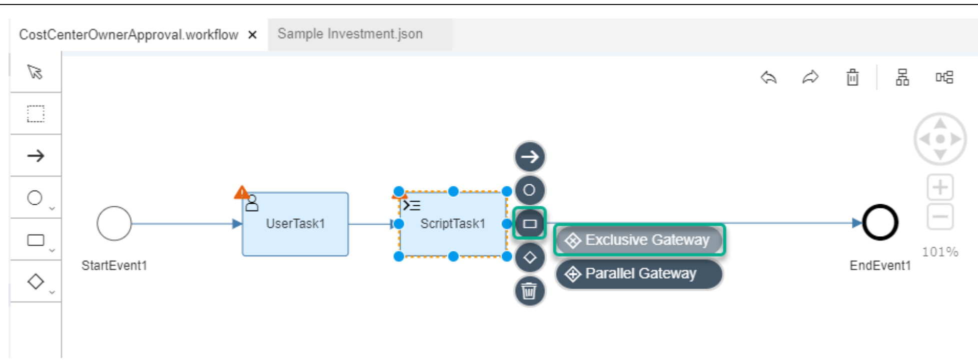
</td><td>

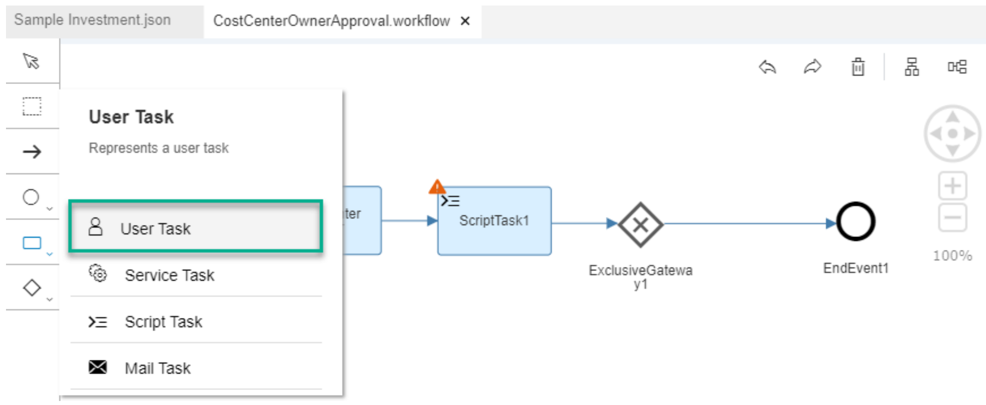
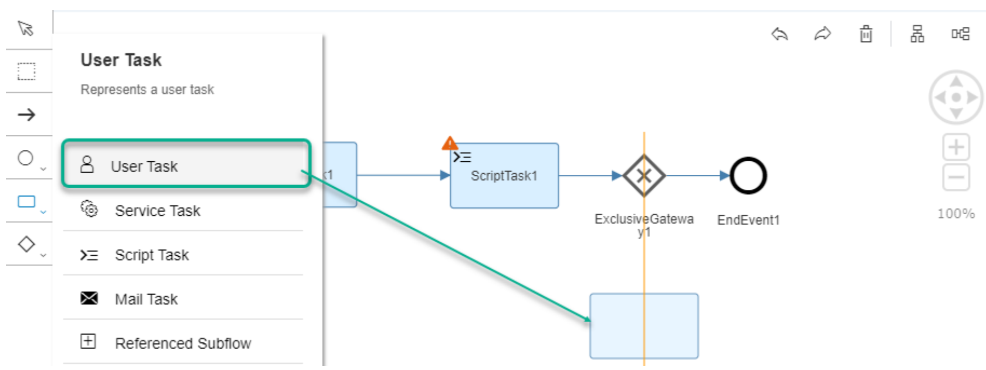
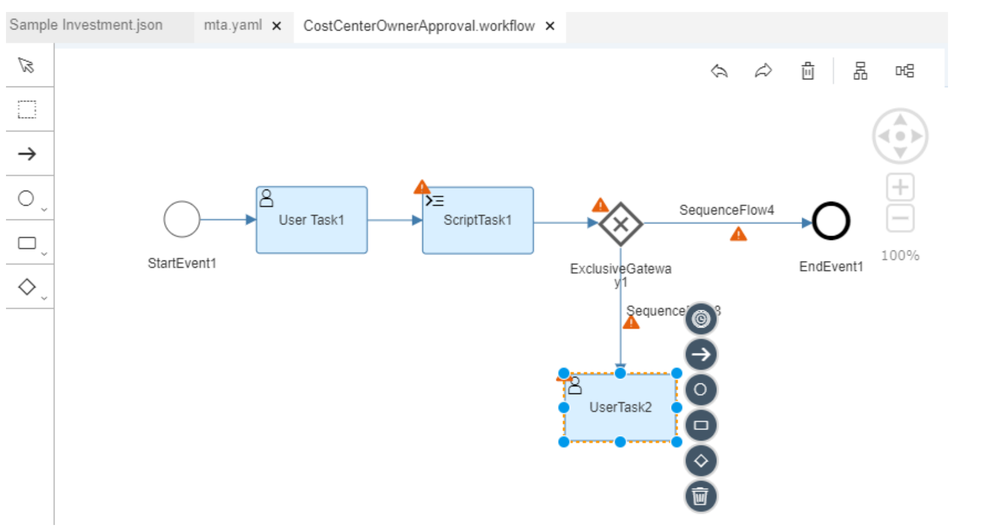
```
{
    "Request": {
      "RequestId": "REQ01",
      "FirstName": "Venugopal",
      "LastName": "Chembrakalathil",
      "Email": "[redacted]",
      "UserId": "[redacted]",
      "Comments": "Please approve the request"
    },
    "Investment": {
      "Description": "New Building",
      "Type": "Building",
      "BusinessUnit": "Manufacturing",
      "Country": "Germany",
      "CAPEX": 1000000,
      "OPEX": 10000,
      "TotalCost": 1010000,
      "Currency": "EURO"
    },
     "Approver":{
      "FirstName": "",
      "LastName": "",
      "Email": "",
      "UserId": "",
      "Decision":"",
      "Comment": ""
    },
    "Comments":[

    ]
}
```

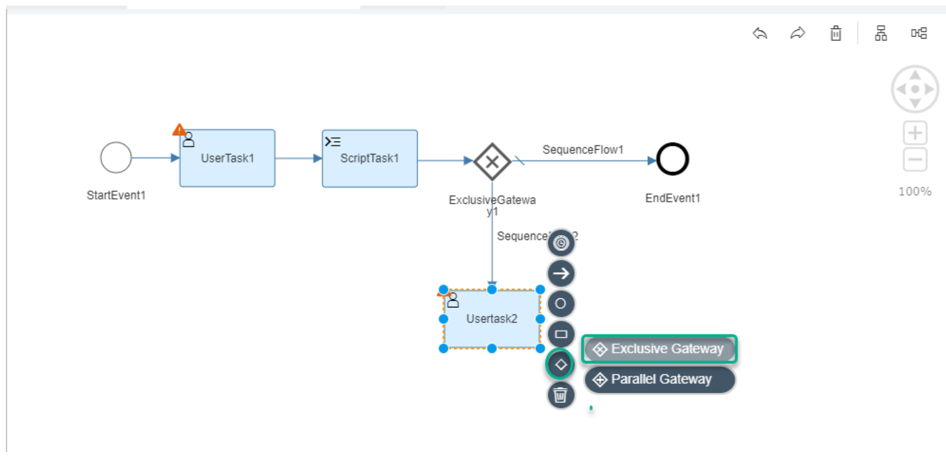
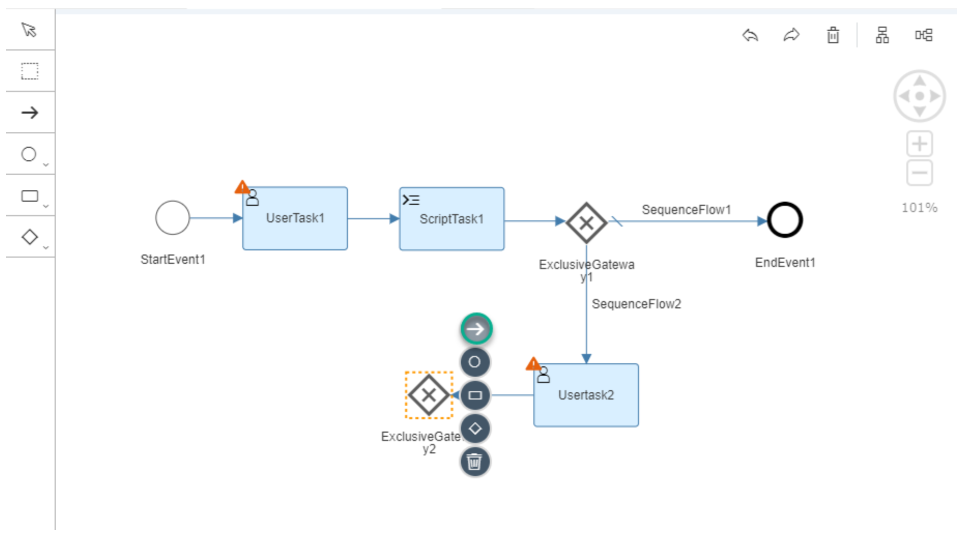
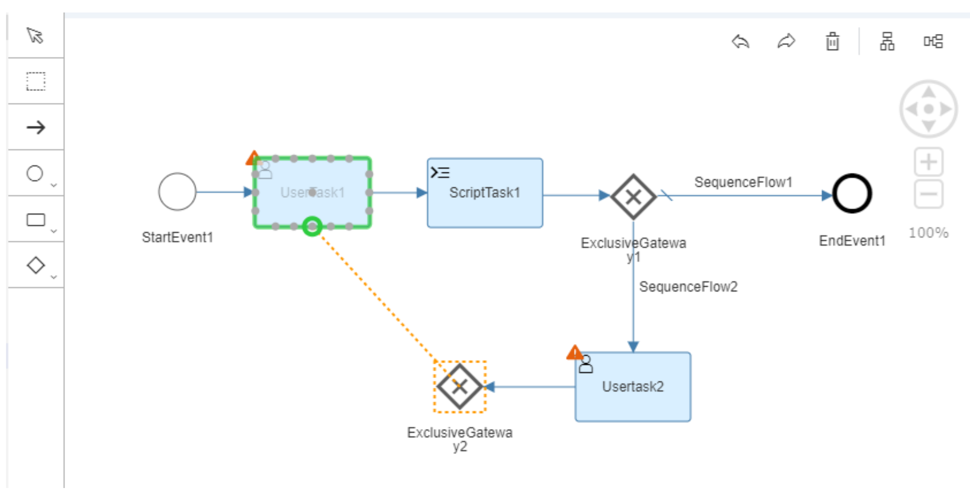
</td></tr>
</table>

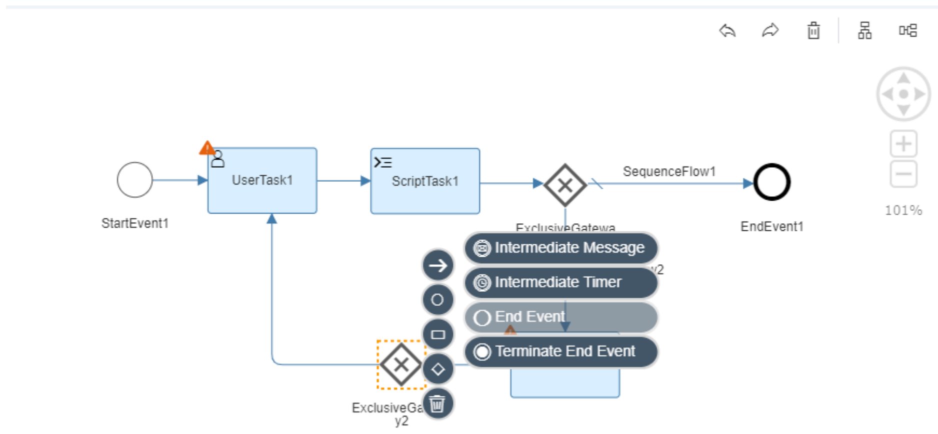
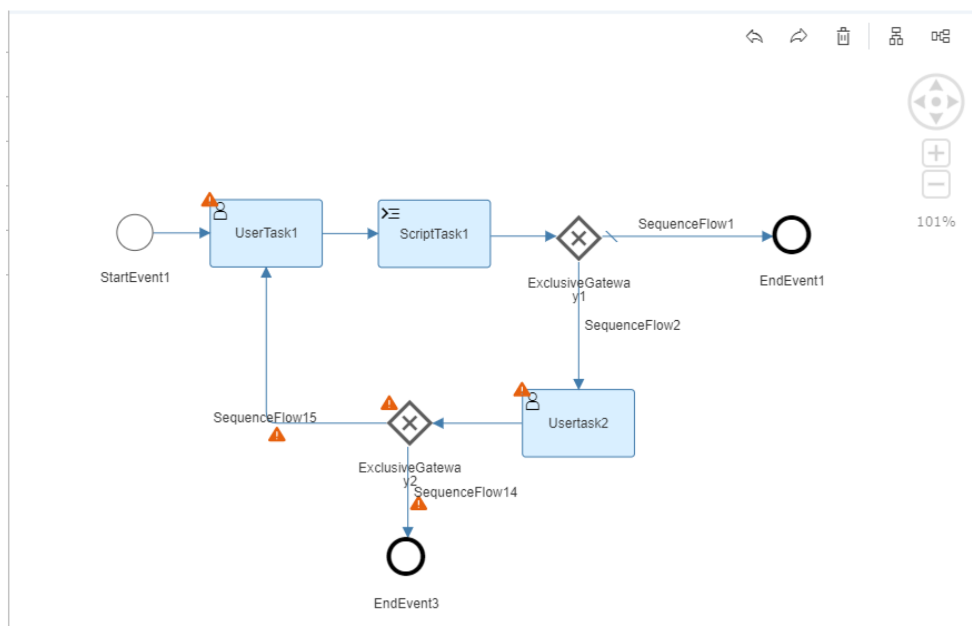
Explanation	Screenshot
29. Select the **GENERAL** Tab from Workflow Properties. 30. Enter the following **Subject**: Cost Center Owner Approval Request Id: ${context.Request.RequestId} **Business Key**: ${context.Request.RequestId}	

Explanation	Screenshot
31. Select **ATTRIBUTES** and add the following Attributes. Please copy the Context Path of each of this attribute from the attached Workflow Context Attributes JSON file. 32. Click **Add** button to add an attribute.	

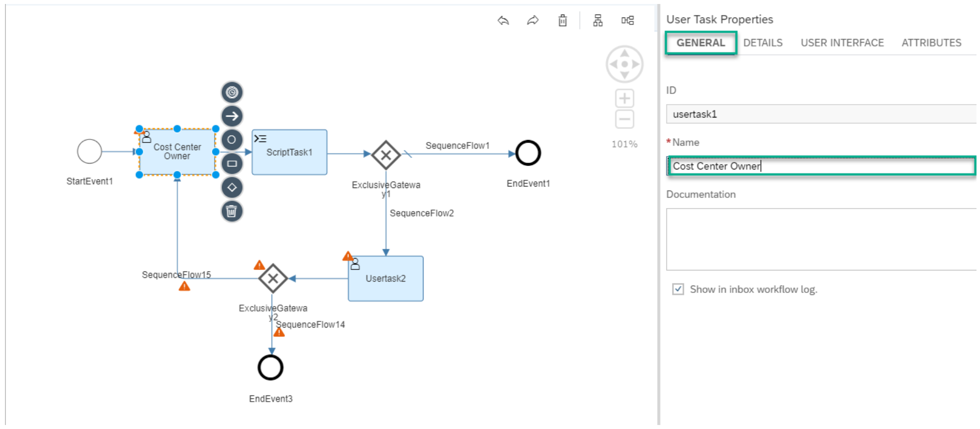
Explanation	Screenshot
33. Before start modeling, please **drag and drop** the **EndEvent1** towards the right side of the editor to keep some space between **Start and End Event**. 34. Select the **StartEvent**, use the speed button and select **User Task.** A user task is added to the workflow model.	
35. Select the newly Added User Task. 36. Using the speed button add a **Script Task**.	
37. Select the newly Added Script Task. 38. Using the speed button add an **Exclusive Gateway**.	

Explanation	Screenshot
39. Select a **User Task** from the palette. 40. Drag and drop the **User Task** just below the **Exclusive Gateway**.	
41. Use **Sequence Flow** from Exclusive Gateway to the new User Task.	

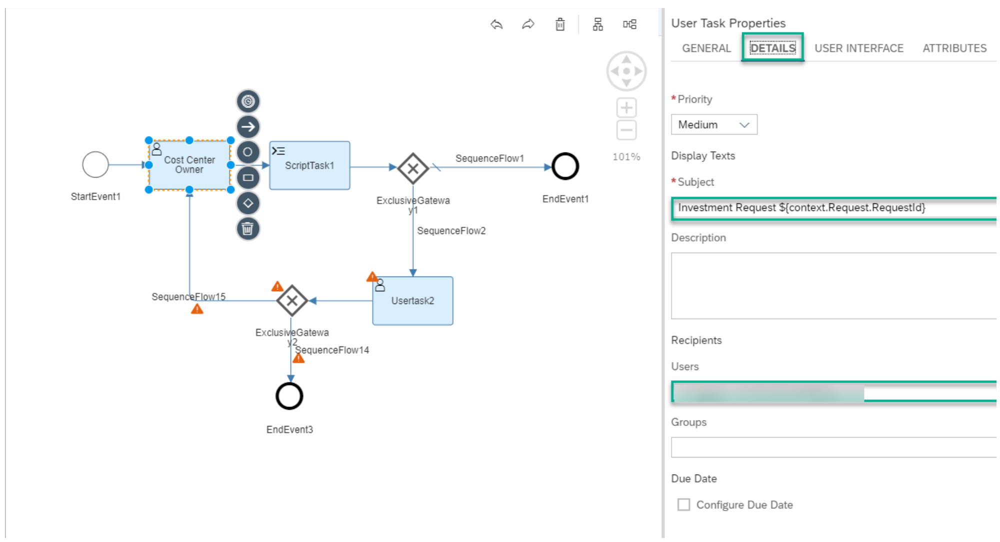
<table>
<tr><th>Explanation</th><th>Screenshot</th></tr>
<tr><td>42. Select User Task2 and choose Exclusive Gateway.</td><td></td></tr>
<tr><td>43. Select newly added Exclusive Gateway and choose Sequence Flow from the speed button.</td><td></td></tr>
<tr><td>44. Drag and drop to User Task1.</td><td></td></tr>
</table>

Explanation	Screenshot
45. Select **Exclusive Gateway2** and choose **End Event** from speed button.	
46. The workflow model sequence modeling has completed. Do necessary formatting if required.	

<table>
<tr><th>Explanation</th><th>Screenshot</th></tr>
<tr><td>47. Select User Task1 and User Task Properties.

48. Under GENERAL section, change the Name as Cost Center Owner.</td><td>
</td></tr>
<tr><td>49. Select DETAILS section and set the following.

Subject: Investment Request ${context.Request.RequestId}

Users: Your Cloud Platform User Id (email id)</td><td>
</td></tr>
</table>

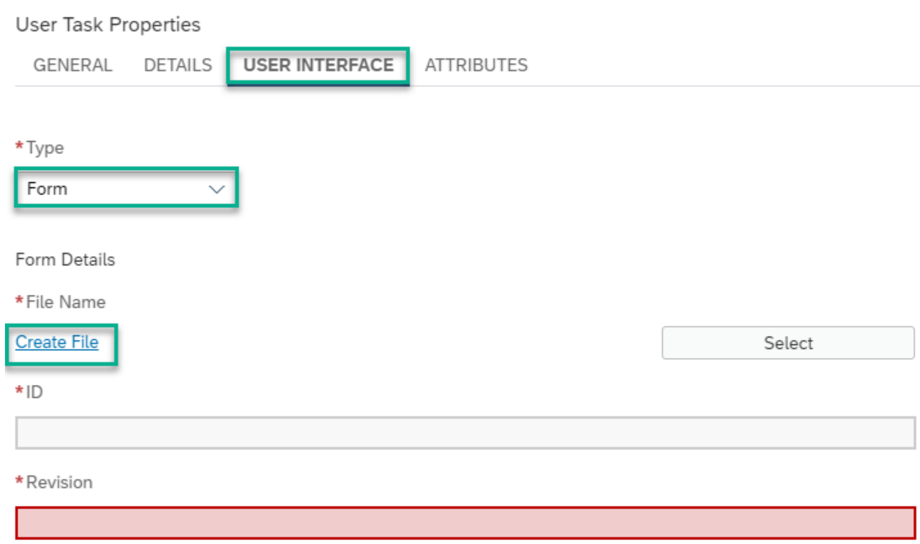
<table>
<tr><th>Explanation</th><th>Screenshot</th></tr>
<tr><td>

Create Workflow Forms

50. Select **USER INTERFACE** section.
51. Change the type as **Form**.
52. Click the link **Create File**.

A popup window is available now to enter Form details.

</td><td>

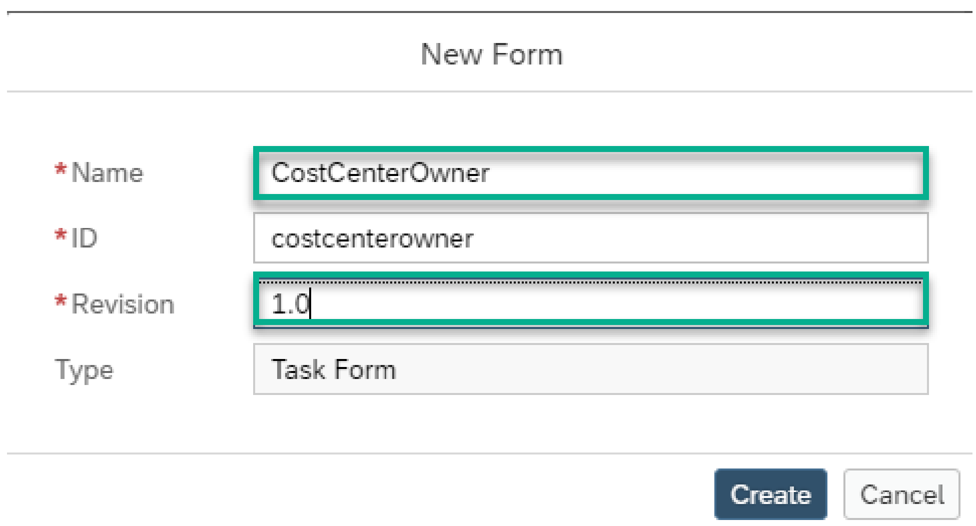


</td></tr>
<tr><td>

53. Enter the following.
Name: CostCenterOwner
Revision: 1.0
54. Click **Create** button.

You can see the Forms Editor opened to model the new task UI.

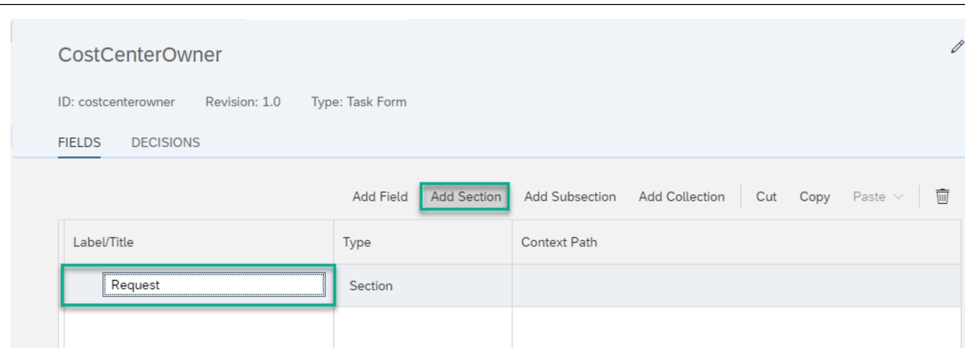
</td><td>



</td></tr>
<tr><td>

55. Click **Add Section**. A section contains set of Fields.
56. Update the **Label / Title** of the section as **Request**

</td><td>



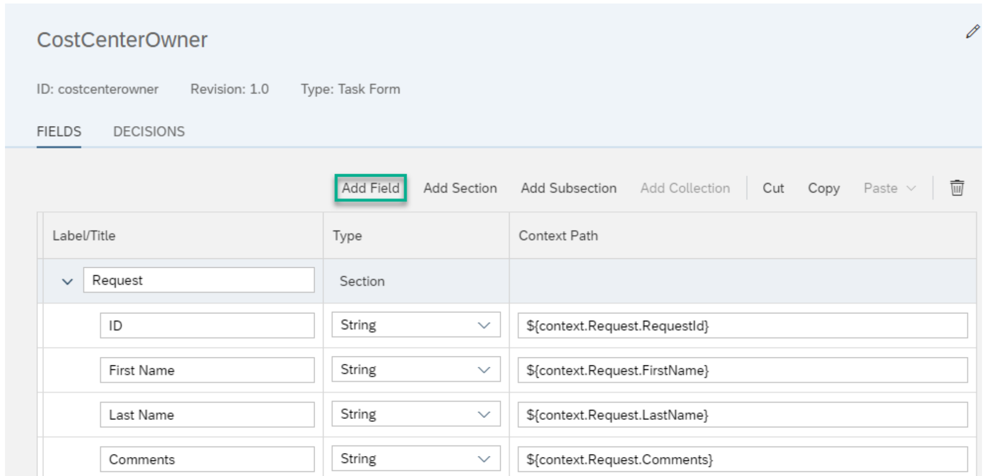
</td></tr>
</table>

Explanation	Screenshot

57. Select Request and click **Add Field** to add the following fields.

    Copy the Context Path from the attached file CostCenterOwnerApprovalTask

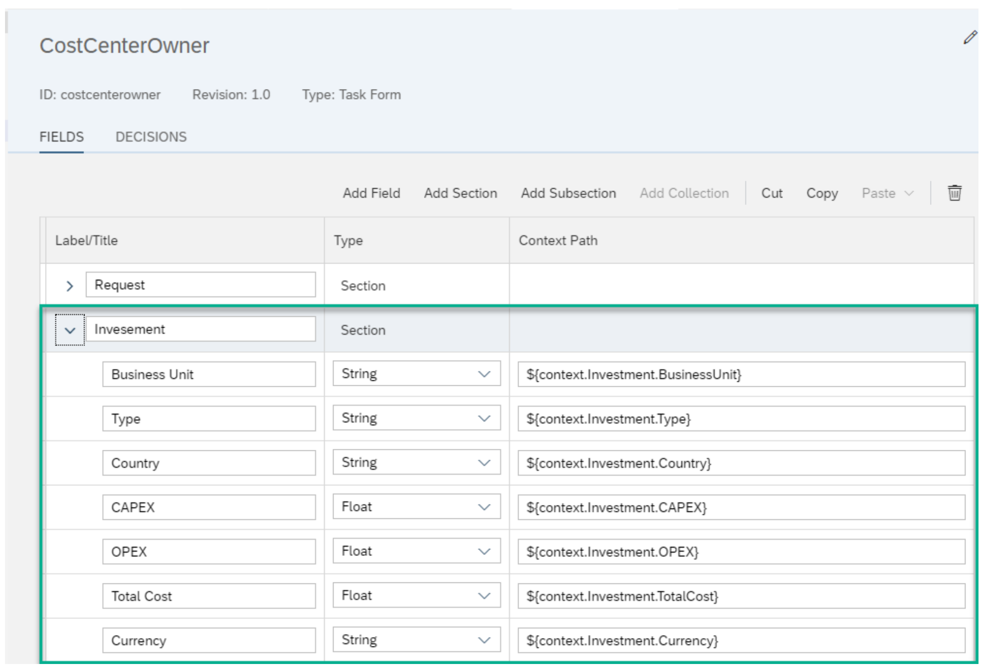
Label	Type	Context Path
ID	String	${context.Request.RequestId}
First Name	String	${context.Request.FirstName}
Last Name	String	${context.Request.LastName}
Comments	String	${context.Request.Comments}

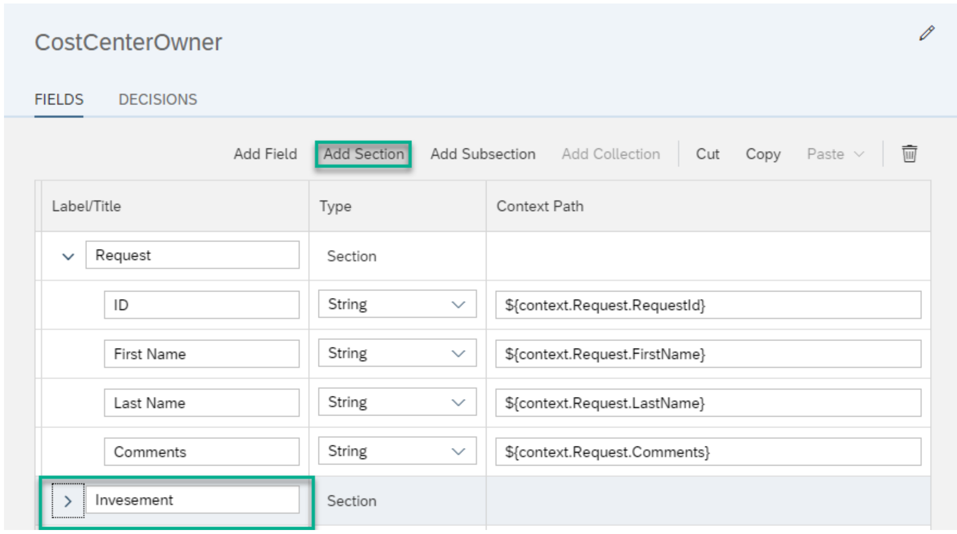
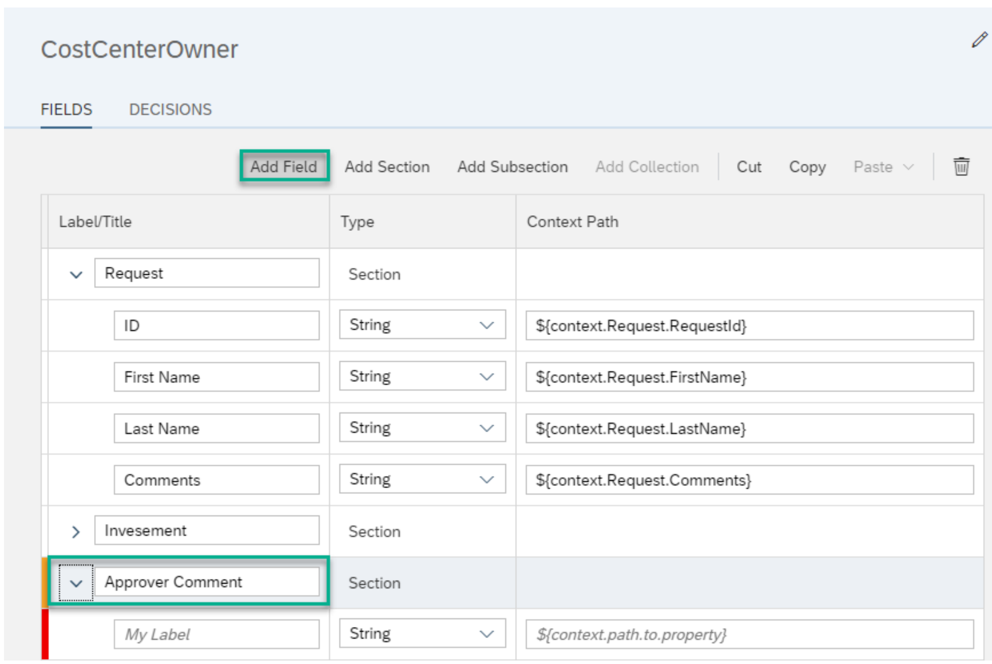


58. Add a new Section **Investment**.

59. Add the following Fields.
    Copy the Context Path from the attached file CostCenterOwnerApprovalTask

Label	Type	Context Path
Business Unit	String	${context.Investment.BusinessUnit}
Type	String	${context.Investment.Type}
Country	String	${context.Investment.Country}
CAPEX	Float	${context.Investment.CAPEX}
OPEX	Float	${context.Investment.TotalCost}
Currency	String	${context.Investment.Currency}



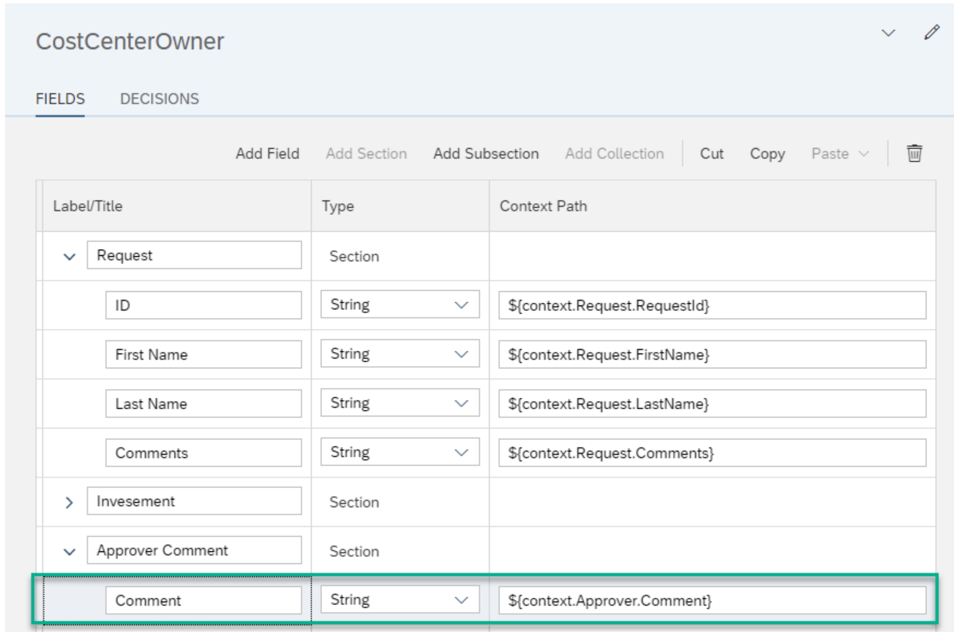
Explanation	Screenshot
60. Select section **Investment**. 61. Click Add **Section**.	
62. Change the **Label/Title** of the section as **Approver Comment**. 63. Click **Add Field**.	

<table>
<tr><th>Explanation</th><th>Screenshot</th></tr>
<tr><td>

64. Update the **Label/Title** of the new Field as **Comment**.

65. Update the **Context Path** ${context.Approver.Comment}

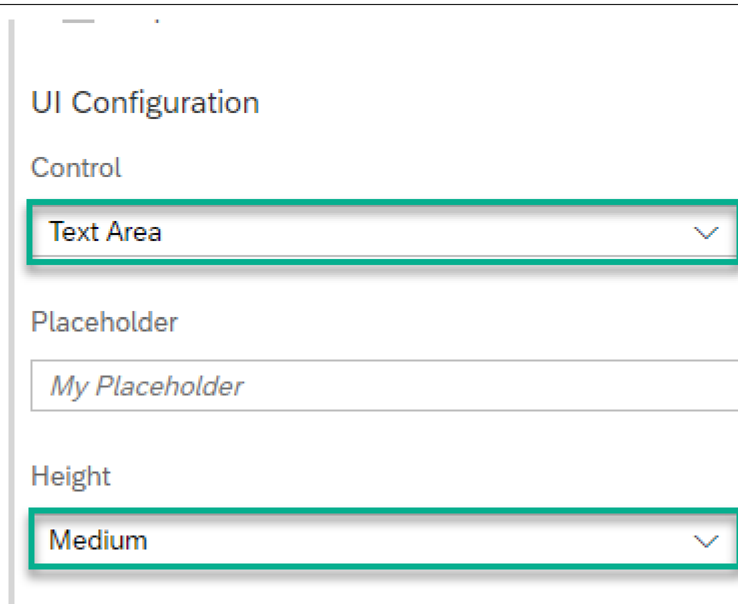
</td><td>



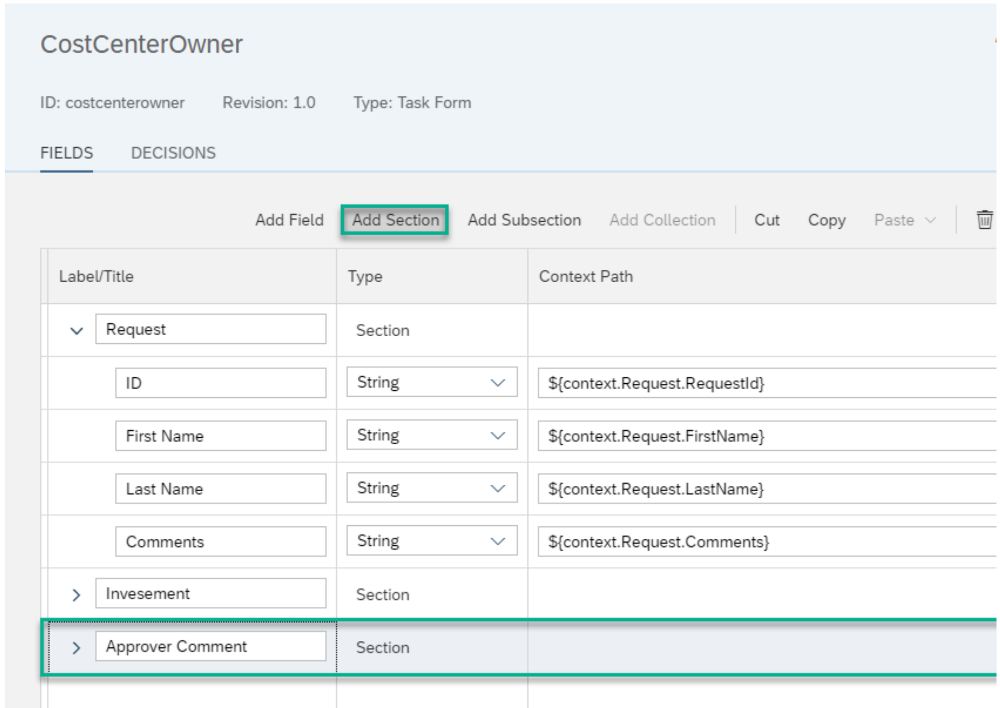
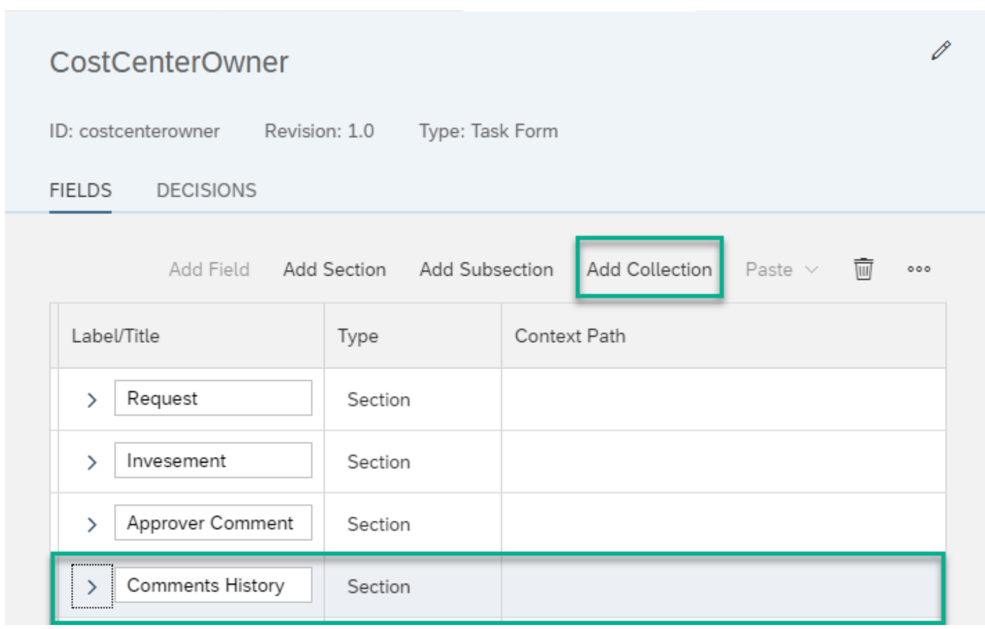
</td></tr>
<tr><td>

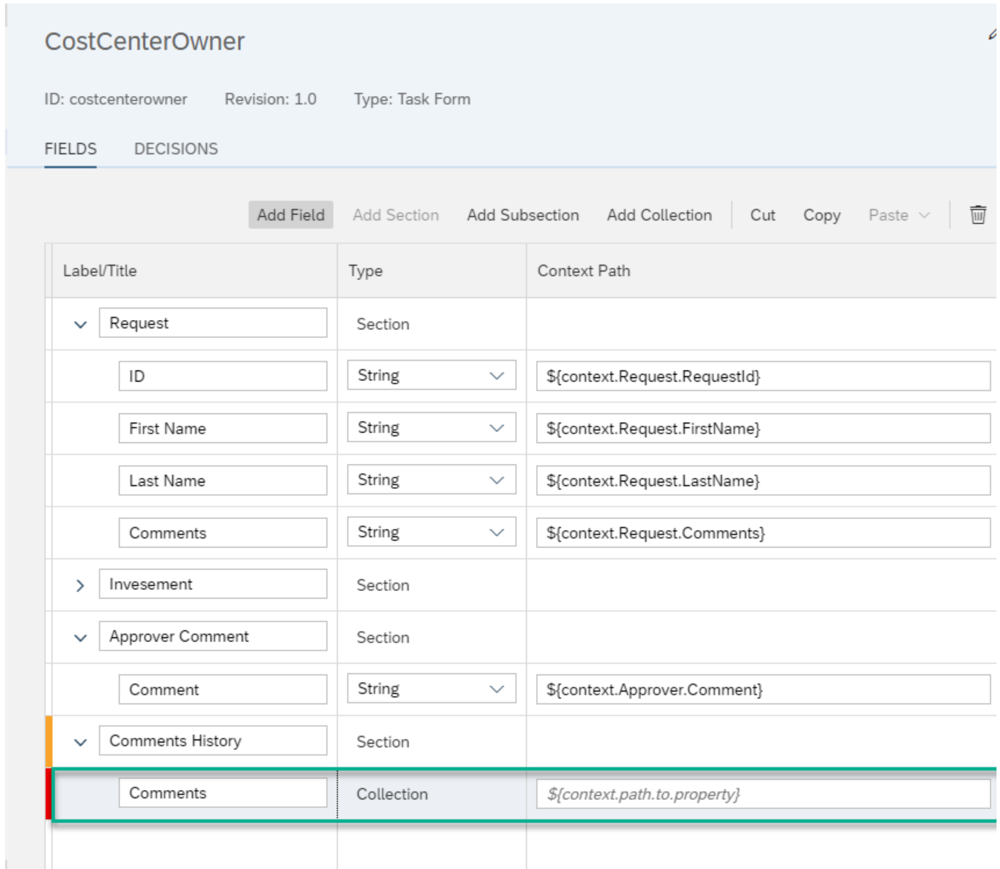
66. Select the **Comment** field.
67. Select **Control** as **Text Area**.
68. Select **Height** as **Medium.**

</td><td>



</td></tr>
</table>

Explanation	Screenshot
69. Add a new Section. Click **Add Section.**	
70. Update **Label/Title** of the newly added Section as **Comments History.** 71. Click **Add Collection.**	

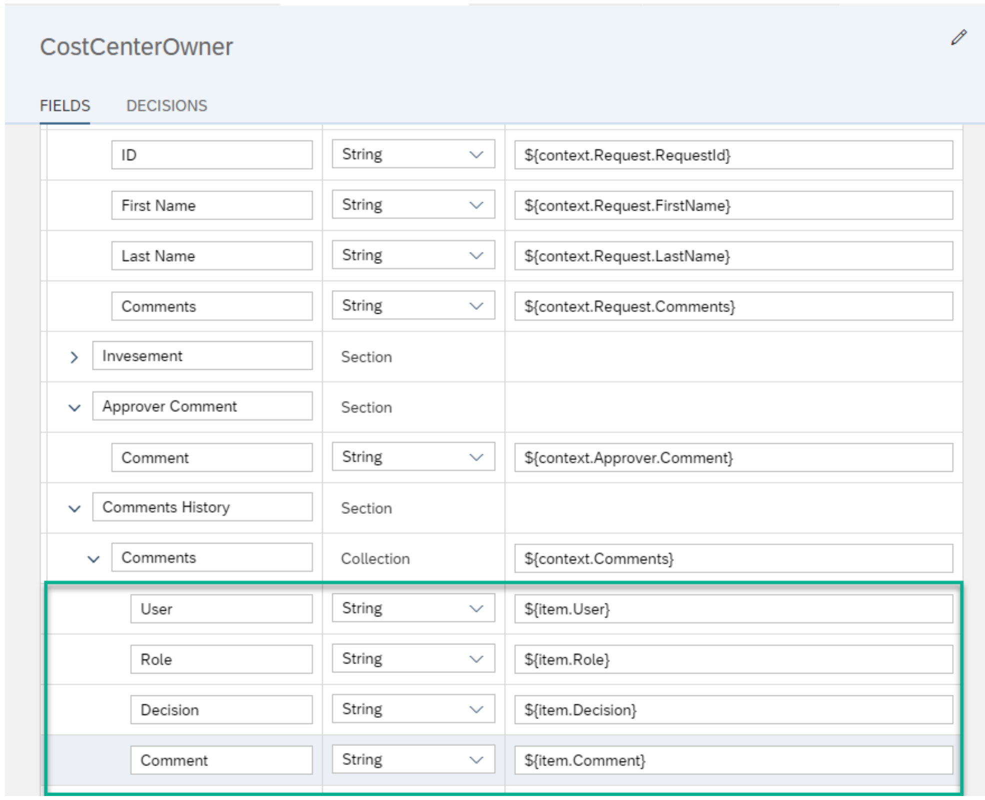
Explanation	Screenshot
72. Update the **Label/Title** as **Comments**. 73. Update the **Context Path** as **${context.Comments}**.	

Explanation	Screenshot

74. Select **Comments** and click **Add Field** to add the following fields.

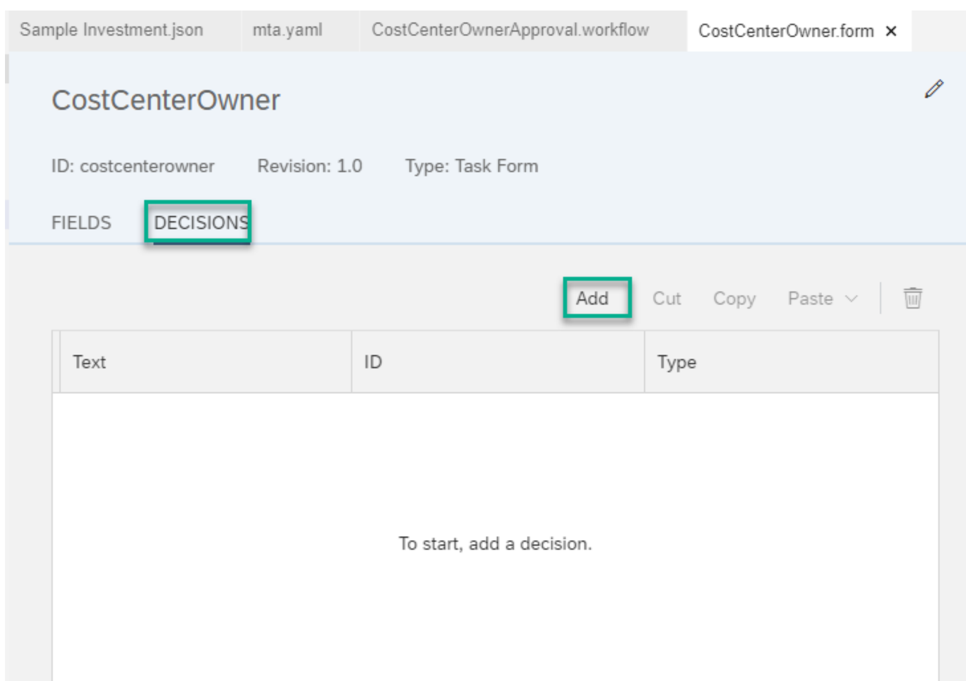
    Copy the Context Path from the attached file CostCenterOwnerApprovalTask

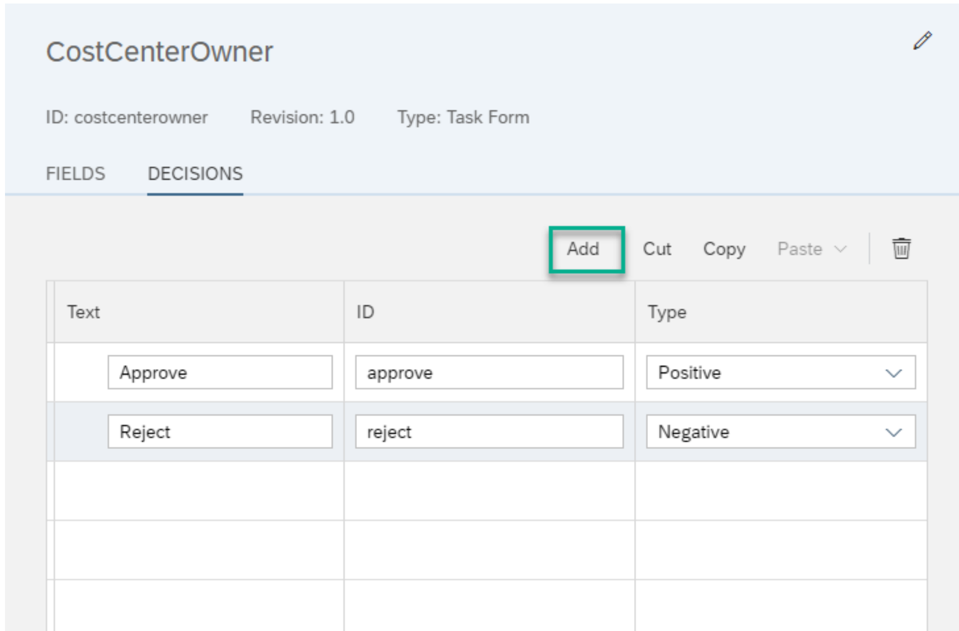
Label	Type	Context Path
User	String	${item.User}
Role	String	${item.Role}
Decision	String	${item.Decision}
Comment	String	${item.Comment}

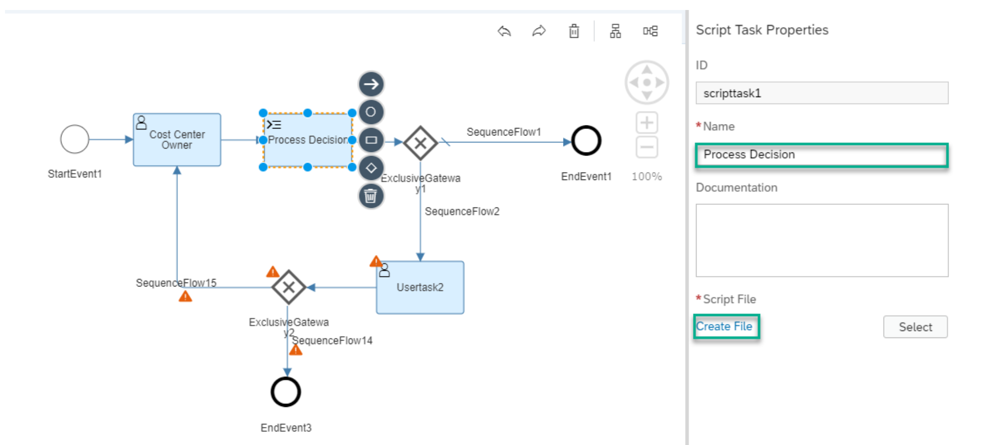


75. Select **DECISIONS.**

76. Click **Add.**



<table>
<tr><th>Explanation</th><th>Screenshot</th></tr>
<tr><td>77. Click Add and add the following Decisions.
<table>
<tr><th>Text</th><th>ID</th><th>Type</th></tr>
<tr><td>Approve</td><td>approve</td><td>Positive</td></tr>
<tr><td>Reject</td><td>reject</td><td>Negative</td></tr>
</table>
</td><td>
</td></tr>
<tr><td>78. Select the Script Task and enter name as Process Decision.

79. Click Create File link.</td><td>
</td></tr>
<tr><td>80. Enter file name as manage decisions.

81. Click Create button.</td><td>
</td></tr>
</table>

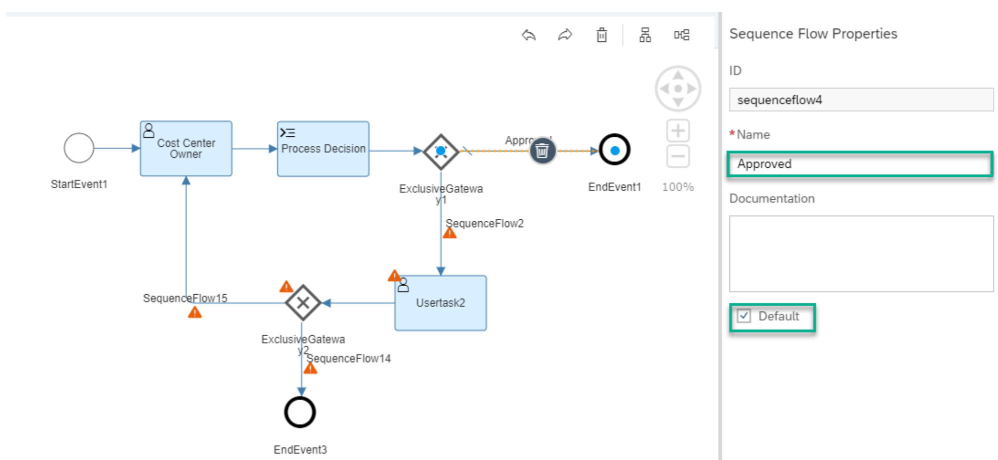
Explanation	Screenshot
82. Copy and paste the scripts from the attached manage decisions.js.	(code below)

```
var lastUserTask1 = $.usertasks.usertask1.last;
$.context.Approver.UserId = lastUserTask1.processor;
$.context.Approver.decision = lastUserTask1.decision;

var decision={};
decision.User= lastUserTask1.processor;
decision.Role="Cost Center Approver";
decision.Decision = lastUserTask1.decision;
decision.Comment=$.context.Approver.Comment;

$.context.Comments.Add(decision);

$.context.Approver.UserId = "";
$.context.Approver.decision = "";
$.context.Approver.Comment ="";
```

83. Select the **sequence flow** between the **exclusive gateway** and **end event1**.

84. In Sequence flow properties enter **Name** as Approved.

85. Check the **Default** checkbox.

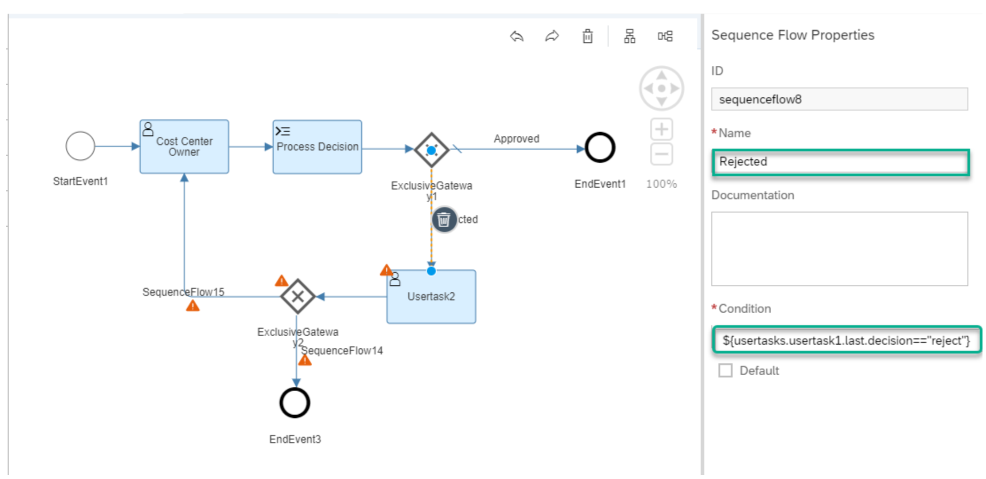


86. Select **sequence flow** between the **ExclusiveGateway1** and **UserTask2**.

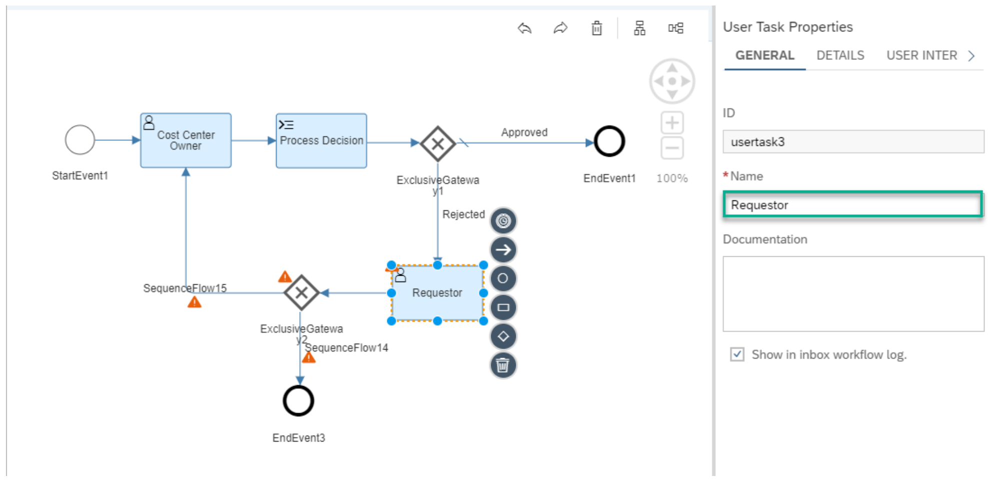
87. Enter **Name** as Rejected.

88. Enter the condition as ${usertasks.usertask1.last.decision=="reject"}

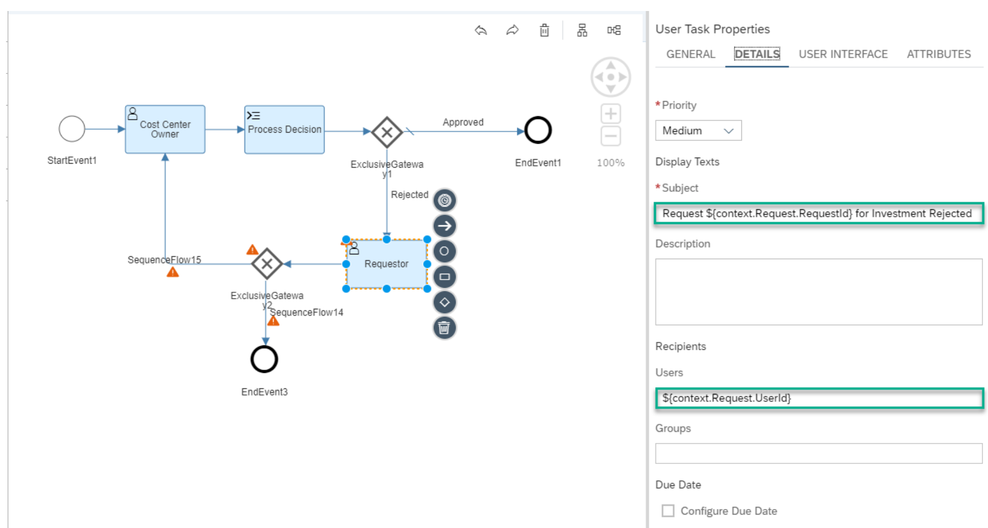
You may copy the condition from the attached file Exclusive Gateway Conditions.



<table>
<tr><th>Explanation</th><th>Screenshot</th></tr>
<tr><td>89. Select UserTask2 and in User Task Properties select GENERAL tab.

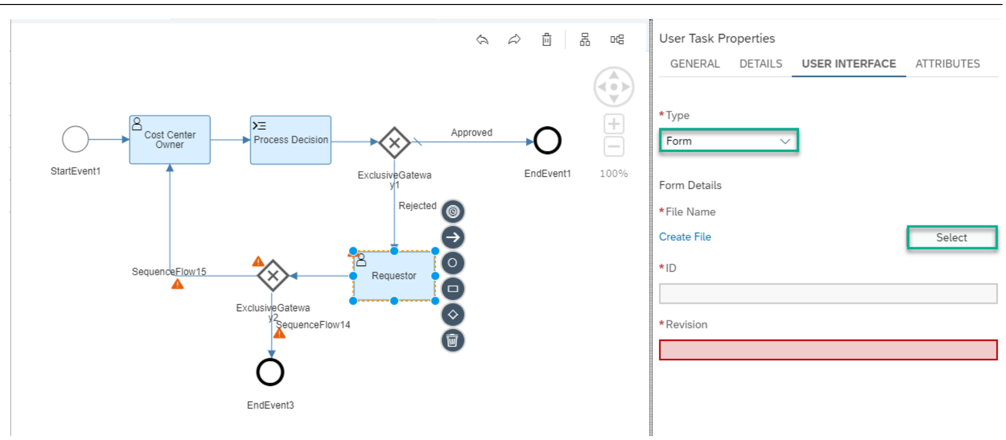
90. update the Name as Requestor.</td><td>
</td></tr>
<tr><td>91. Select Details tab.

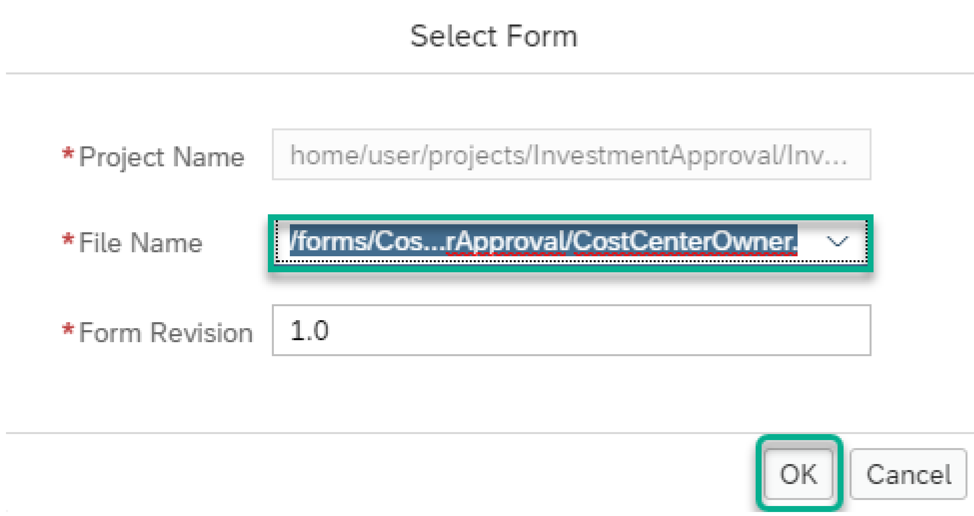
92. Set Subject as Request ${context.Request.RequestId} for Investment Rejected.

93. Set Users as ${context.Request.UserId}</td><td>
</td></tr>
<tr><td>94. Select USER INTERFACE section.

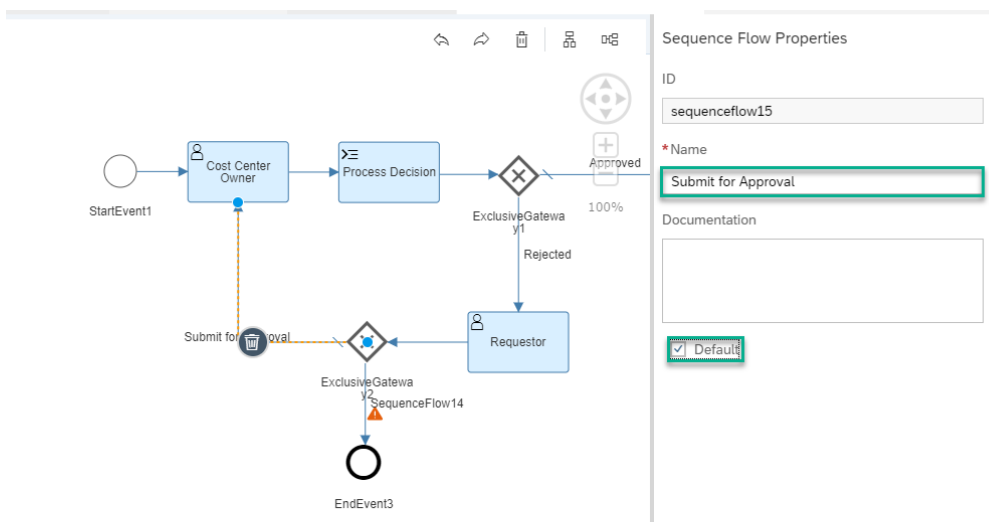
95. Select Type as Form.

96. Click Select button.

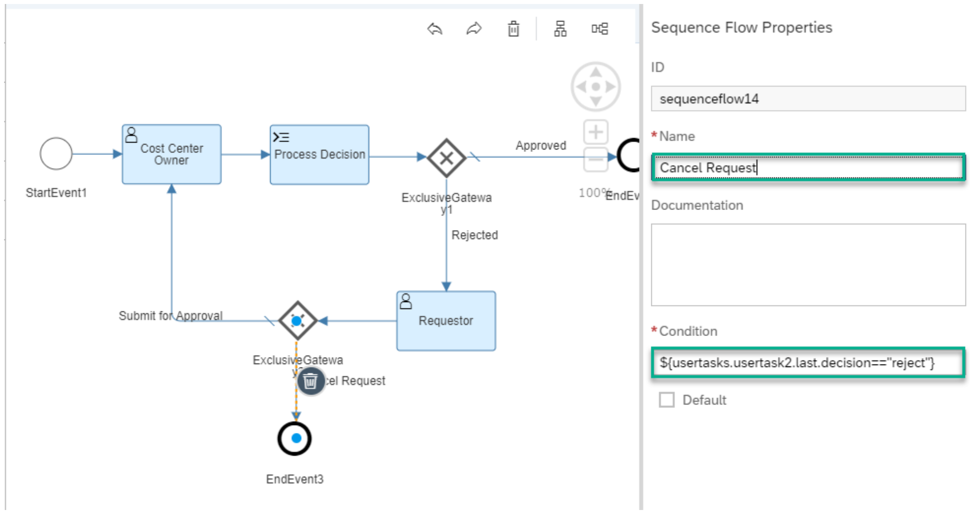
You will reuse the same Form modeled for Cost Center Owner approval.</td><td>
</td></tr>
</table>

<table>
<tr><th>Explanation</th><th>Screenshot</th></tr>
<tr><td>97. Select Cost Center Owner as File Name.
98. Click OK.</td><td>
</td></tr>
<tr><td>99. Select the sequence flow between the Exclusive Gateway and Cost Center Owner user task.

100. Enter Name as Submit for Approval

101. Check Default check box.</td><td>
</td></tr>
</table>

Explanation	Screenshot
102. Select the **sequence flow** between the **Exclusive Gateway** and **End event3**. 103. Enter **Name** as Cancel Request. 104. Enter **Condition** as ${usertasks.usertask2.last.decision =="reject"} Make sure the Requestor user task ID is usertask2. If it is different change the ID in the expression. You may copy the condition from the attached file Exclusive Gateway Conditions.	

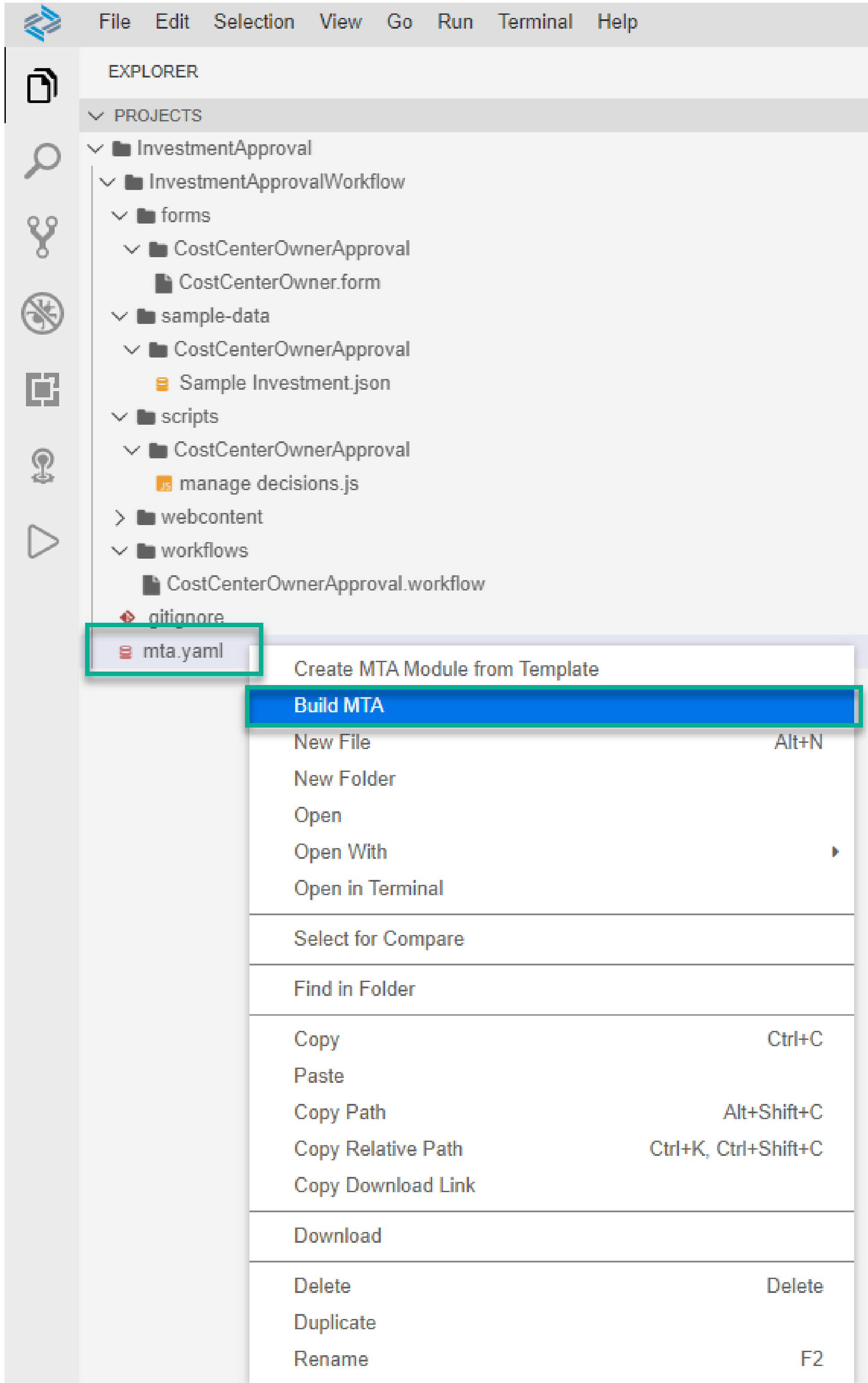


Build and Deploy

105. Right click on **mta.yaml** file.

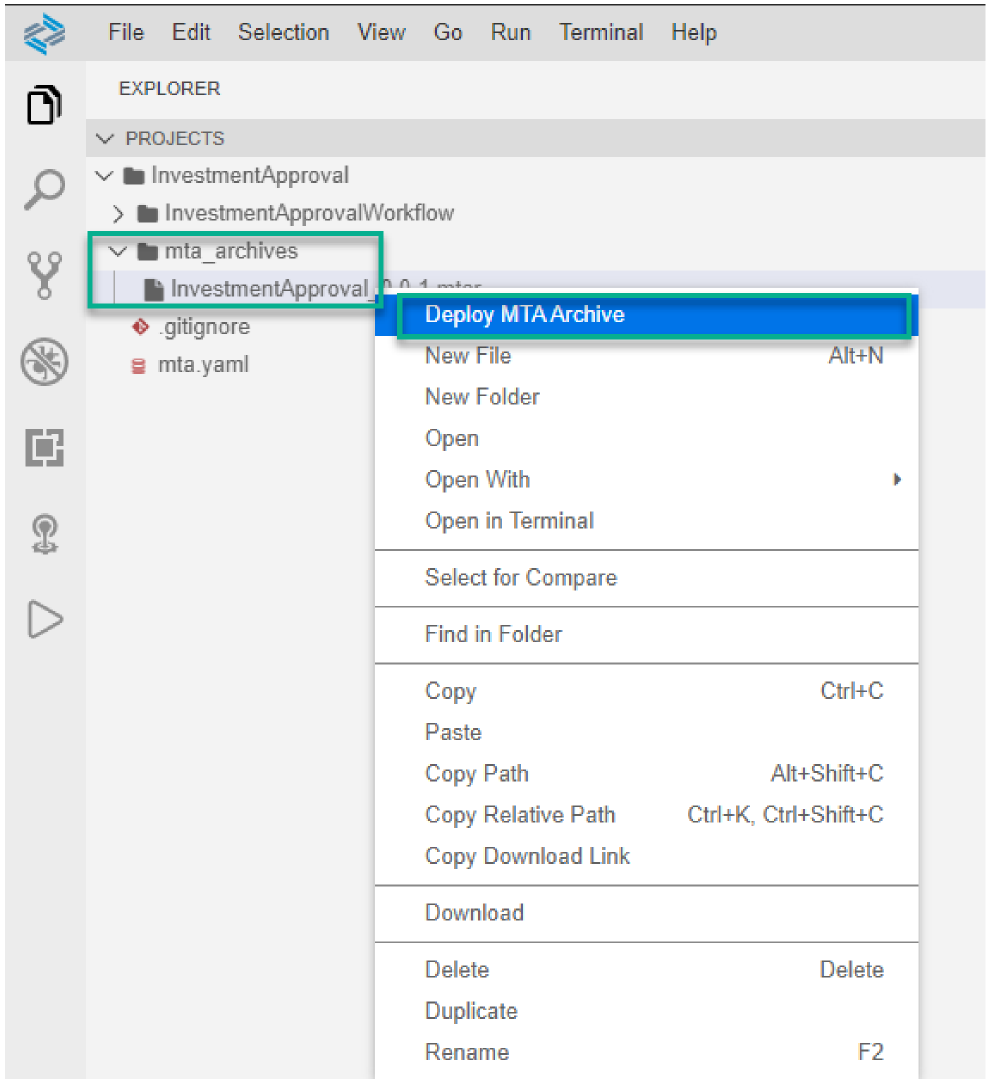
106. Select **Build MTA**.

This will start the MTA build and it may take a few seconds to create the mta archive under the folder **mta_archives**.



<table>
<tr><th>Explanation</th><th>Screenshot</th></tr>
<tr><td>107. Successful build will create a new folder mta_archives and a .mtar file.

108. Select the .mtar file and right click.

109. Click Deploy MTA Archive.</td><td>
</td></tr>
<tr><td>110. Successful deployment will show the log.</td><td>
</td></tr>
</table>

SUMMARY

You have modeled a workflow and successfully deployed in your SAP Cloud Platform trial account. In the Next hands on guide, you will Execute and Monitor the Workflow. Please see more details on SAP Cloud platform Workflow in help portal.

www.sap.com/contactsap

THE BEST RUN SAP®