

PUBLIC

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

DEV-264

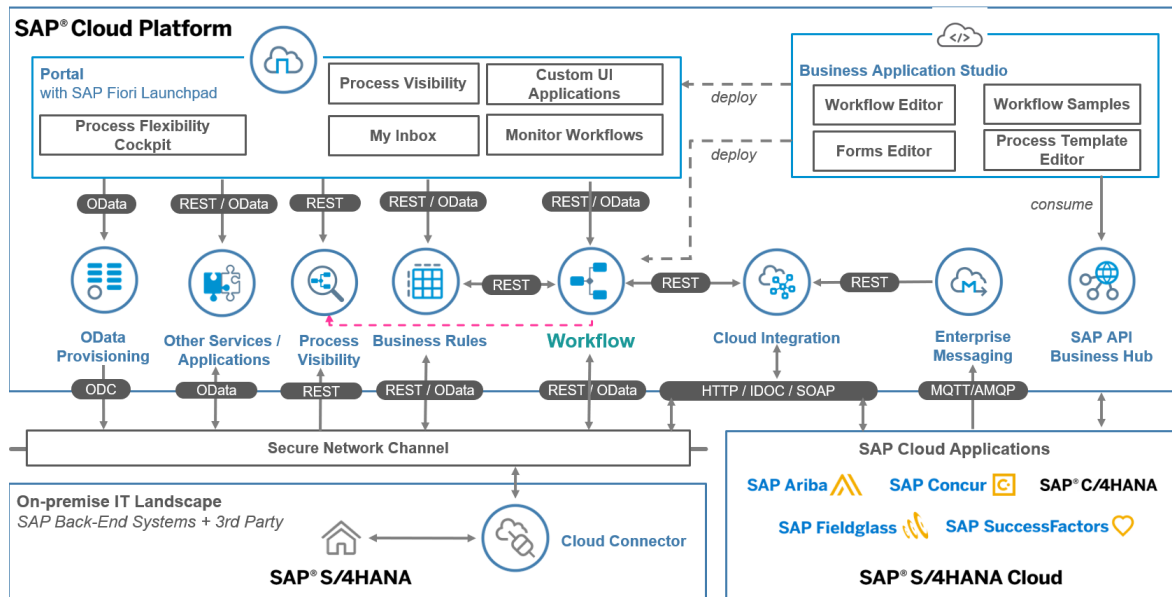
Exercises / Solutions  
Venugopal Chembrakalathil / SAP SE

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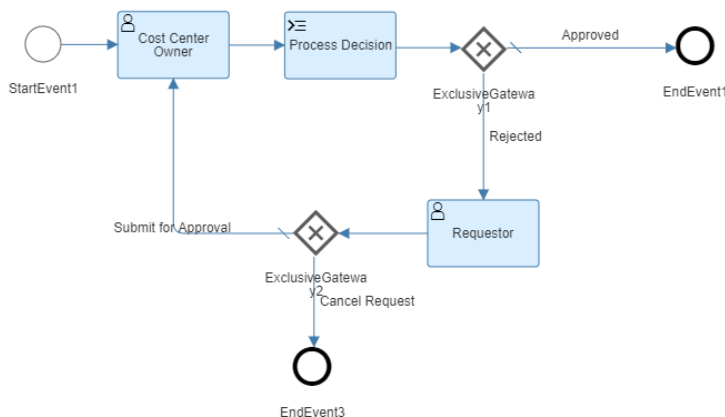
SAP Cloud Platform Workflow Management has Workflow capability, enable developers to model workflow based on BPMN 2.0 using SAP Cloud Platform Business Application Studio and deploy to Cloud platform accounts. A workflow consists of different activities, events and gateways. It provides fine granular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

## SAP Cloud Platform Workflow – the bigger picture



## SCENARIO

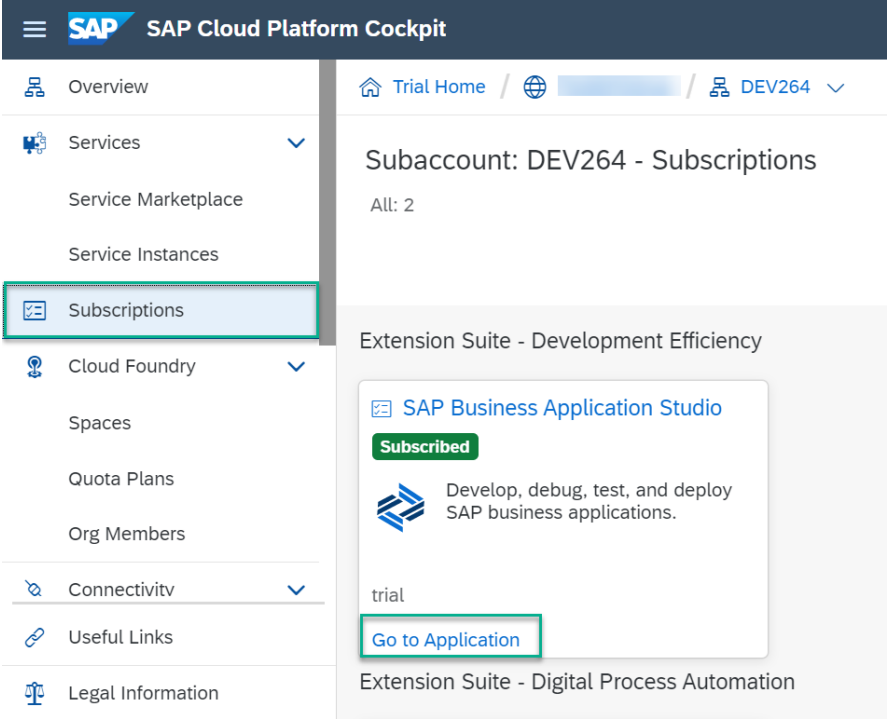
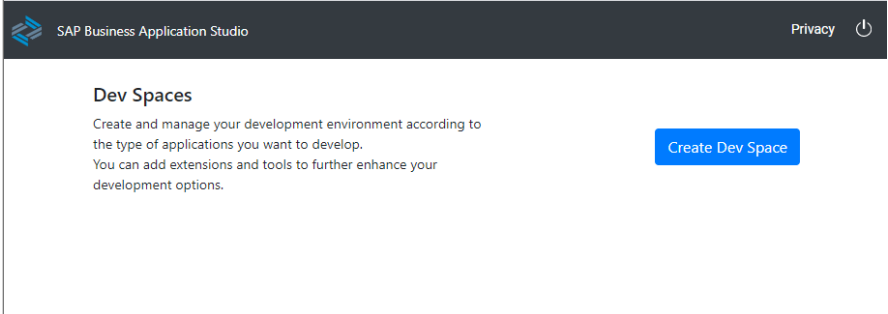
The scenario is an Investment Approval Workflow. A requestor creates a request for approval and Approver can decide Approve or Reject. A rejection enables the requestor to modify the request and submit or cancel the request.

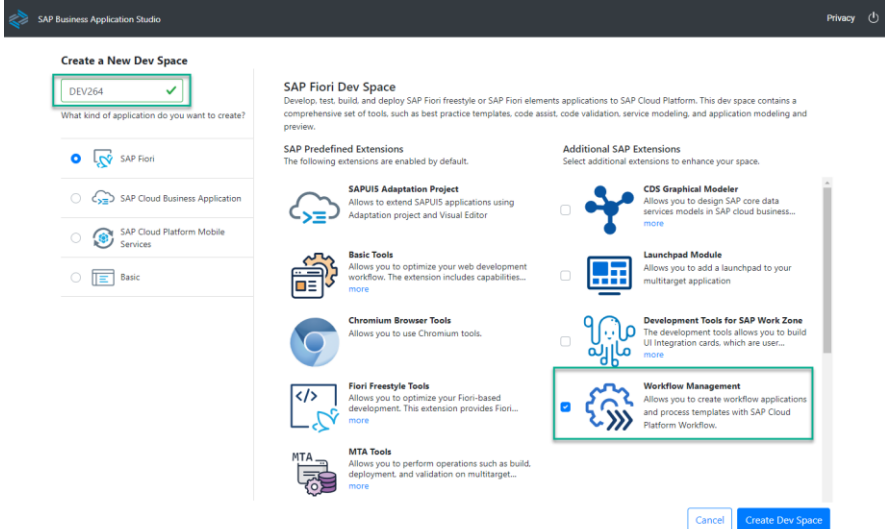
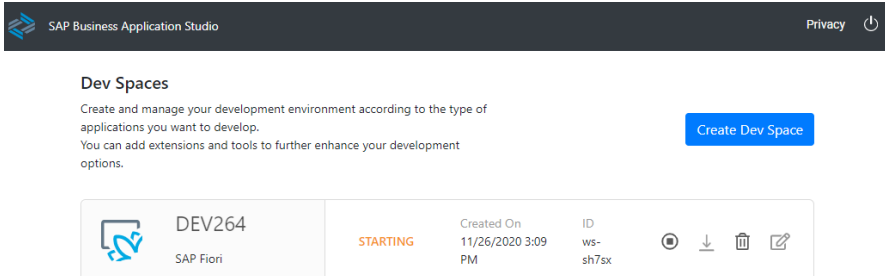
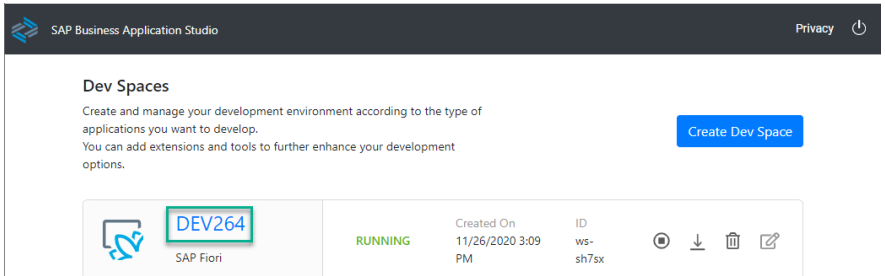


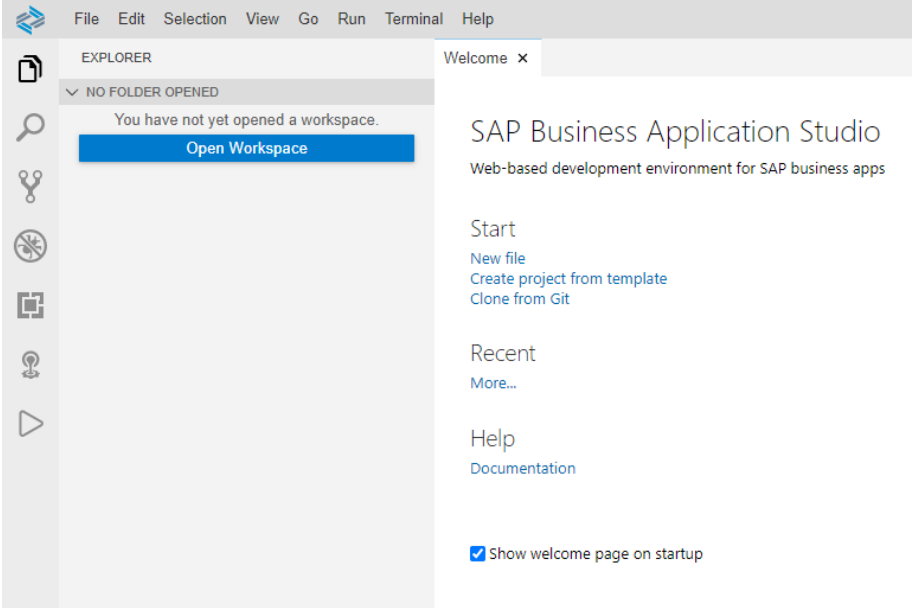
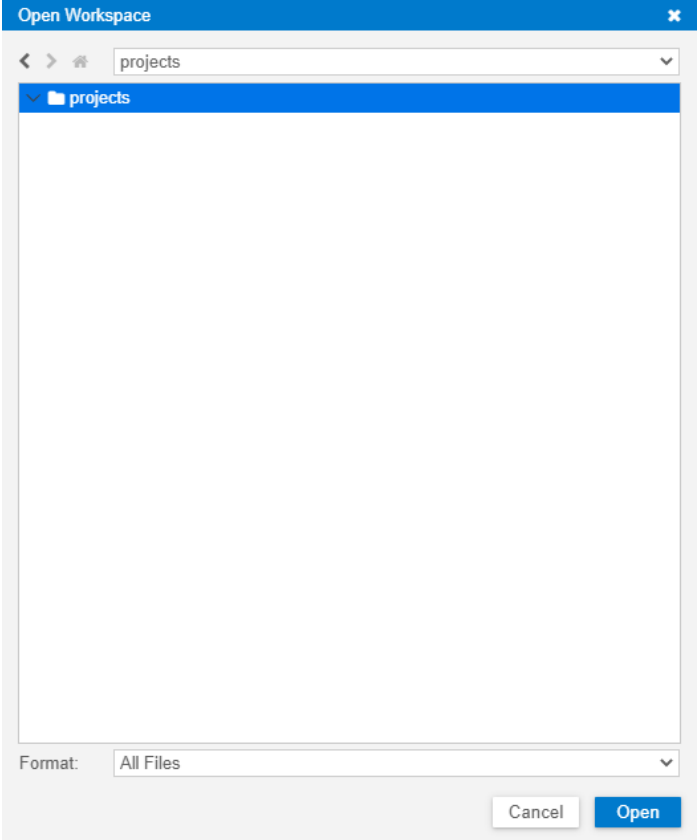
## Prerequisite

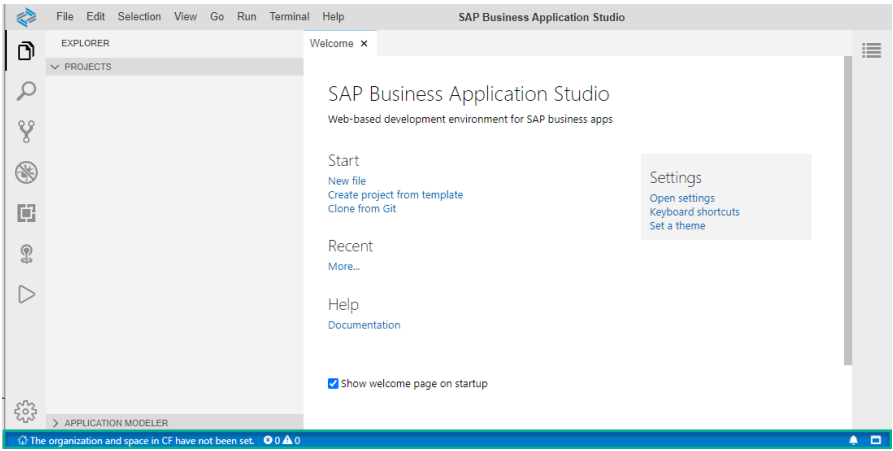
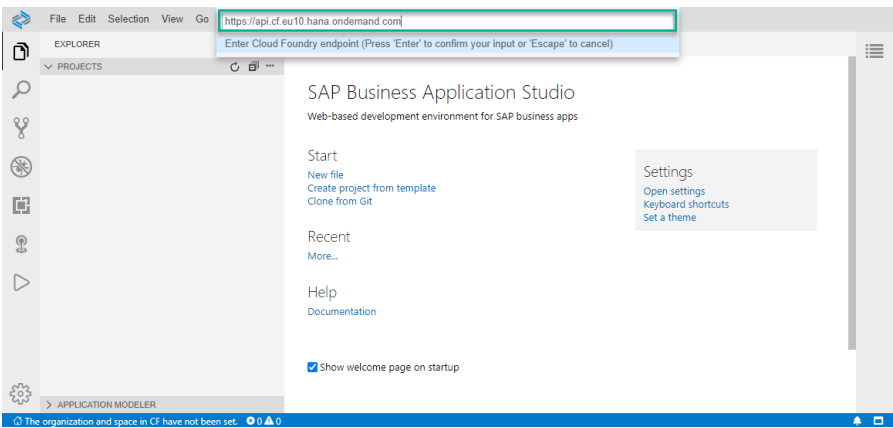
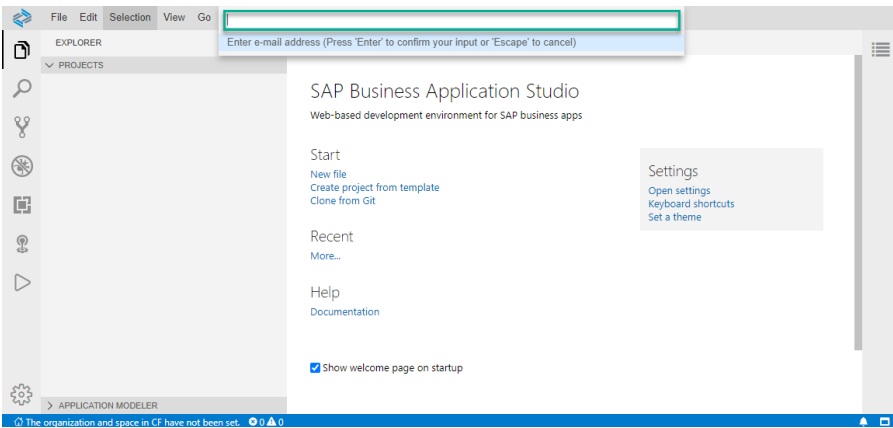
Please setup your SAP Cloud Platform Trial account using [setup guide](#).

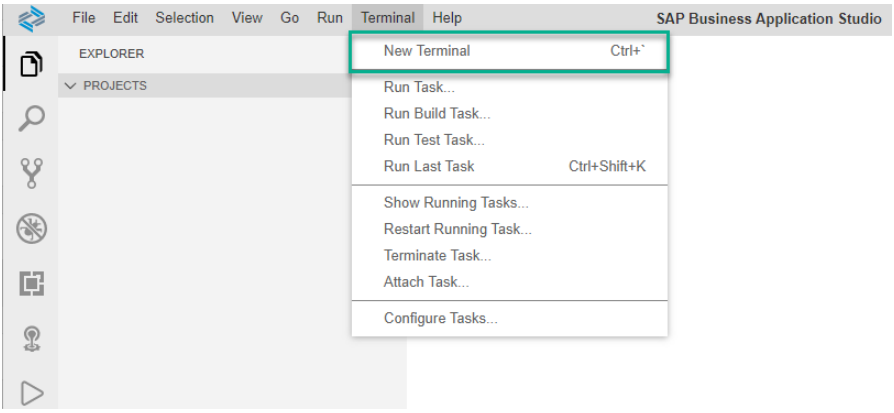
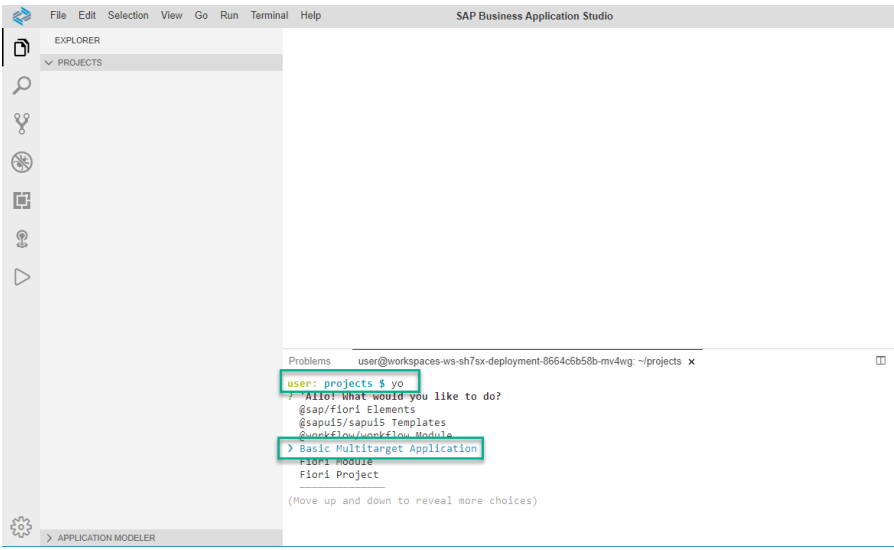
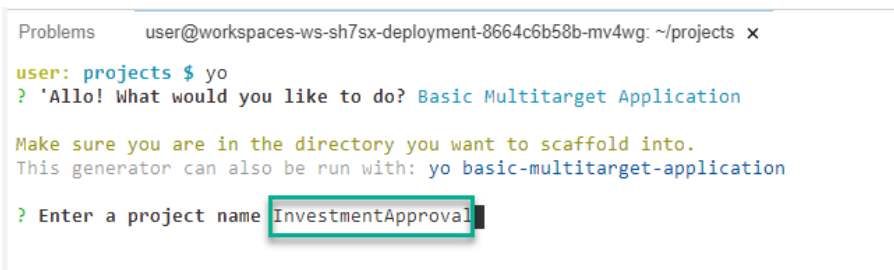
## MODEL WORKFLOW – INVESTMENT APPROVAL WORKFLOW

Explanation	Screenshot
<ol style="list-style-type: none"> <li>1. Select <b>Subscriptions</b> in your Sub Account and you see the subscribed applications.</li> <li>2. Select <b>SAP Business Application Studio</b> and click <b>Go to Application</b>.</li> </ol> <p>SAP Cloud Platform Business Application Studio will be opened in new browser window.</p> <p>Skip steps 3 to 7 If you have already created a dev space with Workflow Management extension.</p>	 <p>The screenshot shows the SAP Cloud Platform Cockpit interface. The left sidebar contains a menu with options: Overview, Services, Service Marketplace, Service Instances, Subscriptions (highlighted with a red box), Cloud Foundry, Spaces, Quota Plans, Org Members, Connectivity, Useful Links, and Legal Information. The main content area displays 'Subaccount: DEV264 - Subscriptions' with 'All: 2' items. Under the 'Extension Suite - Development Efficiency' section, 'SAP Business Application Studio' is listed as 'Subscribed'. Below this, there is a 'trial' label and a 'Go to Application' button (highlighted with a red box). The 'Extension Suite - Digital Process Automation' section is also visible at the bottom.</p>
<p><b>Create Workspace</b></p> <ol style="list-style-type: none"> <li>3. Click <b>Create Dev Space</b> button.</li> </ol>	 <p>The screenshot shows the SAP Business Application Studio interface. The header bar includes the SAP Business Application Studio logo, a 'Privacy' link, and a power icon. The main content area is titled 'Dev Spaces' and contains the text: 'Create and manage your development environment according to the type of applications you want to develop. You can add extensions and tools to further enhance your development options.' A blue 'Create Dev Space' button is located on the right side of the page.</p>


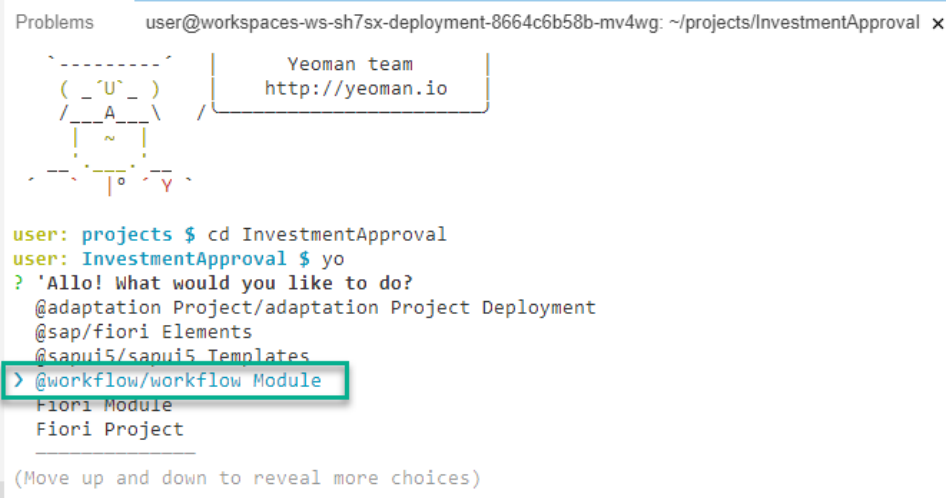
Explanation	Screenshot
<div>4. Enter Dev Space</div> <div>5. Select <b>Workflow Management</b> from Additional SAP Extensions.</div> <div>6. Click <b>Create Dev Space</b></div>	
<div>7. Setting up the Dev Space will take couple of minutes and show the status as <b>STARTING</b>. Wait until the status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


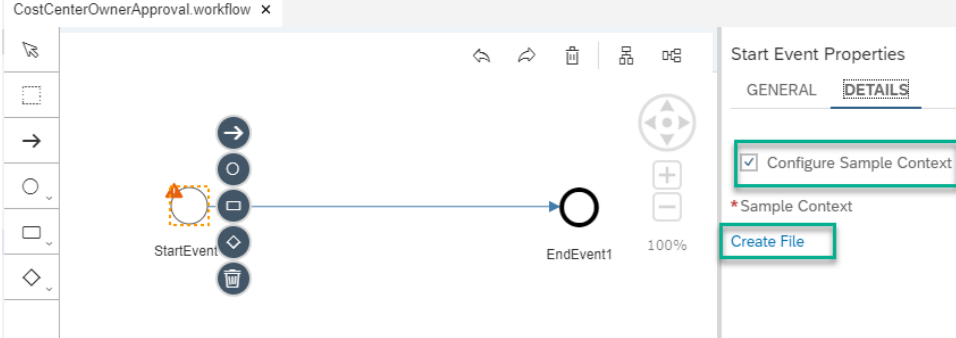
Explanation	Screenshot
9. Click <b>Open Workspace</b> .	 <p>The screenshot shows the SAP Business Application Studio interface. The Explorer view on the left displays 'NO FOLDER OPENED' and a blue button labeled 'Open Workspace'. The main area shows the 'Welcome' page with options to 'Start' (New file, Create project from template, Clone from Git), 'Recent' (More...), and 'Help' (Documentation). A checkbox at the bottom is checked for 'Show welcome page on startup'.</p>
10. Select <b>Projects</b> and click <b>Open</b> button.	 <p>The screenshot shows the 'Open Workspace' dialog box. The file list displays the 'projects' folder, which is selected. The 'Format' dropdown at the bottom is set to 'All Files'. The 'Open' button is highlighted in blue.</p>

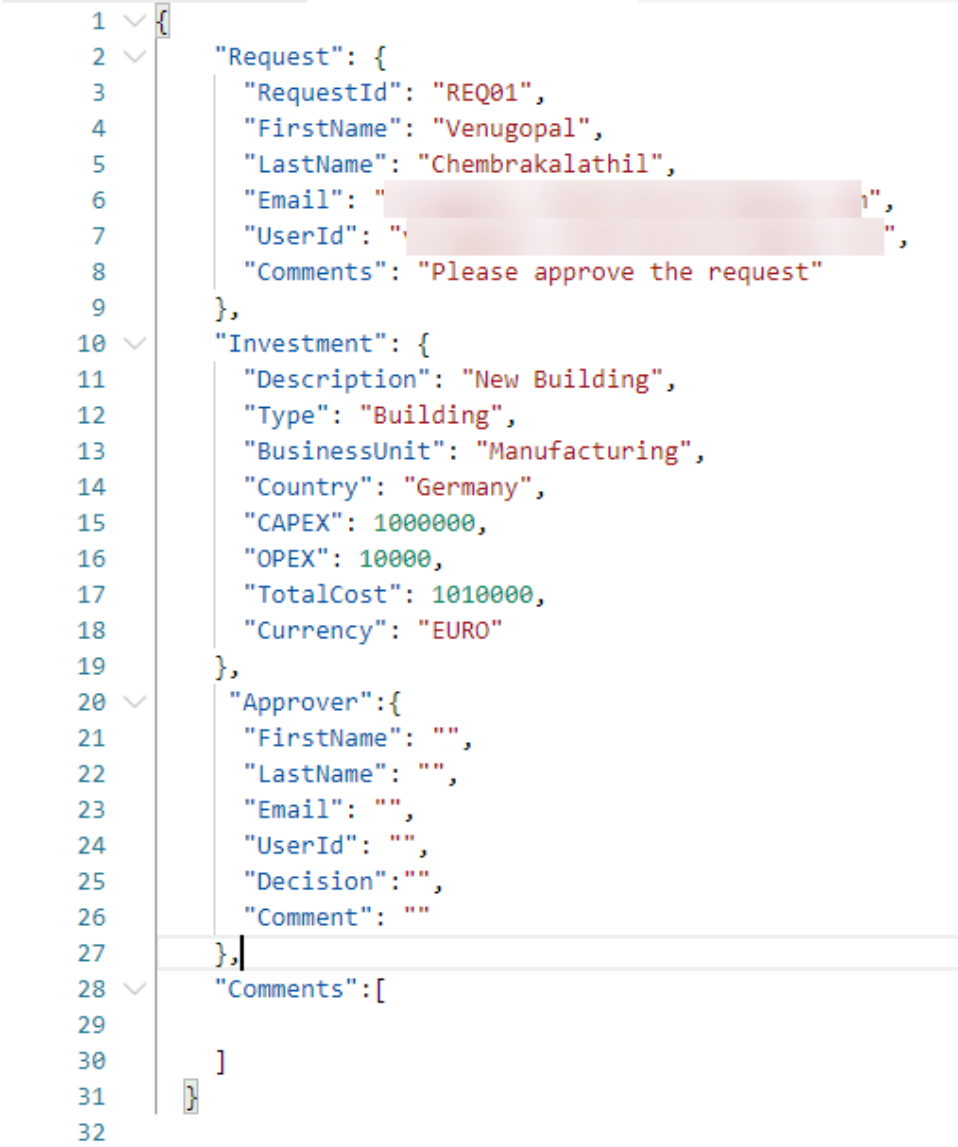
Explanation	Screenshot
<p><b>Configure Cloud Foundry End Point</b></p> <p>11. Click the message in the bottom to configure the endpoint for deployment.</p>	
<p>12. Select the <b>Cloud Foundry Endpoint</b>.</p> <p>The URL might vary depends on which data center you are using.          Europe -eu10          US – us10          Singapore – ap21</p>	
<p>12. Enter your <b>e-mail</b> address used as your user in in Cloud Platform.</p> <p>13. Subsequently enter your <b>password</b>, Cloud Platform Trial <b>Sub Account</b> and Cloud Foundry <b>Space</b>.</p>	

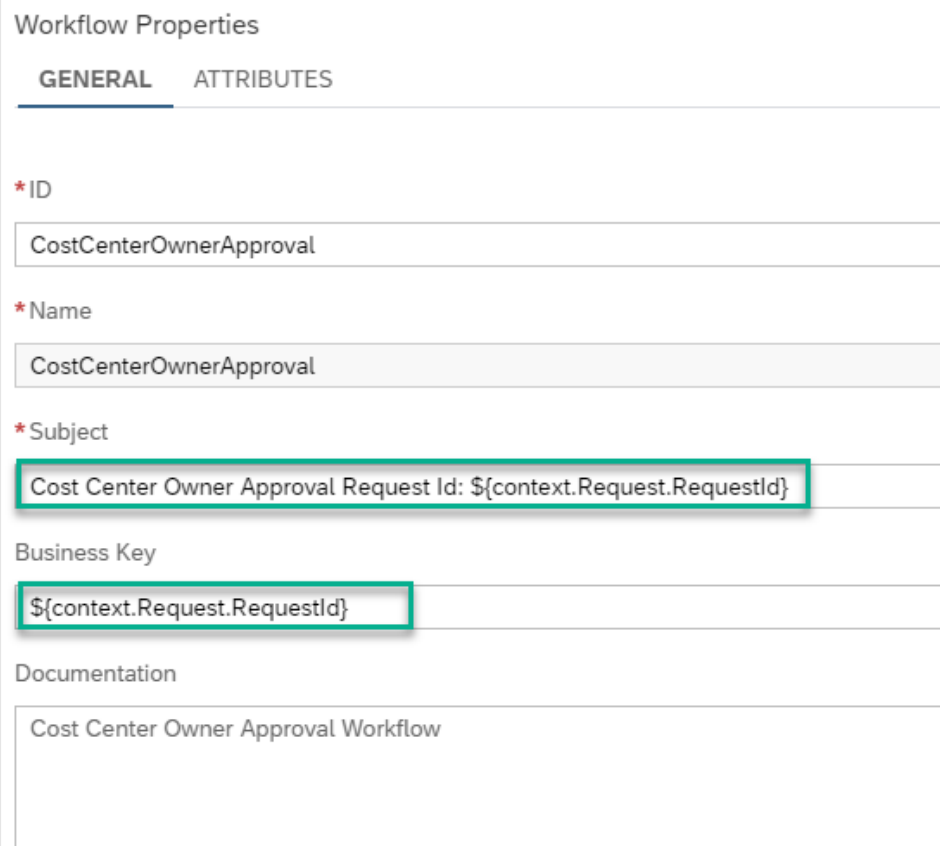
Explanation	Screenshot
<p><b>Create Multi Target Application Project</b></p> <p>14. Select Terminal → New Terminal</p>	 <p>The screenshot shows the SAP Business Application Studio interface. The 'Terminal' menu is open, and 'New Terminal' is highlighted with a red box. The keyboard shortcut 'Ctrl+' is also visible next to it. Other options in the menu include 'Run Task...', 'Run Build Task...', 'Run Test Task...', 'Run Last Task' (with 'Ctrl+Shift+K'), 'Show Running Tasks...', 'Restart Running Task...', 'Terminate Task...', 'Attach Task...', and 'Configure Tasks...'.</p>
<p>15. In the Terminal make sure you are in the projects directory.</p> <p>16. Type <b>yo</b> and press enter key.</p> <p>17. Select project type as <b>Basic Multitarget Application</b> by using up/down arrow key.</p>	 <p>The screenshot shows the terminal window in SAP Business Application Studio. The command 'yo' has been executed, and the output shows a list of project types. 'Basic Multitarget Application' is highlighted with a red box. The other options in the list are '@sap/fiori Elements', '@sapui5/sapui5 Templates', '@sapui5/sapui5 Templates', '@sapui5/sapui5 Templates', and 'Fiori Project'. The prompt 'user: projects \$ yo' is visible at the top of the terminal output.</p>
<p>18. Enter the <b>project name</b> for eg: InvestmentApproval.</p>	 <p>The screenshot shows the terminal window in SAP Business Application Studio. The prompt 'Enter a project name' is visible, and 'InvestmentApproval' has been entered and highlighted with a red box. The terminal output shows the command 'yo' and the prompt 'Enter a project name'. The prompt 'user: projects \$ yo' is visible at the top of the terminal output.</p>



Explanation	Screenshot
<p>19. Use <b>cd InvestmentApproval</b> to move the new project directory.</p> <p>20. Type <b>yo</b> again in the newly created project directory.</p>	 <p>Problems user@workspaces-ws-sh7sx-deployment-8664c6b58b-mv4wg: ~/projects/InvestmentApproval x</p> <pre>? Enter a project name InvestmentApproval The project will be generated in the /home/user/projects/InvestmentApproval directory. create InvestmentApproval/.gitignore The project has been generated.</pre> <p>Bye from us! Chat soon. Yeoman team <a href="http://yeoman.io">http://yeoman.io</a></p> <pre>user: projects \$ cd InvestmentApproval user: InvestmentApproval \$ yo</pre>
<p>21. Select <b>@workflow/workflow Module</b> from the list using up/down arrow keys.</p>	 <p>Problems user@workspaces-ws-sh7sx-deployment-8664c6b58b-mv4wg: ~/projects/InvestmentApproval x</p> <pre>? Enter a project name InvestmentApproval The project will be generated in the /home/user/projects/InvestmentApproval directory. create InvestmentApproval/.gitignore The project has been generated.</pre> <p>Bye from us! Chat soon. Yeoman team <a href="http://yeoman.io">http://yeoman.io</a></p> <pre>user: projects \$ cd InvestmentApproval user: InvestmentApproval \$ yo ? 'Allo! What would you like to do? @adaptation Project/adaptation Project Deployment @sap/fiori Elements @sapui5/sapui5 Templates &gt; @workflow/workflow Module Fiori Module Fiori Project  (Move up and down to reveal more choices)</pre>

Explanation	Screenshot
<p>22. Enter the following</p> <p><b>Module Name:</b> InvestmentApprovalWorkflow</p> <p><b>Workflow Name:</b> CostCenterOwnerApproval</p> <p><b>Workflow Description:</b> Cost Center Owner Approval Workflow</p> <p><b>Overwrite mta.yaml:</b> y</p>	 <pre> Problems user@workspaces-ws-sh7sx-deployment-8664c6b58b-mv4wg: ~/projects/InvestmentApproval x  user: projects \$ cd InvestmentApproval user: InvestmentApproval \$ yo ? 'Allo! What would you like to do? @workflow/workflow Module  Make sure you are in the directory you want to scaffold into. This generator can also be run with: yo @workflow/workflow-module  ? Module Name InvestmentApprovalWorkflow ? Workflow Name CostCenterOwnerApproval ? Workflow Description Cost Center Owner Approval Workflow conflict mta.yaml ? Overwrite mta.yaml? (ynaxdH) y &gt;&gt; overwrite </pre>
<p><b>Configure Sample Context</b></p> <p>23. The new workflow is opened in the workflow editor.</p> <p>24. Select the <b>Start event</b> and Select <b>DETAILS</b> section of Start Event properties.</p> <p>25. Check <b>Configure Sample Context</b>.</p> <p>26. Click link <b>Create File</b>.</p> <p>27. Enter Name as <b>Sample Investment</b></p> <p>A new file is opened a default sample context.</p>	

Explanation	Screenshot
<p>28. Copy and paste the content from the file <a href="#">Sample Investment.json</a> shared in the Git repository.</p> <p>Please replace <b>FirstName</b>, <b>LastName</b>, <b>Email</b>, <b>UserId</b> with your details. User Id is your cloud platform trial user id.</p> <p>The context has three Elements.</p> <p><b>Request:</b> Requestor info including Request Id</p> <p><b>Investment:</b> Details about the investment</p> <p><b>Approver:</b> Cost Center Approver details.</p>	 <pre> 1  { 2    "Request": { 3      "RequestId": "REQ01", 4      "FirstName": "Venugopal", 5      "LastName": "Chembrakalathil", 6      "Email": " ", 7      "UserId": " ", 8      "Comments": "Please approve the request" 9    }, 10   "Investment": { 11     "Description": "New Building", 12     "Type": "Building", 13     "BusinessUnit": "Manufacturing", 14     "Country": "Germany", 15     "CAPEX": 1000000, 16     "OPEX": 10000, 17     "TotalCost": 1010000, 18     "Currency": "EURO" 19   }, 20   "Approver": { 21     "FirstName": "", 22     "LastName": "", 23     "Email": "", 24     "UserId": "", 25     "Decision": "", 26     "Comment": "" 27   }, 28   "Comments": [ 29 30 ] 31 } 32 </pre>

Explanation	Screenshot
<p>29. Select the <b>GENERAL</b> Tab from Workflow Properties.</p> <p>30. Enter the following</p> <p><b>Subject:</b> Cost Center Owner Approval Request Id: \${context.Request.RequestId}</p> <p><b>Business Key:</b> \${context.Request.RequestId}</p>	 <p>Workflow Properties</p> <p><b>GENERAL</b> ATTRIBUTES</p> <p>* ID</p> <p>CostCenterOwnerApproval</p> <p>* Name</p> <p>CostCenterOwnerApproval</p> <p>* Subject</p> <p>Cost Center Owner Approval Request Id: \${context.Request.RequestId}</p> <p>Business Key</p> <p>\${context.Request.RequestId}</p> <p>Documentation</p> <p>Cost Center Owner Approval Workflow</p>

## 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.

### Workflow Properties

GENERAL

**ATTRIBUTES**

Add

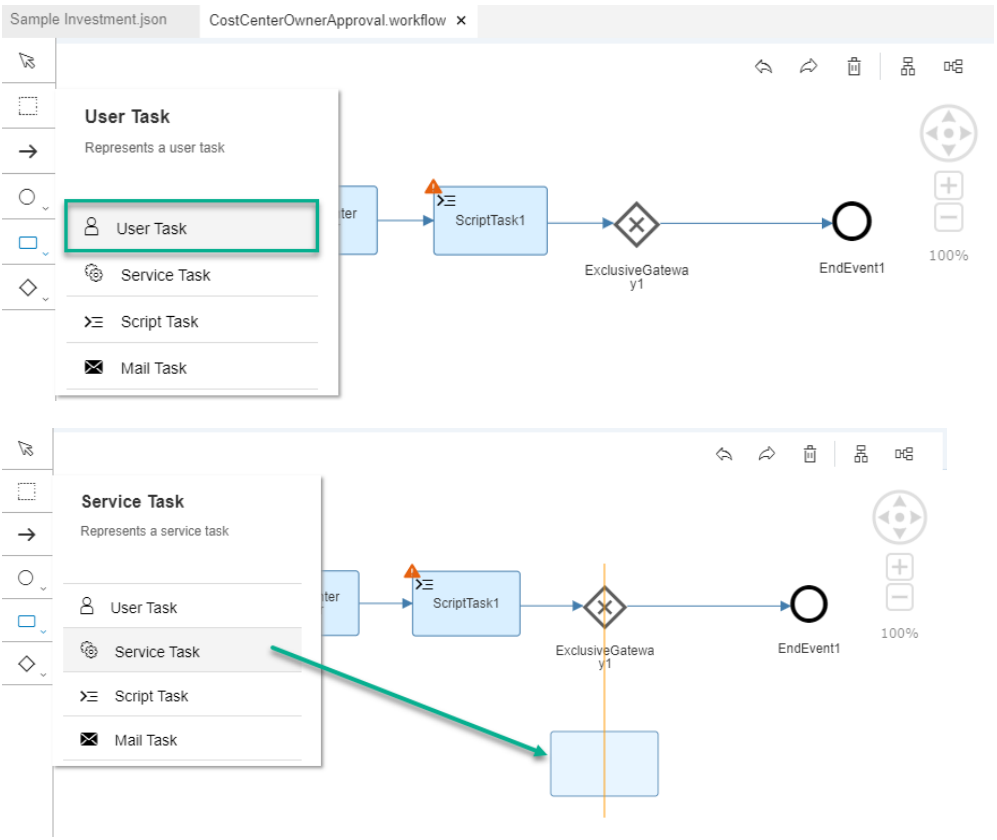
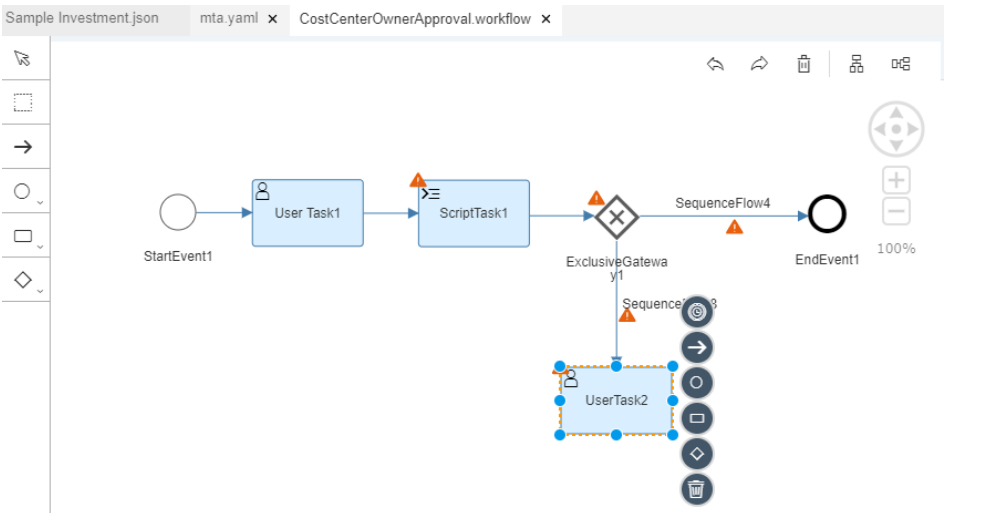
Delete

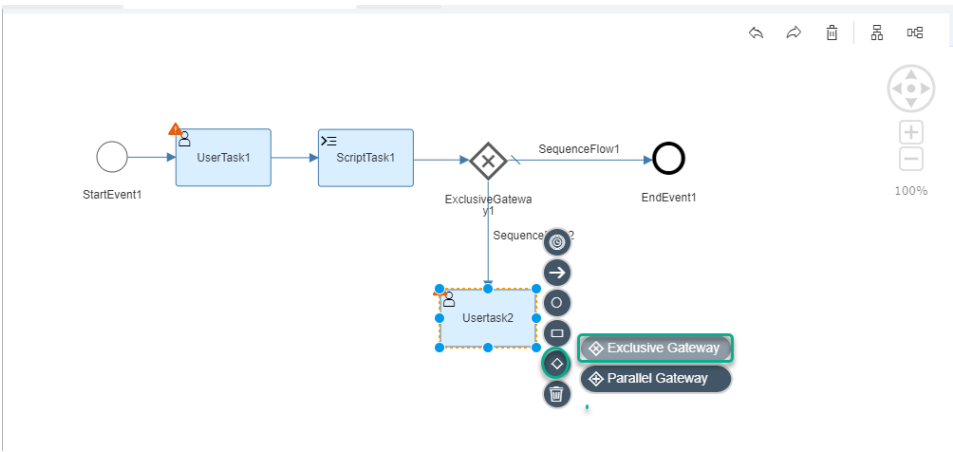
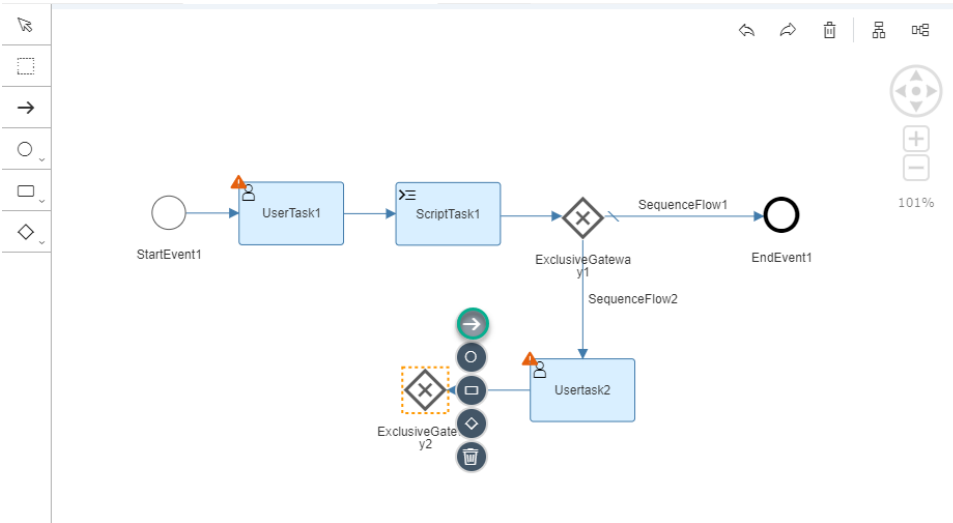
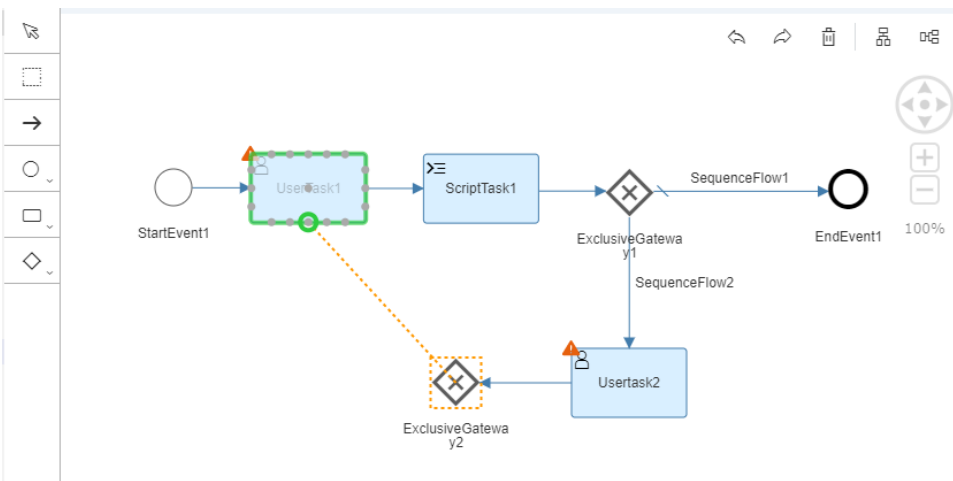
Move Up

Move Down

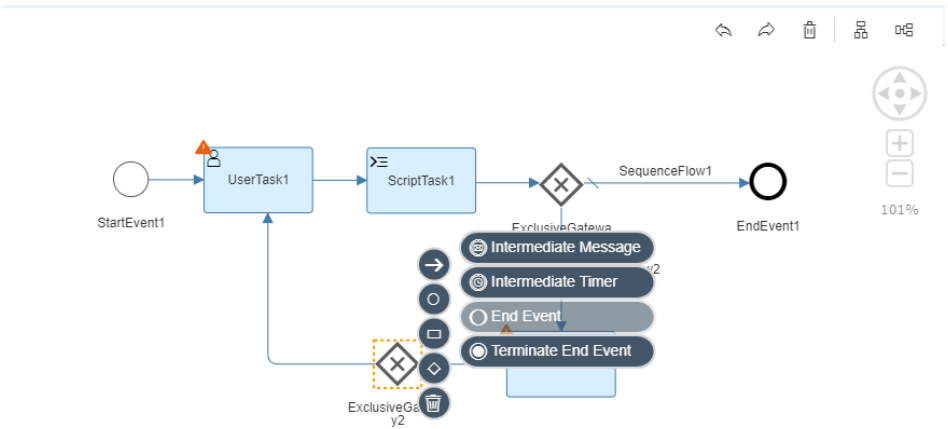
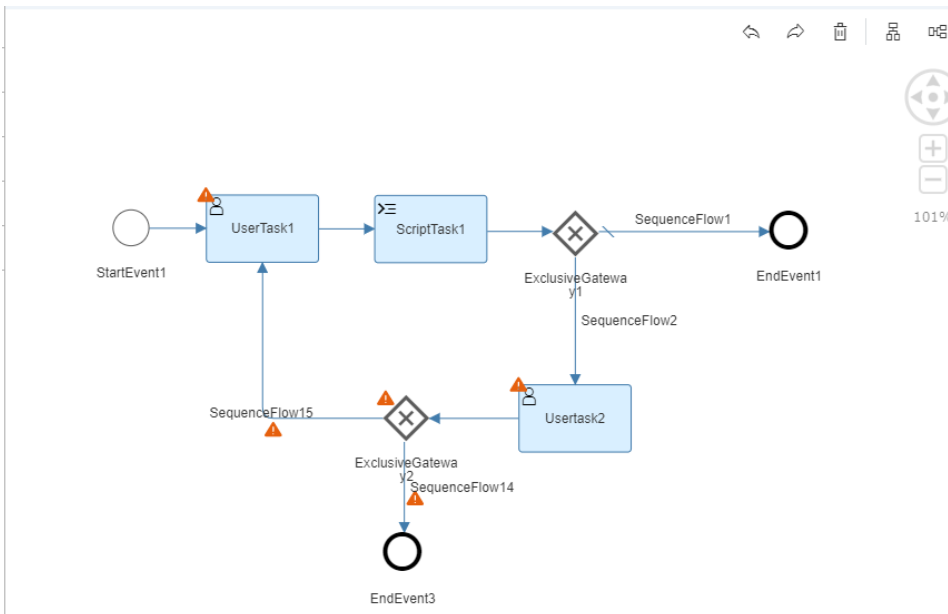
<input type="checkbox"/>	ID	Label	Type	Value
<input type="checkbox"/>	ApproverEmail	Approver Email	String	\${context.Approv...}
<input type="checkbox"/>	Decision	Decision	String	\${context.Decision}
<input type="checkbox"/>	Approver	Approver	String	\${context.Approv...}
<input type="checkbox"/>	Currency	Currency	String	\${context.Investm...}
<input type="checkbox"/>	TotalCost	Total Cost	String	\${context.Investm...}
<input type="checkbox"/>	OPEX	OPEX	String	\${context.Investm...}
<input type="checkbox"/>	CAPEX	CAPEX	String	\${context.Investm...}
<input type="checkbox"/>	Country	Country	String	\${context.Investm...}
<input type="checkbox"/>	InvestmentType	Investment Type	String	\${context.Investm...}
<input type="checkbox"/>	BusinessUnit	Business Unit	String	\${context.Investm...}
<input type="checkbox"/>	LastName	Last Name	String	\${context.Reques...}
<input type="checkbox"/>	FirstName	First Name	String	\${context.Reques...}
<input type="checkbox"/>	RequesterId	Requester ID	String	\${context.Reques...}
<input type="checkbox"/>	RequestId	Request ID	String	\${context.Reques...}

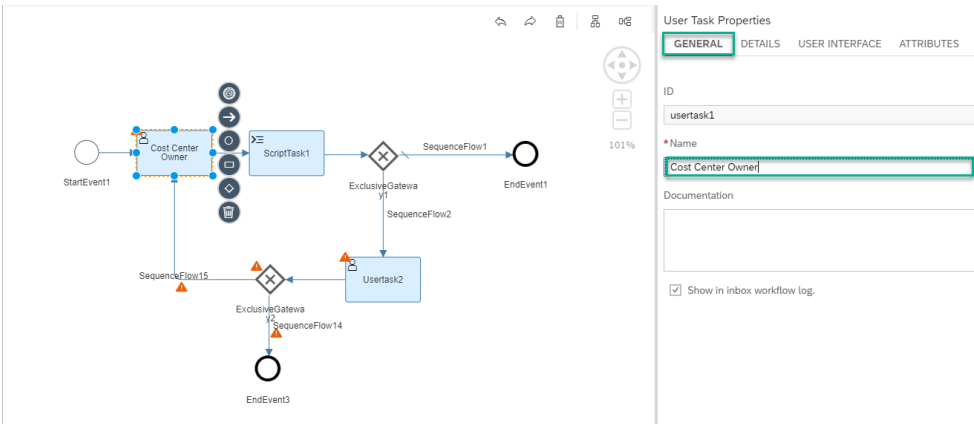
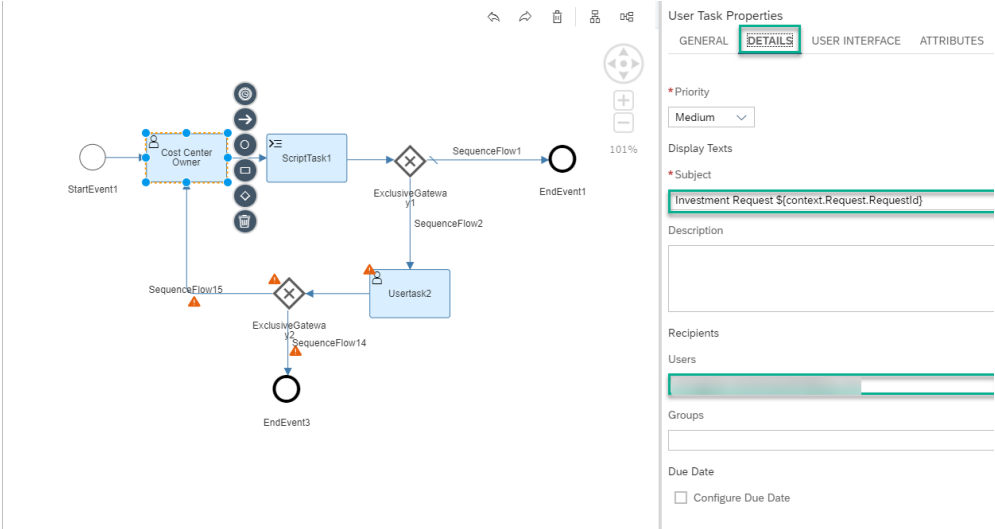
Explanation	Screenshot
<div>33. Before start modeling, please <b>drag and drop</b> the <b>EndEvent1</b> towards the right side of the editor to keep some space between <b>Start and End Event</b>.</div> <div>34. Select the <b>StartEvent</b>, use the speed button and select <b>User Task</b>.</div> <div>A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

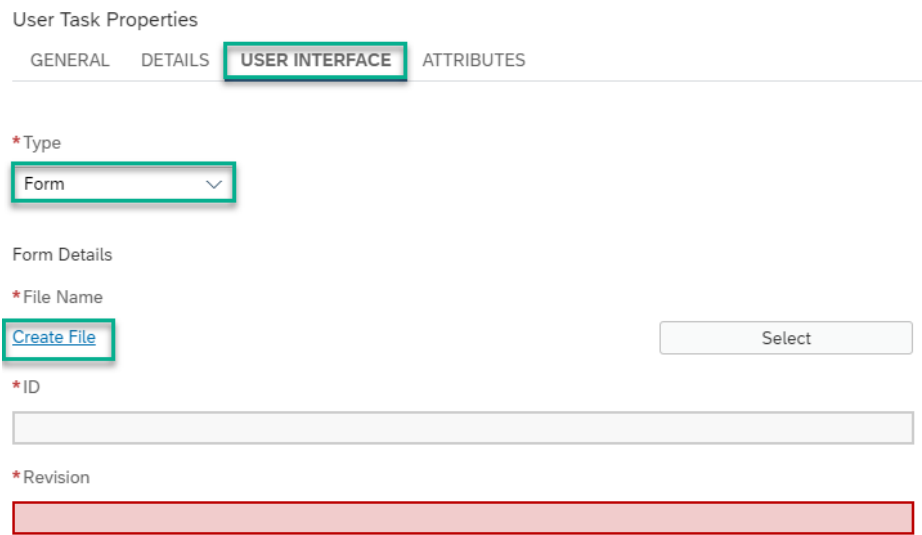
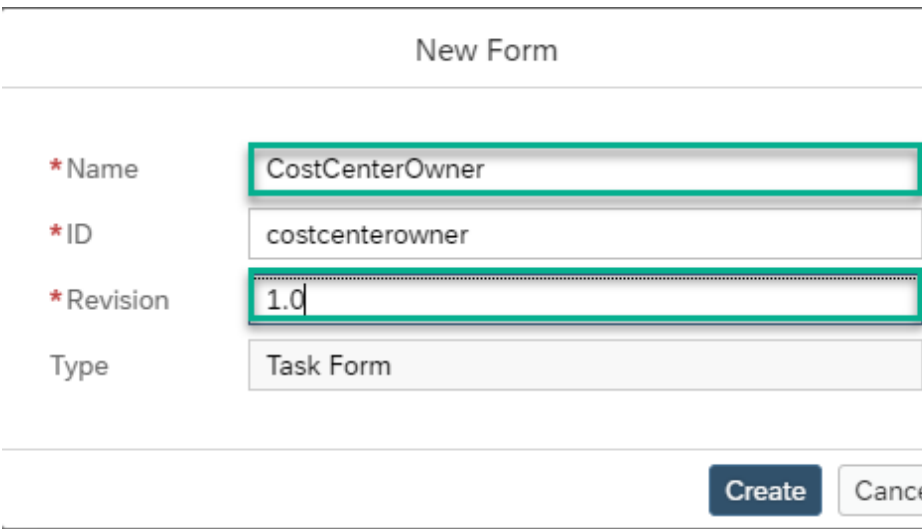
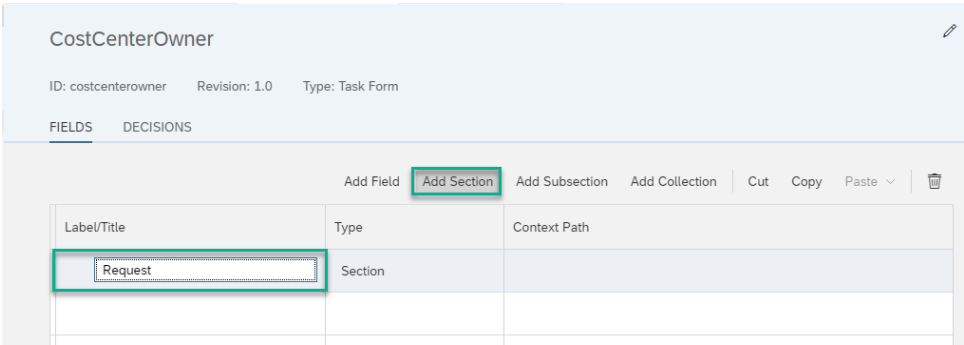
Explanation	Screenshot
<div>39. Select a <b>User Task</b> from the palette.</div> <div>40. Drag and drop the <b>User Task</b> just below the <b>Exclusive Gateway</b>.</div>	 <p>The top screenshot shows the BPMN editor with the 'User Task' selected in the palette. The workflow diagram includes a StartEvent, a User Task, a ScriptTask1, an ExclusiveGateway y1, and an EndEvent1. The bottom screenshot shows the 'User Task' being dragged from the palette to a position below the 'ExclusiveGateway y1' in the workflow diagram.</p>
<div>41. Use <b>Sequence Flow</b> from Exclusive Gateway to the new User Task.</div>	 <p>The screenshot shows the BPMN editor with a 'Sequence Flow' connecting the 'ExclusiveGateway y1' to the new 'UserTask2'. The workflow diagram includes a StartEvent1, a User Task1, a ScriptTask1, an ExclusiveGateway y1, a UserTask2, and an EndEvent1. The 'Sequence Flow' is labeled 'SequenceFlow4'.</p>

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



Explanation	Screenshot
<p>45. Select <b>Exclusive Gateway2</b> and choose <b>End Event</b> from speed button.</p>	 <p>The screenshot shows a BPMN editor interface. The main canvas displays a workflow model: a StartEvent1 (thin circle) connects to UserTask1 (rounded rectangle), which connects to ScriptTask1 (rectangle with a script icon). ScriptTask1 connects to an Exclusive Gateway (diamond with an 'X'). From this gateway, SequenceFlow1 (arrow) leads to EndEvent1 (thick circle). A task palette is open in the center, showing options: Intermediate Message, Intermediate Timer, End Event (highlighted with a blue bar), and Terminate End Event. Below the palette, a dashed box highlights 'Exclusive Gateway2' in the palette. The right sidebar contains navigation icons and a 101% zoom level.</p>
<p>46. The workflow model sequence modeling has completed. Do necessary formatting if required.</p>	 <p>The screenshot shows the same BPMN editor with a more complex workflow model. The top part remains the same: StartEvent1 to UserTask1 to ScriptTask1 to Exclusive Gateway y1, which leads to EndEvent1 via SequenceFlow1. Below this, a new path is added: Exclusive Gateway y1 connects to UserTask2 (rounded rectangle) via SequenceFlow2. UserTask2 connects to Exclusive Gateway y2 via SequenceFlow15. From Gateway y2, SequenceFlow14 leads to EndEvent3 (thick circle). The task palette is no longer visible. The right sidebar shows the same navigation icons and 101% zoom level.</p>

Explanation	Screenshot
<p>47. Select <b>User Task1</b> and <b>User Task Properties</b>.</p> <p>48. Under <b>GENERAL</b> section, change the Name as <b>Cost Center Owner</b>.</p>	 <p>The screenshot shows a BPMN editor interface. On the left, a workflow diagram is visible with a start event, a task named 'Cost Center Owner', a script task, an exclusive gateway, and an end event. On the right, the 'User Task Properties' panel is open, showing the 'GENERAL' tab. The 'Name' field is set to 'Cost Center Owner'.</p>
<p>49. Select <b>DETAILS</b> section and set the following.</p> <p><b>Subject:</b> Investment Request <code>\${context.Request.RequestId}</code></p> <p><b>Users:</b> Your Cloud Platform User Id (email id)</p>	 <p>The screenshot shows the same BPMN editor interface. The 'User Task Properties' panel is still open, but the 'DETAILS' tab is now selected. The 'Subject' field is set to 'Investment Request <code>\${context.Request.RequestId}</code>'. The 'Users' field is also visible, set to 'Your Cloud Platform User Id (email id)'.</p>

Explanation	Screenshot
<p><b>Create Workflow Forms</b></p> <p>50. Select <b>USER INTERFACE</b> section.</p> <p>51. Change the type as <b>Form</b>.</p> <p>52. Click the link <b>Create File</b>.</p> <p>A popup window is available now to enter Form details.</p>	
<p>53. Enter the following. <b>Name:</b> CostCenterOwner <b>Revision:</b> 1.0</p> <p>54. Click <b>Create</b> button.</p> <p>You can see the Forms Editor opened to model the new task UI.</p>	
<p>55. Click <b>Add Section</b>. A section contains set of Fields.</p> <p>56. Update the <b>Label / Title</b> of the section as <b>Request</b></p>	

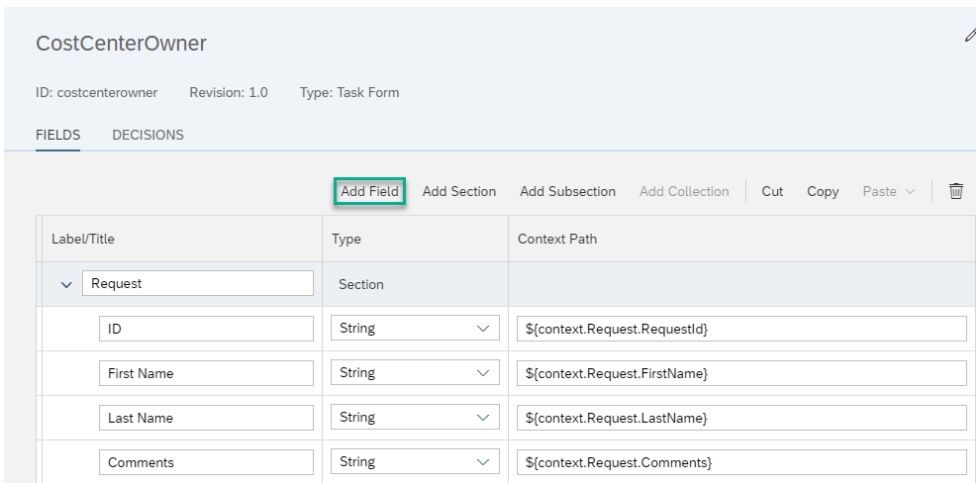
Explanation

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}

Screenshot



The screenshot shows the 'CostCenterOwner' form with the 'Request' section expanded. The 'Add Field' button is highlighted. The table below the section lists the fields and their context paths.

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

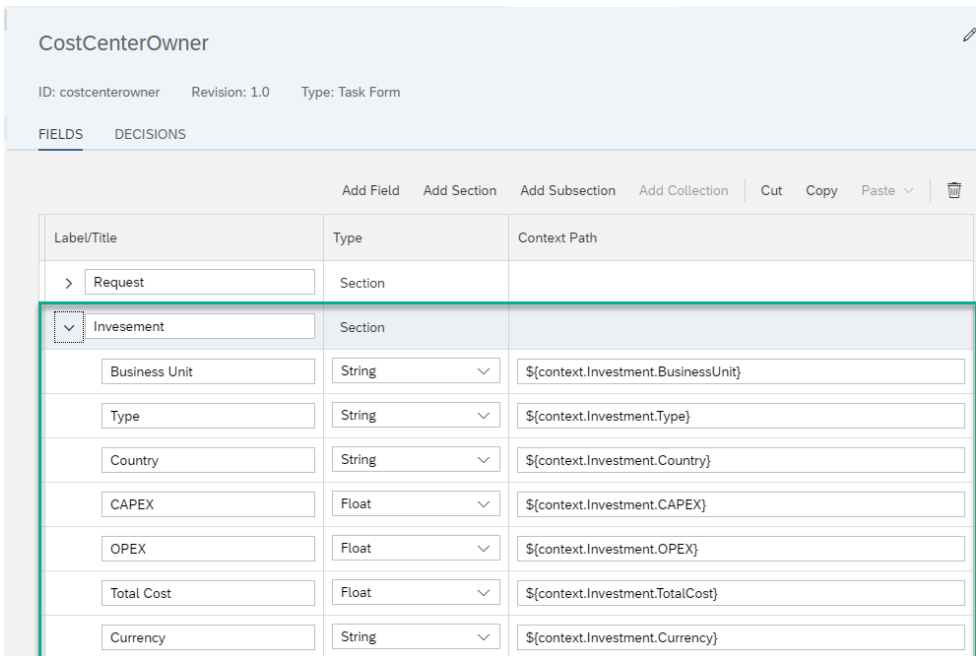
58. Add a new Section **Investment**.

59. Add the following Fields.

Copy the Context Path from the attached file  
CostCenterOwnerApprovalTask

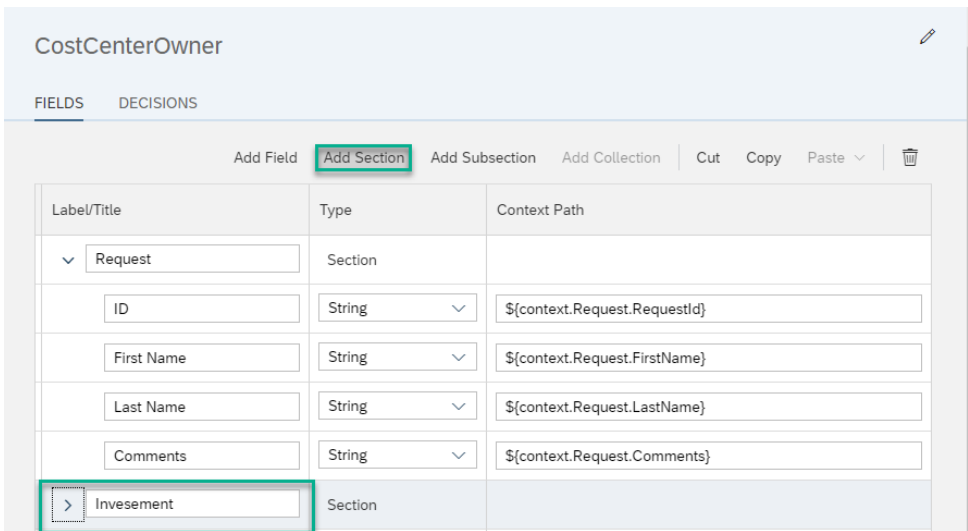
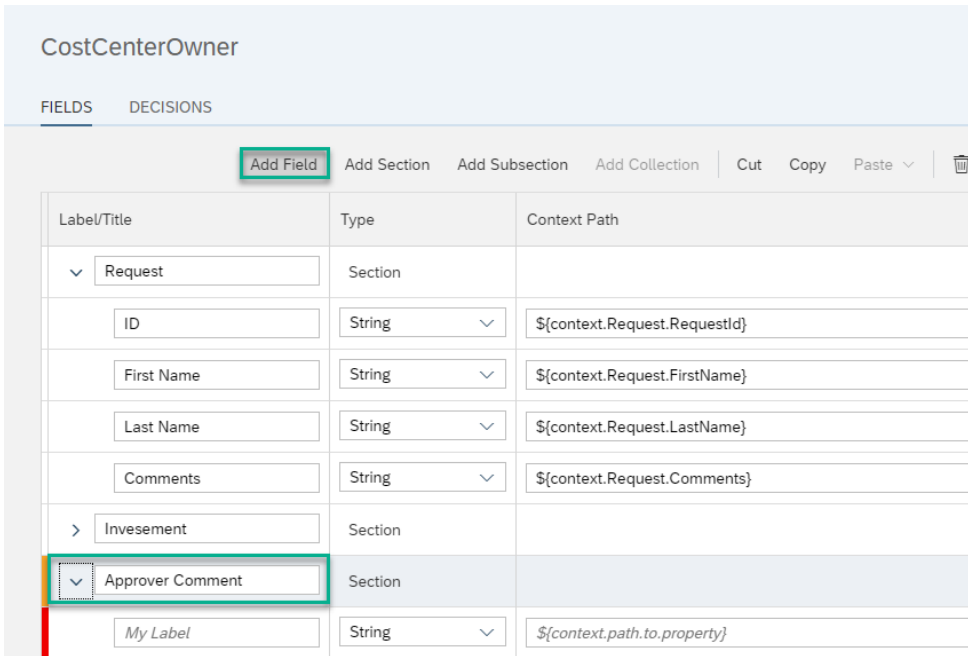
Label	Type	Context Path
Business Unit	String	\${context.Investment.BusinessUnit}
Type	String	\${context.Investment.Type}
Country	String	\${context.Investment.Country}
CAPEX	Float	\${context.Investment.CAPEX}
OPEX	Float	\${context.Investment.TotalCost}
Currency	String	\${context.Investment.Currency}

Screenshot



The screenshot shows the 'CostCenterOwner' form with the 'Investment' section expanded. The 'Add Field' button is highlighted. The table below the section lists the fields and their context paths.

Label/Title	Type	Context Path
Request	Section	
Investment	Section	
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.OPEX}
Total Cost	Float	\${context.Investment.TotalCost}
Currency	String	\${context.Investment.Currency}

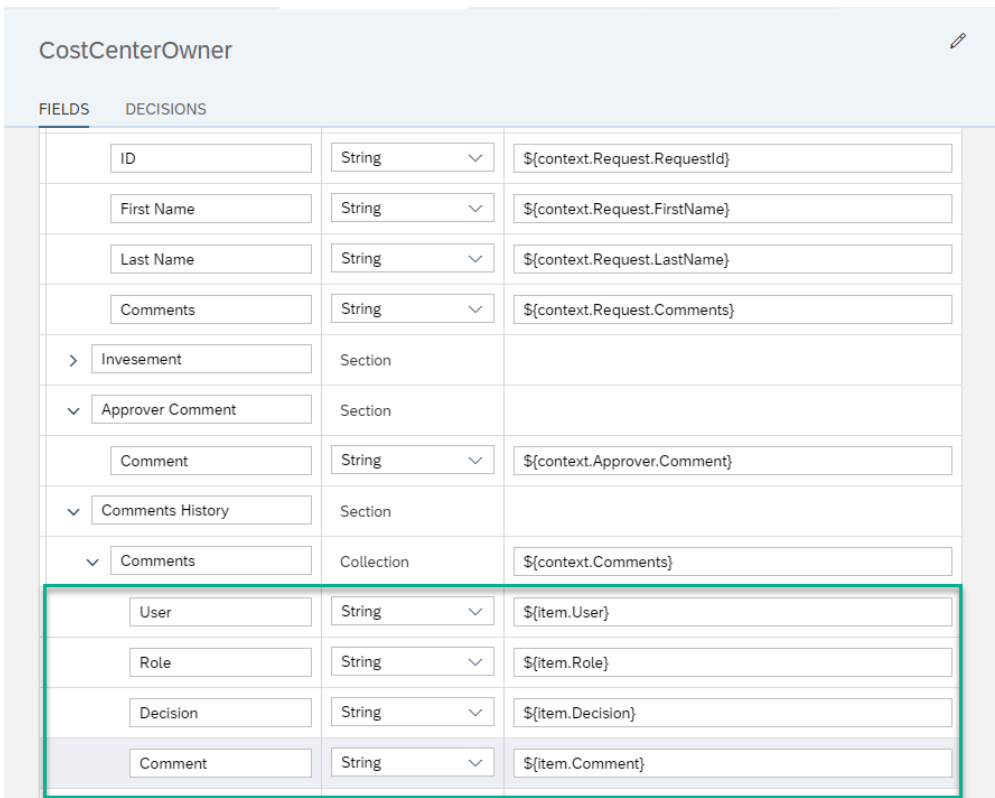
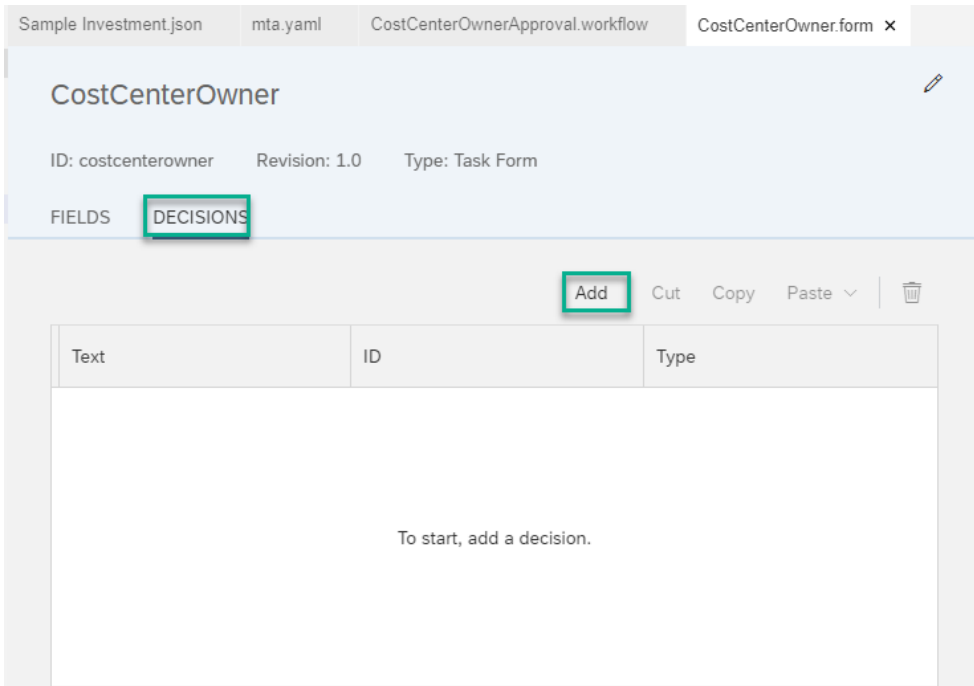
Explanation	Screenshot																											
60. Select section <b>Investment</b> . 61. Click Add <b>Section</b> .	 <p>CostCenterOwner</p> <p>FIELDS DECISIONS</p> <p>Add Field Add Section Add Subsection Add Collection Cut Copy Paste</p> <table><tr><th>Label/Title</th><th>Type</th><th>Context Path</th></tr><tr><td>Request</td><td>Section</td><td></td></tr><tr><td>ID</td><td>String</td><td>\$(context.Request.RequestId)</td></tr><tr><td>First Name</td><td>String</td><td>\$(context.Request.FirstName)</td></tr><tr><td>Last Name</td><td>String</td><td>\$(context.Request.LastName)</td></tr><tr><td>Comments</td><td>String</td><td>\$(context.Request.Comments)</td></tr><tr><td>Investment</td><td>Section</td><td></td></tr></table>	Label/Title	Type	Context Path	Request	Section		ID	String	\$(context.Request.RequestId)	First Name	String	\$(context.Request.FirstName)	Last Name	String	\$(context.Request.LastName)	Comments	String	\$(context.Request.Comments)	Investment	Section							
Label/Title	Type	Context Path																										
Request	Section																											
ID	String	\$(context.Request.RequestId)																										
First Name	String	\$(context.Request.FirstName)																										
Last Name	String	\$(context.Request.LastName)																										
Comments	String	\$(context.Request.Comments)																										
Investment	Section																											
62. Change the <b>Label/Title</b> of the section as <b>Approver Comment</b> . 63. Click <b>Add Field</b> .	 <p>CostCenterOwner</p> <p>FIELDS DECISIONS</p> <p>Add Field Add Section Add Subsection Add Collection Cut Copy Paste</p> <table><tr><th>Label/Title</th><th>Type</th><th>Context Path</th></tr><tr><td>Request</td><td>Section</td><td></td></tr><tr><td>ID</td><td>String</td><td>\$(context.Request.RequestId)</td></tr><tr><td>First Name</td><td>String</td><td>\$(context.Request.FirstName)</td></tr><tr><td>Last Name</td><td>String</td><td>\$(context.Request.LastName)</td></tr><tr><td>Comments</td><td>String</td><td>\$(context.Request.Comments)</td></tr><tr><td>Investment</td><td>Section</td><td></td></tr><tr><td>Approver Comment</td><td>Section</td><td></td></tr><tr><td>My Label</td><td>String</td><td>\$(context.path.to.property)</td></tr></table>	Label/Title	Type	Context Path	Request	Section		ID	String	\$(context.Request.RequestId)	First Name	String	\$(context.Request.FirstName)	Last Name	String	\$(context.Request.LastName)	Comments	String	\$(context.Request.Comments)	Investment	Section		Approver Comment	Section		My Label	String	\$(context.path.to.property)
Label/Title	Type	Context Path																										
Request	Section																											
ID	String	\$(context.Request.RequestId)																										
First Name	String	\$(context.Request.FirstName)																										
Last Name	String	\$(context.Request.LastName)																										
Comments	String	\$(context.Request.Comments)																										
Investment	Section																											
Approver Comment	Section																											
My Label	String	\$(context.path.to.property)																										

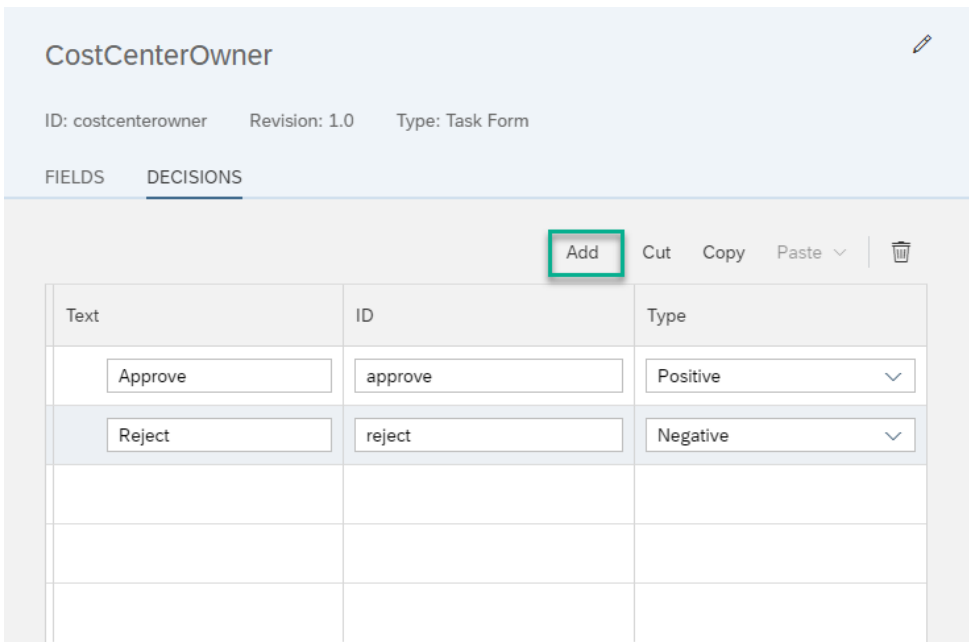
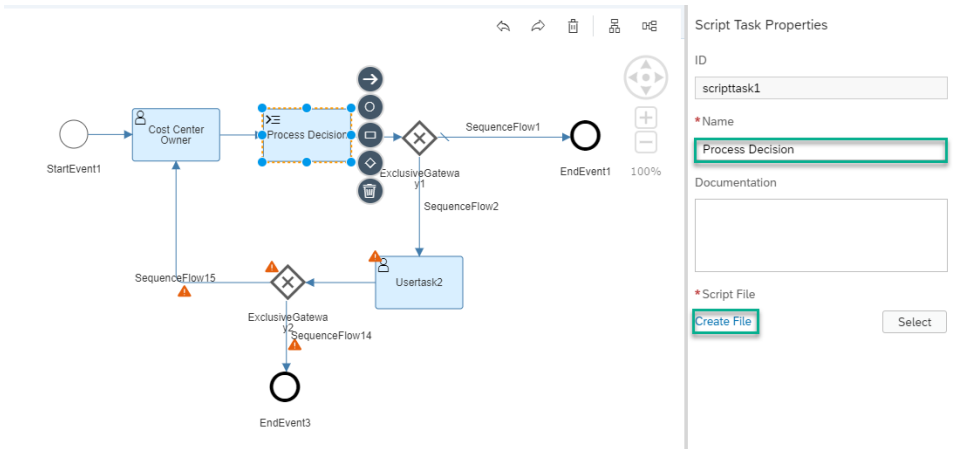
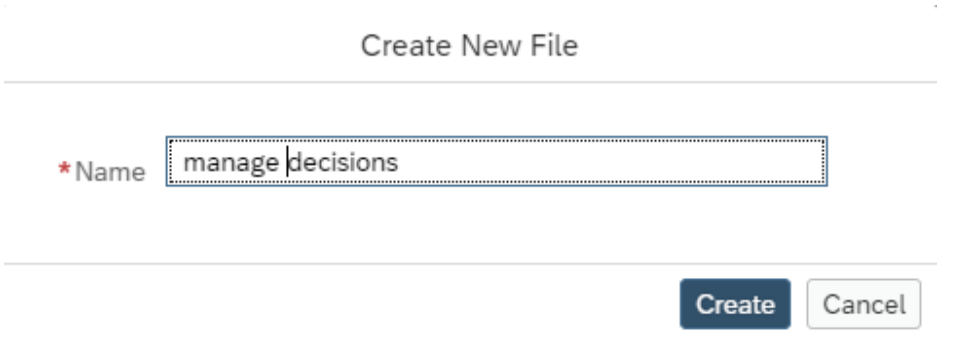
Explanation	Screenshot																											
<div>64. Update the <b>Label/Title</b> of the new Field as <b>Comment</b>.</div> <div>65. Update the <b>Context Path</b> <code>\${context.Approver.Comment}</code></div>	<div><div>CostCenterOwner</div><div><div>FIELDS</div><div>DECISIONS</div></div><div><div>Add Field</div><div>Add Section</div><div>Add Subsection</div><div>Add Collection</div><div>Cut</div><div>Copy</div><div>Paste</div><div></div></div><table><tr><th>Label/Title</th><th>Type</th><th>Context Path</th></tr><tr><td>Request</td><td>Section</td><td></td></tr><tr><td>ID</td><td>String</td><td><code>\${context.Request.RequestId}</code></td></tr><tr><td>First Name</td><td>String</td><td><code>\${context.Request.FirstName}</code></td></tr><tr><td>Last Name</td><td>String</td><td><code>\${context.Request.LastName}</code></td></tr><tr><td>Comments</td><td>String</td><td><code>\${context.Request.Comments}</code></td></tr><tr><td>Investment</td><td>Section</td><td></td></tr><tr><td>Approver Comment</td><td>Section</td><td></td></tr><tr><td>Comment</td><td>String</td><td><code>\${context.Approver.Comment}</code></td></tr></table></div>	Label/Title	Type	Context Path	Request	Section		ID	String	<code>\${context.Request.RequestId}</code>	First Name	String	<code>\${context.Request.FirstName}</code>	Last Name	String	<code>\${context.Request.LastName}</code>	Comments	String	<code>\${context.Request.Comments}</code>	Investment	Section		Approver Comment	Section		Comment	String	<code>\${context.Approver.Comment}</code>
Label/Title	Type	Context Path																										
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Last Name	String	<code>\${context.Request.LastName}</code>																										
Comments	String	<code>\${context.Request.Comments}</code>																										
Investment	Section																											
Approver Comment	Section																											
Comment	String	<code>\${context.Approver.Comment}</code>																										
<div>66. Select the <b>Comment</b> field.</div> <div>67. Select <b>Control</b> as <b>Text Area</b>.</div> <div>68. Select <b>Height</b> as <b>Medium</b>.</div>	<div><div>UI Configuration</div><div><div>Control</div><div>Text Area</div></div><div><div>Placeholder</div><div>My Placeholder</div></div><div><div>Height</div><div>Medium</div></div></div>																											

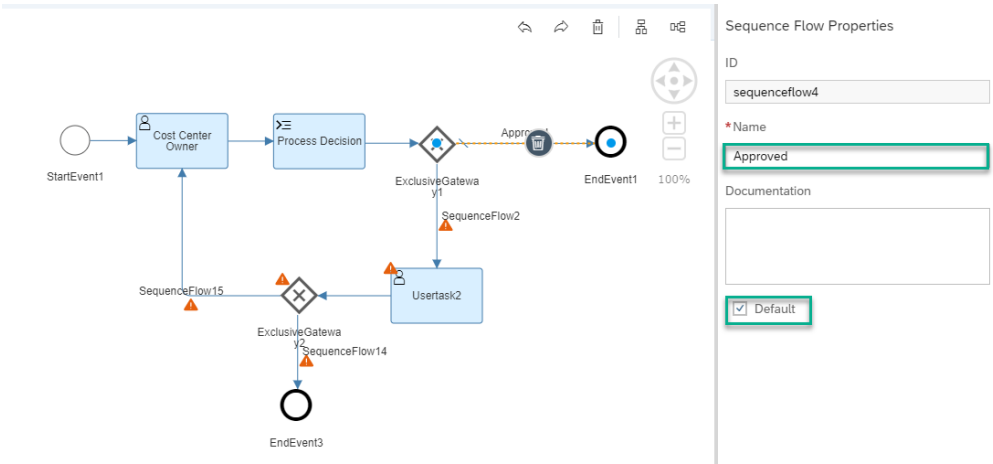
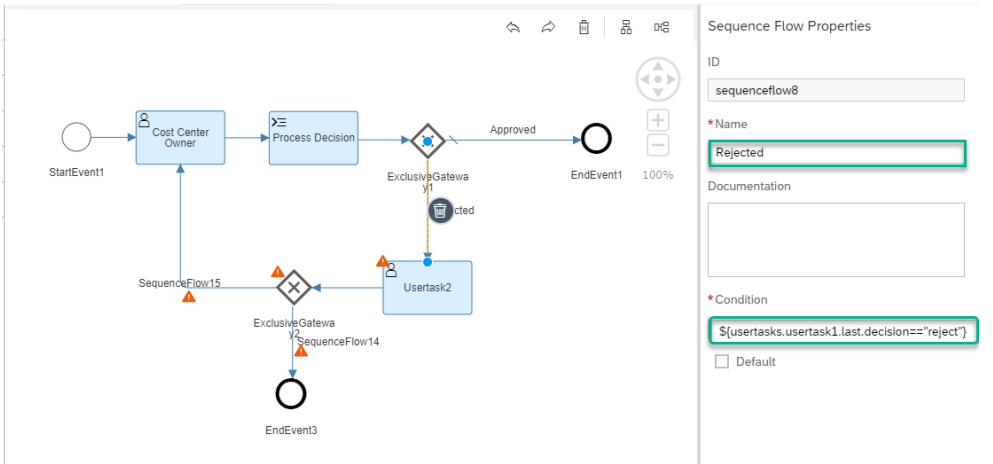
Explanation	Screenshot
69. Add a new Section. Click <b>Add Section</b> .	
70. Update <b>Label/Title</b> of the newly added Section as <b>Comments History</b> . 71. Click <b>Add Collection</b> .	

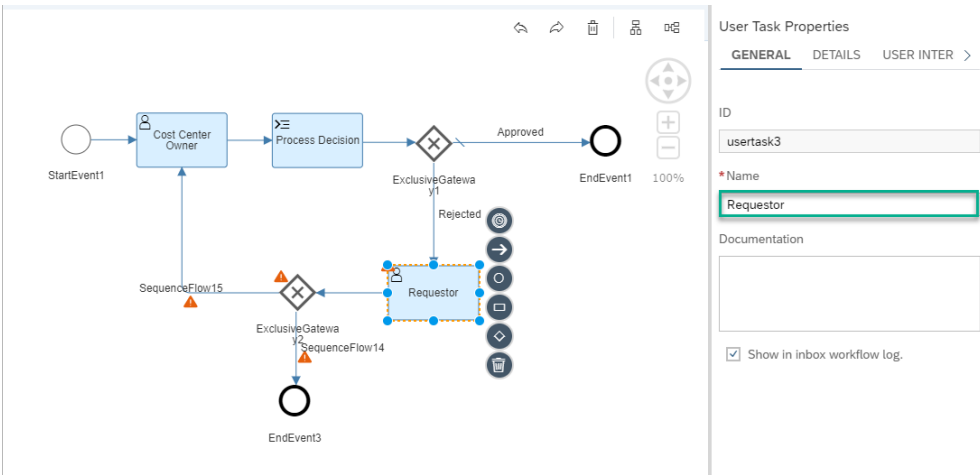
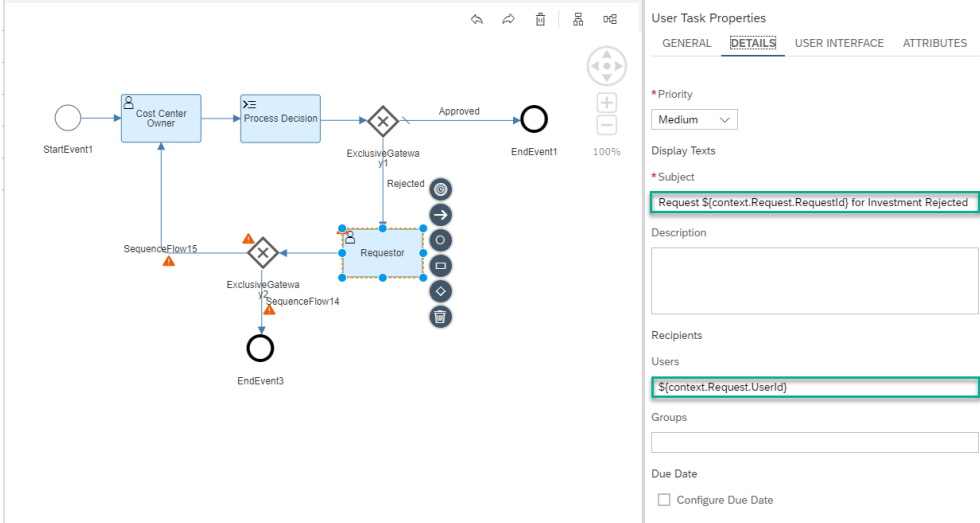
Explanation	Screenshot																																	
72. Update the <b>Label/Title</b> as <b>Comments</b> .	<p>The screenshot shows the 'CostCenterOwner' form editor. The 'Request' section is expanded, showing fields for ID, First Name, Last Name, and Comments. A new 'Comments' field has been added as a Collection, highlighted with a red border. The context path for this field is set to <code>\${context.path.to.property}</code>.</p> <table><tr><th>Label/Title</th><th>Type</th><th>Context Path</th></tr><tr><td>Request</td><td>Section</td><td></td></tr><tr><td>ID</td><td>String</td><td><code>\${context.Request.RequestId}</code></td></tr><tr><td>First Name</td><td>String</td><td><code>\${context.Request.FirstName}</code></td></tr><tr><td>Last Name</td><td>String</td><td><code>\${context.Request.LastName}</code></td></tr><tr><td>Comments</td><td>String</td><td><code>\${context.Request.Comments}</code></td></tr><tr><td>Investment</td><td>Section</td><td></td></tr><tr><td>Approver Comment</td><td>Section</td><td></td></tr><tr><td>Comment</td><td>String</td><td><code>\${context.Approver.Comment}</code></td></tr><tr><td>Comments History</td><td>Section</td><td></td></tr><tr><td>Comments</td><td>Collection</td><td><code>\${context.path.to.property}</code></td></tr></table>	Label/Title	Type	Context Path	Request	Section		ID	String	<code>\${context.Request.RequestId}</code>	First Name	String	<code>\${context.Request.FirstName}</code>	Last Name	String	<code>\${context.Request.LastName}</code>	Comments	String	<code>\${context.Request.Comments}</code>	Investment	Section		Approver Comment	Section		Comment	String	<code>\${context.Approver.Comment}</code>	Comments History	Section		Comments	Collection	<code>\${context.path.to.property}</code>
Label/Title		Type	Context Path																															
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ID	String	<code>\${context.Request.RequestId}</code>																																
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Comment	String	<code>\${context.Approver.Comment}</code>																																
Comments History	Section																																	
Comments	Collection	<code>\${context.path.to.property}</code>																																
73. Update the <b>Context Path</b> as <b><code>\${context.Comments}</code></b> .																																		



Explanation	Screenshot																																																									
<div>74. Select <b>Comments</b> and click <b>Add Field</b> to add the following fields.</div> <div>Copy the Context Path from the attached file <u>CostCenterOwnerApprovalTask</u></div> <table><tr><th>Label</th><th>Type</th><th>Context Path</th></tr><tr><td>User</td><td>String</td><td>\$(item.User)</td></tr><tr><td>Role</td><td>String</td><td>\$(item.Role)</td></tr><tr><td>Decision</td><td>String</td><td>\$(item.Decision)</td></tr><tr><td>Comment</td><td>String</td><td>\$(item.Comment)</td></tr></table>	Label	Type	Context Path	User	String	\$(item.User)	Role	String	\$(item.Role)	Decision	String	\$(item.Decision)	Comment	String	\$(item.Comment)	 <p>The screenshot shows the 'CostCenterOwner' form editor with the 'FIELDS' tab selected. A table lists the following fields:</p> <table><tr><th>Field Name</th><th>Type</th><th>Context Path</th></tr><tr><td>ID</td><td>String</td><td>\$(context.Request.RequestId)</td></tr><tr><td>First Name</td><td>String</td><td>\$(context.Request.FirstName)</td></tr><tr><td>Last Name</td><td>String</td><td>\$(context.Request.LastName)</td></tr><tr><td>Comments</td><td>String</td><td>\$(context.Request.Comments)</td></tr><tr><td>Invesement</td><td>Section</td><td></td></tr><tr><td>Approver Comment</td><td>Section</td><td></td></tr><tr><td>Comment</td><td>String</td><td>\$(context.Approver.Comment)</td></tr><tr><td>Comments History</td><td>Section</td><td></td></tr><tr><td>Comments</td><td>Collection</td><td>\$(context.Comments)</td></tr><tr><td>User</td><td>String</td><td>\$(item.User)</td></tr><tr><td>Role</td><td>String</td><td>\$(item.Role)</td></tr><tr><td>Decision</td><td>String</td><td>\$(item.Decision)</td></tr><tr><td>Comment</td><td>String</td><td>\$(item.Comment)</td></tr></table> <p>The last four fields (User, Role, Decision, Comment) are highlighted with a green box.</p>	Field Name	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)	Invesement	Section		Approver Comment	Section		Comment	String	\$(context.Approver.Comment)	Comments History	Section		Comments	Collection	\$(context.Comments)	User	String	\$(item.User)	Role	String	\$(item.Role)	Decision	String	\$(item.Decision)	Comment	String	\$(item.Comment)
Label	Type	Context Path																																																								
User	String	\$(item.User)																																																								
Role	String	\$(item.Role)																																																								
Decision	String	\$(item.Decision)																																																								
Comment	String	\$(item.Comment)																																																								
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User	String	\$(item.User)																																																								
Role	String	\$(item.Role)																																																								
Decision	String	\$(item.Decision)																																																								
Comment	String	\$(item.Comment)																																																								
<div>75. Select <b>DECISIONS</b>.</div> <div>76. Click <b>Add</b>.</div>	 <p>The screenshot shows the 'CostCenterOwner' form editor with the 'DECISIONS' tab selected. The 'Add' button is highlighted with a green box. The interface includes tabs for 'Sample Investment.json', 'mta.yaml', 'CostCenterOwnerApproval.workflow', and 'CostCenterOwner.form'. Below the tabs, the form details are shown: ID: costcenterowner, Revision: 1.0, Type: Task Form. The 'DECISIONS' tab is active, and the 'Add' button is highlighted. Below the button, there is a table with columns 'Text', 'ID', and 'Type'. The table is currently empty, and a message 'To start, add a decision.' is displayed below it.</p>																																																									

Explanation	Screenshot									
<p>77. Click <b>Add</b> and add the following Decisions.</p> <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>	Text	ID	Type	Approve	approve	Positive	Reject	reject	Negative	
Text	ID	Type								
Approve	approve	Positive								
Reject	reject	Negative								
<p>78. Select the Script Task and enter name as <b>Process Decision</b>.</p> <p>79. Click <b>Create File</b> link.</p>										
<p>80. Enter file name as <b>manage decisions</b>.</p> <p>81. Click <b>Create</b> button.</p>										

Explanation	Screenshot
82. Copy and paste the scripts from the attached <a href="#">manage decisions.js</a> .	<pre>1 2 var lastUserTask1 = \$.usertasks.usertask1.last; 3 \$.context.Approver.UserId = lastUserTask1.processor; 4 \$.context.Approver.decision = lastUserTask1.decision; 5 6 var decision={}; 7 decision.User= lastUserTask1.processor; 8 decision.Role="Cost Center Approver"; 9 decision.Decision = lastUserTask1.decision; 10 decision.Comment=\$.context.Approver.Comment; 11 12 \$.context.Comments.Add(decision); 13 14 \$.context.Approver.UserId = ""; 15 \$.context.Approver.decision = ""; 16 \$.context.Approver.Comment = "";</pre>
83. Select the <b>sequence flow</b> between the <b>exclusive gateway</b> and end event.  84. In Sequence flow properties enter <b>Name</b> as Approved.  85. Check the <b>Default</b> checkbox.	
86. Select <b>sequence flow</b> between the <b>ExclusiveGateway1</b> and <b>UserTask2</b> .  87. Enter <b>Name</b> as Rejected.  88. Enter the condition as <code>\${usertasks.usertask1.last.decision=="reject"}</code>  You may copy the condition from the attached file <a href="#">Exclusive Gateway Conditions</a> .	

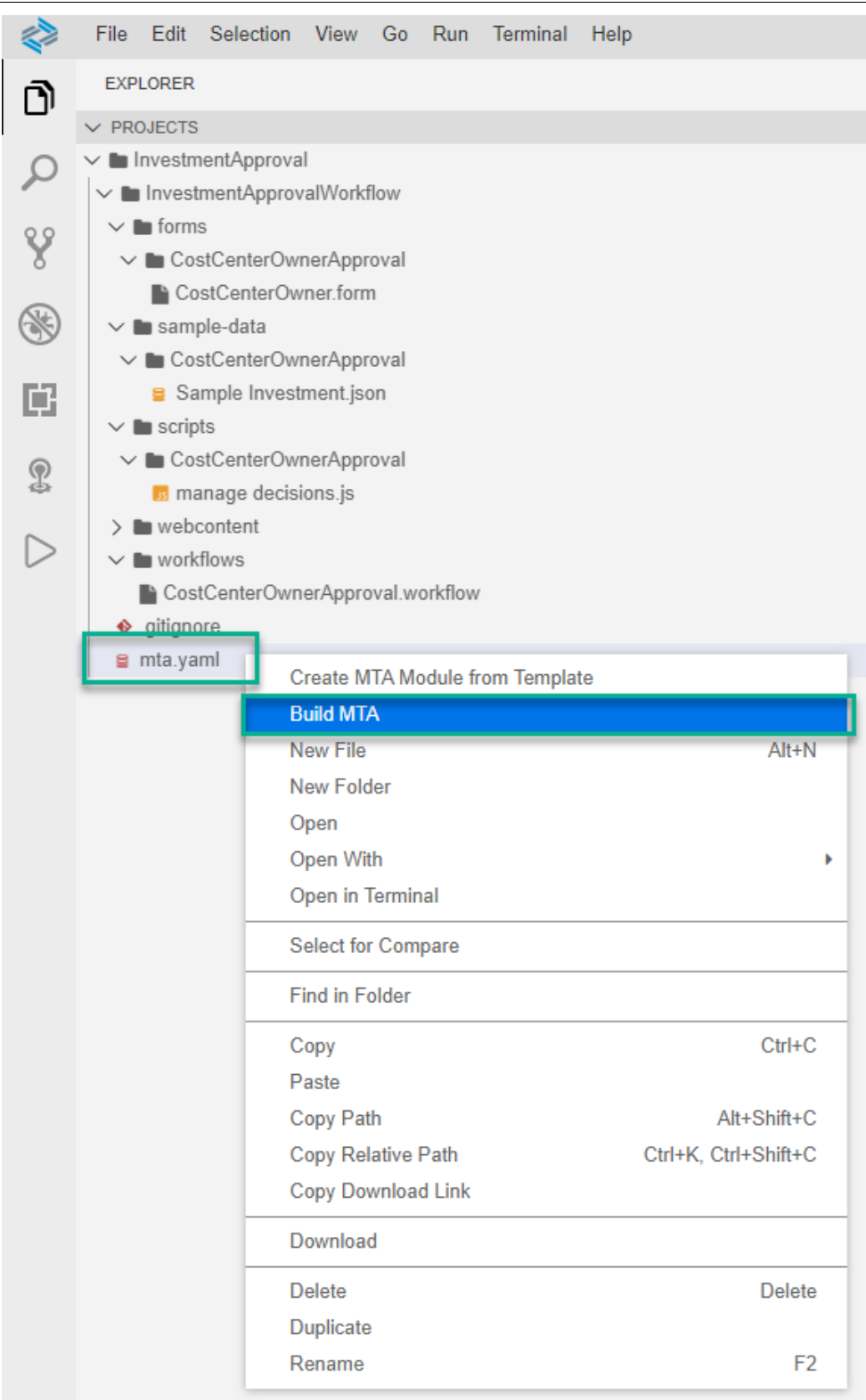
Explanation	Screenshot
<div>89. Select <b>UserTask2</b> and in User Task Properties select <b>GENERAL</b> tab.</div> <div>90. update the <b>Name</b> as Requestor.</div>	
<div>91. Select <b>Details</b> tab.</div> <div>92. Set <b>Subject</b> as Request \${context.Request.RequestId} for Investment Rejected.</div> <div>93. Set <b>Users</b> as \${context.Request.UserId}</div>	

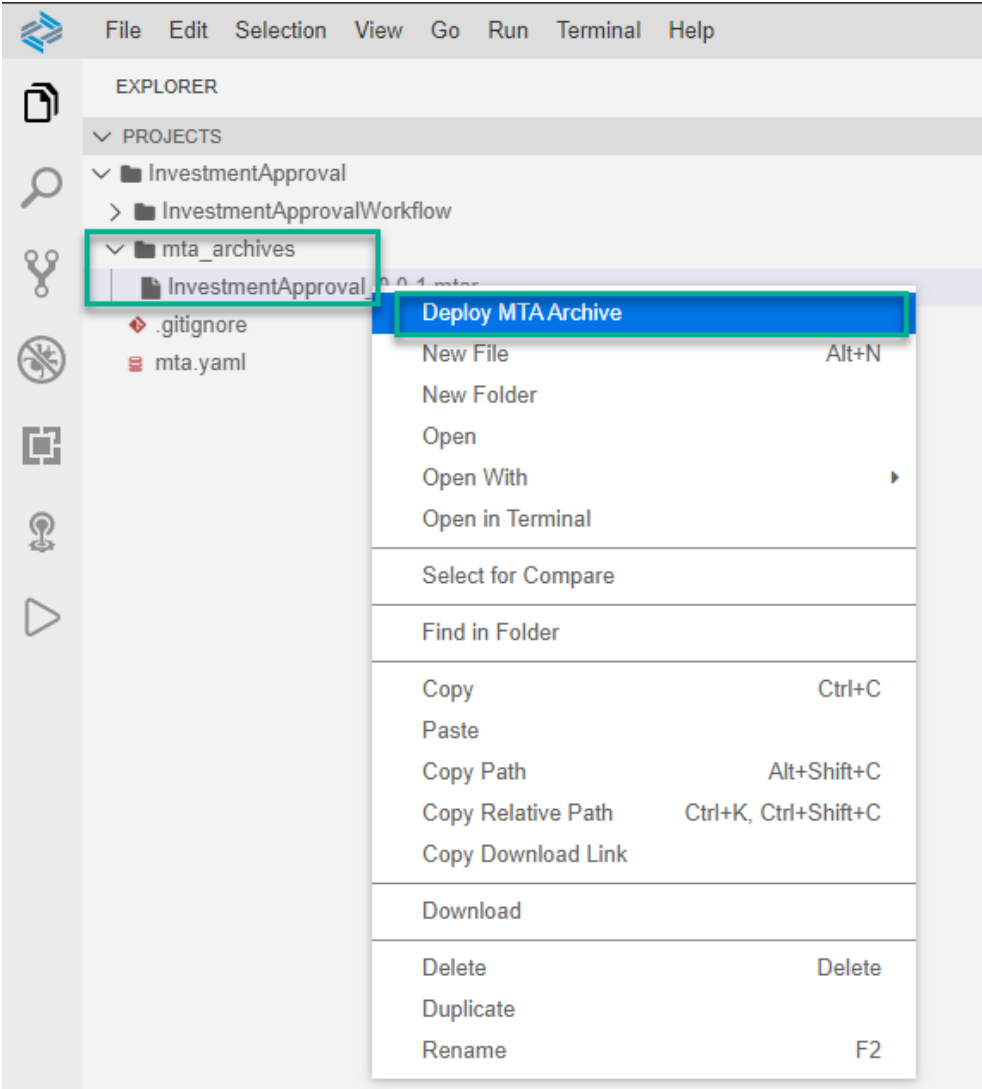

Explanation	Screenshot
<div>94. Select the sequence flow between the Exclusive Gateway and Cost Center Owner user task.</div> <div>95. Enter <b>Name</b> as Submit for Approval</div> <div>96. Check <b>Default</b> check box.</div>	<p>The screenshot shows a BPMN diagram with a StartEvent1, a Cost Center Owner user task, a Process Decision, an Exclusive Gateway, and a Requestor user task. A sequence flow (sequenceflow15) connects the Exclusive Gateway to the Cost Center Owner user task. The properties panel on the right shows the Name as 'Submit for Approval' and the Default checkbox is checked.</p>
<div>97. Select the <b>sequence flow</b> between the <b>Exclusive Gateway</b> and <b>End event</b>.</div> <div>98. Enter <b>Name</b> as Cancel Request.</div> <div>99. Enter <b>Condition</b> as <code>\${usertasks.usertask2.last.decision=="reject"}</code></div> <div>Make sure the Requestor user task ID is usertask2. If it is different change the ID in the expression.</div> <div>You may copy the condition from the attached file <a href="#">Exclusive Gateway Conditions</a>.</div>	<p>The screenshot shows the same BPMN diagram as the previous one, but with a new sequence flow (sequenceflow14) added between the Exclusive Gateway and an EndEvent3. The properties panel on the right shows the Name as 'Cancel Request' and the Condition as <code>\${usertasks.usertask2.last.decision=="reject"}</code>. The Default checkbox is unchecked.</p>

**Build and Deploy**

- 100. Right click on `mta.yaml` file.
- 101. 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`.



Explanation	Screenshot
<div>102. Successful build will create a new folder <b>mta_archives</b> and a .mtar file.</div> <div>103. Select the .mtar file and right click.</div> <div>104. Click <b>Deploy MTA Archive</b>.</div>	 <p>The screenshot shows the Visual Studio Code interface. In the Explorer sidebar, the 'InvestmentApprovalWorkflow' folder is expanded, and the 'mta_archives' folder is selected. A right-click context menu is open over the 'mta_archives' folder, with the 'Deploy MTA Archive' option highlighted in blue. Other options in the menu include 'New File', 'New Folder', 'Open', 'Open With', 'Open in Terminal', 'Select for Compare', 'Find in Folder', 'Copy', 'Paste', 'Copy Path', 'Copy Relative Path', 'Copy Download Link', 'Download', 'Delete', 'Duplicate', and 'Rename'.</p>
<div>105. Successful deployment will show the log.</div>	 <p>The screenshot shows the Visual Studio Code Problems panel. The title bar indicates 'Task: Deploy MTA Archive'. The log content is as follows:</p> <pre>Uploading 1 files... /home/user/projects/InvestmentApproval/mta_archives/InvestmentApproval_0.0.1.mtar OK Operation ID: c443e49b-318f-11eb-a634-eeee0a8b72e6 Deploying in org "DEV264" and space "dev" Detected MTA schema version: "3" No deployed MTA detected - this is initial deployment Detected new MTA version: "0.0.1" Processing service "workflow_mta"... Creating service "workflow_mta" from MTA resource "workflow_mta"... 1 of 1 done Creating service key "InvestmentApprovalWorkflow-workflow_mta-credentials" for service "workflow_mta"... Uploading content module "InvestmentApprovalWorkflow" in target service "workflow_mta"... Deploying content module "InvestmentApprovalWorkflow" in target service "workflow_mta"... Skipping deletion of services, because the command line option "--delete-services" is not specified. Process finished. Use "cf dmol -i c443e49b-318f-11eb-a634-eeee0a8b72e6" to download the logs of the process.  Terminal will be reused by tasks.</pre>

## **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](http://www.sap.com/contactsap)

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