

PUBLIC

Deep dive into SAP Business Technology Platform Workflow Management – Restart Workflow

DEV-264

Exercises / Solutions
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SUMMARY26

SAP Business Technology Platform Workflow Management has Process Visibility capability enable Process Owners / Process Operators to gain real time insights into processes and insight to actions. In this document you will learn how to model workflows, use as actions in Process Visibility to trigger based on process status by system or user.

INSIGHT TO ACTION

Processes change their status based on different situations like delays, SLA violation or technical failures. Some of this status changes require system centric actions and others require user centric actions. Process Visibility enable you to define both system and user centric actions based on process status. Please see [help portal](#) for more details.

System Triggered Action

Process visibility trigger actions when process status changes like (Failed, Suspended, Overdue or at Risk). Pre-configured workflow is triggered, and the workflow can do appropriate steps like notifying process administrators or creating a service ticket.

User Triggered Action

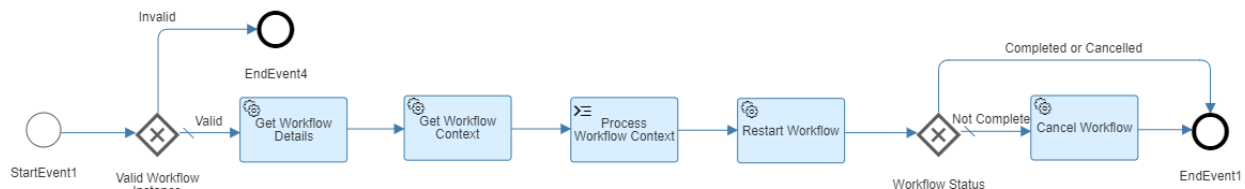
User triggered actions will be enabled when the process reach the preconfigured state and a user can trigger this action from process visibility. For eg: The process has exceeded the cycle time or at Risk or suspended or Failed.

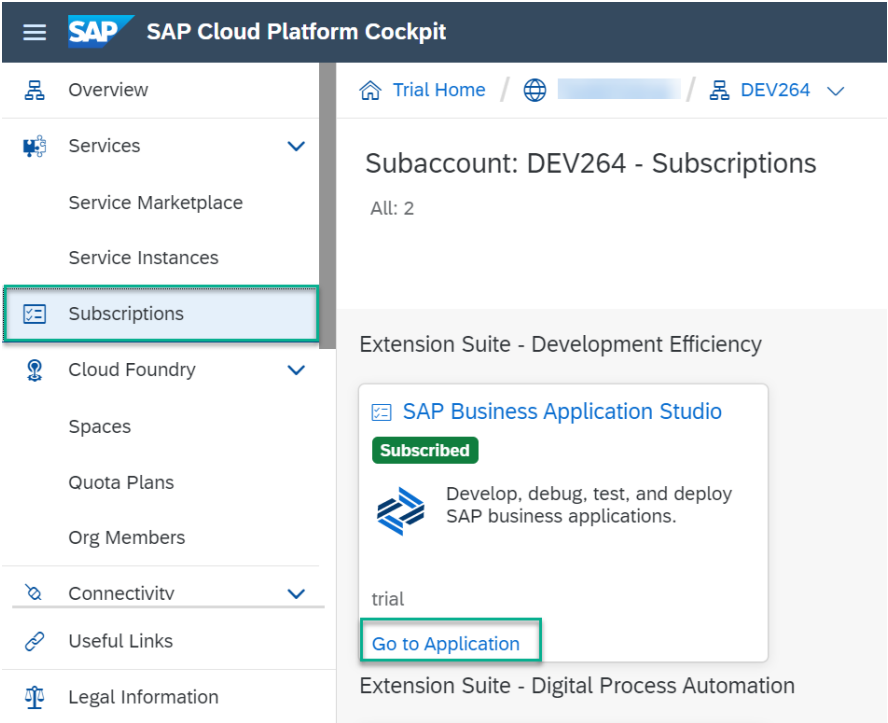
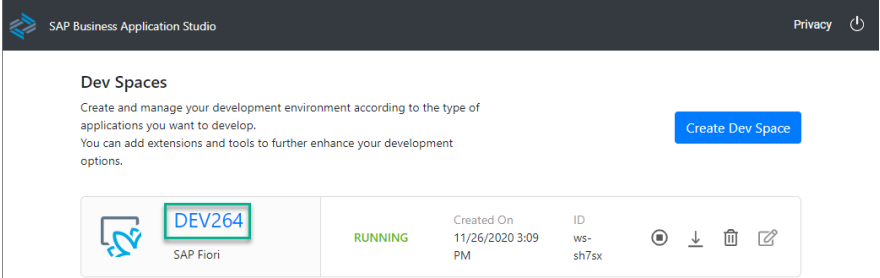
Prerequisite

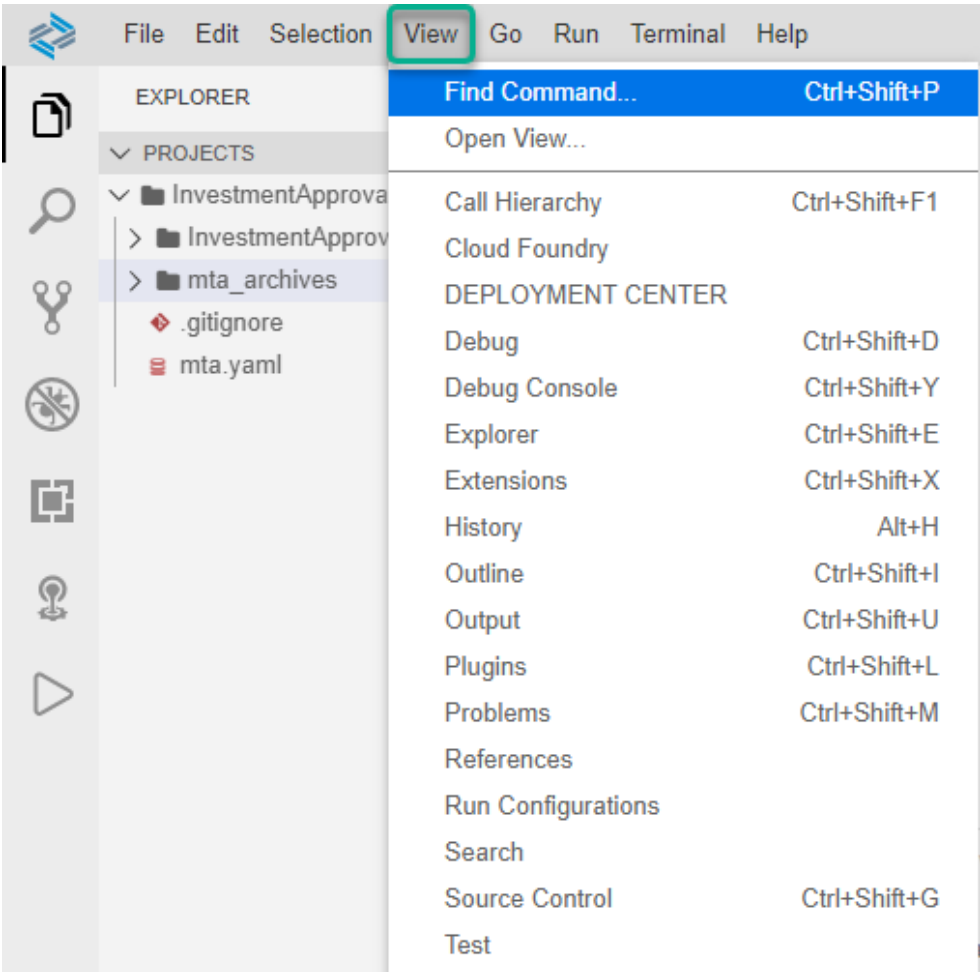
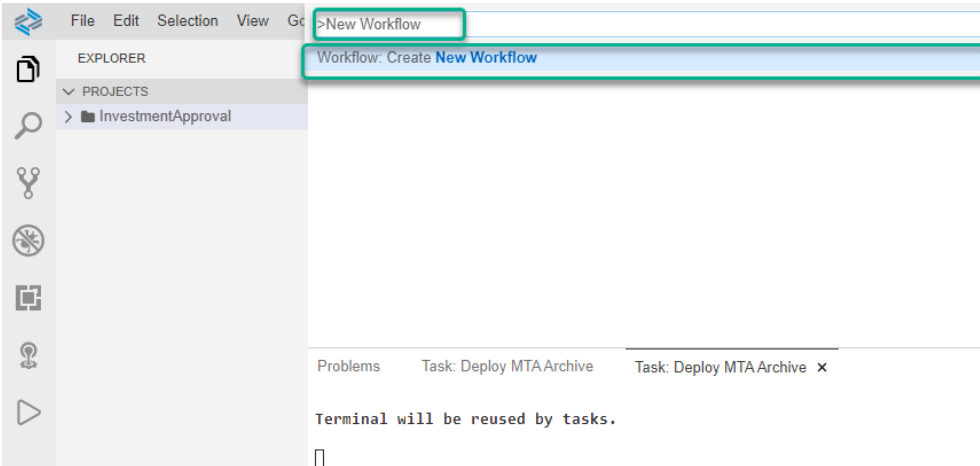
You have already configured your SAP Business Application Studio Workspace and Created the Investment Approval Workflow. Please refer [Model Workflow guide](#) how to build and deploy Investment Approval Workflow.

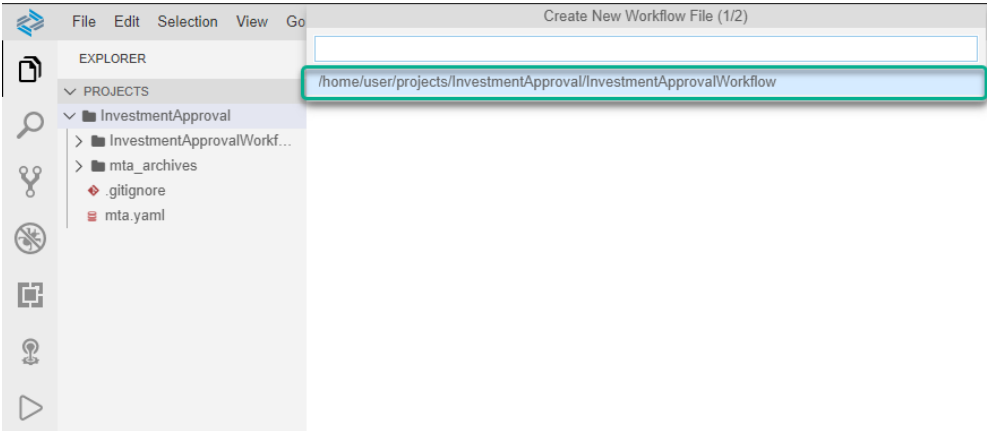
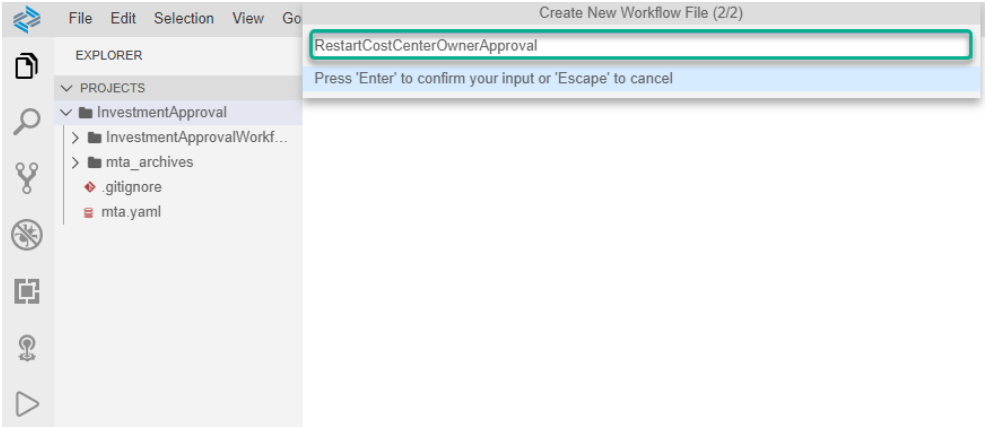
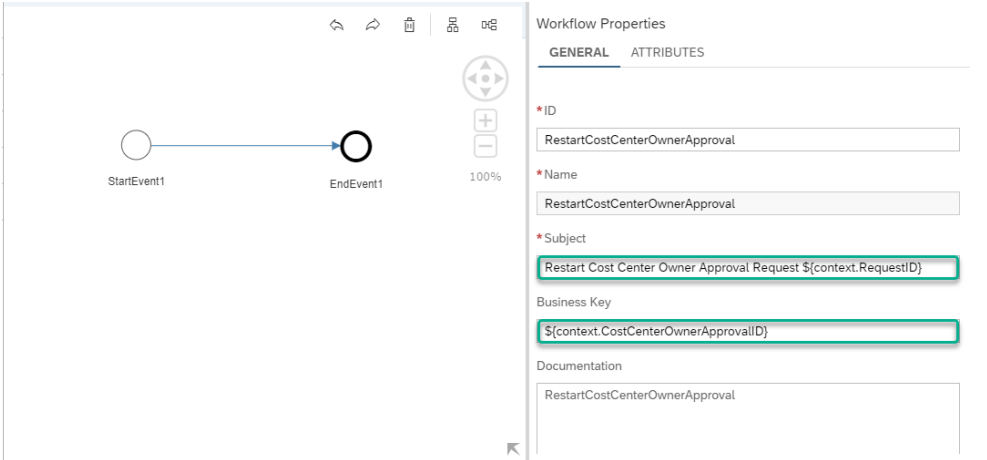
INSIGHT TO ACTION – RESTART WORKFLOW – USER TRIGGERED ACTION

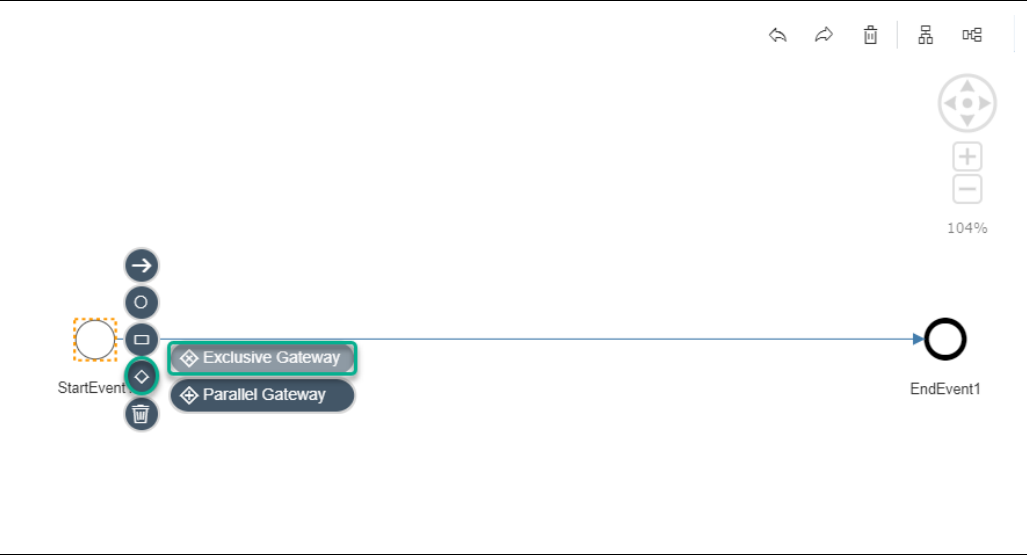
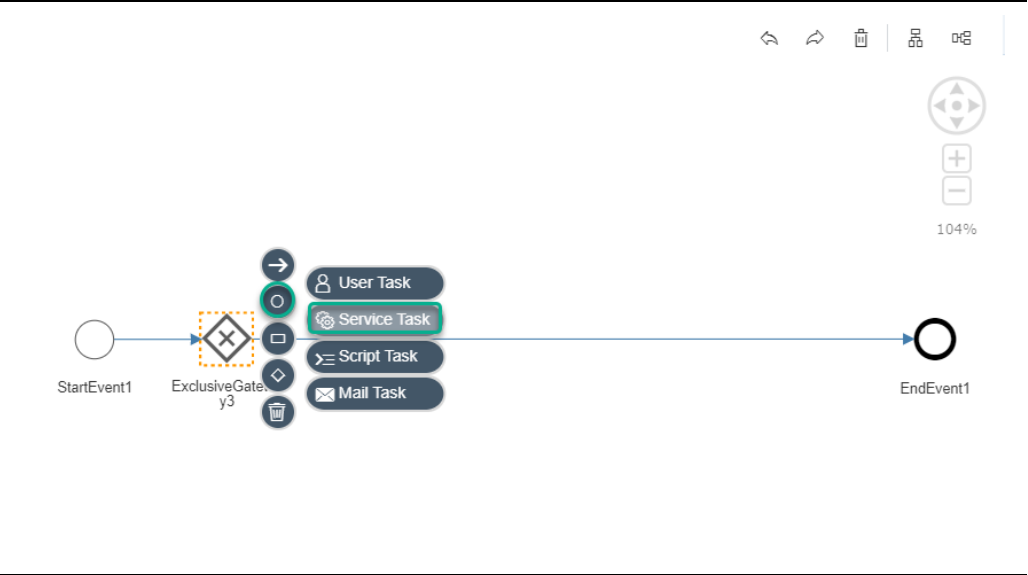
In this hands-on guide you will learn to model a workflow to get the details of a Cost Center Owner Approval workflow instance, get Workflow context, create a new workflow instance and cancel the current workflow instance using [SAP Business Technology Platform Workflow APIs](#).

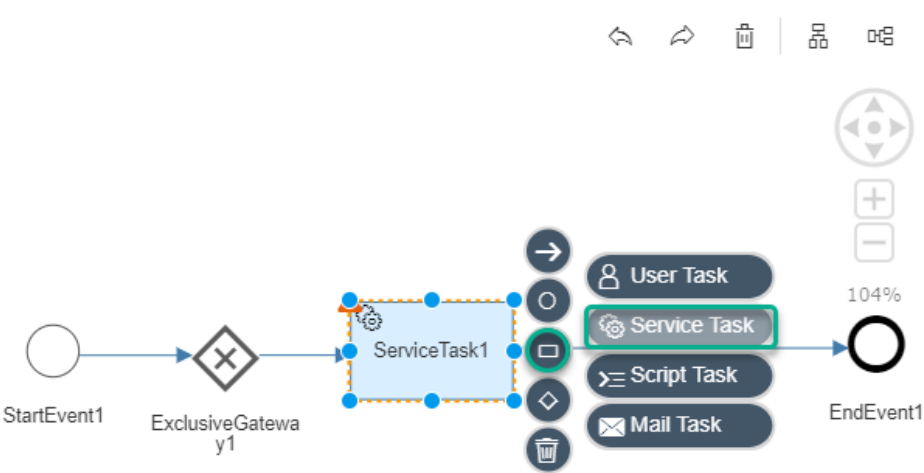
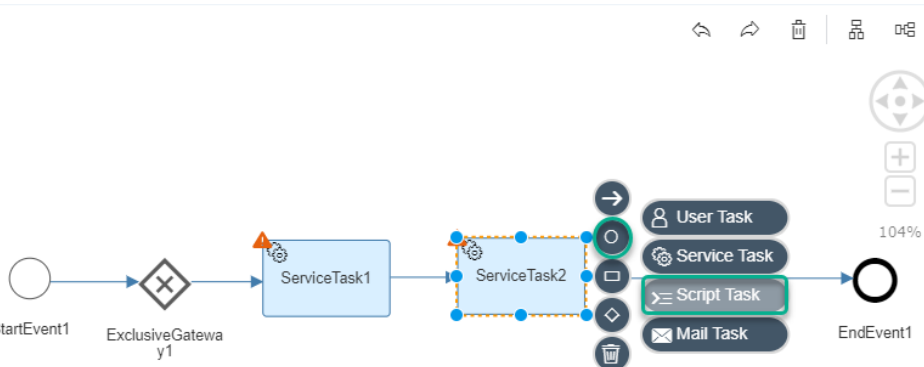


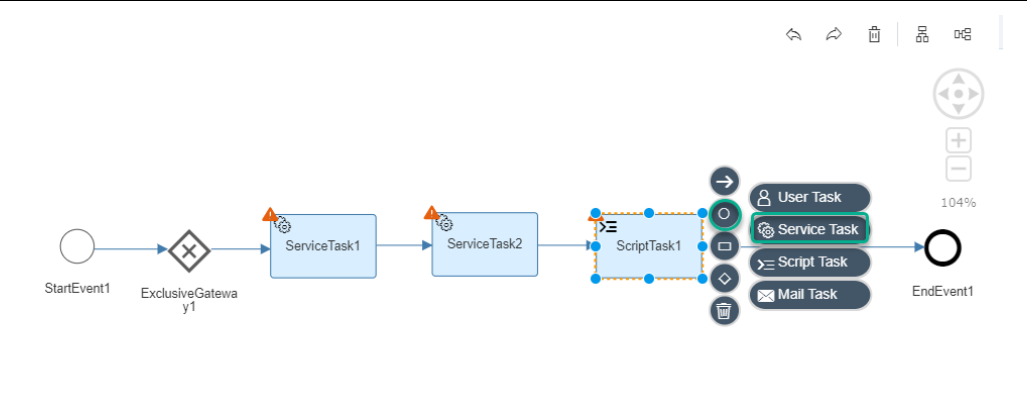
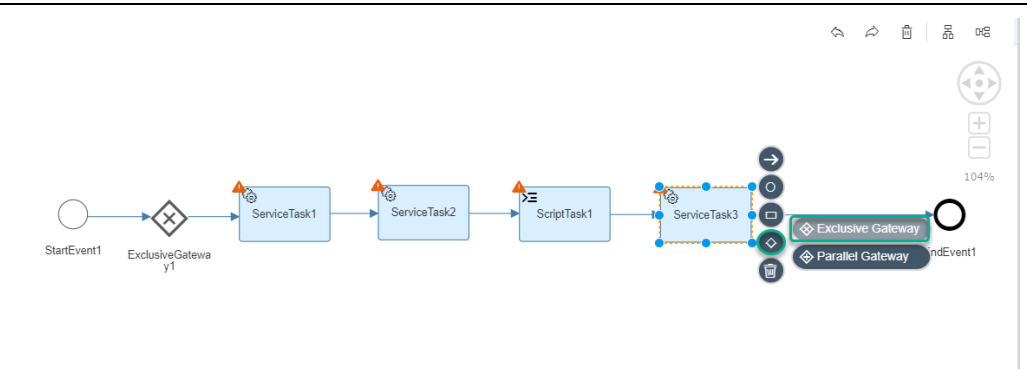
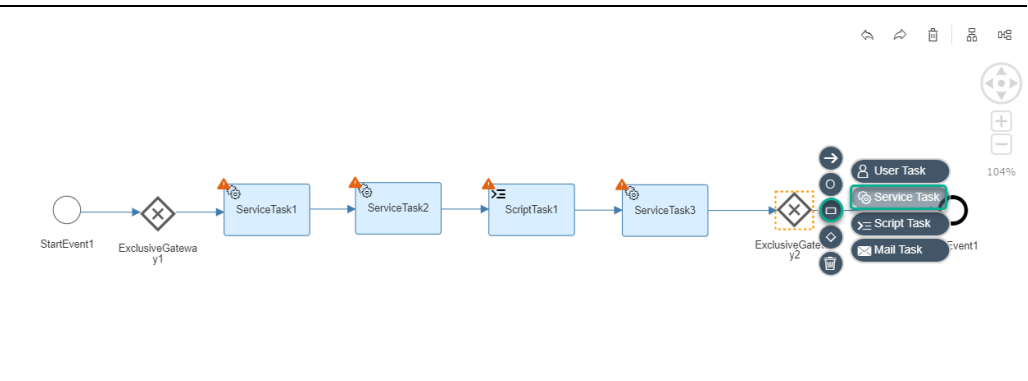
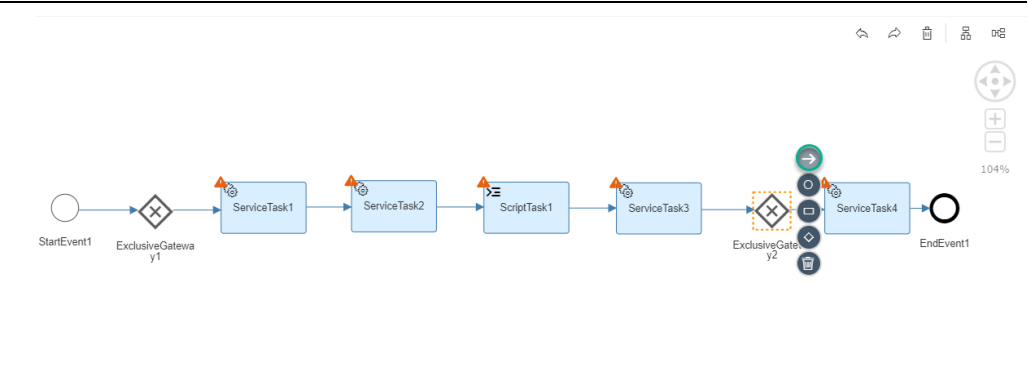
Explanation	Screenshot
<ol style="list-style-type: none"> 1. Select Subscriptions in your Sub Account and you see the subscribed applications. 2. Select SAP Business Application Studio and click Go to Application. <p>SAP Business Technology Platform Business Application Studio will be opened in new browser window.</p>	 <p>The screenshot shows the SAP Cloud Platform Cockpit interface. On the left, a navigation menu lists various services, with 'Subscriptions' highlighted. The main area displays the 'Subaccount: DEV264 - Subscriptions' page. It shows a list of subscriptions, with one entry for 'SAP Business Application Studio' marked as 'Subscribed'. A 'Go to Application' button is visible below the subscription entry, highlighted with a red box.</p>
<ol style="list-style-type: none"> 3. Click your Dev Space. 	 <p>The screenshot shows the SAP Business Application Studio interface. The 'Dev Spaces' section is visible, showing a list of development environments. One environment, 'DEV264', is listed with a status of 'RUNNING'. A 'Go to Application' button is visible next to the 'DEV264' entry, highlighted with a red box.</p>

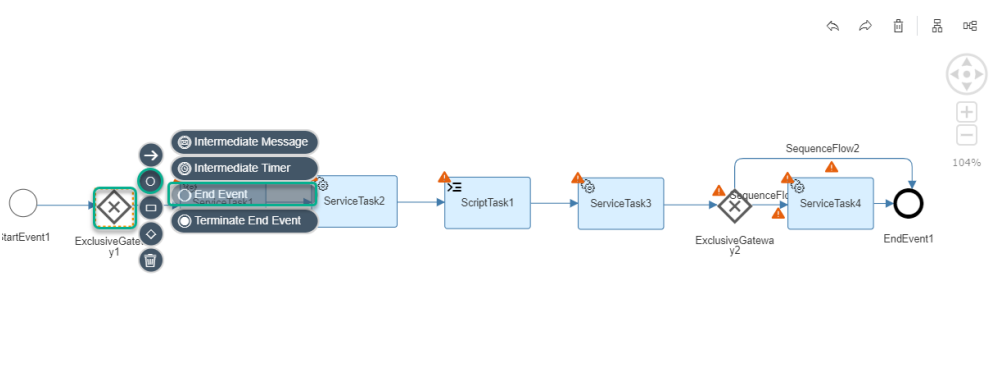
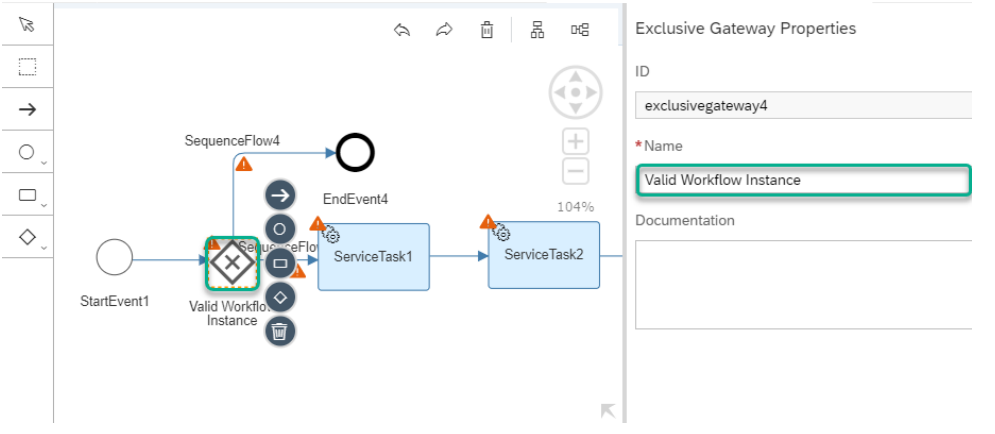
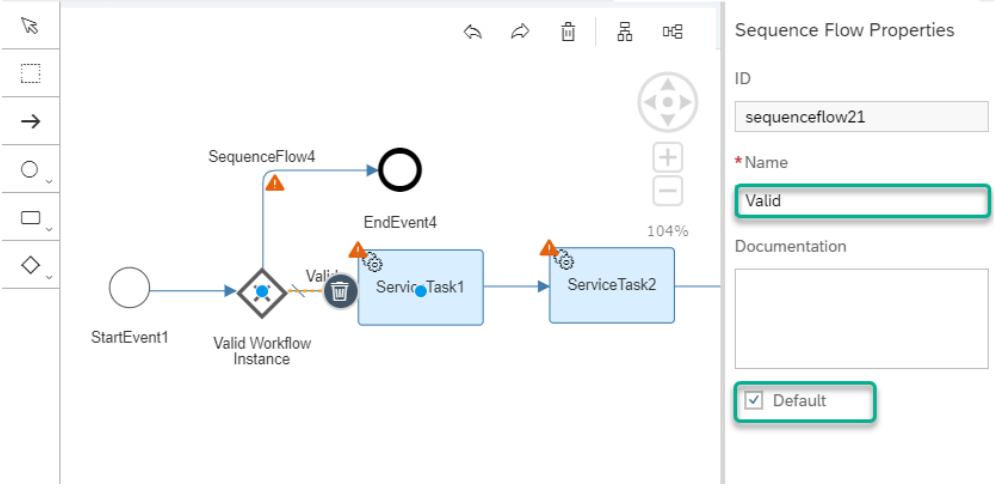
Explanation	Screenshot
4. Click View on the menu and select Find Command .	 The screenshot shows the Visual Studio Code interface. The 'View' menu is open, and 'Find Command...' is highlighted. The Explorer sidebar on the left shows a project structure with folders like 'InvestmentApproval' and 'mta_archives'. The 'View' menu options include 'Find Command...' (Ctrl+Shift+P), 'Open View...', 'Call Hierarchy' (Ctrl+Shift+F1), 'Cloud Foundry', 'DEPLOYMENT CENTER', 'Debug' (Ctrl+Shift+D), 'Debug Console' (Ctrl+Shift+Y), 'Explorer' (Ctrl+Shift+E), 'Extensions' (Ctrl+Shift+X), 'History' (Alt+H), 'Outline' (Ctrl+Shift+I), 'Output' (Ctrl+Shift+U), 'Plugins' (Ctrl+Shift+L), 'Problems' (Ctrl+Shift+M), 'References', 'Run Configurations', 'Search', 'Source Control' (Ctrl+Shift+G), and 'Test'.
5. Search for New Workflow . 6. Select Workflow: Create New Workflow	 The screenshot shows the Visual Studio Code interface. The search bar at the top right contains the text '>New Workflow'. Below the search bar, a dropdown menu shows 'Workflow: Create New Workflow' as the selected option. The Explorer sidebar on the left shows a project structure with folders like 'InvestmentApproval'. The bottom status bar shows 'Problems', 'Task: Deploy MTA Archive', and 'Task: Deploy MTA Archive x'. The terminal at the bottom displays the message 'Terminal will be reused by tasks.'

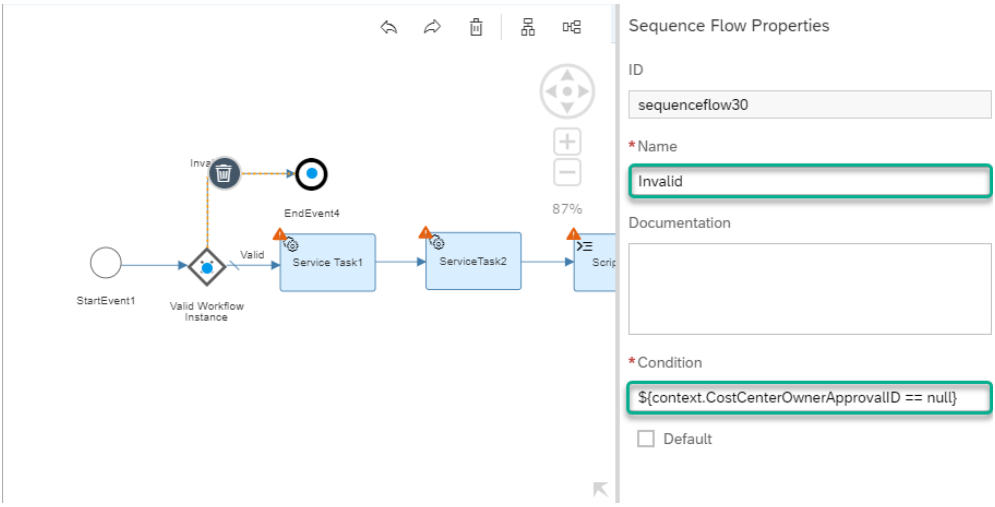
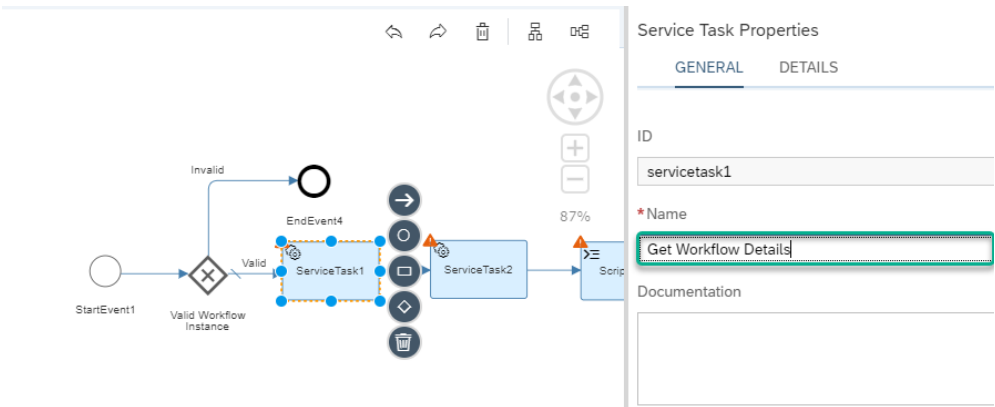
Explanation	Screenshot
<p>7. Select the folder name.</p>	
<p>8. Enter the new Workflow name as RestartCostCenterOwnerApproval.</p> <p>A new workflow has created and opened in the editor.</p> <p>Drag and drop the EndEvent towards right to add other workflow artifacts.</p>	
<p>9. Enter the following.</p> <p>Subject: Restart Cost Center Owner Approval Request <code>\${context.RequestID}</code></p> <p>Business Key: <code>\${context.CostCenterOwnerApprovalID}</code></p>	

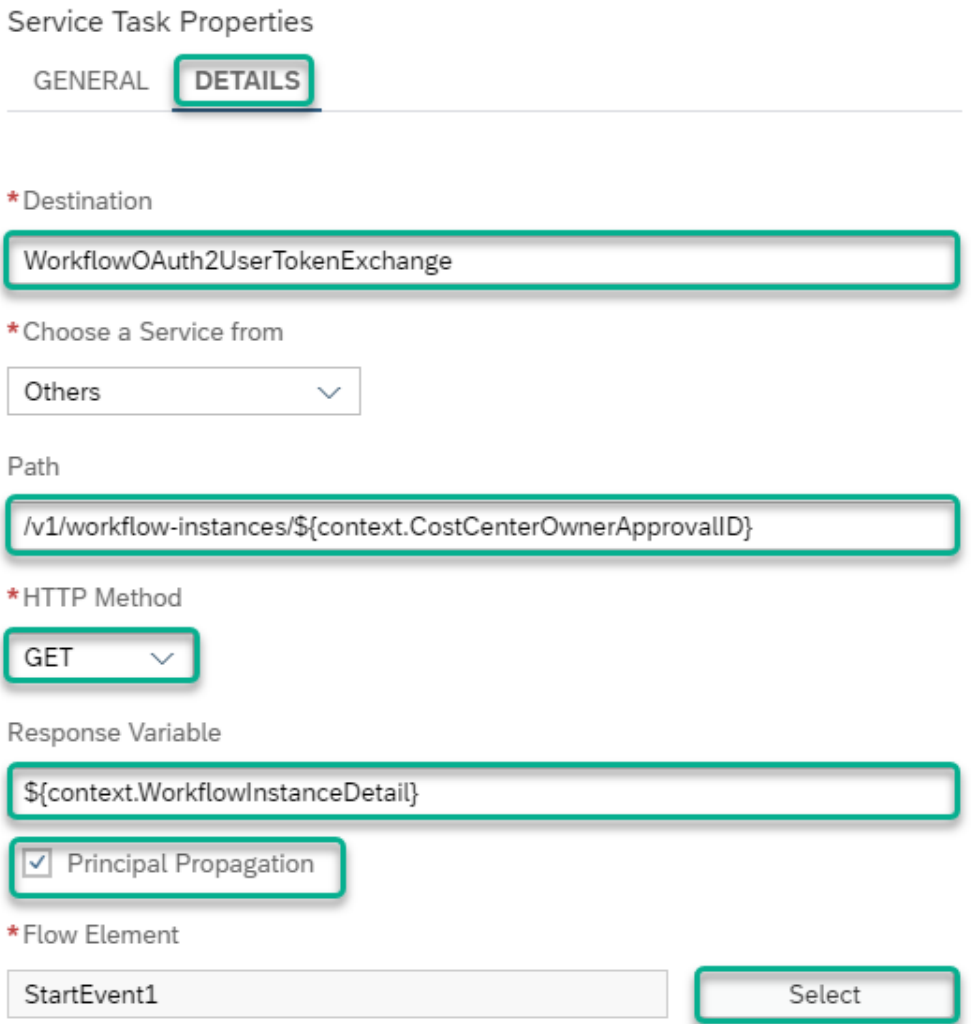
Explanation	Screenshot
10. Select Start Event and choose Exclusive Gateway from the speed button.	 <p>The screenshot shows a BPMN diagram with a Start Event (thin circle) labeled 'StartEvent1' on the left and an End Event (thick circle) labeled 'EndEvent1' on the right. A horizontal flow line connects them. Above the flow line, a context menu is open, showing options: 'Exclusive Gateway' (highlighted with a green border) and 'Parallel Gateway'. To the left of the menu are icons for adding, deleting, and zooming. The zoom level is indicated as 104%.</p>
11. Select Exclusive Gateway and choose Service Task from the speed button.	 <p>The screenshot shows the same BPMN diagram as in step 10. The flow line now passes through an Exclusive Gateway (diamond with an 'X') labeled 'ExclusiveGate.y3'. To the right of the gateway, another context menu is open, showing options: 'User Task', 'Service Task' (highlighted with a green border), 'Script Task', and 'Mail Task'. The zoom level remains at 104%.</p>

Explanation	Screenshot
12. Select ServiceTask1 and choose Service Task from the speed button.	 <p>The screenshot shows a BPMN diagram with the following elements: StartEvent1, ExclusiveGateway y1, ServiceTask1, and EndEvent1. ServiceTask1 is selected with a dashed orange border. A speed button menu is open, showing options: User Task, Service Task (highlighted with a green border), Script Task, and Mail Task. The zoom level is 104%.</p>
13. Select ServiceTask2 and choose Script Task from the speed button.	 <p>The screenshot shows the same BPMN diagram as in step 12, but now ServiceTask2 is selected with a dashed orange border. The speed button menu is still open, and the 'Script Task' option is now highlighted with a green border. The zoom level remains 104%.</p>

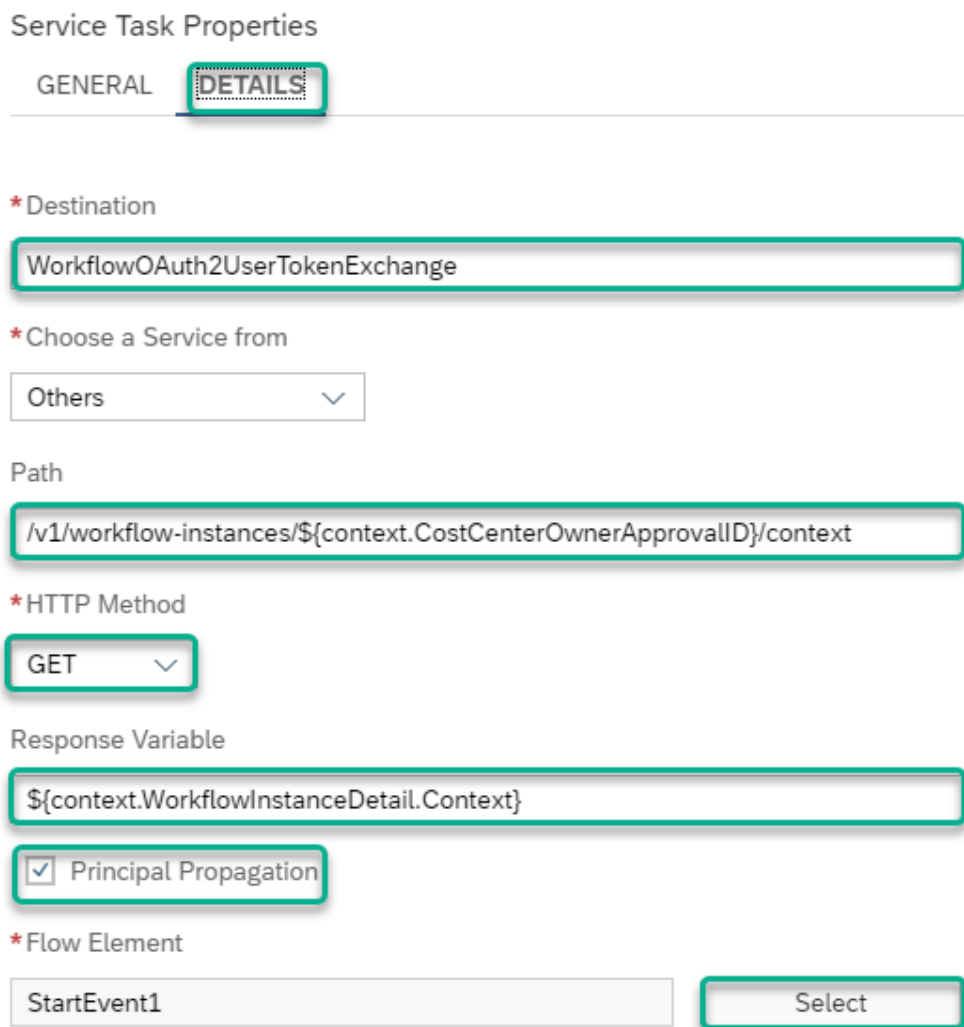
Explanation	Screenshot
14. Select ScriptTask1 and choose Service Task from the speed button.	 <p>The screenshot shows a BPMN diagram with the following elements: StartEvent1, ExclusiveGateway y1, ServiceTask1, ServiceTask2, ScriptTask1, and EndEvent1. A speed button menu is open over ScriptTask1, with 'Service Task' highlighted. The diagram is at 104% zoom.</p>
15. Select ServiceTask3 and choose Exclusive Gateway from the speed button.	 <p>The screenshot shows the same BPMN diagram as before, but now with ServiceTask3 added after ScriptTask1. A speed button menu is open over ServiceTask3, with 'Exclusive Gateway' highlighted. The diagram is at 104% zoom.</p>
16. Select Exclusive Gateway and choose Service Task from the speed button	 <p>The screenshot shows the BPMN diagram with ExclusiveGateway y2 added after ServiceTask3. A speed button menu is open over ExclusiveGateway y2, with 'Service Task' highlighted. The diagram is at 104% zoom.</p>
17. Select Exclusive Gateway and choose Sequence Flow from the speed button. 18. Drag and drop the Sequence Flow to the End Event . Format the workflow diagram.	 <p>The screenshot shows the final BPMN diagram with all elements: StartEvent1, ExclusiveGateway y1, ServiceTask1, ServiceTask2, ScriptTask1, ServiceTask3, ExclusiveGateway y2, ServiceTask4, and EndEvent1. Sequence flows connect the elements in order. A speed button menu is open over ExclusiveGateway y2, with 'Sequence Flow' highlighted. The diagram is at 104% zoom.</p>

Explanation	Screenshot
<p>19. Select ExclusiveGateway1 and choose End Event from the speed button</p> <p>Format the diagram by drag and drop the new End Event above the Exclusive Gateway.</p>	
<p>20. Select ExclusiveGateway1 and update Name: Valid Workflow Instance.</p> <p>If the Workflow Instance ID as start payload is empty or null complete the workflow.</p>	
<p>21. Select Sequence Flow between Valid Workflow Instance and ServiceTask1.</p> <p>22. Update the Name Name: Valid</p> <p>23. Check the Default check box</p>	

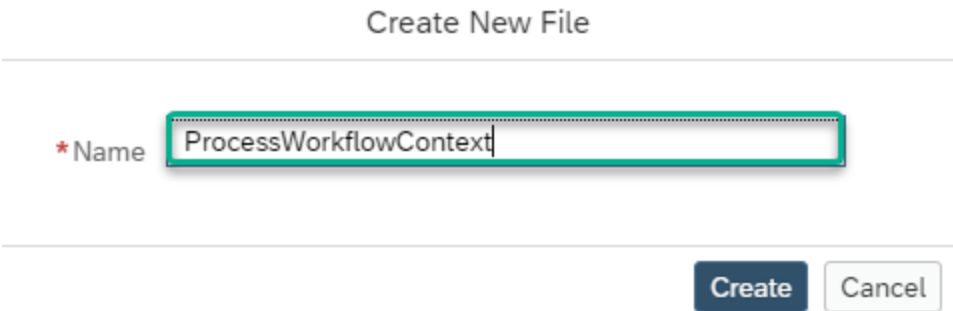
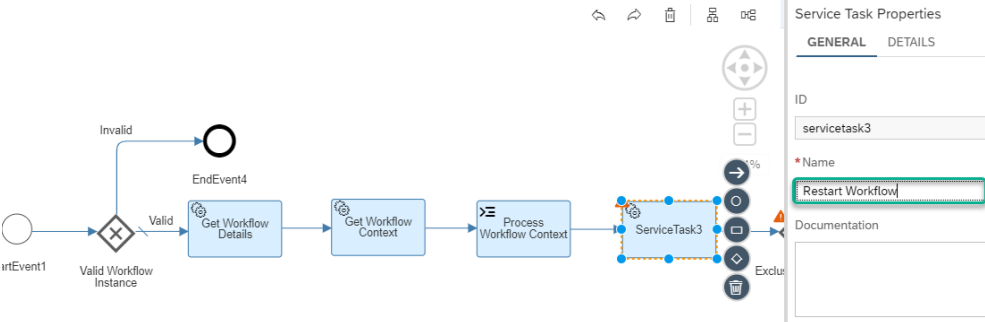
Explanation	Screenshot
<div>24. Select Sequence Flow between Valid Workflow Instance and End Event.</div> <div>25. Update the Name Name: Invalid</div> <div>26. Update the Condition as <code>\${context.CostCenterOwnerApprovalID == null}</code></div>	
<div>27. Select ServiceTask1 and update the name as Get Workflow Details.</div>	

Explanation	Screenshot
<p>28. Select DETAILS tab.</p> <p>29. Set the following Service Task Properties.</p> <p>Destination: WorkflowOAuth2UserTokenExchange</p> <p>Path: /v1/workflow-instances/\${context.CostCenterOwnerApprovalID}</p> <p>HTTP Method: GET</p> <p>Response Variable: \${context.WorkflowInstanceDetail}</p> <p>30. Check Principal Propagation.</p> <p>31. Click Select to choose a Flow Element</p> <p>Principal Propagation enable Workflow to use the security context of a user started or completed a task. Please refer Workflow help documentation for more about Principal Propagation.</p>	 <p>Service Task Properties</p> <p>GENERAL DETAILS</p> <p>* Destination WorkflowOAuth2UserTokenExchange</p> <p>* Choose a Service from Others</p> <p>Path /v1/workflow-instances/\${context.CostCenterOwnerApprovalID}</p> <p>* HTTP Method GET</p> <p>Response Variable \${context.WorkflowInstanceDetail}</p> <p><input checked="" type="checkbox"/> Principal Propagation</p> <p>* Flow Element StartEvent1 Select</p>

Explanation	Screenshot
32. Select StartEvent1 as the Flow Element.	<div><p>Select Flow Element</p><div><div>Search</div><div><div>○ StartEvent1 startevent1</div></div></div><div>Cancel</div></div>
33. Select ServiceTask2 and update the name as Get Workflow Context .	<div><div><pre>graph LR; StartEvent1((StartEvent1)) --> Decision{Valid Workflow Instance}; Decision -- Invalid --> EndEvent4(((EndEvent4))); Decision -- Valid --> GetWorkflowDetails[Get Workflow Details]; GetWorkflowDetails --> ServiceTask2[ServiceTask2];</pre></div><div><p>Service Task Properties</p><p>GENERAL DETAILS</p><p>ID servicetask2</p><p>* Name Get Workflow Context</p><p>Documentation</p></div></div>

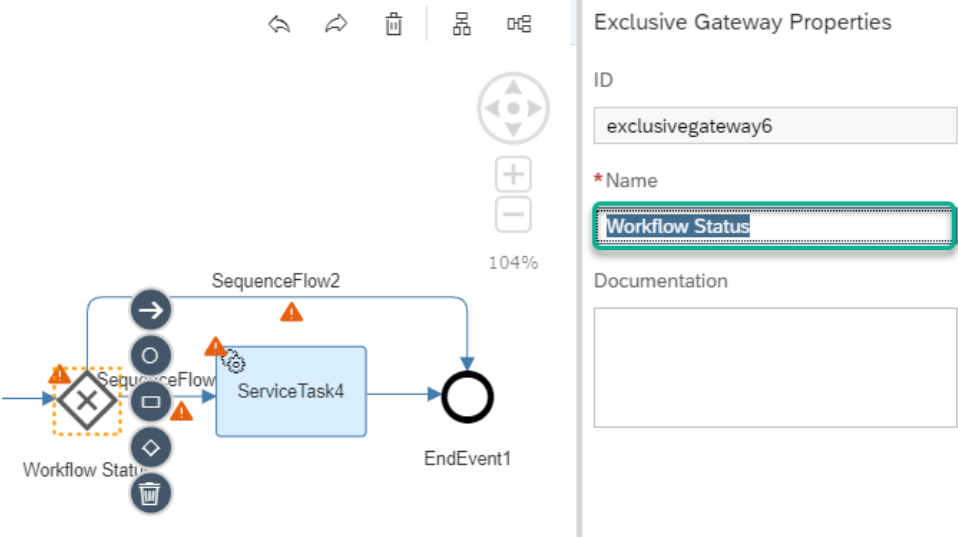
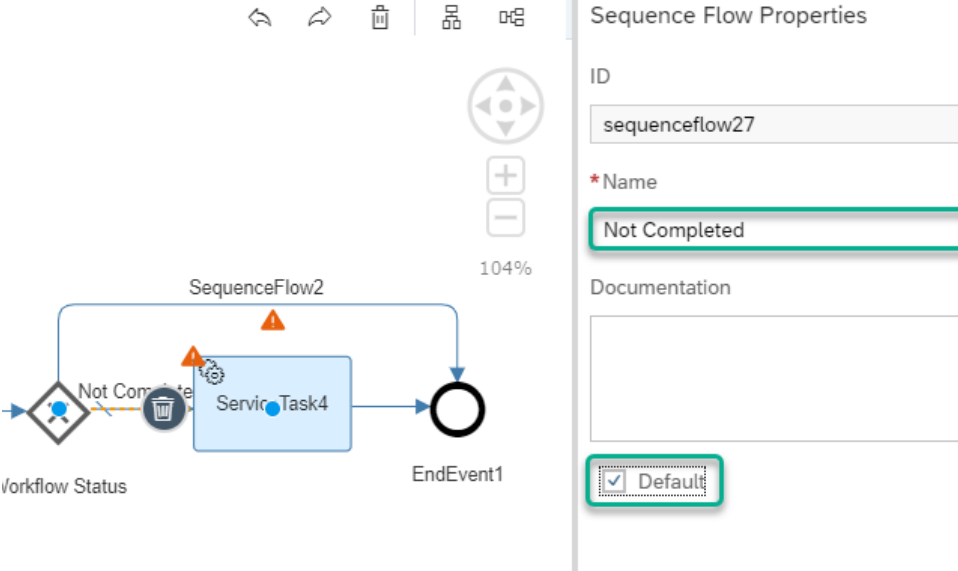
Explanation	Screenshot
<p>34. Select DETAILS tab.</p> <p>35. Set the following Service Task Properties.</p> <p>Destination: WorkflowOAuth2UserTokenExchange</p> <p>Path: /v1/workflow-instances/\${context.CostCenterOwnerApprovalID}/context</p> <p>HTTP Method: GET</p> <p>Response Variable: \${context.WorkflowInstanceDetail.Context}</p> <p>36. Check Principal Propagation.</p> <p>37. Click Select to choose a Flow Element</p>	 <p>Service Task Properties</p> <p>GENERAL DETAILS</p> <p>* Destination</p> <p>WorkflowOAuth2UserTokenExchange</p> <p>* Choose a Service from</p> <p>Others</p> <p>Path</p> <p>/v1/workflow-instances/\${context.CostCenterOwnerApprovalID}/context</p> <p>* HTTP Method</p> <p>GET</p> <p>Response Variable</p> <p>\${context.WorkflowInstanceDetail.Context}</p> <p><input checked="" type="checkbox"/> Principal Propagation</p> <p>* Flow Element</p> <p>StartEvent1</p> <p>Select</p>

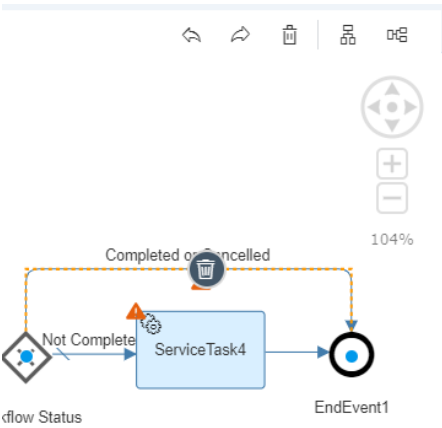
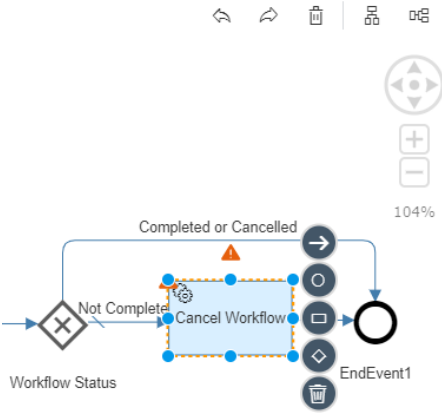
Explanation	Screenshot
38. Select StartEvent1 as the Flow Element.	<div><p>Select Flow Element</p><div><div>Search</div><div><div>StartEvent1</div><div>startevent1</div></div></div><div>Cancel</div></div>
39. Select ScriptTask1 and update the name Process Workflow Context . 40. Click the link Create File .	<div><p>The screenshot shows a BPMN editor interface. On the left, a workflow diagram is visible with the following elements: a StartEvent1, a 'Valid Workflow Instance' gateway, a 'Get Workflow Details' task, a 'Get Workflow Context' task, and a 'ScriptTask1' task. The 'ScriptTask1' task is highlighted with a dashed orange border. On the right, the 'Script Task Properties' panel is open. It contains the following fields: 'ID' (scripttask4), 'Name' (Process Workflow Context), 'Documentation' (empty), and 'Script File' (Create File). The 'Create File' button is highlighted with a green border.</p></div>

Explanation	Screenshot
41. Enter the Name as ProcessWorkflowContext.	
42. Copy and Paste the scrip from the attached file processworkflowcontext.js .	<pre>1 var WorkflowStartPayload ={}; 2 WorkflowStartPayload.definitionId = \$.context.WorkflowInstanceDetail.definitionId; 3 WorkflowStartPayload.context={}; 4 WorkflowStartPayload.context.Request= \$.context.WorkflowInstanceDetail.Context.Request; 5 WorkflowStartPayload.context.Investment= \$.context.WorkflowInstanceDetail.Context.Investment; 6 WorkflowStartPayload.context.Approver= \$.context.WorkflowInstanceDetail.Context.Approver; 7 WorkflowStartPayload.context.Comments= []; 8 \$.context.WorkflowStartRequest = WorkflowStartPayload; 9</pre>
43. Select ServiceTask3 and update the name as RestartWorkflow .	

Explanation	Screenshot
<div>44. Select DETAILS tab.</div> <div>45. Set the following Service Task Properties. Destination: WorkflowOAuth2UserTokenExchange Path: /v1/workflow-instances HTTP Method:POST Request Variable: \${context.WorkflowStartRequest} Response Variable: \${context.WorkflowStartResponse} }</div> <div>46. Check Principal Propagation.</div> <div>47. Click Select to choose a Flow Element</div>	<div><div>Service Task Properties</div><div><div>GENERAL</div><div>DETAILS</div></div><div><div>* Destination</div><div>WorkflowOAuth2UserTokenExchange</div></div><div><div>* Choose a Service from</div><div>Others</div></div><div><div>Path</div><div>/v1/workflow-instances</div></div><div><div>* HTTP Method</div><div>POST</div></div><div><div>Path to XSRF Token</div><div></div></div><div><div>Request Variable</div><div>\${context.WorkflowStartRequest}</div></div><div><div>Response Variable</div><div>\${context.WorkflowStartResponse}</div></div><div><div><input checked="" type="checkbox"/> Principal Propagation</div></div><div><div>* Flow Element</div><div></div><div>Select</div></div></div>

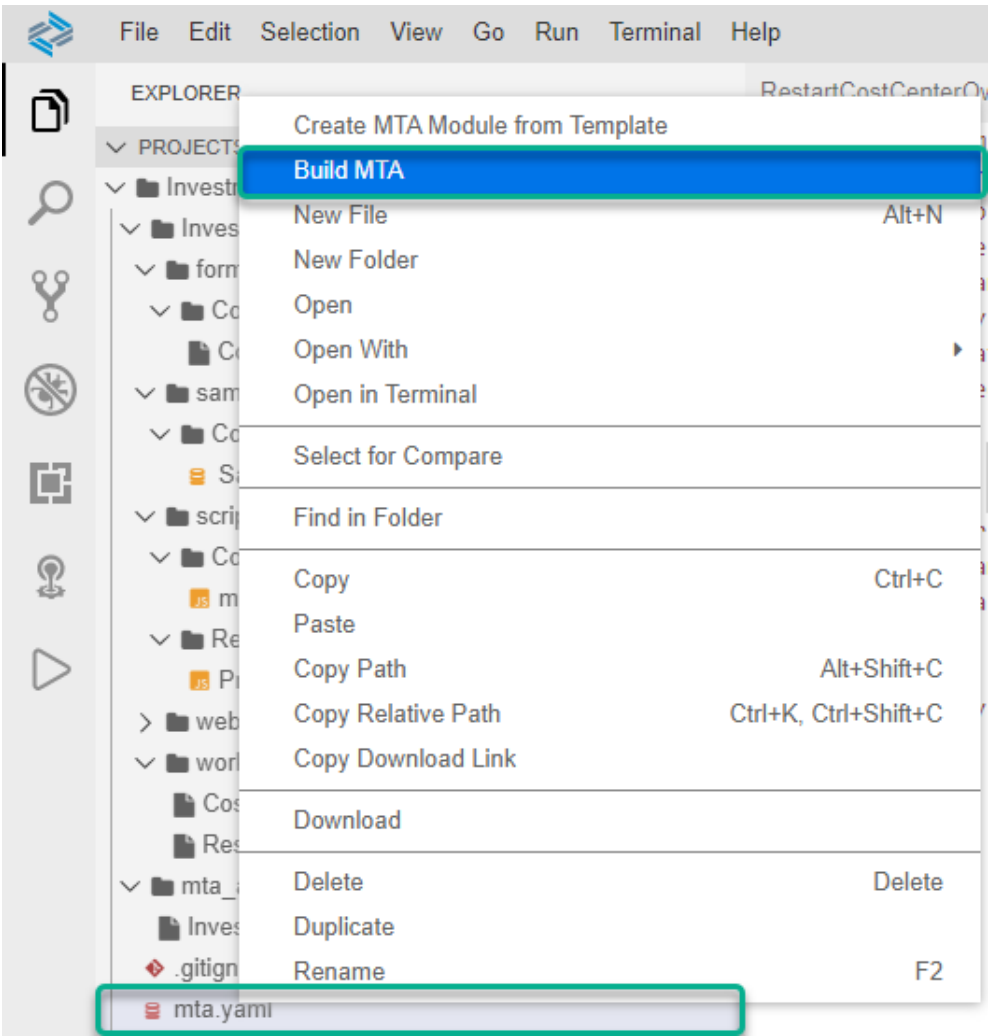
Explanation	Screenshot
48. Select StartEvent1 as the Flow Element.	<div><div>Select Flow Element</div><div><div>Search</div><div><div><div>○</div><div>StartEvent1 startevent1</div></div></div></div><div><div>Cancel</div></div></div>

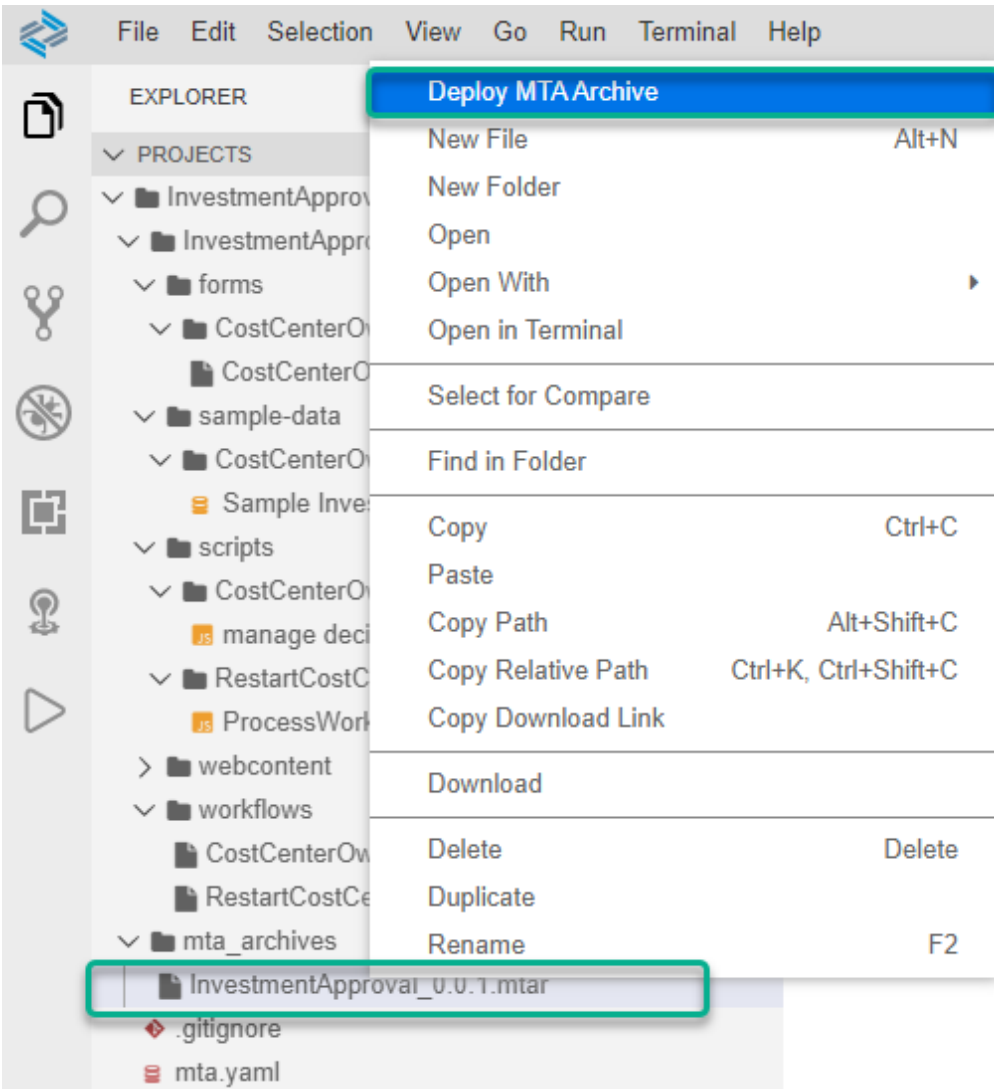
Explanation	Screenshot
49. Select ExclusiveGateway and update the name as Workflow Status .	 <p>The screenshot shows a BPMN diagram with an Exclusive Gateway (diamond with an 'X') labeled 'Workflow Status'. It is connected to a 'ServiceTask4' (rounded rectangle) via a 'SequenceFlow2' (arrow). The 'Exclusive Gateway Properties' panel on the right is open, showing the 'Name' field set to 'Workflow Status'. The diagram is zoomed in at 104%.</p>
50. Select Sequence Flow between Workflow Status Exclusive Gateway and ServiceTask4 . 51. Update the Name Name: Not Completed 52. Check the Default check box	 <p>The screenshot shows the same BPMN diagram, but the 'SequenceFlow2' is now named 'Not Completed'. The 'Sequence Flow Properties' panel on the right is open, showing the 'Name' field set to 'Not Completed' and the 'Default' checkbox checked. The diagram is zoomed in at 104%.</p>

Explanation	Screenshot
<div>53. Select Sequence Flow between Workflow Status Exclusive Gateway and EndEvent1.</div> <div>54. Update the Name Name: Completed or Cancelled</div> <div>55. Update the Condition as \${context.WorkflowInstanceDetail.status=="COMPLETED" context.WorkflowInstanceDetail.status=="CANCELED"} This condition avoids calling the Workflow Service Instance Patch API on completed or cancelled instances.</div>	<div></div> <div><div>Sequence Flow Properties</div><div>ID sequenceflow29</div><div>*Name Completed or Cancelled</div><div>Documentation</div><div>*Condition \${context.WorkflowInstanceDetail.status=="COMPLETED"} \${context.WorkflowInstanceDetail.status=="CANCELED"} <input type="checkbox"/> Default</div></div>
<div>56. Select ServiceTask4 and update the name as Cancel Workflow.</div>	<div></div> <div><div>Service Task Properties</div><div>GENERALDETAILS</div><div>ID servicetask4</div><div>*Name Cancel Workflow</div><div>Documentation</div></div>

Explanation	Screenshot
<p>57. Set the following Service Task Properties.</p> <p>Destination: WorkflowOAuth2UserTokenExchange</p> <p>Path: /v1/workflow-instances/\${context.CostCenterOwnerApprovalID}</p> <p>HTTP Method:PATCH</p> <p>Request Variable: \${context.WorkflowPatch}</p> <p>Response Variable: \${context.WorkflowPatchResponse}</p> <p>58. Check Principal Propagation.</p> <p>59. Click Select to choose a Flow Element</p>	<p>The screenshot shows the 'Service Task Properties' dialog box with the 'DETAILS' tab selected. The following fields are highlighted with red rectangles:</p> <ul style="list-style-type: none">* Destination: WorkflowOAuth2UserTokenExchange* Choose a Service from: Others (dropdown menu)Path: /v1/workflow-instances/\${context.CostCenterOwnerApprovalID}* HTTP Method: PATCH (dropdown menu)Path to XSRF Token: (empty text field)Request Variable: \${context.WorkflowPatch}Response Variable: \${context.WorkflowPatchResponse}Principal Propagation: <input checked="" type="checkbox"/> Principal Propagation* Flow Element: (empty text field) and a Select button

Explanation	Screenshot
60. Select StartEvent1 as Flow Element.	<div><div>Select Flow Element</div><div><div>Search</div><div><div>○ StartEvent1 startevent1</div></div></div><div><div>Cancel</div></div></div>

Explanation	Screenshot
<p>61. Right click on <code>mta.yaml</code> file.</p> <p>62. Select Build MTA.</p> <p>63. This will start the MTA build and it may take a few seconds to create the mta archives under the folder <code>mta_archives</code>.</p>	

Explanation	Screenshot
<div>64. Successful build will update the .mtar file and show message in the build logs.</div> <div>65. Select the .mtar file and right click.</div> <div>66. Click Deploy MTA Archive.</div>	
<div>67. Successful deployment will show the log.</div>	<div>Problems Task: Deploy MTA Archive x</div> <div>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 dmo1 -i c443e49b-318f-11eb-a634-eeee0a8b72e6" to download the logs of the process.</div> <div>Terminal will be reused by tasks.</div>

SUMMARY

You have modeled an action workflow and successfully deployed in your SAP Business Technology Platform trial account. In the process visibility hands on guide, you will consume this workflow to configure an action in SAP Business Technology Platform Process Visibility.

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