

Vacation Request Tutorial

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Overview

The VacationRequest business process is used to approve/reject a vacation request. In this process, a vacation request is approved to the manager of the vacation request creator. This document describes how to create the VacationRequest business process.

Pre-requisites

1. This example assumes familiarity with basic BPEL constructs including BPEL activities, partner links, etc., and basic XPath. Familiarity with the JDeveloper environment for creating and deploying BPEL processes is also assumed.
2. Configure the email server settings for the account 'Default' if you would like to have email notifications enabled. The 'Default' account is used to send emails. The email server configuration is in the file `<ORACLE_HOME>\bpel\services\config\ns_emails.xml`. The following segment from the file shows all the parameters that would require configuration, if needed, in bold.

```
<EmailAccount>
  <Name>Default</Name>
  <GeneralSettings>
    <FromName>Oracle BPM</FromName>
    <FromAddress>bpm1@dlsun4254.us.oracle.com</FromAddress>
  </GeneralSettings>
  <OutgoingServerSettings>
    <SMTPHost>dlsun4254.us.oracle.com</SMTPHost>
    <SMTPPort>225</SMTPPort>
  </OutgoingServerSettings>
  <IncomingServerSettings>
    <Server>dlsun4254.us.oracle.com</Server>
    <Port>2110</Port>
</EmailAccount>
```

```

        <Protocol>pop3</Protocol>
        <UserName>bpml</UserName>
        <Password ns0:encrypted="false"
xmlns:ns0="http://xmlns.oracle.com/ias/pcbpel/NotificationService
">welcome</Password>
        <UseSSL>>false</UseSSL>
        <Folder>Inbox</Folder>
        <PollingFrequency>1</PollingFrequency>
        <PostReadOperation>
            <MarkAsRead/>
        </PostReadOperation>
    </IncomingServerSettings>
</EmailAccount>

```

Note: In addition to setting the email account, you also need to change the attribute “NotificationMode” to either (the default value of this attribute is “NONE”)

- “EMAIL” - if you have only email set up, but not other channels – voice, SMS, fax, etc. or
 - “ALL” – if you have email and other channels – voice, SMS, fax, etc. set up.
3. As part of this tutorial, we would be using user ‘jstein’. Change the email addresses for the user to an email account you can access. If XML-Based JAZN provider is used, these properties can be changed in the file <ORACLE_HOME>\bpel\services\config\users-properties.xml. The following XML segment from the users-properties.xml file shows where the email should be configured for user ‘jstein’ as an example.

```

<userObject>
  <name>jstein</name>
  <email>user2@hotmail.us.com</email>
  <title>Manager2</title>
  <firstName>John</firstName>
  <lastName>Steinback</lastName>
  <manager>wfaulk</manager>
  <timeZone>America/Los_Angeles</timeZone>
  <languagePreference>en-US</languagePreference>
  <notificationPreferences>Mail</notificationPreferences>
</userObject>

```

4. Please ensure that the BPEL Process Manager is restarted after any of the above changes.
5. The following files that are needed in this tutorial. All these files are available with the VacationRequest sample business process.
 - a. VacationRequest.xsd – The xsd for the VacationRequest.

Key Concepts

This example highlights the use of the following key concepts/features.

- Modeling a simple workflow in the JDeveloper environment.

- Executing a simple workflow.
- Worklist application to view and act on tasks.

Getting Started: Modeling Vacation Request Process

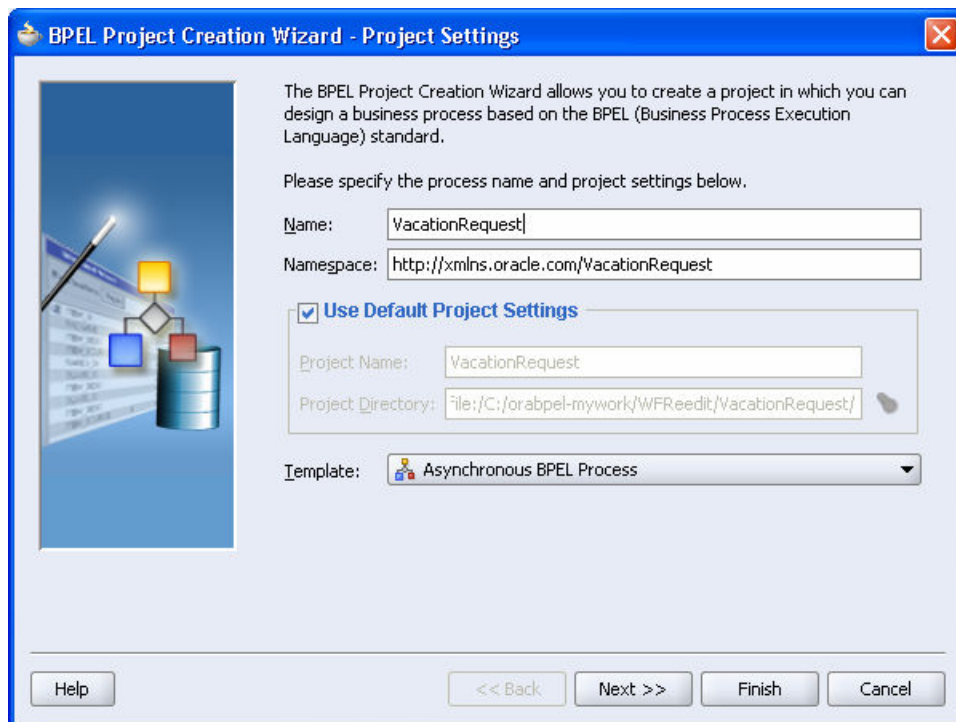
In order to model a process with human workflow, you have to go through the following stages

1. Create a Process with appropriate input/output messages
2. Create Human Task definition with task data and routing slip
3. Assign input and output parameters for human task
4. Create Task Form for worklist
5. Complete process modeling with task outcome
6. Deploy the process

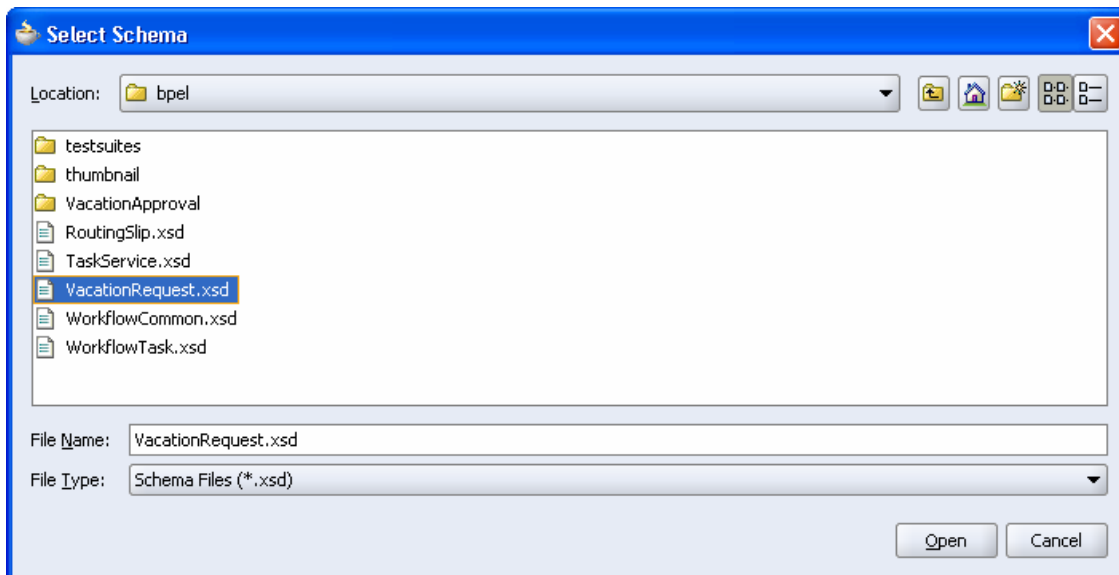
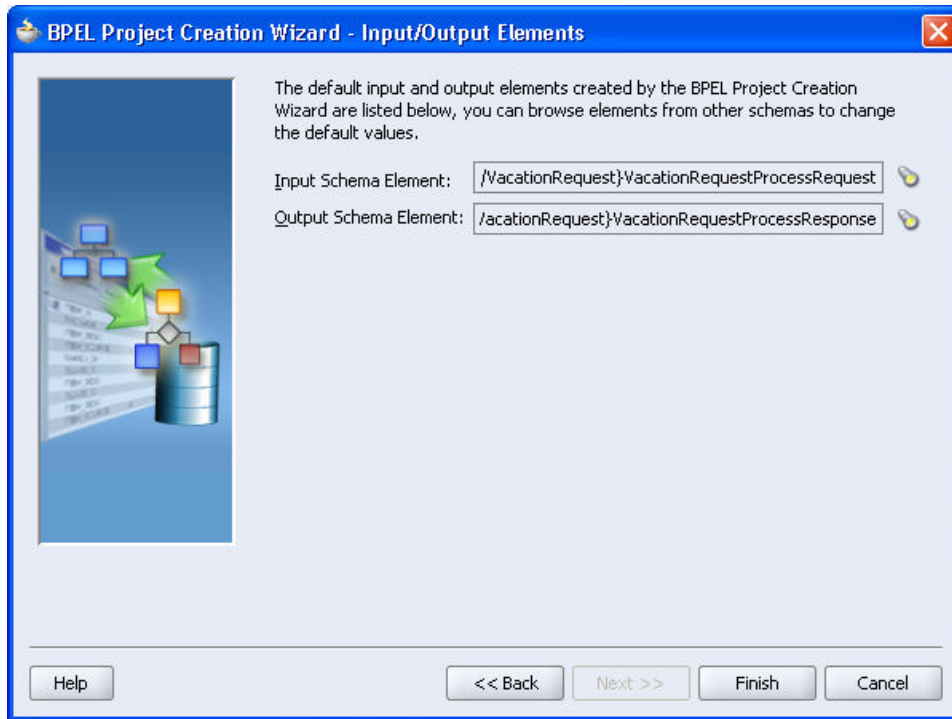
The following sections take you through each of these in details

Create a Process with appropriate input/output messages

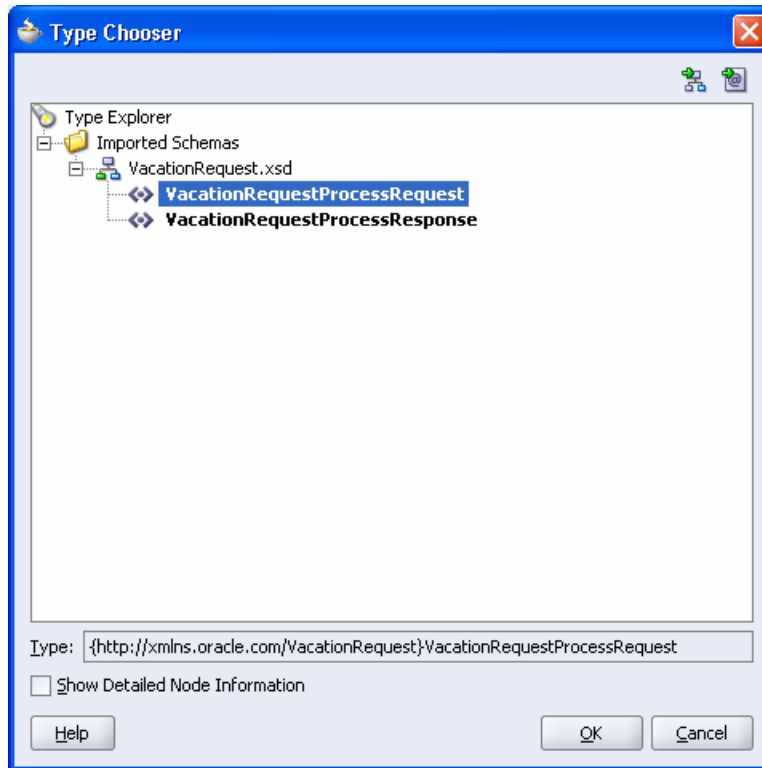
1. Create an asynchronous BPEL process with the name VacationRequest.



2. Click Next
3. Click on the flashlight next to the "Input Schema Element" and browse for the VacationRequest.xsd in the bpel directory.



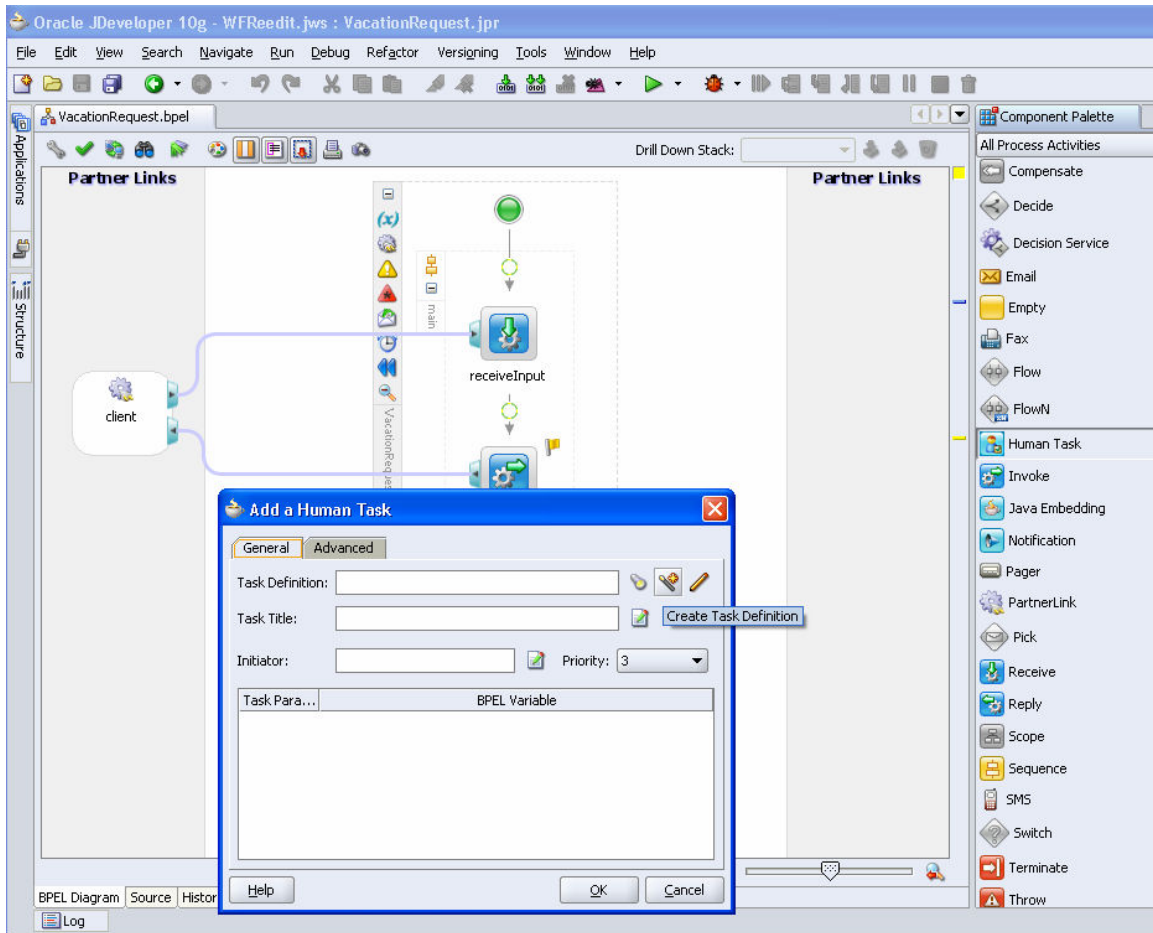
This will bring up the “TypeChooser”. Drill down from ImportedSchemas → VacationRequest.xsd and select “VacationRequestProcessRequest”.



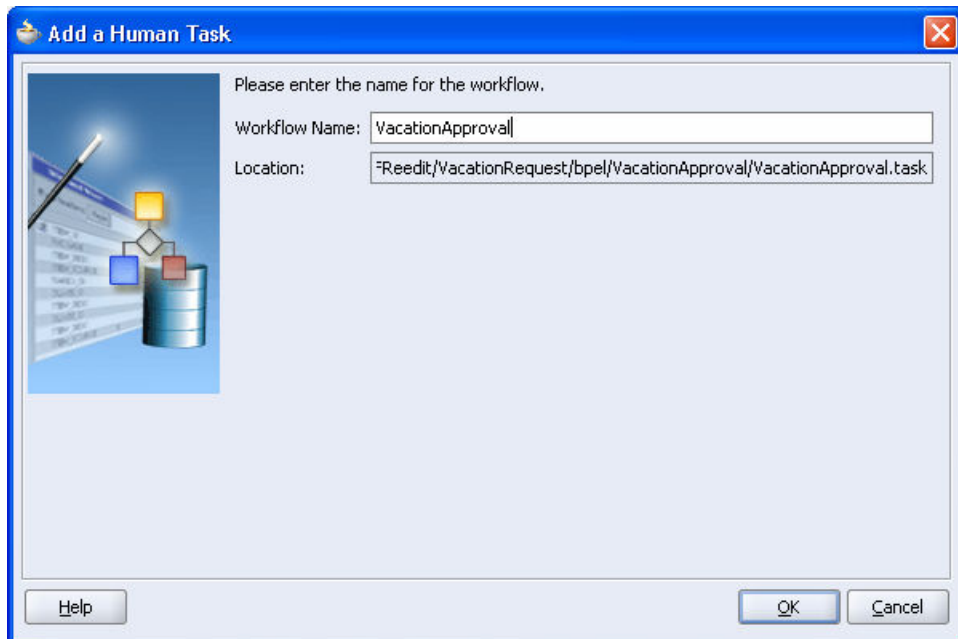
4. Repeat the same steps for the “Output Schema Element”. When you click the flashlight – you’ll see the schemas already imported in the project. You can navigate to the VacationRequest.xsd and select “VacationRequestProcessResponse”.
5. This will create an empty project with a “Receive” and an “invoke” at the end.

Create Human Task definition with task data and routing slip

1. Drag and drop the “Human Task” activity between the receive and the invoke.



2. Click on the “New task definition” button. Type “VacationApproval” for the workflow name.

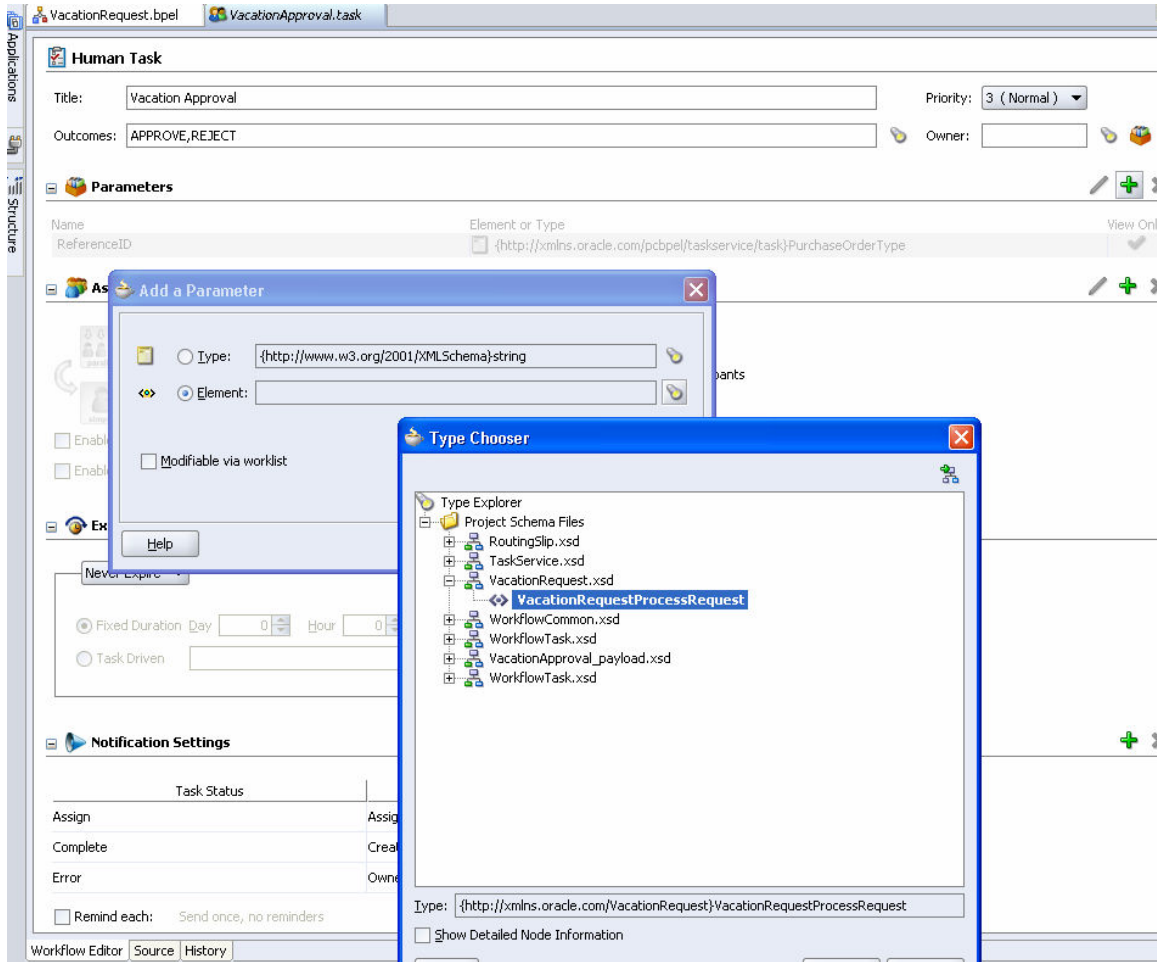


- This will create the VacationApproval.task file and launch the human task editor. The first section has standard task attributes. Type “Vacation Approval” in the task title. You can leave priority, outcomes (Approve, Reject) etc as default values.

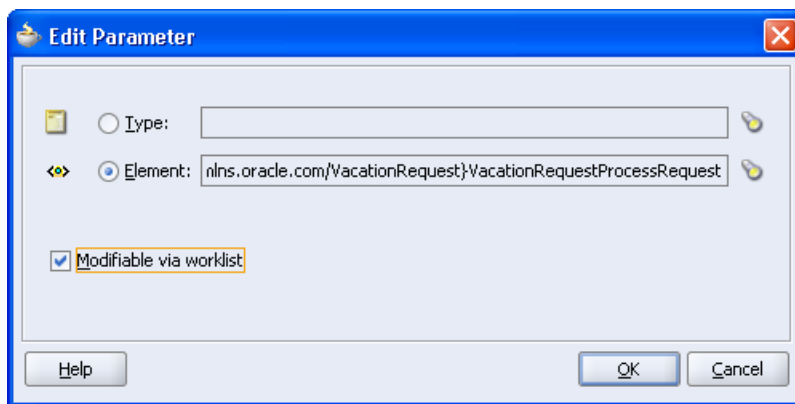
The screenshot shows the 'Human Task' editor interface. At the top, there are two tabs: 'VacationRequest.bpel' and 'VacationApproval.task'. The main area is titled 'Human Task' and contains several sections:

- Title:** A text box containing 'Vacation Approval'.
- Priority:** A dropdown menu set to '3 (Normal)'.
- Outcomes:** A text box containing 'APPROVE,REJECT'.
- Owner:** An empty text box.
- Parameters:** A table with columns 'Name', 'Element or Type', and 'View'. It contains one row: 'ReferenceID' with the element type '{http://xmlns.oracle.com/pcbpel/taskservice/task}PurchaseOrderType'.
- Assignment and Routing Policy:** A section with a plus icon.

- The second section has task parameters. Here you must specify the payload for the task. Click on the “+” icon on the top left side of this table. Select the “Element” radio box and click on the flash light to the right of the “Element” text box. This will bring up the “Type chooser”. Here you can navigate to “Project schema files” → “VacationRequest.xsd” → “VacationRequestProcessRequest”. Select VacationRequestProcessRequest and hit “OK”.



5. Click the “Modifiable via worklist” checkbox to indicate that the task data may be modified by the user via the worklist.



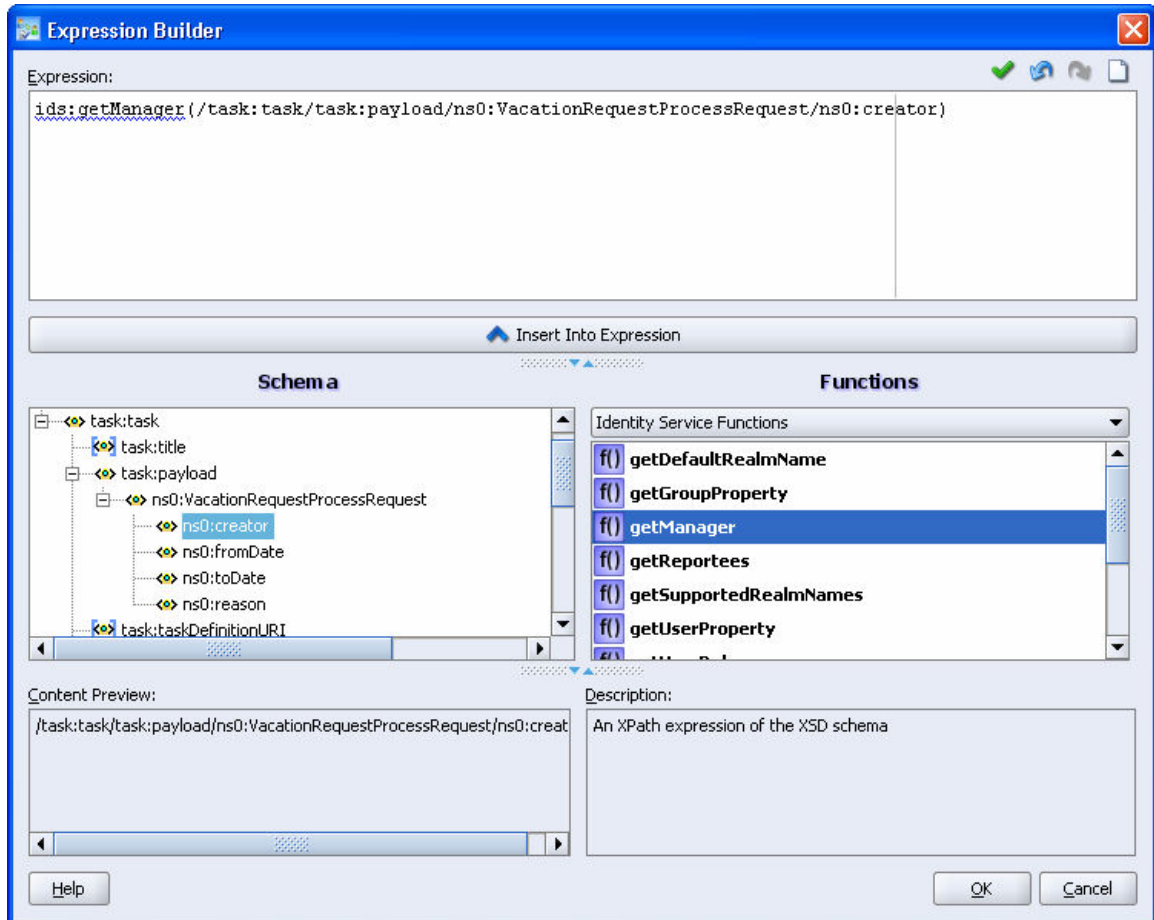
The screenshot shows the configuration for a Human Task named "Vacation Approval". The title is "Vacation Approval" and the priority is set to "3 (Normal)". The outcomes are "APPROVE, REJECT". The parameters section shows a single parameter named "VacationRequestProcessRequest" with the element type "{http://xmlns.oracle.com/VacationRequest}VacationRequestProcessRequest". The assignment and routing policy section is currently empty.

- The next section has the Assignment policy. Here we will specify the approver of the task. Click on the “+” icon on the top left of this section. This will bring up the participant type dialog. Select “Single Approver” as the participant type.

The "Add Participant Type" dialog box is shown with the "General" tab selected. The "Type" is set to "Single Approver". The "Label" field contains "Vacation Approver" with a hint "e.g., Approval Manager". Under "Requires action from one of the participants below:", the "Task Driven" radio button is selected. There are empty fields for "Dynamic User Xpath:" and "Dynamic group Xpath:". The "Specify skip rule" checkbox is unchecked. The "Advanced" tab is also visible, showing options for "Limit allocated duration to:" (set to 0 days, 0 hours, 0 minutes) and "Enable arbitrary assignment for this participant" (unchecked).

- For the label field – you could leave the default value or enter “Vacation Approver”.

- This task will be assigned to the manager of the vacation requestor. To assign the task to the manager, check the “Task Driver” group. Click on the icon next to the “Dynamic User Xpath”. This will bring up the Expression Builder. Using the “ids:getManager” extension function in “Identity Service Functions” in the “Function” area and “/task:task/task:payload/ns0:VacationRequestProcessRequest/ns0:creator” XPath in the “Schema” browser, set the value to
`ids:getManager (/task:task/task:payload/ns0:VacationRequestProcessRequest/ns0:creator)`



Click “OK”.

Add Participant Type


General


Type: Single Approver

Label:
e.g., Approval Manager

Requires action from **one** of the participants below:

Fixed Task Driven

Dynamic User Xpath: 

Dynamic group Xpath: 

Specify skip rule

Advanced

Limit allocated duration to:

Day Hour Minutes

Over all task duration is currently set to {0} days

Enable arbitrary assignment for this participant

Click "OK".

VacationRequest.bpel | VacationApproval.task

Human Task

Title: Priority: 3 (Normal)


Outcomes: Owner:

Parameters

Name	Element or Type	View Only
VacationRequestProcessRequest	<> {http://xmlns.oracle.com/VacationRequest}VacationRequestProcessRequest	<input checked="" type="checkbox"/>

Assignment and Routing Policy

User XPath: `ids:getManager(/task:task/task:payload/ns0:VacationRequestProcessRequest/ns0:creator)`
 Group XPath:

Enable arbitrary assignment for all participants
 Enable abrupt termination condition 


9. In the “Expiration and Escalation Policy” section, select the drop down to be “Expire after” and in the “Fixed Duration” set the “Day” to be 1.

 **Expiration and Escalation Policy**

Expire after ▾

Fixed Duration Day Hour Minutes

Task Driven

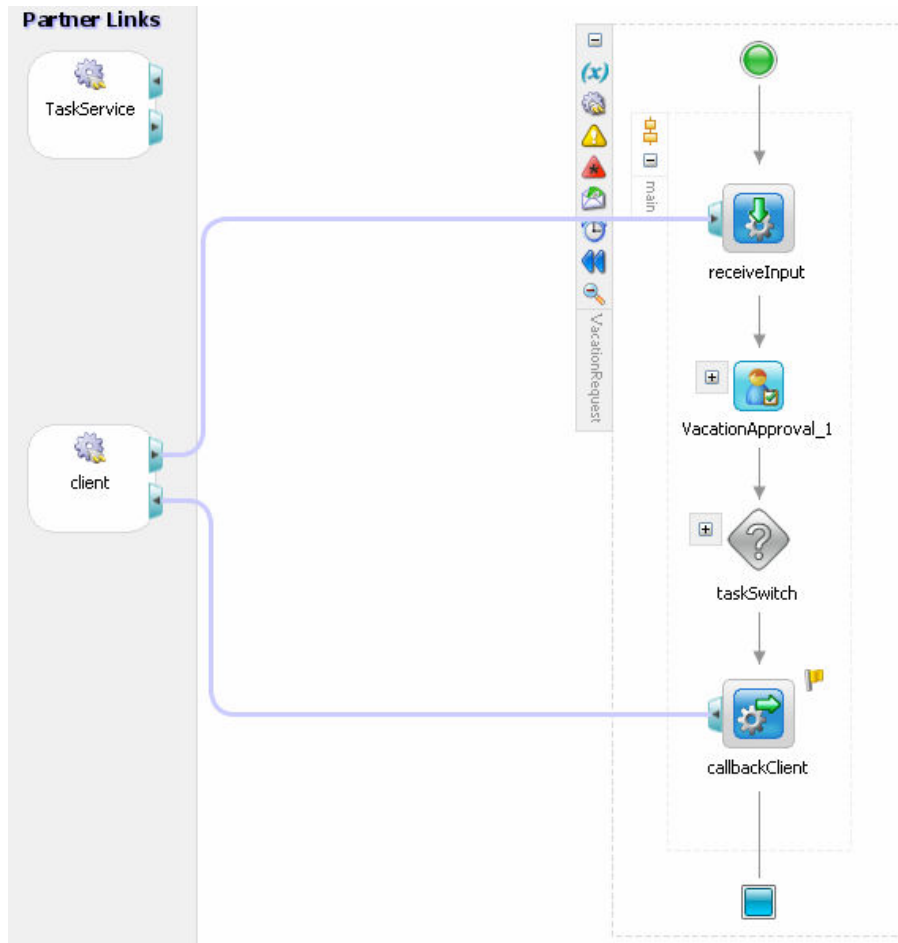


10. Save the project.

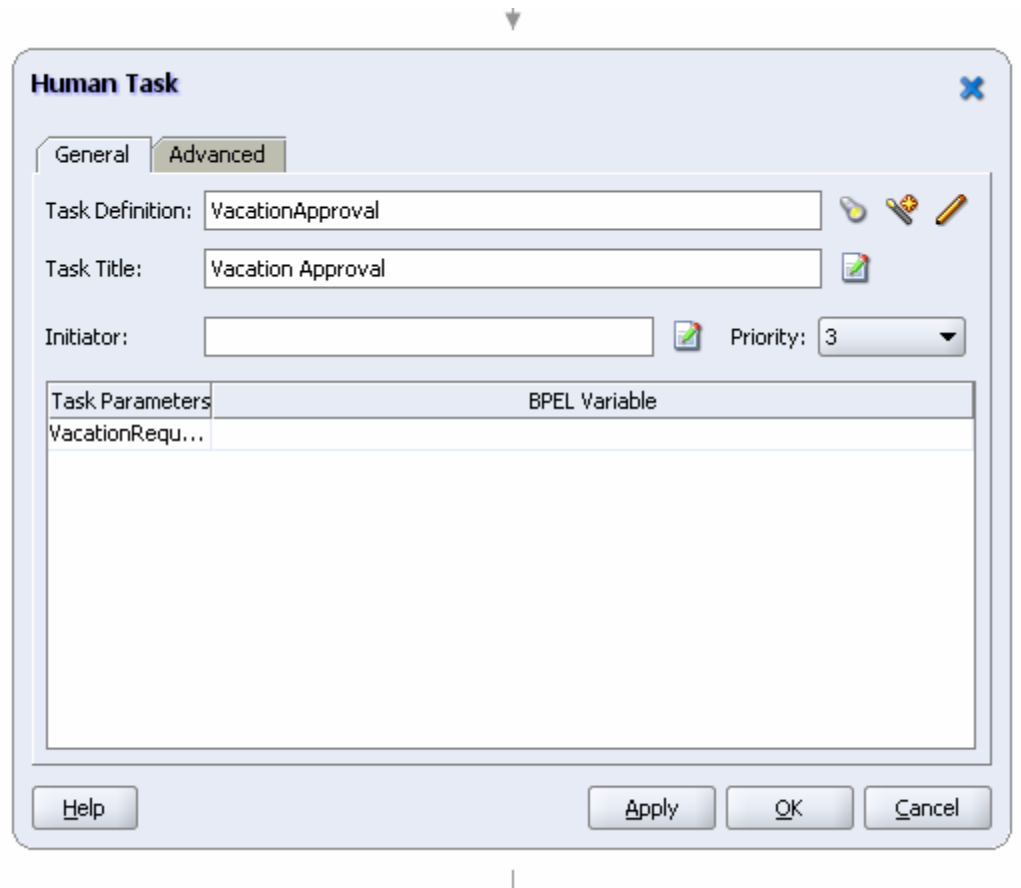
The task definition is created.

Assign input and output parameters for human task

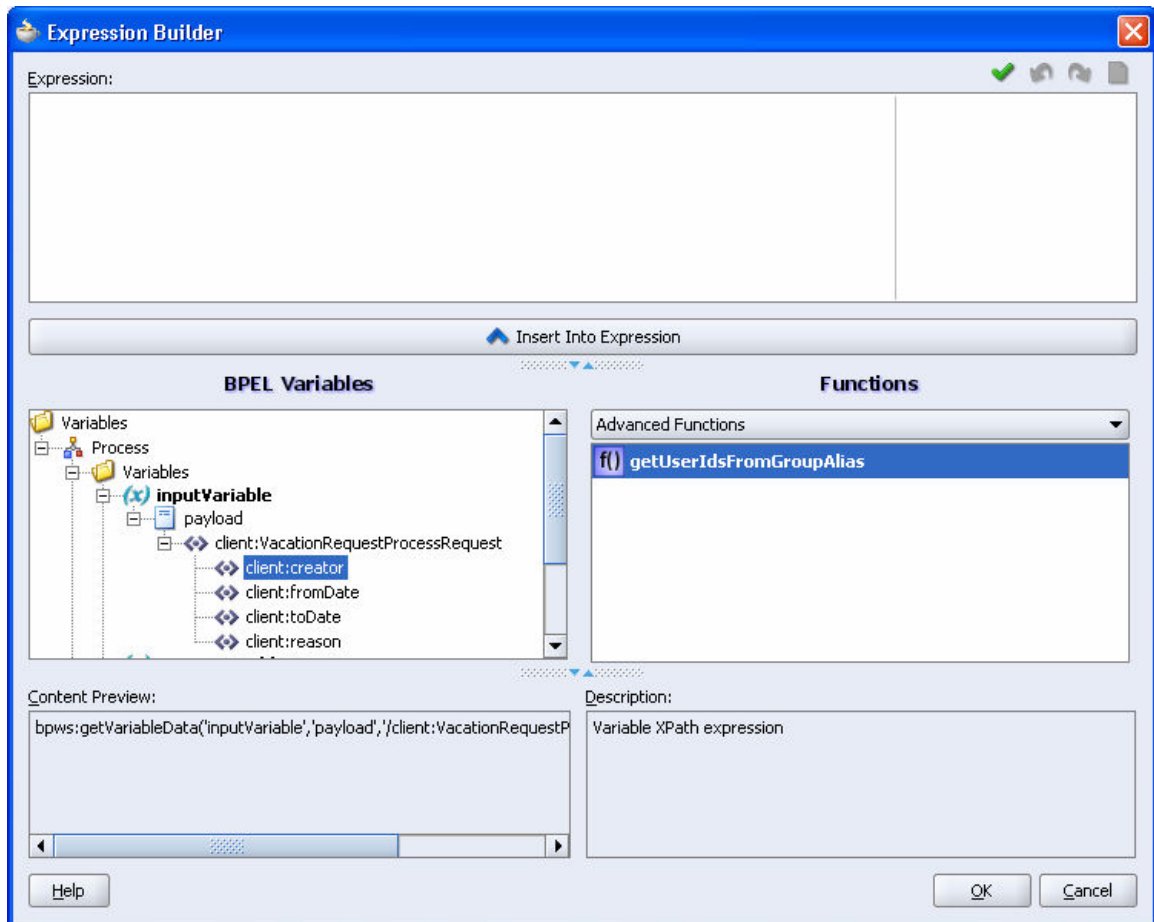
1. Now, go back to the VacationRequest.bpel pane. You will see the Human task activity in the BPEL Process.



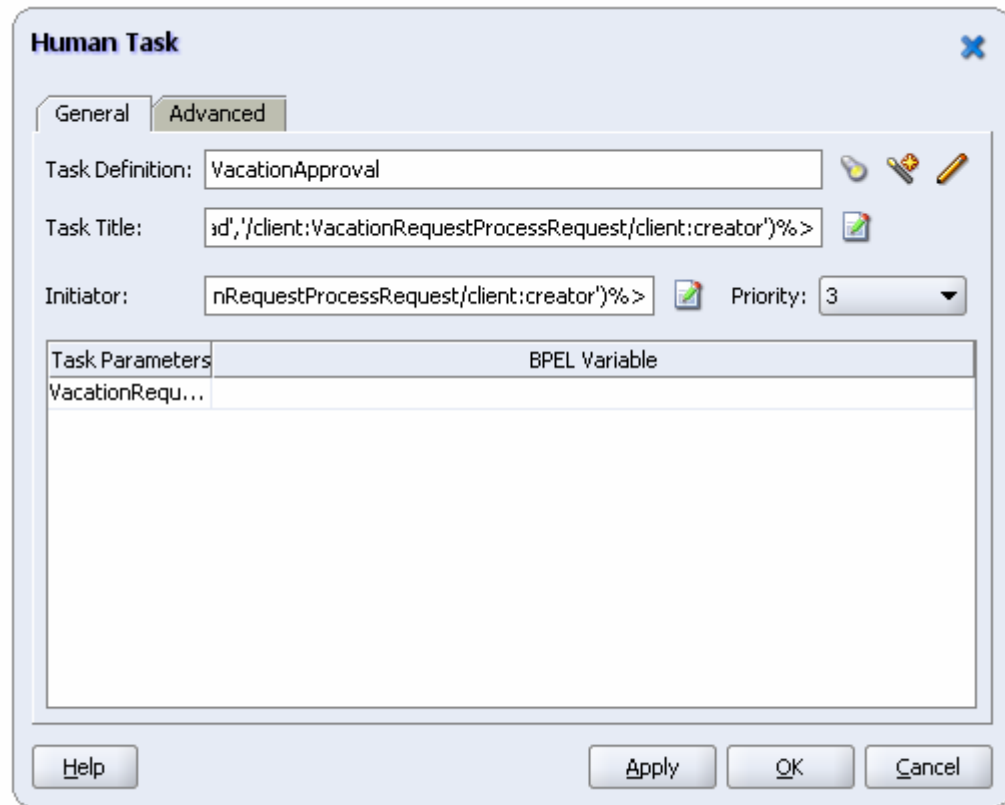
2. Double click on the “VacationApproval_1” scope. This will bring up the human task activity dialog.



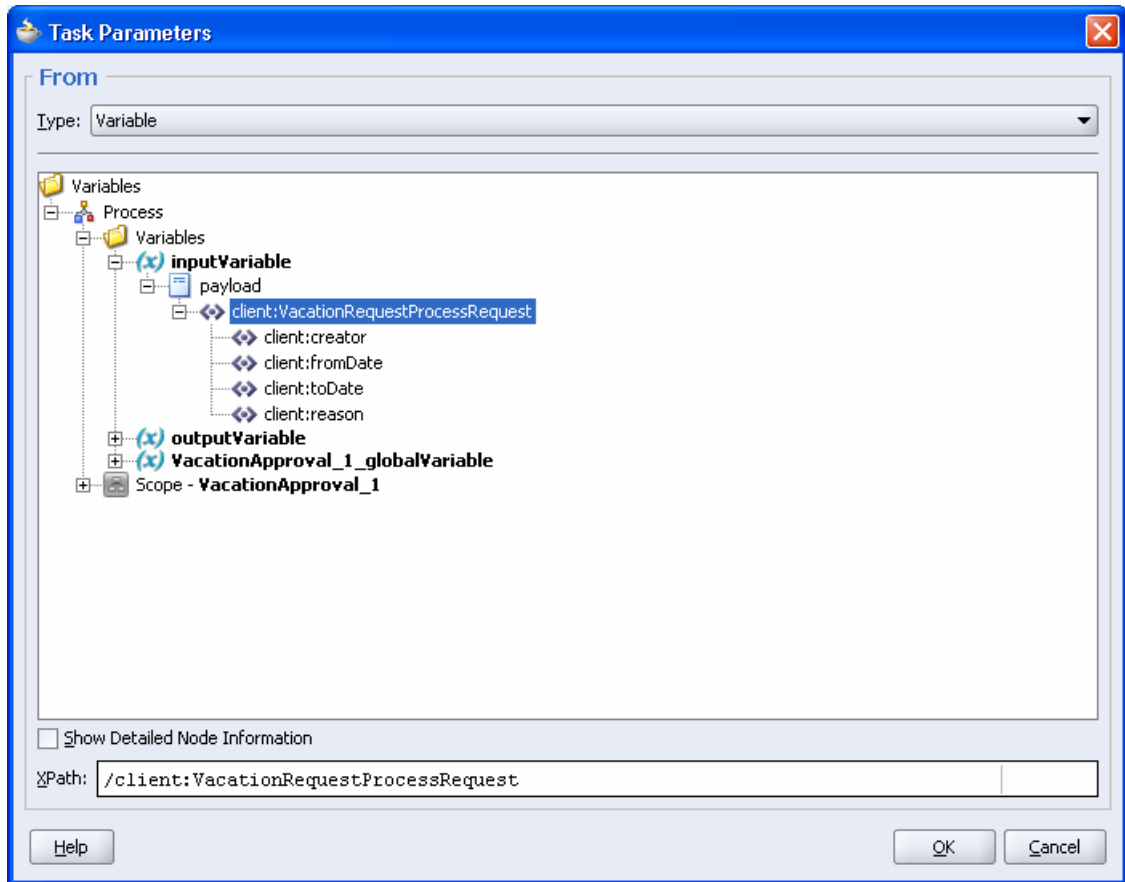
3. Now we have to map the fields to the variables in the BPEL Process.
4. For the task title – you can override the default title with some details from the process. Position your cursor after the “Vacation Approval” and type “ for” and then click on the “Edit icon” next to the title. This will bring up the Xpath editor. Expand the “inputVariable” and navigate to payload → VacationRequestProcessRequest → creator. Then double click on creator to paste the corresponding XPATH in the expression window. Then click OK.



5. For the Initiator field as well, click on the Edit icon and then do the same steps as above – Expand the “inputVariable” and navigate to payload → VacationRequestProcessRequest → creator. Then double click on creator to paste the corresponding XPATH in the expression window. Then click OK. The User activity dialog should now appear as follows:



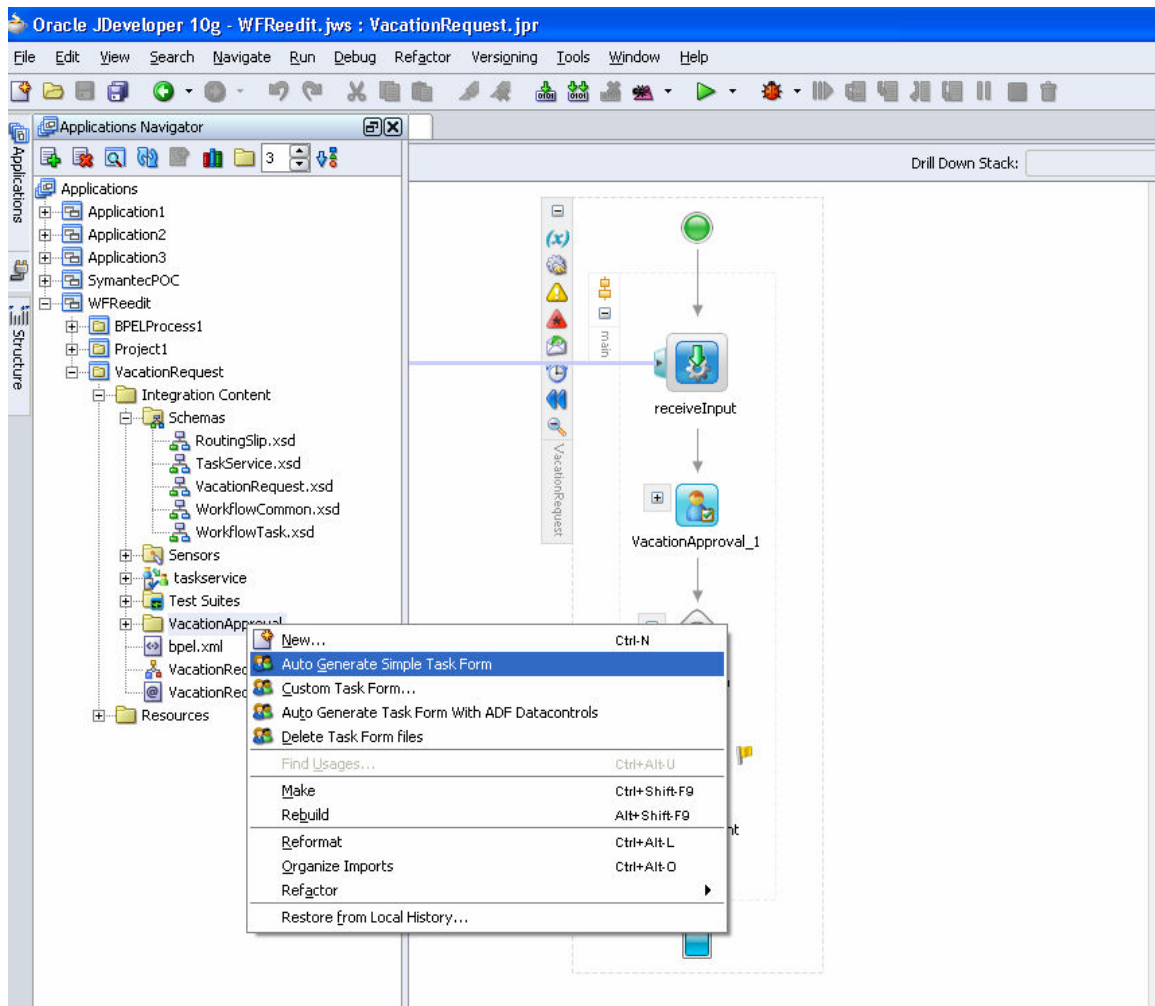
6. The next step is to map the VacationRequestProcessRequest task parameter to the appropriate BPEL variable. Click on the row with the VacationRequestProcessRequest parameter and then click on the flashlight in the BPEL variable column. This will bring up the variable browser. Navigate to inputVariable → payload → VacationRequestProcessRequest. Select VacationRequestProcessRequest and hit “OK”.



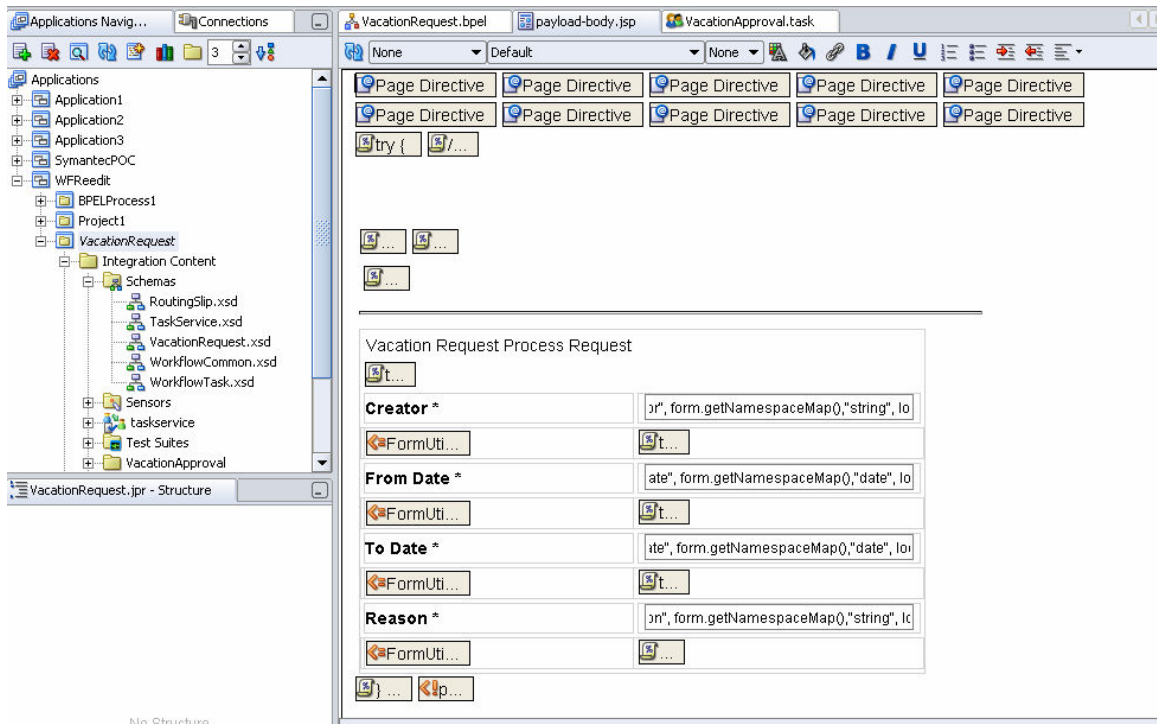
7. Click “OK” on the “Human Task” wizard.
8. Save the project.

Create Task Form for worklist

1. The next step is to create a Form for the task. In the Applications navigator in JDeveloper, navigate to the VacationApproval folder in the BPEL Process. Right click to see the form generation menu and click on “Auto Generate Simple Task Form”.

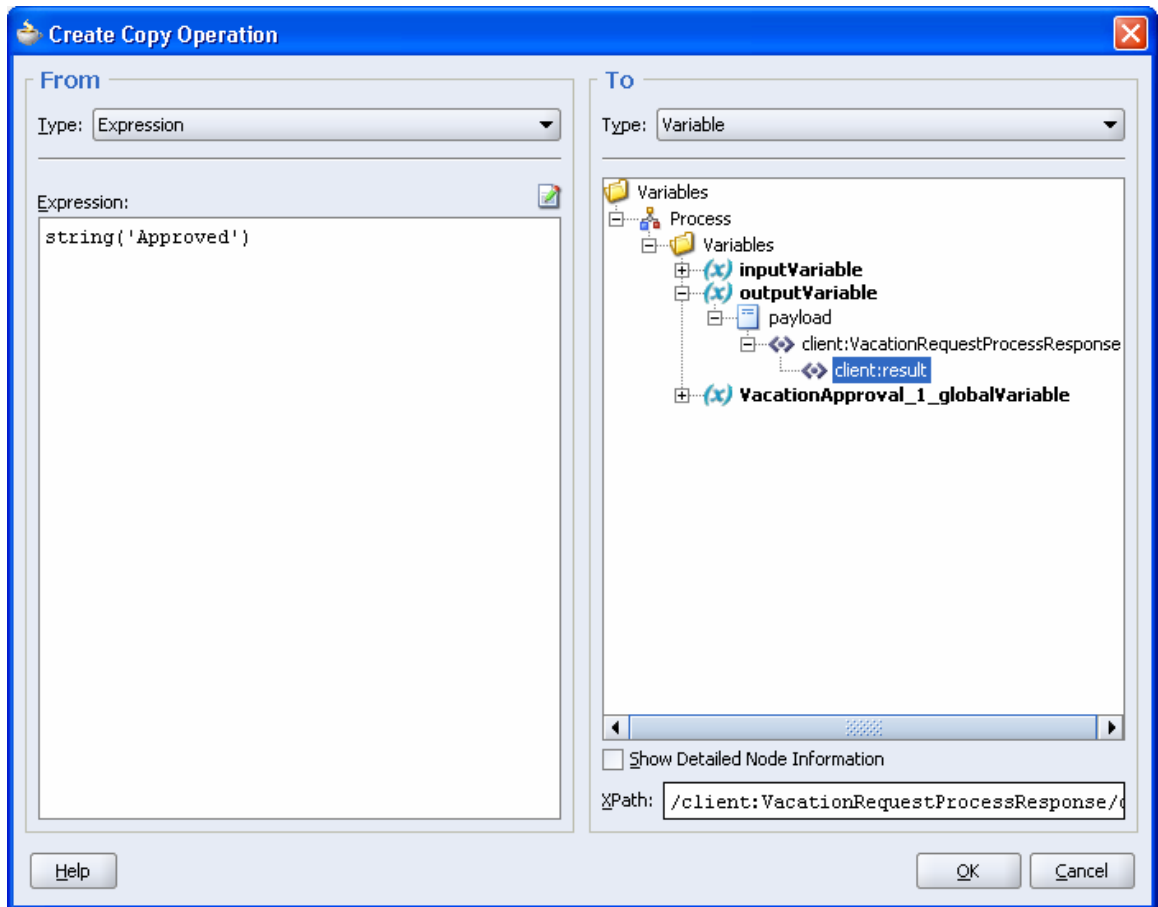


2. This will auto-generate a task form (payload-body.jsp) in the project.



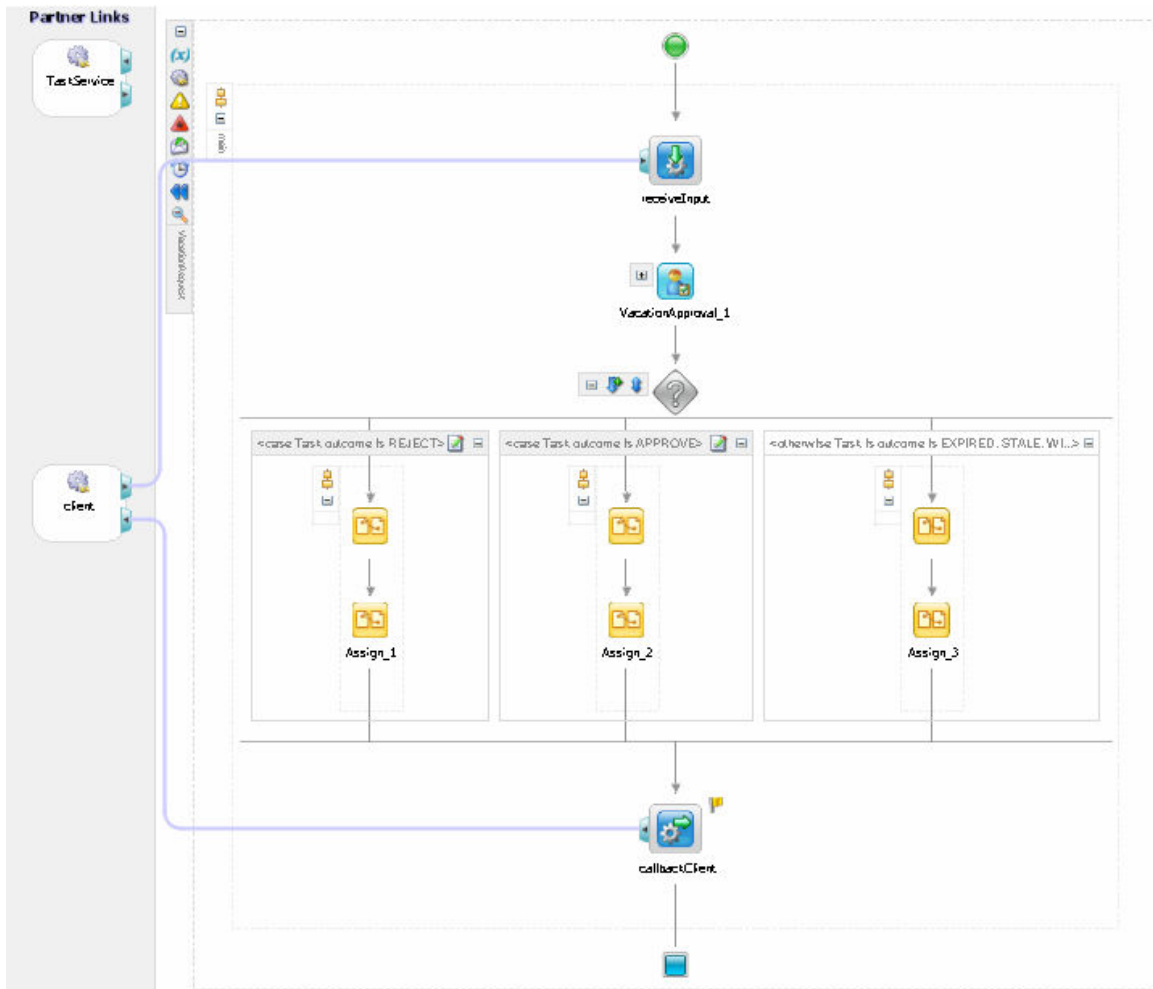
Complete process modeling with task outcome

1. Now if you go back to the VacationRequest.bpel process - on the canvas, there would be a scope and a switch activity. The switch activity has many cases in it. Each of the case statement represents the possible outcome specified (APPROVE and REJECT in this tutorial) and there is an otherwise section to represent any other conclusion of the task (errored, expired, etc.). Inside each of the case activities, you can add the activities to complete modeling the business process. By default, there is an assign activity named 'copyPayloadFromTask' in each of the branches. This assign copies the payload back to its source.
2. In the case for 'Task outcome is APPROVE', add an assign activity. Double click on the assign to bring up the wizard and click on create to create a copy rule. In the dialog
 - a. In the "From" section, select expression and type in string('Approved').
 - b. In the "To" section
 - i. Select the variable 'outputVariable'
 - ii. Select the part "payload"
 - iii. Set the expression to be
 /client:VacationRequestProcessResponse/client:result



3. There are two more branches in the switch – a case for REJECT (for conclusion = REJECT) and otherwise (to represent the task being withdrawn, errored, etc.). In both these branches, add an assign activity with copy rule as done previously for the ACCEPT case but set the expression to `string('Rejected')`

The business process modeling is completed. The process can now be deployed and tested. The BPEL process would look similar to the screen shot below.



Deploy the process

1. The final step is to deploy the process. In the application navigator, right click on the BPEL project and select

Running the Sample

When the process is deployed, test by doing the following:

1. Login to the BPEL console for your server, select the VacationRequest process, and go to the 'initiate' tab.
2. Enter "jcooper" for the "creator" of the vacation. Enter appropriate values for "fromDate", "toDate" and "reason".
3. Examine the flow of the generated instance - notice it is still waiting for a response from the Workflow service.

4. Login to the workflow UI at: <http://localhost:9700/integration/worklistapp/Login>, as 'jstein' with the password "welcome1". "jstein" is the manager of "jcooper" and hence the task is assigned to him.
5. There should be a task assigned to "jstein". Click on the task link to go to the task details page to view the task details and payload information.
6. Select "Approve" on the details page and hit "Go".
7. Go back to the BPEL console, and confirm the VacationRequest process has now completed.