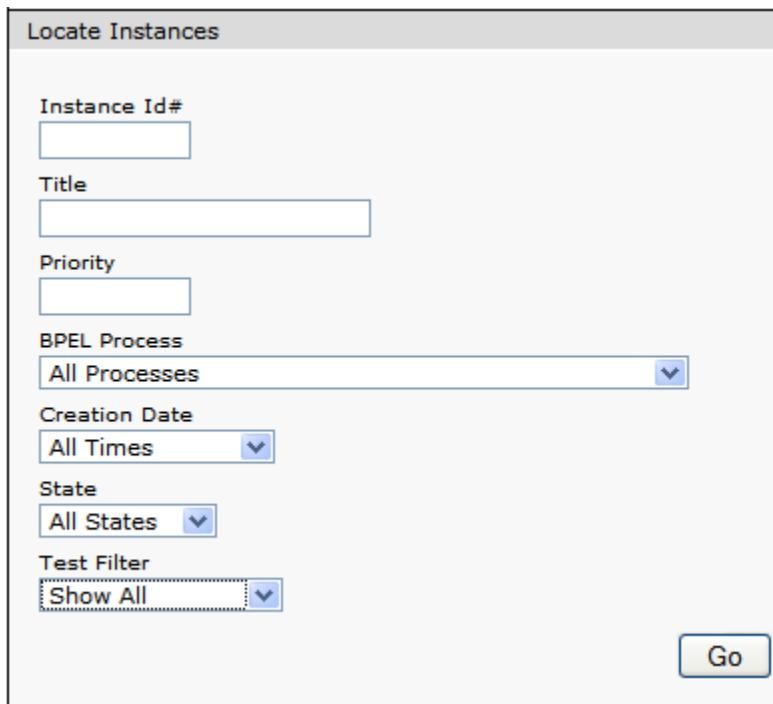# Searching BPEL Process Instances Using Custom Business Key

- Peeyush Tugnawat, Senior Principal Consultant, Oracle Consulting

Out of the Box Search Capabilities

BPEL Console provides several out of the box features for searching the process instances using several search criteria. Following are the main search criteria that can be used:

All the above are very powerful features for process administration.

Enterprise Integrations and Support

Enterprise integrations deal with business data and transactions. These integrations often have interactions between multiple layers. In case of a failed transaction at any layer, the support function personals can spend a great deal of time and energy on finding the issue and troubleshooting it. I wrote about this in one of my previous post "Service Oriented approach for ERP integration".

Now imagine a use case where thousands of messages are being processed every minute. Searching by some of the default criteria's can result in multiple search results.

Lets take an example.

Custom Search Requirement Example

Lets assume that there is a BPEL process that processes orders in Oracle E-Business Suite. The order details are coming from an external application that is used by end users which in turn publishes to a JMS queue. The BPEL process picks up from the JMS queue and creates an Order in the EBS with the Order Number that comes from the message.

In the above example, if the end application does not receive an order confirmation, you can imagine there can be many reasons for that. One of them could be that the bpel process instance failed for some reason.

When it comes to tracking that order, the end application support will most likely call the support and mention that for this particular order (along with some sort of business key like the order number) there was no confirmation received.

In a production environment, there may be thousands of process instances. For our bpel support person to browse through the instances just by time can also take some time. But for him to be able to search the process instance by using a business key can prove to be extremely useful.

So the question from business user and administrator becomes

Can I search by Order Number?

The answer is YES.

Is there a simple way to do it?

Any one who has worked with application integration can relate to it and would agree with it. Now the question is ***"Is there a simple way to do it?"***
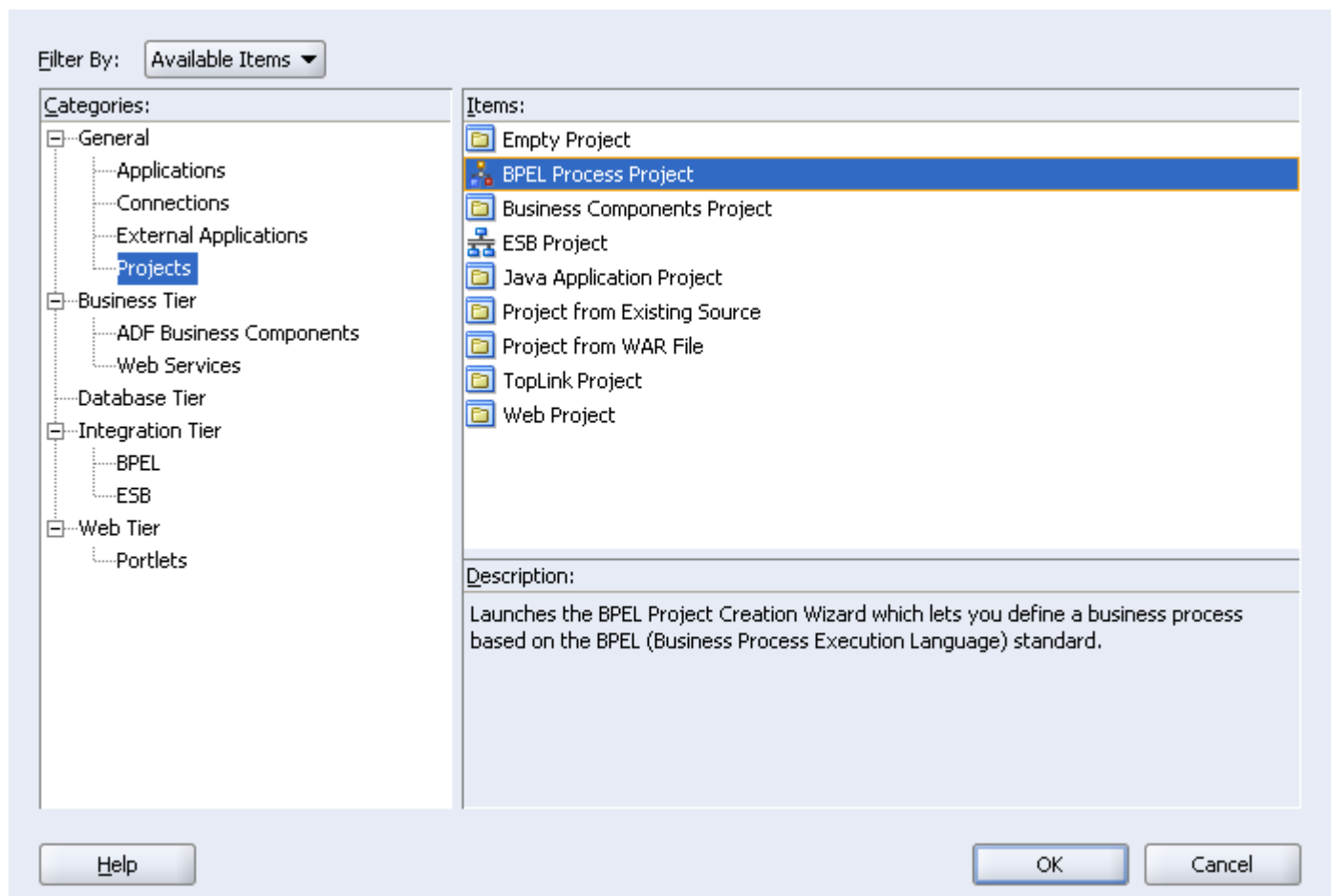
The answer is YES.

Let's Do It

Let's build one simple bpel process from scratch and find out how can we achieve this highly desirable functionality
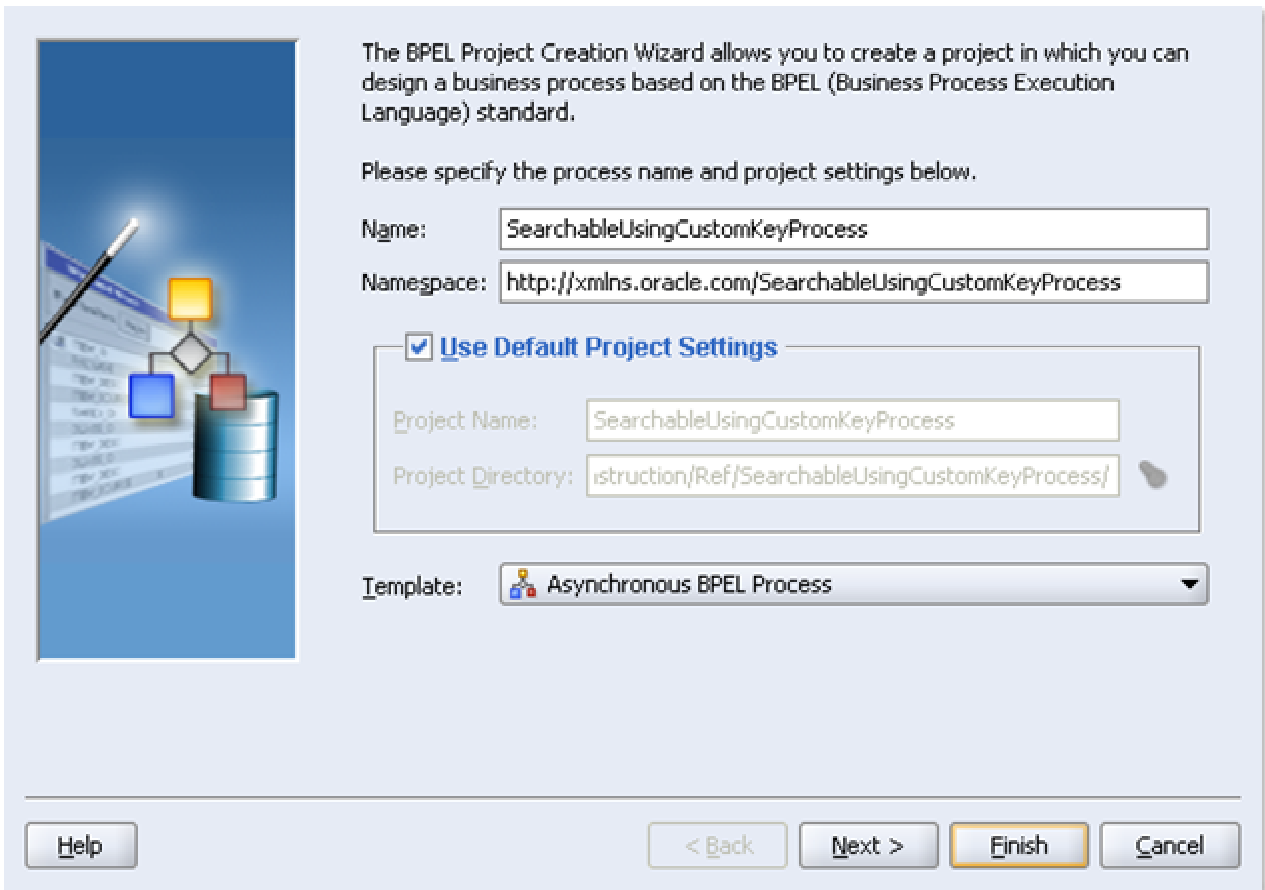

Step 1

Right Click on your application and select "New Project" option
Select BPEL Process Project

Step 2

Name the process "SearchableUsingCustomKeyProcess"

Step 3

For simplicity we will proceed with the default option

The default input and output elements created by the BPEL Project Creation Wizard are listed below, you can browse elements from other schemas to change the default values.

Input Schema Element: SearchableUsingCustomKeyProcessProcessRequest

Output Schema Element: earchableUsingCustomKeyProcessProcessResponse

Help   < Back   Next >   Finish   Cancel

Step 4

So now we have a skeleton asynchronous BPEL process
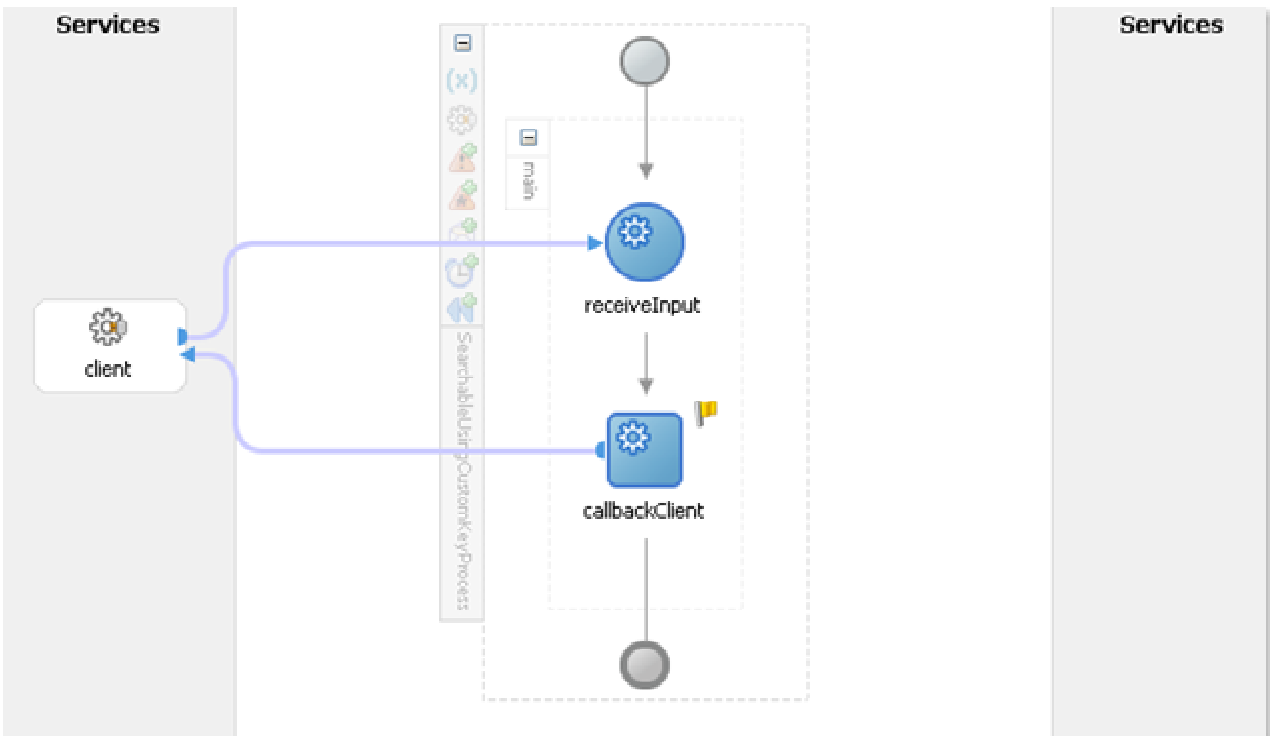
Step 5

Click on SearchableUsingCustomKeyProcess.xsd

Change the name of the input to orderNumber

Step 6

Drag and drop a Java Embedding activity from the Process Activities drop down on right hand side
Name it "JavaEmbeddingToSetProcessTitle"
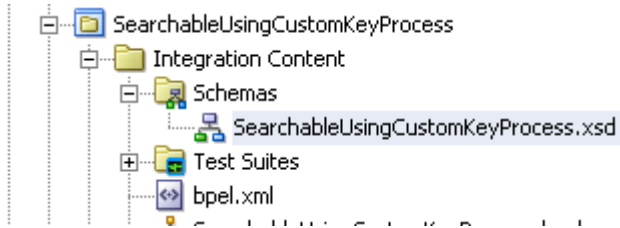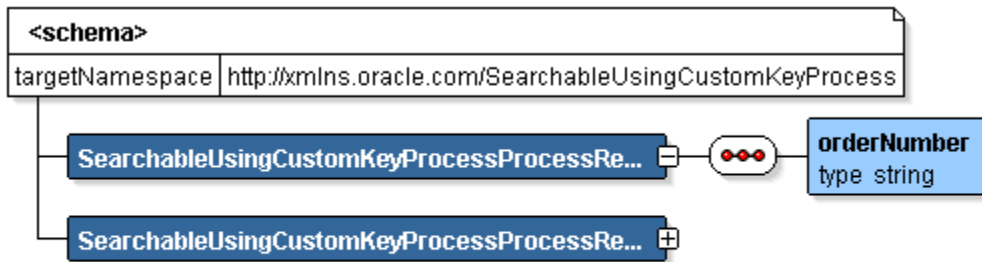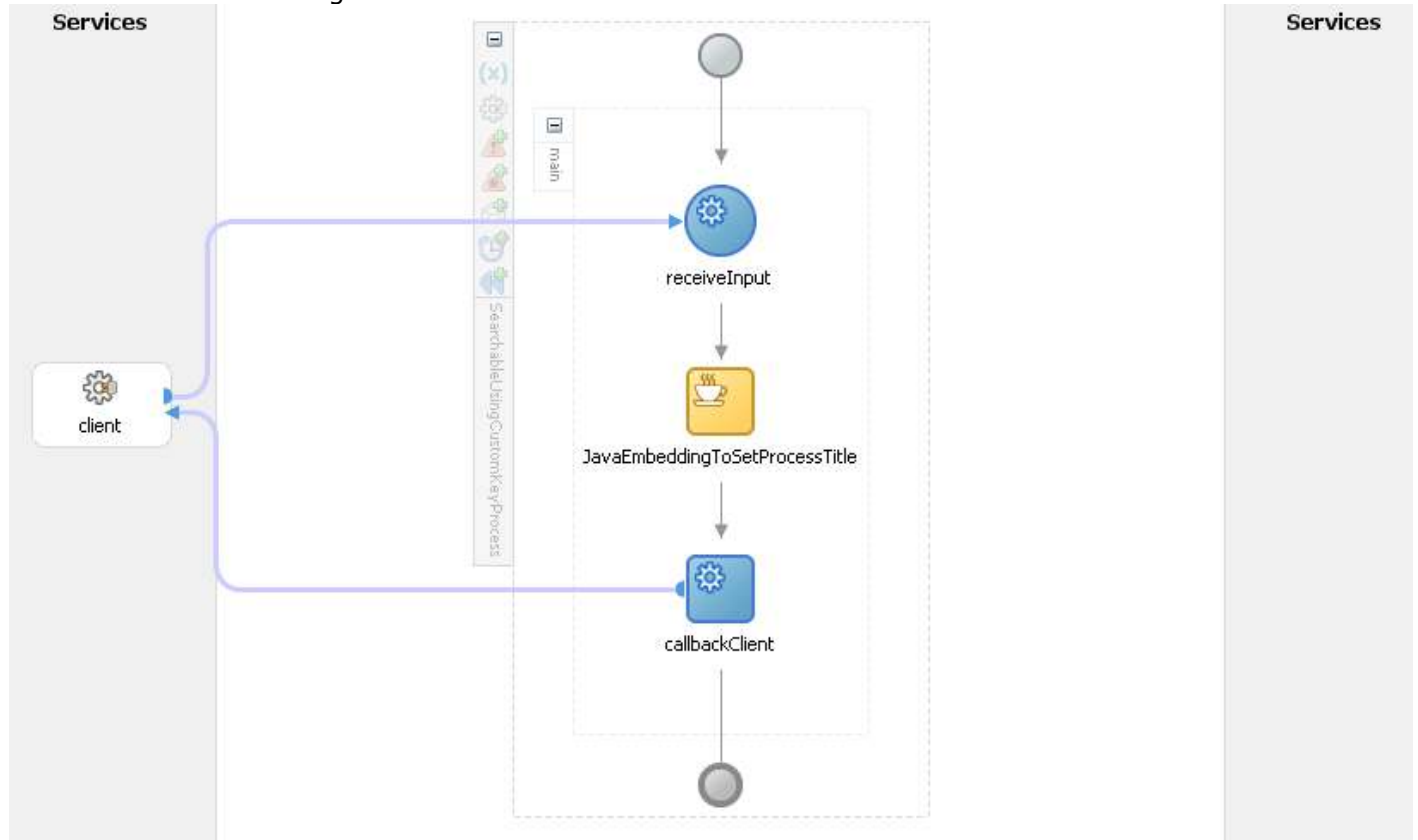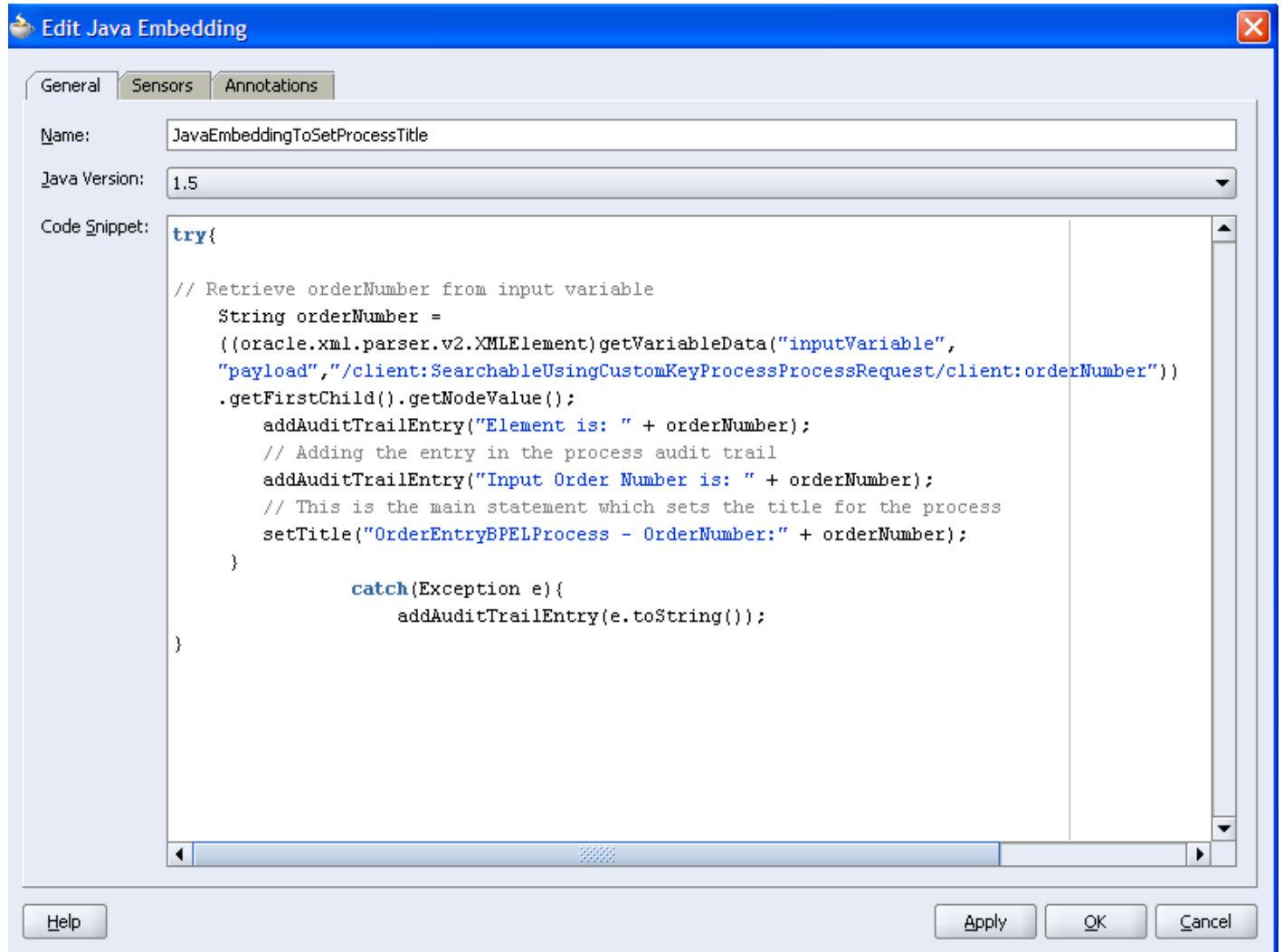
Step 7

Double click Java Embedding you just added

Add the following code


```
Edit Java Embedding

General   Sensors   Annotations

Name:          JavaEmbeddingToSetProcessTitle
Java Version:  1.5
Code Snippet:
try{

// Retrieve orderNumber from input variable
    String orderNumber =
    ((oracle.xml.parser.v2.XMLElement)getVariableData("inputVariable",
    "payload","/client:SearchableUsingCustomKeyProcessProcessRequest/client:orderNumber"))
    .getFirstChild().getNodeValue();
        addAuditTrailEntry("Element is: " + orderNumber);
        // Adding the entry in the process audit trail
        addAuditTrailEntry("Input Order Number is: " + orderNumber);
        // This is the main statement which sets the title for the process
        setTitle("OrderEntryBPELProcess - OrderNumber:" + orderNumber);
    }
                catch(Exception e){
                    addAuditTrailEntry(e.toString());
}

                                              Help    Apply    OK    Cancel
```

Step 8

Deploy the process on server

Step 9

Initiate the process from BPEL console with "1001" as input to the orderNumber field

Notice the instance title is different than the process name. This is because of the setTitle statement in our Java Embedding.

List of BPEL Process Instances 1 - 20

Instance	BPEL Process	Last Modified ↑
✔ 380003 : OrderEntryBPELProcess - OrderNumber:1001	SearchableUsingCustomKeyProcess (v. 1.0)	2/4/09 11:06:25 AM

Activity Audit Trail - Mozilla Firefox

http://ptugnawa-us.us.oracle.com/BPELConsole/default/dlgElementDetails.jsp

☕ **No Label**

[2009/02/04 11:37:11]
Element is: 1001

[2009/02/04 11:37:11]
Input Order Number is: 1001

[2009/02/04 11:37:11]
bpelx:exec executed

Step 10

Let's see if we can search by our custom field (order number) that we want to search for out of many bpel process intances in the console

Click on Instances

Now put the following into the Title field under Locate Instances and click "Go"

"OrderEntryBPELProcess - OrderNumber:1001"

Locate Instances

Instance Id#

Title

'rocess - OrderNumber:1001

Priority

BPEL Process

All Processes

Creation Date

All Times

State

All States

Test Filter

Show All

Go

Notice how we are able to search for our particular order number (1001).

You can search for other order numbers easily by just replacing the end of the string with the order number. For example searching for the following string within the title field will search for order number "2001"

"OrderEntryBPELProcess - OrderNumber:2001"

Summary

Requirements related to searching for a process instance in BPEL console by using a custom field could be addressed by the approach demonstrated in this post.

This example demonstrates that it can be done and it can be done easily.