DocuShare® Enterprise Workflow
Example 9

Using DSBranchTask

Introduction

This example demonstrates how to use the `DSBranchCallback` interface. This interface allows the developer to provide his/her own evaluation for the branch condition of the `DSBranchTask`. This exercise demonstrates a sample `DSBranchCallback` implementation that scans its predecessor tasks for their “For Approval” replies and sends an approval notification message if at least two approved and sends a rejection notification message otherwise.

Installation

1) Package the callback classes in a JAR file (for example, `custom.jar`) and include the JAR file in the WorkflowServer’s classpath in `<DS_HOME>\config\Monitor.xml`.

   Note: This example already comes with prepackaged callback classes (`custom.jar`). You need not do anything unless you modify the callback classes.

   ```
   <Server>
      <Name>WorkflowServer</Name>
      <JavaServer>
         <JavaServerParam>
            <StartJVMClassPath>
               …;+DSH+\drala\dwe\lib\custom.jar
            </StartJVMClassPath>
         </JavaServerParam>
      </JavaServer>
   </Server>
   ```

2) Add the `custom.jar` to the `classpath` in `start_studio.bat/sh` and `start_manager.bat/sh` scripts located in the `<DS_HOME>\drala\dwe\bin` directory.

3) Ensure that DocuShare server is licensed with Full Workflow Service license features. This can be verified by checking in the *Site Management->License* page in the DocuShare administration console.

Deploying the Workflow

There are two ways to deploy the workflow.

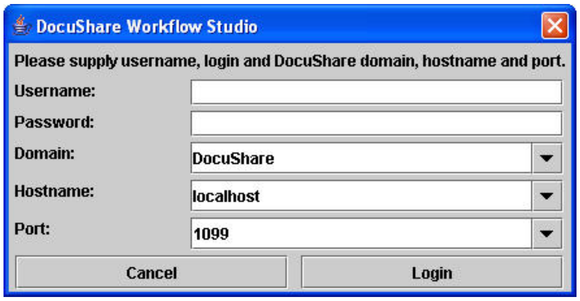
1) Using the Workflow Studio to manually go through the exercise of building this workflow and deploying it.

2) Opening the saved workflow file using workflow studio (easiest). *See Appendix A*.

Using the Workflow Studio to Create and Deploy the Workflow

1) Start up the Enterprise Workflow Studio application by running `<DS_HOME>\drala\dwe\ bin\start_studio.bat` in Windows or `start_studio.sh` in Linux or Solaris. Then login as a DocuShare administrator or content administrator.

   Since we are assigning and removing rights to a certain users, we need a user who has these access privileges to deploy the workflow.



Please supply username, login and DocuShare domain, hostname and port.

Username:

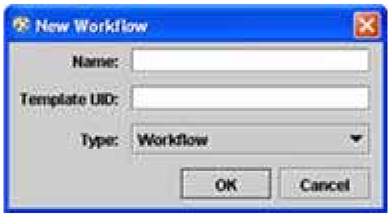
Password:

Domain: DocuShare

Hostname: localhost

Port: 1099

2) Upon successfully logging in, you should see the workflow studio application. Using the menu, create a `Document Routing Workflow` (*File->New Workflow->Document Routing Workflow*)



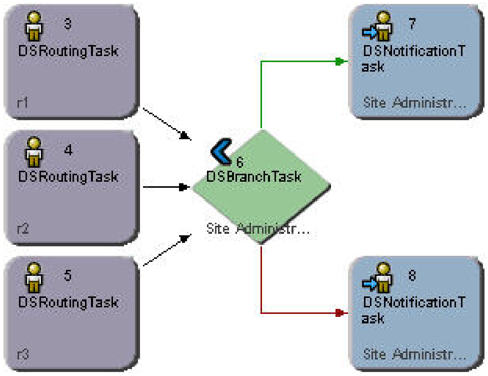
Name:

Template UID:

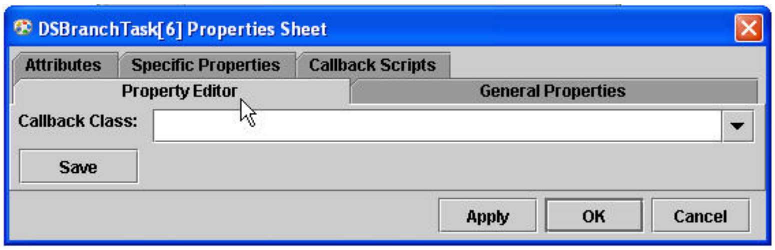
Type: Workflow

   with three `DSRoutingTask`, a `DSBranchTask` and two `DSNotificationTask` instances. To do this, click on the button, on the right hand side of the Workflow Studio window that corresponds to the item you want added and then click on an empty spot in the workspace.

   Connect the objects as shown in the figure below by dragging your mouse from one object to another.

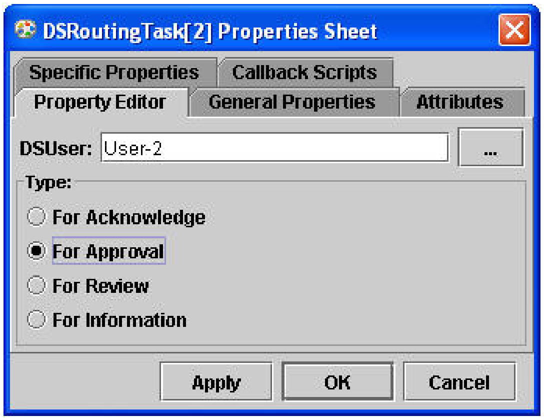


3) Double click on the `DSBranchTask` and enter the callback class that you want executed for this event. In this exercise, we will use a prewritten callback class called `my.workflow.ex9.BranchCallback`. *Click Save* then *Ok*.



For more information on what this callback class does, *see* `<DS_HOME>\drala\dwe\custom\src\my\workflow\ex9\BranchCallback.java`

4) Double click on one of the `DSRoutingTask` instance to open the property sheet, go to the *Property Editor* tab, and fill in the values for the *DSUser* and *Type* field. Set the *Type* field to “For Approval”. Set the *DSUser* field to the person you’re assigning the task to. The *Document Handle* field should contain the handle to the document you’d want to route.



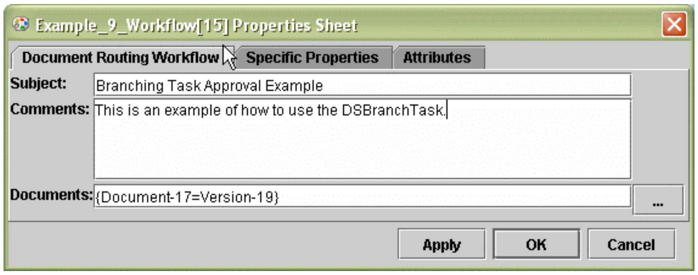
DSUser: User-2

Type:

○ For Acknowledge
● For Approval
○ For Review
○ For Information

Go to the two remaining `DSRoutingTask` instance and set their *DSUser* field to other users that have not been used. Also, set their *Type* field to "For Approval".

5) From the menu bar, go to *Edit->Workflow Properties…* and type in text in the Subject field. Then select a document version to be routed. Click on Apply then OK when you're done.

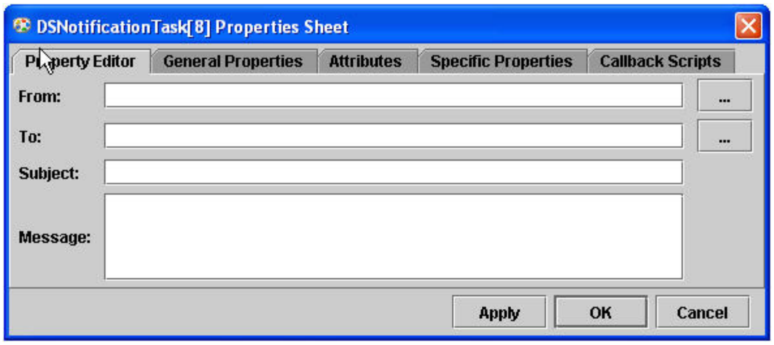

Example_9_Workflow[15] Properties Sheet
Document Routing Workflow
Specific Properties
Attributes
...
Apply
OK
Cancel

Subject: Branching Task Approval Example

Comments: This is an example of how to use the DSBranchTask.

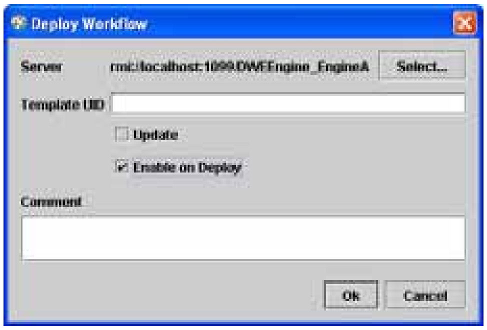
Documents: {Document-17=Version-19}

6) Double click on `DSNotificationTask` instance that's connected to the DSBranchTask by a green link (or true link). Fill in the desired values. This notification message will be sent when the `DSBranchTask` callback returns a `true` value – in this case, when at least two people approved.



Do the same thing to the other `DSNotificationTask` instance connected to the `false` branch. This will be the rejection message.

7) Now you are finally ready to deploy the workflow!   Select *Tools->Deploy Workflow* from the menu bar. You should see the Deploy Workflow dialog.



Server rmi://localhost:1099/DWFEngine_EngineA

☐ Update

☑ Enable on Deploy

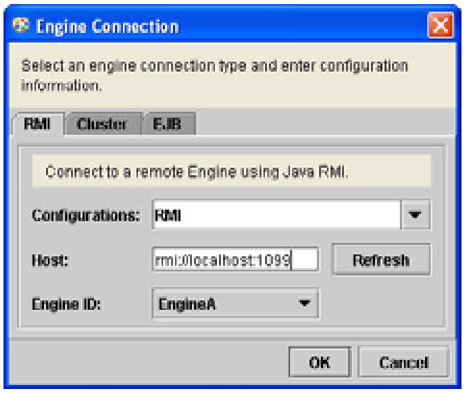
Click on the *Select* button to select the workflow engine you want to connect to. In the Host field, type in the connection string in the following format: `rmi://<hostname>:<rmi_port>` (*example:* rmi://localhost:1099) then C*lick OK*.

Enter a Template UID to identify this template. The following are deployment options for the template:

- ***Update****:* Check this checkbox if you want to update or deploy a new version of an existing template. If this is the first time you're deploying the template leave this box unchecked.
- ***Enable on Deploy****:* This checkbox determines whether the deployed template is instantiable or not. Check this box if you want to be able to create a workflow out of the template and run it.

8) Start up the Workflow Manager application by running `<DS_HOME>\drala\dwe\bin\start_manager.bat` in Windows or `start_manager.sh` in Linux or Solaris. Then login as a DocuShare administrator or content administrator.

9) Select *File->Connect…* from the menu bar then select the RMI tab, from the resulting Engine Connection dialog, and edit the "Host" field to reflect your environment. Click on the *OK* button when you are done.



Select an engine connection type and enter configuration information.

Connect to a remote Engine using Java RMI.

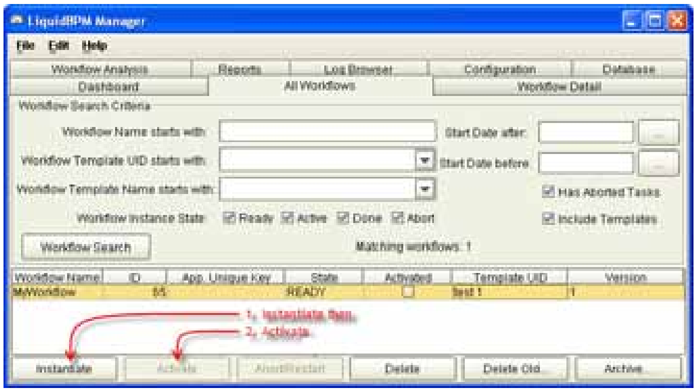
Configurations: RMI

Host: rmi://localhost:1099

Engine ID: EngineA

10) Select the "All Workflows" tab, check the Include Templates checkbox and then click on the Workflow Search button. You should see the workflow template you've just deployed.

11) Select the deployed workflow template; click on the *Instantiate* button then the *Activate* button. You should see a running workflow at this point.



Workflow Search Criteria

Workflow Name starts with:

Workflow Template UID starts with:

Workflow Template Name starts with:

Start Date after:

Start Date before:

Workflow Instance State: ☑ Ready ☑ Active ☑ Done ☑ Abort

☑ Has Aborted Tasks

☑ Include Templates

Matching workflows: 1

Workflow Name	ID	App. Unique Key	State	Activated	Template UID	Version
MyWorkflow	65		READY	□	test 1	1

1. Instantiate then,
2. Activate

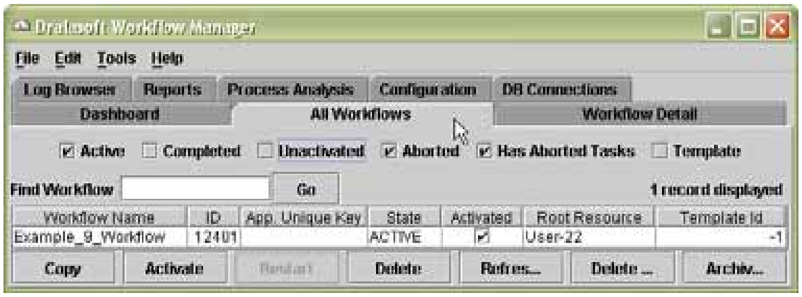
Summary

So what have we done? We have deployed a workflow with tasks assigned to three people. When the task arrives in the `DSBranchCallback`, the callback implementation will scan its predecessor tasks and count how many approved. If more than two people approved the callback returns true, otherwise false. In addition, an approval or rejection notification will also be sent.

For more information about the callback, *see* `<DS_HOME>\drala\dwe\custom\src\my\workflow\ex9\BranchCallback.java`

Testing

1) Deploy the workflow then go to the Workflow Manager and click on the *All Workflows* tab. You should see a list of workflows including the one that you just deployed.



☑ Active □ Completed □ Unactivated ☑ Aborted ☑ Has Aborted Tasks □ Template

Find Workflow

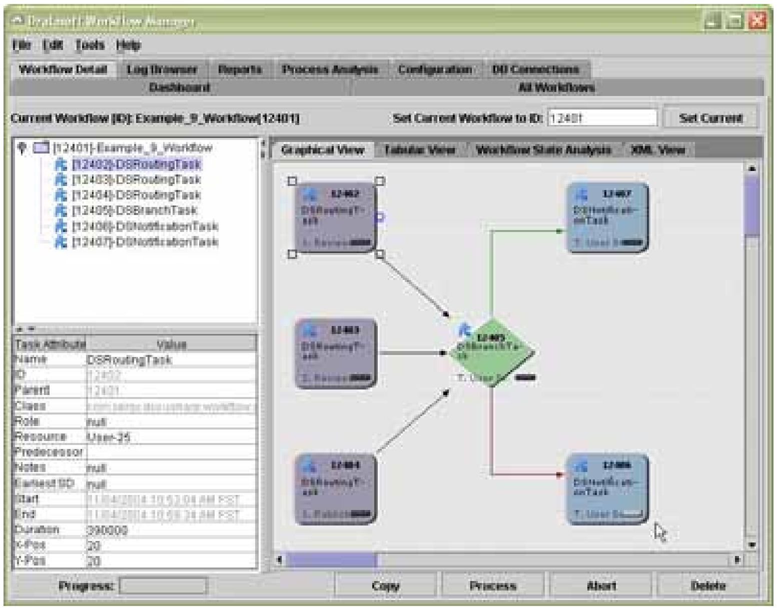
1 record displayed

Workflow Name	ID	App. Unique Key	State	Activated	Root Resource	Template Id
Example_9_Workflow	12401		ACTIVE	☑	User-22	-1

2) Double click on the workflow that you just deployed. You will see that the entire approval tasks are active – indicated by the green status indicator. The other tasks are in ready status – indicated by the blue status indicator. As each active task is completed, the status indicator changes from green to dark gray to indicate that the task is done.

3) Login as the resource assigned to each task and approve or disapprove the assigned task. Observe the status indicator of each task in Workflow Manager as you go on. In the figure below, the notification task below the `DSBranchTask` (false node) is grayed (light gray) out, indicating that the task is "passive" – meaning, the task is not considered required for the workflow to complete. The other notification task, however, is in the "done" state.

   In this example test run, you will see that `DSBranchTask` callback returned true just by looking at the status indicator in each task. Obviously, because it returned true the branch connected to the false node becomes irrelevant, that's why it's in a passive state.



Current Workflow [ID]: Example_9_Workflow[12401]

Set Current Workflow to ID: 12401

[12401]-Example_9_Workflow
[12402]-DSRoutingTask
[12403]-DSRoutingTask
[12404]-DSRoutingTask
[12405]-DSBranchTask
[12406]-DSNotificationTask
[12407]-DSNotificationTask

Task Attribute	Value
Name	DSRoutingTask
ID	12402
Parent	12401
Class	com.xerox.docushare.workflow.
Role	null
Resource	User-25
Predecessor	
Notes	null
Earliest SD	null
Start	11/04/2004 10:53:04 AM PST
End	11/04/2004 10:59:34 AM PST
Duration	390000
X-Pos	20
Y-Pos	20

Appendix A

Importing and Deploying an XML file Using Workflow Studio

1. Launch the Workflow Studio application

2. Go to *File->Open Workflow…* and browse to the location of example 9: `<DS_HOME>\drala\dwe\custom\src\my\workflow\ex9\Example_9_Workflow_Template.xml.`

3. Select the desired workflow file then click on Open. The workflow should appear in your workspace.

4. Go to the Attributes tab for all the tasks and make sure that they have the required values as stated the *Using the Workflow Studio to Create and Deploy the Workflow* section.

5. Follow the workflow deployment instructions in step 7 – 11 of the *"Using the Workflow Studio to Create and Deploy the Workflow"* section.