Lesson: External database integration

Overview

Why is this lesson important to you?

You are designing an IBM FileNet BPM solution. At a step in your workflow, you need to execute a stored procedure in an external database in order to integrate information contained in the database with the workflow process. You must add a DbExecute step to your workflow. You must test the workflow to verify the changes.

Activities

- Use information from an external database in a workflow: Challenge
- Use information from an external database in a workflow: Walkthrough

Requirements

The activities in this unit assume that you have access to the student system configured for these activities.

Virtual student system

Connect to your student system to complete these lab activities. See the Readme First file on the Materials tab if you need instructions to connect to the student system.

System startup and system check

IBM FileNet P8 software services on your student system must be started. If you have not already started the IBM FileNet P8 software on your system, do the procedures in *Appendix A: System startup and system check* before proceeding with the lessons in this unit.

Perform a system check whenever you start up an IBM FileNet P8 system or start working on a system that is in an unknown state. These activities assume that you have performed a system check when you begin an activity session.

Read this first

Before attempting these unit activities, you must successfully complete all procedures in Unit 2 *Workflow Infrastructure*, Lesson 2.1 Region

structures. All remaining lessons in this course require specific region data structures to already be configured.

Important

If you successfully completed Unit 2 Lesson 2.1 Region structures, skip the following steps and proceed with this unit.

If you did **not** successfully complete Unit 2 Lesson 2.1, do the following steps:

1. On your student Windows XP system, log in to FileNet Workplace XT using the p8admin user account listed in the "Lesson Overview" section.
2. In Workplace XT, click Tools > Administration > Process Configuration Console.
3. Double-click the PELoanRegion[8] node to connect to the region.
4. Click Action > Import from XML file.
5. Click Browse and open the following file: C:\Labs\F145\Solutions\Infrastructure\PELoanRegion8_ConfigStart.xml
6. Select the Overwrite option.
7. Click Import.
8. Click Yes in the confirmation window.
9. Click Close.
10. Click File > Exit and close the applet window.
11. Log out of Workplace XT and close the browser.

User accounts

Type	User ID	Password
FileNet Workplace XT	p8admin	IBMFileNetP8

Note

Passwords are always case-sensitive. User names are not case-senitive. Many user names use only lowercase letters on the student system.

Use information from an external database in a workflow: Challenge

Challenge

In a prepared workflow collection, add a new DbExecute system step to be executed before the existing Get Rate and Payment queue step on the Prepare Loan Map submap. Modify the existing Get Rate and Payment queue step. Add an Assignment After Completion to the Verify Information step. Use the data in the table to complete this activity.

Data

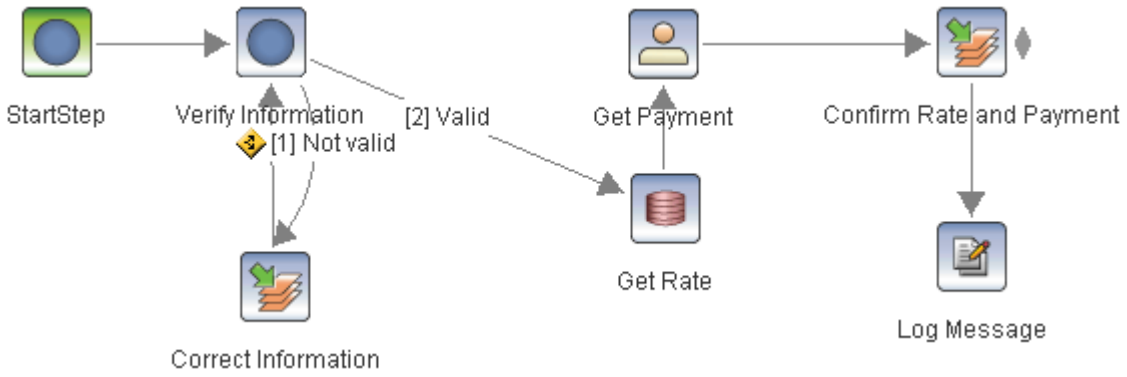
Item	Value
Prepared workflow definition file	C:\Labs\F145\Components\Loan Processing Collection - Database Start.xpdl
File name in the Object Store	LoanProcess > Workflows > Loan Processing Collection - Database

Get Rate step parameters	• Database Connection Alias: `LoanInfoDB`
	• Procedure Name: `GetInterestRate`
	• Parameters
	  - #1: `loan_amount`
	  - #2: `loan_term`
	  - #3: `large_loan`
	  - #4: `interest_rate`

Get Rate and Payment step parameters	• Name: `Get Payment` • Selected Parameters: interest_rate [Read]
Workflow Data Field	• Name: `large_loan` • Type: `Boolean` • Expression: `false`
Assignment After Completion of Verify Information step	• Name: large_loan • Expression: `if(loan_amount > MAX_AMOUNT, true, false)`

Verification

- You must launch and process the workflow through to completion.
- Prepare Loan Map must look similar to the following diagram. This diagram includes a DbExecute system step named Get Rate.



Use information from an external database in a workflow: Walkthrough

Introduction

This exercise gives you practice in using a database stored procedure in a workflow definition.

Procedure 1: Use a DbExecute system step

1. On your student Windows XP system, log in to FileNet Workplace XT using the p8admin user account listed in the "Lesson Overview" section.
2. Open a prepared workflow definition file.
   a. In Workplace XT, click Tools > Advanced Tools > Process Designer.
   b. Click File > Open.
   c. Locate and open the following file:

      C:\Labs\F145\Components\Loan Processing Collection - Database Start.xpdl

   d. Explore the workflow definition to familiarize yourself with the process flow and notice the following items:
      - This workflow collection is for loan processing and is similar to the one that you worked with in previous units. In this exercise, you work only with the main workflow named Loan Processing - Database.
      - The Workflow map contains three submap steps.
      - The Process Loan and Complete Loan submap steps are assigned to the EMPTY MAP submap, which contains no steps. Therefore, the Process Loan Map and Complete Loan Map submaps are not executed. You work only with the Prepare Loan Map submap in this activity. This technique is used to save time when you test the workflow.
      - The main workflow name property has the value Loan Processing - Database.
3. Add a new workflow data field used to test for large loans.
   a. In Workflow Properties, click Data Fields.
   b. Add a new data field using the following information:
      - Name: `large_loan`
      - Type: `Boolean`
      - Expression: `false`
4. Add a DbExecute system step.

   You add a DbExecute system step to the Prepare Loan Map submap. A database connection alias to an existing DB2 database named LoanInfoDB has already been

configured for you. The stored procedure named GetInterestRate returns an interest rate depending on the loan_term, loan_amount, and large_loan input parameters.

a. On the map toolbar, select Prepare Loan Map.

b. Drag a DbExecute step from the General System Palette onto the map and place it below the Get Rate and Payment step.

c. Assign the following step properties to the new system step.

- Step Name: `Get Rate`
- Database Connection Alias: `LoanInfoDB`
- Procedure Name: `GetInterestRate`
- Parameters:
  - #1: `loan_amount`
  - #2: `loan_term`
  - #3: `large_loan`
  - #4: `interest_rate`

Tip: After assigning the last parameter, be sure to tab off or press Enter to ensure that the last parameter is entered.

d. Right-click the Valid route and click Delete.

e. Draw a new route from the Verify Information step to the Get Rate step.

f. Assign the following route properties:

- Route Name: `Valid`
- Routing: Always true

g. Draw a new route from the Get Rate step to the Get Rate and Payment step.

5. Modify the Get Rate and Payment step.

a. Select the Get Rate and Payment step.

b. Modify the following step parameters:

- Step Name: `Get Payment`
- Selected Parameters: interest_rate [Read]

6. Assign the large_loan data field.

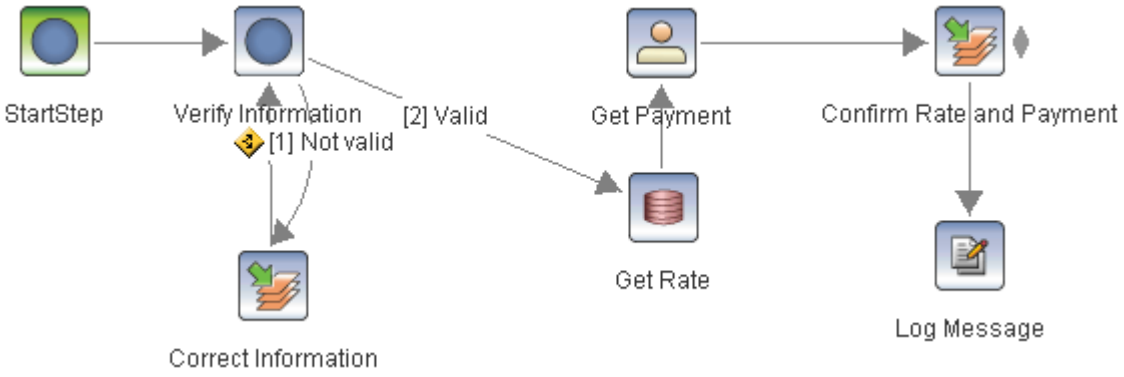
a. Select the Verify Information step.

b. Click Assignments > After Completion.

c. Add a new Field Assignment using the following information:

- Name: `large_loan`
- Expression: `if(loan_amount > MAX_AMOUNT, true, false)`

7. Verify that your Prepare Loan Map submap looks similar to the following diagram. This diagram includes a DbExecute system step named Get Rate.



Procedure 2: Test the workflow definition

1. Launch and save the workflow definition to the object store.
   a. Validate the workflow collection and correct validation errors, if any.
   b. Click File > Launch Main Workflow.
   c. Click OK in the Check workflow name window, if it is displayed.
   d. When prompted, complete the “Save the workflow definition to an object store” wizard using the following information.
      - Object store: `LoanProcess > Workflows`
      - Document Title: `Loan Processing Collection - Database`
      - Security: <Accept default values.>
2. Complete the Launch Step processor.
   a. In the Launch Step window, click Data Fields.
   b. In the Data Fields view, type the following values in the fields.
      - customer_name: `Dan Davis`
      - down_payment: `57000.`
      - loan_date: <a future date and time>
      - loan_id: `D345`
      - loan_term: `30`
      - purchase_price: `755000.`
   c. In the Attachments view, assign an attachment of your choice to loan_document.
   d. Click Launch.
3. Use Process Administrator to locate the work item for the Loan Processing - Database workflow.
   a. In Process Designer, select Tools > Process Administrator.

b. Construct and execute a filtered search of LoanRoster by using the loan_id exposed field and the data in the following table.

Search criteria	**Value**
Look for	Work Items
In	Workflow Roster
Select one	LoanRoster
Search mode	Edit (all fields)
Criteria	`loan_id = 'D345'`

c. Verify that your work item appears in the results pane and is waiting in the Inbox(0) queue assigned to olivia.

Tip: Check the value of F_BoundUser.

4. Verify that the DbExecute step was executed.
   a. In the results pane, select the row containing the work item in the Inbox(0) queue.
   b. Click Open Tracker on the results pane toolbar.
   c. Using the Workflow History and map area, verify that the Get Rate step was completed.
   d. Select the Get Payment step.
   e. In the Properties pane Fields tab, verify that the value of the large_loan field is `true`.

      The purchase_price and down_payment that you entered in step 2b resulted in the loan_amount being greater than MAX_AMOUNT. Therefore, the Assignment After Completion of the Verify Information step assigned the value `true` to large_loan.

   f. Verify that the value of interest_rate is 6.25.

      For loans with terms of 30 years and loan_amount greater than MAX_AMOUNT, the stored procedure sets the interest rate to 6.25. For smaller 30-year loans, the interest rate is set to 5.25.

   g. Close Process Tracker.
5. Complete processing of the work item.
   a. In the Process Administrator results pane, select the row containing the work item in the Inbox(0) queue.
   b. Click Open Step Processor on the results pane toolbar.
   c. Enter a value of your choice in the monthly_payment field.
   d. Click Complete.
   e. Click Find Now to reexecute the roster search of LoanRoster.
   f. In the results pane, select the row containing the work item in the LoanCustomer queue.

g. Click Open Step Processor on the results pane toolbar.

h. Click Complete.

i. Click Find Now to reexecute the roster search of LoanRoster.

j. In the results pane, select the row containing the work item in the LoanUnderwriter queue.

k. Click Open Step Processor on the results pane toolbar.

l. Click Complete.

m. Click Find Now to reexecute the roster search of LoanRoster.

n. Verify that the work item is no longer listed in the results pane.

The Loan Processing - Database workflow is complete.

6. Use the skills that you have learned to launch the workflow again and test the Get Rate step with a 30-year loan with loan_amount less than 400000. If you want, use the following suggested data values, which result in an interest rate of 5.25.
   - customer_name: `Andrea Avery`
   - down_payment: `12000.`
   - loan_date: <a future date and time>
   - loan_id: `A123`
   - loan_term: `30`
   - purchase_price: `135000.`
7. Close all applications.
   a. Close Process Administrator.
   b. Return to Process Designer.
   c. If you have not already done so, check in your final version of the workflow collection. Otherwise, cancel the checkout.
   d. Exit Process Designer.
   e. Log out of Workplace XT and close the browser.