Lesson: Expressions and functions

Overview

Why is this lesson important to you?

You are a business analyst who is designing an IBM FileNet BPM solution. You need to use a complex expression including data fields and functions in your workflow routing conditions. You must use an expression to verify that a workflow attachment is assigned. You must test the workflow to verify the changes.

Activities

- Use expressions and functions in a workflow: Challenge
- Use expressions and functions 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.

User accounts

Type	User ID	Password
FileNet Workplace XT	filenetadmin	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 expressions and functions in a workflow: Challenge

Challenge

Add expressions and functions to a prepared workflow definition file. Use the data in the table to complete the following activities:

- Add a complex expression that includes functions to an assignment after completion of the Launch step.
- Add routing conditions that contain complex expressions.
- Use a complex expression to assign the value of the status field at a step.
- Use a complex expression to verify that the workflow attachment is assigned by the user at the Launch step.

Data

Item	Value
Prepared workflow definition file	C:\Labs\F145\DataControl\ Loan Processing - Expressions Start.pep
File name in the Object Store	LoanProcess > Workflows > Loan Processing - Expressions
Workflow Properties attachment	Name: `EMPTY_ATTACHMENT`
Launch Step assignment after completion	Assignment parameters: • Name: `status` • Expression: `"Start processing loan for " + customer_name + " with amount " + convert(loan_amount, string) + " for " + numbertostring(loan_term) + " years."`
Route condition for "Not valid" route	`customer_name = "" or loan_amount < 0.0 or loan_document = EMPTY_ATTACHMENT or (loan_term <> 30 and loan_term <> 15 and loan_term <> 5) or loan_date <= systemtime()`

Item	Value
Correct Information step assignment before execution	Assignment parameters: • Name: `status` • Expression: `"Invalid Please correct: " + if (customer_name="", "Customer Name,", "") + if (loan_amount <= 0.0, " Loan Amount,", "") + if(loan_term <> 30 and loan_term <> 15 and loan_term <> 5, "Loan Term, ", "") + if (loan_document=EMPTY_ATTACHMENT, "Loan document,", "") + if (loan_date < systemtime(), "Loan Date", "")`

Verification

- You must launch and process the workflow through to completion.
- At run time, if you do not assign an attachment at the Launch step, the work item must be placed in the LoanCustomer queue waiting at the Correct Information step.
- At run time, the status field at the Correct Information step must be assigned appropriately depending upon the data fields and attachment assignment you make in the Launch step.
- At run time, if the Valid route is followed the value of the status field at the Get Rate and Payment step must contain customer_name, loan_amount, and loan_term.

Use expressions and functions in a workflow: Walkthrough

Introduction

This exercise gives you familiarity with using complex expressions in a workflow definition.

Procedure 1: Use complex expressions in routing conditions

1. On your student Windows XP system, log in to FileNet Workplace XT using the filenetadmin user account listed in the "Lesson Overview" section.
2. Open a prepared workflow definition file.

   To save time in class, a workflow definition file has been prepared for you that contains the Loan Processing workflow. This workflow is similar to the one that you worked with in previous units in this course. In this activity, you modify and test the Prepare Loan Map submap.

   a. In Workplace XT, click Tools > Advanced Tools > Process Designer.

   b. Click File > Open.

   c. Locate and open the following file:

      C:\Labs\F145\DataControl\Loan Processing - Expressions Start.pep

   d. Explore the workflow definition to familiarize yourself with the process flow and notice the following items:

   - This workflow is for loan processing and is similar to one that you worked with in the previous unit, *Workflow Infrastructure*.
   - The workflow name property has the value Loan Processing - Data Control.
   - The Workflow map contains three submap steps. However, 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. This technique is used to save time when you are testing the workflow.

3. In the Workflow Properties Attachments tab, define a new attachment using the following information.

   - Name: `EMPTY _ ATTACHMENT`
   - Description: `Empty attachment for comparison`

   You will use this empty attachment for comparison purposes.

4. Change a step to an unassigned step to be used for verifying information in the Prepare Loan Map submap.

   a. On the Prepare Loan Map submap, delete the Annotation associated with the Verify Information step.

   b. Click the Verify Information step to select it.

c. In the step properties General tab, select olivia in the Participants field.

d. Click Delete (the red X) located next to the Participants option.

The Verify Information step is changed to an unassigned step.

5. Change the order of outgoing route evaluation.

a. Confirm that the Verify Information step is still selected.

b. Click Routing.

c. In the Responses section, delete both the “Valid information” and “Not valid information” responses.

d. In the Outgoing Routing Information section, click the Valid route to select it.

e. Click the down arrow icon to move the Valid route below the Not Valid route.

f. Verify that the order of the outgoing routes is as follows:

```
Not Valid
Valid
```

6. Set routing conditions using a complex expression.

You define an expression to verify that valid Launch step parameters were assigned by the customer. Valid loan_term values are 30, 15, or 5. Any other value is considered not valid and the work item takes the “Not valid” route.

a. On the Prepare Loan Map submap, select the Valid route.

b. Under Routing, select the “Always true” option.

c. Select the Not Valid route.

d. Click Clear to delete the existing route condition.

e. Define the following new route condition.

```
customer_name = "" or loan_amount < 0.0 or loan_document =
EMPTY_ATTACHMENT or (loan_term <> 30 and loan_term <> 15 and loan_term
<> 5) or loan_date <= systemtime()
```

Procedure 2: Use expressions and functions in field assignments

1. Add an assignment before execution of the Correct Information step.

a. Select the Correct Information step.

b. Click the Assignments tab.

c. Verify that Before Execution is selected.

d. Under Field Assignments, click in the first row of the Name field.

e. Select status from the list.

f. Click in the Expression field of the first row.

g. Click the ellipsis (...) icon to open the Expression Builder window.

The ellipsis icon is displayed at the right side of the expression text and might be hidden from view, depending on the size of your window. You might need to scroll across to see the icon.

h. In the Expression Builder window, use the options and buttons to build the following expression, or type the expression directly into the text field.

```
"Invalid information. Please correct: " +
if (customer _ name="", "Customer Name, ", "") +

if (loan _ amount <= 0.0, "Loan Amount, ", "") +

 if (loan term <> 30 and loan  term <> 15 and loan   term <> 5,
"Loan Term, ", "") +
if (loan document=EMPTY _ ATTACHMENT, "Loan document, ", "") +

if (loan date < systemtime(), "Loan Date ", "")
```

i. Click OK to close the Expression Builder window.

2. Add another assignment after completion of LaunchStep.

a. On the Workflow map, select LaunchStep.

b. Click the Assignments tab.

Notice that there is already an assignment for the F_Subject field. You add a second assignment in the next steps.

c. Under Field Assignments, click in the Name field of the second row.

d. Select status from the list.

e. Click in the Expression field of the second row.

f. Click the ellipsis (...) icon to open the Expression Builder window.

g. In the Expression Builder window, use the options and buttons to build the following expression, or type the expression directly into the text field.

```
"Start processing loan for " + customer_ name +
" with amount " + convert(loan_amount, string) +
" for " + numbertostring(loan_term) + " years."
```

h. Click OK to close the Expression Builder window.

Procedure 3: Test the workflow definition

1. Launch and save the workflow definition to the object store.

a. Validate the workflow and correct validation errors, if any.

b. Click File > Launch Main Workflow.

c. Complete the “Save the workflow definition to an object store” wizard using the following information.

- Object store: `LoanProcess > Workflows`
- Document Title: `Loan Processing Workflow – Expressions`
- 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.

The loan_term is not a valid value so that you can test the routing expression.

- customer_name: `Sam Smith`
- loan_amount: `125000.`
- loan term: 22

c. Do **not** assign an attachment to loan_document so that you can test the routing expression.

d. Click Launch.

3. Use Process Administrator to locate the work item.

a. In Process Designer, click Tools > Process Administrator.

b. Construct and execute a filtered search of LoanRoster by using 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	`F_Subject like '%Sam Smith%'`

c. Verify that your work item appears in the results pane and is in the LoanCustomer queue.

The work item followed the “Not valid” route to the Correct Information step because you entered one or more invalid Launch step parameters.

4. Complete the Correct Information step with valid parameter values.

a. In the results pane, select the row containing the work item in the LoanCustomer queue.

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

c. In the Correct Information step processor, verify that the value of the status field is “Invalid information. Please correct: Loan Term, Loan document, Loan Date.”

d. In the step processor, replace the data field values with the following:

- loan_date: <a date and time in the future>
- loan_term: `15`

e. Click the loan_document attachment link and assign an attachment document of your choice.

Tip: You can find sample documents in the LoanProcess > Loans folder on the object store.

f. Click Complete.

5. Complete the Get Rate and Payment step from the Prepare Loan Map submap.

a. In Process Administrator, click Find Now to reexecute the roster search.

b. In the results pane, select the row containing the work item in the LoanOfficer queue.

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

d. In the Get Rate and Payment step processor window, type values of your choice in the interest_rate and monthly_payment fields.

e. Replace the existing text in the status field with the following text: `Loan preparation is completed.`

The existing text was assigned to the status field in the Assignment Before Execution at the Correct Information step. You update the status field with the current loan status.

f. Click Complete.

6. Complete the Confirm Rate and Payment step from the Prepare Loan Map submap.

a. In Process Administrator, click Find Now to reexecute the roster search.

b. In the results pane, select the row containing the work item in the LoanCustomer queue.

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

d. Click Complete.

7. Complete the Set Loan Document Status step from the Terminate submap.

a. In Process Administrator, click Find Now to re-execute the roster search.

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

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

d. Verify that the status field contains the following text: "`Loan preparation is completed.`"

e. Click Complete.

f. In Process Administrator, click Find Now to re-execute the roster search.

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

8. Use the skills that you have learned to launch the workflow again and test the Valid route by entering valid information. During testing, verify that the value of the status field at the Get Rate and Payment step contains the customer name, loan_amount, and loan_term.

9. 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 definition.

   d. Close Process Designer.

   e. Log out of Workplace XT and close the browser.