Lesson: Checkpoints

Overview

Why is this lesson important to you?

You are designing an IBM FileNet BPM solution and you need to set a workflow checkpoint and save current workflow information at a point in the process flow. At a later point in the workflow, you need the option to roll back specified workflow information to that earlier point in processing and if necessary, to resume work processing at that previous point. You must test the workflow to verify the changes.

Activities

- Add checkpoint processing to a workflow: Challenge
- Add checkpoint processing to a workflow: Walkthrough

Lesson dependency

You must have successfully completed the previous lesson activities.

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.

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.

Add checkpoint processing to a workflow: Challenge

Challenge

Modify your loan processing workflow definition from the previous lesson and add checkpoint processing to the Prepare Loan Map submap to model the following business logic.

At the Confirm Rate and Payment step, the customer must choose one of three possible responses: Accept terms, Change down payment, or Reject terms.

If the customer accepts terms, then the Log Message step is executed and the submap processing is complete. If the customer changes the down payment, then the loan amount is recalculated and the process is rolled back to a previous point before the Get Rate and Payment step. In this case, interest_rate and monthly_payment are rolled back to previous values and all other data fields are not rolled back. If the customer rejects terms, the workflow process is terminated. Use the data in the tables to complete this activity.

Data

Item	Value
Workflow definition file	Object store > LoanProcess > Workflow > Loan Processing Workflow - Milestones
New file name in the Object Store	LoanProcess > Workflows > Loan Processing Workflow - Checkpoints
Confirm Rate and Payment step Properties	Add to Selected Parameters: • down_payment [Read/Write] Define Step Responses: • Accept terms • Change down payment • Reject terms

Remove any existing assignments and define the following three new assignments after completion of the Confirm Rate and Payment step.

Name	Expression
`status`	`if (F_Responses[1] > 0, customer_name + " accepts terms.", status)`
`status`	`if (F_Responses[2] > 0, customer_name + " changes down payment.", status)`

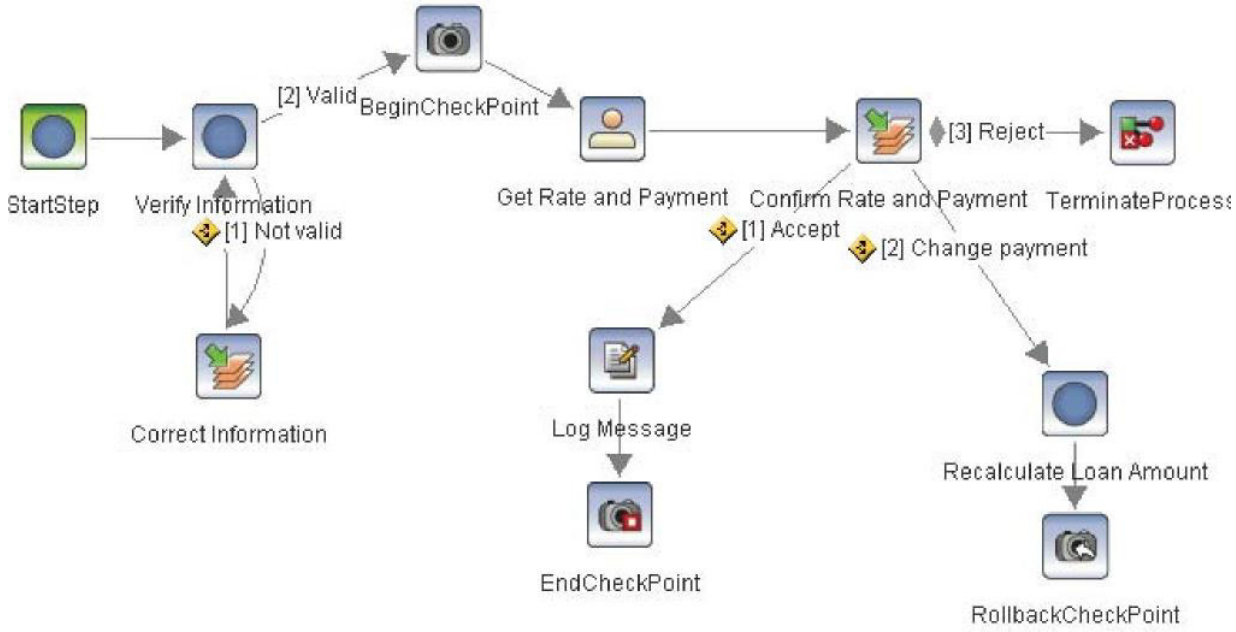
Name	Expression
status	`if (F_Responses[3] > 0, customer_name + " rejects terms.", status)`

Define the following one assignment before execution of the Recalculate Loan Amount step.

Name	Expression
loan_amount	`purchase_price - down_payment`

Verification

- You must launch and process the workflow through to completion without errors.
- If the customer selects the "Change down payment" response, the work item must be routed back to the Get Rate and Payment step and the interest_rate and monthly_payment fields are set back to their initial values.
- Your Prepare Loan Map submap must look similar to the following diagram. This diagram shows a map that includes three checkpoint system steps.



Add checkpoint processing to a workflow: Walkthrough

Introduction

This exercise gives you practice in using the checkpoint system functions in a workflow definition.

Procedure 1: Add checkpoint system steps to a map

In this procedure, you add checkpoint system steps to the Prepare Loan Map submap to model the following business logic:

- At the Confirm Rate and Payment step, the customer must choose one of three possible responses: Accept terms, Change down payment, or Reject terms.
- If the customer accepts terms, then the Log Message step is executed and the submap processing is complete.
- If the customer changes the down payment, then the loan amount is recalculated and the process is rolled back to a previous point before the Get Rate and Payment step. In this case, interest_rate and monthly_payment are rolled back to previous values and all other data fields are not rolled back.
- If the customer rejects terms, the workflow process is terminated.

1. On your student image, log in to FileNet Workplace XT using the filenetadmin user account listed in the "Lesson Overview" section.
2. Open the loan processing workflow definition file you saved in the previous lesson activity.
   a. In Workplace XT, click Tools > Advanced Tools > Process Designer.
   b. Click File > FileNet > FileNet Open/Checkout.
   c. Locate and select the following file:
      LoanProcess > Workflows > Loan Processing Workflow - Milestones
   d. Select “Open As Checkout” and click Open.

Important

This workflow definition file is the one that you built and saved to the object store in the previous lesson. If you did **not** successfully complete all steps in the previous lesson activity, then you must open the following starting file located on the local system:

C:\Labs\F145\Solutions\FlowControl\Loan Processing Workflow - Milestones solution.pep

e. If necessary, explore the workflow definition to refamiliarize yourself with the process flow.

In this activity, you work only with the Prepare Loan Map submap. 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 test the workflow.

3. Add a BeginCheckPoint step.
   a. On the map toolbar, select the Prepare Loan Map submap.
   b. Right-click the Valid route and click Delete.
   c. Select the CheckPoint Palette in the Palette menu to display the checkpoint steps, if they are not already displayed in the steps section of the map toolbar.
   d. Drag a BeginCheckPoint system step onto the map and place it between the Verify Information and Get Rate and Payment steps.
   e. Draw a route from the Verify Information step to the BeginCheckPoint step.
   f. In the route properties name field, type the following: `Valid`
   g. Draw a route from the BeginCheckPoint step to the Get Rate and Payment step.
4. Define step properties and responses for the Confirm Rate and Payment step.
   a. Select the Confirm Rate and Payment step.
   b. Click the Parameters tab.
   c. Move down_payment from the list of Available Parameters to the list of Selected Parameters.
   d. Click the Routing tab.
   e. In the Responses area, define the following responses in this order:
      - Accept terms
      - Change down payment
      - Reject terms
5. Add an EndCheckPoint step.
   a. Drag an EndCheckPoint system step onto the map and place it below the Log Message step.
   b. Draw a route from Log Message to EndCheckPoint.
   c. Select the route between the Confirm Rate and Payment step and the Log Message step.
   d. Define the following route properties:
      - Name of route: `Accept`
      - Conditional Route: Selected
      - Responses: `ALL(Accept terms)`

6. Add a new activity step to recalculate the loan amount.
   a. Drag an Activity step from the BPM Palette onto the map and place it below the Confirm Rate and Payment step.
   b. Replace the default step name with the following: `Recalculate Loan Amount`
   c. Define the following Assignment Before Execution.

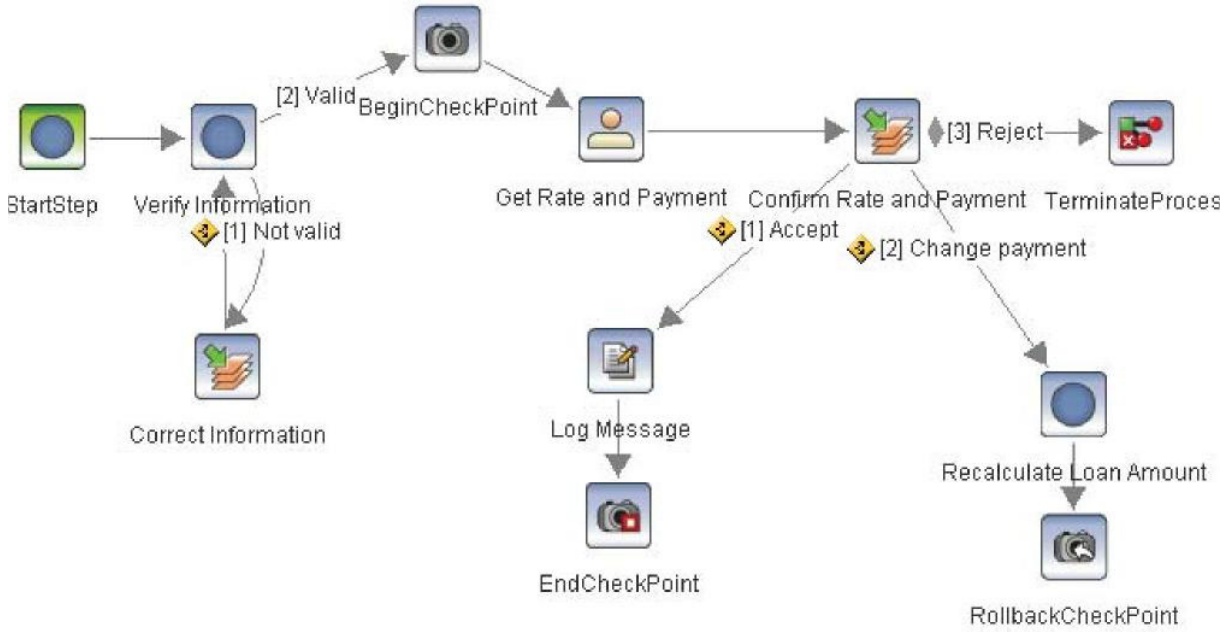
Name	Expression
loan_amount	purchase_price – down_payment

   d. Draw a route from the Confirm Rate and Payment step to the Recalculate Loan Amount step.
   e. Define the following route properties:
      - Name of route: `Change payment`
      - Conditional Route: Selected
      - Responses: `ANY(Change down payment)`

7. Add a RollbackCheckPoint step and set the properties.
   a. Drag a RollbackCheckpoint system step from the CheckPoint Palette onto the map and place it below the Recalculate Loan Amount step.
   b. In the RollbackCheckPoint step properties, define properties using the following information:
      - Resume Processing Expression: `true`
      - Map: <None>
      - Roll Back Fields: interest_rate, monthly_payment
      - Non-Roll Back Fields: <all remaining fields>
   c. Draw a route from the Recalculate Loan Amount step to RollbackCheckPoint.

8. Add a TerminateProcess step.
   a. Drag a TerminateProcess system step from the General System Palette onto the map and place it to the right of the Confirm Rate and Payment step.
   b. Draw a route from the Confirm Rate and Payment step to TerminateProcess.
   c. Replace the default route name property with the following: `Reject`

9. Verify that your Prepare Loan Map submap looks similar to the following diagram. This diagram shows the map including three checkpoint system steps.



10. Assign status at the Confirm Rate and Payment step.
    a. Select the Confirm Rate and Payment step.
    b. Click Assignments > After Completion.
    c. Replace all existing assignments with the following assignments.

Name	Expression
status	`if (F_Responses[1] > 0, customer_name + " accepts terms.", status)`
status	`if (F_Responses[2] > 0, customer_name + " changes down payment.", status)`
status	`if (F_Responses[3] > 0, customer_name + " rejects terms.", status)`

Note

The status data field is assigned depending on the response selected in the Confirm Rate and Payment step. You can use the F_Responses system field to test for participant responses at a step. F_Responses is an integer array that lists each response in a step with a count of the number of participants choosing the response. Responses are positional, based on the order in which you defined the routing responses for the step.

Procedure 2: 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. Click OK in the Check workflow name window, if it is displayed.
   d. Complete the "Checkin Workflow Definition" wizard using the following information:
      - Document Title: `Loan Processing Workflow – Checkpoints`
      - 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: `Ron Adams`
      - down_payment: `9000.`
      - loan_date: <a future date and time>
      - loan_id: `A678`
      - loan_term: `15`
      - purchase_price: `125000.`
   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.
   a. In Process Designer, click 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 = 'A678'`

   c. Verify that your work item appears in the results pane and is in the Inbox (0) queue assigned to olivia.
4. Complete the Get Rate and Payment step.
   a. In the 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. In the Get Rate and Payment step processor window, verify that the value of the loan_amount field is `116000.0`.

In the Assignment After Completion of LaunchStep, loan_amount was assigned the value of purchase_price less down_payment.

d. Type the following values in the fields:

- interest_rate: `7.5`
- monthly_payment: `1075.`
- Comments: `Rate and payment are verified.`

e. Click Complete.

5. 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. Verify that both the status and Comments fields contain the following text: "`Rate and payment are verified.`"

e. Verify that the interest_rate and monthly_payment fields contain the values you entered in step 4d.

f. Replace the value of the down_payment field with the following: `17000.`

g. Select the "Change down payment" response.

h. Click Complete.

6. Complete the Get Rate and Payment step for a second time.

The workflow was rolled back and processing resumes at the Get Rate and Payment step.

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 Inbox(0) queue.

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

d. In the Get Rate and Payment step processor window, verify that the values of interest_rate and monthly_payment were rolled back to the previous values of 0.0.

e. Verify that the status field contains the following text: `Ron Adams changes down payment.`

Notice that the value of loan _amount is 108000. The loan amount was recalculated using the new down_payment value you entered in step 5f.

f. Type the following values in the fields:

- interest_rate: `7.5`
- monthly_payment: `1001.`
- Comments: `Rate and payment are verified.`

g. Click Complete.

7. Complete the Confirm Rate and Payment step for a second time.

   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 LoanCustomer queue.

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

   d. Verify that both the status and Comments fields contain the following text: "`Rate and payment are verified.`"

   e. Verify that the interest_rate and monthly_payment fields contain the values you entered in step 6f.

   f. Select the "Accept terms" response.

   g. Click Complete.

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

   The workflow followed the Accept route and the EndCheckPoint step was processed. Processing returns to the Workflow main map. Because the Process Loan and Complete Loan steps are assigned to the EMPTY MAP submap, the workflow terminates. The Terminate map is processed.

   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: "`Ron Adams accepts terms.`"

   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.

9. View event logging information in Process Administrator.

   The work item followed the Accept route and the Log Message step was executed. You verify that the message appears in the event log.

   a. Construct and execute a search of the event log using the following information.

Search criteria	Value
Look for	Events
In	Event Log
Select one	LoanLog
Criteria	`loan_id = 'A678' and F_EventType = 2222`

   b. Click the Show/Hide Columns icon in the results pane and use the Column Selection window to add the F Text field to the list of selected columns.

   c. Verify that the F_Text field for the logged entry contains the following value: `"Ron Adams accepts terms."`

10. Using the skills that you have learned, launch the workflow again and test the Reject route. Verify that the workflow terminates without logging a message.

11. 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.