Lesson: Timers and Delay

Overview

Why is this lesson important to you?

You are designing an IBM FileNet BPM solution. You need to control the period of time during which a specified series of steps is processed. You want an alternate processing path to be followed if the time expires. In another case, you simply want to delay workflow processing for a specified period of time. You must test the workflow to verify the changes.

Activities

- Control processing time and delays: Challenge
- Control processing time and delays: 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	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.

Control processing time and delays: Challenge

Challenge

Modify the workflow definition file that you saved in the previous lesson by adding timer system functions to model the following behavior:

- The Process Loan and Complete Loan steps on the Workflow map must be processed within 3 minutes.
- If the 3-minute time period expires, then the Handle Escalation Map submap is called where the work item is sent to a Handle Timeout step.

Add a Delay system function to the Handle Escalation Map submap to model the following behavior.

- If the loan manager selects the Delay response in the Handle Timeout step, then the workflow is delayed by 1 minute.
- Otherwise, processing continues.

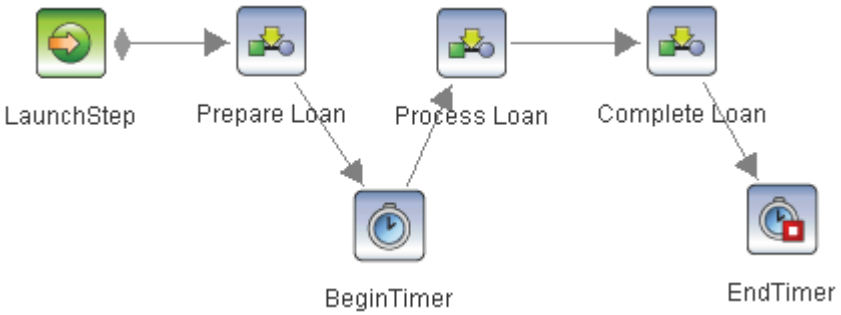
Use the data in the table to complete this activity.

Data

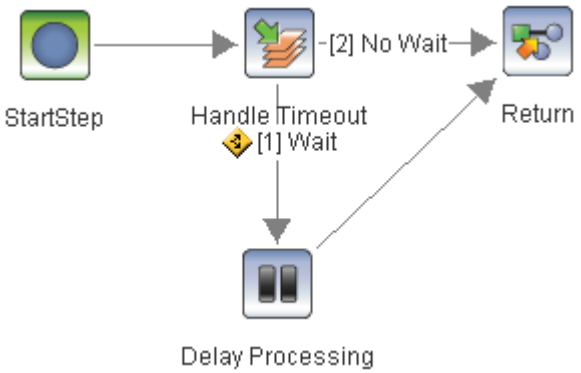
Item	Value
Prepared workflow definition file	C:\Labs\F145\FlowControl\Loan Processing - Timer Start.pep
File name in the Object Store	LoanProcess > Workflows > Loan Processing Workflow - Timers

Verification

- You must launch and begin processing the workflow.
- If the Process Loan Map and Complete Loan Map steps are not completed in 3 minutes, then the work item is sent to the LoanManager queue waiting for the Handle Timeout step.
- If you select the Delay response at the Handle Timeout step, the work item must wait in the Delay queue for 1 minute.
- Your Workflow map must look similar to the following diagram. This diagram shows the BeginTimer and EndTimer steps.



- Your Handle Escalation Map submap must look similar to the following diagram. This diagram shows a Delay step and two outgoing routes from the Handle Timeout step.



Control processing time and delays: Walkthrough

Introduction

This exercise gives you practice in defining a timer and using the Delay system function in a workflow.

Procedure 1: Define a timer

In this procedure, you set a timer for completion of two steps in the loan processing workflow. The Process Loan and Complete Loan submap steps must be processed within three minutes. (This short time period is specified in order to expedite testing.) If the time period expires, then the Handle Escalation Map submap is called where the work item is sent to a Handle Timeout 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 and explore 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\TimeControl\Loan Processing - Timer Start.pep

   d. Explore the workflow definition to familiarize yourself with the process flow and notice the following items:
      - This loan processing workflow is the same one you worked with in the previous lesson. The workflow includes a few changes to save time in class.
      - The Workflow map contains three submap steps. In this activity, you work with all three submaps. Therefore, the submap steps on the Workflow map are each assigned to the correct submap. The EMPTY SUBMAP is not used in this activity.
      - The Handle Escalation submap is the same one that you built in the previous lesson. This submap sends work to a loan manager to handle a timeout.
      - For this activity, the Get Rate and Payment step deadline was removed so that it does not interfere with testing of the timer.
3. Add a BeginTimer system step to the Workflow map.
   a. On the Workflow map, right-click the route between Prepare Loan and Process Loan and click Delete.
   b. Drag a BeginTimer system step from the Timer Palette onto the map and place it below the Prepare Loan and Process Loan steps.

c. Set the BeginTimer step properties using the following information:

- Timer Name Expression: `"Loan Processing Timer"`
- Expiration Time: `addminutes(systemtime(), 3)`
- Map: Handle Escalation Map

Note

In this procedure and in a workflow development environment, you use a timer with a very short deadline to expedite processing and testing your workflow. When a process is deployed in a business environment, timers are set with appropriate deadlines.

d. Draw a route from the Prepare Loan step to the BeginTimer step.

e. Draw a route from the BeginTimer step to the Process Loan step.

4. Add an EndTimer system step.

a. Drag an EndTimer system step from the Timer Palette onto the map and place it below the Complete Loan step.

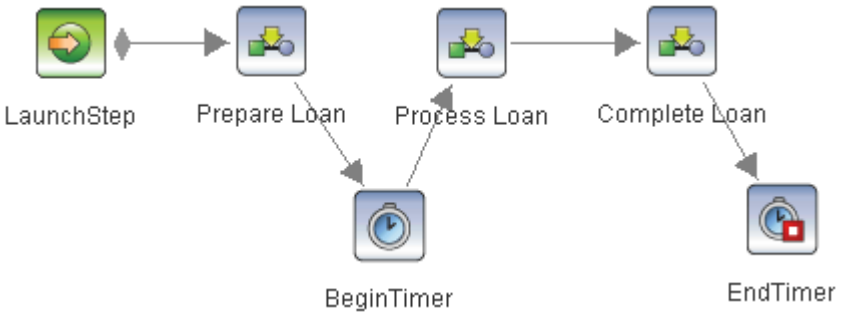
b. Set the EndTimer step properties using the following information:

- Timer Name Expression: `"Loan Processing Timer"`

Tip: Be sure that the Timer Name Expressions in the BeginTimer and EndTimer steps match exactly. The string expressions are case-sensitive.

c. Draw a route from the Complete Loan step to the EndTimer step.

5. Verify that your Workflow map looks similar to the following diagram. This diagram shows the BeginTimer and EndTimer steps.



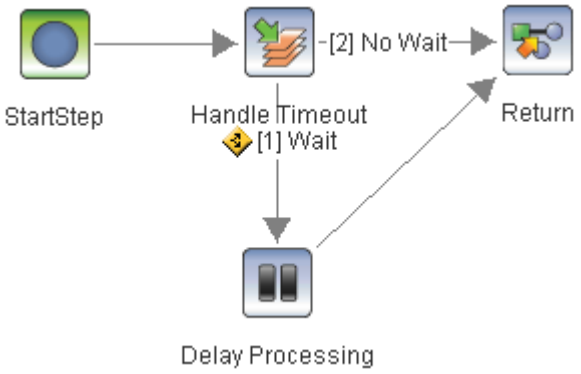
Procedure 2: Add a Delay system function to a map

In this procedure, you modify the Handle Escalation Map submap to add a delay. The loan manager who processes the Handle Timeout step is presented with an option to delay the workflow.

1. Add a new response for the Handle Timeout step.
   a. On the map toolbar, select the Handle Escalation Map submap.
   b. Select the Handle Timeout step.
   c. Click Routing.
   d. Add the following new response to the end of the list of Responses: `Delay`

      The Response list must contain three responses in this order: Retry, Skip, Delay.
2. Add a Delay system step to the Handle Escalation map.
   a. Drag a Delay system step from the General System Palette onto the map and position the step below the Handle Timeout step.
   b. Set the Delay step properties using the following information:
      - Step Name: `Delay Processing`
      - Delay Expression: `addminutes(systemtime(), 1)`
   c. Draw a route from the Handle Timeout step to the Delay Processing step.
   d. Assign the new route properties using the following information:
      - Route Name: `Wait`
      - Conditional Route: `ANY(Delay)`
   e. Select the route from the Handle Timeout step to the Return step.
   f. Replace the default route name with the following text: `No wait`
   g. Draw a route from the Delay Processing step to the Return step.
3. Reorder outgoing route evaluation for the Handle Timeout step.
   a. Select the Handle Timeout step.
   b. Click Routing.
   c. In the Outgoing Routing Information section, use the arrow icons to rearrange the order of the routes as follows:
      - Wait
      - No wait

d. Verify that your Handle Escalation Map submap looks similar to the following diagram. This diagram shows a Delay step and two outgoing routes from the Handle Timeout step.



Procedure 3: Test the workflow

1. Validate, transfer, and launch the workflow definition.
   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.
   d. Complete the “Save the workflow definition to an object store” wizard using the following information:
      - Object store: `LoanProcess > Workflows`
      - Document Title: `Loan Processing Workflow - Timers`
      - 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: `Larry Lee`
      - down_payment: `55000.`
      - loan_date: <a future date and time>
      - loan_id: `L999`
      - loan_term: `30`
      - purchase_price: `675000.`
   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 = 'L999'`

c. In the results pane, locate your work item.

d. Verify that the work item is waiting in the Inbox(0) queue and is assigned to olivia. (F_BoundUser contains the value olivia.)

Tip: If you want, open the work item in Process Tracker to keep track of the processing path of the workflow. Click Refresh after completing each step to view the workflow and step history.

4. Complete the steps on the Prepare Loan Map submap.

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. Type values of your choice in the interest_rate and monthly_payment fields.

d. Click Complete.

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

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.

5. Test the Timer function.

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

b. Verify that the work item is waiting in the Inbox(0) queue and is assigned to mabel, a loan manager.

The Prepare Loan Map submap was completed and the BeginTimer step was executed. The work item is waiting at the Approve Loan Amount step in the Process Loan Map submap.

c. Wait approximately 3 minutes.

d. Click Find Now to reexecute the roster search for your work item.

e. Verify that the work item is in the LoanManager queue.

   The Loan Processing Timer expired and the work item was sent to the timer map that you specified, the Handle Escalation Map submap. The work item is waiting in the LoanManager queue at the Handle Timeout step.

6. Test the Delay function in the Handle Escalation Map submap.
   a. In the Process Administrator results pane, select the row containing the work item in the LoanManager queue.
   b. Click Open Step Processor on the results pane toolbar.
   c. Select the Delay response.
   d. Click Complete.
   e. Click Find Now to reexecute the roster search for your work item.
   f. Verify that the work item is in the Delay(0) queue.
   g. In the results pane, notice that the F_Operation field contains Delay.

      The Delay Processing step on the Handle Escalation Map submap was executed and the work item is placed in the Delay queue for 1 minute.

   h. Wait approximately 1 minute.
   i. Click Find Now to reexecute the roster search for your work item.
   j. Verify that the work item is in the LoanCustomer queue.

      After the delay, the work item is returned to the calling map with the retry_option set to false. The step that was queued before timer expiration (the Approve Loan Amount step) was skipped. The workflow proceeded down the Reject route because no responses were set, which made the Reject route condition true. The current step is Get Status.

7. Finish processing the work item.
   a. Select the work item in the results pane and click Tasks > Complete Work.
   b. In the Complete Work window, select the work item and click OK.

      Next, the work item moves to the LoanUnderwriter queue.

   c. Click Find Now to reexecute the roster search for your work item.
   d. Select the work item in the results pane and click Tasks > Complete Work.
   e. In the Complete Work window, select the work item and click OK.

      The work item is terminated.

8. Close all applications.
   a. Close Process Administrator.

b. In Process Designer, if you have not already done so, check in your final version of the workflow definition. Otherwise, cancel the checkout.

c. Exit Process Designer.

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