

Lesson: Invoking a Web Service

Why is this lesson important to you?

You are designing an IBM FileNet BPM solution. You need to invoke a Web Service in your workflow. To accomplish this, you must specify the partner link and use a Web Service Invoke step in a workflow definition.

Activities

- Invoke a Web Service in a workflow: Challenge
- Invoke a Web Service in 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	p8admin	IBMFileNetP8



Note

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

Invoke a Web Service in a workflow: Challenge

Challenge

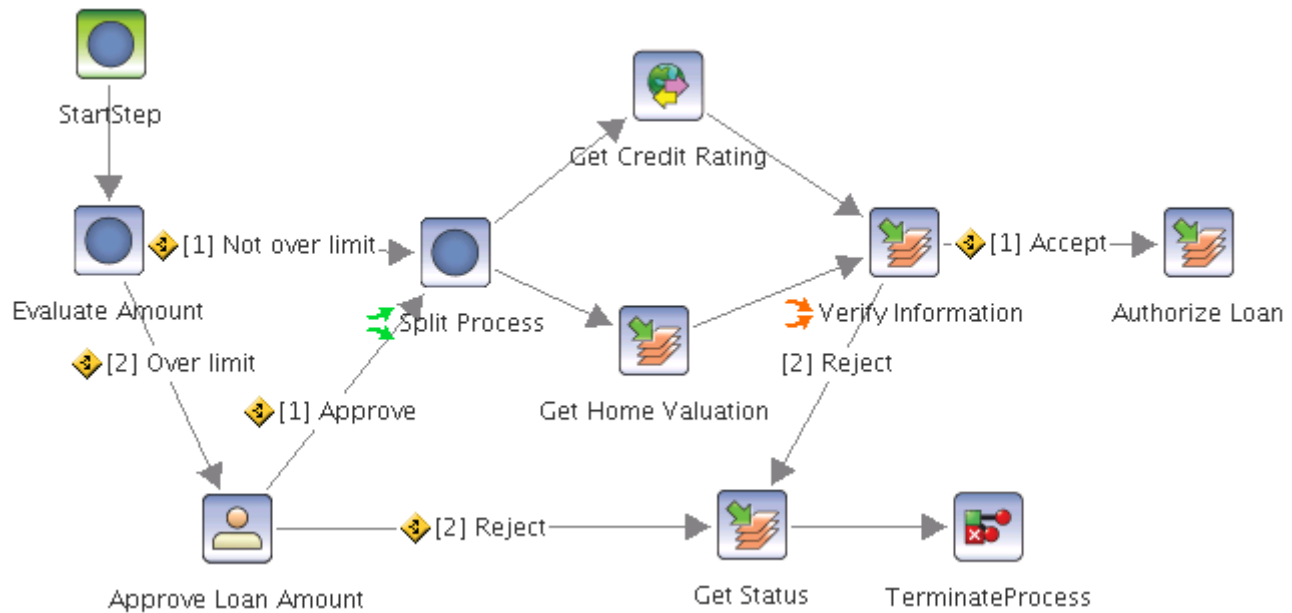
View details of the Credit Rating Service in a private UDDI registry. Open a prepared workflow definition file and define an Invoke partner link. Replace the existing Get Credit Rating queue step with a step that invokes a Web Service. Use the data in the table to complete this activity.

Data

Item	Value
WebSphere UDDI Registry Console	URL: http://ccv01135:9080/uddigui
Prepared definition file	C:\Labs\F145\WebServices\ Loan Processing - Invoke Start.xpdl
Web Services partner link	<ul style="list-style-type: none"> • Name: CreditCorp • Type: Invoke • Port Type: CreditRating • WSDL URL: http://ccv01135:9080/CreditRating/services/CreditRating/wsd/CreditRating.wsdl
Get Credit Rating Invoke step properties	<ul style="list-style-type: none"> • Partner Link: CreditCorp • Operation: getCreditRating • Message Type: Parameters • Outgoing Parameters: <ul style="list-style-type: none"> - Name: IDNumber - Type: String - Field Name: customer_name • Incoming Parameters: <ul style="list-style-type: none"> - Name: getCreditRatingReturn - Type: Integer - Field Name: credit_rating

Verification

- You must launch and process the workflow through to completion.
- The Process Loan Map submap must look similar to the following diagram. This diagram includes an Invoke system step.



Invoke a Web Service in a workflow: Walkthrough

Introduction

This activity gives you practice in invoking a Web Service in a workflow definition.

Procedure 1: View private UDDI registry contents

You search a private UDDI registry using WebSphere UDDI Registry User Console in order to identify and view details on a Web Service that is published. This private UDDI registry was previously configured and added to the registry list for the PELoanRegion isolated region.

1. Open a browser window and go to the following Web address:

`http://localhost:9080/uddigui`

Tip: Depending on the configuration of your student system, you might need to replace `localhost` with the machine name of your IBM FileNet P8 server. For example:

`http://ccv01135:9080/uddigui`

2. In the Quick Find area, select Business.
3. In the Starting with field, type the following: `Credit`
4. Click Find.
5. Notice that one registered business is displayed in the Find Business-Results area: Credit Rating Service.
6. Click Show services.
7. Notice that one result is displayed: Credit Rating Service.
You invoke this Web Service in a later procedure.
8. Under Services, click Credit Rating Service.
9. In the Service Details area, scroll down to the Bindings section.
10. Under Bindings, click Details to view binding details.
11. Under Technical Model Instance Details, click the Technical Model Key to view technical model details.
12. Under Overview Documents, click the Overview URL to view the WSDL in another browser tab.
13. Close the browser window.

Procedure 2: Verify the state of Component Manager

In order to use Web Services in a workflow, the Component Manager for the WSRequest queue must be running. In this procedure, you verify the status of the Component Manager.

1. If Process Task Manager on the Application Engine is already running, return to the Process Task Manager window on the Linux desktop.

Otherwise, double-click the *Launch Process Task Manager for AE.WPXT* shortcut on the Linux desktop.

Tip: Process Task Manager might take several seconds to start.

2. In the left pane of the Process Task Manager, select Application Engine.WPXT > Component Managers.
3. Select the PELoanRegion.ALL node found under Component Managers.
4. Verify that PELoanRegion.ALL Component Manager and all components under it are started (do **not** have a red X symbol next to the name of the component).

If necessary, start the PELoanRegion.ALL Component Manager and components.

5. Minimize Process Task Manager.

Procedure 3: Specify an Invoke partner link

In this procedure, you open a prepared workflow definition file containing the loan processing workflow collection. You specify an Invoke partner link for a Web Service that you are going to use in an Invoke step in the next procedure.

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\WebServices\Loan Processing Collection - Invoke 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 built and worked with in previous units. In this exercise, you work only with the main workflow called Loan Processing - Web Services.
 - The Workflow map contains three submap steps.
 - The Prepare Loan and Complete Loan submap steps are assigned to the EMPTY MAP submap, which contains no steps. Therefore, the Prepare Loan Map and Complete Loan Map submaps are not executed. You work only with the

Process 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 - Web Services.

3. Define an Invoke partner link in Workflow Properties.

- In Workflow Properties, click Web Services > Partner Links.
- Under Partner Links, select the Name field.
- Select the Invoke check box.
- Click the ellipsis (...) icon to browse for the WSDL URL.
- Select UDDI registries.
- In the Web Services Explorer window, expand the ABCLoanRegistry node.
- Select Business list.
- In the Name field, type the following text: `Credit`
- Click Execute.
- In the UDDI tree, expand the Credit Rating Service node and select the `CreditService` node.
- Click OK.
- Notice that in the Partner Links tab the Port Type is selected for you (`CreditRating`) and that the WSDL URL is filled in.
- Select the Name field in the Partner Links table and type the following in the Name field: `CreditCorp`

Tip: After you type `CreditCorp` in the Name field, press Enter or tab off of the field to ensure that your entry remains in the field.

Procedure 4: Use an Invoke step

In this procedure, you replace a queue step with an Invoke step to call a Web Service.

- Replace a queue step with an Invoke step.
 - On the map toolbar, select Process Loan Map.
 - Right-click the Get Credit Rating step and click Delete.
 - Drag an Invoke step from the Web Services Palette and place it between the Split Process and Verify Information steps.

d. Assign the following step properties to the new Invoke step.

- Step Name: Get Credit Rating
- Partner Link: CreditCorp
- Operation: getCreditRating
- Message Type: Parameters
- Outgoing Parameters

Name	Type	Expression
IDNumber	String	customer_name

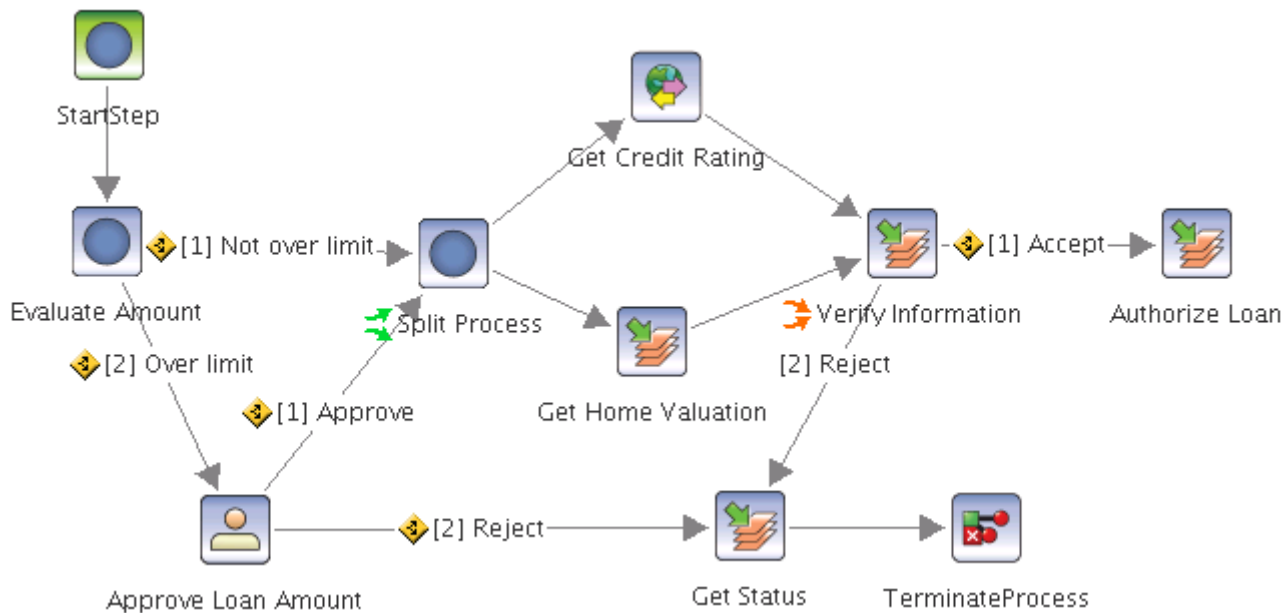
- Incoming Parameters

Name	Type	Expression
getCreditRatingReturn	Integer	credit_rating

2. Draw new routes.

- Draw a new route from the Split Process step to the Get Credit Rating step.
- Draw a new route from the Get Credit Rating step to the Verify Information step.

3. Verify that your Process Loan Map submap looks similar to the following diagram This diagram includes an Invoke system step.



Procedure 5: Test the workflow definition

- Launch and save the workflow definition to the object store.
 - Validate the workflow collection and correct validation errors, if any.
 - Click File > Launch Main Workflow.
 - Click OK in the Check workflow name window, if the window is open.

- 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 - Invoke
 - 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: Wendy Wilson
 - down_payment: 24000.
 - loan_date: <a future date and time>
 - loan_id: w234
 - loan_term: 30
 - purchase_price: 125000.
 - c. In the Attachments view, assign an attachment from the LoanProcess > Loans folder on the object store.

In order to process the Content Extended Operation used in the Terminate map, you must assign an attachment from the object store that contains a document property called Status.
 - d. Click Launch.
3. Use Process Administrator to locate the work item for the Loan Processing - Web Services 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 = 'w234'

c. Notice the three work items, which are located in the following queues:

- One item in the Delay(0) queue
- One item in the WSRequest queue
- One item in the LoanOfficer queue

Tip: If you see only two work items listed in the results pane, the item in the WSRequest queue was already sent by Component Manager to the Web Service for processing.

d. Wait a few seconds and then click Find Now to reexecute the search.

e. Notice that there are two work items in the results pane: one item in the Delay(0) queue and one item in the LoanOfficer queue.

The work item in the WSRequest queue was processed by the Web Service.

4. Complete the Get Home Valuation step.

- a. In the results pane, select the row containing the work item in the LoanOfficer queue.
- b. Click Open Step Processor on the results pane toolbar.
- c. Type a value of your choice in the home_value field.
- d. Click Complete.

5. Verify that the Invoke step was processed.

- a. In Process Administrator, click Find Now to reexecute the roster search.
- b. Notice the one work item in the results pane, which is in the LoanOfficer queue. A work item is no longer in the Delay system queue.
- c. In the results pane, select the row containing the work item in the LoanOfficer queue.
- d. Click Open Tracker.
- e. Click Workflow History to view the workflow history.
- f. Notice that the current step is Verify Information and that the Get Credit Rating and Get Home Valuation steps were completed.
- g. Close Process Tracker.

6. Process the Verify Information step.

- a. In the Process Administrator results pane, select the row containing the work item in the LoanOfficer queue waiting.
- b. Click Open Step Processor on the results pane toolbar.
- c. Verify that the credit_rating field contains a non-zero value.
- d. In the status field, type the following: Processing is complete and information is verified.

- e. Select the Verified response.
 - f. Click Complete.
7. Complete the Authorize Loan step from the Process 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 Loan Manager queue.
 - c. Click Open Step Processor.
 - d. Notice that the interest_rate and monthly_payment fields are zero because you did not complete the Prepare Loan Map submap where these values are set.
 - e. Click Complete.
8. Verify that the Set Loan Document Status step from the Terminate submap was completed.
- a. In Process Administrator, click Find Now to reexecute the roster search.
 - b. Verify that the work item is no longer listed in the results pane.
- Tip:** Depending on the Component Manager polling and how quickly you execute the roster search, you might see a work item waiting in the CE_Operations queue. The Terminate system map contains a component step that uses CE_Operations to set the property of the loan_document. If there is a work item in the CE_Operations queue, wait a few seconds and execute the roster search again.
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. Otherwise, close the file and cancel the checkout.
 - d. Exit Process Designer.
 - e. Log out of Workplace XT and close the browser.