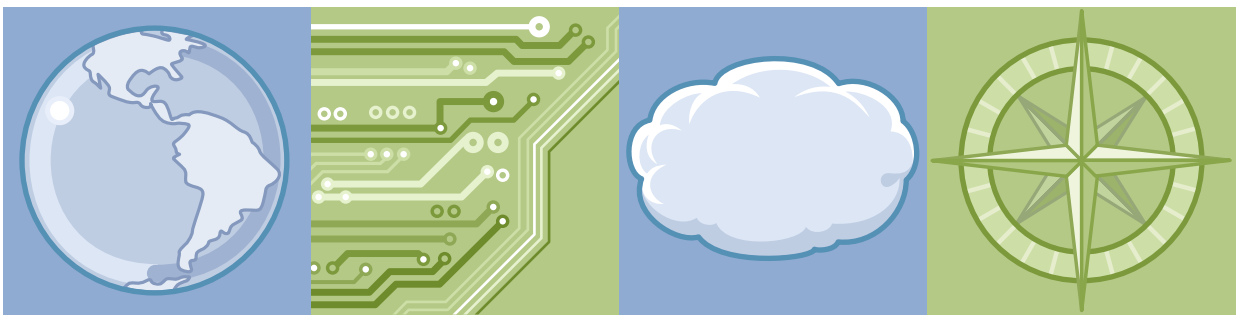
IBM Training

Student Exercises

IBM Case Foundation 5.2.1: Component integration

Course code F236 ERC 1.0



Trademarks

IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide.

The following are trademarks of International Business Machines Corporation, registered in many jurisdictions worldwide:

FileNet®	Power®	Tivoli®
WebSphere®		

Lenovo and ThinkPad are trademarks or registered trademarks of Lenovo in the United States, other countries, or both.

Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries, or both.

Java™ and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

VMware and the VMware "boxes" logo and design, Virtual SMP and VMotion are registered trademarks or trademarks (the "Marks") of VMware, Inc. in the United States and/or other jurisdictions.

Other product and service names might be trademarks of IBM or other companies.

December 2015 edition

Contents

Trademarks . . . . . **v**

Unit 1. IBM Case Foundation 5.2.1: Component integration **1-1**
Lesson 1.1. Component integration concepts 1-3
Test your knowledge of component integration: Quiz 1-5
Prepare the student system for the exercises 1-7
Lesson 1.2. Create and configure component queues 1-11
Create a Java component queue 1-13
Verify the Java component queue 1-21
Stop and start the component queue 1-31

Appendix A. Solutions to exercises **A-1**

Appendix B. Start and Stop System Components **B-1**

Appendix C. Troubleshooting **C-1**

Trademarks

The reader should recognize that the following terms, which appear in the content of this training document, are official trademarks of IBM or other companies:

IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide.

The following are trademarks of International Business Machines Corporation, registered in many jurisdictions worldwide:

FileNet®	Power®	Tivoli®
WebSphere®		

Lenovo and ThinkPad are trademarks or registered trademarks of Lenovo in the United States, other countries, or both.

Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries, or both.

Java™ and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

VMware and the VMware "boxes" logo and design, Virtual SMP and VMotion are registered trademarks or trademarks (the "Marks") of VMware, Inc. in the United States and/or other jurisdictions.

Other product and service names might be trademarks of IBM or other companies.

Unit 1. IBM Case Foundation 5.2.1: Component integration

Unit overview

Lessons

Lesson 1.1, "Component integration concepts," on page 1-3

Lesson 1.2, "Create and configure component queues," on page 1-11

Unit dependencies

The activities in this unit must be performed in order.

The labs in this unit are independent of other units. However, prerequisite knowledge is assumed. It is recommended that the following courses be completed first:

- Case Foundation 5.2.1 - Introduction
- Case Foundation 5.2.1 - Configure the workflow system
- Case Foundation 5.2.1: Workflow security
- Case Foundation 5.2.1: Maintain the workflow system
- Case Foundation 5.2.1: Manage work in progress

Lesson 1.1. Component integration concepts

Overview

Why is this lesson important?

You are a workflow system administrator responsible for configuring and maintaining component queues in non-development environments. You need to be familiar with the function of component queues and the purpose they provide in FileNet workflow applications.

Activities

- "Test your knowledge of component integration: Quiz" on page 1-5
- "Prepare the student system for the exercises" on page 1-7

User accounts

	Type	User ID	Password
	Operating System	Administrator	passw0rd
	P8 administrator	p8admin	IBMFileNetP8

Note

Passwords are always case-sensitive.

Test your knowledge of component integration: Quiz

Introduction

For each question, indicate the correct answer.

1. Select the option that is not a purpose of component integration.

   a. Extend business functionality easily without full application development.
   b. Use existing Java business objects and components.
   c. Perform external functions from within a workflow.
   d. Provide integration for a component step processor.

2. Starting with the IBM Case Foundation 5.2 release, a new Component Manager Framework was introduced. Where does this framework run?

   a. Within the Content Platform Engine server.
   b. Within the Process Task Manager, running on a Workplace XT server.
   c. As a task within the Administration Console for Content Platform Engine.
   d. Within the Process Configuration Console.

3. IBM Case Foundation 5.2 supports Java components only. (T or F)?

4. Which of the following statements is not an advantage to using the new Component Manager Framework?

   a. Easier to administer and maintain.
   b. More control over the class path.
   c. More performance information and logs available.
   d. Does not require Application Engine servers.

5. Which one of the following elements is used in component queues for authentication?

   a. JNDI
   b. Active Directory
   c. JAAS
   d. Component Manager

6. A component is an operation that waits in a component queue for processing. (T or F)

7. Which of the following component integration elements sends a message to a queue in a JNDI QueueConnectionFactory?

   a. Process Task Manager
   b. Java adapter
   c. CE_Operations
   d. JMS adapter

8. The two Component Manager Frameworks, supported since the IBM Case Foundation 5.2 release, are fundamentally the same. (T or F)?

Prepare the student system for the exercises

Introduction

The student system is running Microsoft Windows 7 Operating system. The student system is configured as a single application server, running the FileNet P8 system, with three WebSphere Application Server profiles. For this unit, you use the application server profile for server1. You follow the steps in Procedure 1 and 2 to start the system components and validate that all necessary components are running.

If your student system is already running, you can skip Procedure 1 and 2 in this exercise. Make sure to complete Procedure 3.

Procedures

Procedure 1, "Start system components," on page 1-7

Procedure 2, "Check system components," on page 1-8

Procedure 3, "Configure the JAAS credentials for CE_Operations," on page 1-9

Procedure 1: Start system components

There are start scripts to make starting the WebSphere Application Server profiles easier. The scripts are in the folder WebSphere Admin on the desktop.

1. Power on the student system.
2. If you get a login prompt, log in as:
   - Username: `Administrator`
   - Password: `passw0rd`

Important

If you just started the student system, ensure that the Windows 7 Operating System completes starting all the services before starting the WebSphere Application Server profile. Launch the Windows Task Manager and ensure that CPU usage is down to 0-1% CPU usage. It can take several minutes.

3. Open the WebSphere Admin folder on the desktop.
4. Double-click the **Start Server1.bat** to run the script.
5. Wait for the command window to disappear. (Can take several minutes).

Note

For your convenience, the WebSphere Admin folder also contains:

- A link to launch the WebSphere administrative console for each server profile.
- A shortcut to the location of the WebSphere Application Server logs for each profile.

- If you have issues with starting the system components, refer to `Appendix B, "Start and Stop System Components"`.
- Minimize the WebSphere Admin folder.

Information

The **Start Server1.bat**, starts the WebSphere Application Server, *server1*, which starts the following applications:

- Tivoli Directory Server Administration tool
- Content Platform Engine
- IBM Content Navigator
- Administration Console for Content Platform Engine

Procedure 2: Check system components

An IBM FileNet P8 Workflow system consists of one main engine, the Content Platform Engine, with two primary services, content and process services. In addition to the Content Platform Engine, a client application is required for the users, and databases are required to store configuration information and the object stores. The client application that you use for these activities is IBM Content Navigator. You work with an IBM Content Navigator desktop that is configured for the workflow author. You need to verify that the Content Platform Engine is fully functional before you start your student exercises. Because the Content Platform Engine relies on more software, testing the Content Platform Engine also ensures that the underlying software is functioning properly.

1. Verify that the Content Platform Engine, content services are functioning properly by opening the Content Engine Startup Context (Ping Page).

   a. Open a Mozilla Firefox browser window.
   b. Go to the URL: `http//ecmedu01:9080/FileNet/Engine`

      Tip: There is a bookmark defined for your convenience, **System Health > CE ping**.

   Because the Content Platform Engine is running as an application inside the IBM WebSphere Application Server, successfully viewing the Content Platform Engine Ping Page indicates that the web application server is also running on your student system.

2. Verify that the Content Platform Engine process Services are functioning properly.
   a. Open a new browser tab.
   b. Go to the URL: `http//ecmedu01:9080/peengine/IOR/ping`

      Tip: There is a bookmark defined for your convenience, **System Health > PE ping**.
3. Log in with an account that is a member of the workflow system configuration group.
   - Username: `p8admin`
   - Password: `IBMFileNetP8`
4. If both ping pages display successfully, close the browser and all the tabs.

Procedure 3: Configure the JAAS credentials for CE_Operations

In this procedure, you configure the JAAS credentials for the component queue, CE_Operations. Starting with IBM Case Foundation 5.2, the CE_Operations is automatically created. However, the JAAS credentials might not be set correctly.

1. Open the Administration Console for Content Platform Engine.
   a. Open a Mozilla Firefox browser window.
      - Go to the URL: `http://ecmedu01:9080/acce`

   Tip: There is a bookmark defined for your convenience, ***ACCE***.

   b. Log in with a P8 administrator account.
      - Username: `p8admin`
      - Password: `IBMFileNetP8`
2. Open the object store **LoanProcess.**
3. In the left navigation pane, go to **Administrative > Workflow System > Isolated Regions > P8Region5 > Component Queues**.
4. Edit the JAAS credentials for CE_Operations.
   a. On the right, click the component queue, **CE_Operations**, to open the properties window.
   b. Select the **Adapter** tab.
   c. Change the JAAS credentials to:
      - Username: `p8admin`
      - Password: `IBMFileNetP8`
   d. Leave the configuration context blank.
5. Click **Save**.
6. Close the **CE_Operations** tab.
7. Log out of the administration console.
8. Close the browser window.

Lesson 1.2. Create and configure component queues

Overview

Why is this lesson important?

A Java component that calculates the monthly loan payment amount is deployed on your system by a developer. You need to create and configure a component queue in the isolated region to communicate with the Java component.

Activities

- "Create a Java component queue" on page 1-13
- "Verify the Java component queue" on page 1-21
- "Stop and start the component queue" on page 1-31

User accounts

	Type	User ID	Password
	P8 administrator	p8admin	IBMFileNetP8
	Service user	Oscar	filenet
	Loan Officer	Olivia	filenet

Note

Passwords are always case-sensitive.

Create a Java component queue

Introduction

In this exercise, you perform all the necessary steps to create a Java component queue. The component queue you create is using the new Component Manager framework.

Procedures

Procedure 1, "Create a code module for the Java object," on page 1-13

Procedure 2, "Create a Java component queue," on page 1-15

Procedure 3, "Import the component queue operations," on page 1-16

Procedure 4, "Set security on the component queue," on page 1-18

Procedure 1: Create a code module for the Java object

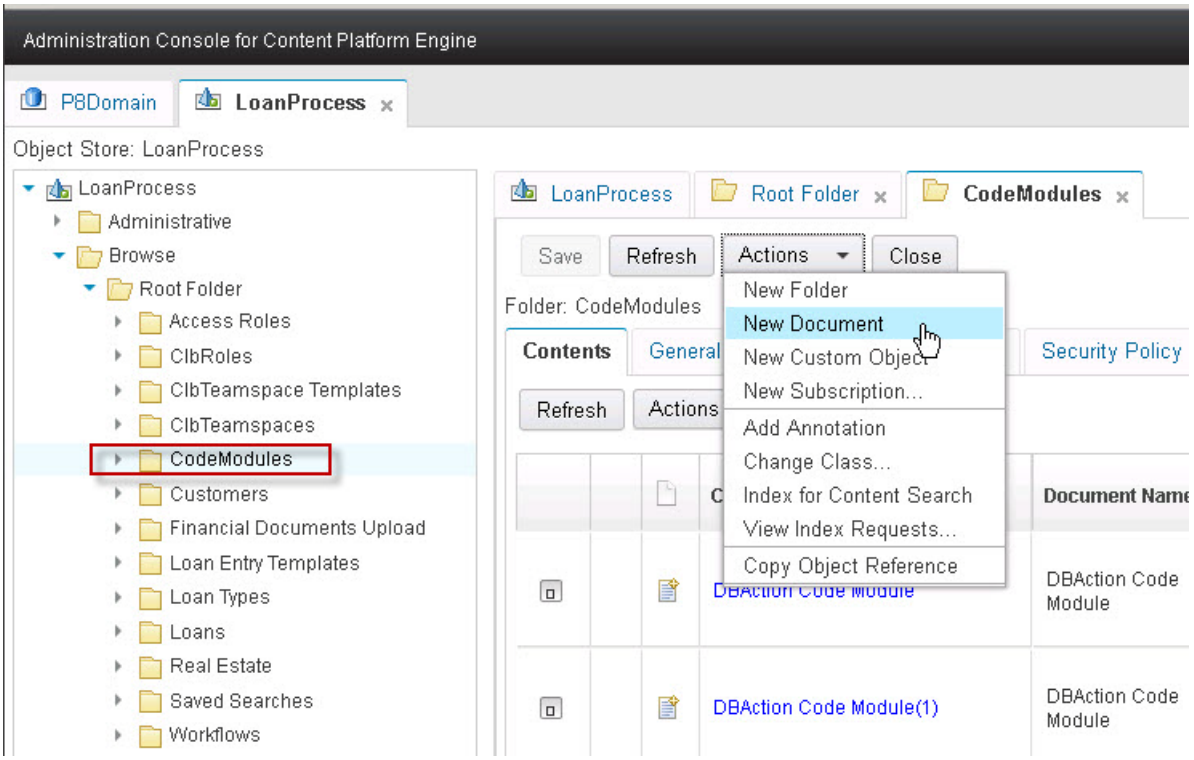
In the new Component Manager framework, you must create a code module for the Java JAR file before you can create a component queue.

1. Open the Administration Console for Content Platform Engine.
   a. Open a Mozilla Firefox browser window.
      - Go to the URL: `http://ecmedu01:9080/acce`

   Tip: There is a bookmark defined for your convenience, ***ACCE***.

   b. Log in with an account that has write privileges on the folder, **CodeModules**, in the object store.
      - Username: `p8admin`
      - Password: `IBMFileNetP8`
2. Open the object store **LoanProcess.**
3. On the left navigation pane, expand **Browse > Root Folder**.

4. Select **CodeModules**. On the right, click **Actions > New Document**.



   a. Use the data to complete the wizard. Accept defaults for fields that are not listed.

Item	Value
Document title	`Amortization`
Class	**Code Module**

5. Click **Next**.
6. Under **Content Elements**, click **Add**.
   a. Browse to:

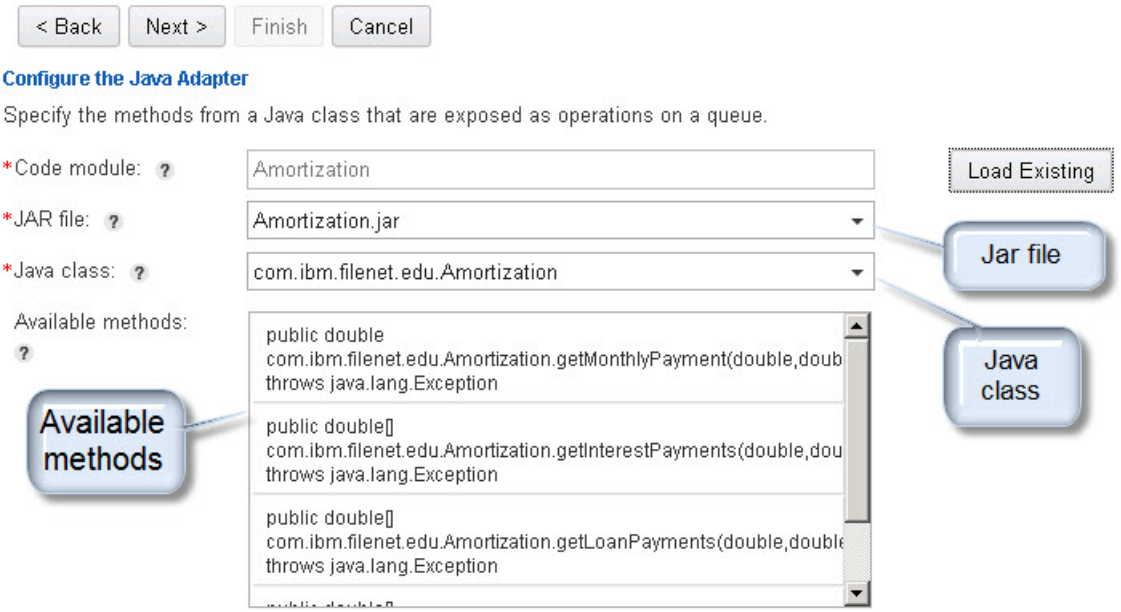
   `C:\Labs\Case Foundation 5.2.1 Administration\Component Integration\Amortization.jar`

   b. Click **Add Content**.
7. Click **Next**.
8. Continue clicking **Next** until you get to the **Summary** window.
9. Click **Finish**.
10. Close the window.
11. Refresh the **Code Modules** tab.
12. You see the Amortization code module listed.
13. Close the **Code Modules** tab.

Procedure 2: Create a Java component queue

In this procedure, you create a Java component queue with the Administration Console for Content Platform Engine.

1. Open the New Component Queue wizard.
   a. In the Administration Console for Content Platform Engine, expand **LoanProcess > Administrative > Workflow System > Isolated Regions > P8Region5**.
   b. Right-click **Component Queues**, and select **New Component Queue**.
      - Name: `Loan_Operations`
      - Adapter: Accept the default, Java Component.
      - Click **Next**.
2. On the **Configure the Java Adapter** window:
   a. Code Module: Click **Load Existing**.
   b. Select the code module, **Amortization**.
   c. The remaining fields are automatically populated, with information from the code module.



3. Click **Next**.
4. On the **Adapter Properties** window:
   a. Change the Polling interval to: `60000`.
   b. Click **Next**.
5. On the JAAS Credentials window:
   a. Enter a service user account:
      - Username: `oscar`
      - Password: `filenet`
      - Leave the Configuration context blank.

6. Click **Next**.
7. Review the information in the **Summary** window. When you are done, click **Finish**.
8. Wait until you see a **Success** message.
9. Close the window.

Procedure 3: Import the component queue operations

In this procedure, you use the Process Configuration Console to import the operations for the component queue.

Information

At the writing of this course, the only tool that supports the import of the component queue operations is Process Configuration Console. A future IBM Case Foundation 5.2.1 fix pack adds this feature to the Administration Console for Content Platform Engine.

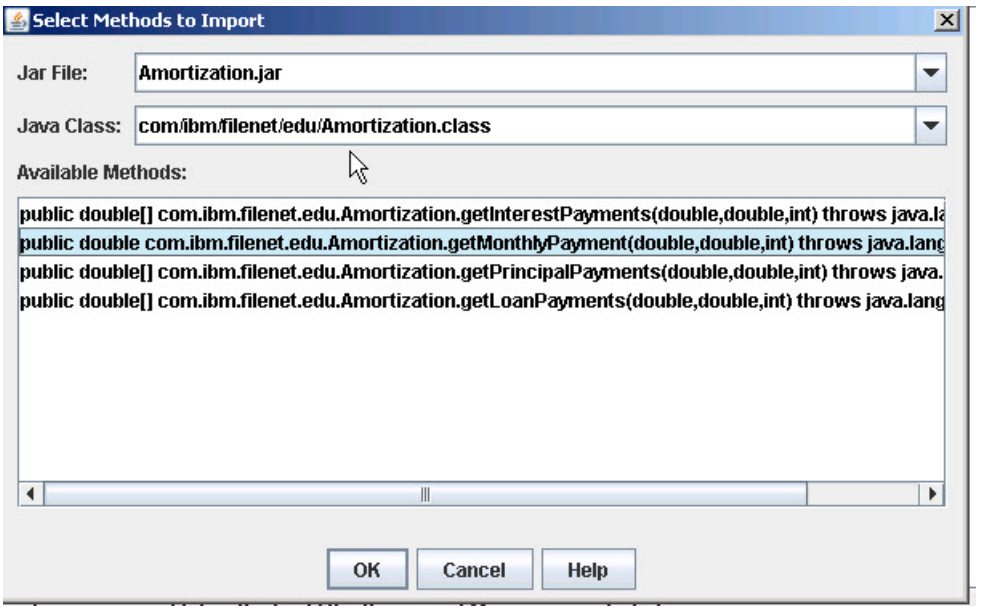
1. Open the Process Configuration Console.
   a. In the Administration Console for Content Platform Engine, right-click **Workflow System** and select **Configure Workflow Settings**.

Note

The first time you open Process Configuration Console; it can take several minutes to open. You see a white screen for several seconds. Process Configuration console opens eventually.

2. Double-click **P8ConnP5**, on the left, to connect to the connection point and open it.
3. On the left, select the node, **Component Queues**.
4. On the right, double-click the component queue, **Loan_Operations**, to open the properties window.
5. Select the **Operations** tab.

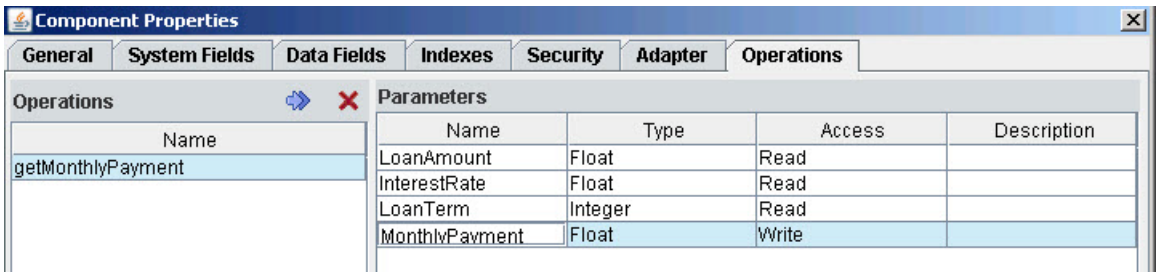
6. Click the Import icon,  .
   a. Select the method, **getMonthlyPayment**.



   b. Click **OK**.

7. Rename the parameters to match the values in the table. To update a field, double-click the cell then replace the value:

Old parameter name	New parameter name
param1	`LoanAmount`
param2	`InterestRate`
param3	`LoanTerm`
return_value	`MonthlyPayment`

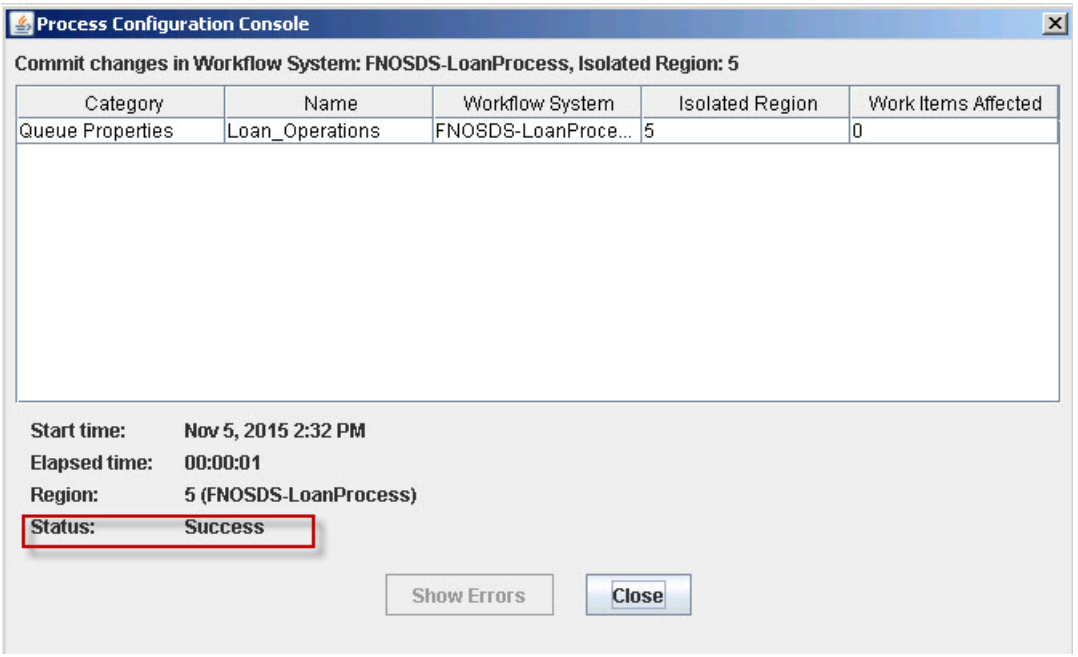


   a. Click **OK**.

8. Commit the changes.
   a. Click the Commit changes icon in the menu bar.

   b. Click **Continue** on the window that opens.

c. Click **Close** on the Status window.



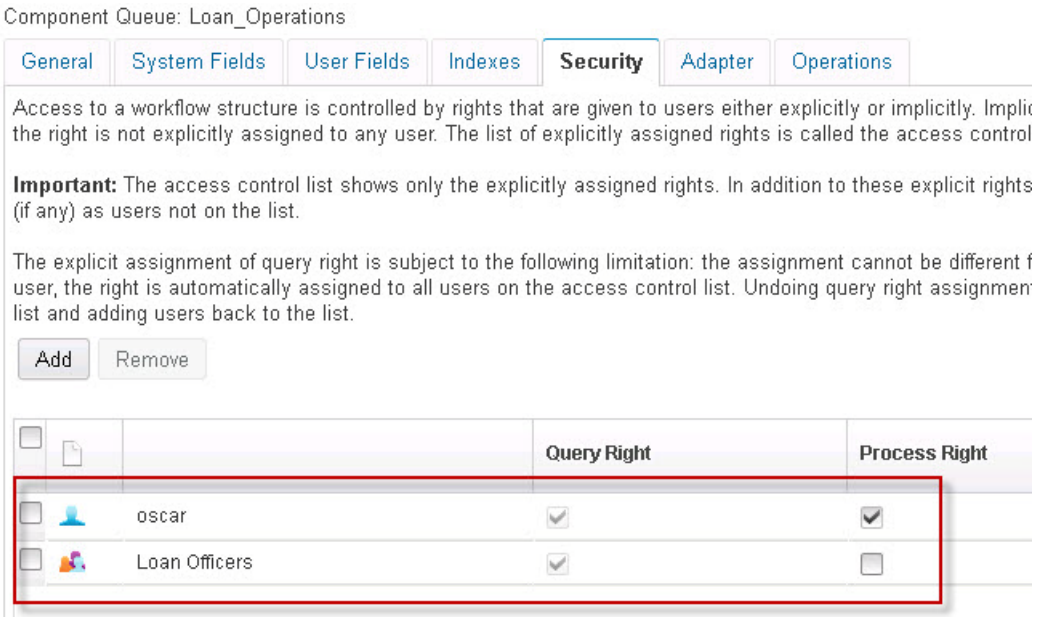
9. Close the Process Configuration console.

Procedure 4: Set security on the component queue

In this procedure, you set the query and process security on the component queue. Setting security on component queues is the same as setting security on work queues or user queues.

1. In the Administration Console for Content Platform Engine, open the **Loan_Operations** component queue.
2. Select the **Security** tab.
3. Grant the service user, configured in the JAAS credentials, query, and process rights. Query and Process rights are required for the component to be able to function.
   a. Click **Add**.
      - Type osc, in the search field.
      - Move **oscar** to **Selected Users and Groups**.
      - Under **Access Rights**, check **Query** and **Process**.
      - Click **OK**.
4. Grant the group, Loan Officers, query rights.
   a. Click **Add**.
      - Search for Loan.
      - Move **Loan Officers** to **Selected Users and Groups**.
      - Check **Query**, if it is not already checked.

- Click **OK**.



5. Click **Save**.
6. Click **Close**.
7. Log out of the administration console.
8. Leave the browser window open for the next exercise.

Verify the Java component queue

Introduction

In this exercise, you verify that the Java component queue that you created is functioning as expected. You will:

- Examine the Component Manager logs, available from the process services ping page.
- Verify the component queue configuration with vwtool.
- Verify the component queue functionality, by launching an instance of the workflow to ensure the component step functions as expected.

Procedures

Procedure 1, "Examine the Component Manager logs," on page 1-21

Procedure 2, "Verify the component queue configuration with vwtool," on page 1-23

Procedure 3, "Verify the component queue functionality," on page 1-24

Procedure 4, "Examine the updates to the Component Manager logs.," on page 1-27

Procedure 1: Examine the Component Manager logs

In this procedure, you open the Component Manager logs, available from the process services ping page and examine them to verify that the component queue that you created, is operational.

1. Open the Process services ping page.
   a. Open a new browser tab.
   b. Go to **Bookmarks > System Health > PE ping**.
   c. Log in as a user that is a member of the Workflow System Configuration group.
      - Username: `p8admin`
      - Password: `IBMFileNetP8`

2. Scroll down to the bottom of the page. You might have to scroll with the mouse, in addition to the scroll bar.

3. Examine the Component Manager run time logs.

   a. Click the link, **Component Manager Logs**.
   b. Notice the three components listed, **WSRequest**, **CE_Operations, and Loan_Operations**, the component queue that you created.

      - At the top of the log, all three component queues show a status of Terminated or stopped.

```
P8ConnP5:WSRequest
[LoanProcess.FNOSDS] CMR1.LoanProcess.FNOSDS_5.WSRequest DELAYED until another 862414ms , Region=5 [0 total processed.]
[LoanProcess.FNOSDS] CMR0.LoanProcess.FNOSDS_5.WSRequest marked as TERMINATED. , Region=5 [0 total processed.]
[LoanProcess.FNOSDS] CMDp.LoanProcess.FNOSDS_5.WSRequest_0 DELAYED until another 203500ms , Region=5 [0 total processed.]

P8ConnP5:CE_Operations
[LoanProcess.FNOSDS] CMR1.LoanProcess.FNOSDS_5.CE_Operations DELAYED until another 862414ms , Region=5 [0 total processed.]
[LoanProcess.FNOSDS] CMR0.LoanProcess.FNOSDS_5.CE_Operations marked as TERMINATED. , Region=5 [0 total processed.]
[LoanProcess.FNOSDS] CMDp.LoanProcess.FNOSDS_5.CE_Operations_0 DELAYED until another 208485ms , Region=5 [0 total processed.]

P8ConnP5:Loan_Operations
[LoanProcess.FNOSDS] CMR1.LoanProcess.FNOSDS_5.Loan_Operations DELAYED until another 862414ms , Region=5 [0 total processed.]
[LoanProcess.FNOSDS] CMR0.LoanProcess.FNOSDS_5.Loan_Operations marked as TERMINATED. , Region=5 [0 total processed.]
[LoanProcess.FNOSDS] CMDp.LoanProcess.FNOSDS_5.Loan_Operations_0 DELAYED until another 52497ms , Region=5 [0 total processed.]
```

      - As you scroll down to the bottom of the log, you see a change in the status of CE_Operations and WSRequest. The time corresponds to when you updated the JAAS credentials for the CE_Operations component queue.

```
2015/11/05 11:15:59.160 PEServer.init   CE_Operations   RegionMount     P8ConnP5        CMR0.LoanProcess.FNOSDS_5.CE_Operations:1
CMDp.LoanProcess.FNOSDS_5.CE_Operations_0       CMR1.LoanProcess.FNOSDS_5.CE_Operations CMDp.LoanProcess.FNOSDS_5.CE_Operations_0
CMR1.LoanProcess.FNOSDS_5.CE_Operations ADDED   312ms
2015/11/05 11:15:59.472 PEServer.init   WSRequest       RegionMount     P8ConnP5        CMR0.LoanProcess.FNOSDS_5.WSRequest:1
CMDp.LoanProcess.FNOSDS_5.WSRequest_0   CMR1.LoanProcess.FNOSDS_5.WSRequest     ADDED   0ms
```

      - Scroll to the end of the log. You see that the three component queues have **No items** in the queues.

```
2015/11/05 14:33:21.795 PESecondary2    CMR1.LoanProcess.FNOSDS_5.WSRequest     No items.       0ms
2015/11/05 14:33:21.795 PESecondary2    CMR1.LoanProcess.FNOSDS_5.Loan_Operations       No items.       0ms
2015/11/05 14:33:21.795 PESecondary1    CMR1.LoanProcess.FNOSDS_5.CE_Operations No items.       0ms
2015/11/05 14:36:10.30  PESecondary2    CMR1.OSDBUSER.FNOSDS_1.WSRequest        No items.       0ms
2015/11/05 14:36:10.514 PESecondary2    CMR1.Sales.FNOSDS_2.WSRequest   No items.       0ms
2015/11/05 14:36:30.108 PESecondary2    CMR1.OSDBUSER.FNOSDS_1.CE_Operations    No items.       0ms
2015/11/05 14:36:30.467 PESecondary2    CMR1.Sales.FNOSDS_2.CE_Operations       No items.       0ms
```

   c. You also see that Loan_Operations is updated and no longer TERMINATED.

d. When you are done examining the logs, click the back arrow on the browser window to go back to the process services ping page.

4. Examine the Component Manager Statistics.

   a. Right-click the link, **Component Manager Stats**, and select to open in a new tab.
   b. Select the new tab.
   c. Examine the row for the component queue, **Loan_Operations**.

Component Queues Processing Time Information -

Method	NTimes	NGood	NBad	Worst	When	Best	When	Avg	Total
CMDp.LoanProcess.FNOSDS_5.CE_Operations_0	66	66	0	10.0ms	2015.11.05 11:16:35	1.0ms	2015.11.05 14:38:18	2.64ms	0.17sec
CMDp.LoanProcess.FNOSDS_5.Loan_Operations_0	35	35	0	4.0ms	2015.11.05 14:22:29	1.0ms	2015.11.05 17:04:42	1.91ms	0.07sec
CMDp.LoanProcess.FNOSDS_5.WSRequest_0	66	66	0	15.0ms	2015.11.05 14:33:21	1.0ms	2015.11.05 17:03:43	2.18ms	0.14sec

   d. You explore the values in the different columns in a later exercise.

5. Examine the Component Processing details.

   a. In the process services ping page, right-click the link, **Component Processing Details**, and select to open in a new tab.
   b. Select the new tab.
   c. You see the server that is running component manager. No other information is listed since the components have not run any operations yet.

Important

If you are running in a clustered environment, each time you open the process services ping page you can connect to a different server.

6. Close the browser window and all the tabs.

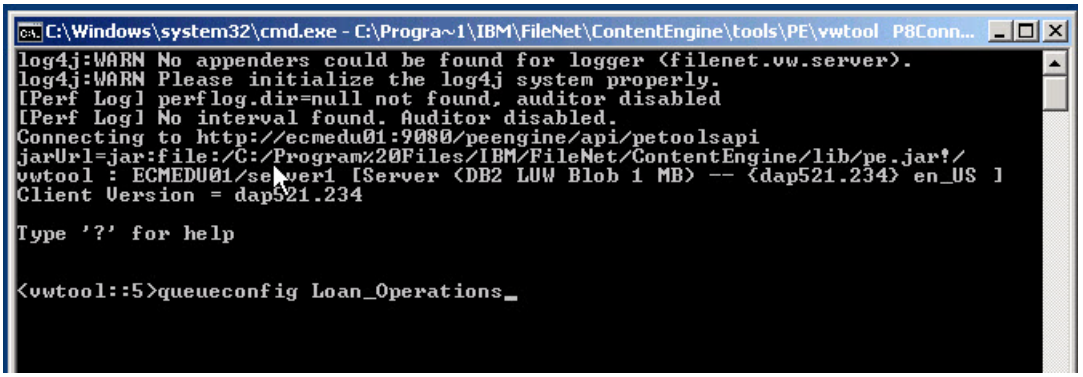
Procedure 2: Verify the component queue configuration with vwtool

In this procedure, you use vwtool to verify the component queue configuration for **Loan_Operations**. It is assumed that you are familiar with running vwtool.

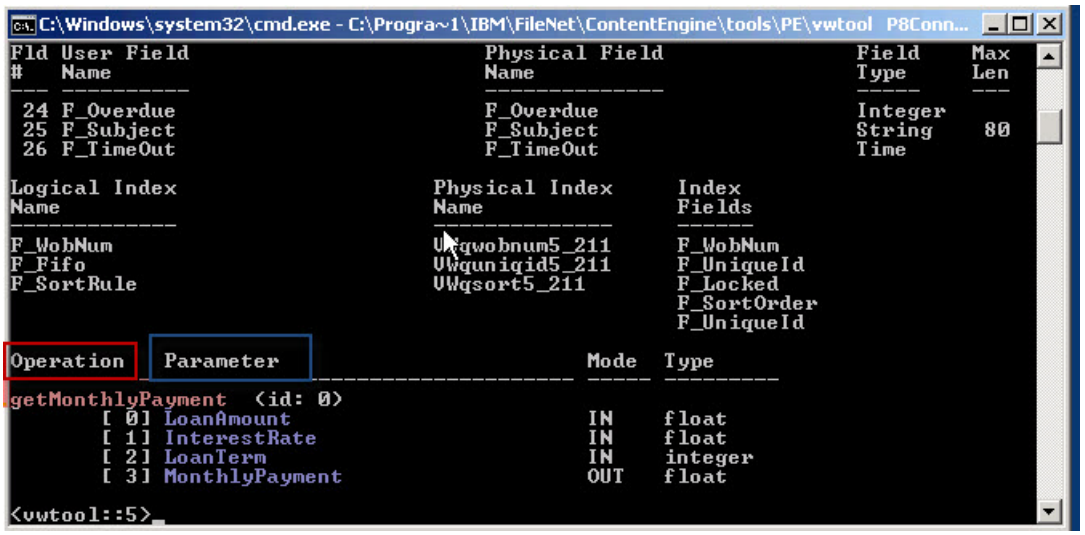
1. Open vwtool.

   a. On the desktop, double-click the shortcut, **vwtool P8ConnP5.bat**. The script automatically connects to the connection point and logs you in.

2. Verify the configuration with the queueconfig command.
   a. At the vwtool prompt, type: queueconfig `Loan_Operations`.



   b. Verify that the information at the end of the report, matches how you configured the component queue.



3. Type: q carriage return to exit vwtool.
4. Close the command prompt window.

Procedure 3: Verify the component queue functionality

In this procedure, you update, validate, transfer, and launch, a workflow definition that contains a component step that uses the component queue.

1. Open the Workflow Author desktop.
   a. Open a Mozilla Firefox window.
   b. In the Bookmarks menu, go to **Workflow Author desktop**. (It can take several minutes for the desktop to load, the first time it is opened).
   c. Log in as a user that has write privileges on the Workflows folder in the LoanProcess object store.
      - Username: `p8admin`
      - Password: `IBMFileNetP8`

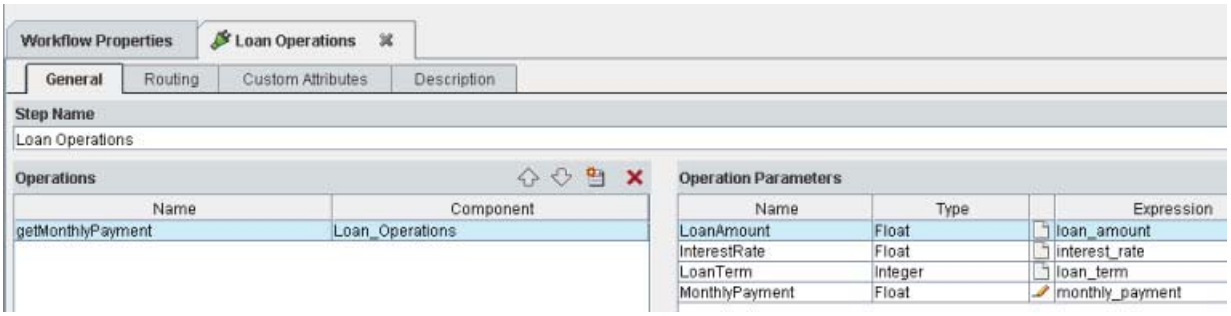
2. Update the workflow definition.
   a. Open Process Designer.
      - On the left, right-click LoanProcess and select Open Process Designer.

Note

The first time you open Process Designer; it can take several minutes to open, be patient. You see a white screen for several seconds, Process Designer eventually opens.

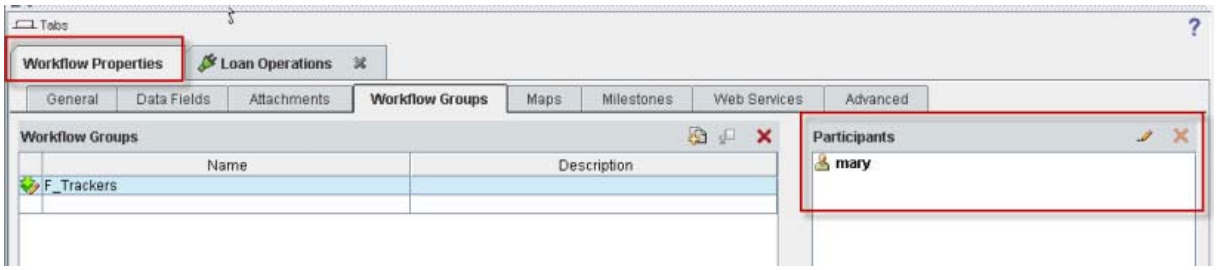
   b. Open the workflow definition.
      - Click **File > Open** and browse to the folder:

        `C:\Labs\Case Foundation 5.2.1 Administration\Component Integration`.
      - Select **Java Component Workflow.pep** and click **Open**.
   c. Review the use of the component queue in the workflow.
      - Click the component step, **Loan Operations**.
      - In the Properties pane at the bottom, ensure that you are at the **General** tab.
      - Verify that the **Operations** name and component match the configuration that you completed previously.
      - Verify that the operation parameter names, on the lower right, match the names that you specified.



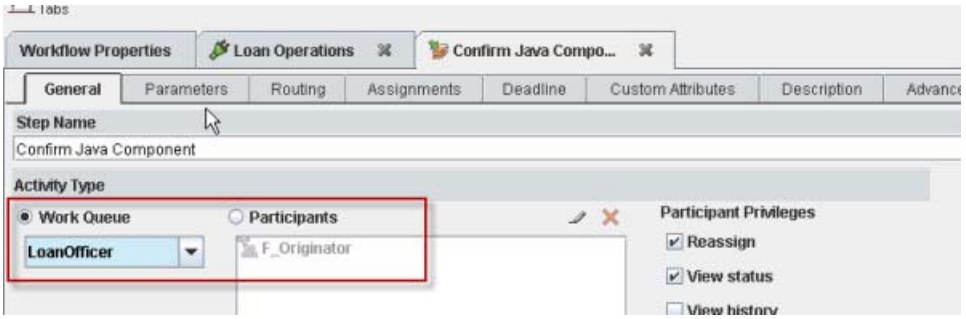
d. Change the user assigned to the trackers, **F_Trackers**.

- Select the Workflow Properties tab.
- Select the Workflow Groups.
- On the right, select **Administrator** and click the red X to delete it.
- Click the pencil icon, and add the user **mary**, a Loan Manager.



e. Modify the step, **Confirm Java Component**.

- Select the step, **Confirm Java Component**.
- Change Participants: **F_Originator** to Work queue: **LoanOfficer**.



3. Validate the workflow definition.

a. **File > Validate Workflow Collection**.
b. Close the message window, stating that the workflow validation was successful.

4. Transfer the workflow definition.

a. **File > Transfer Workflow Collection**.
b. Add the workflow to the folder, **LoanProcess > Workflows**.
c. Document title: `Java Component Workflow`.
d. Click **Finish**.
e. Close message window, stating that the transfer was successful.

5. Close the workflow definition and exit Process Designer.

a. **File > Close**.
b. Select, **Cancel the checkout**.
c. **File > Exit**.
d. Log out of the Workflow Author desktop.

6. Launch an instance of the workflow.
   a. Log in as a Loan Manager.
      - Username: Mary
      - Password: filenet
   b. Open the folder, **Workflows**.
   c. Right-click **Java Component Workflow** and select **Workflow > Launch Workflow**.
      - The fields are populated for you.
      - Notice that the initial value for the monthly payment field is **0**.
   d. Scroll down and click **Launch Workflow**, on the lower right corner.
   e. Log out of the desktop.
7. Verify the results.
   a. Log in as a Loan Officer.
      - Username: Olivia
      - Password: filenet
   b. Open the Work View. 
   c. Select the **Loan Officer Inbasket**.
   d. In the right pane, click the work item icon, or double-click the work item link, with the name **Java Component Test**.
   e. Verify that the **monthly_payment** field has the value, **567.79**.

Information

The component queue returns the value, which indicates that the component queue is functioning as expected.

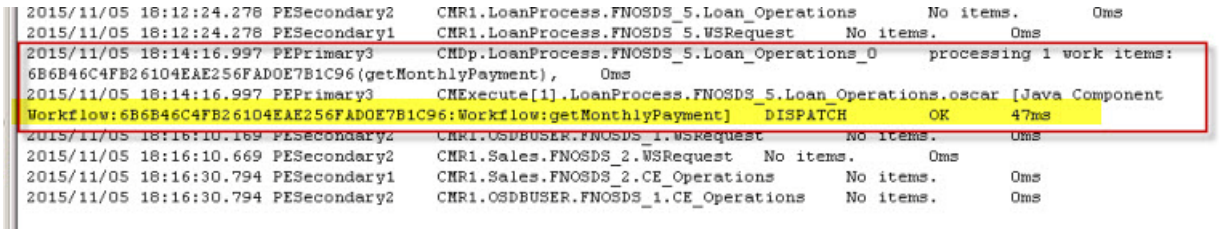
   f. Scroll down and click **Complete** to complete the step.
8. Log out of the Workflow Author desktop.

Procedure 4: Examine the updates to the Component Manager logs.

In this procedure, you examine the updates made to the Component Manager logs.

1. Open the Process services ping page.
   a. Open a new browser tab and go to **Bookmarks > System Health > PE ping**.
   b. Log in as a user that is a member of the Workflow System Configuration group.
      - Username: `p8admin`
      - Password: `IBMFileNetP8`
2. Scroll to the bottom and right-click the link, **Component Manager Logs**, and open link in a new tab.

3. Right-click the link, **Component Manager Stats**, and open link in a new tab.
4. Right-click the link, **Component Processing Details**, and open link in a new tab.
5. Open the Component Manager Logs tab.
   a. Scroll down to the bottom and examine all the entries added because of executing the component step in the **Java Component Workflow**. Verify the time stamp to make sure that you are at the bottom of the log.
   b. You see output similar to:



Important

The Component Manager run time log includes numerous information. As a workflow system administrator, who needs to verify that an operation executed successfully, you want to look for, "**processing x work items**" and the operation name, for example, **getMonthlyPayment**. For example, in the preceding screen capture, in the highlighted box, you see:

- **Workflow:**
- The workflow object number (wobnum) - the long hexadecimal number.
- **Workflow:getMonthlypayment** - the operation name.
- **DISPATCH** - indicates that the task was dispatched.
- **OK** - indicates that the task completed successfully.
- 47ms - the time it took to complete the operation.

6. Open the Statistics for Component Manager tab.
   a. Scroll down to the bottom of the table.
   b. Notice the rows for the **Loan_Operations**.

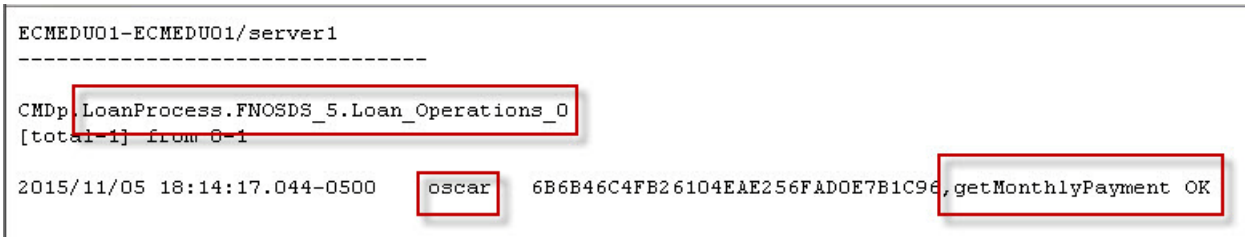
P8ConnP5:Loan_Operations:getMonthlyPayment	1	1	0	40.0ms	2015.11.05 18:14:17	40.0ms	2015.11.05 18:14:17	40ms	0.04sec
P8ConnP5:Loan_Operations:getMonthlyPayment:core	1	1	0	2.0ms	2015.11.05 18:14:17	2.0ms	2015.11.05 18:14:17	2ms	0sec
P8ConnP5:Loan_Operations:getP8Subject	53	53	0	67.0ms	2015.11.05 16:48:12	2.0ms	2015.11.05 18:17:17	10.06ms	0.53sec
P8ConnP5:Loan_Operations:load:com.ibm.filenet.edu.Amortization	2	2	0	43.0ms	2015.11.05 14:20:29	2.0ms	2015.11.05 14:33:21	22.5ms	0.04sec

c. The table describes what each column means:

Column name	Description
NTimes	The number of times the component queue is called.
NGood	The number of times the operation finished successfully.
NBad	The number of times the operation failed.
Worst	The worst performance time (longest) of the operation. **When** indicates when it happened.
Best	The best performance time of the operation. **When** indicates when it happened.
Avg	The average time to finish the operation.

7. Open the Component Processing Details tab.

   a. Notice the new entry. Here is a sample:



   b. You see;

   - The component queue, **Loan_Operations** is called.
   - The user oscar executed the operation (Oscar is the user configured in the JAAS credentials).
   - The operation **getMonthlyPayment** completed with a status of **OK**, indicating a successful completion.

8. Close the three tabs that you opened.
9. Leave the browser window open for the next exercise.

Stop and start the component queue

Introduction

In this exercise, you: stop the component queue, check the status in the Component Manager logs, and start the component queue.

Procedures

Procedure 1, "Stop the component queue," on page 1-31

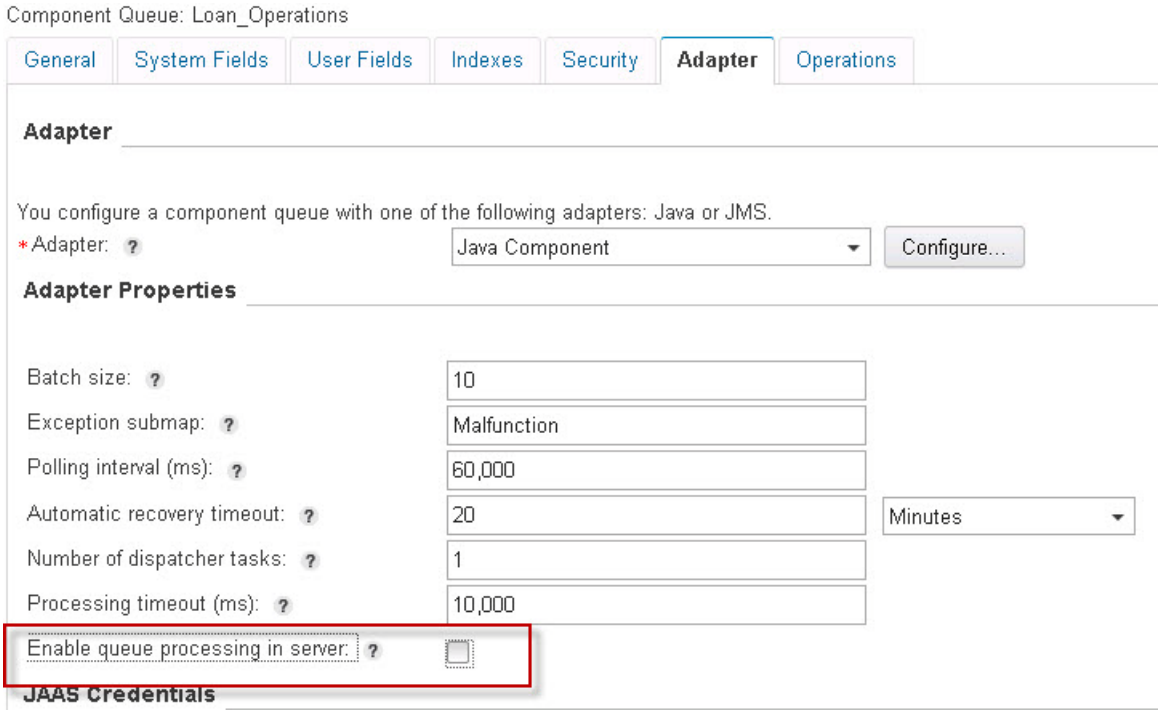
Procedure 2, "Examine the Component Manager logs," on page 1-32

Procedure 3, "Start the component queue," on page 1-33

Procedure 1: Stop the component queue

1. Open the Administration Console for Content Platform Engine.
   a. Open a new browser tab.
   b. Go to **Bookmarks > ACCE**.
   c. Log in as:
      - Username: `p8admin`
      - Password: `IBMFileNetP8`
2. Open the component queue, **Loan_Operations**.
   a. **LoanProcess > Administrative > Workflow System > Isolated Regions > P8Region 5 > Component Queues > Loan_Operations**.
3. Stop the component queue.
   a. Select the **Adapter** tab.

b. Clear the check box, **Enable queue processing in server**.



4. Click **Save**.
5. Leave the administration console open.

Procedure 2: Examine the Component Manager logs

1. Open the Component Manager Logs.
   a. Click the browser tab for the Component Manager Logs, and click the browser refresh to update the log.
      - If you do not have an existing Component Manager Logs tab open, open a new browser tab and go to the PE ping page.
   b. Scroll down to the bottom of the log
   c. When the component queue is stopped, you see a status of TERMINATED.

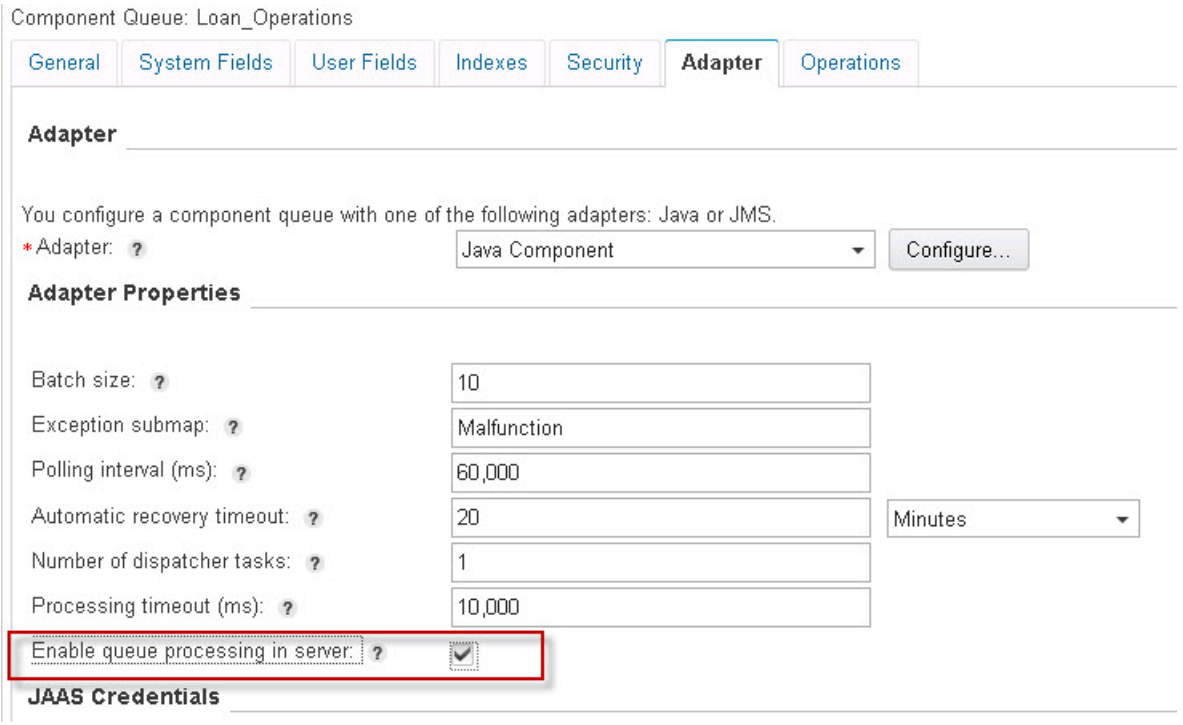
```
15/11/06 10:18:20.688 pool-10-thread-2        Loan_Operations RegionMount     P8ConnP5        Oms
15/11/06 10:18:20.688 pool-10-thread-2        Loan_Operations CMR1 LoanProcess.FNOSDS_5.Loan_Operations       TERMINATED      DELETED On
15/11/06 10:18:20.688 pool-10-thread-2        Loan_Operations CMRO LoanProcess.FNOSDS_5.Loan_Operations       TERMINATED      DELETED On
15/11/06 10:18:20.688 pool-10-thread-2        Loan_Operations CMDp LoanProcess.FNOSDS_5.Loan_Operations_O     TERMINATED      DELETED On
15/11/06 10:18:50.704 PESecondary1    CMR1.LoanProcess.FNOSDS_5.CE_Operations No items.       Oms
15/11/06 10:18:50.719 PESecondary2    CMR1.LoanProcess.FNOSDS_5.WSRequest     No items.       Oms
```

Information

In the new Component Manager Framework, the Content Platform Engine servers classify all work as tasks. The tasks share a common thread pool. You cannot stop the thread, so to stop a task from executing, the task is terminated/deleted to remove the task from the thread pool and ensure that the task is not executed.

Procedure 3: Start the component queue

1. Back in the Administration Console for Content Platform Engine, ensure that you are in the Adapter tab for the component queue, **Loan_Operations**.
2. Start the component queue.
   a. Select the check box, **Enable queue processing in server**.



3. Click **Save**.
4. Check the status in the Component Manager logs.
   a. Go to the Component Manager logs tab, that you have open and click the browser refresh.
   b. You see that **Loan_Operations** is Added.

```
1/06 10:18:50.719 PESecondary2     CMR1.LoanProcess.FNOSDS_5.WSRequest      No items.        0ms
1/06 10:31:38.961 pool-10-thread-1         CE_Operations    RegionMount      P8ConnP5         CMR1.LoanProcess.FNOSDS_5.CE_Operations
oanProcess.FNOSDS_5.CE_Operations_0        CMDp.LoanProcess.FNOSDS_5.CE_Operations_0        CMR1.LoanProcess.FNOSDS_5.CE_Operations UPDATE
1/06 10:31:38.961 pool-10-thread-1         WSRequest        RegionMount      P8ConnP5         CMR1.LoanProcess.FNOSDS_5.WSRequest
oanProcess.FNOSDS_5.WSRequest_0    CMDp.LoanProcess.FNOSDS_5.WSRequest_0    CMR1.LoanProcess.FNOSDS_5.WSRequest      UPDATED 0ms
1/06 10:31:38.961 pool-10-thread-1         Loan_Operations RegionMount      P8ConnP5         CMR0.LoanProcess.FNOSDS_5.Loan_Operations:1
oanProcess.FNOSDS_5.Loan_Operations_0      CMR1.LoanProcess.FNOSDS_5.Loan_Operations        CMDp.LoanProcess.FNOSDS_5.Loan_Operations_0
oanProcess.FNOSDS_5.Loan_Operations        ADDED    15ms
```

5. When you are done reviewing the logs, close the browser window and all the tabs.

Appendix A. Solutions to exercises

This appendix contains the answers to the quiz in Lesson 1.1.

Test your knowledge of component integration.

1. d
2. a
3. F
4. b
5. c
6. F
7. d
8. T

Appendix B. Start and Stop System Components

Appendix Overview

This image contains three WebSphere Application Server profiles. For this unit, you use the profile for server1, which hosts the following applications:

- Tivoli Directory Server Administration tool
- Content Platform Engine
- IBM Content Navigator
- Administration Console for Content Platform Engine

List of procedures:

- Procedure 1, "Start system components," on page B-1
- Procedure 2, "Check system components," on page B-2
- Procedure 3, "Stop system components," on page B-3

Procedure 1: Start system components

There are start scripts to make starting the WebSphere Application Server profiles easier. The scripts are in the folder WebSphere Admin on the desktop.

Important

If you just started the student system, ensure that the Windows 7 Operating System completes starting all the services before starting the WebSphere Application Server profile. Launch the Windows Task Manager and ensure that CPU usage is down to 0-1% CPU usage. It can take several minutes.

1. Open the WebSphere Admin folder on the desktop.
2. Double-click the *Start Server1.bat* to run the script.
3. Wait for the command window to disappear. (Can take several minutes).

Note

For your convenience, the WebSphere Admin folder also contains:

- A link to launch the WebSphere administrative console for each server profile.
- A shortcut to the location of the WebSphere Application Server logs for each profile.

- If you have issues with starting the system components, you can need to stop and restart the components. Refer to `Appendix A, "Start and Stop System Components"`.
- Minimize the WebSphere Admin folder.

Information

The Start Server1.bat, starts the WebSphere Application Server, *server1*, which starts the following applications:

- Tivoli Directory Server Administration tool
- Content Platform Engine
- IBM Content Navigator
- Administration Console for Content Platform Engine

Procedure 2: Check system components

An IBM FileNet P8 Workflow system consists of one main engine, the Content Platform Engine, with two primary services, content and process services. In addition to the Content Platform Engine, a client application is required for the users and databases are required to store configuration information and the object stores. The client that you use for these activities is IBM Content Navigator. You work with two IBM Content Navigator desktops that are configured for the workflow system administrator and for the workflow author. You need to verify that the Content Platform Engine and the IBM Content Navigator desktops are fully functional before you start your student exercises. Because these two applications rely on more software, testing the two applications also ensures that the underlying software is also functioning properly within your system.

1. Verify that the Content Platform Engine, content services are functioning properly by opening the Content Engine Startup Context (Ping Page).
   a. Open a Mozilla Firefox browser window.
   b. Go to the URL: `http//ecmedu01:9080/FileNet/Engine`

Hint

There is a bookmark in the Bookmarks menu under:

- *System Health > CE ping*

Because the Content Platform Engine is running as an application inside the IBM WebSphere Application Server, successfully viewing the Content Platform Engine Ping Page indicates that the web application server is also running on your student system.

2. Verify that the Content Platform Engine process Services are functioning properly.
   a. Open a new browser tab.
   b. Go to the URL: `http//ecmedu01:9080/peengine/IOR/ping`

Hint

There is a bookmark in the Bookmarks menu under:

- *System Health > PE ping*

   c. Log in as the P8 administrator.
      - Username: p8admin
      - Password: IBMFileNetP8
   d. If both ping pages display successfully, close the browser and all the tabs.

Procedure 3: Stop system components

1. Open the WebSphere Admin folder on the desktop.
2. Double-click the Stop Server1.bat to run the script.
   a. Wait for the command window to disappear (Can take several minutes).

Appendix C. Troubleshooting

Appendix Overview

This appendix contains issues and resolutions.

- "Technotes" on page C-1
- "Component Queue issues" on page C-1
- "Administration Console for Content Platform Engine issues" on page C-1
- "Process Designer tool issue" on page C-2
- "WebSphere Application Server error log" on page C-3

Technotes

http://www.ibm.com/support/docview.wss?uid=swg27043131

http://www.ibm.com/support/docview.wss?uid=swg21963021

http://www.ibm.com/support/docview.wss?uid=swg21882893

Component Queue issues

Issue

You update a component queue adapter property with ACCE. The component behaves as if the change was not made, even though the updated value is displayed correctly. The issue occurs with component queue security updates as well.

Cause

There is a known bug in releases before IBM Case Foundation 5.2.1.3.

Resolution

There are multiple methods to resolve the issue. If you do not have the fix pack installed, you can:

- In Administration Console for Content Platform Engine, stop the component queue and save. Start the component queue and save.
- Repeat the update by using Process Configuration Console, then commit the changes.

Administration Console for Content Platform Engine issues

Issue

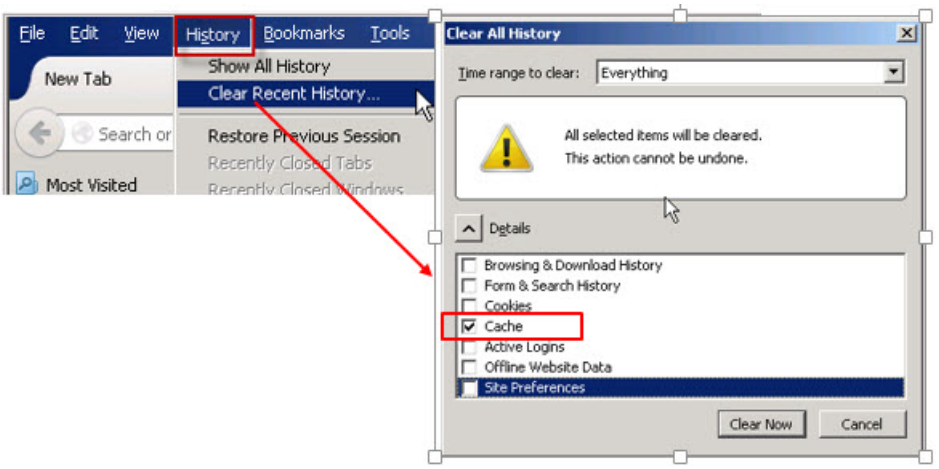
You have a browser tab open to the Administration Console for Content Platform Engine (ACCE). You refresh the tab, expecting to get a login prompt and nothing happens.

Cause

When you have ACCE and an IBM Content Navigator (ICN) desktop open in the same browser session, ICN attempts to share the logon credentials. Confusion occurs if you use different credentials for ACCE and the ICN desktop.

Resolution

Clear the browser cache.



On occasion it might be necessary to clear the cookies.

Issue

You are working with the Administration Console for Content Platform Engine successfully. You get a message that states that you must be a member of the Process Administrators group.

Cause

The desktop was open for a long time, which can cause a session authentication timeout.

Resolution

Log out of the Administration Console for Content Platform Engine and close the browser window. Open a new browser window and open the Administration Console for Content Platform Engine.

Process Designer tool issue

Issue

You open the Process Designer tool for the first time and you see a blank screen; it appears to be hung.

Cause

The first time that you open the Process Designer tool, all the Java applications need to be loaded into the Java cache.

Resolution

Be patient. The tool can take a few minutes to display.

Issue

You open the Process Designer tool from the Workflow Author desktop and you get screen that shows the plug-in is vulnerable and should be updated.

Cause

Mozilla Firefox is protecting against the Padding Oracle On Downgraded Legacy Encryption (Poodle) threat.

Resolution

Click the *Activate Java Platform SE 7 U* link, and select *Allow and Remember*.

WebSphere Application Server error log

The IBM Content Navigator and Content Platform Engine applications are web applications that run on the WebSphere Application Server. If you encounter issues that are not covered in the issues, listed in the appendix, review the WebSphere Application Server error log.

1. Open the WebSphere Admin folder on the desktop.
2. Right-click **server1 WAS logs** and select, **Open in new window**.
3. Right-click **SystemOut.log** and select, **Edit with Notepad++**.
4. Scroll to the bottom and look for any stack traces. See whether you can figure out the cause of the issue from the exception reported.