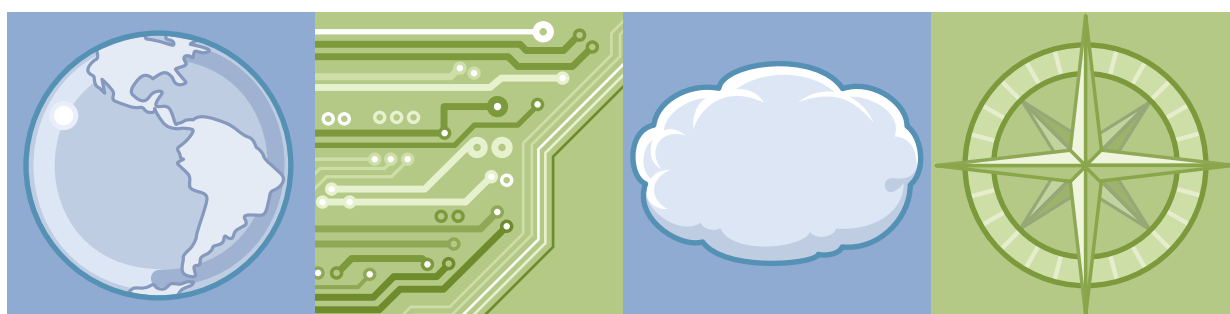# IBM Training

Student Exercises

IBM Case Foundation 5.2.1: Maintain the Workflow System

Course code F233 ERC 1.0

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Unit 1. Maintain the Workflow System

Unit overview

Lessons

Lesson 1.1, "Use Administrative Tools for Maintenance," on page 1-3

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Lesson 1.6, "Troubleshoot the system," on page 1-55

Requirements

The activities in this unit assume that you have access to the student system configured for these activities.

Lesson 1.1.   Use Administrative Tools for Maintenance

Overview

Why is this lesson important?

You are administering a workflow system. You can use several Workflow system administration tools. You need to quickly identify which tool to use for any monitoring, troubleshooting, or maintenance task.

Activities

- Identify workflow system administration tools, on page 1-5

Identify workflow system administration tools

Introduction

In this lesson, you learned about workflow system maintenance tools. For each scenario, identify the tool that you can use to accomplish a task.

For each question, indicate the correct answer or the best answer.

1. Which tool can you use to search for work in progress?

    a. Process Services Ping Page.

    b. System Dashboard

    c. Process Administrator

    d. Process Configuration Console

2. Before your database administrator can back up the workflow system database tables, you must lock the isolated region. Which tool do you use?

    a. Process Administrator

    b. Process Configuration Console

    c. System Dashboard

    d. Administration Console for Content Platform Engine

3. Configuration of queues, rosters, and event logs was formerly accomplished by using _____ but is now accomplished by using _____.

    a. Process Administrator, System Dashboard

    b. Process Configuration Console, Process Administrator

    c. Process Administrator, Administration Console for Content Platform Engine.

    d. Process Configuration Console, Administration Console for Content Platform Engine

4. Misuse of which administration tool can cause work item corruption, compromise data integrity, or loss of data?

    a. vwtool

    b. System Dashboard

    c. Process Administrator

    d. Process Services Ping page.

Lesson 1.2. Monitor with the Process Services Ping page

Overview

Why is this lesson important to you?

You are administering a workflow system. As part of your maintenance schedule, you scan the Process Services Ping page to ensure that the workflow system is fully operational.

Activities

- System Start, on page 1-9
- Use the Process Services Ping Page, on page 1-11

User accounts

Type	User ID	Password
Workflow system administrator	p8admin	IBMFileNetP8
Windows logon	Administrator	passw0rd

Note

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

System Start

Introduction

In this exercise, you start the system to prepare for later exercises.

Procedures

Procedure 1, "System start," on page 1-9

Procedure 2, "System Check," on page 1-9

Procedure 3, "Start WebSphere applications," on page 1-10

Procedure 1: System start

You must start your student system before you can continue with your lesson activities.

1. If necessary, log in to the operating system as Administrator (password: passw0rd)

2. Open the WebSphere Admin folder on your desktop.

3. Double-click Start Server1.bat

4. Wait for the command window to close.

Procedure 2: System Check

If your system is already running, you can check to ensure that the components are all started.

1. Open the Firefox browser on your desktop.

2. View the Ping pages that are located in the System Health bookmarks folder.

   a. Click CE ping to verify that the Content Engine Startup Context (Ping Page) is displayed.

   b. Click PE ping to verify that the Process Engine Server Information (Ping Page) is displayed.

      • User name: `p8admin`

      • Password: `IBMFileNetP8`

   c. Click Content Navigator Ping page. Verify that the IBM Content Navigator Ping page interface is displayed.

3. Click the FileNet P8 System Health shortcut. Verify that the following components are online:

   - Global Configuration Database

   - Directory Configurations

   - PE Connection Points

   - PE Isolated Regions

   - Object Stores

   - Storage Areas

   - Sites

Note

The following components are not configured on this system:

- Fixed Content Devices
- Content Cache Areas

Procedure 3: Start WebSphere applications

If any of the components from the previous procedure are not functioning as described, use this procedure to confirm that WebSphere and the applications are running.

1. Click the WAS admin server 1 link in the browser bookmark list.

2. Log in as the p8admin user.

3. Make sure that the applications are all started.

   a. From the WebSphere Application Administration page, go to Applications > Application Types > WebSphere Enterprise Applications.

   b. Confirm that the following components are running:

      - FileNet Engine
      - IDSWebApp
      - SampleEDSService
      - navigator

Note

WorkplaceXT is not used in this course, so it does not need to be started.

4. Start them if they are not started.

   a. Check the application that is not started.

   b. Click the Start button.

5. Log out of the WebSphere Application Server Administration page.

Use the Process Services Ping Page

Introduction

In this exercise, you explore the Process Services Ping page and use it to quickly access information about your workflow system.

Procedures

Procedure 1: Open the Process Services Ping Page

In this procedure, you open the Process Services Ping page and review the detailed information provided.

1. Open Firefox if it is not already open.

2. Open the PE Ping bookmark.

   - http://ecmedu01:9080/peengine/IOR/ping

3. Locate the following information:

   - Product name

   - Build Version

   - JVM

   - Classpath

   - Log file location

   - Database

Procedure 2: Find the Content Platform Engine server log files

The Ping page shows the location of the Content Platform Engine server log files. You can quickly get to the log files without having to memorize this path.

1. Locate the log file location information on the ping page.

2. Open a new Windows Explorer window.

3. Go to the log file location.

Hint

You can copy/paste the log file location information.

4. Verify that you can see the log files.

    - p8_server_error.log

    - pesvr_system.log

    - pesvr_trace.log

Procedure 3: Use helpful links

The Process Services Ping page contains several helpful links. These links might be useful for troubleshooting situations. In this procedure, you open each link to review the information on each page.

1. Scroll to the bottom of the Process Services Ping page.

2. Open the System link.

- The top of this page provides general information about your environment.

- PE Daemons shows active Process Services daemons.

- Scrolling down is an Other Message cell that shows a thread dump. This information is a minimized Java dump to show the state of the JVM at the instant that the page was opened.

Information

IBM Support can compare multiple thread dumps to identify hung threads that cause the system to perform slowly.

3. Click the Back button on the browser.

4. Open the Async Tasks link.

- This page provides real-time information about currently running asynchronous tasks, such as upgrade, peverify, and configuration transfer.

5. Click the Back button on the browser.

6. Open the Component Manager Logs link.

- This page provides the log files that Process Service component queues generate.

7. Click the Back button on the browser.

8. Open the Component Manager Stats link.

- You can use the Component Queue Processing Time Information to identify components that are performing slowly.

9. Open the remaining two links if you want, though little information is on either currently.

10. Close Firefox.

Lesson 1.3. Monitor the Process Engine with Dashboard

Overview

Why is this lesson important to you?

Your workflow application is in production with daily activity. You monitor the workflow system by using System Dashboard to ensure continued workflow throughput and system performance.

Activities

- Activity preparation: Launch workflows, on page 1-17
- Monitor with System Dashboard, on page 1-19
- Create Dashboard Archives and Reports, on page 1-25

Important

The Activities preparation provides data on the student system that you can observe and work with. Perform the procedures in the Activities preparation section before completing the lesson activities in this unit.

User accounts

Type	User ID	Password
Workflow system administrator	p8admin	IBMFileNetP8
Workflow application user	oscar	filenet
Windows logon	Administrator	passw0rd

Note

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

Activity preparation: Launch workflows

Introduction

Your system does not yet have any workflow activity, so you must create some workflow system activity. To create activity, you are going to launch instances of a simple workflow. You must perform this activity preparation before attempting the lesson activities in this unit.

Procedures

Procedure 1, "Launch and process workflows," on page 1-17

Procedure 1: Launch and process workflows

1. Start Mozilla Firefox.

2. Open the Workflow Author Desktop bookmark.

   URL: http://ecmedu01:9080/navigator/?desktop=WorkflowAuthordesktop

3. Log on to IBM Content Navigator Workflow Author Desktop as p8admin.

   - User Name: p8admin

   - Password: IBMFileNetP8

4. Open the Workflows folder of the LoanProcess object store.

5. Select the Basic Loan Processing Workflow.

6. Launch 8 instances of this workflow:

   a. Click Actions > Workflow > Launch Workflow.

   b. For each workflow, enter the customer name and loan amount:

Customer Name	Loan Amount
Aberdeen	1000
Broadmoor	2000
Caesar	3000
Dullman	4000
Eberhardt	5000
Fells	6000
Gustav	7000
Hannibal	8000

   c. Click Launch Workflow.

7. Log out of Workflow Author Desktop.

8. Close Firefox.

Monitor with System Dashboard

Introduction

In this activity, you use IBM System Dashboard to view Listener data. You view the system status. You disconnect a Listener and then reconnect it.

Procedures

Procedure 1: Define a cluster

In this procedure, you define a cluster to monitor the system.

1. Start IBM System Dashboard for ECM.

    a. Click Start > All Programs > IBM FileNet P8 Platform > System Dashboard> Dashboard.

Information

No data is shown in the Average Response Time chart or Current Status chart on the Summary tab. No data is reported because the student system does not yet have clusters.

2. Define a cluster:

    a. Click the Clusters tab.

    b. Click New.

    c. In the Add Cluster window, type C1 as the cluster name, and click OK.

3. Specify the servers in the cluster:

    a. On the Clusters tab, select the cluster that you defined, and click Edit.

    b. Click Add to add a host.

    c. In the Add Host field, type `ecmedu01`.

    d. Accept the default number for the Primary Listener Port, 32775.

    e. Click OK to enter the server information.

    f. Type 60 in the Interval field.

> ### ! Important
>
> In general, leave the default interval (900 seconds) if possible. Do not set the interval lower than 120 seconds to avoid system performance degradation.

    g. Click OK to save the C1 cluster.

    h. Verify that you see messages in the Messages area that indicate a connection.

```
Messages
2015-6-9 13:27:58 Listener connected: ECMTS (ECMEDU01) - 2.1
2015-6-9 13:27:58 Listener connected: IBM FileNet Content Platform Engine ICF PE (ECMEDU01) - 5.2.1
2015-6-9 13:27:58 Listener connected: IBM FileNet Content Platform Engine (ECMEDU01) - 5.2.1
2015-6-9 13:27:58 Listener connected: IBM Sync (ECMEDU01) - 2.0.3
2015-6-9 13:27:58 Listener connected: IBM Content Navigator (ECMEDU01) - 2.0.3
```

> ### *i* Information
>
> Connection messages are displayed in the Messages pane at the bottom of the Dashboard console. Each message identifies a component with an active Listener on the hosts in the cluster.
>
> ECMTS is the ECM Text Search services listener.
>
> IBM Sync is the Sync and Share services listener.

4. Verify that the following listeners are connected:

    - ECMTS (Content Search Services)

    - IBM FileNet Content Platform Engine (ECMEDU01) - 5.2.1

    - IBM FileNet Content Platform Engine ICF PE (ECMEDU01) - 5.2.1

5. Save the cluster.

    a. Click File > Save Clusters.

    b. In the Save window, browse to the My Documents folder.

    c. Type C1 as the file name.

    d. Click Save.

Procedure 2: View system overview

The Summary tab provides instant view of the response time and CPU load of a selected server.

1. In the IBM System Dashboard for ECM window, open the Summary tab.

2. Select the C1 cluster from the Cluster menu.

3. Select ecmedu01 from the server menu.

4. Observe the Average Response Time and Current Status charts.

5. Locate the scroll bar under the Average Response Time chart.

6. Use the scroll bar to see all of the listeners represented.

7. Change the Time Range setting:

   a. Select a start time of -4 hours; then observe the Average Response Time graph.

   b. Select a start time of -1 day; then observe the Average Response Time graph.

Procedure 3: Check component status

Use Listener options from the Details view to check whether an application on a server is running and to check how long the application has been running. The Dashboard is open and the C1 cluster is loaded.

1. In the IBM System Dashboard for ECM window, open the Details tab.

2. Double-click the C1 cluster node to expand it.

3. Expand the ecmedu01 host node.

> ### Information
>
> A container node represents each component that a Listener monitors. This container node is the Listener node, and its menu is the Listener menu. The Listener node has the name of the monitored component.

4. Check whether the Content Platform Engine is running.

   a. Right-click the Listener node for *IBM FileNet Content Platform Engine*.

   b. Click Request heartbeat.

   c. Verify that you see a new message in the Message area that shows that the listener is up.

5. Check whether Process Services is running.

   a. Right-click the Listener node for *IBM FileNet Content Platform Engine ICF PE*.

   b. Click Request heartbeat.

   c. Verify that you see a new message in the Message area that shows that the listener is up.

6. Check how long the FileNet P8 Content Engine application has been running.

   a. Right-click the Listener node for *IBM FileNet Content Platform Engine*.

   b. Click Request uptime.

   c. Verify that a message reports how many seconds the Listener has been up (running).

7. Check how long the Process Services have been running:

    a. Right-click the Listener node for *IBM FileNet Content Platform Engine ICF PE.*

    b. Click Request uptime.

    c. Verify that a message reports how many seconds the Listener has been up (running).

Note

The Content Services and Process Services start at different times.

Procedure 4: View counter data

Each Listener provides data at each sampling interval. You can view the activity on the disk, RPC calls, and other information.

1. On the Details tab, expand *IBM FileNet Content Platform Engine ICF PE>* Disk > Reads.

2. Observe the Count, Rate Per Second, and Total Count columns.

3. Open and view other counter-data:

    - IBM FileNet Content Platform Engine ICF PE > CPU > Busy

    - IBM FileNet Content Platform Engine ICF PE > CPU > jvm_free_memory

4. Verify that the times in the Time column are configured at 60-second intervals:

    a. Scroll to the bottom of the Performance Data table.

    b. Observe that a new row is added every 60 seconds.

    c. Observe that the times are recorded at 60-second intervals.

5. Leave Dashboard running, but minimized.

Procedure 5: View workflow activity

In this procedure, you generate some workflow activity and then view the results in System Dashboard.

1. Generate workflow activity:

    a. Open Firefox.

    b. Log on to Workflow Author Desktop as a loan officer:

        • User name: `oscar`
        • Password: `filenet`

    c. Open the Work View.
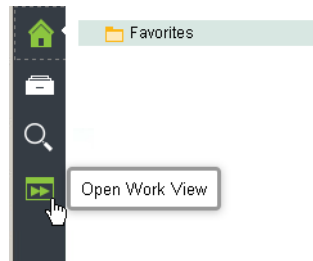
    d. Open the Loan Officer Inbasket. Eight work items are in this inbasket.

    e. Open the first work item.

    f.   Select the *Info OK* response.

    g. Complete four more work items by using the same response.

    h. Complete two more work items by using the *More Info Needed* response.

    i.   Log out of Workflow Author Desktop.

2. View workflow processing CPU load from System Dashboard:

    a. Restore System Dashboard.

    b. On the Details tab, expand to view the following node: IBM FileNet Content Platform Engine ICF PE > CPU > Busy.

    c. Scroll to the bottom of the data table.

    d. Confirm that the CPU Busy time increased when you generated workflow activity.

    e. Review the recent activity in the following nodes:

- IBM FileNet Content Platform Engine ICF PE > CPU > Memory.
- IBM FileNet Content Platform Engine ICF PE > CPU > User.

Procedure 6: View data as a chart

Viewing information in table format is useful, but to get a more visual context for the data, you can view it in the form of a chart. In this procedure, you use System Dashboard to create graphical charts.

1. Right-click the node: IBM FileNet Content Platform Engine ICF PE > CPU > Busy.

2. Select Chart Event Data.

3. You can drag the corner of the chart to make it larger or click the Maximize button in the top right corner.

4. Find the point in the graph that shows the recent workflow activity.

5. Review the charts for the following nodes:

- IBM FileNet Content Platform Engine ICF PE > CPU > Memory.
- IBM FileNet Content Platform Engine ICF PE > CPU > User.
- IBM FileNet Content Platform Engine ICF PE > CPU > jvm_free_memory.

6. Close the charts.

Procedure 7: Disconnect a listener

Use this procedure to disconnect the Listener from the application that it is monitoring and review the results. You are in the Details view, with the C1 node and ecmedu01 expanded.

1. Right-click the *IBM FileNet Content Platform Engine ICF PE* node and click Disconnect this listener.

2. Verify that the Listener node for *IBM FileNet Content Platform Engine ICF PE* is no longer listed.

3. Verify that a disconnect message for the node is displayed in bold text in the Messages pane.

Procedure 8: Use the Alerts view for important messages

Use the Alerts view to check for the critical messages, such as a disconnected Listener.

1. Click the Alerts tab.

2. Verify that the same message that you see in bold text in the Messages pane is also listed in the Urgent Messages pane.

> **Information**
>
> The Alerts tab shows important messages that do not scroll up out of view as they do in the Messages pane.

3. Select the message in the Urgent Messages pane and click Dismiss.

4. Verify that the Critical disconnection message in the Messages pane at the bottom is still listed.

Procedure 9: Reconnect a Listener

Reload the C1 cluster to reconnect to the Listener for the Content Services.

1. Exit System Dashboard.

2. Restart System Dashboard.

3. Load the C1 cluster.

   a. Click File > Open Clusters.

   b. Select the C1.xml cluster and click Open.

4. On the Summary tab, select C1.

5. Go to the Details view.

6. Expand the C1 node and the ecmedu01 host node.

7. Verify that all running components with an active Listener on the ecmedu01 server have a Listener node under ecmedu01, including *IBM FileNet Content Platform Engine ICF PE*.

8. Verify that the connection messages in the Messages pane for the listed components, including a connection message for *IBM FileNet Content Platform Engine ICF PE*.

9. Leave System Dashboard open for the next exercise.

Create Dashboard Archives and Reports

Introduction

In this activity, you use all the reporting features of IBM System Dashboard. You create a report template and then verify the template works s designed by using it to run a report. You then archive and report Listener data.

Procedures

Procedure 1, "Create a report template," on page 1-25

Procedure 2, "Run a report," on page 1-26

Procedure 3, "Examine the report," on page 1-26

Procedure 4, "Archive and report Listener data," on page 1-27

Procedure 5, "Run a report on archived data," on page 1-28

Procedure 6, "Inspect a report on archived data," on page 1-28

Procedure 1: Create a report template

In this procedure, you configure a report template by selecting the counters to be included in the report content.

1. Start IBM System Dashboard if it is not already started.

2. Create a report template;

   a. Open the Reports tab.

   b. Click New.

   c. Name the template: CPE Template.

   d. Click OK.

3. Select data to be included in the report:

   a. Click Edit.

   b. Expand C1 > ecmedu01 > IBM FileNet Content Platform Engine ICF PE > CPU.

   c. Click Add With Children.

4. Click OK to complete edits.

5. Save the report template:

   a. Click File > Save Report Templates As.

   b. Browse to My Documents.

   c. Type CPE_Template as the template name.

   d. Click Save.

Procedure 2: Run a report

In this procedure, you modify the report template to accommodate the current need for data, and then run and examine the report.

1. From the Reports tab, select the report template, CPE_Template.

2. Click Run.

3. Specify the report parameters in the CPE Template window:

    a. Select C1 > ecmedu01 > IBM FileNet Content Platform Engine ICF PE.

    b. Select the following options for the report in the Options pane:

        • Environment

        • Average

        • Sum

    c. Type 1 in the Length in hours field.

4. Save the report as a file:

    a. Click the ellipsis button (...) next to the Output To field.

    b. Browse to My Documents.

    c. Type CPE_Report for the file name.

    d. Click Save.

5. Click Run.

Procedure 3: Examine the report

1. Using Windows Explorer, go to My Documents.

2. Open CPE_Report.csv by using Notepad ++.

Information

The data is presented in the following sequence:

• Environment variables

• Metric headings

• Data for the duration specified

• The average and sum of each metric

3. Close the report file.

Procedure 4: Archive and report Listener data

In this procedure, you archive the data that the Listener collected within the last 48 hours. Afterward, you run a report of the archived data.

1. Archive the collected Listener data by using the archive defaults:

    a. In the System Dashboard, open the Details tab.

    b. Expand C1 > ecmedu01.

    c. Right-click IBM FileNet Content Platform Engine ICF PE and then click Archive history.

    d. Browse to My Documents.

    e. Type `CPE_Archive` for the file name.

    f. Click Save.

    g. Wait for the *History archived* message.

    h. Click OK.

    Information

    The CPE_Archive file is a proprietary binary file that is used to generate views and reports of archived data.

2. Add the archive file to the Archives cluster.

    a. From the Details view, click File > Open Archive.

    b. Select My Documents > CPE_Archive.

    c. Click Open.

    d. Wait for the archive to open.

    e. Double-click the Archives cluster that is displayed in the tree view pane.

    f. Expand the ecmedu01 > IBM FileNet Content Platform Engine ICF PE node.

    Note

    The label for the IBM FileNet Content Platform Engine ICF PE container in the Archives cluster is red and contains the message currently unavailable. This message exists because the node is not displaying data from an active Listener connection.

3. View the archived data by selecting and expanding nodes under the IBM FileNet Content Platform Engine ICF PE container.

Procedure 5: Run a report on archived data

1. Open the Reports tab.

2. Select the CPE_Template and then click Run.

3. Expand the Archives > ecmedu01 node.

4. Select IBM FileNet Content Platform Engine ICF PE.

5. Select all of the options in the Options pane.

6. Type 2 in the Length in hours field.

7. Click the ellipsis (...) beside the Output To field.

8. Browse to My Documents.

9. Type CPE_Archive_Report as the file name.

10. Click Save and then click Run.

11. Close System Dashboard.

Procedure 6: Inspect a report on archived data

1. Use Windows Explorer to go to My Documents/

2. Open CPE_Archive_Report.csv by using Notepad ++.

3. Inspect the file.

4. Close the file when you are finished.

Lesson 1.4. Monitor with vwtool

Overview

Why is this lesson important to you?

Your workflow application is in production with daily workflow activity. You monitor the system with vwtool to ensure continued workflow throughput and system performance.

Activities

- Monitor with vwtool, on page 1-31

User accounts

Type	User ID	Password
Workflow system administrator	p8admin	IBMFileNetP8
Windows logon	Administrator	passw0rd

Note

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

Monitor with vwtool

Introduction

In this exercise, you use vwtool to monitor various isolated region parameters.

Procedures

Procedure 1, "Start vwtool," on page 1-31

Procedure 2, "View configuration details," on page 1-31

Procedure 3, "View system load status," on page 1-32

Procedure 4, "View memory size of region objects," on page 1-33

Procedure 5, "View system version and configuration," on page 1-34

Procedure 6, "View mapping between process views and database views," on page 1-34

Procedure 7, "View roster, queue, and log configurations," on page 1-35

Procedure 1: Start vwtool

In this procedure, you start vwtool by using a command window. You connect to region 5 using the P8ConnP5 connection point as P8Admin, a member of the workflow system administrators group.

1. Open a Command window.

    a. Click Start.

    b. If the Command Prompt icon is displayed, click it.

    c. Otherwise, click Run and then type `cmd` in the Run field and then press Enter.

2. Go to the vwtool location:

    `cd C:\Program Files\IBM\FileNet\ContentEngine\tools\PE`

3. Start vwtool:

    `vwtool P8ConnP5 -Y p8admin+IBMFileNetP8`

![Note icon] **Note**

To save time, you can use the desktop icon to start vwtool from now on.

Procedure 2: View configuration details

Use the configdetails command to get a high-level overview of the workflow system.

1. At the `<vwtool:5>` prompt, type `configdetails` and press Enter.

2. Type `y` to create a hardcopy and press Enter.

3. Type `y` to accept the default file location and press Enter.

4. Type `p` and press Enter. The command continues to display information without stopping.

5. Use Windows Explorer to go to C:\Program Files\IBM\FileNet\ContentEngine\tools\PE.

6. Open sysConfigDetails[time stamp] file by using Notepad++.

   a. Right-click the file.

   b. Select Edit with Notepad++.

7. Review the following information:

   Regions

   Tablespaces

   Ports used

   Session timeout

   ISI options for region 5

   The schema name for isolated region 5.

   Queues

   Rosters

8. Close Notepad++.

Procedure 3: View system load status

1. At the `<vwtool:5>` prompt, type `loadstatus` and press Enter.

   The performance statistics for the isolated region are displayed.

2. Use the scroll bar as necessary to help find the following items in the report:

   - Executed Regular Steps
   - Executed System Steps
   - Work Object Inject RPCs
   - Lock Work Object RPCs
   - Lock work object errors

3. Read the help description for each of these report items.

   a. On a system with internet access, open the IBM Knowledge Center in a browser window.

   b. Go to FileNet P8 Platform 5.2.1>Administering>Administering Content Platform Engine>Defining the workflow system>Administrative tools>vwtool>Command quick reference>loadstatus>RPC and error counters.

Procedure 4: View memory size of region objects

You use the vwtool `dump` command to obtain the size of workspace memory, work performer class memory, and instruction sheet (workflow map) size. The `dump` command applies to a specific, isolated region.

1. Ensure that vwtool is already started and connected to region 5.

2. View workspace memory size for region 5.

    a. Type `dump` and press Enter.

    The options for the dump command are listed.

    b. Type `s` and press Enter.

    Command prompt: `Work space id (CR = latest)`

    c. Press Enter.

    Command prompt: `Authored or runtime form (a,r CR=a)`

    d. Type `r` and press Enter.

    Command prompt: `Summary, Raw, siZe or CDL format? (s, r, z or CR=c)`

    e. Type `z` and press Enter.

    The approximate number of bytes and the number of objects are displayed for the workspace.

3. View the size of the work performer class memory for the LoanOfficer queue.

    a. Type `dump` and press Enter.

    b. Type `c` and press Enter.

    c. Press Enter to choose the latest workspace ID.

    d. Type `LoanOfficer` and press Enter.

    e. Type `z` and press Enter.

    The approximate number of bytes and the number of objects are displayed for the class.

4. View the size of the default instruction sheet, Workflow. (An instruction sheet corresponds to a workflow map.)

    a. Type `dump` and press Enter.

    b. Type `i` and press Enter.

    c. Press Enter to choose the latest work space ID.

    d. Type `r` to choose the runtime form.

    e. Type `WorkObjectEx` as the work class name and press Enter.

    f. Type `Workflow` and press Enter.

g. Type z and press Enter to specify the size values for the instruction sheet.

The approximate number of bytes and the number of objects are displayed for the instruction sheet.

Note

You can repeat the most recent command with all arguments by entering the equal sign (=) and then pressing Enter. Double sets of quotation marks ("") indicate empty values. You can use this format when creating scripts to run in vwtool.

Procedure 5: View system version and configuration

In this procedure, you view the system software version, system server configuration, and region configuration information by using various vwtool commands.

1. Ensure that vwtool is already started and connected to region 5.

2. View the software version of the Process Engine.

   a. Type version and press Enter.

   b. Look for the following items in the output:

      - DB2 LUW Blob (BLOB size in megabytes)
      - dap521.234 (software version of the Process Engine server)

3. View VWService and region configuration information.

   a. Enter the config command, and then type a space character and press Enter to show the entire report.

   b. Look for the following items in the output:

      - Latest WorkSpace
      - Blob size
      - Logging options for region events
      - Physical table names for queues, rosters, and logs in the region.

Procedure 6: View mapping between process views and database views

The Views command provides information about queues, rosters, and logs. You can see the names of each queue, roster, and log in the system, and the physical tablespace name for each. Use this command to learn about the names of various views. You can view more information about each view by using more commands, such as rosterconfig.

1. Type views to get t a list of all views.

   Views are displayed. The last column displays table names. The table names indicate the type of view.

2. Confirm that can distinguish between the following views:

   Queues
   Rosters
   Logs

3. Confirm that you can find the table name for any view.

Procedure 7: View roster, queue, and log configurations

In this procedure, you view configuration information for rosters, queues, and logs.

1. View a roster configuration:

   a. Type `rosterconfig` and press Enter.

   b. Type `LoanRoster` and press Enter.

   c. Press Enter (not to show system field definitions).

   d. Locate the following information for LoanRoster:

      Roster name
      Schema name
      Physical table name
      Database view name

2. View a queue configuration with work inbasket classes:

   a. Type `queueconfig` and press Enter.

   b. Type `LoanManager` and press Enter.

   c. Type `n` and press enter.

   d. Type `y` and press enter.

   e. Locate the following information about LoanManager:

      Physical table name
      Field names
      Field types

   f. Type `t` to terminate.

3. View a log configuration:

   a. Type `logconfig` and press Enter.

   b. Type `LoanLog` and press Enter.

   c. Type `y` and press Enter.

   d. Locate the following information about LoanLog:

      Event log name
      Physical table name
      System and user field names

4. Type `quit` and then press Enter to exit vwtool.

5. Close the command window.

Lesson 1.5.   Maintain event logs

Overview

Why is this lesson important to you?

Your workflow system has accumulated many event log entries in the workflow system database tables. You must archive and purge the events logs to free up database space.

Activities

- View event logs by using Administration Console, on page 1-39
- View event logs by using Process Administrator, on page 1-43
- Disable event categories, on page 1-47
- Prune Events, on page 1-49

User accounts

Type	User ID	Password
Workflow system administrator	p8admin	IBMFileNetP8
Windows logon	Administrator	passw0rd

Note

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

View event logs by using Administration Console

Introduction

You can use Administration Console for Content Platform Engine to perform tasks that previously required Java applets. In this exercise, you use Administration Console for Content Platform Engine to search for and view event logs. These logs were created at the beginning of this unit when you performed the preparation activity.

Procedures

Procedure 1, "Search for all events," on page 1-39

Procedure 2, "Find long duration events," on page 1-40

Procedure 3, "Filter event log entries," on page 1-41

Procedure 1: Search for all events

1. Start Firefox.

2. Open the ACCE bookmark or type the URL in the address field:

    `http://ecmedu01/9080/acce`

3. Log on as P8admin:

    - User name: `P8Admin`

    - Password: `IBMFileNetP8`

4. Open the LoanProcess object store.

5. Right-click Search and then select New Workflow Search.
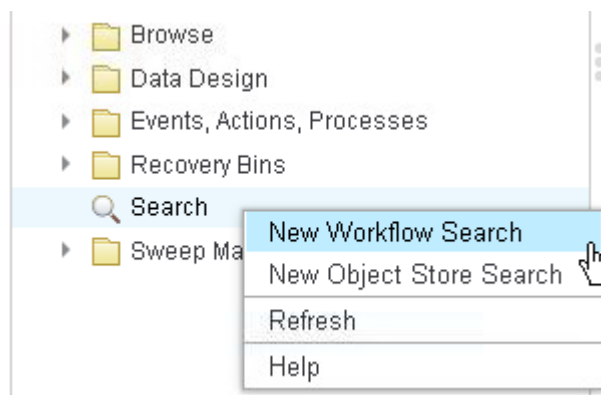
6. Confirm that P8ConnP5 is the selected Connection point.

7. In the Search result type field, select Events.

8. Confirm that the Workflow structure field changed to show Event log.

9. In the Workflow Structure name field, select DefaultEventLog.

10. Click Count Matches.

 Information

The message shows how many events are currently logged in the system. Use Count Matches to get number of matches before you run the search. If the number is large, then you know that a full search might affect performance. In this instance,

11. Click OK.

12. Click Run.

13. Use the vertical and horizontal scroll bars to see all of the columns and rows.

14. Close the Search Results tab.

Procedure 2: Find long duration events

You can search for events that have long durations. Long duration values can show where workflows are not being processed efficiently. The New Workflow Tab is open.

1. In the Search Filter: General Criteria area, select the following criterion:

    F_Duration is greater than 5000.

2. Click Count Matches.

3. Click Run.

4. Review all the columns, paying special attention to the F_Duration column.

5. Close the Search Results tab.

6. Select <none> from the first column menu to clear the search criteria.

Procedure 3: Filter event log entries

You can use filters to focus on events that you are interested in. For example, you want to find the workflow start events, you can filter for only the start event category. You can also combine filters by using Boolean operators.

1. Click Run to rerun the search without any filter criteria.

2. Click the Define Filter button.

3. From the Column menu, select *F_EventType.*

4. From the Condition column, select *equal.*

5. From the Value column, select *140 (WOParentCreation).*

6. Click Filter.

7. Observe the filtered events.

8. Combine filters to see events that are related to employee responses:

    a. Click the Filter icon.

    b. From the Match menu, select Any rule.

    c. Enter the following rules. Click the Plus sign (+) button to add a second rule.

Column	Condition	Value
F_Response	contains	Info OK
F_Response	contains	More Info Needed

9. Click Filter.

10. Review the results. If you see zero results, ensure that the filter Match column shows Any rule.

11. Close the Search Results tab.

12. Leave Administration Console open for the next exercise.

View event logs by using Process Administrator

Introduction

In this activity, you use Process Administrator to view existing event logs. These logs were created at the beginning of this unit when you performed the preparation activity.

Procedures

Procedure 1, "Start Process Administrator," on page 1-43

Procedure 2, "Search for event log entries," on page 1-43

Procedure 3, "Examine event log entries," on page 1-43

Procedure 4, "Search for specific events," on page 1-45

Procedure 1: Start Process Administrator
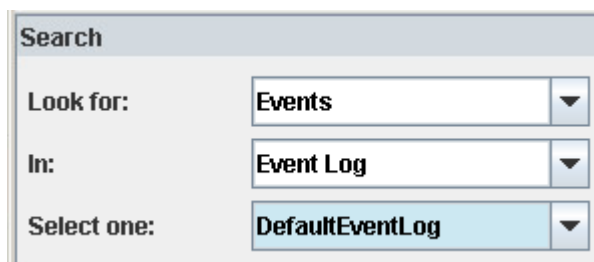
Event logs can be viewed with Process Administrator. You are logged in to Administration Console for Content Platform Engine as P8Admin. The LoanProcess object store is open.

1. Go to Administrative > Workflow System > Connection Points > P8ConnP5.

2. Right-click P8ConnP5 and select Administer Work Items.

Procedure 2: Search for event log entries

In this procedure, you search the event log for log entries.

1. Search for events:

    a. Select Events from the Look for menu.

    b. Select the DefaultEventLog from the Select one menu.

    c. Click Search Count to find out how many events are currently logged.

    d. Click OK.

    e. Click Find Now.

Procedure 3: Examine event log entries

In this procedure, you study the event log entries and explore the event log interface.

1. Scroll down the list of event log entries.

---

2. Look for event categories:

    140 - Workflow launched.

    100 - Trace events

    360 - End service

3. Move the F_EventType column:

    a. Select the heading of the F_EventType column.

    b. Drag the column to the left of the F_WobNum column.

4. Hide columns:

    a. Click the Show/Hide Columns button on the far right.

    b. Multi-select the following columns (hold the CTRL key to select multiple items).

    -   F_WobNum
    -   F_BoundUserID
    -   F_Subject

    c. Click the left-pointing arrow to move these three columns to the Available Columns list.
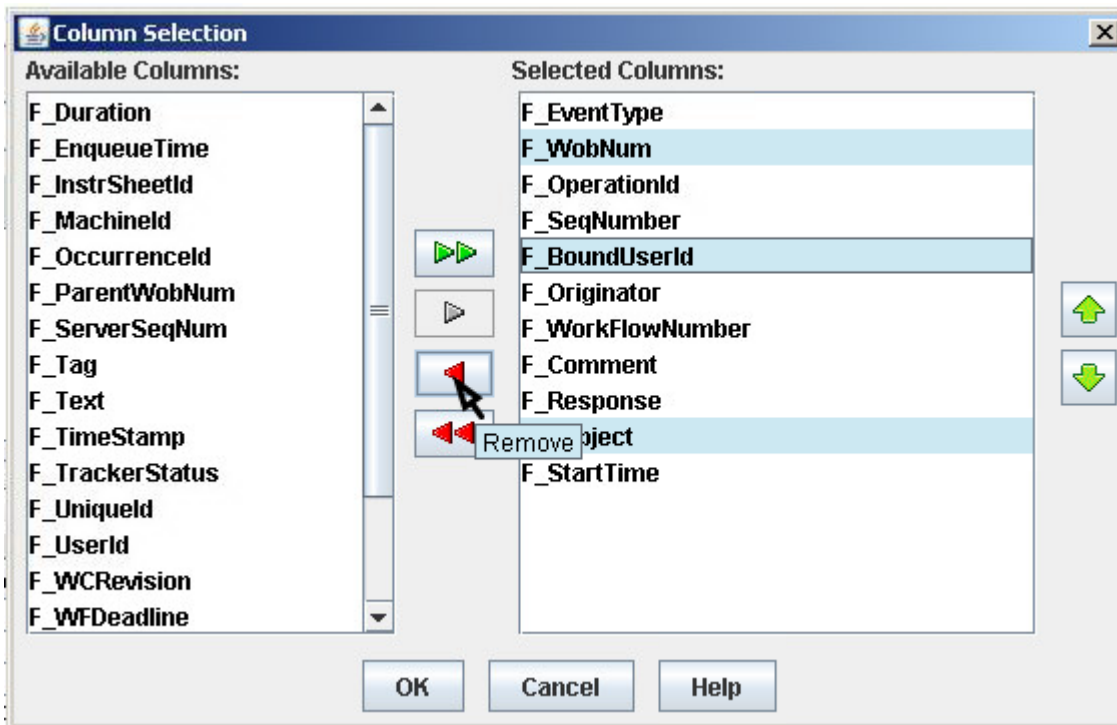
    d. Select the F_StartTime column.

    e. Use the Up arrow to move the StartTime column to just beneath the F_EventType column.

    f. Click OK.

Note

You rearranged the columns that are displayed in the table. If you output the search returns to a file now, the output file is formatted the way that the columns are currently shown.

Procedure 4: Search for specific events

You can search the event logs for specific events. For example, if you want to find workflows that terminated abnormally, you can search for F__EventType 370 entries.

Note

Search fields are case-sensitive.

1. Search for *More Info Needed* responses:
    a. Select F_Response from the Search Fields menu.
    b. Type `More Info Needed` in the Value field. The field is case-sensitive.
    c. Click Insert.
    d. Click Search Count.
    e. Click OK.
    f. Click Find Now.
    g. If you completed the Activity Preparation correctly, some results are displayed.
    h. Click Clear.
2. Search Count for abnormal terminations: F_EventType = 370.
3. Search Count for any exceptions: F_EventType = 170, 172, 174.

Hint

Use the OR operator to separate arguments.

Note

Zero returned records means that these errors did not occur.

4. Search Count for any end user operation abort: F_EventType = 390.

5. Click OK.

6. Optional: using the IBM Knowledge Center topic on Event logging categories, construct a search for any event that you believe might be in the event log table.

7. Close Process Administrator.

Disable event categories

Introduction

In this exercise, you use Administration Console for Content Platform Engine to disable event categories. Disabling event categories reduces the number of event log entries, which can improve system performance.

Procedures

Procedure 1, "Open the event logging options tab," on page 1-47

Procedure 2, "Disable selective event logging options," on page 1-47

Procedure 1: Open the event logging options tab

Disable all event logging except those events that are required for Tracker. Consult the IBM Knowledge Center page titled Event logging categories to determine which events are required for Tracker.

1. Start Firefox.

2. Open the ACCE bookmark or type the URL in the address field:

   `http://ecmedu01/9080/acce`

3. Log on as P8admin:

   - User name: `P8Admin`

   - Password: `IBMFileNetP8`

4. Open the LoanProcess object store.

5. Go to Administrative > Workflow System > Isolated Regions.

6. Open P8Region5.

7. Open the Event Logging Options tab.

Procedure 2: Disable selective event logging options

1. In the System Messages area, clear the System message check box.

2. In the work item Messages area, clear the following check boxes:

   - Rules
   - Milestones
   - Trace Instruction
   - Termination

3. In the User-Defined Messages area, clear the following check boxes.

   - User-defined messages set 1
   - User-defined messages set 2.

---

4. Verify that only the following options are enabled:

    - Empty/System step completion
    - Creation
    - Exception
    - Administration message
    - Begin operation
    - End operation.

System Messages

☐ System message ?

Work Item Messages

☑ Empty / System step completion ?		☐ Termination ?
☐ Rules ?		☑ Exception ?
☐ Milestones ?		☑ Administration message ?
☐ Trace instruction ?		☑ Begin operation ?
☑ Creation ?		☑ End operation ?
☐ Reassign to proxy user ?		

User-Defined Messages

☐ User-defined message set 1 ?   ☐ User-defined message set 2 ?

5. Click Save.

6. Click Close.

7. Leave Administration Console open for the next exercise.

Information

Workflows now generate fewer events.

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Prune Events

Introduction

In this exercise, you output the event logs to a comma-separated value (CSV) formatted text file; then you use PELog to prune the event log.

Procedures

Procedure 1: Export the event logs

You want the logs for archiving purposes, but you do not need them in the database, where they can slow the system. Export event logs before you prune the event log records.

Note

In the previous procedure, you changed the default layout of the columns. For archiving purposes, it is best to maintain consistency between export files. Stopping and restarting Process Administrator resets the default column configuration.

1. Start Process Administrator from the P8ConnP5 connection point.

   a. Right-Click LoanProcess > Administrative > Workflow System > Connection Points > P8ConnP5.

   b. Select Administer Work Items.

2. Search for all events in the DefaultEventLog table.

3. Click File > Export to a File.

4. Save the file as C:\temp\[current date]Event Logs.

5. Accept the default comma delimiter.

6. Click OK.

7. Close Process Administrator.

8. Sign out of Administration Console for Content Platform Engine.

9. Close Firefox.

Procedure 2: Inspect the exported event log file

Briefly inspect the event log file.

1. Use Windows Explorer to go to C:\temp.

2. Use Notepad++ to open the event log file that you created in the previous procedure.

3. Close Notepad P++.

Procedure 3: Complete some workflows

1. Start Mozilla Firefox.

2. Open the Workflow Author Desktop bookmark.

   URL: http://ecmedu01:9080/navigator/?desktop=WorkflowAuthordesktop

3. Log on to IBM Content Navigator Workflow Author Desktop as p8admin.

   - User Name: `p8admin`

   - Password: `IBMFileNetP8`

4. Open the Work View.

5. Complete the work items in the Loan Processor queue:

   a. Open Loan Processor > Loan Processor Inbasket.

   b. Open a work item.

   c. Select the Complete response.

   d. Complete all work items in this queue.

6. Open the Loan Supervisor > Supervised Loan Status queue.

7. Verify that some workflows are completed and others are not.

8. Log out of Workflow Author Desktop.

Procedure 4: Search count of log entries

You are going to count the number of log entries before you begin deleting them so that you can find out how many entries were deleted. Firefox is open.

1. Open Administration Console for Content Platform Engine.

    a. Click the ACCE bookmark.

    b. Sign in using these credentials:

      – P8Admin

      – IBMFileNetP8

2. Open the LoanProcess object store.

3. Search for the event count:

    a. Right-click Search and select New Workflow search.

    b. In the Search result type field, select Events.

    c. Confirm that the Workflow structure field has changed to show Event log.

    d. In the Workflow Structure name field, select DefaultEventLog.

    e. Click Count Matches.

4. Write down this number on a sheet of paper.

5. Minimize Firefox.

Procedure 5: Use PELog to prune terminated log entries

In this procedure, you use PELog to prune terminated log entries. Your student system does not have any old log entries, so to see the effects, you must use -Terminated 0 flag.

1. Open a command prompt.

    a. Click the Start menu.

    b. Click the Command Prompt if you see it.

    c. Otherwise, click Run and then type cmd in the Run field and then press Enter.

2. Enter the following commands:

```
cd C:\Program Files\IBM\FileNet\ContentEngine\tools\PE
pelog P8ConnP5 -Terminated 0 -Y P8Admin+IBMFileNetP8
```

3. Wait for PELog to complete.

4. Minimize the command prompt window.

Procedure 6: Verify that the event logs are deleted

When you used PELog with the -Terminated flag, all events and Tracker items from completed workflows were deleted. You are now going to find out how many events were deleted. Firefox is

---

still open, but minimized. Administration Console for Content Platform Engine is open to the New Workflow Search page.

1. Restore Firefox.

2. Click Count Matches.

3. Confirm that there are fewer matches than before you ran PELog.

4. Subtract the new number of matches from the original number to get the number of deleted events.

5. Minimize Firefox.

Procedure 7: Run PELog with the -TimeOnly flag

The -TimeOnly option deletes events and Tracker items regardless of whether they are completed or not. Your student system does not have any old log entries, so you are going to use the -TimeOnly 0 flag, which deletes all log entries.

! Important

In a production system, you rarely want to prune all log entries. In production, configure PELog to prune events older than a specified interval, such as 90 days.

Hint

In the command prompt, you can press the up-arrow to repeat the last command. You can then edit the command to change the flag.

1. Restore the command prompt window.

2. Enter the following command:

```
pelog P8ConnP5 -TimeOnly 0 -Y P8Admin+IBMFileNetP8
```

3. When the operation is complete, close the command prompt window.

Procedure 8: Verify that the remaining event logs are deleted

In this procedure, you confirm that the logs are deleted. Firefox is still open, but minimized. Administration Console for Content Platform Engine is open to the New Workflow Search page.

1. Restore Firefox.

2. Click Count Matches.

3. Confirm that there are zero matches.

4. Close Firefox.

Troubleshooting

If the Count Matches shows the same number of events as before, the information is still cached in the browser memory.

1. Log out of Administration Console.

2. Close Firefox.

3. Restart Firefox.

4. Rerun the event log search in Administration Console.

Lesson 1.6.   Troubleshoot the system

Overview

Why is this lesson important to you?

You are administering a workflow system. If there is a system failure or a performance problem, you must be able to use the appropriate tools to collect more information about the problem.

Activities

- Enable fnlog4j, on page 1-59
- Enable trace logging, on page 1-63
- Enable Tracing with vwtool, on page 1-67

User accounts

Type	User ID	Password
Workflow system administrator	p8admin	IBMFileNetP8
Windows logon	Administrator	passw0rd

Note

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

Troubleshoot the workflow system checkpoint

Introduction

In this lesson, you learned about gathering information for troubleshooting For each scenario, identify the tool that you can use to accomplish a task.

For each question, indicate the correct answer or the best answer.

1. A user is unable to launch Process Designer. Select a logging method to collect information.

    a. Fnlog4

    b. Vwtool

    c. CE logs

    d. PE logs

2. A user is unable to see a work queue. Which trace options do you enable to troubleshoot the issue?

    a. Database access

    b. Stored Procedure Calls

    c. Inst. Sheet Interpreter

    d. Security calls

Enable fnlog4j

Introduction

In this exercise, you enable fnlo4j logging to troubleshoot Java applet-related issues.

Scenario

When a user tries to start Process Designer, a logon window opens. Although the user has proper authorization to use Process Designer, the Process Designer does not open.

Solution Overview

The problem is related to the Java applets, so you must enable fnlog4j to gather information that is related to this problem. You must find and edit the fnlog4j.properties file. You must then copy the file to the appropriate directory, then edit the file to start logging. After the logs have been generated, review the information. After you collect the information, disable logging.

In this lab environment, the client machine is the server. In a typical environment, you must also add the fnlog4j.properties file to the client system browser JRE library directory.

Procedures

Procedure 1, "Copy the fnlog4j.properties file," on page 1-59

Procedure 2, "Enable fnlog4j log options," on page 1-60

Procedure 3, "Create log activity," on page 1-60

Procedure 4, "Review the log file," on page 1-61

Procedure 5, "Disable fnlog4j," on page 1-61

Procedure 1: Copy the fnlog4j.properties file

1. Using Windows Explorer, go to the following location:

    - C:\Program Files\IBM\FileNet\ContentEngine\tools\PE\samples

2. Find the **fnlog4j.properties.sample** file.

3. Copy this file to the following location:

    - C:\Program Files\IBM\WebSphere\AppServer\java\jre\lib

4. Rename the file by deleting the .sample extension.

Procedure 2: Enable fnlog4j log options

By default, logging options are disabled in this file. To enable logging options, you edit the file by using a text editor and delete the "#" characters at the start of each option that you want to enable.

1. Right-click fnlog4j.properties.

2. Click Edit with Notepad++.

3. Optional: read the comments at the top of the file.

4. Enable the root logger:

    a. Locate the following lines:

    ```
    #log4j.debug=true
    #log4j.rootLogger=ERROR, CON, TXT
    ```

    b. Change the two preceding lines to the following lines:

    ```
    log4j.debug=true
    log4j.rootLogger=DEBUG, CON, TXT
    ```

Note

The two changes were to remove the pound sign "#" character from both lines, and to change ERROR to DEBUG.

Important

Using the rootLogger enables all log4j logs. This option burdens the system with creating verbose logs. After you reproduce the error, disable logging.

5. Configure the output location:

    a. Locate the following line:

    ```
    log4j.appender.TXT.File=C:/tmp/pe.txt
    ```

    b. Change this line to the following line:

    ```
    log4j.appender.TXT.File=C:/Temp/pe.txt
    ```

6. Save the file.

7. Close Notepad++.

Procedure 3: Create log activity

In this procedure, you generate some log activity by starting some Java applets.

1. Start Mozilla Firefox.

2. Open the Workflow Author Desktop bookmark.

   URL: http://ecmedu01:9080/navigator/?desktop=WorkflowAuthordesktop

3. Log on to IBM Content Navigator Workflow Author Desktop as p8admin.

   - User Name: `p8admin`

   - Password: `IBMFileNetP8`

4. Start Process Designer:

   a. Right-click the LoanProcess object store.

   b. Click Open Process Designer.

   c. When Process Designer is running, close Process Designer.

5. Log out of Workflow Author Desktop.

6. Close Firefox.

Procedure 4: Review the log file

1. Use Windows Explorer to go to C:\temp.

2. Edit pe.txt with Notepad++ to review the log entries.

Troubleshooting

If there is no pe.txt file in C:\Temp, check the following issues:

- The fnlog4j.properties file is in the correct location.

- The file extension was removed.

- The appender location was specified as C:/Temp.

If the file exists, but it is empty, check the following issues:

- The logger and appender statements are uncommented.

- The DEBUG setting was used for the rootlogger.

Procedure 5: Disable fnlog4j

In this procedure, you stop the logging. You delete the pe.txt log file to confirm that logging stopped.

1. Use Windows Explorer to go to the following location:

   - C:\Program Files\IBM\WebSphere\AppServer\java\jre\lib

2. Rename the fnlog4j.properties file to fnlog4j.properties.off.

3. Stop WebSphere.

   a. Open the WebSphere Admin folder on the desktop.

   b. Double-click Stop the Server 1.bat.

    c. Wait for the batch file to complete.

4. Delete c:\temp\pe.txt.

5. Restart WebSphere:

    a. Double-click Start Server 1.bat.

    b. Wait for the batch file to complete.

Enable trace logging

Introduction

In this exercise, you use vwtool to configure trace logging options. You can set tracing options directly by using vwtool, or you can set tracing options by using the traceOptions file, which starts tracing when the system restarts. In this exercise, you practice both methods.

Procedures

Procedure 1, "Set tracing options and view trace files," on page 1-63

Procedure 2, "View trace logs," on page 1-64

Procedure 3, "Observe the growth of the trace log file," on page 1-65

Procedure 4, "Stop tracing," on page 1-65

Procedure 5, "Optional: verify that tracing is stopped," on page 1-66

Procedure 6, "Delete the traceOptions file," on page 1-66

Procedure 1: Set tracing options and view trace files

In this procedure, you configure the traceOptions file and activate tracing by using the vwtool `trace` command.

1. Move a copy of the traceOptions.sample file to the virtual server folder.

    a. Use Windows Explorer to go to the following location:

    C:\Program Files\IBM\FileNet\ContentEngine\tools\PE\samples

    b. Copy the traceOptions.sample file to the following location:

    C:\Program Files\IBM\WebSphere\AppServer\profiles\AppSrv01

    c. Delete the .sample extension from the file name.

2. Edit the traceOptions file to configure the wanted trace options.

    a. Edit traceOptions with Notepad++.

    b. Verify that the TRACE_BY_LOGFILE line does not start with a # character

    c. Verify that the TRACE_BY_CONSOLE line does not start with a # character.

    d. Activate the following trace options by removing the preceding # character.

    - TRACE_DBI_MSGS
    - TRACE_DBI_OUT
    - TRACE_DBI_TRAN

    e. Save and close the file.

3. Start vwtool. On the desktop, double-click vwtool P8ConnP5.bat.

4. Type `trace`.

> 📝 **Note**
>
> You can start tracing now by restarting Process Services, but you can use the trace command to avoid a restart.

5. At each prompt, enter the appropriate command:

At this prompt	Enter this Command
Perform on all servers/single server (CR=a, s):	s
Enter server to trace (CR=default to the first server):	CR
Change tracing options?	CR
Turn off all tracing?	CR
Extract new options from the traceOptions file?	y

6. After vwtool displays the new trace status on server ECMEDU01/server, verify that double asterisks (**) precede the following trace options:

- **TRACE_DBI_MSGS

- **TRACE_DBI_OUT

- **TRACE_DBI_TRAN

```
Trace options currently SET are marked with a double-asterisk (**).
Current trace settings for server ECMEDU01/server1:

    1.    Instr. Sheet Interpreter      27.    Stored Procedure Calls
    2.    Log Manager                   28.    Expression Parsing
    3.  **Database access               29.    RDB Objects
    4.  **Database outputs              30.    Application Space
    5.  **Database transactions         31.    RDB Time
    6.    Object Svc RPCs               32.    Archiver
    7.    Component Manager             33.    Uwtime
    8.    Email notification            34.    Heartbeat
    9.    Exceptions                    35.    Case Analyzer Publishing
   10.    Security calls                36.    Case Analyzer Collection
   11.    Workflow termination          37.    Case Analyzer Database
   12.    Transfer                      38.    Case Analyzer RPC
   13.    J2EE                          39.    Case Analyzer Upgrade
   14.    Step Processor                40.    Case Analyzer OLAP
   15.    Rules                         41.    Case History Publishing
   16.    Envcache access               42.    Case History Collect
   17.    XML Parser                    43.    Case History Database
   18.    Web Services                  44.    Case History RPC
   19.    API RPC                       45.    Case History Performance
   20.    API RPC Input                 46.    Case History Upgrade
   21.    API RPC Output                47.    Event Exporter
   22.    API RPC Timing                48.    Case Synchronization
   23.    API RPC Stack                 49.    Dynamic Task
   24.    Asynchronous RPC              50.    Business Object Update
   25.    Asynchronous tools            51.    Debug
   26.    Farming
```

7. Minimize the vwtool window.

Procedure 2: View trace logs

1. Locate the trace log file:

   a. Use Windows Explorer to go to the following location:

      C:\Program Files\IBM\WebSphere\AppServer\profiles\AppSrv01\FileNet\server1

2. Edit the pesvr_trace.log file with Notepad++.

3. Confirm that the time stamps for each line are consistent with the time that you started tracing.

4. Confirm that the messages are all related to database operations. For example:

   ```
   DBI_OUT, DbResult get wasNull = false
   ```

5. Close Notepad++ when you are finished reviewing the files.

Procedure 3: Observe the growth of the trace log file

In Windows Explorer, the server1 folder is still open on your desktop.

1. Note the size of the pesvr_trace.log file.

2. Press F5 to refresh the folder.

3. Note the size of the pesvr_trace.log file again.

Information

By default, trace log files are set to grow to 200 MB and to generate up to three files before rolling over. You can change appender settings in the traceOptions file.

Important

Trace logging can slow system performance. The more trace logs that are enabled, the greater the effect on performance.

Procedure 4: Stop tracing

After you use tracing to gather targeted data, you must stop trace logging. In this procedure, you stop trace logging by removing the traceOptions file and rerunning the trace command. The vwtool window is still open from the previous procedures.

1. In vwtool, rerun the `trace` command.

2. Enter the following commands at each prompt.

At this prompt	Enter this Command
Perform on all servers/single server (CR=a, s):	s
Enter server to trace (CR=default to the first server):	CR
Change tracing options?	CR
Turn off all tracing?	y

3. Verify that the tracing status shows no trace options with double asterisks (**).

```
New trace status on server ECMEDU01/server1

    1.    Instr. Sheet Interpreter        27.    Stored Procedure Calls
    2.    Log Manager                     28.    Expression Parsing
    3.    Database access                 29.    RDB Objects
    4.    Database outputs                30.    Application Space
    5.    Database transactions           31.    RDB Time
    6.    Object Svc RPCs                 32.    Archiver
    7.    Component Manager               33.    Uwtime
    8.    Email notification              34.    Heartbeat
    9.    Exceptions                      35.    Case Analyzer Publishing
   10.    Security calls                  36.    Case Analyzer Collection
   11.    Workflow termination            37.    Case Analyzer Database
   12.    Transfer                        38.    Case Analyzer RPC
   13.    J2EE                            39.    Case Analyzer Upgrade
   14.    Step Processor                  40.    Case Analyzer OLAP
   15.    Rules                           41.    Case History Publishing
   16.    Envcache access                 42.    Case History Collect
   17.    XML Parser                      43.    Case History Database
   18.    Web Services                    44.    Case History RPC
   19.    API RPC                         45.    Case History Performance
   20.    API RPC Input                   46.    Case History Upgrade
   21.    API RPC Output                  47.    Event Exporter
   22.    API RPC Timing                  48.    Case Synchronization
   23.    API RPC Stack                   49.    Dynamic Task
   24.    Asynchronous RPC                50.    Business Object Update
   25.    Asynchronous tools              51.    Debug
   26.    Farming
```

4. Type exit to close vwtool.

5. Close the command window.

Procedure 5: Optional: verify that tracing is stopped

You can verify that vwtool stopped tracing by observing that the trace log file has no new entries.

1. Use Windows Explorer to go to the following location:

    C:\Program Files\IBM\WebSphere\AppServer\profiles\AppSrv01\FileNet\server1

2. Edit the pesvr_trace.log file with Notepad++

3. Scroll to the bottom.

4. Note the time stamp on the last entry.

5. Close Notepad++.

6. Wait a minute.

7. Reopen the file with Notepad++.

8. Confirm that the last entry did not change.

Procedure 6: Delete the traceOptions file

Delete the traceOptions file to prevent the resumption of tracing when the system restarts.

1. Use Windows Explorer to go to the location of the traceOptions file:

    C:\Program Files\IBM\WebSphere\AppServer\profiles\AppSrv01

2. Delete the traceOptions file.

Enable Tracing with vwtool

Introduction

You can use vwtool to start and stop trace logging without using the traceOptions file. Without the traceOptions file, tracing does not automatically start again if the process services are restarted.

Procedures

Procedure 1, "Select tracing options in vwtool," on page 1-67

Procedure 2, "Disable trace-logging," on page 1-68

Procedure 1: Select tracing options in vwtool

1. On the desktop, double-click vwtool P8ConnP5.bat.

2. Type `trace`.

3. At each prompt, enter the corresponding command:

At this prompt	Enter this Command
Perform on all servers/single server (CR=a, s):	s
Enter server to trace (CR=default to the first server):	CR
Change tracing options?	CR
Turn off all tracing?	CR
Extract new options from the traceOptions file?	CR
Enter numbers of trace options to toggle. Multiple numbers may be entered separated by blanks.	3 4 5

4. Confirm that the following trace options are active:

   - **TRACE_DBI_MSGS

   - **TRACE_DBI_OUT

   - **TRACE_DBI_TRAN

```
Trace options currently SET are marked with a double-asterisk (**).
Current trace settings for server ECMEDU01/server1:

    1.    Instr. Sheet Interpreter     27.    Stored Procedure Calls
    2.    Log Manager                  28.    Expression Parsing
    3.  **Database access             29.    RDB Objects
    4.  **Database outputs            30.    Application Space
    5.  **Database transactions       31.    RDB Time
    6.    Object Svc RPCs              32.    Archiver
    7.    Component Manager            33.    Uwtime
    8.    Email notification           34.    Heartbeat
    9.    Exceptions                   35.    Case Analyzer Publishing
   10.    Security calls               36.    Case Analyzer Collection
   11.    Workflow termination         37.    Case Analyzer Database
   12.    Transfer                     38.    Case Analyzer RPC
   13.    J2EE                         39.    Case Analyzer Upgrade
   14.    Step Processor               40.    Case Analyzer OLAP
   15.    Rules                        41.    Case History Publishing
   16.    Envcache access              42.    Case History Collect
   17.    XML Parser                   43.    Case History Database
   18.    Web Services                 44.    Case History RPC
   19.    API RPC                      45.    Case History Performance
   20.    API RPC Input                46.    Case History Upgrade
   21.    API RPC Output               47.    Event Exporter
   22.    API RPC Timing               48.    Case Synchronization
   23.    API RPC Stack                49.    Dynamic Task
   24.    Asynchronous RPC             50.    Business Object Update
   25.    Asynchronous tools           51.    Debug
   26.    Farming
```

Procedure 2: Disable trace-logging

Disable trace-logging with vwtool. Vwtool is still open.

1. Type `trace`.

2. At each prompt, enter the corresponding command:

At this prompt	Enter this Command
Perform on all servers/single server (CR=a, s):	s
Enter server to trace (CR=default to the first server):	CR
Change tracing options?	CR
Turn off all tracing?	y

3. Confirm that all tracing options are disabled.

4. Exit vwtool.

5. Close the command window.

Appendix A. Checkpoint solutions

Exercise , "Identify workflow system administration tools," on page 1-5

In this lesson, you learned about workflow system maintenance tools. For each scenario, identify the tool that you can use to accomplish a task.

For each question, indicate the correct answer or the best answer.

1. Which tool can you use to search for work in progress?

    a. Process Services Ping Page.

    b. System Dashboard

    c. Process Administrator

    d. Process Configuration Console

    Answer: c

2. Before your database administrator can back up the workflow system database tables, you must lock the isolated region. Which tool do you use?

    a. Process Administrator

    b. Process Configuration Console

    c. System Dashboard

    d. Administration Console for Content Platform Engine

    Answer: d

3. Configuration of queues, rosters, and event logs was formerly accomplished by using _____ but is now accomplished by using _____.

    a. Process Administrator, System Dashboard

    b. Process Configuration Console, Process Administrator

    c. Process Administrator, Administration Console for Content Platform Engine.

    d. Process Configuration Console, Administration Console for Content Platform Engine

    Answer: d

4. Misuse of which administration tool can cause work item corruption, compromise data integrity, or loss of data?

    a. vwtool

    b. System Dashboard

    c. Process Administrator

    d. Process Services Ping page.

    Answer: a

Troubleshoot the workflow system checkpoint, on page 1-57

troduction

In this lesson, you learned about gathering information for troubleshooting For each scenario, identify the tool that you can use to accomplish a task.

For each question, indicate the correct answer or the best answer.

1. A user is unable to launch Process Designer. Select a logging method to collect information.

   a. Fnlog4

   b. Vwtool

   c. CE logs

   d. PE logs

   Answer: a

2. A user is unable to see a work queue. Which trace options do you enable to troubleshoot the issue?

   a. Database access

   b. Stored Procedure Calls

   c. Inst. Sheet Interpreter

   d. Security calls

   Answer: d

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