



SupportPac LA71: IBM Operational Decision Manager Integration for WebSphere Process Server

Getting started with IBM Business Process Manager

Overview and Environment

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Overview of BPM and BRMS

Business Process Management (BPM) and Business Rule Management (BRM) are two technologies that are used to improve the agility, flexibility and efficiency of business solutions. Many people question the differences between the two, or use the terms interchangeably—there are, however, clear differences in terms of the functionality and value of each.

BPM is focused on defining, orchestrating and monitoring long running processes that are comprised of both people- and system-based activities. BRM is focused on defining, maintaining and executing decision logic that is used at specific points within a process or as part of automated decisions within business solutions. Bringing BPM and BRM together expands the breadth of problems that can be solved within a single solution. Both technologies improve the efficiency and visibility of business processes, but they do so in complimentary ways:

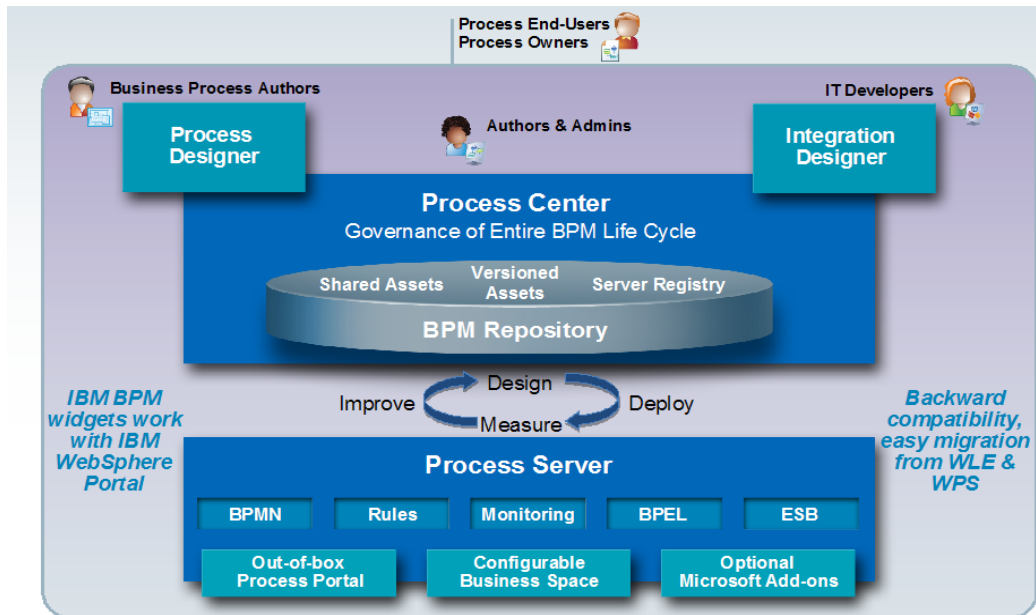
BPM orchestrates and improves business processes:

- Flow orientation coordinates a variety of different tasks
- Human orientation helps people undertake their tasks as part of those flows
- Crosses system and organization boundaries to improve visibility and coordination
- Process-oriented transparency delivers awareness to an increased set of stakeholders and driving business processes improvement
- Provides both long and short running processes for coordination and automation

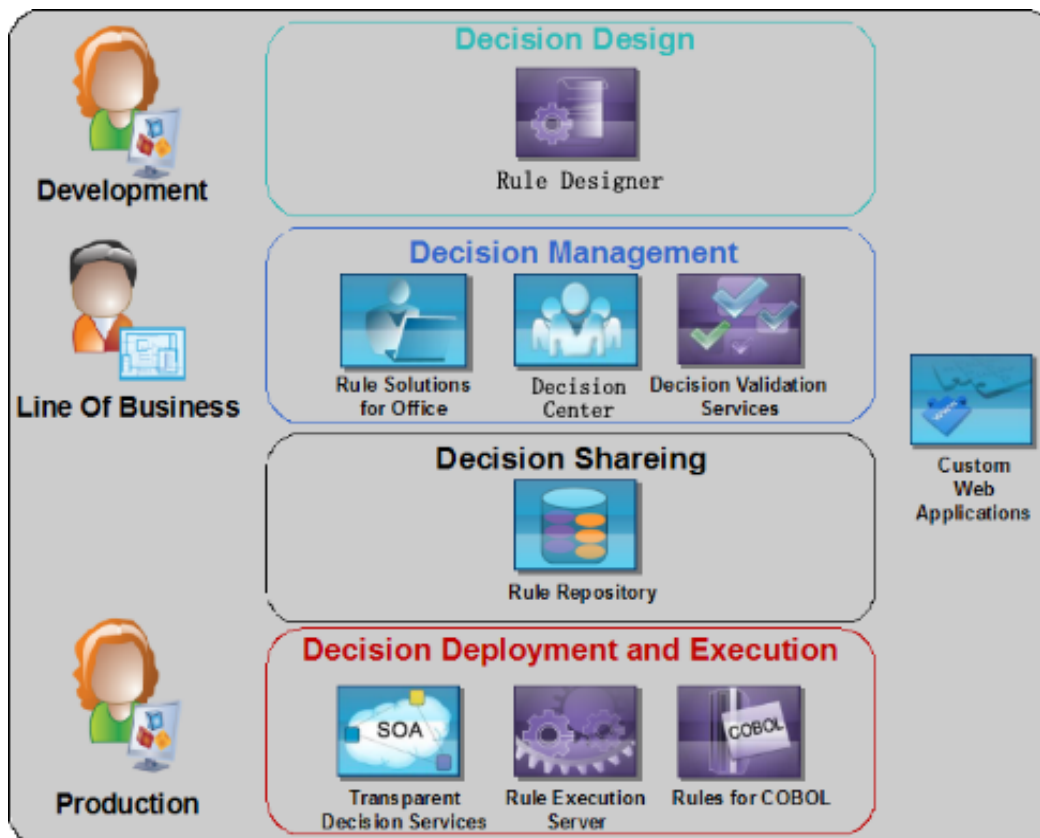
BRM(S) expresses and automates business decisions

- Data orientation allows decisions to be made on the basis of the available information
- Encapsulates the decision boundary providing clarity of the decision being managed
- Promotes reuse for any client (BPM and otherwise) driving consistent decision making
- Decision-oriented transparency increases visibility of decisions to an increased set of stakeholders and driving agile improvement to critical business applications and processes
- Straight through processing provides consistent automated high volume decisions.

IBM has been evolving its BPM product portfolio resulting in IBM Business Process Manager which brings the orchestration and SOA connectivity of WebSphere Process Server together with the ease of use and support for Human interaction provided by WebSphere Lombard Edition. This provides integrated support for both the Line of Business Users (eg Business Process Designers) and the IT Development and Architecture roles as shown below.

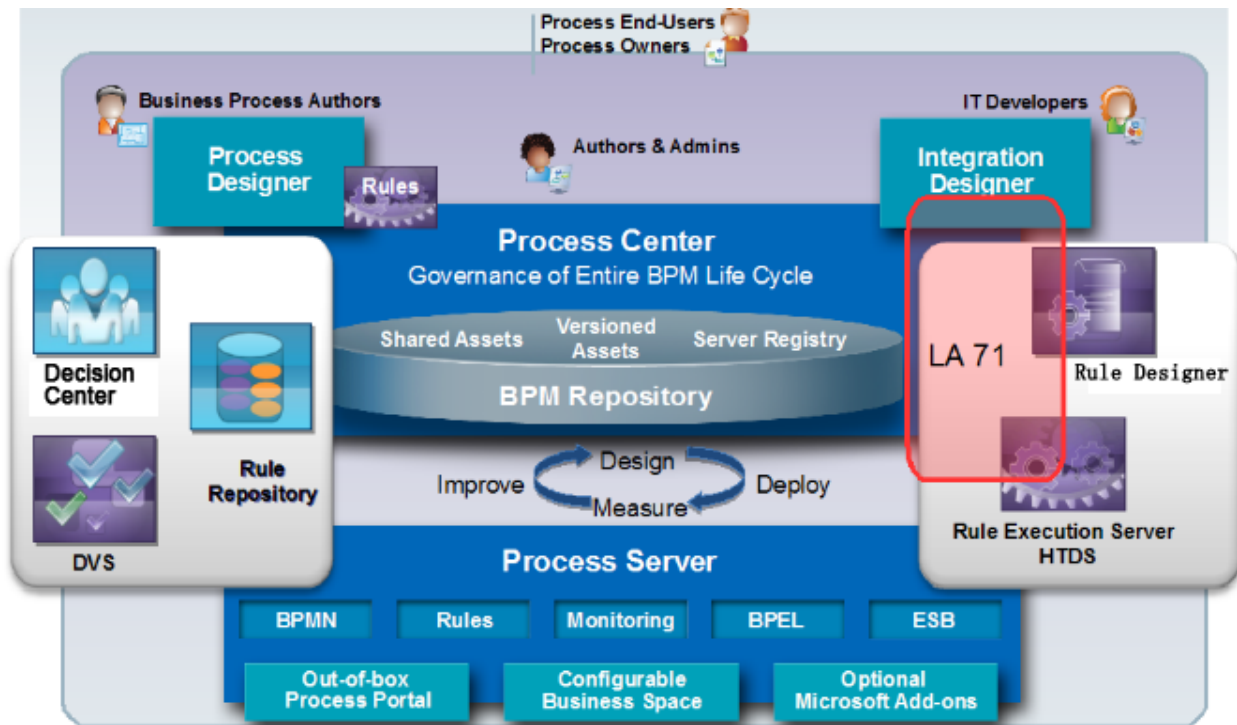


IBM has also been developing its Business Rule Management portfolio to provide decision development and management support for both business and IT roles as shown below.



The LA71 Support Pac: IBM Operational Decision Manager Integration for WebSphere Process Server provides additional tooling and recommended practices to use these two product portfolios together in a synergistic manner and deliver the agility that the business is looking for.

The relationship between the products can be seen overlaid below



There are four key areas of integration between BPM and ODM

BPM Embedded Rules allows Business Process Authors using Process Designer to create and test (or "playback") decisions as part of their natural design activities. The decisions and rules created can then be exported to allow IT Rule developers to elaborate and refine them into Managed Decisions using ODM.

ODM provides Rule Designer which is an Eclipse environment that allows the IT Rule Developers to design, implement, test and deploy decisions to the Rule Execution Server. Once deployed on the Rule Execution server these decisions can be made available as Hosted Transparent Decision Services for re-use by both Business Process Authors using Process Designer and IT Integration Developers using Integration Designer. Rule Designer can also publish these decisions to a Rule Repository provided by Decision Center allowing them to be managed by Line of Business Users.

LA 71 provides support to IT Integration Developers using Integration Designer allowing them to create SCA Components from the Decisions running on the Rule Execution Server. These can be integrated with the Rule Execution Server either using HTDS web services, or by a direct integration with the Rule Execution Server. The IT Integration developers can then easily use these SCA Managed Decision Components in their BPEL processes. In BPM they can also use these SCA

Managed Decisions to implement Advanced Integration Services which can then be directly incorporated in the BPMN processes by the Business Process Authors using Process Designer.

Decision Center provides the environment for Line of Business users to Manage the Decisions published from Rule Designer. Business Process Authors can author and modify rules using the vocabulary establish for the decision. They can also test and simulate the decisions using Decision Validation services (DVS). The status of all the decision changes are maintained in a Rule Repository allowing decisions to be deployed to a Decision Center as part of a Decision Governance lifecycle. Once deployed to the Rule Execution server the modified rules will become active in the Managed decision and thus become active in the SCA Components and Processes that reference them.

LA71 BPM Tutorial Overview

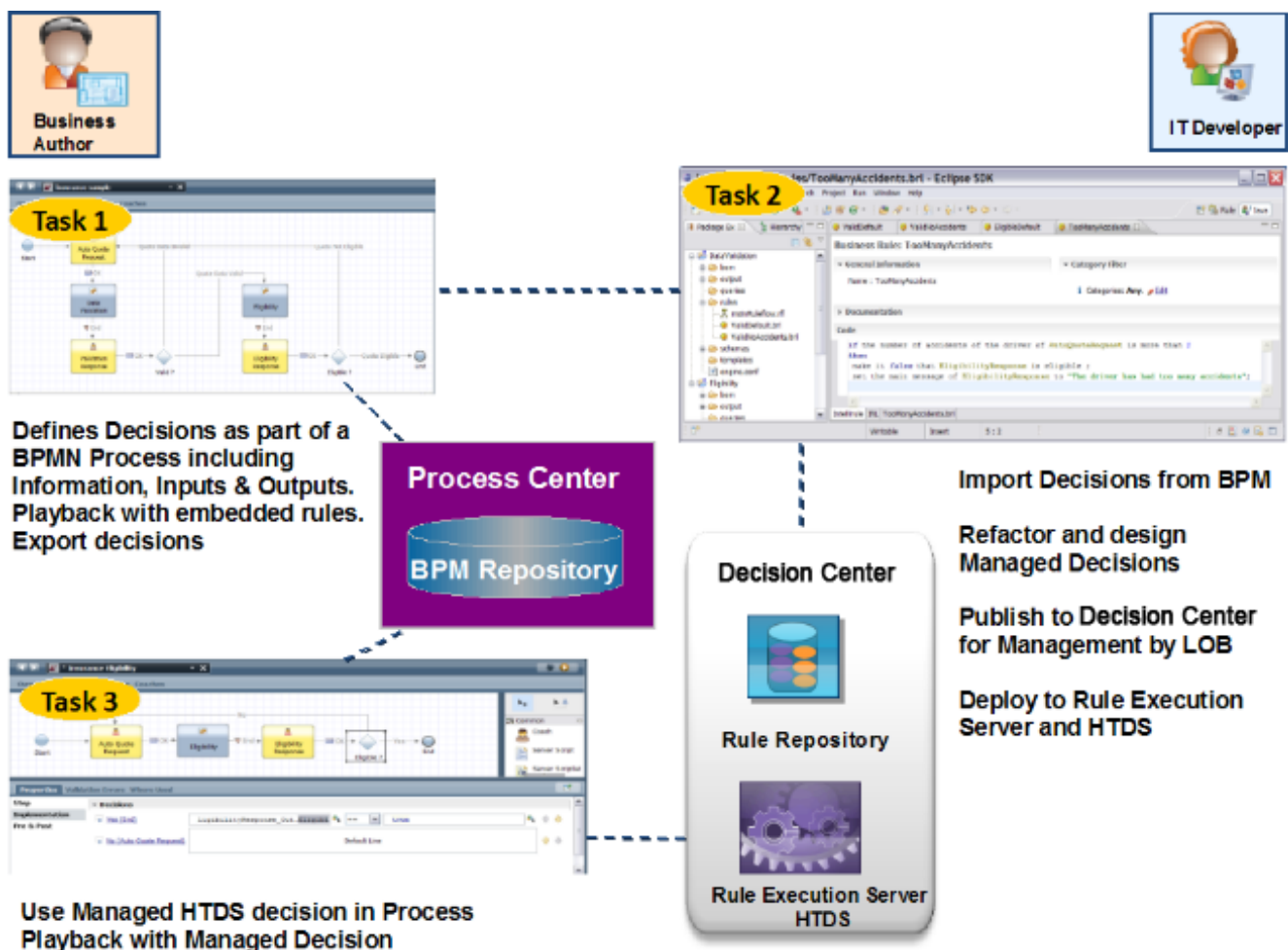
The LA71 Support Pac V2.1 provides a new BPM Tutorial that takes the reader through all the common tasks when integrating Rules and Decision Manager into a Business Processes running in IBM Business Process Manager v8.0.1. These tasks are summarized here and are available as separate documents in the tutorial.

In the first 3 tasks we will consider how a Business Process Author can design decisions as part of their BPMN process in Process Designer and then leverage the BRMS to make that decision managed and reusable in other processes. The tasks are listed and summarized in the diagram below.

Task 1 Business Process Author defines a Decision as part of a BPMN Business Process.

Task 2 Rule Designer creates a Managed Decision

Task 3. Business Process Author re-uses an HTDS Managed Decision as part of a BPMN Process.

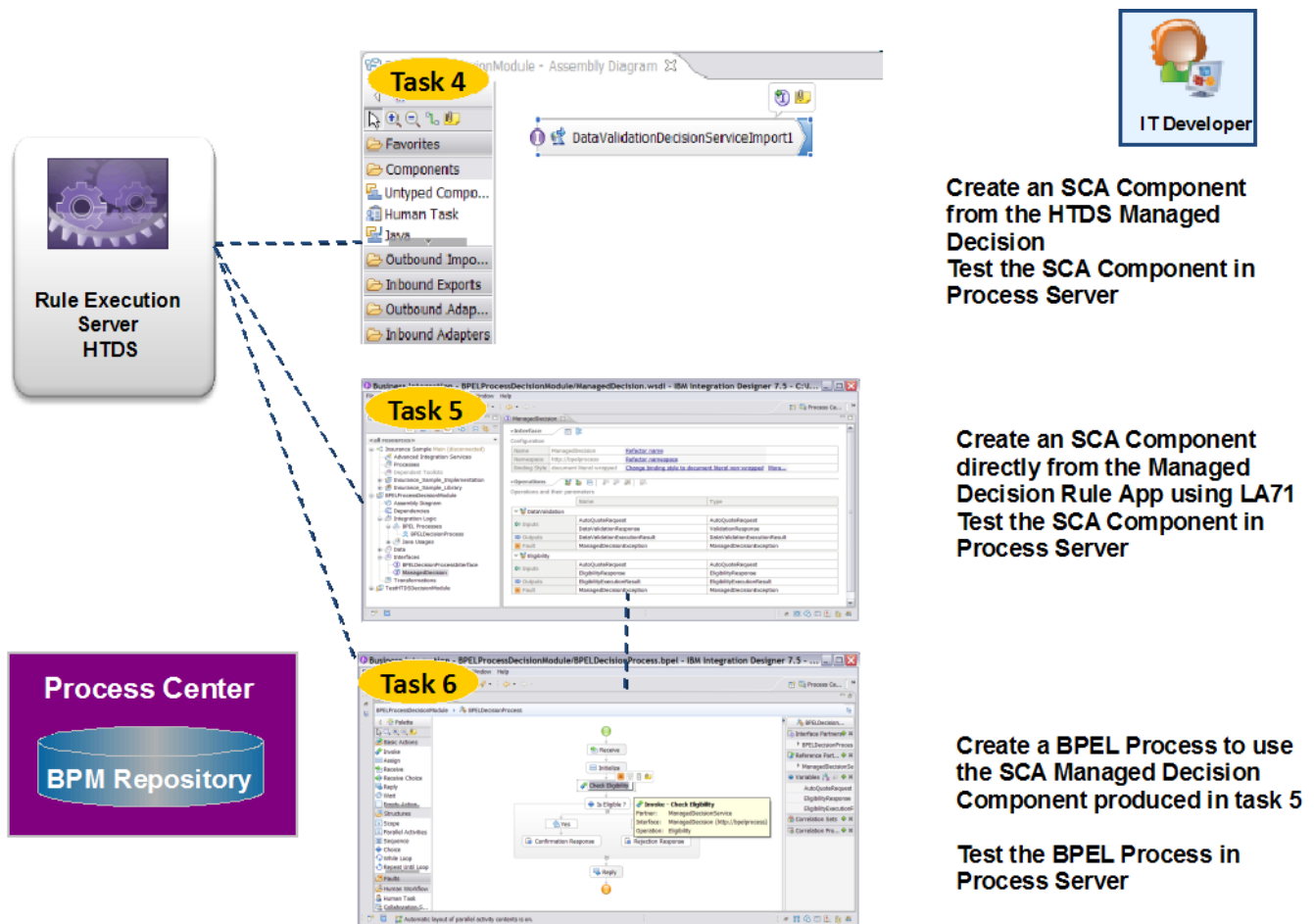


The next set of tasks support the Integration Developer role using Integration Designer in conjunction with LA71 to develop SCA components that implement the Managed Decision and can be run within BPEL processes in Process Server. Three different tasks are listed and described in the diagram below.

Task 4. Integration Designer assembles an SCA Decision Component from the HTDS Managed Decision.

Task 5. Integration Designer assembles an SCA Decision Component from a Managed Decision RuleApp with SupportPac LA71.

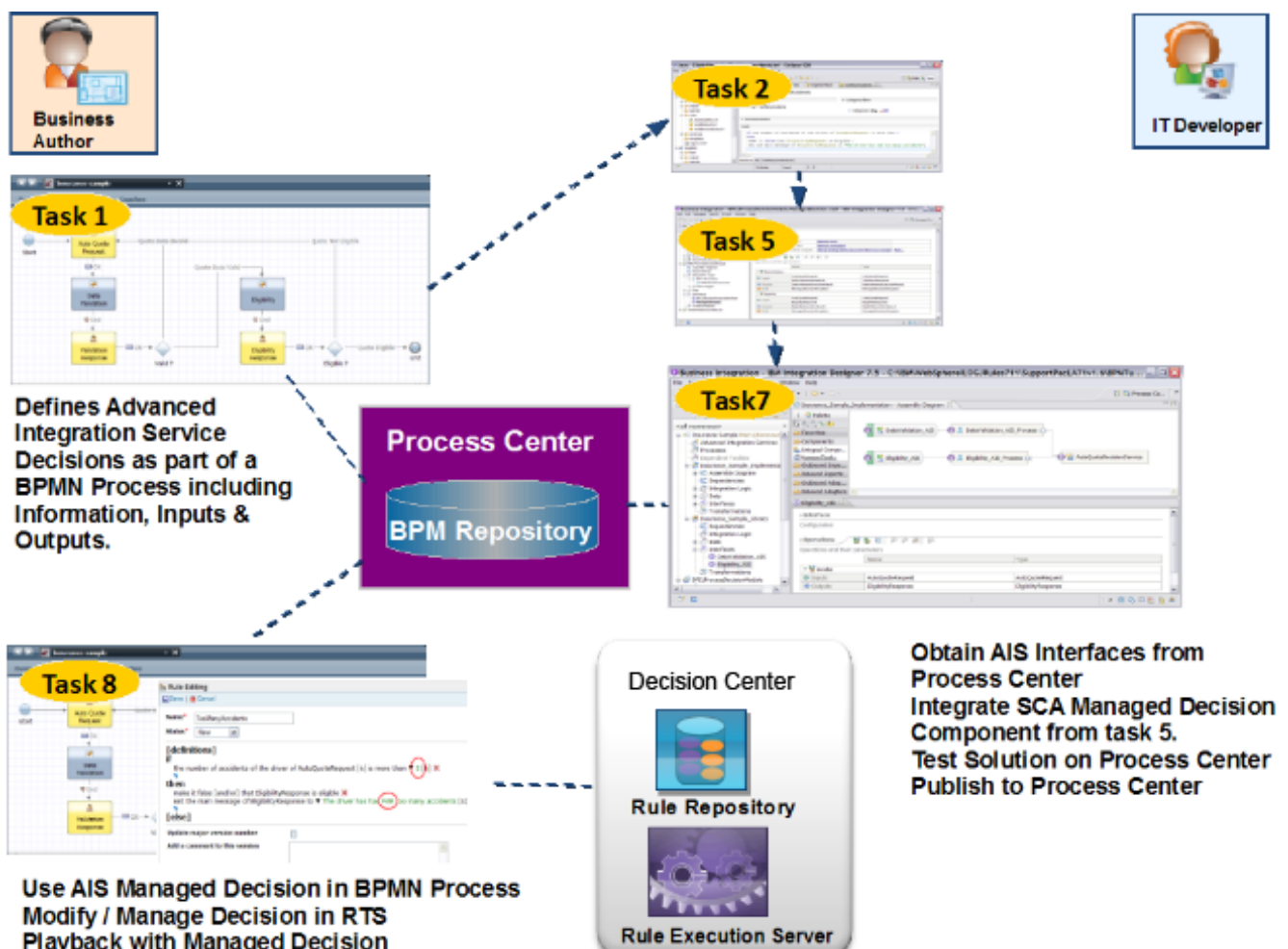
Task 6. Integration Designer assembles a BPEL Process containing an SCA Decision Component.



The final set of tasks builds on what has been undertaken previously where the Business Process Author defined some Advanced Integration Services that should realize the Managed Decisions. The Integration developer then uses the SCA Managed Decision components to implement and publish the AIS decisions. The Business Process Author can then use Decision Center to manage the decisions in their BPMN process. The tasks are listed and their relationship to previous tasks shown in the diagram below.

Task 7. Integration Designer assembles an Advanced Integration Service containing an SCA Decision Component.

Task 8. Business Process Author manages the Advanced Integration Service Decision in a BPMN Process.



LA71 BPM Tutorial Environment Installation and Configuration

In order to undertake the LA71 BPM Tutorial, you should setup an environment containing the following prerequisites.

1 Install Java 1.6 JDK

The LA71 installer requires a Java SDK to be already available. This needs to be installed on the operating system allowing Java to be invoked from command line prompts.

2 Install BPM v8.0 Process Center and Process Designer

This follows the Typical installation of IBM Business Process Manager v8.0.1 Advanced.

In the installer **Welcome** screen Click **Install using typical installer**.

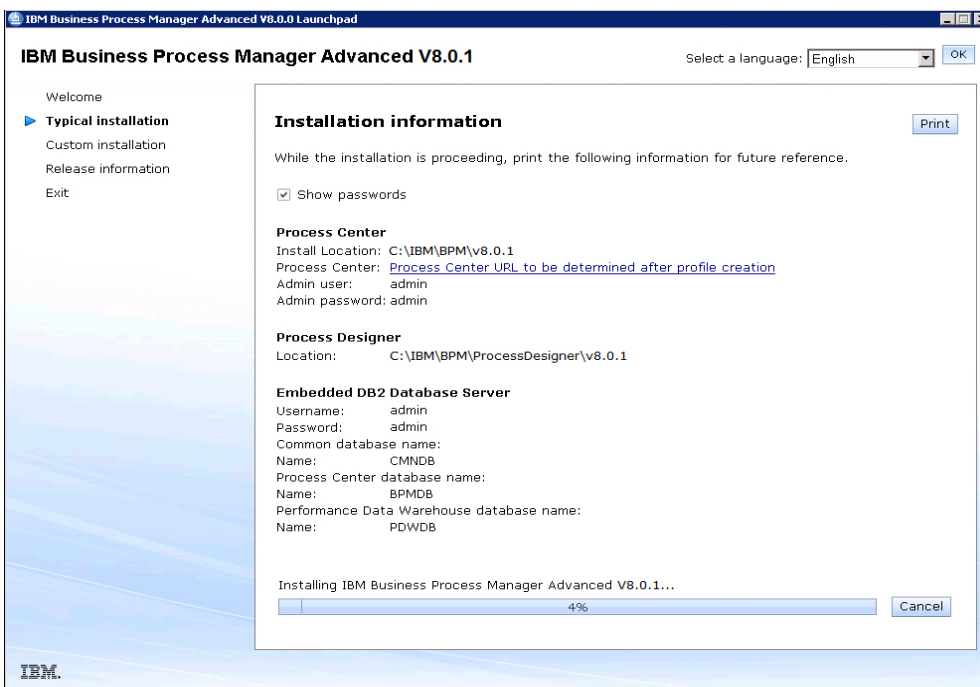
In the **Typical installation** screen select **Install Process Center**. This will also install Process Designer. Click **Next**.

In the **Install the Process Center** screen ensure your host name is specified correctly and on Windows the path will be **C:\IBM\BPM\v8.0.1**. These should be the defaults. Click **Next**.

In the **Select database configuration** screen select **Install an embedded DB2 Express database**. Click **Next**.

In the **Installation summary** screen check the box to agree to the licence and click **Install Software**.

The summary screen provided after installation should indicate the accounts created, passwords and URLs needed to access Process Center. The install should have created a profile called ProcCtr01.



3 Install BPM v8.0.1 Integration Designer

IBM Integration Designer and the WebSphere test environment is provided through a separate installer. For this tutorial we will not use the test environment but will configure Integration Designer to use the Process Center server.

In the **Welcome** to IBM Integration Designer Installation screen
Check the **Install as administrative user** box.
Select **IBM Integration Designer** - Test environment not included
Click **Install Selected**.
This will launch Installation Manager.

In the **Install** screen ensure that **IBM Integration Designer** is checked
Click **Next >**.
In the **Licences** screen check the box to accept the licence terms and click **Next >**.
In the **Location** screen select **Create a new package group**.
On Windows the **Installation Directory** is set to **C:/IBM/IntegrationDesigner/v8.0**
Click **Next >**.
In the **Features** screen ensure that English is selected and Click **Next >**.
In the next **Features** screen accept the defaults and Click **Next >**.
In the **Summary** screen check the information and click **Install**.
After installation has completed click **Finish** to exit IBM Installation Manager.

4 Install IBM Operational Decision Manager v8.0.1

ODM includes a number of different products with their own installers and separate licences.

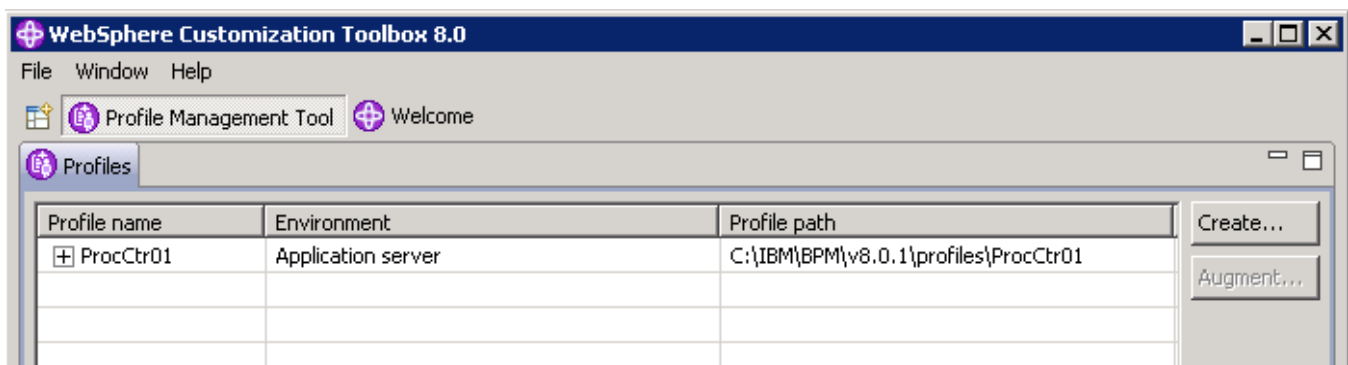
In all cases the standard installation is performed except for the root installation directory for ODM.

The default directory on Windows is C:/Program Files/IBM/ODM801

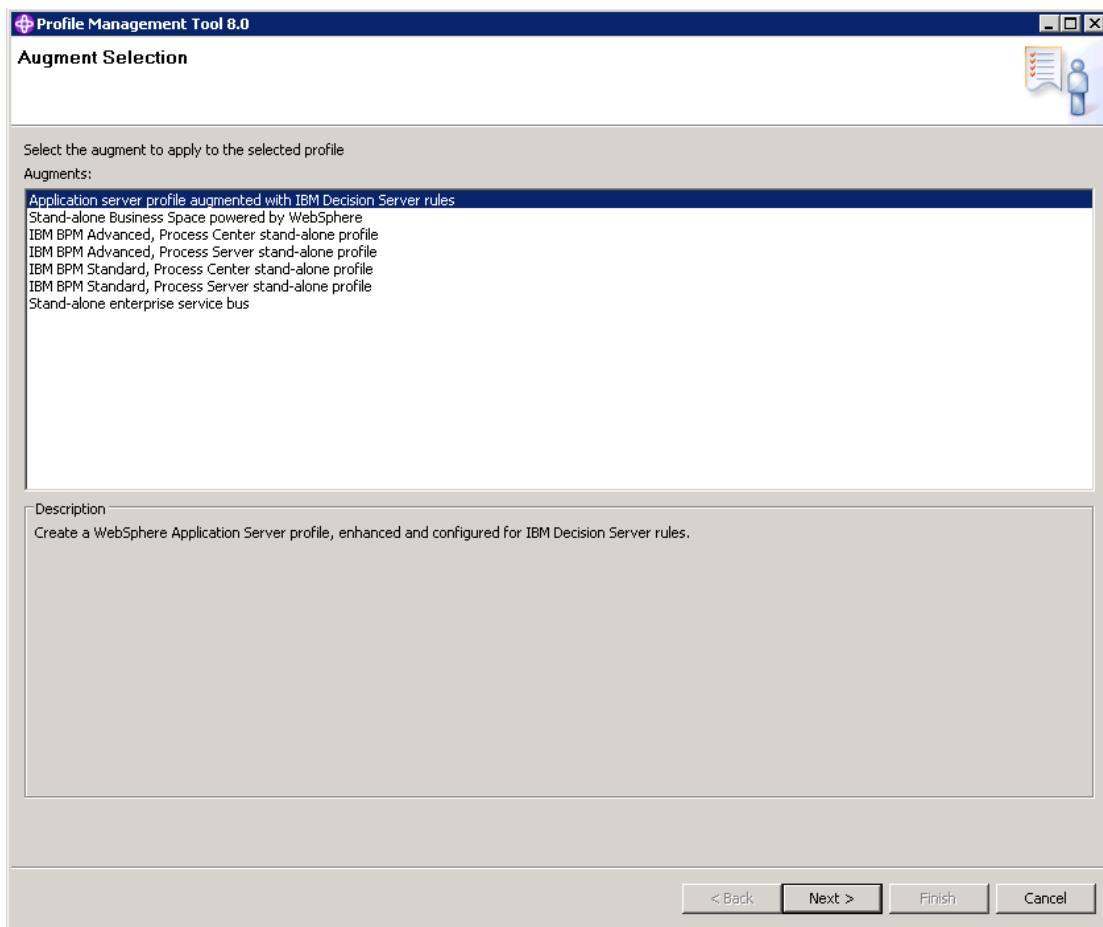
This should result in a full install of ODM and the Sample Server. It does not however include the deployment of Rule Execution Server onto the Process Center server we will be using in the tutorial.

5 Augment the Process Server or Process Center profile with IBM Operational Decision Manager Decision Server rules template using WebSphere Profile Management Tool.

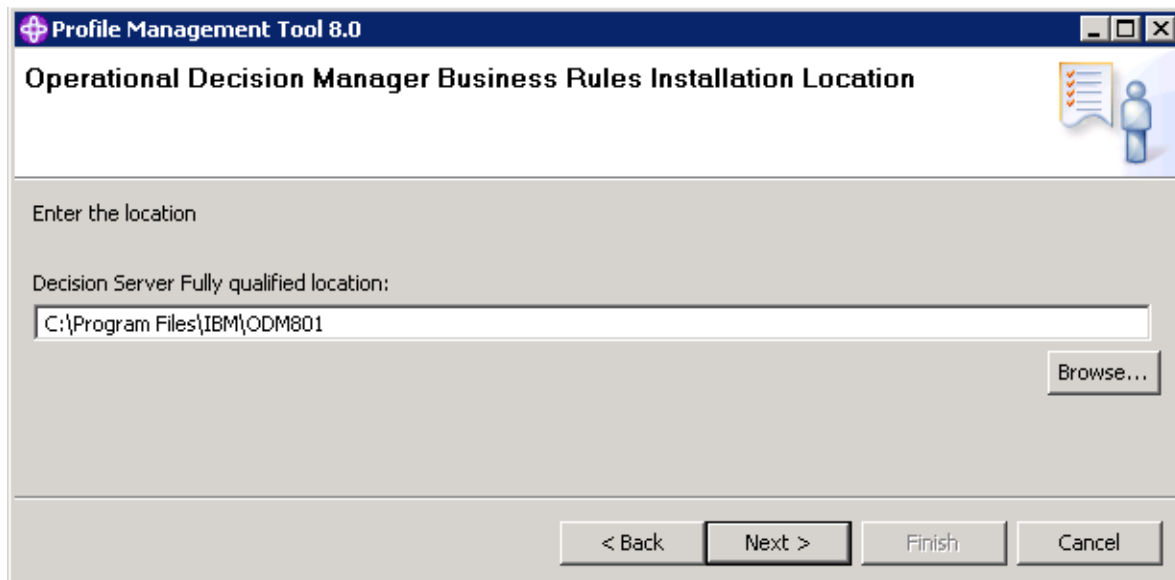
STEP 1 : Open WebSphere Profile Management Tool by double click pmt.cmd(pmt.sh) in <BPM_HOME>/bin/ProfileManagement/.



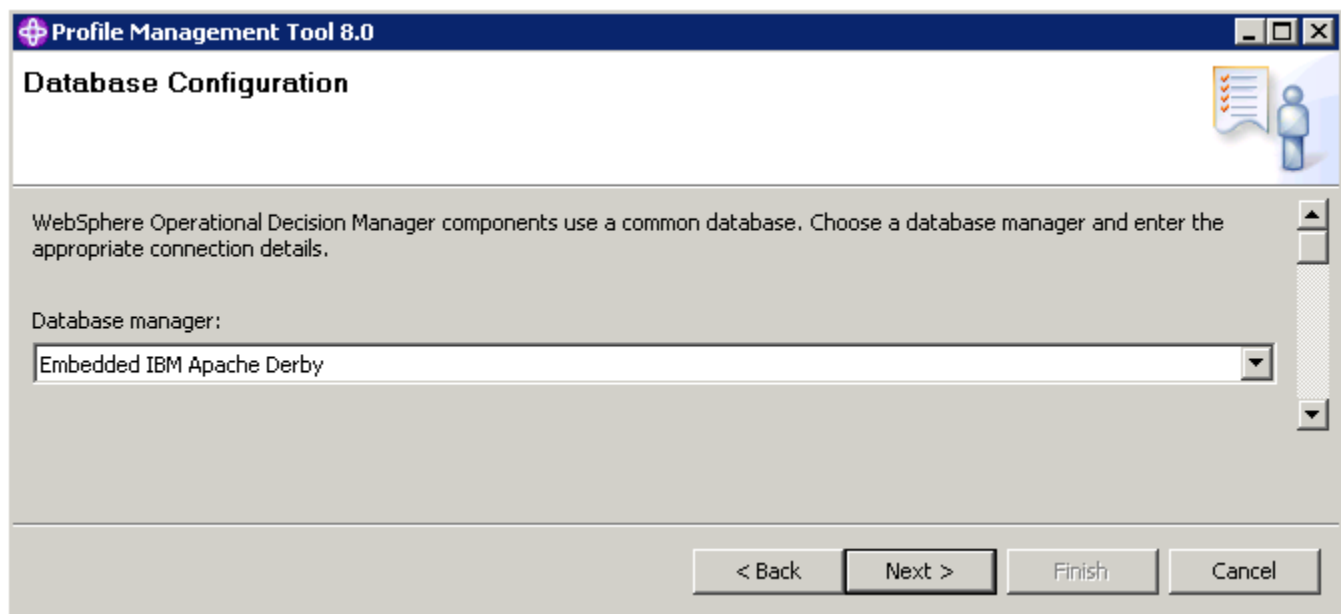
STEP 2 : Select the profile you want to work with and click **Augment...** button.



STEP 3 : Select **Application server profile augmented with IBM Operational Decision Manager Decision Server rules** and click **Next >** Button.




STEP 4 : Input the Decision Sever Fully qualified location and click **Next >** Button.



STEP 5 : Keep the Database manager as **Embedded IBM Apache Derby** and click **Next >** Button.

Profile Management Tool 8.0

Profile Augmentation Summary



Review the information in the summary for correctness. If the information is correct, click **Augment** to start augmenting a profile. Click **Back** to change values on the previous panels.

IBM Operational Decision Manager Business Rules profile type to augment: Application server profile augmented with IBM Decision Server rules

Location: C:\IBM\BPM\v8.0.1\profiles\ProcCtr01

Disk space required: 10 MB

Profile name: ProcCtr01

Make this profile the default: False

IBM ODM Decision Server installation location: C:\Program Files\IBM\ODM801

Enable administrative security (recommended): False

Administrative console port: 9060

Administrative console secure port: 9043

HTTP transport port: 9080

HTTPS transport port: 9443

Bootstrap port: 2809

SOAP connector port: 8880

Run application server as a service: False

Create a Web server definition: False

< Back **Augment** Finish Cancel

STEP 6 : Click **Augment** Button and wait for the progress completes.

Note: RES Console need to be accessed with admin/admin.

6 Deploy RES EJB Session Jar

To complete the installation, you deploy the RES EJB Session jar on WebSphere Application Server.

STEP 1 : Start the server. In the WebSphere Application Server console, select **Applications > New Application > New Enterprise Application**.

STEP 2: Specify the path of the EAR file:

<ODM_HOME>/executionserver/applicationservers/WebSphere8/jrules-res-session-ejb3-WAS8.jar.
Click **Next**.

STEP 3: Select **Fast Path - Prompt only when additional information is required**.

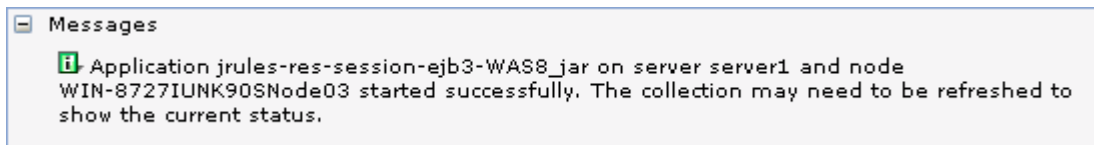
Expand **Choose to generate default bindings and mappings**, select the check box **Generate Default Bindings**, and click **Next**.

STEP 4: click **Next** to accept the default settings until **Finish**.

STEP 5: After the deployment is complete, click **Save** to save it to the WebSphere Application Server master configuration.

STEP 6: In the WebSphere Application Server console, select Applications > Application Types > WebSphere enterprise applications, select the check box next to jrules-res-session-ejb3-WAS8.jar, Click **Start**.

After the message shows up, You have deployed and started the RES EJB Session Jar successfully.



7 Install SupportPac LA71 V2.1: IBM Operational Decision Manager Integration for WebSphere Process Server

This installation will be described screen by screen to explain how LA71 configures ODM to work with BPM 8.0.1.

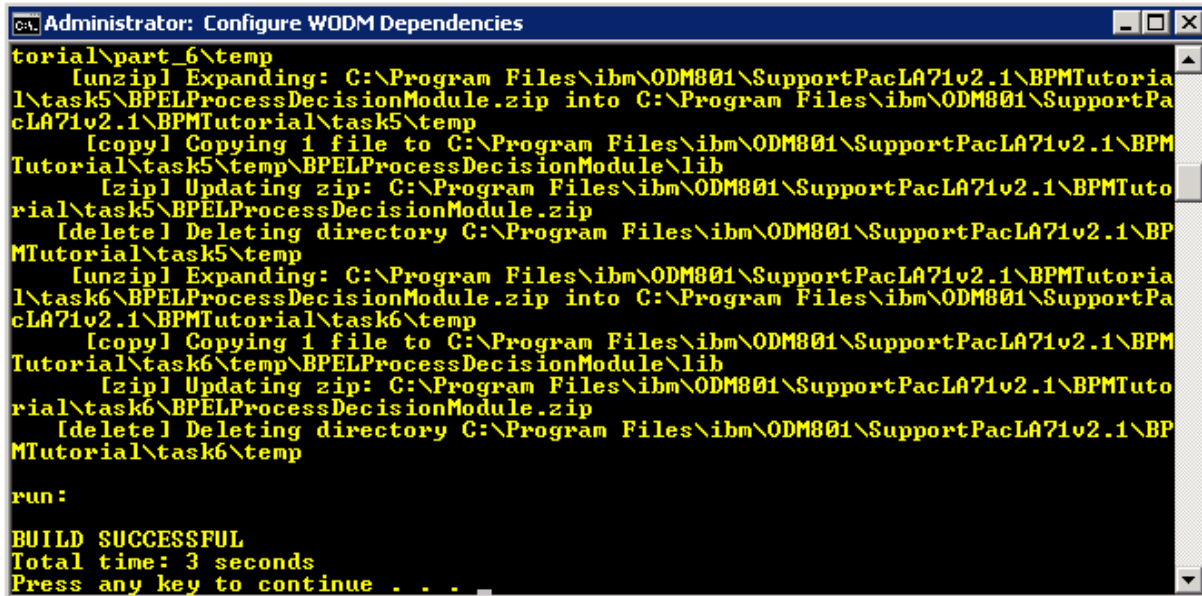
STEP 1 : Unzip the SupportPacLA71 Zip file into the ODM Home directory. The path should look like <ODM_HOME>/SupportPacLA71v2.1/.

STEP 2 : Edit the <ODM_HOME>/SupportPacLA71v2.1/check-env.cmd(check-env.sh) to specify ODM_HOME, WAS_HOME, IID_HOME and PROFILE_NAME.

```
set ODM_HOME=C:\Program Files\IBM\ODM801
set WAS_HOME=C:\IBM\BPM\v8.0.1
set IID_HOME=C:\IBM\IntegrationDesigner\v8.0
set PROFILE_NAME=ProcCtr01
```

STEP 3 : Double click

<ODM_HOME>/SupportPacLA71v2.1/scripts/ConfigureWODMdependencies.cmd(ConfigureWODMdependencies.sh) to run the script to configure the dependencies.



```
Administrator: Configure WODM Dependencies
tutorial\part_6\temp
[unzip] Expanding: C:\Program Files\ibm\ODM801\SupportPacLA71v2.1\BPMTutorial\
task5\BPELProcessDecisionModule.zip into C:\Program Files\ibm\ODM801\SupportPa
cLA71v2.1\BPMTutorial\task5\temp
[copy] Copying 1 file to C:\Program Files\ibm\ODM801\SupportPacLA71v2.1\BPM
Tutorial\task5\temp\BPELProcessDecisionModule\lib
[zip] Updating zip: C:\Program Files\ibm\ODM801\SupportPacLA71v2.1\BPMTuto
rial\task5\BPELProcessDecisionModule.zip
[delete] Deleting directory C:\Program Files\ibm\ODM801\SupportPacLA71v2.1\BP
MTutorial\task5\temp
[unzip] Expanding: C:\Program Files\ibm\ODM801\SupportPacLA71v2.1\BPMTutorial\
task6\BPELProcessDecisionModule.zip into C:\Program Files\ibm\ODM801\SupportPa
cLA71v2.1\BPMTutorial\task6\temp
[copy] Copying 1 file to C:\Program Files\ibm\ODM801\SupportPacLA71v2.1\BPM
Tutorial\task6\temp\BPELProcessDecisionModule\lib
[zip] Updating zip: C:\Program Files\ibm\ODM801\SupportPacLA71v2.1\BPMTuto
rial\task6\BPELProcessDecisionModule.zip
[delete] Deleting directory C:\Program Files\ibm\ODM801\SupportPacLA71v2.1\BP
MTutorial\task6\temp

run :

BUILD SUCCESSFUL
Total time: 3 seconds
Press any key to continue . . .
```

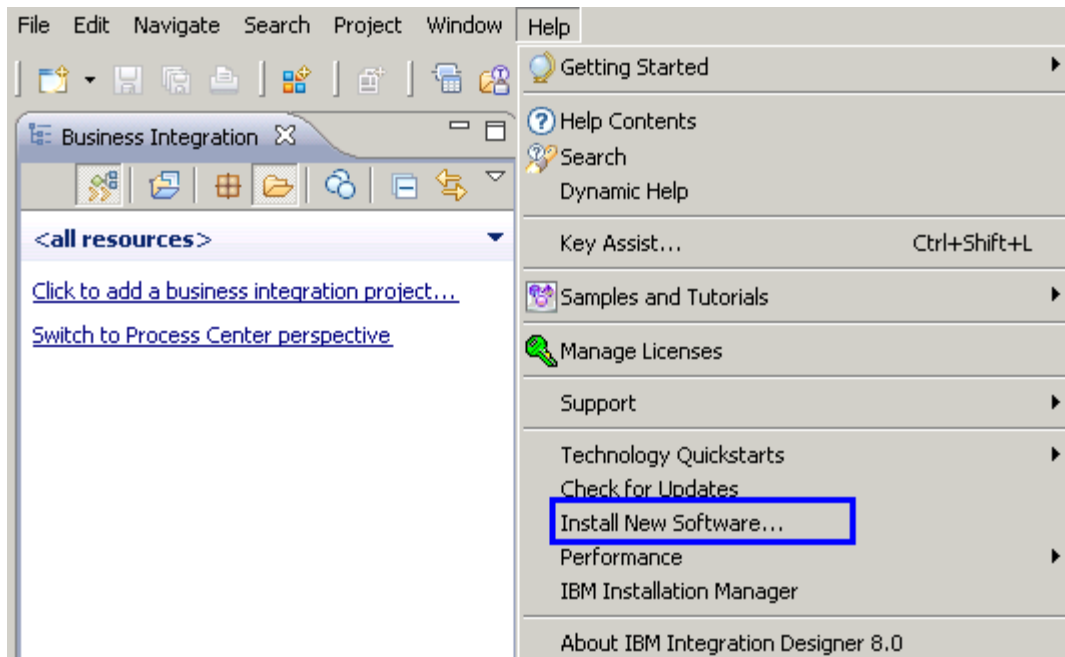
STEP 4 : Install Rule Designer Update Site

- In Integration Designer, go to **Help > Install New Software...**
- Click the **Add...** button
- Enter "Designer Base Update Site" as the **name** and click the **Local...** button to browse to <ODM_HOME>/studio/update-sites/designer-base-update-site. Then click the **OK** button on both dialogs
- Check "Business rules and events" and click the **Next** button
- Click the **Next** button
- Accept the license agreement and press the **Finish** button
- Click **OK** if a warning dialog appears
- Restart Integration Designer when prompted
- In Integration Designer, go to **Help > Install New Software...**
- Click the **Add...** button
- Enter "Designer Base Update Site" as the **name** and click the **Local...** button to browse to <ODM_HOME>/studio/update-sites/rule-designer-update-site. Then click the **OK** button on both dialogs
- Check "Business rules and events" and click the **Next** button
- Click the **Next** button
- Accept the license agreement and press the **Finish** button
- Click **OK** if a warning dialog appears
- Restart Integration Designer when prompted

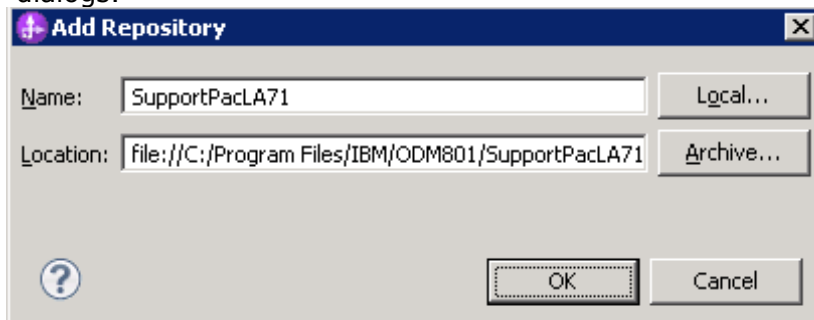
STEP 5 : Install the LA71 SupportPac plugins.

Note: Rule Designer Update Site needs to be installed into IID already.

- Open IBM Integration Designer, Click **Help>Install New Software...**



- Click **Add...** Button to add the LA71 update site into IID Repository.
- Enter "SupportPacLA71" as the **name** and click the **Local...** button to browse to <ODM_HOME>/SupportPacLA71v2.1/update-site/. Then click the **OK** button on both dialogs.



- Check the plugins and click the **Next** button
 - ☒ SupportPac LA71
 - ☒ IBM Operational Decision Manager Decision Wizard 2.1.0.0-20121026_1336
 - ☒ IBM Operational Decision Manager Integration for WebSphere 2.1.0.0-20121026_1337
- Click the **Next** button
- Accept the license agreement and press the **Finish** button
- Click **OK** if a warning dialog appears
- Restart Integration Designer when prompted

8 Configure ODM

With the full suite of programs installed now, you can initialize the tooling and setup the workspaces.

You should first make sure that the Process Center Server has started. This is available from the start menu

Start > All Programs > IBM > BPM Advanced 8.0 > Profiles > ProcCtr01 > Start the server

You may find it easier to establish these shortcuts on the desktop.

First you need to Initialize the Rule Execution Server databases.

Open the Rule Execution Server console in a browser at <http://localhost:9080/res>

Login as **admin** password **admin**.

In **Step 1 – Welcome** – check the details and Click **Next**.

In **Step 2 – Database Schema** – ensure derby is selected and click **Next**.

In **Step 3 – Review Schema** – ensure Create SQL schema “PBPUBLIC” is selected and click **Execute**.

In **Step 4 – Installation Manager Report** – click **Finish**.

Select the Diagnostics Tab.

Click **Run Diagnostics** and ensure that all entries pass.

You have now successfully initialized ODM Rule Execution Server.

Now the Decision Center Repository needs to be initialized.

Open Decision Center in a browser at <http://localhost:9080/teamserver>

Login as **admin** password **admin**.

The Install tab opens.

In **Install Home** Click **Next**.

In **Step 1: Configure Database** click **Generate SQL** and then click **Next**.

In **Step 2: Setup Message File** click **Next**.

In **Step 3: Setup Groups** click **Next**.

In the next step you will alter the default persistence locale from **en_US** to **en**. This will allow all rules exported from Process Designer (with a default locale of **en**) to be directly synchronized with Decision Center.

In **Step 4: Set Persistence Locale** type **en** and click **Next**.

In **Step 5: Set Configuration Parameters** click **Finish**.

The Installation log summarizes the operations you have performed.

Click **OK** at the end and you will be logged out.

You will not be able to login again until some rule projects have been published from Rule Designer.

You have now initialized ODM so it is ready for the tutorial.

9 Establish the Integration Designer Workspace

Before you can use Integration Designer to test Decision Components you will need to establish the workspace connection to Process Center and define the process server that will be used for testing.

Launch Integration Designer. This is available from the start menu

Start > All Programs > IBM > IBM Integration Designer > IBM Integration Designer 8.0

In the **Select a workspace** panel select the BPM tutorial BPM workspace at

<ODM_HOME>\SupportPacLA71v2.1\BPMTutorial\BPMWorkspace

Switch to the Process Center perspective by going to **Window > Open Perspective > Process Center**.

At the Process Center Login prompt

For **Process Center URL** type <http://localhost:9080/ProcessCenter>

For **User Name**: type **admin**

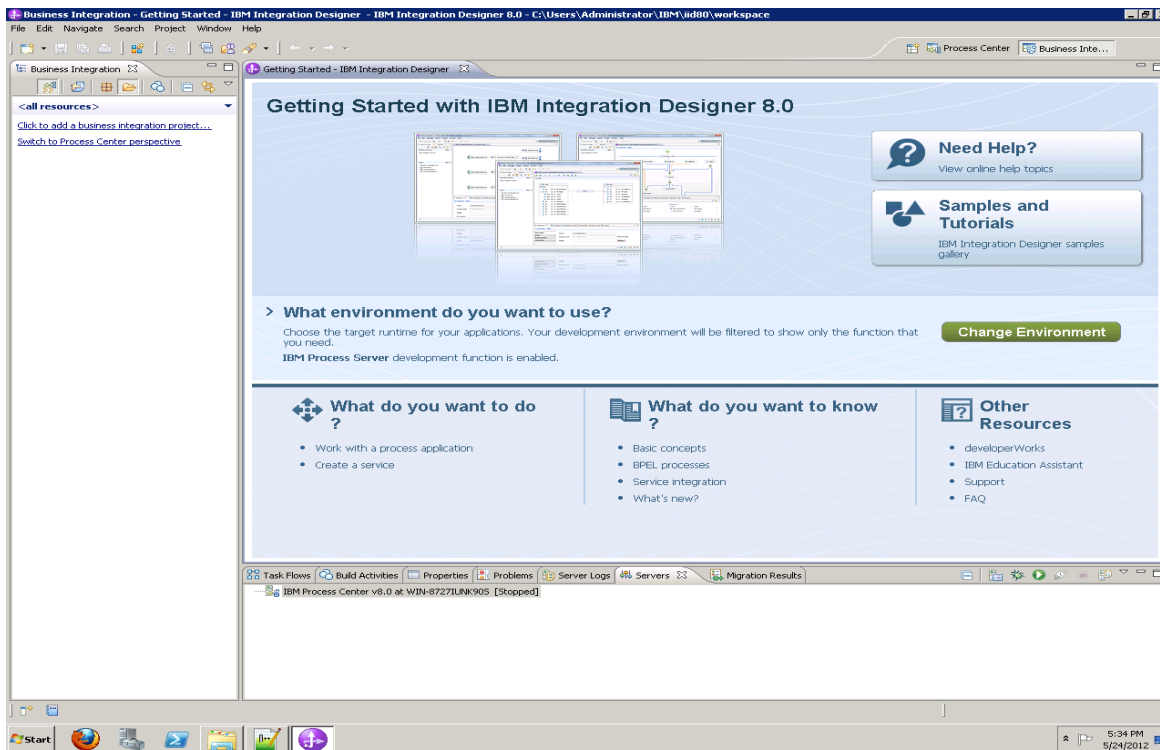
For **Password**: type **admin**

Click **Login**.

Close the **Getting Started with IBM Process Center 8.0** Screen.

Integration Designer should then show the Process Center perspective with the Sample Process Apps.

Switch to the **Business Integration** perspective by going to **Window > Open Perspective > Business Integration**.



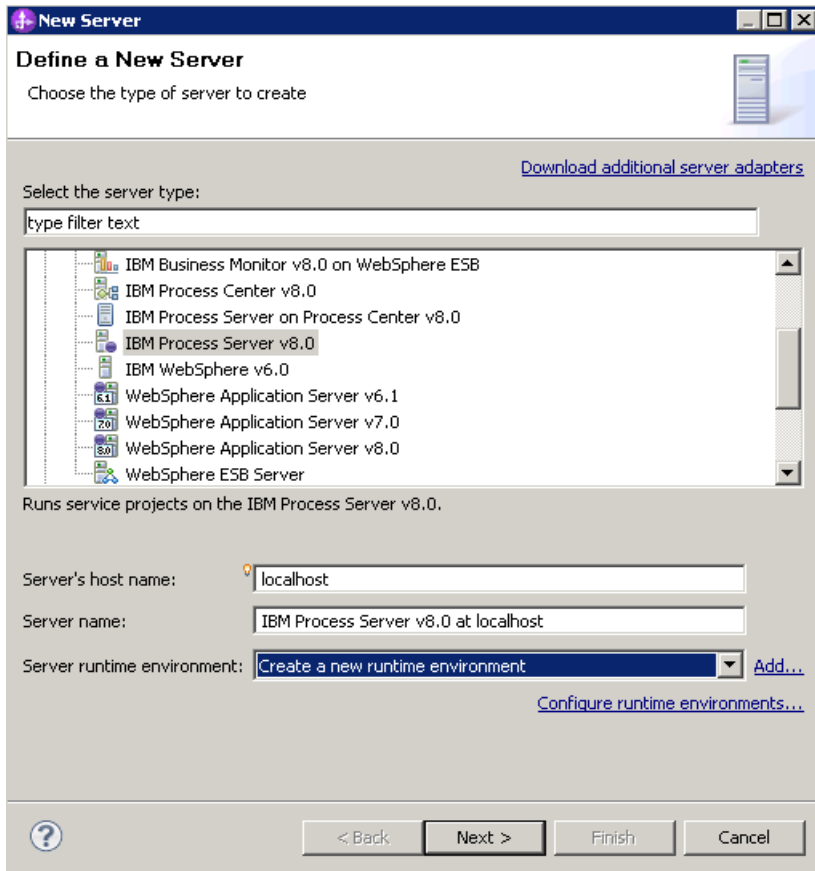
Close the **Getting Started with IBM Integration Designer** Screen.

Select the **Servers** tab right click and select **New > Server**.

In the **New Server** screen

For **Select the server type** select **IBM Process Server v8.0**

Leave the **Server runtime environment** as **Create a new runtime environment**.

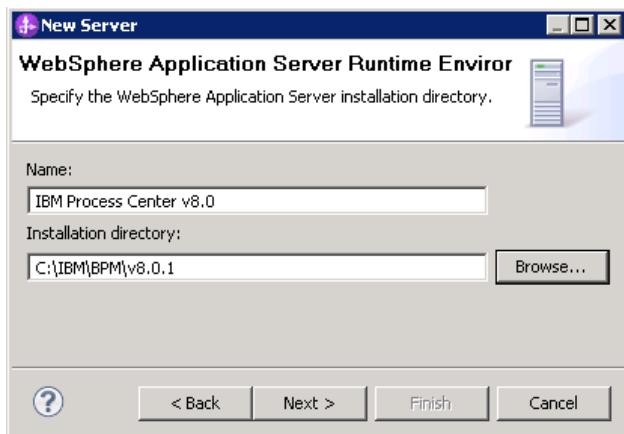


Click **Next >**.

In the next screen

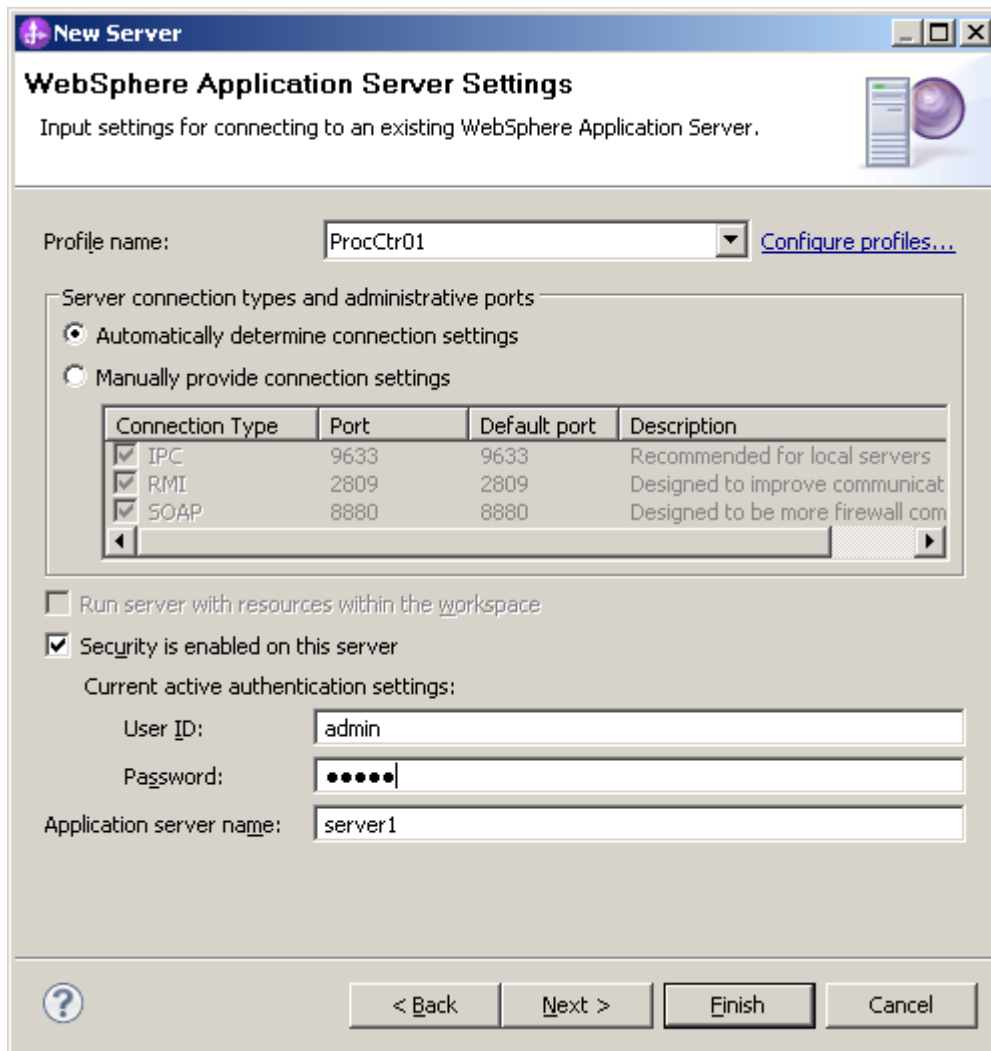
For the **Name:** type IBM Process Server v8.0 (Process Center)

For the **Installation directory:** type <BPM_HOME>



Click **Next.**

In the **WebSphere Application Server Settings** page
Check that the **Profile name:** is **ProcCtr01**.
For **User ID:** type **admin**.
For **Password:** type **admin**.
Leave the **Application server name:** as **server1**.



The image shows a Windows-style dialog box titled "New Server" with a sub-header "WebSphere Application Server Settings". Below the sub-header is a descriptive text: "Input settings for connecting to an existing WebSphere Application Server." The dialog contains several sections: a "Profile name:" dropdown menu set to "ProcCtr01" with a "Configure profiles..." link; a section for "Server connection types and administrative ports" with two radio buttons, "Automatically determine connection settings" (selected) and "Manually provide connection settings"; a table of connection types with checkboxes for IPC, RMI, and SOAP; a checkbox for "Run server with resources within the workspace"; a checked checkbox for "Security is enabled on this server"; and a section for "Current active authentication settings" with fields for "User ID:" (admin), "Password:" (masked with dots), and "Application server name:" (server1). At the bottom are buttons for "?", "< Back", "Next >", "Finish", and "Cancel".

Profile name: ProcCtr01 [Configure profiles...](#)

Server connection types and administrative ports

☒ Automatically determine connection settings
☐ Manually provide connection settings

Connection Type	Port	Default port	Description
<input checked="" type="checkbox"/> IPC	9633	9633	Recommended for local servers
<input checked="" type="checkbox"/> RMI	2809	2809	Designed to improve communication
<input checked="" type="checkbox"/> SOAP	8880	8880	Designed to be more firewall compliant

☐ Run server with resources within the workspace

☒ Security is enabled on this server

Current active authentication settings:

User ID: admin

Password:

Application server name: server1

? < Back Next > Finish Cancel

Click **Finish**.

You should now have your **IBM Process Server v8.0 at localhost** ready for testing your applications.

Key reference notes

Passwords, shortcuts, and properties

Password information (credentials also provided in-line with the tutorial)	
Rule Execution Server Console	User: admin Password: admin
Decision Center	User: admin Password: admin
WebSphere Application Server	User: admin Password: admin
Business Process Manager	User: admin Password: admin
Names and locations of workspaces, etc.	
Tutorial files	[SupportPac LA71 Path]\BPMTutorial\
Task solutions	[SupportPac LA71 Path]\BPMTutorial\task_x\ *.zip - Import into eclipse workspace *.twx - Import into Process Center
Tutorial Workspace	[SupportPac LA71 Path]\BPMTutorial\BPM_Workspace – IID Workspace [SupportPac LA71 Path]\BPMTutorial\Rules_Workspace – Rule Designer Workspace
Server Profile Paths	BPM8.0 Process Center [BPM path]\8.0.1\profiles\ProcCtr01
Application urls	
Process Center	http://localhost:9080/ProcessCenter
Rule Execution Server Console	http://localhost:9080/res
Decision Center	http://localhost:9080/teamserver