Building and deploying business monitor models for IBM Business Process Manager V8.5 processes

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Learn how you can generate a monitor model from IBM® Business Process Manager V8.5 and deploy the monitor model in an IBM Business Monitor server installed in a separate WebSphere® cell.

Introduction

IBM Integration Designer (hereafter called Integration Designer) provides the capability to generate a monitor model from your IBM Business Process Manager (BPM) project. This tutorial will show you how to generate such a monitor model and subsequently deploy the monitor model to an IBM Business Monitor server, which runs in a cell separate from the IBM BPM hosting cell. The process model developer will need to turn the tracking on in the Process Designer for elements that will need to be monitored in the process.

Setting up a multi-cell environment with the BPM Event Emitter service in the IBM BPM cell

A typical IBM BPM and monitor topology will feature the Business Monitor server and the IBM BPM server running in separate WebSphere® Application Server (hereafter called Application Server) cells. In order for IBM BPM to deliver events to the Business Monitor server, you will need to cross-cell configure the two cells. This tutorial does not describe how to set up the environment, but you can learn more about this topology from the Knowledge Center.

Generating a monitor model for your BPMN process

In this example, we will show you how to open a project for your BPM process in Integration Designer and then generate a monitor model from it. We will then show you how to deploy and configure the monitor model to receive events from your running IBM BPM process running in a remote cell.

Opening a Process Center project in Integration Designer

Perform the following steps:
1. In Integration Designer, open the **Process Center** perspective as shown in Figure 1.

**Figure 1. Open Process Center perspective**

2. Select the project for your business process, then open your BPM process application in Integration Designer. Once the BPM project is created in Integration Designer, right-click on the BPM process application project and select **Generate Monitor Model** as shown in Figure 2.

**Figure 2. Generate a monitor model**

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**Generating the monitor model**

In this section, you will generate a monitor model:

1. Follow the steps in the wizard. Accept the default names for the project and the model as shown in Figure 3 and click **Next**. When asked, select all of the monitor events so that they will be emitted (unless you explicitly know some that you do not want to be emitted).
2. Select all of the monitoring templates and click **Next** (Figure 4).

**Figure 4. Choose items to monitor**

3. Accept the defaults and click **Next** (Figure 5).
4. As shown in Figure 6, you can expand BPD_Main and preview the monitor model. Click Finish.

Figure 6. Model preview

5. Clicking on Finish generates the monitor model as shown in Figure 7. You can explore the artifacts and make changes to the model. However, if you make manual changes to the model, you need to re-enter the changes if you generate the monitor model again.
Generating the Business Monitor Java EE projects

Once the monitor model project is generated and you are happy with its content, you need to generate the Business Monitor Java EE projects for deployment. From inside the Business Monitor perspective, right-click the monitor model file (*.mm).

On the context menu, select **Generate Monitor Java EE Projects**. This step generates the projects that will be deployed to the Business Monitor server (Figure 8).

Figure 8. Generate Monitor Java EE projects
Deploying the monitor model to the monitor model node

While in Integration Designer, create a server configuration for Business Monitor and deploy your monitor model project to it.

1. To add a configuration for your Business Monitor server, right-click in the pane of the Servers tab and select **New > Server** as shown in Figure 9.

   **Figure 9. Open the server**

2. From the scroll down, select the appropriate Business Monitor server as shown in Figure 10.
3. Select Next. Enter the user and password for your server as shown in Figure 11.

4. Click on Finish. Once Integration Designer has a connection to the Business Monitor server, you can right-click on the server and select Add and Remove Programs to deploy your monitor model to it (see Figure 12).
Modifying the deployed monitor model configuration

Once the monitor model is deployed, you have to modify it so that it expects events from the remote IBM BPM node and not the local Business Monitor node.

1. Log into the Application Server Admin Console for your Business Monitor environment. Go to Applications and then Monitor Models as shown in Figure 13.
2. Stop the monitor model, **TEST_BMMonitoringModel**. Check the box next to the monitor model and click the **Stop** button as shown in Figure 14.
Once the monitor model is stopped, open it by clicking on its **Version** link. This opens all of the monitor model properties. You have to adjust some properties so that the monitor model receives events from the remote BPM system (by default, it expects the events from the local system).

**Figure 15. Change the CEI distribution mode**

3. Click on the **Change CEI distribution mode** link as shown in Figure 15.
4. If the Target does not show inactive, change it to **Inactive** then press **OK** (Figure 16). Save the change.

5. Click on the **Change CEI configuration** link. Here you have to change the location from Local to **Remote**, enable **Security**, and update the **Event group profile list name**. Figure 17 shows the settings before the changes are made.
6. Click the **Remote** radio button and enter the host name where IBM BPM is running. Also, enter the RMI port for the IBM BPM node.

7. Next, click the **Security Enabled** radio button and enter the user name and password for the Application Server admin account on the IBM BPM node.

8. Last, select the events group list and click on the **Refresh List** button above it. Figure 18 shows the new settings.
Figure 18. New CEI settings

If everything works correctly, the events group list scope will change from the local Business Monitor node to the remote IBM BPM node (Figure 19).
9. Click on the **Apply** button. Your changes should be accepted. If not, re-enter your changes and click on the **OK** button (Figure 20).
Figure 20. New configuration saved

10. Now, click on the **OK** button. Your screen should look similar to Figure 21.
11. Now you have to change to the Distribution mode (Figure 22). The Current value must be changed from Inactive to **Active** (table-based event delivery). To do that, use the Target pull-down list and select **Active** (table-based event delivery).
12. Click on the **OK** button to save the changes. Verify that all of the required changes were made. Sometimes, some of the changes do not seem to stick the first time. If the changes were not made, redo the steps.

**Testing the monitor model**

The monitor model is now deployed and ready for testing. Go to the BPM Process Designer and run a new process instance. Then, go to the Business Space and check if you can see the new process instance.

**Verifying delivery of the monitor events**

Every event that you selected when you created your monitor model has a unique ID. Inside of Integration Designer, open your monitor model in the Business Monitor perspective.

The first monitor event that is emitted is the "PROCESS_STARTED Event". That is a good one to use for the event delivery verification. Select **PROCESS_STARTED Event** and scroll to the **Filter Condition**. Inside the Filter Condition, you will find the Monitor Event ID there as shown below and in Figure 23:
Now that you know what the Monitor Event ID is, you can see if it was delivered to the Business Monitor when you started the IBM BPM process.

1. Go to the Application Server Admin Console for the Business Monitor system and navigate to **Applications > Monitor Services > Recorded Event Management > Event Management**.
2. On the right-hand side, you see all of the delivered monitor events. If there are too many to check through, go ahead and click the **Delete All** button, and then start another IBM BPM process to capture only the events emitted for that one process instance (see Figure 24).
3. Click on the bottom event because the newest events are on the top. In Figure 24, the bottom event number is "365". You will next see the Monitor Event details in XML format as shown in Figure 25.
4. About a third of the way down, look for the string "mon:id". That is where you will find the Monitor Event ID. In Figure 24, the Monitor Event ID is shown below:

<mon:model mon:type="bpmn:process" mon:id="85158f73-182a-4d12-b186-6fad85d801fd" mon:version="2064.00156f44-c22f-4e5a-8c6f-259e52a940f9">

This matches the Monitor Event ID from the monitor model. Therefore, you have verified that the Monitor Event was successfully emitted from the IBM BPM system and delivered to the Business Monitor system.

**Check the Business Space**

Open an **Instances** view in Business Space and verify that your monitor model has received the content as shown in Figure 26.
Conclusion

By using this tutorial, you can now generate a Business Monitor model from an IBM BPM V8.5 process, deploy the generated monitor model to a Business Monitor server in a separate WebSphere cell, modify the deployed monitor model to receive the monitor events from the IBM BPM server, and validate that the monitor events are being received correctly by the Business Monitor server.
Related topics

- IBM Business Monitor V8.0.1 Knowledge Center
- IBM Business Monitor V8.5.5 documentation
- IBM Business Process Manager V8.5.5 documentation

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