Monitoring business processes with IBM Business Process Manager and IBM Business Monitor

Built-in monitoring, the global process monitor model, generated models, and custom models

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In this article, you'll learn how to monitor a process application developed with IBM® Process Designer using the built-in monitoring provided in IBM Business Process Manager, as well as how to use the global process monitor model, the automatically generated monitor model provided with IBM Business Monitor, and how to create a custom monitor model.

Introduction

In this article, you'll learn how to monitor a process application created with IBM Process Designer, using the built-in monitoring provided in IBM Business Process Manager. The built-in monitoring in IBM BPM provides some basic monitoring such as average process durations and service level agreements. For more advanced monitoring, you will need to use IBM Business Monitor.

The global process monitor model of Business Monitor displays information about all process applications and integration applications that are running on the server. This simplifies monitoring because you don't have to manage and deploy a separate monitor model for each monitored process. The global process monitor model also automatically detects changes to any of the deployed processes so you don't have to generate or deploy any monitor model code to monitor your processes. This global process monitor model is useful for tracking process and activity start times, stop times and durations. However, if you want to see tracked fields in the dashboards, you'll need to use the default monitor model or custom monitor model.

You can generate a default monitor model for your process application. A dashboard is automatically generated for the monitor model and shows up in the Space Manager. It shows monitored instances, KPIs, reports and process diagrams. You can also create your own dashboard for viewing monitored data. You can use the default monitor model to easily see process start times, stop times, durations and tracked fields. You can't modify the default monitor model, so if you need specific tailoring of the model, you need to use the custom monitor model.
You can generate a custom monitor model based on your process application. You can use a wizard to choose the monitoring elements to add to the model. Then you can use the monitor model editor to customize the model, adding your own metrics, KPIs, dimensions, measures or other custom monitoring elements.

A Clips and Tacks process application is provided for download with this article. You can unzip the file and import the .twx file into IBM Process Designer. Then you can quickly run process instances for monitoring purposes.

Figure 1 shows the Clips and Tacks process application.

**Figure 1. Clips and Tacks process diagram**

The figure shows the ordering process for the Clips And Tacks company. In this process, orders are received and optionally submitted to a review process. Orders that pass all checks are shipped to the customer. Other orders may be cancelled. The activities are defined as human tasks, services and a business rule. The human tasks are **Enter order**, **Review order**, and **Ship product**. The business rule is **Check order**. The other activities are services, which are implemented as JavaScript™.

**Prerequisites**

You'll need the following software installed in order to complete the steps in this article:

- IBM Business Process Manager V7.5 *(CDR: which edition?*, which includes IBM Process Center and IBM Process Designer
- IBM Integration Designer
- IBM Business Monitor installed on the IBM BPM Process Center server

Download and unzip the sample that is supplied with this tutorial and unzip it to a folder such as C:
\Labfiles.
Import the supplied process application

In this section you will import the pre-built process application.

2. Import the supplied process application.
   a. Click the Process Center icon in the upper right corner of the Designer window.
   b. Click Import Process App.
   c. Browse to the supplied (unzipped) process application, for example, c:\Labfiles\ClipsAndTacks.twx.
   d. Click Import.
3. Open the imported application Clips And Tacks by selecting it, then selecting Open in Designer.
4. Verify the design of the process as follows:
   a. In the navigation area of the Designer, select Processes, then double-click Order handling.
   b. On the Diagram tab, you can view the flow. The activities are defined as human tasks, services and a business rule. The human tasks are Enter order, Review order, and Ship product. The business rule is Check order. The other activities are services which are implemented as JavaScript.
   c. On the Variables tab, you can view the order data.
   d. On the Tracking tab, you can view the tracking variables.
   e. On the KPIs tab, you can view the default process key performance indicators (KPIs).
   f. Select an activity in the diagram, then go to the Properties tab and select KPIs. This shows you the default KPIs for the activity.
5. Create tracking variables for MyOrder.TotalPrice and MyOrder.OrderStatus by completing the following steps. Later you can view these in the instances widget in the dashboard.
   a. Click the Variables tab.
   b. Select Variables => Local => Private => MyOrder (Order).
   c. Select TotalPrice (Decimal).
   d. Select Track this Field.
   e. Select OrderStatus (String).
   f. Select Track this Field.
   g. Press Ctrl+S to save.

Run instances of the process

In this section you'll run instances of the process using the Inspector in Process Designer. The following steps describe the logic of the supplied Clips And Tacks process, which should help you when you're running process instances in the Inspector.

1. Enter data values for the order. You should set values for totalPrice and availableCredit (use of these fields is described below).
2. For automatic approvals (this is the shortest path through the process):
   a. For the Check order business rule, if totalPrice <= 750, set automaticApproval to true
   b. If totalPrice <= availableCredit, Ship product, else Review order.
3. For manager-reviewed orders:
   a. For the **Check order** business rule, if `totalPrice > 750`, set `automaticApproval` to false.
   b. For the **Review order**, enter a data value for `orderStatus` (either `declined` or `approved`).
   c. If `orderStatus = declined`, **Cancel order**, else **Ship product**.

You should run several process instances so that there is data to view in the monitor dashboards. You can run some instances to completion. You can complete some instances, purge some, and leave some incomplete. To run a process instance, do the following:

1. Click the **Run Process** icon in the upper right corner of the Designer. This opens the process in the Inspector.
2. Select **Enter order**, then click the **Runs the selected task** icon in the upper right corner, as shown in Figure 2.

   **Figure 2. Run the selected task**

   ![Figure 2: Run the selected task](image)

3. Specify the appropriate user and password for your environment. For example, user `admin` with password `admin`.
4. Fill in the appropriate information, as shown in Figure 3, using the Coach and click **OK**.

   **Figure 3. Enter information using the Coach**

   ![Figure 3: Enter information using the Coach](image)

5. In the Inspector, click the **Refresh** icon to see the next task in the flow.
6. Select **Check order**, then click the **Runs the selected task** icon in the upper right corner.
7. Continue in this manner until your test case is complete.
Repeat this process to create additional process instances. Figure 4 shows two completed instances and one active instance.

**Figure 4. Process instances list in the Inspector**

<table>
<thead>
<tr>
<th>Process Instances</th>
<th>Services in Debug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instance Name:</td>
<td>Status:</td>
</tr>
<tr>
<td>Order handling 155</td>
<td>Completed Mar 9, 2019</td>
</tr>
<tr>
<td>Order handling 454</td>
<td>Completed Mar 9, 2019</td>
</tr>
<tr>
<td>Order handling 463</td>
<td>Active Mar 9, 2019</td>
</tr>
</tbody>
</table>

**Use the built-in monitoring in IBM Business Process Manager**

In this section you use the built-in monitoring capability of IBM Business Process Manager, which provides some basic monitoring functions, such as average process durations and service level agreements. For more advanced monitoring, you'll need to use IBM Business Monitor. In this section, you'll use the scoreboards to view monitored information. You'll create an ad hoc report to view tracked variables, as well as a KPI to trigger a service level agreement (SLA) violation.

1. Verify that you have exposed the performance metrics for the process, which allows users to view the performance data in the scoreboard in the process portal:
   a. In the Process Designer, open the **Order handling** process.
   b. Select the **Overview** tab.
   c. Verify that **Expose performance metrics** is set to **All Users** or to the user ID that you'll use to log into the process portal, as shown in Figure 5.

**Figure 5. Expose performance metrics**

2. Update tracking definitions to enable viewing of performance data in the process portal by clicking **File => Update Tracking Definitions**. A progress dialog displays, after which you should see a dialog indicating that the update is complete, as shown in Figure 6.

**Figure 6. Tracking definitions successfully updated message**

Click OK.

3. Open the process portal, shown in Figure 7, by pointing your browser to your process portal address; for example, http://localhost:9080/portal, and logging in with your user name and password.
4. Under **My ScoreBoards**, click **Process Performance (7.5.0)** to see a chart showing the active tasks, as shown in Figure 8.

**Figure 8. Process Performance in My ScoreBoards**

5. Click **Order handling (Clips and Tacks)** in the upper left of the Process Performance pane.
6. You'll see several panes, including instance overview, SLA overview, timing interval overview, and activity overview. You can click on the title of each of these panes to drill down to more detailed information.
   On the Instance Overview, you see the instance status with closed trend, active count, closed count, total count and average duration, as shown in Figure 9.
On the Activity Overview, you see the activity task counts and average activity durations, as shown in Figure 10.

**Figure 10. Activity Overview**

7. Click the title of the Activity Overview pane to drill down. Here you see the individual tasks with status and due date, as shown in Figure 11.

**Figure 11. Tasks for all activities**

8. Now you'll enable auto-tracking so that you can create an ad hoc report to show the tracked variables in the process. Earlier you added tracked variables for `TotalPrice` and `OrderStatus`. If you enable auto-tracking you can use these variables in an ad hoc report.
   1. In Process Designer, click the blue bar in the process diagram, as shown in Figure 12.
2. On the **Properties** tab, select **Enable Autotracking**, then enter an **Autotracking Name**, such as **orders**, as shown in Figure 13, and press Ctrl+S to save.

### Figure 13. Enable autotracking

```
<table>
<thead>
<tr>
<th>Tracking Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable Autotracking:</td>
</tr>
<tr>
<td>Autotracking Name:</td>
</tr>
</tbody>
</table>
```

3. Update the tracking definitions by clicking **File => Update Tracking Definitions**.

4. Create an ad hoc report with the order status on the x-axis and the ship duration on the y-axis:
   a. In Process Designer, click **File => Ad Hoc Report Analysis**. If the menu option is disabled, make sure that the focus is on the diagram in the Process Designer by clicking anywhere in the diagram. The ad hoc report opens, as shown in Figure 14.

### Figure 14. Ad hoc report

```
**Ad Hoc Report on "Order handling"**
```

b. For x-axis, click **Select**, then select **Auto-Tracked => OrderStatus**, as shown in Figure 15.
Figure 15. Set the x-axis

<table>
<thead>
<tr>
<th>X-Axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binding:</td>
</tr>
</tbody>
</table>

c. For y-axis, click **Select**, then select **Step Durations => Ship product (Order handling)**, as shown in Figure 16.

Figure 16. Set the y-axis

<table>
<thead>
<tr>
<th>Y-Axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binding:</td>
</tr>
<tr>
<td>Function:</td>
</tr>
<tr>
<td>Convert:</td>
</tr>
</tbody>
</table>

Notice that the function defaults to average, but you could select a different function.

d. Click the **Refresh** icon in the chart preview to see a preview of the report, as shown in Figure 17.

Figure 17. Preview the report

- Create the report by clicking the **Create** icon in the chart preview. Enter a report name when prompted, and click **Finish**.
- Create a scoreboard to include this report by clicking **Performance => Scoreboard** in the Process Designer navigation bar. Enter a scoreboard name when promoted, and click **Finish**.
- In the new scoreboard, under **Reports**, click **Add** and select the report that you just created.
- In the new scoreboard, under **Exposing**, select the participant group or select **All Users**, as shown in Figure 18.

Figure 18. Adding the report to the scoreboard
i. Press **Ctrl+S** to save.

j. Log in to Process Portal as a member of the participant group to which the scoreboard is exposed and you'll see the scoreboard listed under **My Scoreboards**. If you're already logged in, you may need to log out first, then log back in. Click the new scoreboard to see the report, as shown in Figure 19.

**Figure 19. View the report**

k. Instead of using the built-in durations for the process or activities, you can also create your own timing intervals using tracking events that you define anywhere in the process. Then you can select these timing intervals for display in the ad hoc report. For more information, see the topic **Creating and configuring reports** in the IBM Business Process Manager Information Center.

5. Create a KPI that will be used to store the **TotalPrice** from **MyOrder**:

a. In Process Designer, click **Performance => Key Performance Indicator** and specify a KPI name, such as **priceKPI**, then click **Finish**.

b. Specify the following information for the KPI, as shown in Figure 20:
   - Change **Unit** to **Currency**.
   - For **Roll-up KPI**, click X to remove it.

**Figure 20. Create the KPI**

c. Press **Ctrl+S** to save.

6. Add the **priceKPI** to the **Enter order** activity in the process diagram, then add a custom JavaScript to store the **TotalPrice** from **MyOrder** into **priceKPI**:

a. Open the **Order handling** process diagram in Process Designer.

b. Click the **Enter order** activity in the diagram.

c. On the **Properties** tab, shown in Figure 21, select **KPIs**.
d. Click **Add**, then select **priceKPI**.
e. Under **Assignment Settings**, uncheck **Use KPI defaults**.
f. For **Assignment type**, select **Custom JavaScript**.
g. For **Value**, enter `tw.local.MyOrder.TotalPrice`.

**Figure 21. KPI assignment**

![KPI assignment](image)

h. Press **Ctrl+S** to save.

7. Create an SLA to trigger a violation if the `TotalPrice` is greater than 5:
   a. In Process Designer, click **Decisions => Service Level Agreement**.
   b. Specify a name, such as **priceSLA**, then click **Finish**.
   c. Fill in the values for the SLA, as shown in Figure 22:
      - In the **Condition** section, hover over **KPI** and select **priceKPI**.
      - For **Activities**, select **Enter order (Order handling)**.
      - For **Condition**, leave the default of **Greater than**.
      - For **Compared with**, specify 5.
      - In the **Exposing** section, for **Expose to view**, click **Select** and select **All Users**.

   **Figure 22. Create the SLA**

![Create the SLA](image)

You can select actions to invoke when there is a violation, such as send an email or initiate a process. For our example, though, you'll view the violations in the Process Portal instead.

d. Press **Ctrl+S** to save.

8. Send the new tracking definitions to the server:
   a. Open the **Order handling** process in the Process Designer, and click anywhere in the diagram.
   b. Select **File => Update Tracking Definitions**.
9. Run a process instance, specifying TotalPrice equal to 2. This will demonstrate that the SLA displays for a process without a violation. To save time, you don't need to complete the process instance. You can complete just the first activity, Enter order, where you enter the data values in the Coach.

On a runtime process server, the SLA values are updated every 15 minutes, so you may need to wait up to 15 minutes to see the results in the Process Portal. For a Process Center server, you need to manually run a service to update the SLA values. You can also run a service for a process server to avoid the wait time:

   b. Double-click Update All SLA Statuses to open the service in the editor.
   c. Click the Run Service icon.

10. Open the process portal and view the SLA Overview. Notice that the current status of priceSLA is 0, which means that there have been no violations:

   a. Open the Process Portal in a browser; for example, http://localhost:9080/portal
   b. Log in, using a user ID with or without administrative privileges.
   c. Select My Scoreboards => SLA Overview(7.5.0).

11. Run a process instance, specifying TotalPrice equal to 10. Run another process instance, specifying TotalPrice equal to 7. Run the instances in this order. This will demonstrate the SLA display for a process with violations. To save some time, you don't need to complete the process instances. You can complete just the first activity, Enter order, in which you enter the data values in the Coach.

12. Run the service Update All SLA Statuses.

13. Open the Process Portal and view the SLA Overview. Notice that the current status of priceSLA is nonzero, which means that there have been violations. The value is 1.4, which means that the latest instance had a TotalPrice that was a multiple of 1.4 above the SLA condition value (process instance TotalPrice value of 7, divided by SLA conditional value 5). Click priceSLA in the portal and you'll see a chart that shows the SLA violation over time, as shown in Figure 23. Notice that it shows the maximum value of 2.0, which represents the first instance where TotalPrice was 10, which is 2 times the SLA conditional value.
Monitor processes using the global process monitor model

In the rest of this article, you'll learn about the monitoring capabilities of IBM Business Monitor. In this section, you'll use the Business Monitor global process monitor model to view monitored data. This monitor model displays information about all process applications that are running on the server.

1. Verify that auto-tracking is enabled:
   a. In the Process Designer, click the blue bar in the diagram of the process, as shown in Figure 24.
      **Figure 24. Click pool to enable properties**

   b. On the **Properties** tab, shown in Figure 25, select **Enable Autotracking** and specify a name for **Autotracking Name**, such as **Orders**.
      **Figure 25. Enable autotracking**

   c. Press **Ctrl+S** to save.
2. In the administrative console, verify that the global process monitor model is installed by selecting **Applications => Monitor Models**. You should see **Global Process Monitor** listed.
3. If you don't see it listed, install the EAR file using the administrative console:
   a. On the monitor models page, click **Install**, then click **Browse**.
   b. Navigate to `<ServerPath>\installableApps.wbm\monitorModels\GlobalProcessMonitorV75.ear` and click **Next**. On the next prompt, the default is fast path, so click **Next**.
   c. Click **Step 3**, and ensure that the column for **Members Assigned** shows **yes**. If not, you should update monitor security after installing the application (Security >> Monitor Data Security).
   d. Click **Step 4**, then click **Finish**.
4. Run instances of the process so that the monitor model has monitored data to display in the dashboard. See **Run instances of the process** for information.
5. Start and log in to Business Space as an end user or administrative user. For example, point your browser to https://localhost:9443/BusinessSpace, using the appropriate port for your environment.
6. Import the basic and advanced dashboards supplied with this article:
   a. Select **Manage Spaces**.
   b. In the Space Manager, shown in Figure 26, select **Import Space => Browse**.
   c. Navigate to `<ServerPath>\installableApps.wbm\monitorModels\BusinessSpace\GlobalProcessMonitor_BusinessSpace.zip` and click **Open**, then click **OK**.
   d. Select **Import Space => Browse**.
   e. Navigate to `<ServerPath>\installableApps.wbm\monitorModels\BusinessSpace\GlobalProcessMonitor_BusinessSpace_Advanced.zip` click **Open**, then click **OK**.

**Figure 26. Space Manager**
7. The basic dashboard, shown in Figure 27, provides a comprehensive view of monitored data for your processes and should satisfy most users. Open and view the basic dashboard:
   a. Select Manage Spaces.
   b. Select Global Process Monitor (Basic).
   c. Take a look at each of the pages that display the monitored data for your process instances. On the Processes tab, you can see the process definitions listed. You can drill down on the icon for Process Execution to see individual process instances.

   **Figure 27. Basic dashboard**

8. The advanced dashboard, shown in Figure 28, provides even more detailed information about monitored process instances. Open and view the advanced dashboard:
   a. Select Manage Spaces.
   c. Take a look at each of the pages in the dashboard.

   **Figure 28. Advanced dashboard**

9. You can configure the supplied dashboards for your particular needs by editing settings for each widget. You can also create your own custom dashboard and configure each widget to display selected monitoring contexts from the global process monitor model.

**Generate a default monitor model**

In this section you'll use Business Monitor to generate a default monitor model for your process application. A dashboard is automatically generated for the monitor model, and it shows up in the Space Manager. You can also create your own dashboard for viewing monitored data.

1. Enable business monitoring:
   a. In the navigation area of the Designer, select Setup, then double-click Process App Settings.
   b. Select Enable process monitoring through IBM Business Monitor, and press Ctrl+S to save.

2. To verify that auto-tracking is enabled, thus ensuring that tracking variables are generated in the monitor model, click the blue bar in the diagram of the process, as shown in Figure 29.
3. On the **Properties** tab ensure that **Enable Autotracking** is selected and that there is an **Autotracking Name**, as shown in Figure 30.

**Figure 30. Enable autotracking**

4. Update the tracking definitions to generate and deploy the default monitor model:
   a. Select **File => Update Tracking Definitions**.
   b. A dialog window displays the status of the deployment, which will take a few minutes to complete.
   c. When the confirmation window displays, click **OK**.

5. The model is deployed on the server. You can verify this in the administrative console in the monitor models section under Applications, as shown in Figure 31:

**Figure 31. Deployed monitor model**

6. Run instances of the process so that the monitor model has monitored data to display in the dashboard. See **Run instances of the process** for information.

7. Start and log in to Business Space. You'll need to log in with administrative authority to do some of the tasks in this section, so if you are logged in as an end user, then log out and log in as the administrative user. For example, point to https://localhost:9443/BusinessSpace, using the appropriate port for your environment.

8. View the generated dashboard:
   a. Select **Manage Spaces**.
   b. Select **ClipsandTacks_Main <timestamp>**. The timestamp is used to uniquely identify dashboards for multiple versions of the same model.
   c. A dashboard is opened, as shown in Figure 32, with tabs for instances, KPIs, reports and diagrams. Click these tabs to view various pre-configured monitor pages for your monitor model.
9. In the previous step, you looked at the generated dashboard. Now you'll create your own customized page in this dashboard. Create a new page by clicking the icon to create a new page, then enter a page name and click OK.

10. Edit the page to change it to one-column layout and add the instances widget to the page:
   a. Click Edit Page in the upper right corner.
   b. Click the layout icon to change to one-column layout.
   c. In the palette, click the plus sign to add the instances widget.

11. Configure the instances widget to display the main monitoring context for the Clips And Tacks model:
   a. Click the menu icon for the widget, then select Edit Settings.
   b. On the Show/Hide tab, select the monitoring context ClipsAndTacks_Main(Across all versions) => Order handling.
   c. Click Set as Default.
   d. Select any or all fields to move into the Selected box. Note that the fields beginning with Aux are for internal use, so you may not want to display them.
   e. Click OK.

12. Review records for the process instances, as shown in Figure 33. You should see columns for the default metrics plus the tracking fields (OrderStatus, TotalPrice).

Figure 33. Instances widget

13. Click the Process Steps icon to view the individual activities within a process instance, as shown in Figure 34.
14. Add the KPIs widget, shown in Figure 35, to the page and configure it to display KPIs for the model:
   a. In the **Widget** menu, click **Edit Settings**.
   b. On the KPIs tab, select the specific KPIs to display for the model **ClipsandTacks_Main <timestamp>**, and click **OK**. IBM Business Monitor tracks the average values across all process instances for all activity KPIs and process KPIs.

**Figure 35. KPIs widget**

**Generate a custom monitor model**

In this section you'll use Business Monitor to generate a monitor model based on your process application. In the wizard, you can choose which monitoring elements to add to the model. Then you can use the monitor model editor to customize the model, adding KPIs or other custom monitoring elements. Then you can publish it to the server and display monitoring data in the dashboards.

1. Start IBM Integration Designer. You'll be prompted to select a workspace.
2. Open the Process Center perspective by clicking the Perspectives icon in the upper right corner to display a list of the perspectives. Enter the Process Center connection information. For example, enter `http://localhost:9080/ProcessCenter`. Enter your administrative user and password and click **Login**.
3. Open the Clips And Tacks process in the workspace by selecting **Open in workspace** to the right of the process. Click **OK**. The business integration perspective opens with the process project listed, as shown in Figure 36.
You can generate the monitor model for this application, customize it, then export an EAR for deployment. Or, you can associate the monitor model with a process application so it will be deployed automatically anytime the process application is deployed. We recommend that you create a new process application for the monitor model, since the lifecycle of the process is often independent of the monitor model. For example, you may make changes to the process that don’t impact the monitor model. To create a new process application to contain the monitor model.

1. Switch to the Process Center perspective.
2. To create a new process application, click Create New Process App and specify a name for the application, such as CATmonitor. Specify an acronym, then click Create.
3. Open the new process application in the workspace by clicking Open in workspace next to the new application, and clicking OK.
   The business integration perspective opens with two processes listed: the original Clips And Tacks process and the new monitoring process application.
4. To start the monitor model generation wizard, right-click the Clips and Tacks project in the Business Integration view and select Generate Monitor Model.
5. The wizard prompts you for a new monitor project. You can take the default names, then click Next.
6. When prompted to create the project, click Yes.
7. The monitor model is listed with monitoring contexts. Select Order handling, then in the Monitoring Templates tab, select the monitoring elements that you want to generate, as shown in Figure 37.

**Figure 37. Monitoring templates for the main context**

8. Select the child context Order handling Steps, then in the Monitoring Templates tab, select the monitoring elements that you want to generate, as shown in Figure 38, then click Next.
9. The implementation displays. Click **Next**.
10. You'll see a preview of the model to be generated. Click **Finish**.
11. You're prompted to switch to the **Business Monitoring** perspective. Click **Yes** and you'll see the monitoring project containing the monitor model, as shown in Figure 39

**Figure 39. Monitoring project in Project Explorer**

You can now open the model with the monitor model editor and add monitoring elements. For example, you can create KPIs, measures, and dimensions that you'd like to see in the dashboard.

To access payload data on the inbound events, you need a tracked field. For example, this process has the payload `MyOrder`, but only the tracked fields are listed on the inbound event.

**Figure 40 shows the business object for this process in the Process Designer.**

**Figure 40. MyOrder object in the Process Designer**

Figure 41 shows an inbound event in the model that contains business payload, but it does not show all the `MyOrder` data. It lists only the tracked fields `TotalPrice` and `OrderStatus`. 

You can now open the model with the monitor model editor and add monitoring elements. For example, you can create KPIs, measures, and dimensions that you'd like to see in the dashboard.
Next you need to associate the monitoring project with the CATMonitor process application:

1. Switch to the **Business Integration** perspective.
2. In the **Business Integration** view, right-click **ClipsandTacksMonitoringProject** and select **Associate with Process Center**, as shown in Figure 42.

Figure 42. Associate the project

3. Select **CATMonitor** in the drop-down list, as shown in Figure 43, then click **Finish**.

Figure 43. Select the process application

This automatically deploys the monitor application to the server. In the lower right corner of Integration Designer, you can see the status of the operation, as shown in Figure 44.

4. When the deployment is complete, you can verify it in the administrative console in the **Monitor Models** section under **Applications**.

Figure 44. The deployed model
5. Also, in the **Business Integration** view of Integration Designer the monitoring project is moved into the Process Center application. To see the monitoring project, make sure that you are in detailed mode in the view, which is indicated by the first icon on the toolbar for the **Business Integration** view, as shown in Figure 45. You can click this icon to toggle between simple mode and detailed mode. Also, the second icon toggles displaying integration projects or all projects. Make sure it is set to display all projects.

**Figure 45. Setting view modes**

6. Later, if you make changes to a deployed monitor model, you should update the timestamp on the model before publishing the model changes. Each time you publish, a new monitor model application is deployed with a unique name that includes the model timestamp. The first time that you publish, you can use the existing timestamp on the model. On subsequent updates to the model you should increment the model timestamp to avoid deployment errors. You can update the model timestamp in the model editor on the **Monitor Details** page. After updating the timestamp, save the model, then click **Publish** on the server **View** menu to deploy the new version.

7. Run instances of the process so that the monitor model has monitored data to display in the dashboard. See **Run instances of the process** for information.

8. Use Business Space to create a dashboard and configure the widgets to use this custom monitor model. When editing settings for a widget, you can distinguish between the auto-generated model and the custom model by the model name or the monitoring context name. The auto-generated model is named bmon_CAT_Main<timestamp> with a monitoring context of ClipsandTacks_Main<timestamp>. The custom model name is ClipsandTacksMonitoringModel<timestamp> and the monitoring context is named ClipsandTacksMonitoringModel<timestamp>.

**Conclusion**

In this article, you learned how to monitor a process application using the IBM Business Monitor global process monitor model. You automatically generated a monitor model so that you could immediately see monitoring results in the dashboard using default monitoring elements. You also created a custom monitor model with monitoring elements of your choosing.
## Downloadable resources

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<th>Description</th>
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<tr>
<td>Clips And Tacks project file</td>
<td>ClipsAndTacks.zip</td>
<td>375KB</td>
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Related topics

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