Lab 2

*Anypoint Monitoring*
Overview

Understanding the state of your infrastructure and systems is important for ensuring the reliability and stability of your services. As part of Anypoint Platform, Anypoint Monitoring provides visibility into integrations across your app network. The monitoring tools provide feedback from Mule flows and components in your app network.

In this lab we are going to review Builtin Dashboards and Custom Dashboards. This functionality can be found in the base subscription. Advanced monitoring capabilities available through the Titanium licensing package are not covered in this lab.

Step 1: Browse Built-in Dashboards

Dashboards in Anypoint Monitoring provide visibility into Mule apps and APIs that are deployed to your environments. In this Step we are going to review Built-in Dashboards.

1. Go to Monitoring
2. Select **Built-in dashboards** on the left side.

3. Choose:
   
   a. Environment: **Production**
   
   b. Resource name: **mon-omni-channel-api-<id>**

4. Press **View**
5. You will see an Overview panel with numerous out-of-the-box graphs generated from standard metrics collected by Anypoint Monitoring.

We will describe each section

a. You can see the Environment and the API being monitored.

b. You can filter the report by hours, days, months, period of times.
c. Here you can see different dashboards grouped by
   - **Overview**
   - **Inbound**
   - **Outbound**
   - **Performance**
   - **Failures**
   - **JVM**
   - **Infrastructure**

6. Navigate over those items to see the different dashboards.

### Step 2: Create Custom Dashboard

We've already seen the different graphics that come out of the box. You can see them filtered by application. In this section we will create and customize dashboards with different APIs and Metrics.

You will see that you can retrieve metrics from both the Runtime Manager and the API Manager. In this lab we are going to concentrate on Runtime Manager metrics.

1. Go to Monitoring section and then select Custom dashboards.
2. Press the **New Dashboard** button.
3. Click on the Pencil icon to edit the dashboard properties.

4. Complete with the following values

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>&lt;initials&gt; My Custom Dashboard</td>
<td>Name of the Custom Dashboard.</td>
</tr>
<tr>
<td>Description</td>
<td>Custom Dashboard for the ALC Workshop</td>
<td>Brief description.</td>
</tr>
<tr>
<td>Tags</td>
<td>&lt;initials&gt;-alc-workshop</td>
<td>Add a tag to facilitate searching.</td>
</tr>
<tr>
<td>Time Zone</td>
<td>Local browser time</td>
<td>Prefered Time Zone</td>
</tr>
<tr>
<td>Graph Tooltip</td>
<td>Shared Tooltip</td>
<td>This option will show you metrics inside the graphics</td>
</tr>
</tbody>
</table>

5. Press **Save Changes** button.

6. In the **Save As** Pannel choose a representative name like <initials> My Custom Dashboard
Great, now you can continue to add Graphics and Metrics.

**Step 3: Create a Request by Endpoint Graphic**

In this step we are going to create a Bar Chart with the number of request grouped by Endpoint.

1. Press **Add row** button and then the **Add Graph** button.

2. Press the three dots on the right of the graphic and select **Configure**.

You will see a configuration panel.
3. In the **General** tab complete with the following values:

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td># of Request by Endpoint</td>
<td>Title of the dashboard.</td>
</tr>
<tr>
<td>Panel Type</td>
<td>Application Panel</td>
<td>You can choose metrics between Runtime Manager and API Manager.</td>
</tr>
<tr>
<td>Metric</td>
<td>Inbound - Average Request Count by Endpoint</td>
<td>You can choose between different metrics here.</td>
</tr>
<tr>
<td>Environment</td>
<td>Production</td>
<td>Environment where the Mule Application is deployed</td>
</tr>
<tr>
<td>Resource</td>
<td>mon-omni-channel-api-&lt;id&gt;</td>
<td>Mule Application that will provide the metrics.</td>
</tr>
</tbody>
</table>

After you enter those values, you will see the graphic display some metrics.

4. Go to the **Axes** tab

5. In the **X-Axis** Change the **Mode** to Series.

   See how the graph changes.
6. Go to the **Visuals** tab.

7. Select the Points Checkbox

8. Finally press the **X** that is on the right side of the panel.

9. Press **Save Changes** button.

10. In the **Save As** Panel choose a representative name like `<initials> My Custom Dashboard`

   At the end you should see something like this:
Step 4: Create Response Time Dashboard

Now we are going to add a new panel with information on the Response Time

1. Press the **Add Row** button.
2. Select the Graph icon.
3. Press the three dots on the right of the graphic and select **Configure**
4. Complete with the following values:

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Avg Response Time</td>
</tr>
<tr>
<td>Panel Type</td>
<td>Application Panel</td>
</tr>
<tr>
<td>Metric</td>
<td>Inbound - Average Response Time by Endpoint</td>
</tr>
<tr>
<td>Environment</td>
<td>Production</td>
</tr>
<tr>
<td>Resource</td>
<td>mon-omni-channel-api-&lt;id&gt;</td>
</tr>
</tbody>
</table>

5. Press the X to close the configuration panel.
6. Press **Save Changes** button.

You should see something like this:
We want to see the response time numbers. For that we are going to add a table.

7. Press the **Add row** button.

8. Choose Table

9. Press the three dots on the right of the graphic and select **Configure**

10. Complete with the following values:

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Leave it Blank</td>
</tr>
<tr>
<td>Panel Type</td>
<td>Application Panel</td>
</tr>
<tr>
<td>Metric</td>
<td>Inbound - Average Response Time by Endpoint</td>
</tr>
<tr>
<td>Environment</td>
<td>Production</td>
</tr>
<tr>
<td>Resource</td>
<td>mon-omni-channel-api-&lt;id&gt;</td>
</tr>
</tbody>
</table>

Look at the table:
11. Go to the **Options Panel**

12. In the **Data** area.
   
   a. Choose **Time series to aggregate** from the combo box.
   
   b. In Columns, you will see Avg. Click the + button to add **Min**, **Max** and **Total**.

13. Press the **X** that is on the right side of the panel.

14. Press **Save Changes** button.

   We are going to move the Table panel and place it in-line with the Avg Response Time panel.

   The UI gives the ability to drag and drop panels and graphics.

15. Click to the right of the three dots associated with the row on the left side of the panel.

   ![module6 lab2 table drag](module6_lab2_table_drag.gif)

16. Drag and Drop the Table panel into the Graph panel.

   **TIP** You can use the right bottom corner of each panel to adjust it size before moving the panel.
Since we moved the Table, you will see that there is an Empty Space section. Let’s remove that.

17. Move the pointer to the Empty Space panel. You will see three dots on the left side of the panel.

18. Point with the pointer to those dots. A new panel will appear.

19. Select **Delete**

At the end you should see something like this:
Step 5: Create Single Stats Graphics

In this section we are going to add single stat graphic for the System APIs. We would like to know if the avg response times of the system APIs are less than 10 seconds.

1. Press the Add row button.
2. Select Singlestat icon
3. Press the three dots on the right of the graphic and select Configure
4. Complete with the following values:

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Product API Avg Response Time</td>
</tr>
<tr>
<td>Panel Type</td>
<td>Application Panel</td>
</tr>
<tr>
<td>Metric</td>
<td>Inbound - Average Response Time by Flow</td>
</tr>
<tr>
<td>Environment</td>
<td>Production</td>
</tr>
<tr>
<td>Resource</td>
<td>mon-product-api-&lt;id&gt;</td>
</tr>
</tbody>
</table>

5. Go to the Options panel
6. In the Coloring column complete with:
   a. Threshold: 4000,7000. This are the threshold values where the colors in the graphic will change.
   b. Colors: Press the invert button. The order of the colors should be green, orange, red.
7. In the Gauge check the Show box.
   a. Change the Max value to 10000. Max Value means that a response time of 10000 ms or more will be unacceptable.
This graph will be green if the response time less than 4s, orange if it is between 4s and 7s and red if its over 7s.

8. Click the 'X' button to close the panel.

This is the final result.

We will replicate the same graphic for the Order API and the Customer API.

9. Click on the three dots section for the Singlestat panel and choose **Duplicate**.

10. Go to the second panel and select **Configure**.

11. Change the Title to **Order API Avg Response Time**

12. Change the Resource field and select **mon-order-api-<id>**

13. Click the 'X' button to close the panel.

14. Press the **Save Changes** button.

We are going to repeat the last steps to Create the Customer API Panel.
15. Click on the three dots section for the Singlestat panel and choose **Duplicate**.

16. Go to the third panel and select **Configure**.

![Dashboard Panel Configuration](image)

17. Change the Title to **Customer API Avg Response Time**

18. Change the Resource field and select `mon-customer-api-<id>`

19. Click the 'X' button to close the panel.

20. Press the **Save Changes** button.

![Dashboard Configuration](image)

The complete dashboard should look like this:
We would like to have the singlestat at the beginning, so let's move the panel to the top.

21. Point to the left three dots of the last panel.
22. Select Move Up twice.

Now it looks perfect. You can save the changes.

Summary

In this lab, you completed the following steps:

- **Step 1:** Browse Built-in Dashboards
- **Step 2:** Create Custom Dashboard
- **Step 3:** Create a Request by Endpoint Graphic
- **Step 4:** Create Response Time Dashboard
- **Step 5:** Create Single Stats Graphics

Go Further:

- See the Functional Monitor doc for more information.
- See the Built-In Dashboards doc for more information.
- See the Configure Custom Dashboards and Charts doc for more information.
- See the Custom Metrics doc for more information.
Congratulations! You have completed Lab 2 of Module 6

Please proceed to Lab3

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