



Red Hat build of Cryostat 3

Using the Cryostat dashboard

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Abstract

Use the Red Hat build of Cryostat Dashboard to view important information and metrics about target Java Virtual Machines (JVMs) that are connected to Cryostat.

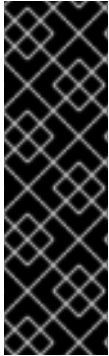
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PREFACE

The Red Hat build of Cryostat is a container-native implementation of JDK Flight Recorder (JFR) that you can use to securely monitor the Java Virtual Machine (JVM) performance in workloads that run on an OpenShift Container Platform cluster. You can use Cryostat 3.0 to start, stop, retrieve, archive, import, and export JFR data for JVMs inside your containerized applications by using a web console or an HTTP API.

Depending on your use case, you can store and analyze your recordings directly on your Red Hat OpenShift cluster by using the built-in tools that Cryostat provides or you can export recordings to an external monitoring application to perform a more in-depth analysis of your recorded data.



IMPORTANT

Red Hat build of Cryostat is a Technology Preview feature only. Technology Preview features are not supported with Red Hat production service level agreements (SLAs) and might not be functionally complete. Red Hat does not recommend using them in production. These features provide early access to upcoming product features, enabling customers to test functionality and provide feedback during the development process.

For more information about the support scope of Red Hat Technology Preview features, see [Technology Preview Features Support Scope](#).

MAKING OPEN SOURCE MORE INCLUSIVE

Red Hat is committed to replacing problematic language in our code, documentation, and web properties. We are beginning with these four terms: master, slave, blacklist, and whitelist. Because of the enormity of this endeavor, these changes will be implemented gradually over several upcoming releases. For more details, see [our CTO Chris Wright's message](#).

CHAPTER 1. OVERVIEW OF THE CRYOSTAT DASHBOARD

The Cryostat **Dashboard** provides a high-level overview of the target Java Virtual Machines (JVMs) that are connected to Cryostat and helps you to identify and resolve performance issues, review system efficiency, and determine how to optimize application performance.

By using the dashboard, you can view performance data for your JDK Flight Recorder (JFR) recordings and important information and metrics about your target JVMs. The dashboard displays static and dynamic information about your connected JVMs through a variety of dashboard cards, which you can organize and customize in different layouts, according to your requirements.

You access the dashboard directly from the navigation menu of the Cryostat console by clicking **Dashboard**.

CHAPTER 2. DASHBOARD CARDS

The Cryostat **Dashboard** displays information about target Java Virtual Machines (JVMs) in the form of cards on the user interface. Each card displays a different set of information or metrics about the selected target JVM. For example, heap usage, thread statistics, or JVM vendor information.

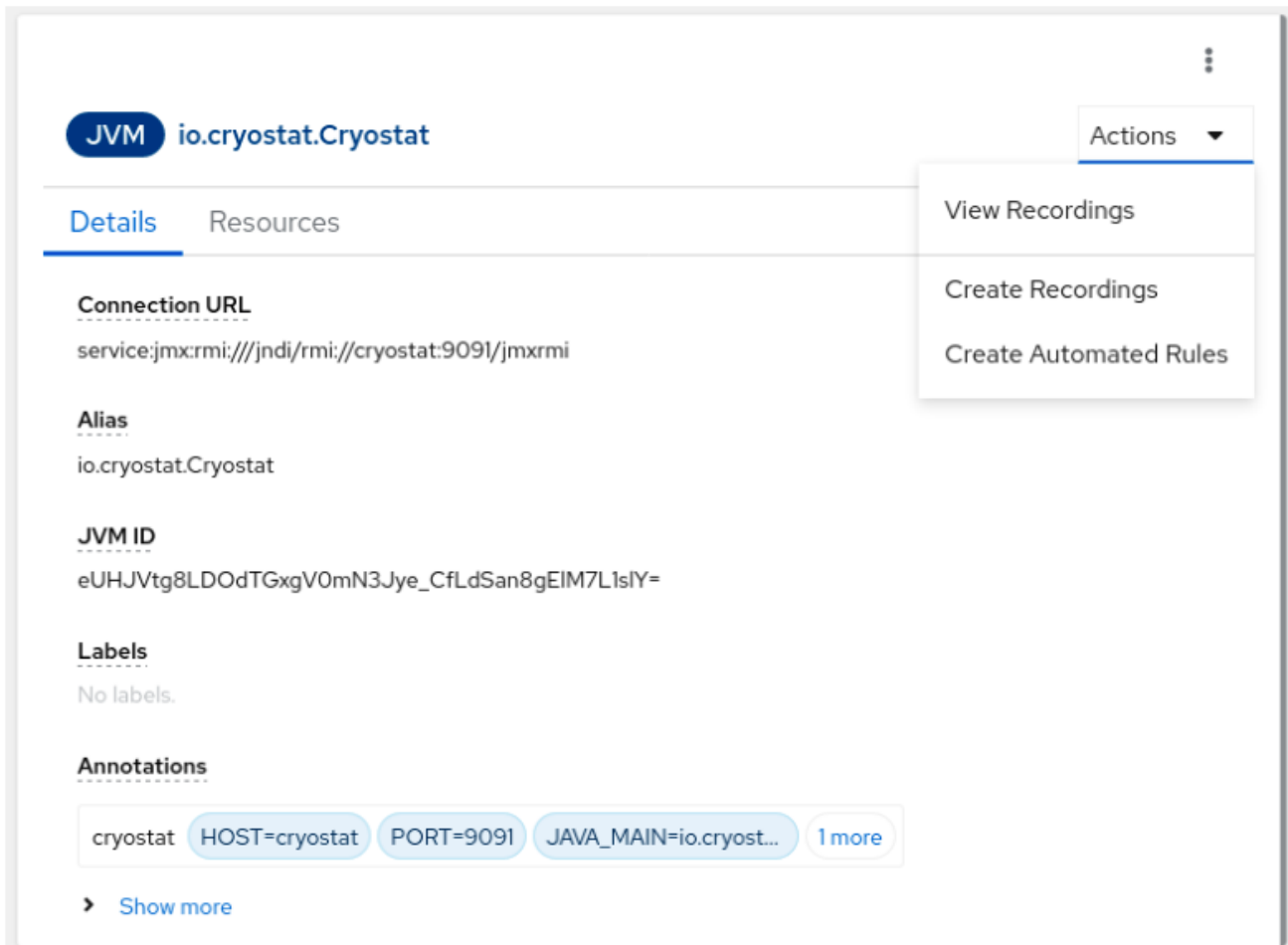
The following dashboard cards are available:

- Target JVM Details
- Automated Analysis
- MBean Metrics Chart

Target JVM Details

The **Target JVM Details** card provides high-level information that relates to the selected target JVM.

Figure 2.1. Example Target JVM Details dashboard card



On the **Details** tab, you can view information such as the connection URL, labels, JVM ID, and annotations for the selected target JVM. You can also view the JVM start time, version, vendor, operating system architecture, and the number of available processors.

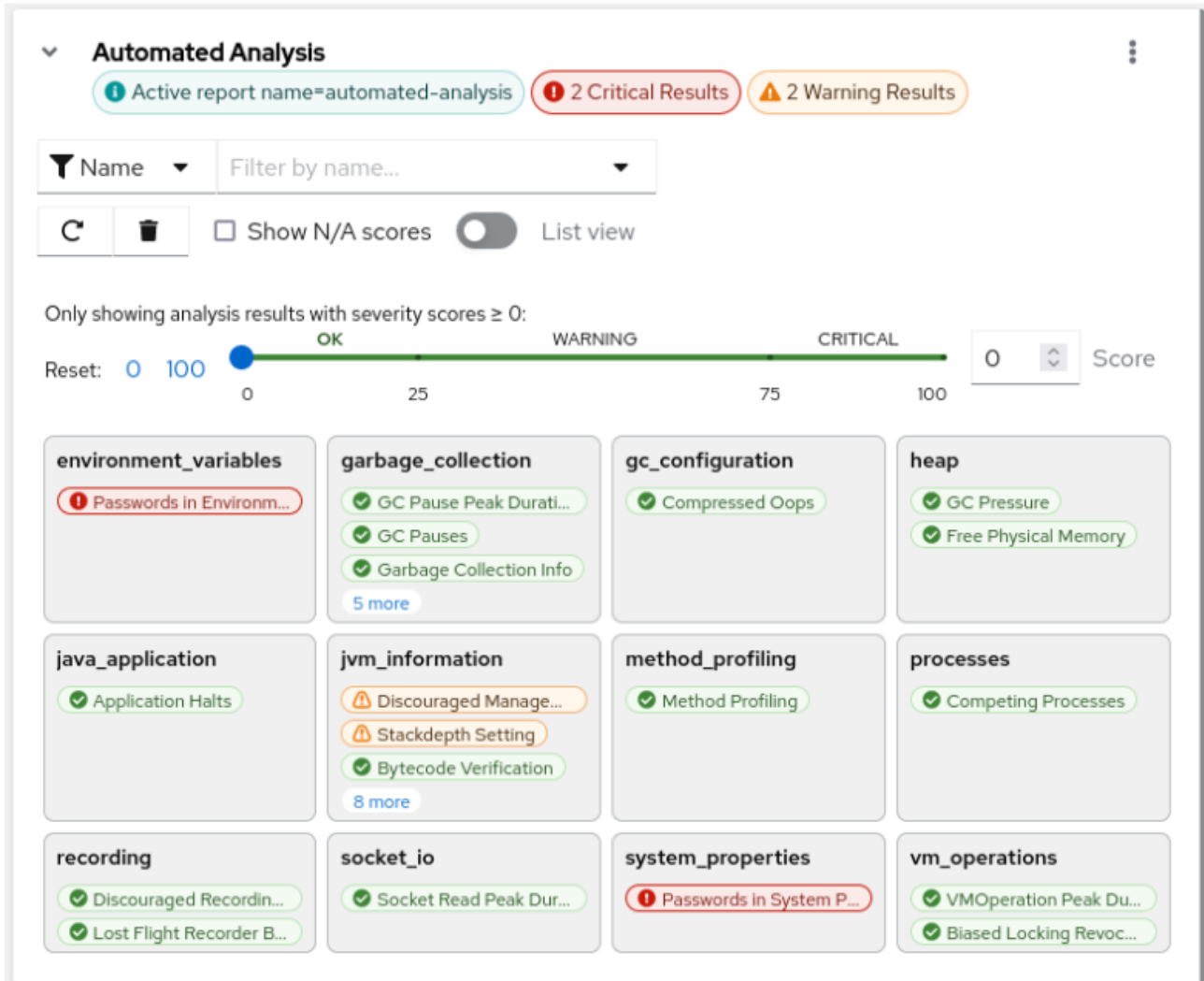
You can perform additional actions directly from the card. By clicking **Actions**, you can view recordings, start new recordings, or create automated rules for the selected target JVM.

On the **Resources** tab, you can view details about the resources related to the target JVM, such as the number of active recordings or the number of automated rules.

Automated Analysis

Automated analysis is a JDK Mission Control (JMC) tool with which you can diagnose issues with your target JVMs by analyzing JDK Flight Recording (JFR) data for potential errors. Cryostat integrates the JMC automated analysis reports and produces a report that shows any errors associated with the data. The **Automated Analysis** card provides an alternative way of displaying this report information.

Figure 2.2. Example Automated Analysis dashboard card

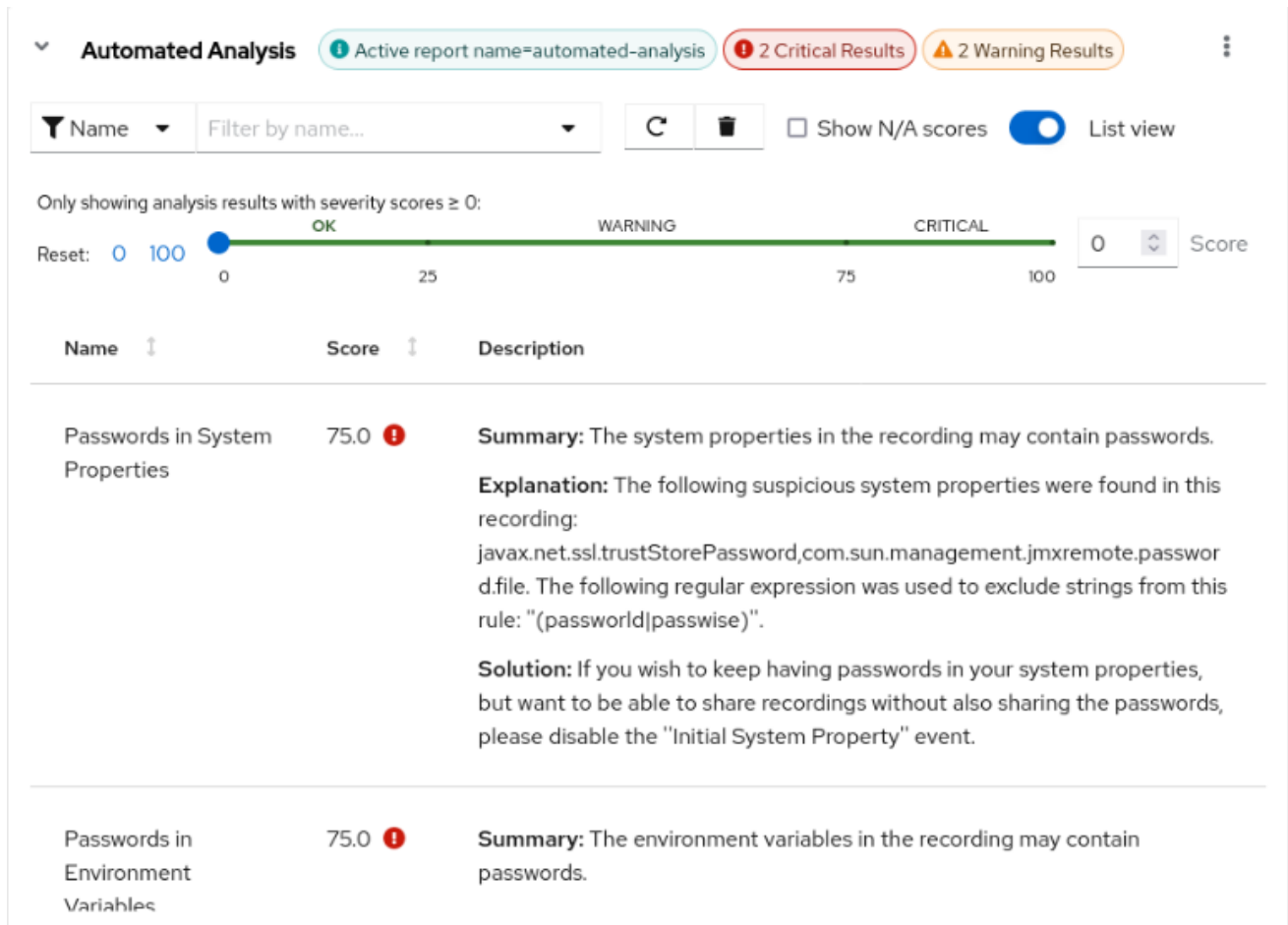


On the **Automated Analysis** card, you can create a JFR recording that Cryostat uses to periodically evaluate any configuration or performance issues with the selected target JVM. After you click the corresponding label for each result, the card displays the following information:

- Results of the analysis categorized according to a severity score. Severity scores range from **0**, which means no error, to **100**, which means a potentially critical error. You might also receive a severity score marked as **N/A**, which indicates that the severity score is not applicable to the recording.
- A description of the results that includes a summary, an explanation of the error, and a potential solution, if applicable.

You can choose to display the card information in a list format by selecting **List view**.

Figure 2.3. Example Automated Analysis dashboard card displayed as a list view



MBean Metrics Chart

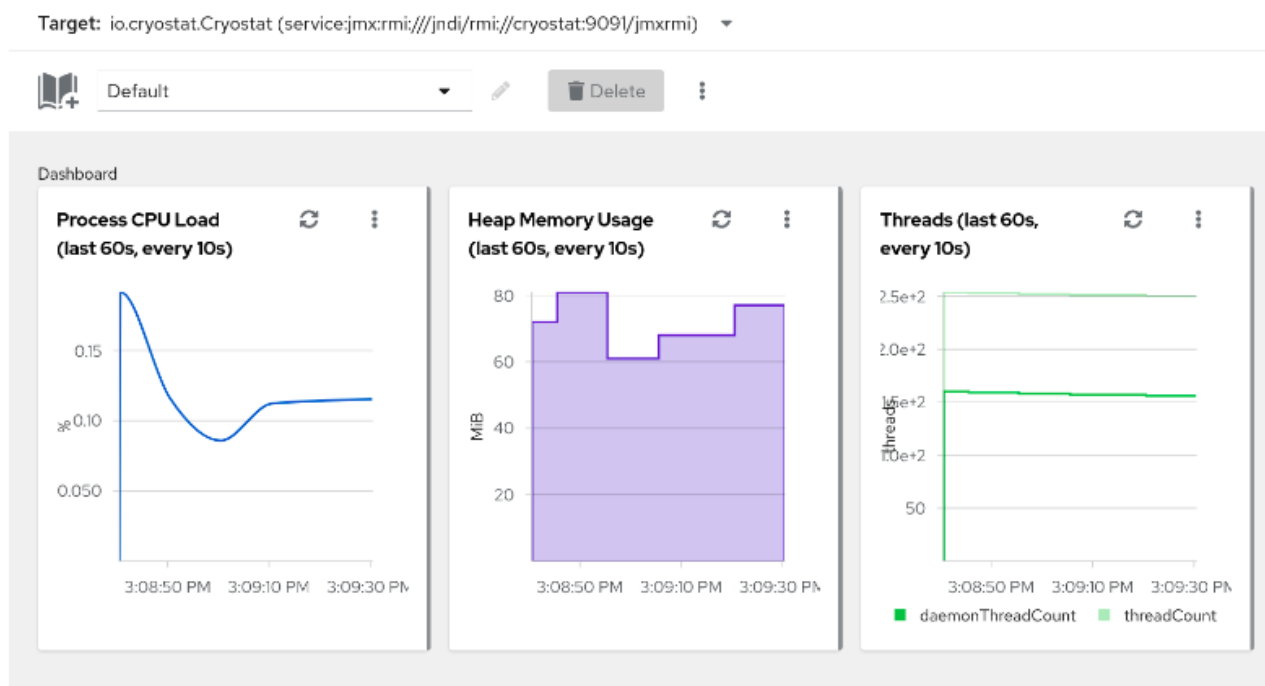
The **MBean Metrics Chart** card displays performance metrics about the target JVM through remote access to supported MXBeans interfaces of the JVM, including Thread, Runtime, OperatingSystem, and Memory MXBeans.

Crostat gathers a range of data from these MXBeans interfaces and displays them in the **MBean Metrics Chart** cards.

From the **Performance Metric** field, you can select the metric you want to view, for example, **Process CPU Load**, **Physical Memory**, or **Heap Memory Usage**, then configure the card details.

Once configured, cards showing each metric are displayed on your dashboard.

Figure 2.4. Example MBean Metrics Chart card



CHAPTER 3. CUSTOMIZING THE CRYOSTAT DASHBOARD

The Cryostat **Dashboard** displays information about target Java Virtual Machines (JVMs) in the form of cards on the user interface. You can configure the cards and customize different dashboard layouts according to your requirements.

3.1. CREATING A CUSTOM DASHBOARD LAYOUT

Create customized layouts to organize the display of dashboard cards, according to your requirements. You can organize the cards in different configurations and create custom views to display the data and specific metrics that are most relevant to your current requirements.

You can add, remove, and arrange the cards and switch between different layouts. You can also create layout templates that you can download, reuse, or share with other users so that they can access the same information and metrics. By using dashboard layouts, you do not need to modify your dashboard manually each time you want to view different information.

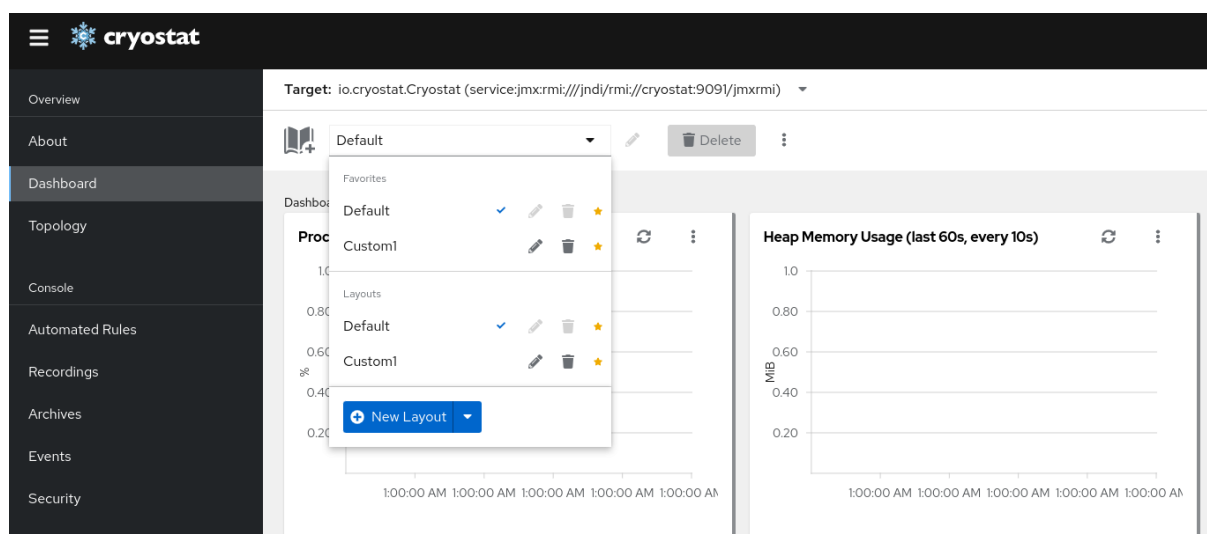
Prerequisites

- Created a Cryostat instance in your project.
- Logged in to your Cryostat web console.
- Created a target JVM to monitor.

Procedure

1. On the Cryostat web console, click **Dashboard**.
2. On the toolbar, click the layout selector dropdown menu.
3. Click **New Layout**.

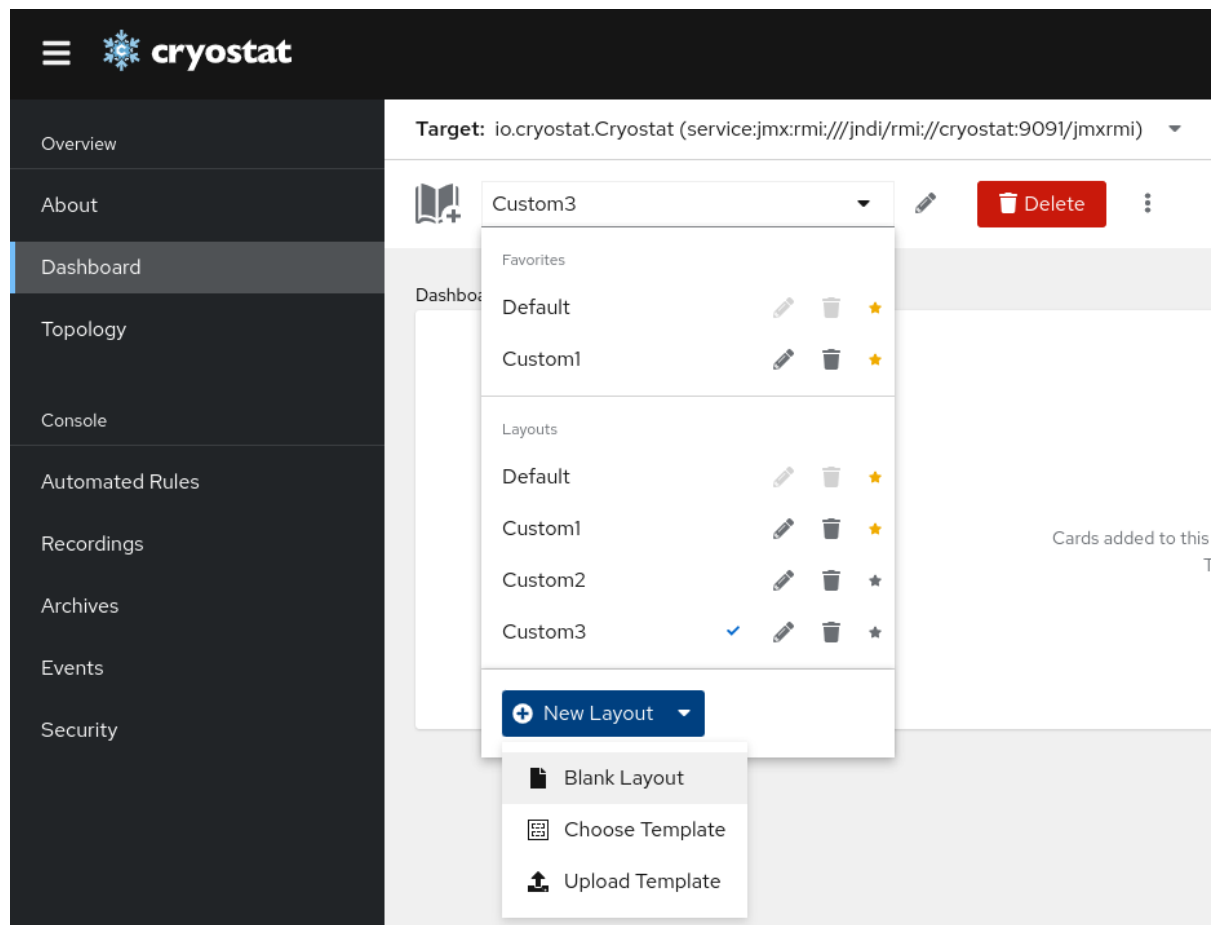
Figure 3.1. Creating a new dashboard layout



The new layout is assigned a default name. To specify a different name, click the pencil icon beside the name.

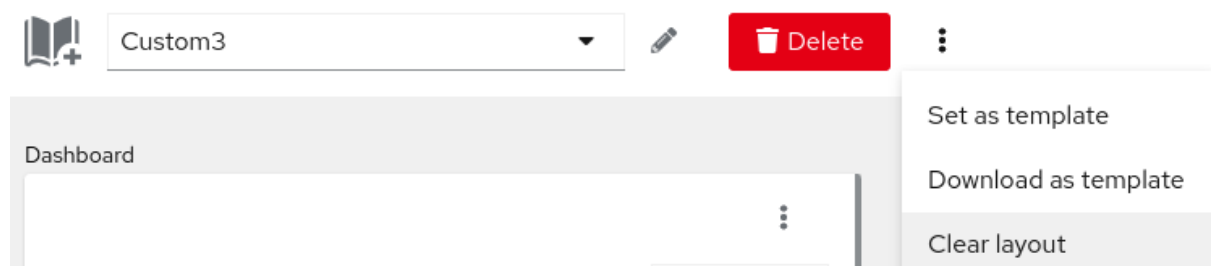
4. (Optional): To select an existing template or upload a new one, click the expandable menu on the **New Layout** button.

Figure 3.2. Creating a new dashboard layout by using a template



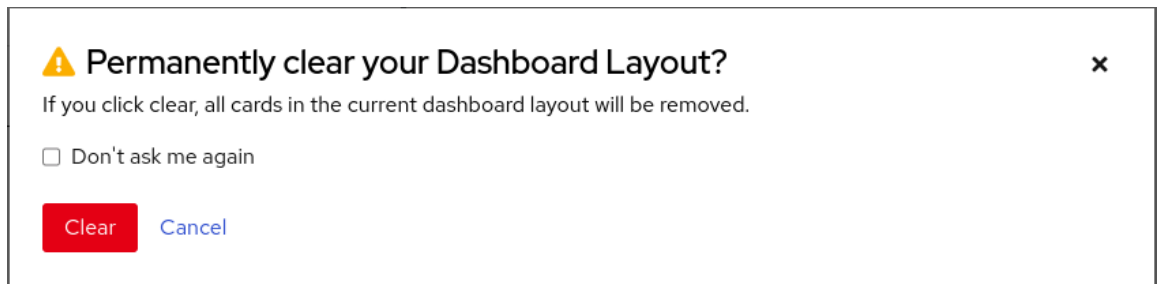
- (Optional): To set or download a layout as a template or to clear the layout, click the more options icon (⋮):

Figure 3.3. Setting or downloading a layout as a template or clearing the layout



- To set the current layout as a template, select **Set as template**.
- To download the current layout as a template, select **Download as template**. The template is downloaded as a **.json** file.
- To clear the current layout, select **Clear layout**. A confirmation dialog then opens. To confirm that you want to permanently clear the current dashboard layout, click **Clear**.

Figure 3.4. Clearing a dashboard layout



3.2. ADDING CARDS TO A DASHBOARD LAYOUT

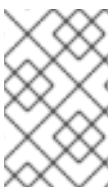
You can select and configure the cards you want to add to the Cryostat **Dashboard**. Each card displays a different set of information or metrics about the target JVM you select.

Prerequisites

- Created a Cryostat instance in your project.
- Logged in to your Cryostat web console.
- Created a target JVM to monitor.

Procedure

1. On the Cryostat web console, click **Dashboard**.
2. From the **Target** dropdown menu, select the target JVM whose information you want to view.
3. To add a dashboard card, click the **Add card** icon. The **Dashboard card catalog** window opens.
4. From the available cards types, select a card to add to your dashboard layout and click **Finish**. Repeat this step for each card that you want to add.



NOTE

Some cards require additional configuration, for example, the **MBeans Metrics Chart** card. In this instance, click **Next** to access the configuration wizard, specify the values you require, then click **Finish**.

3.3. RESTORING A DASHBOARD LAYOUT

You can upload previously saved dashboard layouts that are stored in **.json** files to the Cryostat **Dashboard**.

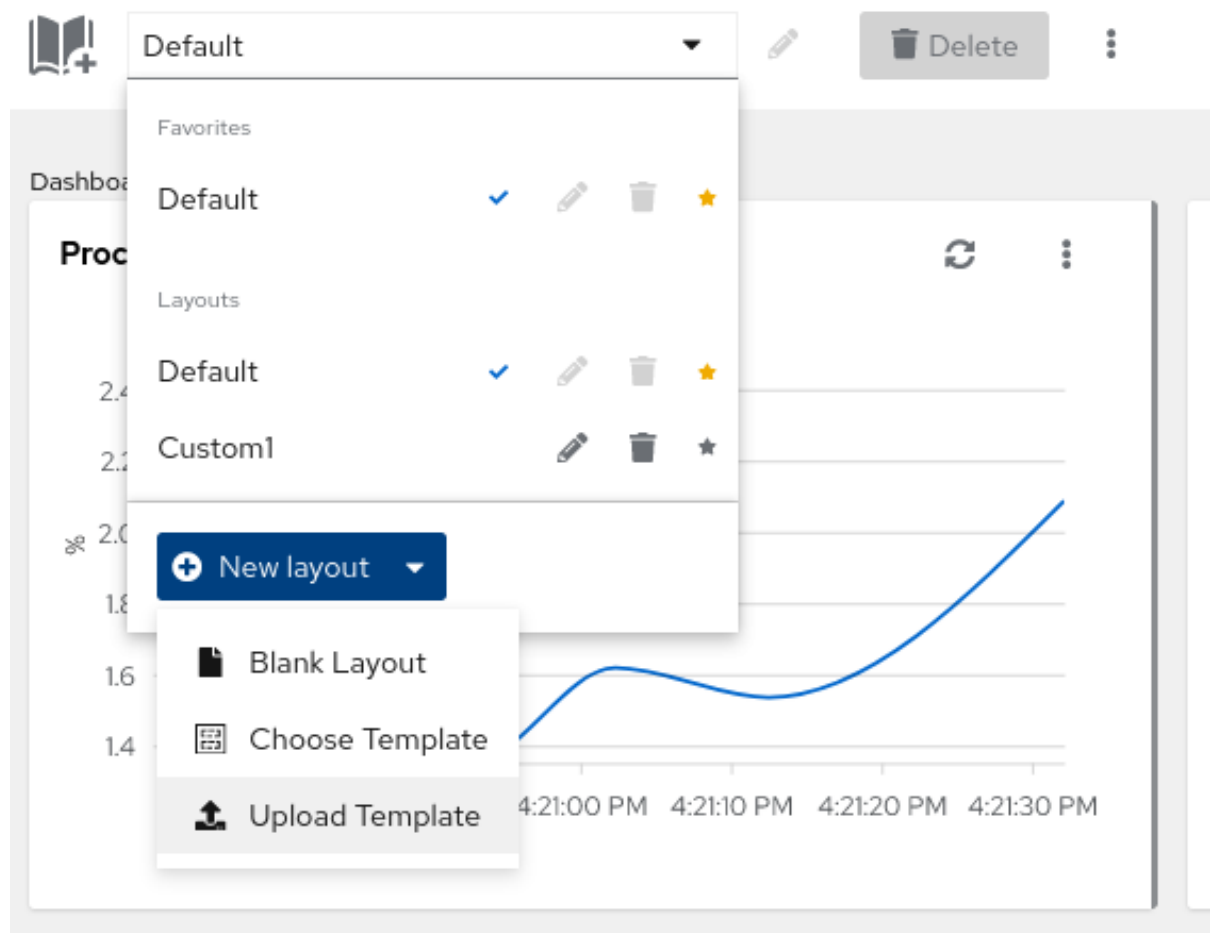
Prerequisites

- Created a Cryostat instance in your project.
- Logged in to your Cryostat web console.
- Created a target JVM to monitor.
- Downloaded a saved dashboard layout in **.json** file format.

Procedure

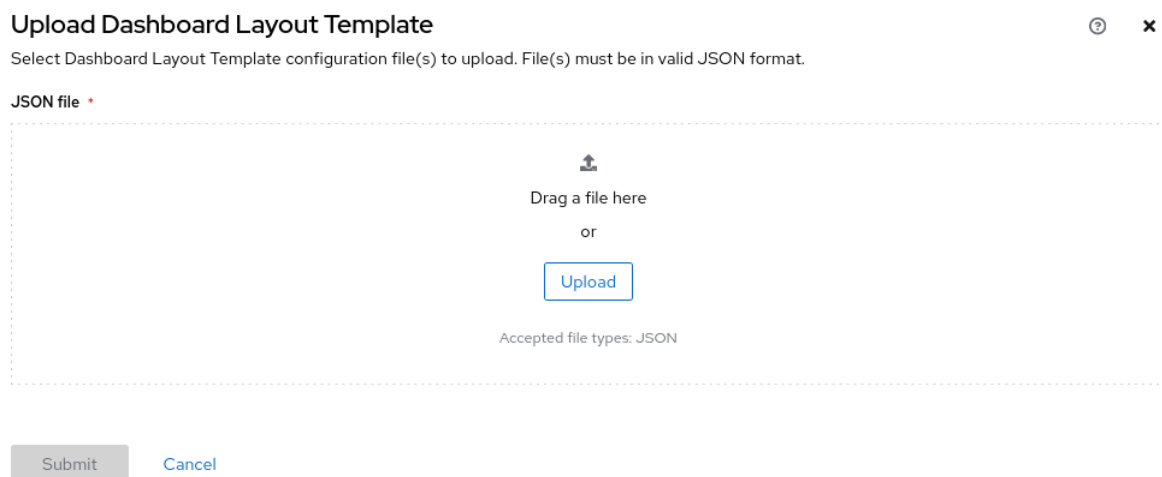
1. On the Cryostat web console, click **Dashboard**.
2. From the **Target** drop-down menu, select the target JVM whose information you want to view.
3. On the toolbar, click the layout selector drop-down menu.
4. Click the expandable menu on the **New Layout** button and select **Upload Template**.

Figure 3.5. Uploading a dashboard template



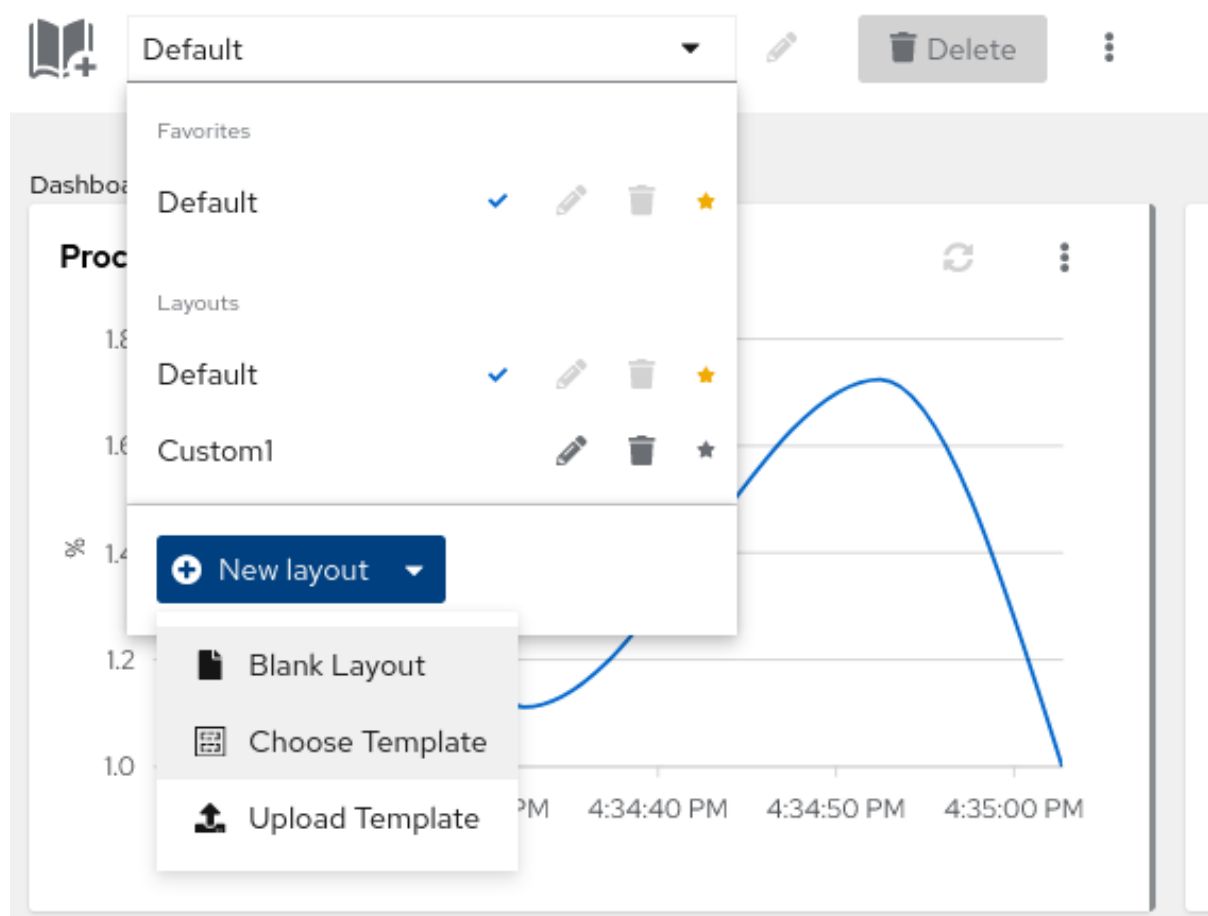
5. Click **Upload** to browse your local directory for previously saved dashboard layouts.

Figure 3.6. Selecting a dashboard template for upload



6. When you have selected the template **.json** file you want to upload, click **Submit**.
7. On the toolbar, click the layout selector drop-down menu.
8. Click the expandable menu on the **New Layout** button and select **Choose Template**.

Figure 3.7. Choosing a dashboard template



9. Scroll to the user-submitted dashboard layouts and click the template name that you uploaded in [Step 5](#).
10. In the **Name** field, enter a name for the dashboard layout.

11. Click **Create**.

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