



BEA JRockit® Mission Control™

Monitoring System Performance

JRockit Mission Control 3.0.2
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Real-Time Monitoring of System Activity

You can get a good idea of how your application is using its resources on the **Overview** and **Memory** tabs. These tabs provide such information as processor behavior and memory statistics during system runtime and how efficiently your application is using the memory available to it by analyzing such factors as heap usage, memory usage, and garbage collection schemes. You also have great possibilities to customize the graphs that monitor the system as well as setting certain parameters directly from the Management Console, for example, it is possible to change the garbage collection strategy in runtime from the **Memory** tab.

This section contains information on these subjects:

- [Using the Overview Tab](#)
- [Using the Memory Tab](#)

Real-Time Monitoring of System Activity

Using the Overview Tab

The **Overview** tab allows you to monitor processor behavior and memory statistics during system runtime. The **Overview** tab is helpful in analyzing a system's general health as it can reveal behavior that might indicate bottlenecks or other sources of poor system performance.

Topics in this section include:

- [Getting Familiar with the Overview Tab](#)
- [Memory Graph](#)
- [Processor Graph](#)
- [Tab Controls](#)
- [Adding and Removing a Graph](#)
- [Other Overview Tab Functionality](#)

Getting Familiar with the Overview Tab

The **Overview** tab ([Figure 2-1](#)) is comprised of two graphs that plot two key elements of application performance: the memory consumption and the CPU Load.

Figure 2-1 Overview Tab



The **Overview** tab is divided into the following sections:

1. **Performance Meters**—show system performance for selected attributes.
2. **Memory Graph**—shows how system memory is being used by a running application.
3. **Processor Graph**—shows CPU usage by a running application.
4. **Tab Controls**—contain icons that allow you to add or remove graphs from the tab and access the online Help system.

Performance Meters

Performance meters (Figure 2-2), also called “velocimeters,” depict the runtime performance of a single variable by using a dial interface.

Figure 2-2 Performance Meters

By default, when you open the Management Console, the meters appearing are:

- Used Java Heap
- Used Physical Memory
- CPU Usage
- Live Set

You can display meters for other attributes by using the procedures described in [To change the attribute displayed](#).

Working with the Performance Meters

You can manipulate the Performance Meters the following ways by using the procedures described below. The procedures shows how:

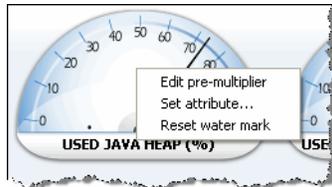
- [To change the pre-multiplier](#)
- [To change the attribute displayed](#)
- [To reset the water mark](#)

To change the pre-multiplier

The pre-multiplier is the number by which the values in the dial are multiplied to attain the actual number.

1. Right-click on the selected dial to open the context menu ([Figure 2-3](#)).

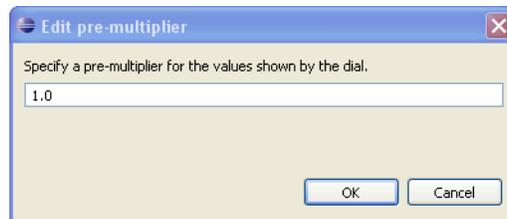
Figure 2-3 Performance Meter Context Menu



2. Select **Edit pre-multiplier**.

The Pre-multiplier dialog box appears (Figure 2-4).

Figure 2-4 Edit Pre-multiplier Dialog Box



3. Enter the number by which you want values in the dial multiplied.
4. Click **OK**.

The dialog box closes and the dial shows the new multiplier; for example, in Figure 2-5, the pre-multiplier was changed from the default (1.0) to 10.0; note the **x10** in the middle of the dial..

Figure 2-5 Meter with Pre-multiplier Changed to 10

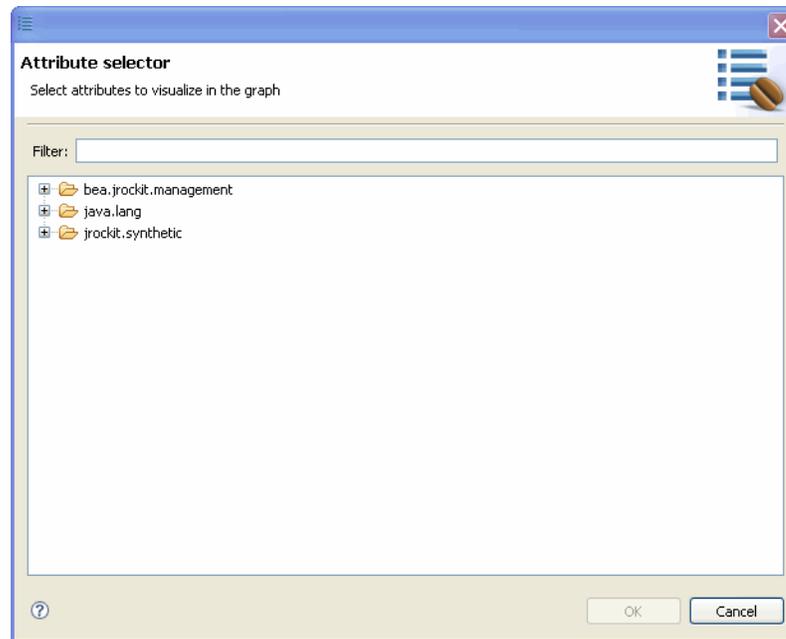


To change the attribute displayed

1. Right-click on the selected dial to open the context menu (Figure 2-3).
2. Select **Set attribute...**

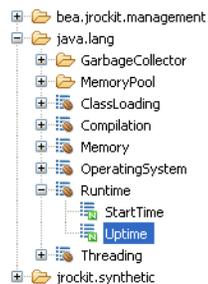
The Attribute Selector appears (Figure 2-6).

Figure 2-6 Attribute Selector



3. Drill down to the attribute you want to display; for example, in [Figure 2-7](#), the Uptime attribute has been selected.

Figure 2-7 Attribute Selected

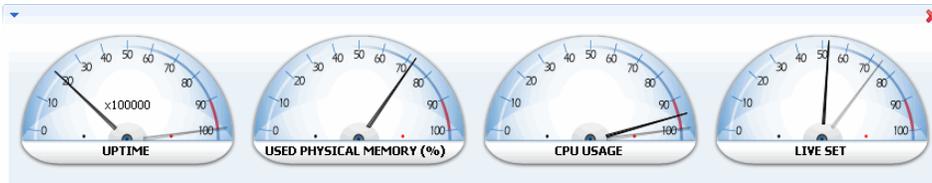


4. Click **OK**.

The dialog box closes and the selected meter shows the selected attribute; for example, in [Figure 2-8](#), the Uptime attribute appears in the meter.

Using the Overview Tab

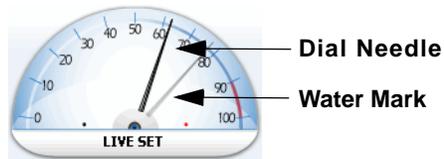
Figure 2-8 Attribute Changed



To reset the water mark

The water mark indicates the highest value the dial needle has attained (Figure 2-9). You can reset the water mark if appears that the attribute's performance profile has changed.

Figure 2-9 Dial with Water Mark



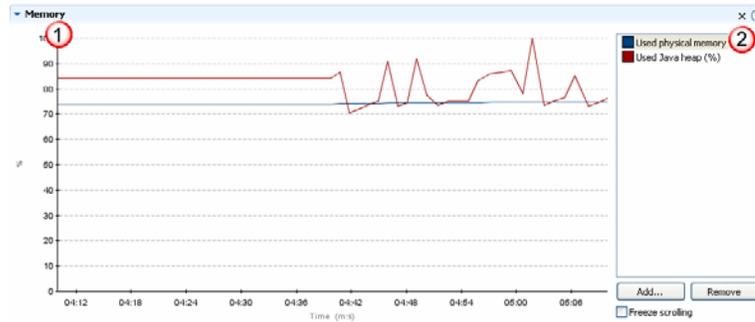
1. Right-click on the selected dial to open the context menu (Figure 2-3).
2. Select **Reset water mark**.

The water mark disappears and will be reset every time the dial needle attains a new high value.

Memory Graph

The **Memory** graph (Figure 2-10) shows how system memory is being used by a running application.

Figure 2-10 Memory graph



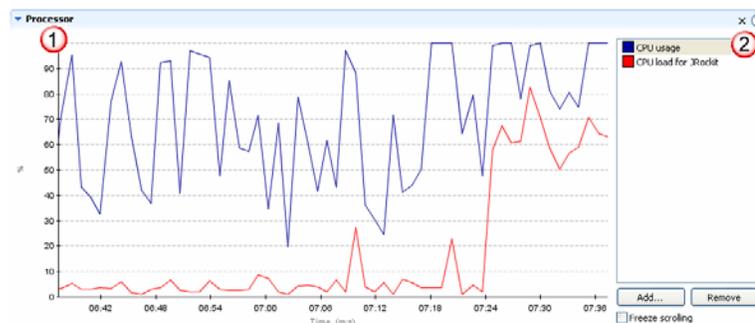
By default, upon Management Console startup, the **Memory** graph (marked 1 in Figure 2-10) shows the attributes *Used physical memory* and *Used Java heap (%)*. Both attributes are displayed over time. The attributes are identified in the legend to the right of the graph (marked 2 in Figure 2-10).

Please refer to [Other Overview Tab Functionality](#) for a description of the functions you can use with this graph.

Processor Graph

The **Processor** graph (Figure 2-11) shows CPU usage by a running application.

Figure 2-11 Processor graph



By default, upon Management Console startup, the **Processor** graph (marked 1 in Figure 2-11) shows the attributes CPU usage and CPU load for the JRockit JVM. Both attributes are displayed over time. The attributes are identified in the legend to the right of the graph (marked 2 in Figure 2-11).

Please refer to [Other Overview Tab Functionality](#) for a description of the functions you can use with this graph.

Tab Controls

Three controls appear in the top-right corner of the Overview tab, as described in .

Table 2-1 Tab Controls

Control	Purpose
	To add a blank graph to the tab.
	To reset the chart to its default state by removing all user-defined graphs.
	To launch the online Help system for the Overview tab.

Adding and Removing a Graph

You can add a new graph to the Overview tab by using one of the two procedures described in this topic.

- [To add a graph to the Overview tab](#)
- [To add a graph from the Attributes tab of the MBean Browser](#)
- [To remove a graph from the Overview tab](#)

To add a graph to the Overview tab

1. Click the Add chart icon in the top right corner of the tab ([Figure 2-12](#)).

Figure 2-12 Add graph icon



A blank graph appears at the bottom of the tab ([Figure 2-13](#)).

Figure 2-13 New graph added to tab



2. Add attributes and other chart features as you would for any other graph.

To add a graph from the Attributes tab of the MBean Browser

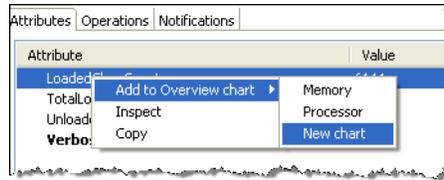
This feature allows you to add a new graph to the Overview tab and selected attributes in a single process.

1. Open the MBean Browser tab.
2. At the top of the MBean Browser, open the Attributes tab.
3. From the Attribute Tree, locate and select the attribute you want to display on a graph.
Features of that attribute will appear in the Attributes Features panel.
4. In the Attribute Features panel, select the feature or features of the attribute you want to appear on the graph. To select multiple features, hold down the Shift key (for a range of contiguous features) or the Ctrl key (for non-contiguous features) and select the features.

Note: You can only display numerical attribute features on a graph. Selecting non-numerical attribute features will result in a blank graph.

5. Right-click the selected feature to display a context menu and select **Add to Overview Chart>New Chart** (Figure 2-14).

Figure 2-14 Selecting an attribute feature to add to new chart



6. Open the Overview tab.

The new chart will appear at the bottom of the tab.

To remove a graph from the Overview tab

Table 2-2 shows how you can remove a single graph from the Overview tab or remove all user-defined graphs and return the tab's default state.

Table 2-2 Removing a graph

To remove...	Do this...
A single graph	Click the Remove chart icon in the top-right of the selected graph (Figure 2-15).
<p>Figure 2-15 Remove chart icon</p> 	
	The graph will disappear.
All user-defined graphs	Click the Reset to default charts icon in the top-right corner of the Overviews tab.
<p>Figure 2-16 Reset to default charts icon</p> 	
	The tab will return to its default state, showing just the Memory and Processor graphs.

Other Overview Tab Functionality

Since both graphs on the Overview tab are for monitoring aspects of system activity, you cannot make changes that affect system performance from this tab. Functions you can perform on this tab are:

- You can add and remove attributes. Use the procedures described in “Using the Management Console”.
- You can freeze the graph to better study it. Click the **Freeze scrolling** option to freeze the graph.
- You can zoom-in to specific view on the graph, including a selected time period. You can also use the **Zoom** function to redefine the X-axis to show different time increments. Use the procedures described in “Using the Management Console”.
- You can redefine the Y-axis to better show a spread of data. Use the procedures described in “Using the Management Console”.
- You can rename the titles on the graphs to better suit the attributes you are monitoring. Use the procedures described in “Using the Management Console”.

Using the Overview Tab

Using the Memory Tab

The **Memory** tab allows you to monitor how efficiently your application is using the memory that is available to it. This tab focuses on heap usage, memory usage, and garbage collection schemes. The information provided on this tab can greatly assist you in determining whether you have configured the Oracle JRockit JVM to provide optimal application performance. You can also add attributes that you want to monitor as well as editing certain attributes to change their settings

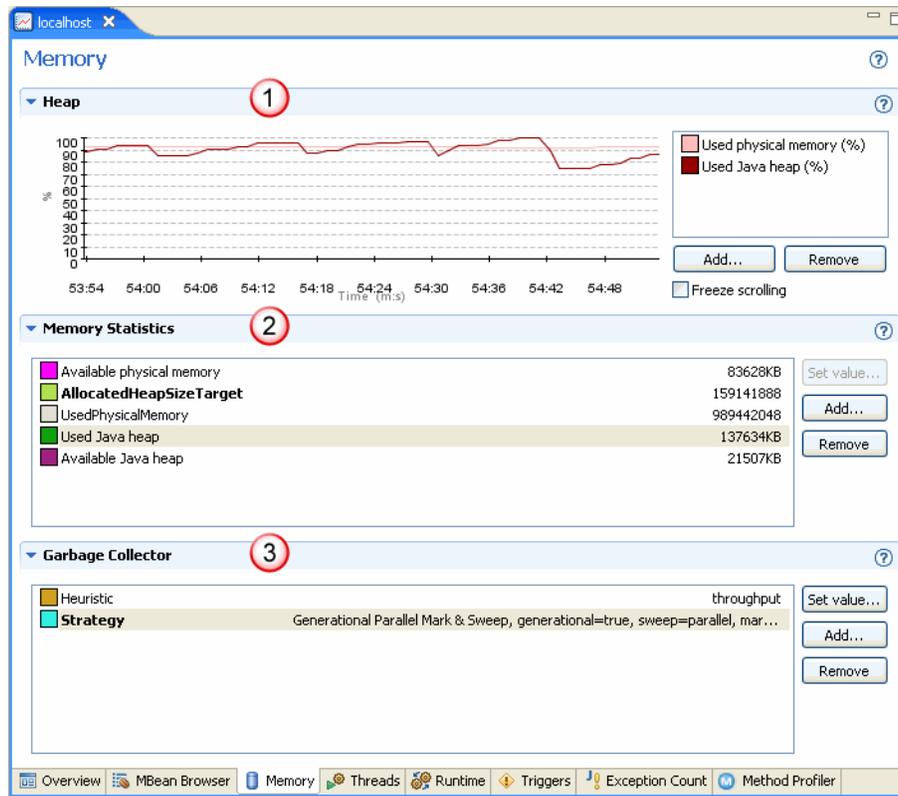
Topics in this section include:

- [Getting Familiar with the Memory Tab](#)
- [Heap Graph](#)
- [Please refer to Memory Tab Functionality for a description of the functions you can use with this graph.Memory Statistics Panel](#)
- [Garbage Collector Panel](#)
- [Memory Tab Functionality](#)

Getting Familiar with the Memory Tab

The **Memory** tab is comprised of a graphs and two tables that show pertinent information about how a running application is using its memory.

Figure 3-1 Memory Tab



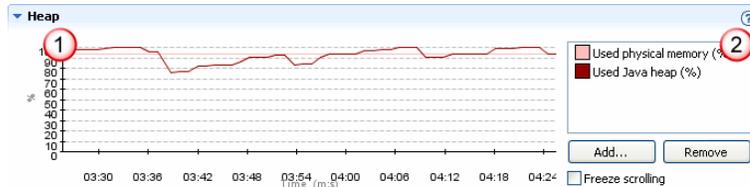
The **Memory** tab is divided into the following sections:

1. **Heap Graph**—plots information about heap usage during an application run.
2. **Please refer to Memory Tab Functionality for a description of the functions you can use with this graph.** **Memory Statistics Panel**—shows information relating to memory usage during an application run.
3. **Garbage Collector Panel**—provides information about the garbage collector running with your application.

Heap Graph

The **Heap** graph (Figure 3-2) plots information about heap usage during an application run.

Figure 3-2 Heap graph

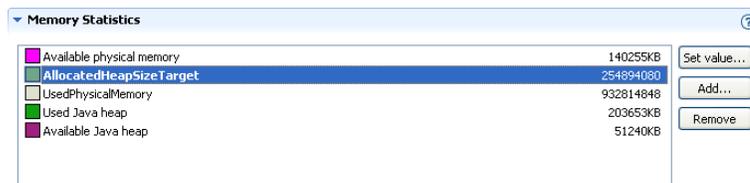


By default, upon Management Console startup, the **Heap** graph (marked 1 in Figure 3-2) shows the attributes *Used physical memory (%)* and *Used Java heap (%)*. Both attributes are displayed over time. The attributes are identified in the legend to the right of the graph (marked 2 in Figure 3-2).

Please refer to [Memory Tab Functionality](#) for a description of the functions you can use with this graph.Memory Statistics Panel

The **Memory Statistics** panel (Figure 3-3) shows information relating to memory usage during an application run.

Figure 3-3 Memory Statistics panel



The default content of the **Memory Statistics** panel is the following:

- **Available physical memory**—how much physical memory is available for use at any time during the application run.
- **Allocated heap size target**—the target amount of heap to which objects can be allocated. You can update this value from this panel.
- **Used physical memory**—the amount of physical in use at any time during the application run.
- **Used Java heap**—the amount of Java heap in use at any time during the application run.
- **Available Java heap**—the amount of total heap available to the application at any time during the run.

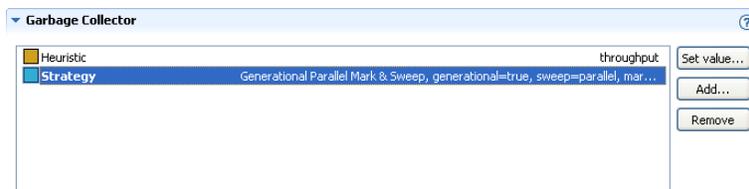
For complete information on memory, please see the [Memory Management](#) chapter in the *Oracle JRockit JVM Diagnostics Guide*.

Please refer to [Memory Tab Functionality](#) for a description of the functions you can use with this panel.

Garbage Collector Panel

The **Garbage Collector** panel ([Figure 3-4](#)) provides information about the garbage collector running with your application.

Figure 3-4 Garbage Collection panel



The default content of the **Garbage Collector** panel is the following:

- **Heuristic**—the name that identifies the type of performance for which you have tuned your garbage collector for the latest collection; for example:

Throughput

- **Strategy**—a description of the strategy for the latest garbage collection. It identifies whether or not the collector has a nursery and the mark and sweep types; for example:

Generational Parallel Mark & Sweep, generational=true, sweep=parallel, mark=parallel

You can change the value for the strategy, which means that you change garbage collection strategy on a fly.

For complete information on garbage collection, please see the [Garbage Collection in Oracle JRockit JVM](#) chapter in the *Oracle JRockit JVM Diagnostics Guide*.

Please refer to [Memory Tab Functionality](#) for a description of the functions you can use with this panel.

Memory Tab Functionality

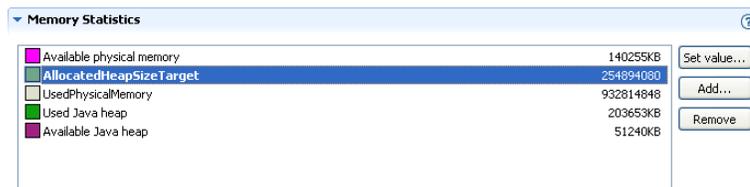
You can add and remove attributes from the **Heap** graph. Use the procedures described in “Using the Management Console”.

You can also set values on both the **Memory Statistics** panel and the **Garbage Collection** panel. For example, in the example shown in [Figure 3-3](#), note that **AllocatedHeapSizeTarget** is rendered in bold. This indicates that you can set the value for this attribute. You cannot set a value for an attribute rendered in a non-bold type.

To set a value for memory statistics or garbage collection

1. Highlight a memory or garbage collection statistic that allows you to set its value (that is, a statistic rendered in bold; [Figure 3-5](#)).

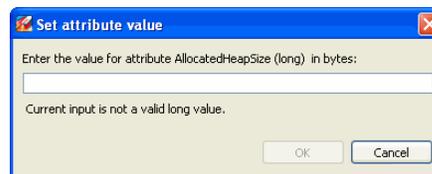
Figure 3-5 Statistic selected for setting value



2. Click **Set value**.

The **Set attribute value** dialog box appears ([Figure 3-6](#)). Note that the labels in the box are determined by the attribute you select

Figure 3-6 Set attribute value dialog box



3. Enter the value you want to use and click **OK**.

Oracle JRockit Mission Control sets the value of the attribute and that way it affects the values returned by the attribute.

Using the Memory Tab