# Components of the Object Landing pages

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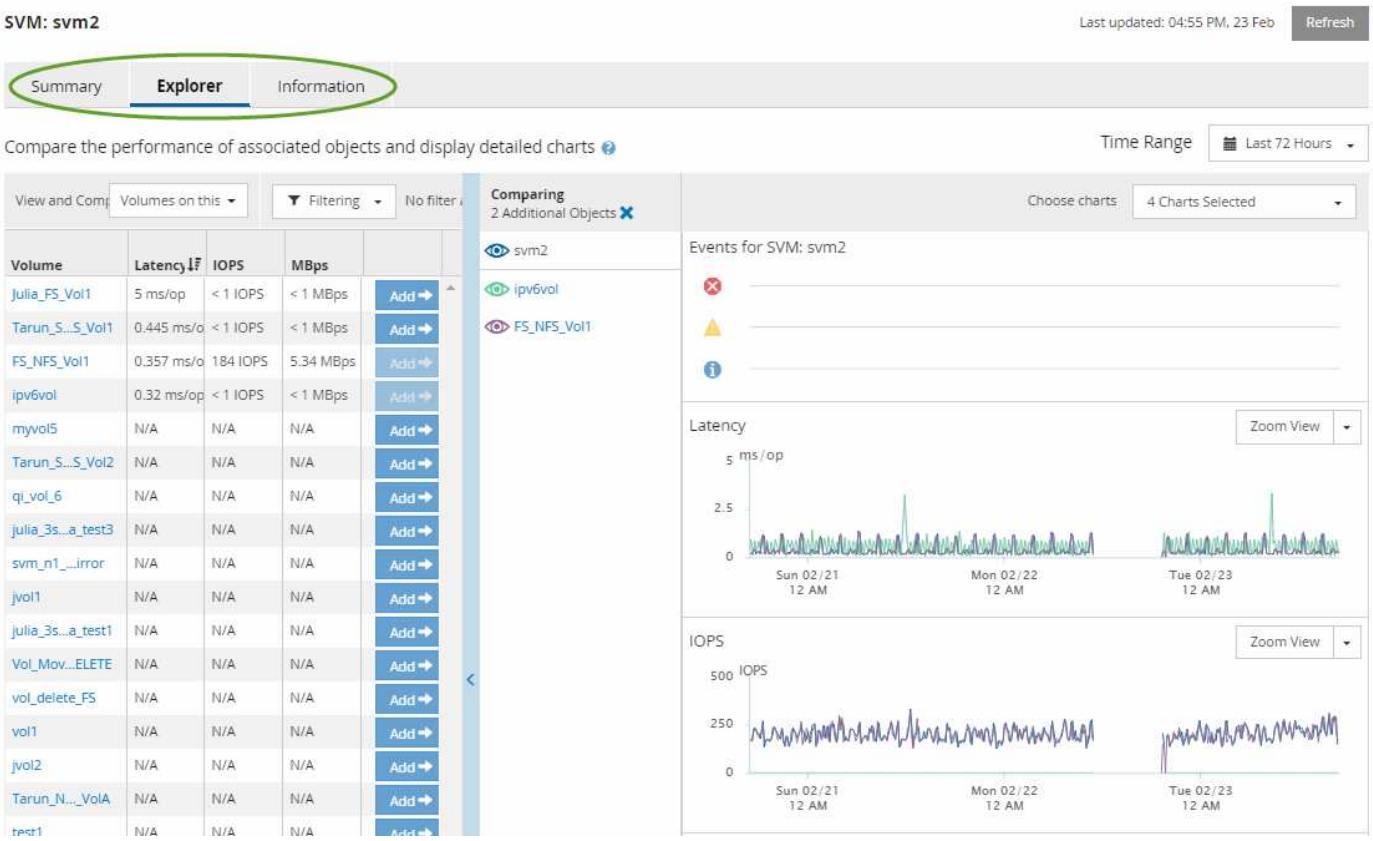
# Components of the Object Landing pages

The Object Landing pages provide details about all critical, warning, and informational events. They provide a detailed view into the performance of all cluster objects, enabling you to select and compare individual objects across various time periods.

The Object Landing pages enable you to examine the overall performance of all objects, and to compare object performance data in a side-by-side format. This is beneficial when assessing performance and when troubleshooting events.

The data displayed in the counter summary panels and in the Counter Charts are based on a five-minute sampling interval. The data displayed in the objects inventory grid in the left side of the page is based on a one-hour sampling interval.

The following image shows an example of an Object Landing page displaying the Explorer information:




Depending on the storage object that is being viewed, the Object Landing page can have the following tabs that provide performance data about the object:

- Summary

  Displays three or four counter charts containing the events and performance per object for the preceding 72-hour period, including a trend line that shows the high and low values during that period.

- Explorer

  Displays a grid of storage objects that are related to the current object, which enables you to compare the performance values of the current object with those of the related objects. This tab includes up to eleven

counter charts and a time range selector, which enable you to perform a variety of comparisons.

- Information

  Displays values for non-performance configuration attributes about the storage object, including the installed version of ONTAP software, HA partner name, and number of ports and LIFs.

- Top Performers

  For clusters: Displays the storage objects that have the highest performance or the lowest performance, based on the performance counter that you select.

- Failover Planning

  For nodes: Displays the estimate of the performance impact on a node if the HA partner of the node fails.

- Details

  For volumes: Displays detailed performance statistics for all I/O activity and operations for the selected volume workload. This tab is available for FlexVol volumes, FlexGroup volumes, and constituents of FlexGroups.

# Summary page

The Summary page displays counter charts that contain details about the events and performance per object for the preceding 72-hour period. This data is not automatically refreshed, but is current as of the last page load. The charts in the Summary page answer the question *Do I need to look further?*

## Charts and counter statistics

The summary charts provide a quick, high-level overview for the last 72-hour period, and help you to identify possible issues that require further investigation.

The Summary page counter statistics are displayed in graphs.

You can position your cursor over the trend line in a graph to view the counter values for a particular point in time. The summary charts also display the total number of active critical and warning events for the preceding 72-hour period for the following counters:

- **Latency**

  Average response time for all I/O requests; expressed in milliseconds per operation.

  Displayed for all object types.

- **IOPS**

  Average operating speed; expressed in input/output operations per second.

  Displayed for all object types.

- **MB/s**

Average throughput; expressed in megabytes per second.

Displayed for all object types.

- **Performance Capacity Used**

  Percentage of performance capacity that is being consumed by a node or aggregate.

  Displayed for nodes and aggregates only.

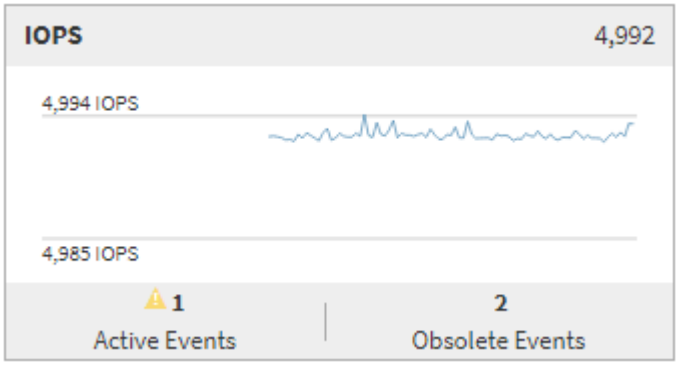
- **Utilization**

  Percentage of object utilization for nodes and aggregates, or bandwidth utilization for ports.

  Displayed for nodes, aggregates, and ports only.

Positioning the cursor over the event count for Active events shows the type and number of events. Critical events are displayed in red ( ), and warning events are displayed in yellow ( ).

The number at the top right of the chart in the gray bar is the average value from the last 72-hour period. Numbers shown at the bottom and top of the trend line graph are the minimum and maximum values for the last 72-hour period. The gray bar below the chart contains the count of active (new and acknowledged) events and obsolete events from the last 72-hour period.




- **Latency counter chart**

  The Latency counter chart provides a high-level overview of the object latency for the preceding 72-hour period. Latency refers to the average response time for all I/O requests; expressed in milliseconds per operation, the service time, wait time, or both experienced by a data packet or block in the cluster storage component under consideration.

  **Top (counter value):** The number in the header displays the average for the preceding 72-hour period.

  **Middle (performance graph):** The number at the bottom of the graph displays the lowest latency, and the number at the top of the graph displays the highest latency for the preceding 72-hour period. Position your cursor over the graph trend line to view the latency value for a specific time.

  **Bottom (events):** On hover, the pop-up displays the details of the events. Click the **Active Events** link below the graph to navigate to the Events Inventory page to view complete event details.

- **IOPS counter chart**

  The IOPS counter chart provides a high-level overview of the object IOPS health for the preceding 72-hour

period. IOPS indicates the speed of the storage system in number of input/output operations per second.

**Top (counter value):** The number in the header displays the average for the preceding 72-hour period.

**Middle (performance graph):** The number at the bottom of the graph displays the lowest IOPS, and the number at the top of the graph displays the highest IOPS for the preceding 72-hour period. Position your cursor over the graph trend line to view the IOPS value for a specific time.

**Bottom (events):** On hover, the pop-up displays the details of the events. Click the **Active Events** link below the graph to navigate to the Events Inventory page to view complete event details.

- **MB/s counter chart**

  The MB/s counter chart displays the object MB/s performance, and indicates how much data has been transferred to and from the object in megabytes per second. The MB/s counter chart provides a high-level overview of the object's MB/s health for the preceding 72-hour period.

  **Top (counter value):** The number in the header displays the average number of MB/s for the preceding 72-hour period.

  **Middle (performance graph):** The value at the bottom of the graph displays the lowest number of MB/s, and the value at the top of the graph displays the highest number of MB/s for the preceding 72-hour period. Position your cursor over the graph trend line to view the MB/s value for a specific time.

  **Bottom (events):** On hover, the pop-up displays the details of the events. Click the **Active Events** link below the graph to navigate to the Events Inventory page to view complete event details.

- **Performance Capacity Used counter chart**

  The Performance Capacity Used counter chart displays the percentage of performance capacity that is being consumed by the object.

  **Top (counter value):** The number in the header displays the average used performance capacity for the preceding 72-hour period.

  **Middle (performance graph):** The value at the bottom of the graph displays the lowest used performance capacity percentage, and the value at the top of the graph displays the highest used performance capacity percentage for the preceding 72-hour period. Position your cursor over the graph trend line to view the used performance capacity value for a specific time.

  **Bottom (events):** On hover, the pop-up displays the details of the events. Click the **Active Events** link below the graph to navigate to the Events Inventory page to view complete event details.

- **Utilization counter chart**

  The Utilization counter chart displays the object utilization percentage. The Utilization counter chart provides a high-level overview of the percentage of the object or bandwidth utilization for the preceding 72-hour period.

  **Top (counter value):** The number in the header displays the average utilization percentage for the preceding 72-hour period.

  **Middle (performance graph):** The value at the bottom of the graph displays the lowest utilization percentage, and the value at the top of the graph displays the highest utilization percentage for the preceding 72-hour period. Position your cursor over the graph trend line to view the utilization value for a specific time.

**Bottom (events):** On hover, the pop-up displays the details of the events. Click the **Active Events** link below the graph to navigate to the Events Inventory page to view complete event details.

### Events

The events history table, where applicable, lists the most recent events that occurred on that object. Clicking the event name displays details of the event on the Event Details page.

# Components of the Performance Explorer page

The Performance Explorer page enables you to compare the performance of similar objects in a cluster—for example, all the volumes in a cluster. This is beneficial when troubleshooting performance events and fine-tuning object performance. You can also compare objects with the root object, which is the baseline against which other object comparisons are made.

You can click the **Switch to Health View** button to display the Health details page for this object. In some cases you can learn important information about the storage configuration settings for this object that may help when troubleshooting an issue.

The Performance Explorer page displays a list of cluster objects and their performance data. This page displays all the cluster objects of the same type (for example, volumes and their object-specific performance statistics) in a tabular format. This view provides an efficient overview of cluster object performance.

If “N/A” appears in any cell of the table, it means that a value for that counter is not available because there is no I/O on that object at this time.

The Performance Explorer page contains the following components:

- **Time Range**

  Enables you to select a time range for the object data.

  You can choose a predefined range, or specify your own custom time range.

- **View and Compare**

  Enables you to select which type of correlated object is displayed in the grid.

  The options available depend on the root object type and its available data. You can click the View and Compare drop-down list to select an object type. The object type that you select is displayed in the list.

- **Filtering**

  Enables you to narrow the amount of data you receive, based on your preferences.

  You can create filters that apply to the object data—for example, IOPS greater than 4. You can add up to four simultaneous filters.

- **Comparing**

  Displays a list of the objects that you have selected for comparison with the root object.

Data for the objects in the Comparing pane is displayed in the Counter Charts.

- **View Statistics In**

  For volume and LUNs, enables you to select whether the statistics are displayed after each collection cycle (default 5 minutes), or whether the statistics are shown as an hourly average. This functionality enables you to view the latency chart in support of the NetApp"`Performance Guarantee`" program.

- **Counter Charts**

  Displays graphed data for each object performance category.

  Typically, only three or four charts are displayed by default. The Choose charts component enables you to display additional charts, or hide specific charts. You can also choose to show or hide the Events Timeline.

- **Events Timeline**

  Displays performance and health events occurring across the timeline that you selected in the Time Range component.

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