Dashboards

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Importance

Dashboards enable you to focus on what is important in your environment.

The VCF Operations console provides a set of predefined dashboards. You can also create custom dashboards to meet the business needs of your users: virtual infrastructure team, executives, application owners, operators, and so on.

You must know how to use dashboards, widgets, and interactions to provide meaningful data and insights to support your day-to-day environment monitoring and optimization.

Module Lessons

1. Dashboards and Widgets
2. Managing Dashboards

Dashboards and Widgets

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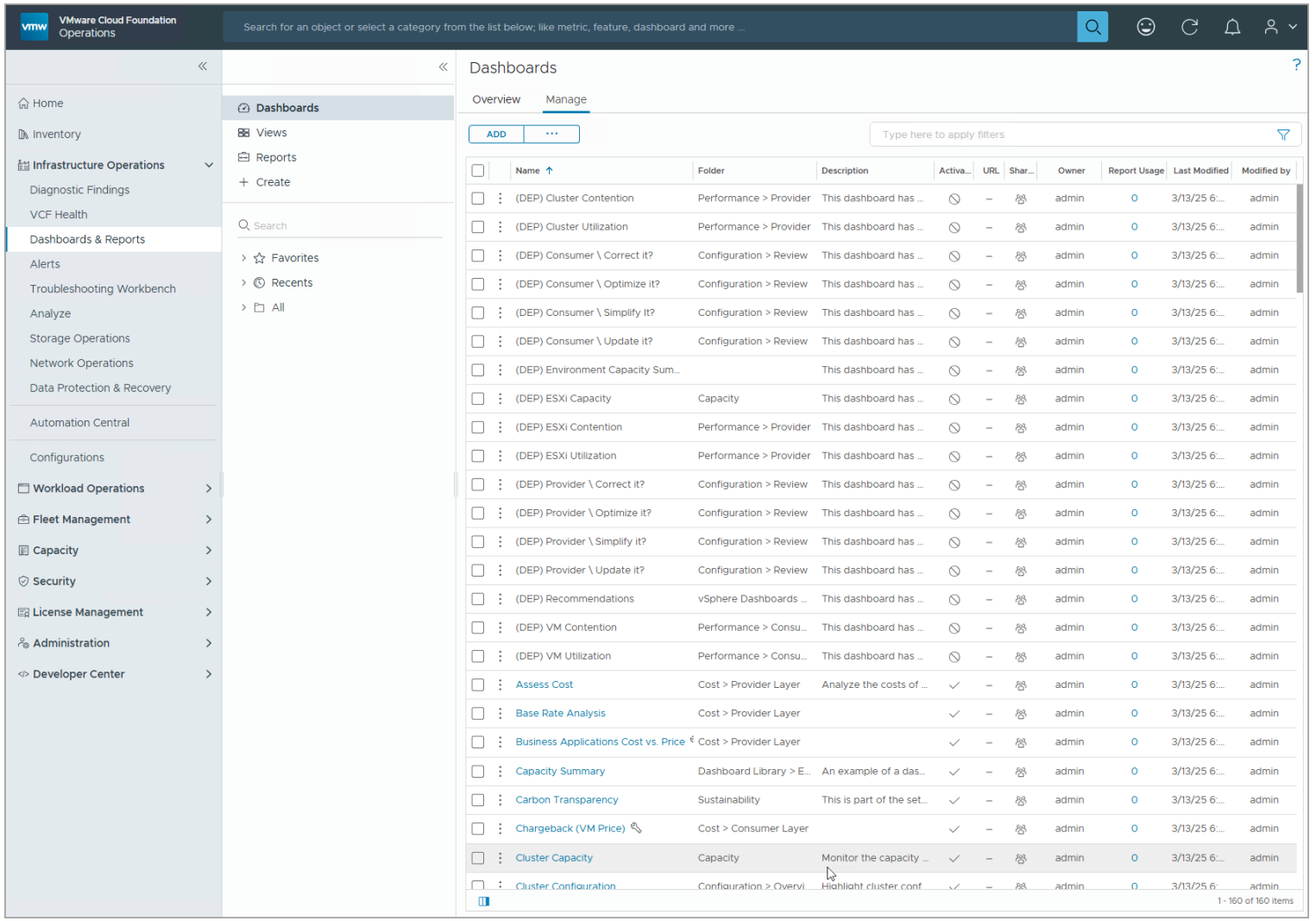
Learner Objectives

- Describe the functions of dashboards
- Build a custom dashboard
- Configure widget interactions
- Use metric configuration files

Understanding Dashboards

Dashboards present a visual overview of the performance and state of objects in your virtual infrastructure. To access dashboards, you must navigate to **Infrastructure Operations > Dashboards & Reports > Dashboards**.

You can view the predefined dashboards on the **Overview** tab, and view all dashboards (predefined and custom) on the **Manage** tab. The **Manage** tab also enables you to manage and alter any dashboards.



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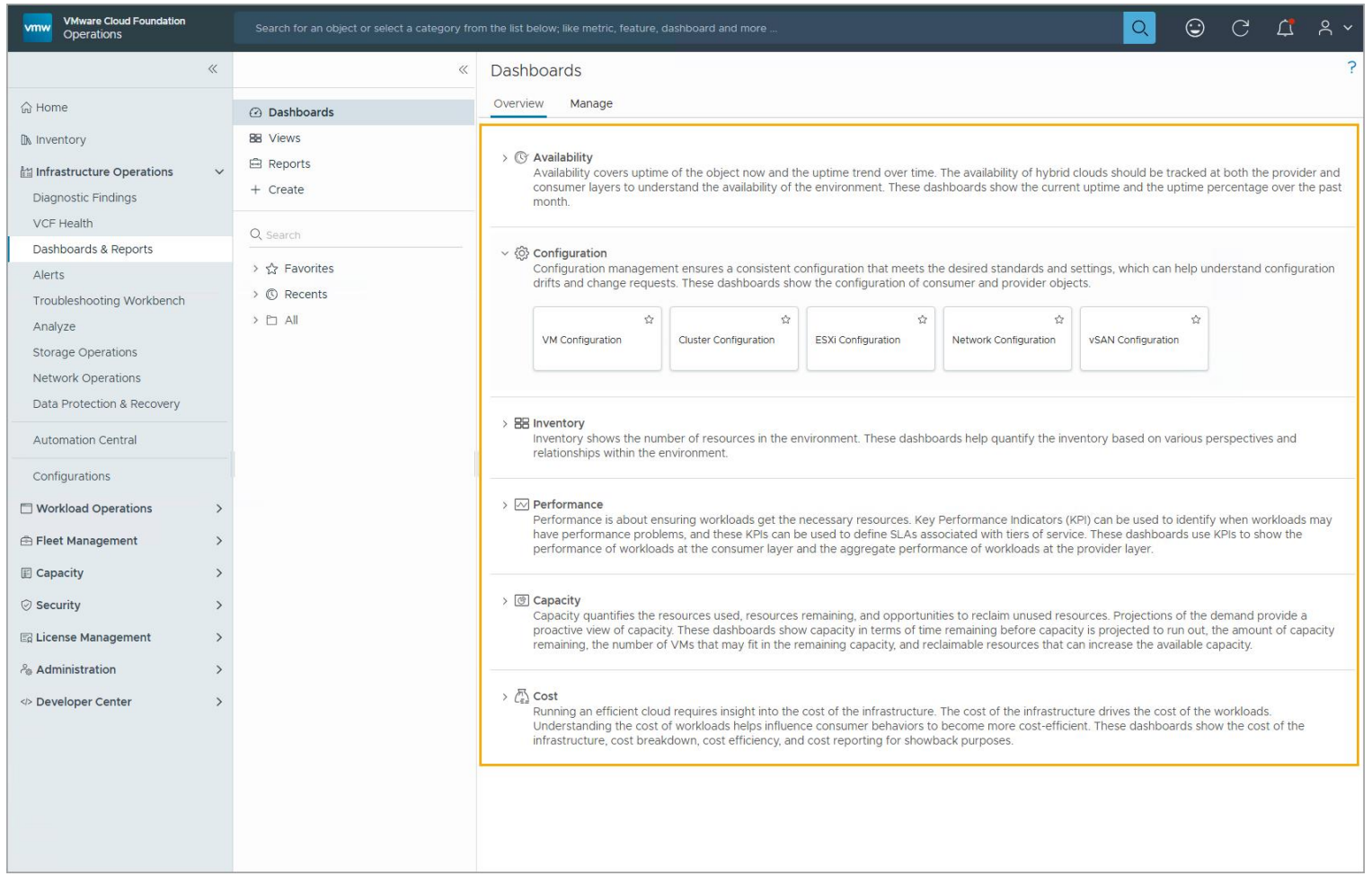
Understanding Predefined Dashboards

You can access some of the useful, predefined dashboards from the **Dashboards > Overview** home page.

The predefined dashboards are categorized as follows: **Availability**, **Configuration**, **Inventory**, **Performance**, **Capacity**, and **Cost**.

To access any predefined dashboard, expand the selected category and click the specific dashboard.



Predefined Dashboard Use Cases

The predefined dashboards in your VCF Operations console cover a great range of use cases to help you understand and manage your virtual environment. Dashboards are powerful proactive tools that help you monitor your environment or troubleshoot any issue. The following examples show how you can leverage some of the predefined dashboards:

- If you want to understand the status of the clusters in your virtual environment and want to know how many more VMs you can fit into any existing cluster, you can use the combination of **Cluster Capacity**, **Cluster Configuration**, and **Cluster Performance** to help you.
- If you want to understand the performance of your VMs and compare VM configurations to understand the performance difference, you can use a combination of **VM Configuration** and **VM Performance** to help you understand the VMs in your virtual environment.

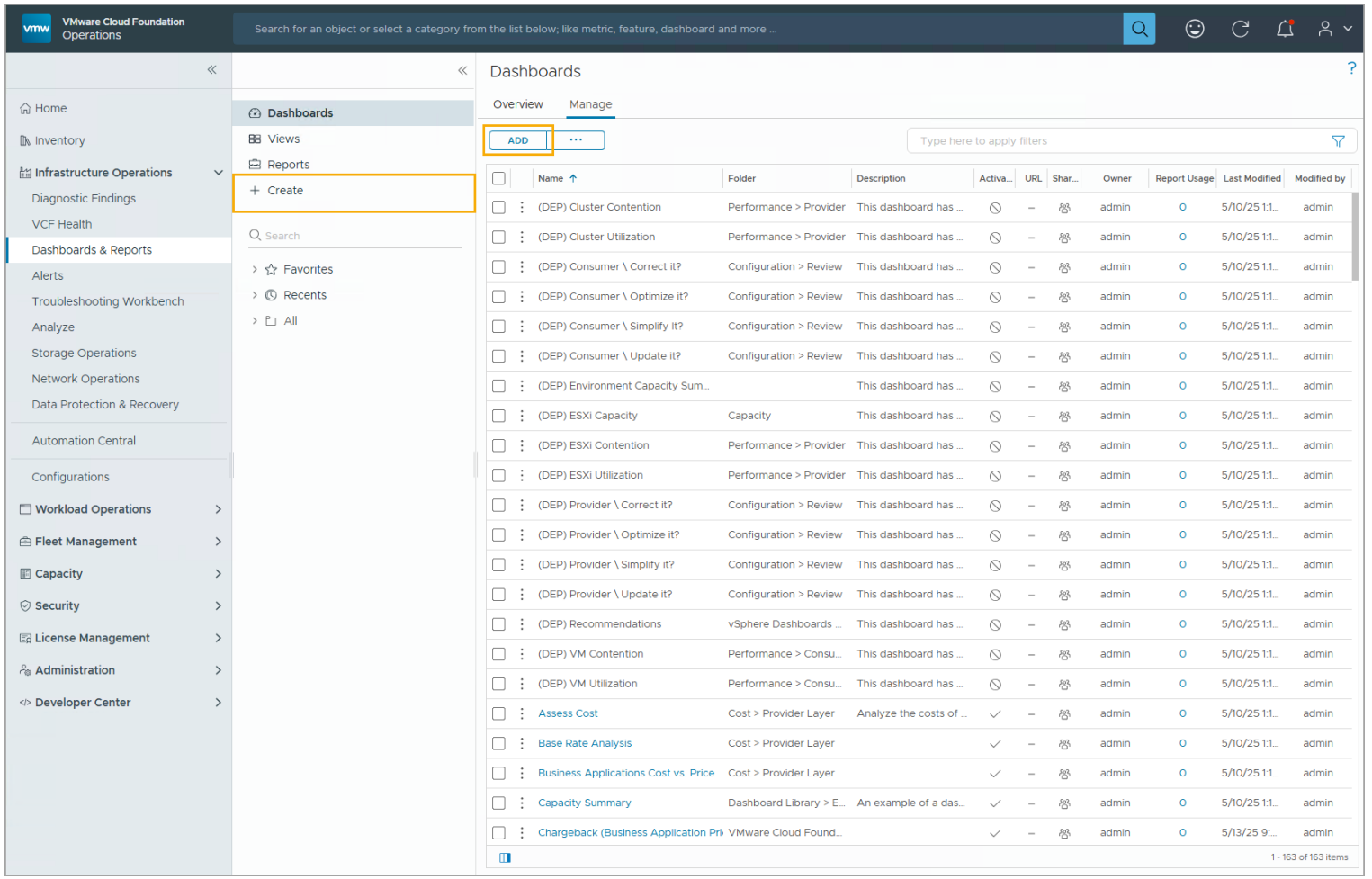
Understanding Custom Dashboards

If the predefined dashboards cannot meet your organization's business case, you can create custom dashboards to meet your environment needs.

To create a custom dashboard, you can either click **+ Create** or click **ADD** on the **Manage** tab.

Creating a custom dashboard requires the completion of the following tasks:

1. Adding dashboard widgets
2. Configuring widget data sources and objects
3. Configuring widget interactions



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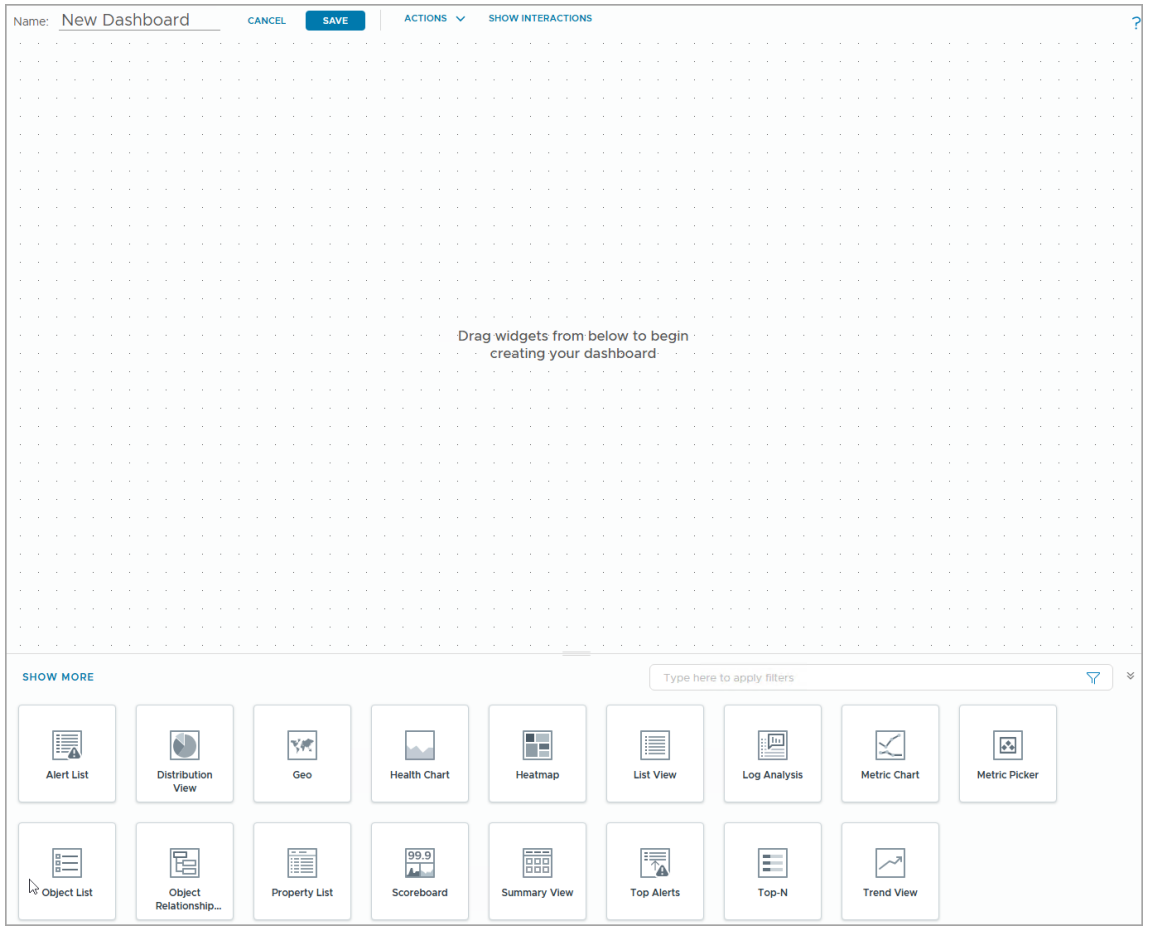
Designing a Dashboard

When creating a custom dashboard, you must consider its purpose, audience, and required data:

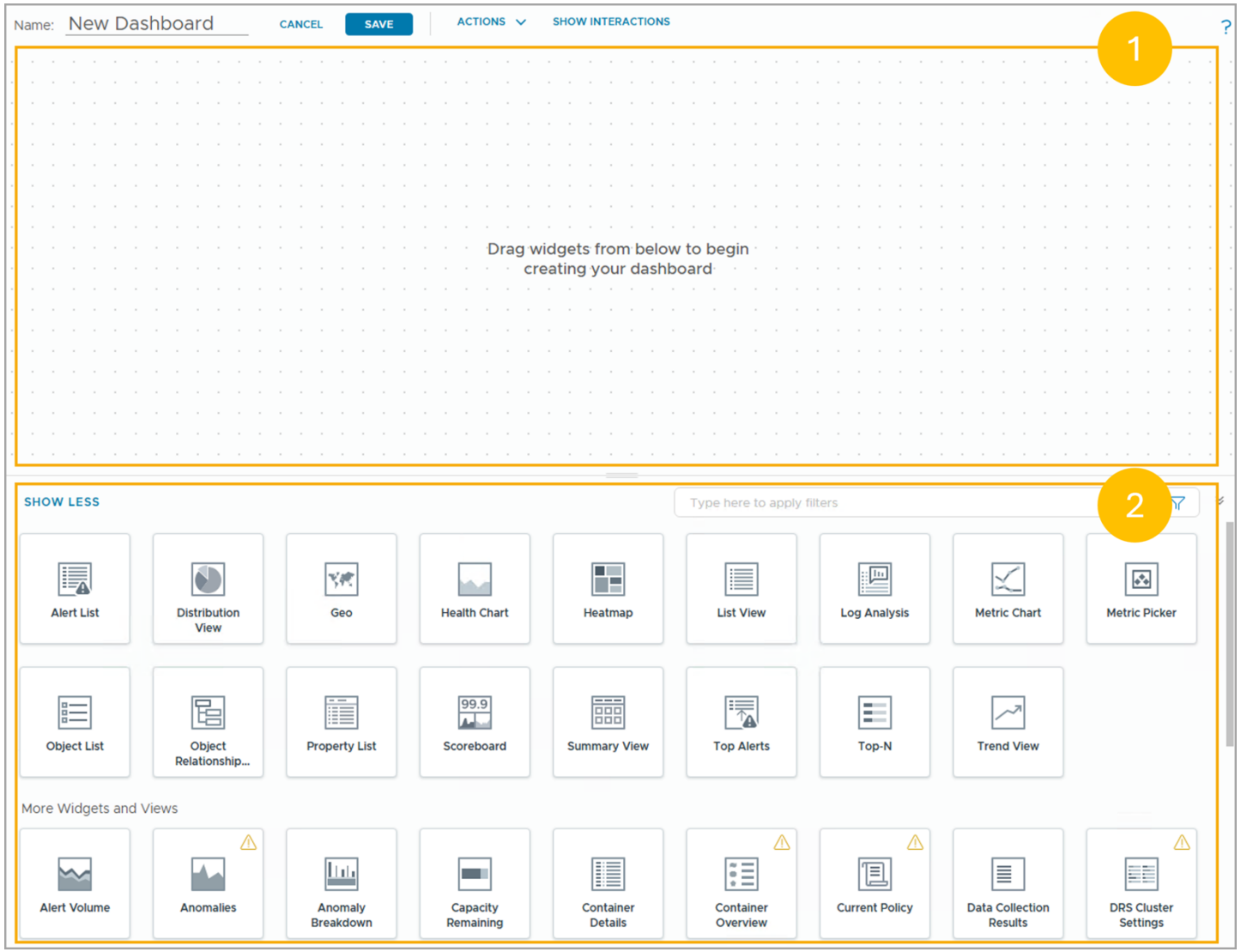
- Identify the audience, or consumers, of the dashboard.
- Define the purpose of the dashboard and how it should be used.
- Define the functional aspects of the dashboard (operations, forensics, and support).
- Identify the data sources.
- Identify the necessary widgets and interactions.
- Build a prototype dashboard.
- Share the dashboard with the intended audience.



Understanding the Dashboard Creation Wizard

The dashboard creation wizard has two main areas:

1. Dashboard canvas: Displays the data from widgets. You can customize the layout of added widgets.
2. Widget and View selection board: Enables you to choose elements to add to the dashboard canvas. You can choose from widgets and views.



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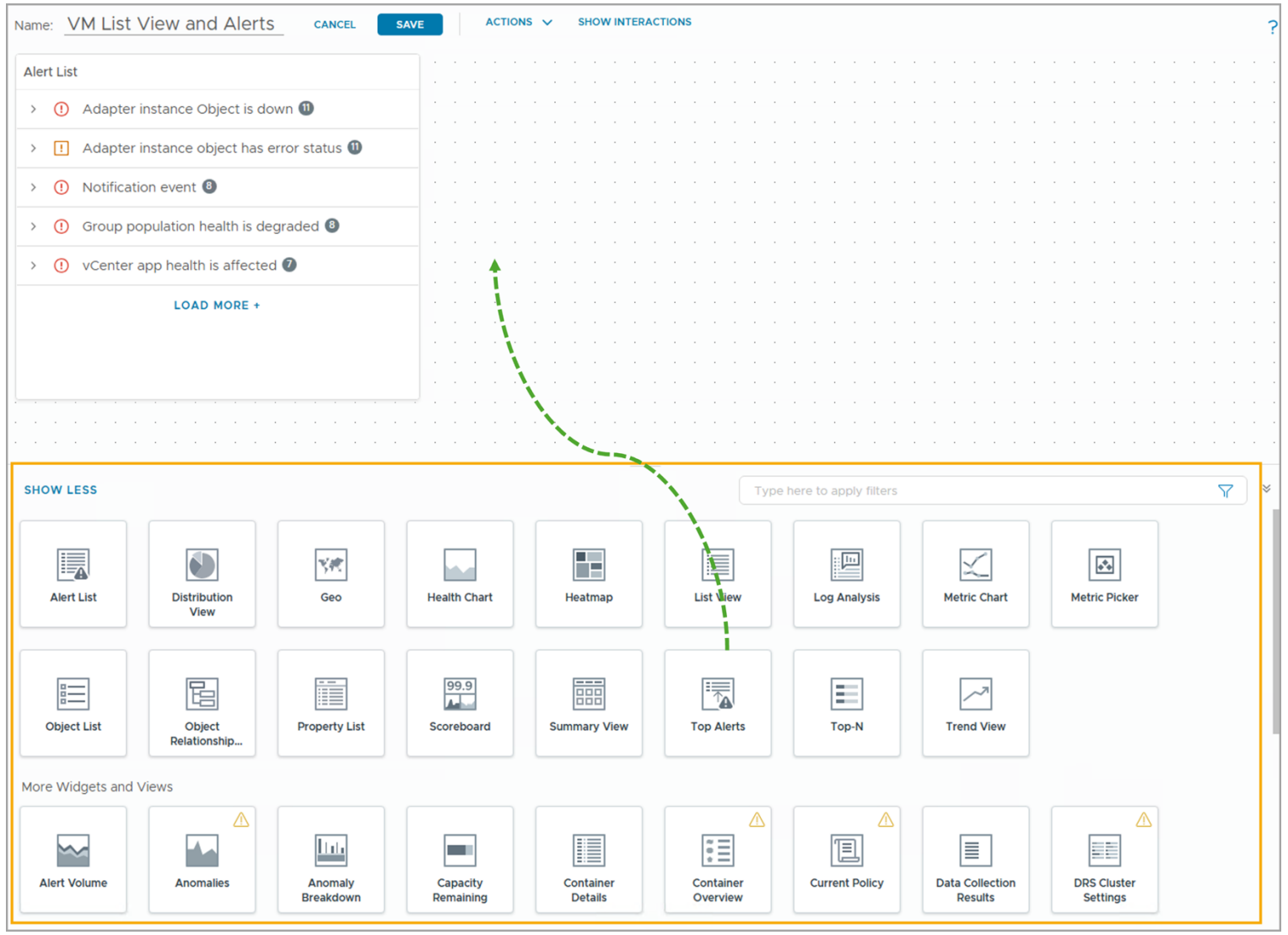
Adding the Dashboard Elements

The widgets list panel displays a list of predefined VCF Operations widgets or views that are commonly used.

You position the dashboard elements (views and widgets) by dragging them to the design canvas.

When you drag the widget or view to the desired location in the layout, the existing elements are automatically rearranged. You can reposition any existing elements that have moved when new views or widgets are added.



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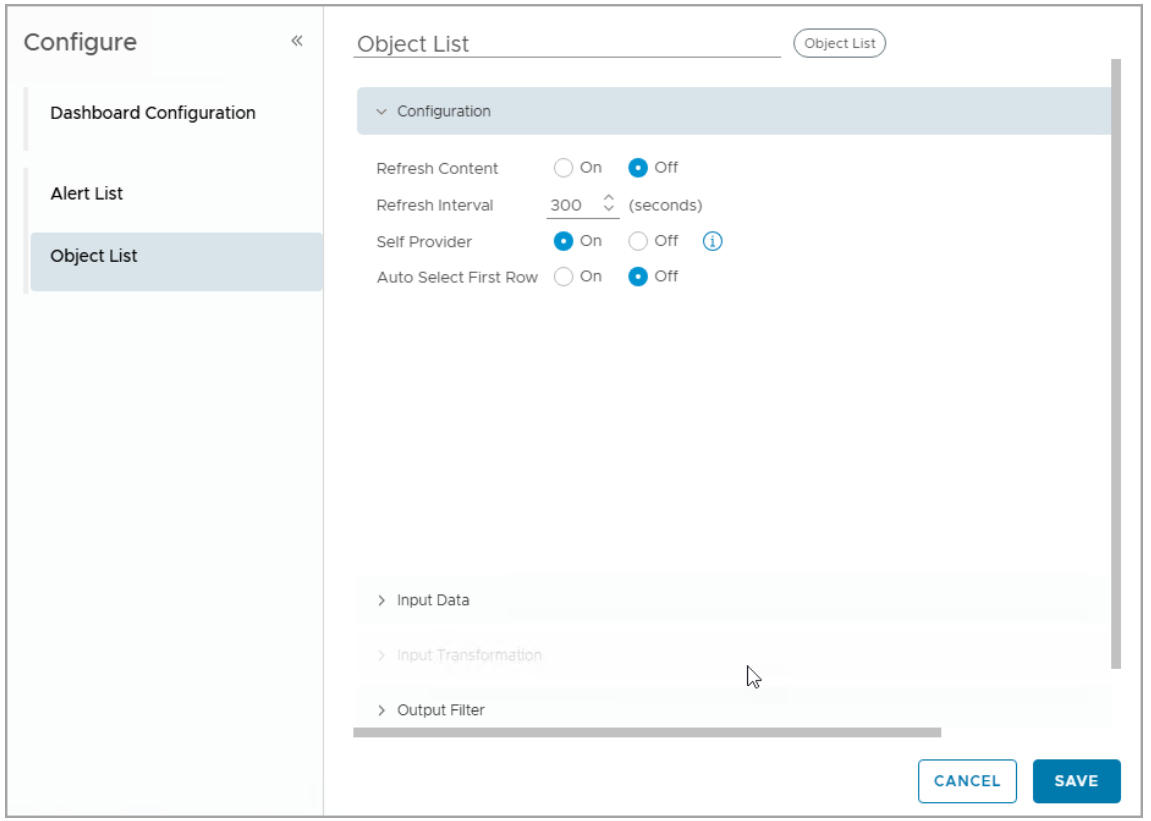
Common Widget Configuration Options

Click the **Edit** icon to configure the widget or view.

A widget uses one or more common configuration options:

- **Title**: A custom title that distinguishes this instance from other instances of this widget.
- **Refresh Content**: Enables or disables the automatic refreshing of the data in the widget display.
- **Refresh Interval**: Specifies how often to refresh the data in the widget display if you enable **Refresh Content**.
- **Self Provider**: Indicates whether objects for which data appears in the widget are defined in the widget or are provided by another widget.



Understanding Widget Interactions

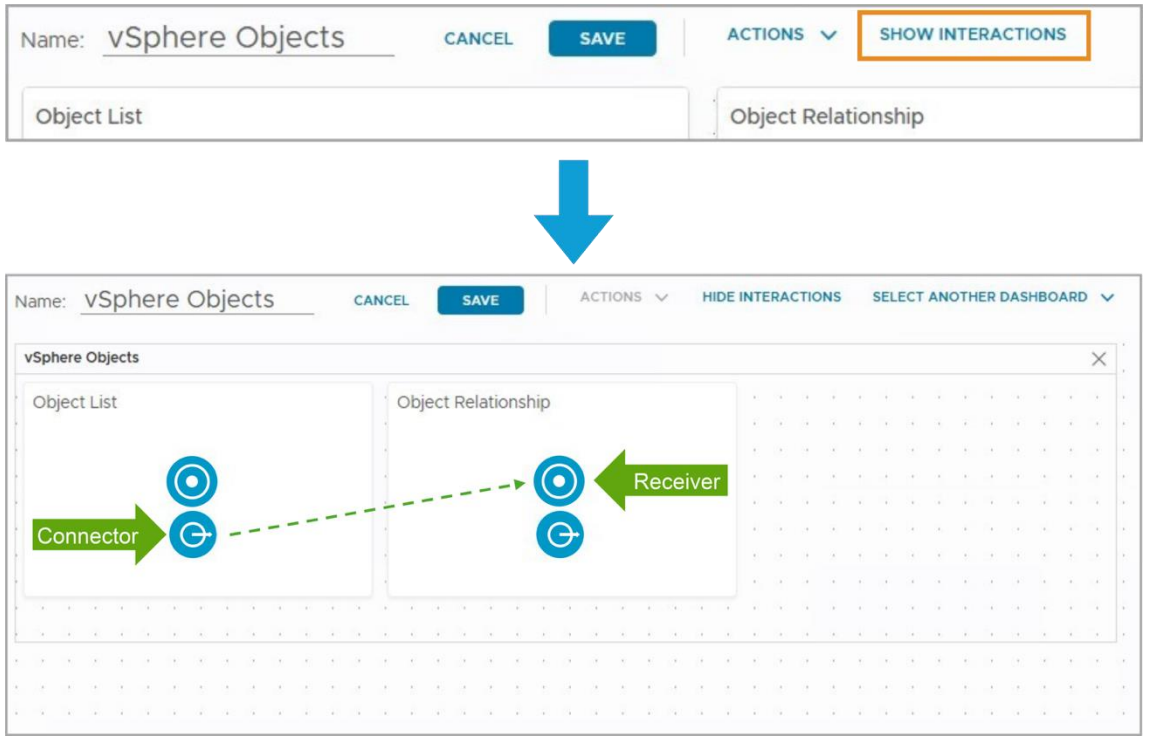
A widget interaction is a configured relationship between two widgets, where one widget provides data to a receiving widget. On the receiving widget, you must set **Self Provider** to **Off** to use interactions.

You must understand the Connector and Receiver concepts:

- **Connector (Outgoing Object Interaction)**: Widget that provides data to the receiving widget.
- **Receiver (Incoming Object Interaction)**: Widget that receives data from a data source widget.

Click **Show Interactions** to pair the connector icon with the receiver icon.

Drag the pointer from the connector to the receiver.

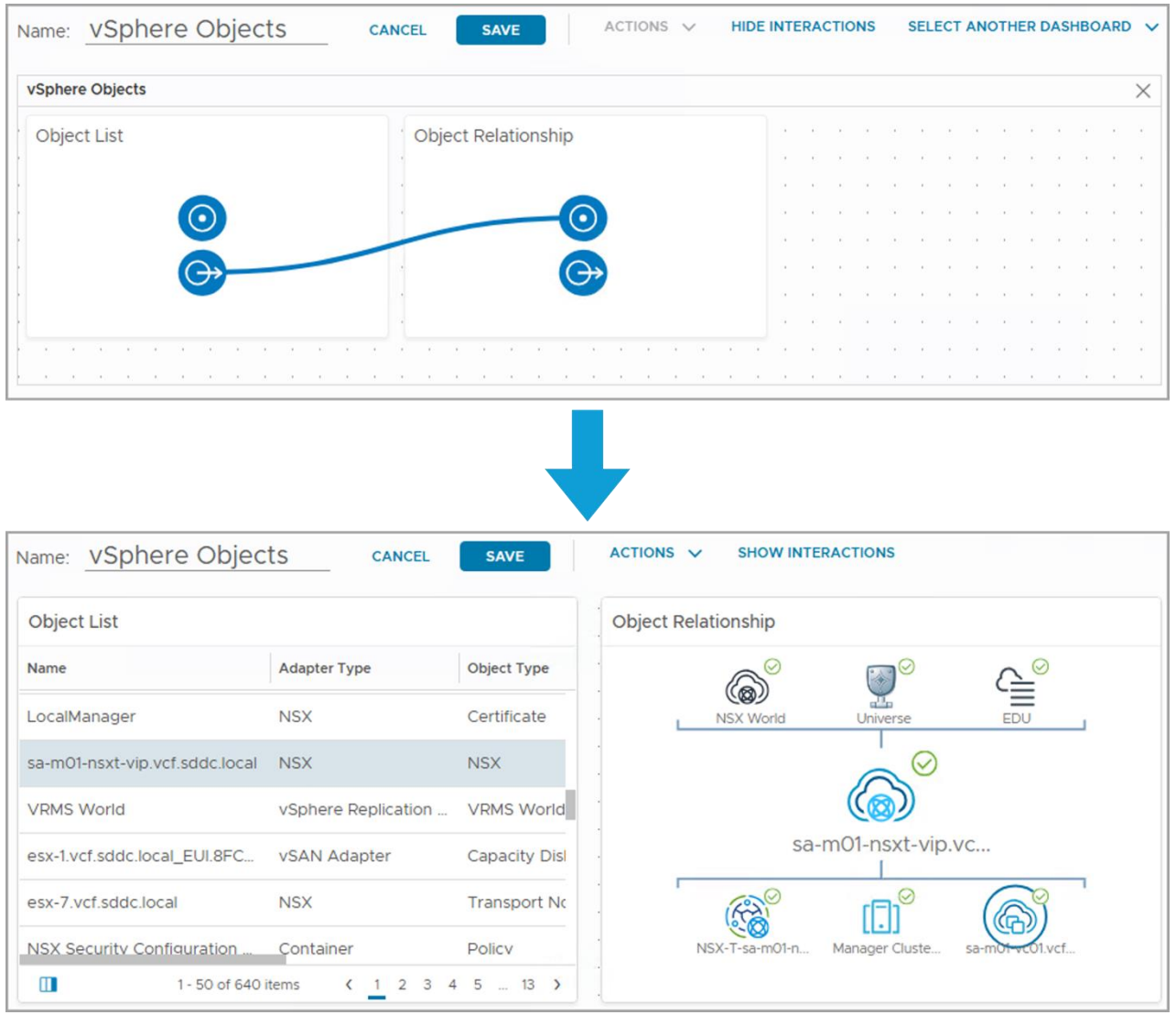


Example Widget Interactions

Widget interactions are indicated by a line between the connector and receiver icons.

Click **Hide Interactions** to return to the design canvas.

You can test the interaction from the design canvas.



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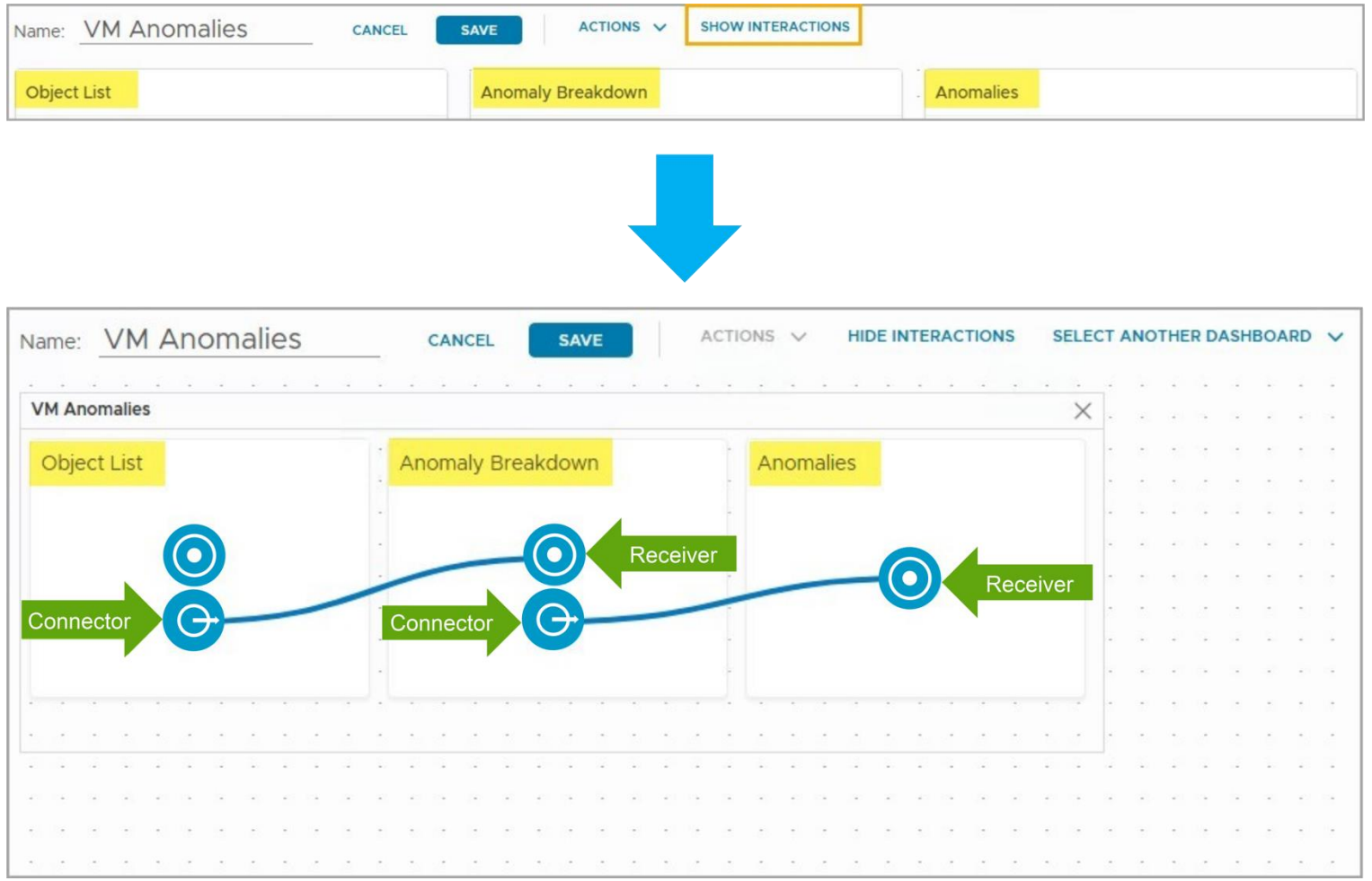
Multiple Widget Interactions

Widgets can be providers or receivers, or both, for object and metrics data.

You can configure interactions between widgets in the same dashboard or between widgets in different dashboards.

In this example, Object List provides data to the Anomaly Breakdown widget, and Anomaly Breakdown provides data to the Anomalies widget.



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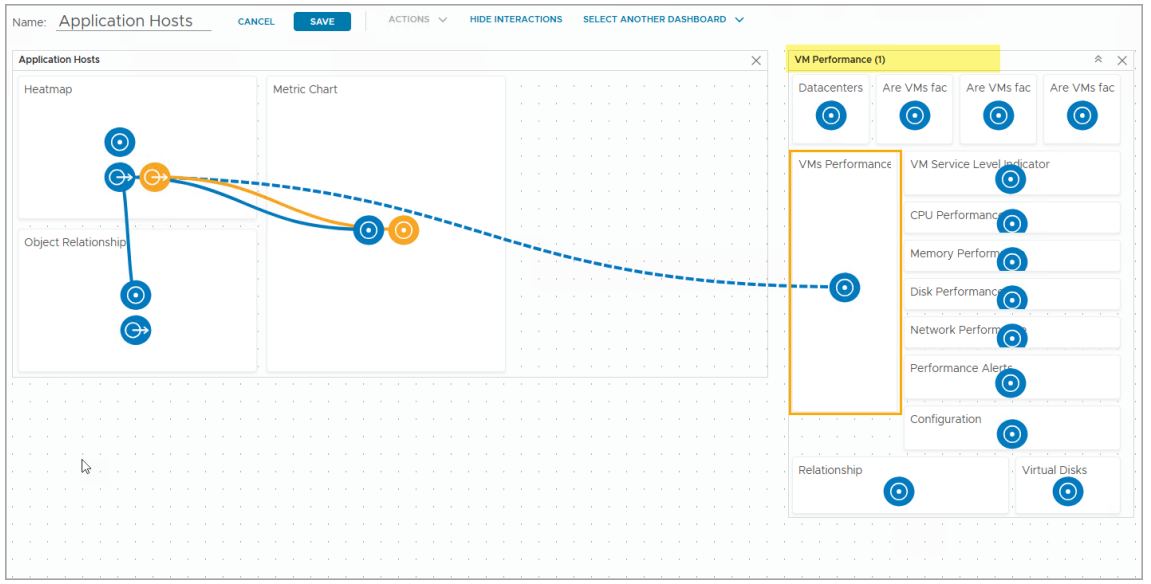
Configuring Interactions between Dashboards

You can configure interactions between widgets in different dashboards.

Click **Select Another Dashboard** and select another dashboard to create a connection with a widget in the other dashboard.

After you select the other dashboard, you configure the interaction with the widget as if the widgets were in the same dashboard.

In the example, the object data from the Heatmap widget is sent to the VMs Performance widget in the VM Performance dashboard.

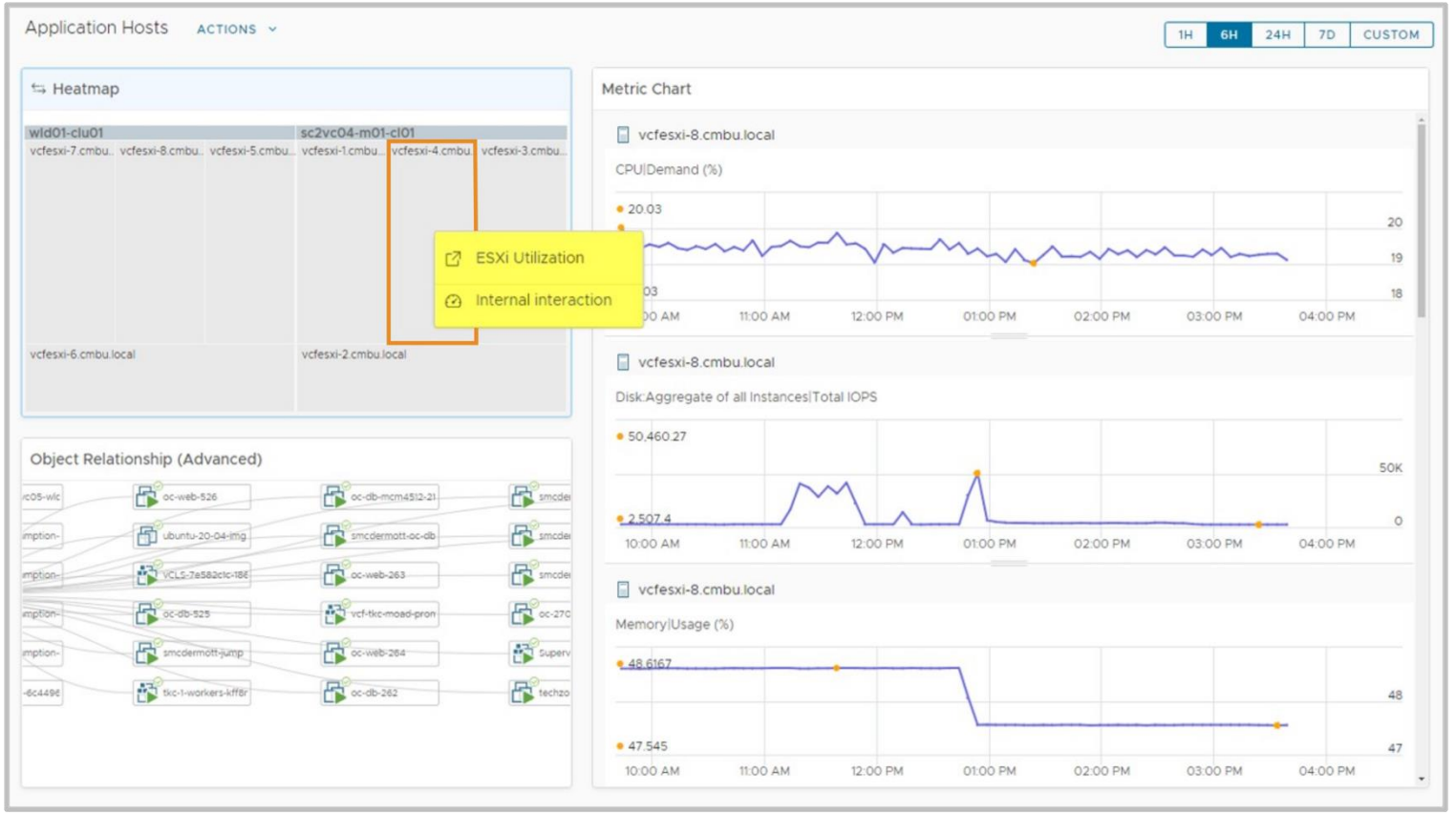


Navigating between Dashboards

When you have configured between-dashboard interactions, you can navigate between the connecting dashboards by clicking the interacting widgets.

To view widget interactions from a dashboard, click an object from a provider widget that has widget interactions defined. A window appears with a link to the external dashboard if it is configured.

In this example, you can click **ESXi Utilization** to open that dashboard for the ESX host system you selected.



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Custom Dashboard Use Cases

A custom dashboard enables you to add more granular criteria into your dashboard to display exactly the data you want to see.

For example, assume you need to move VMs from one cluster to another, and want to understand the cluster capacity for this type of operation. Instead of using the combination of Cluster Capacity, Cluster Configuration, and Cluster Performance, you can create one single custom dashboard. The custom dashboard can contain the following widgets:

- A list of clusters with their important capacity properties and metrics.
- A list of ESX hosts from each cluster.
- A list of VMs with their configuration properties and consumption metrics.

In another example, if you want to compare VM performance for two or more VMs in your virtual environment over time, instead of using the predefined VM Configuration and VM Performance, you can create a custom dashboard with the following widgets:

- A list of VMs with their ESX host property and real-time consumption metrics. The list can be configured to support multiple selections so you can select multiple VMs to compare.
- A series of performance widgets such as CPU usage trend, Memory usage trend, Disk Read trend, and so on. The performance widgets receive data from the VM list, so they only display the performance metrics for the selected VMs.

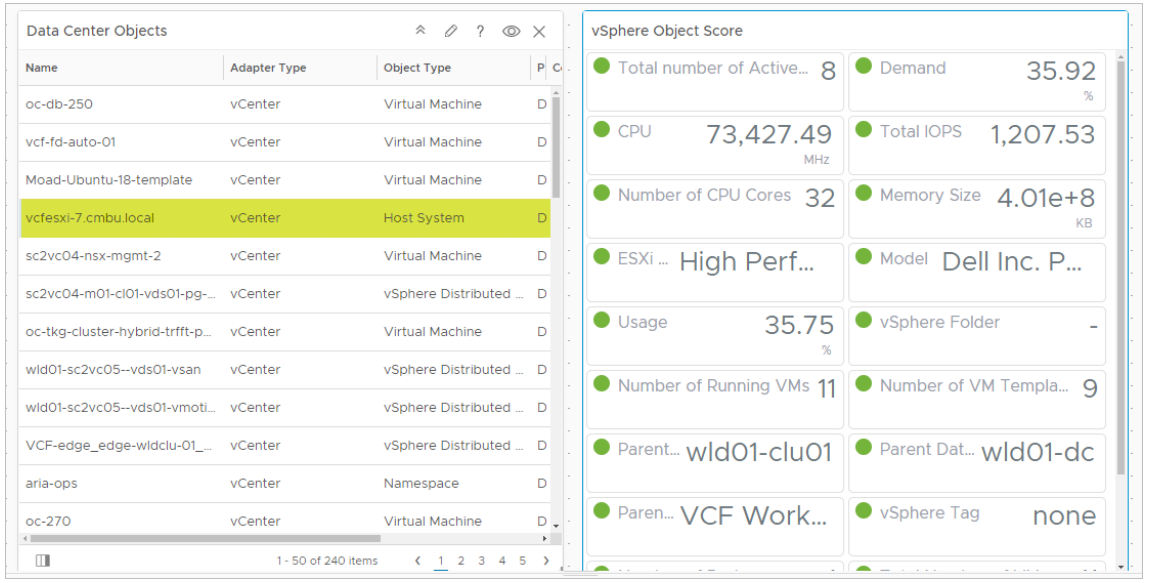
Metric Configuration Files

Metric configuration files can create a custom set of metrics for customizing supported widgets with meaningful data.

Metric configuration files store the metric attribute keys in XML format.

Several widgets support customization using the metric configuration files:

- Scoreboard
- Metric Chart
- Property List
- Rolling View Chart
- Sparkline Chart
- Topology Graph



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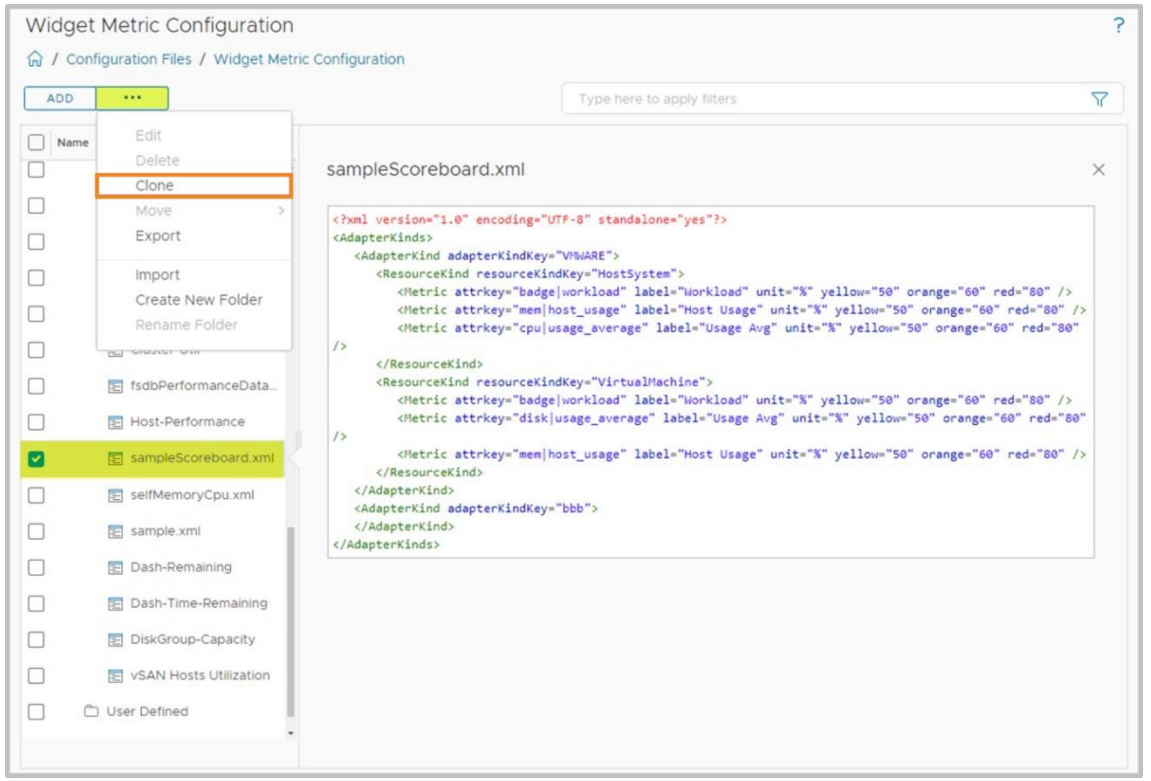
Creating a Metric Configuration File

You create a metric configuration file by using the contents of the sample XML files.

The following example shows how to create the metric configuration file:

1. Open **Infrastructure Operations > Configurations > Widget Metric Configuration**.
2. Expand **System Defined**.
3. Select **sampleScoreboard.xml** and copy its contents.
4. Create a configuration file.
5. Paste the contents of `sampleScoreboard.xml` and edit the required metrics.



Review of Learner Objectives

- Describe the functions of dashboards
- Build a custom dashboard
- Configure widget interactions
- Use metric configuration files

Managing Dashboards

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Learner Objectives

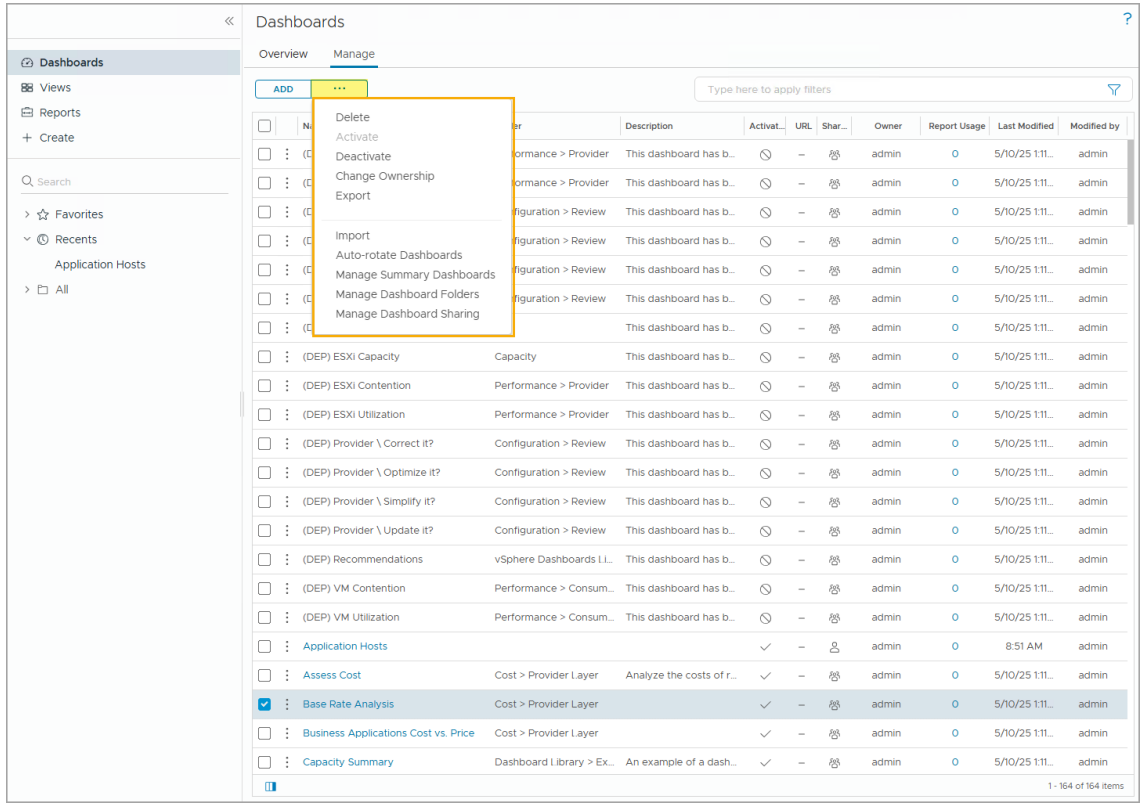
- Configure dashboard sharing options
- Manage dashboards

Dashboard Management Options

To manage dashboards in your VCF Operations console, you must first navigate to **Infrastructure Operations > Dashboards & Reports > Dashboards > Manage** and click the ellipsis icon.

You can access the following dashboard management options:

- **Delete**
- **Activate**
- **Deactivate**
- **Change Ownership**
- **Export**
- **Import**
- **Auto-Rotate Dashboards**
- **Manage Summary Dashboards**
- **Manage Dashboard Folders**
- **Manage Dashboard Sharing**



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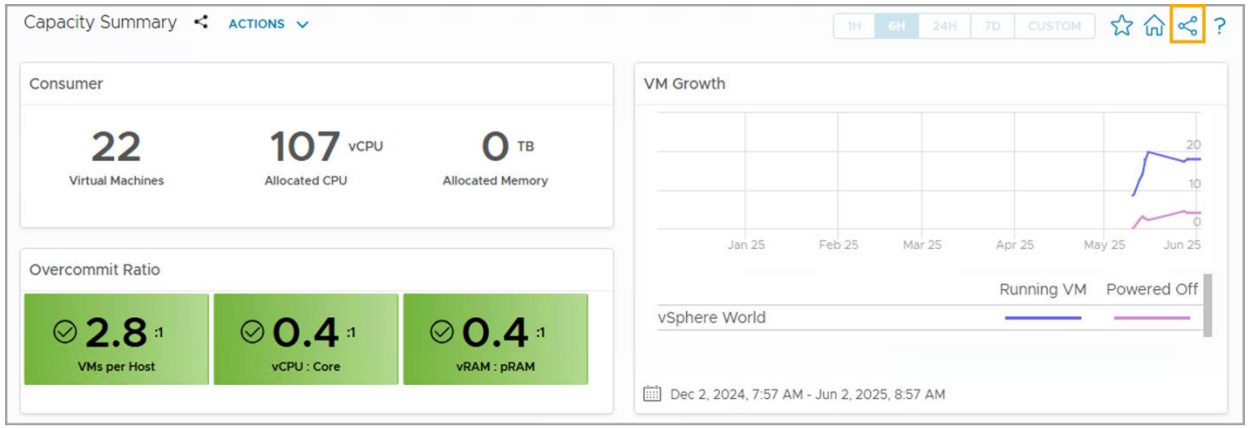
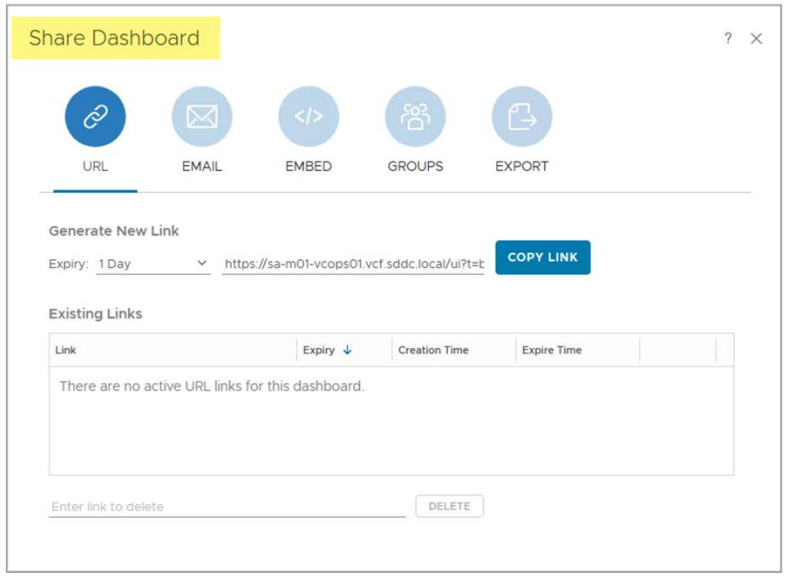
Understanding Dashboard Sharing Options

Both custom and predefined dashboards can be shared with different users from the **Dashboards** page.

Select an existing dashboard and click the **Share Dashboard** icon in the top-right corner.



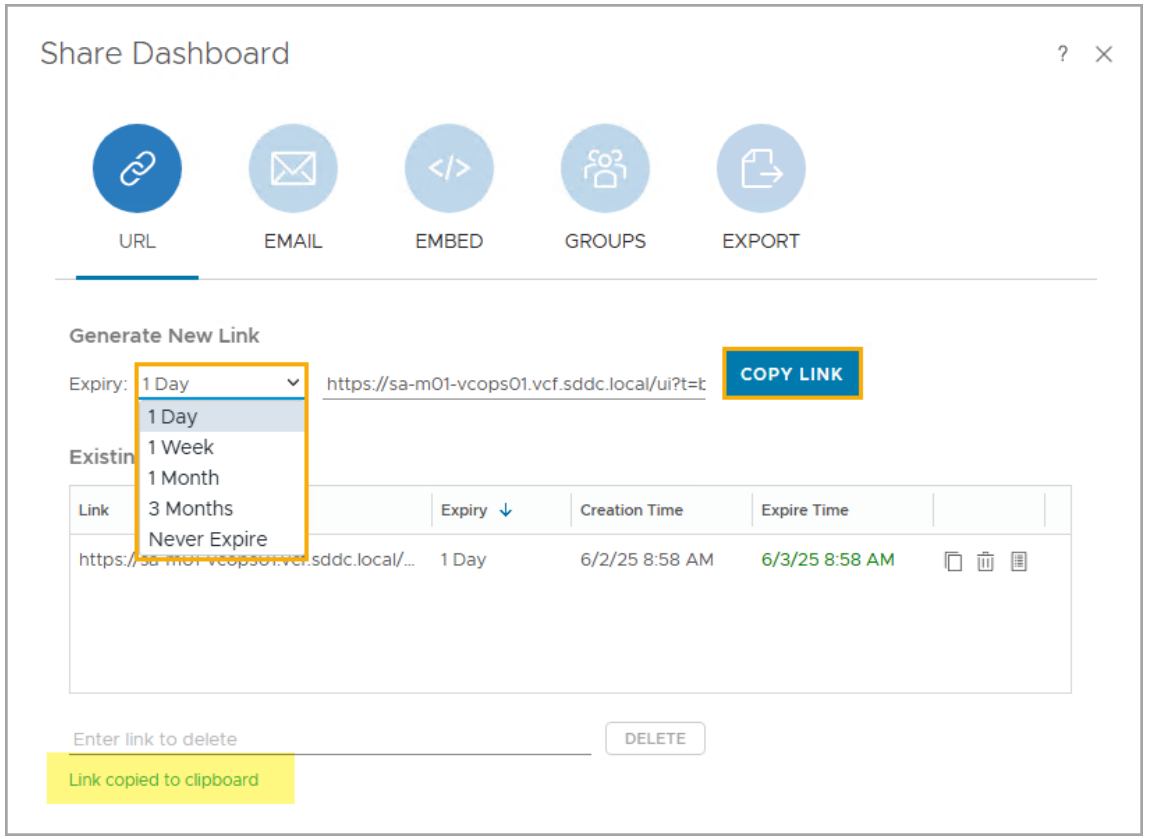


Sharing Dashboards Using URL

You can create a URL for the selected dashboard.

Click **Copy Link** to copy the link to the clipboard.

Link Expiry can be set to 1 Day, 1 Week, 1 Month, 3 Months, or Never Expire.



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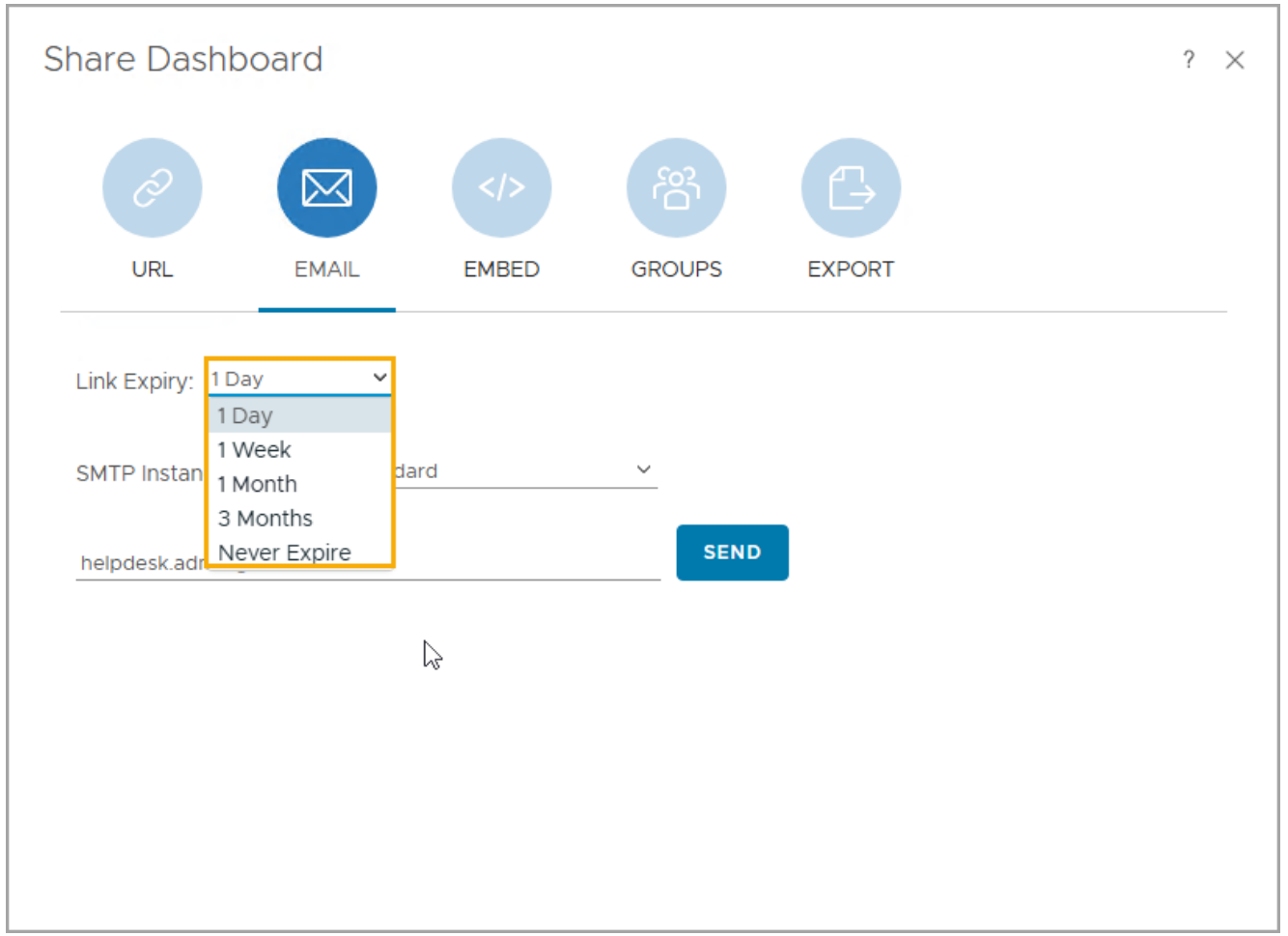
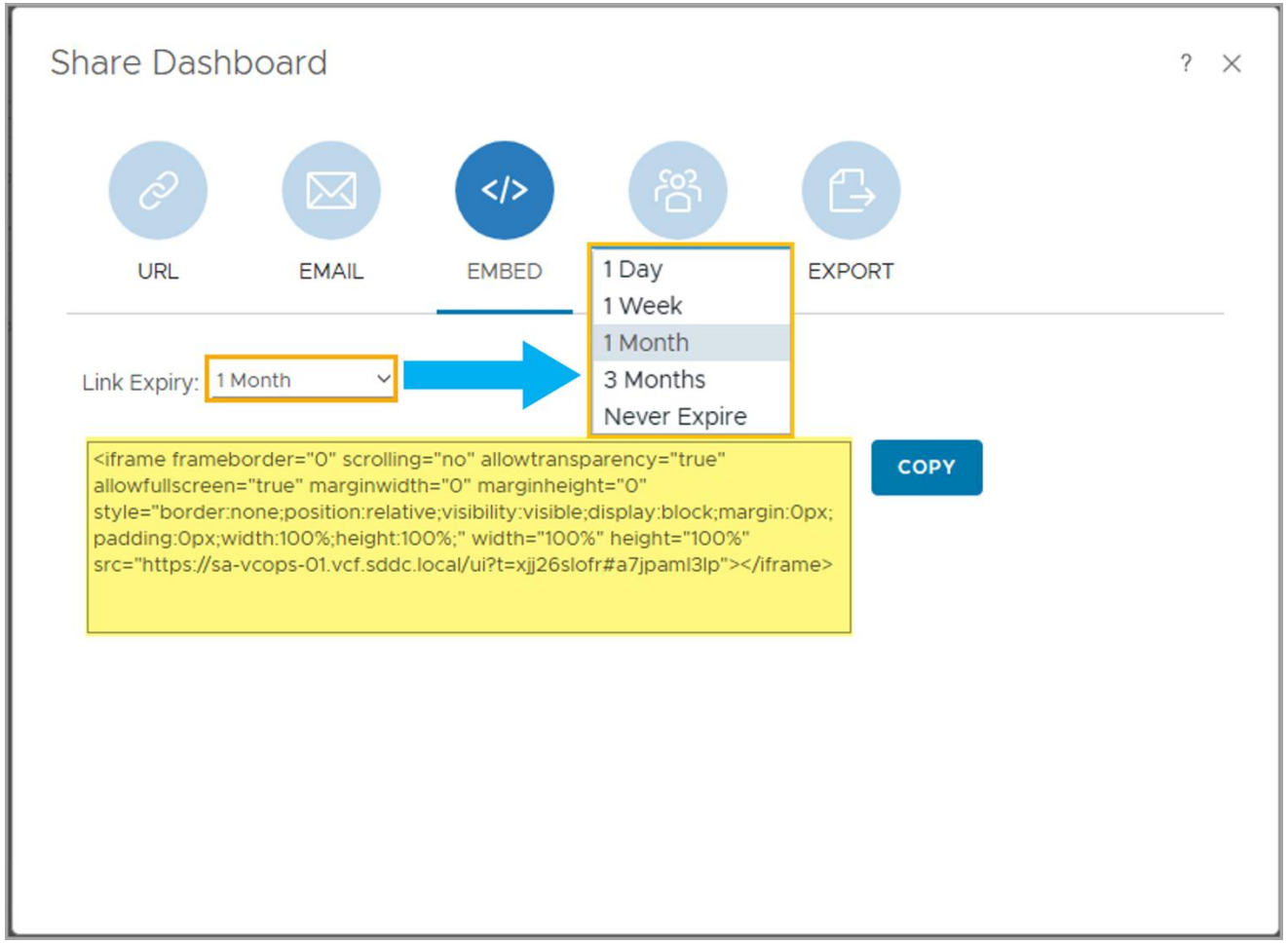
Sharing Dashboards Using Email

Built-in or custom dashboards can be shared through email with different users. Link Expiry can be set to 1 Day, 1 Week, 1 Month, 3 Months, or Never Expire.



Sharing Dashboards Using Embed

Built-in or custom dashboards can be shared with different users by copying the HTML code to another web page. Link Expiry can be set to 1 Day, 1 Week, 1 Month, 3 Months, or Never Expire.

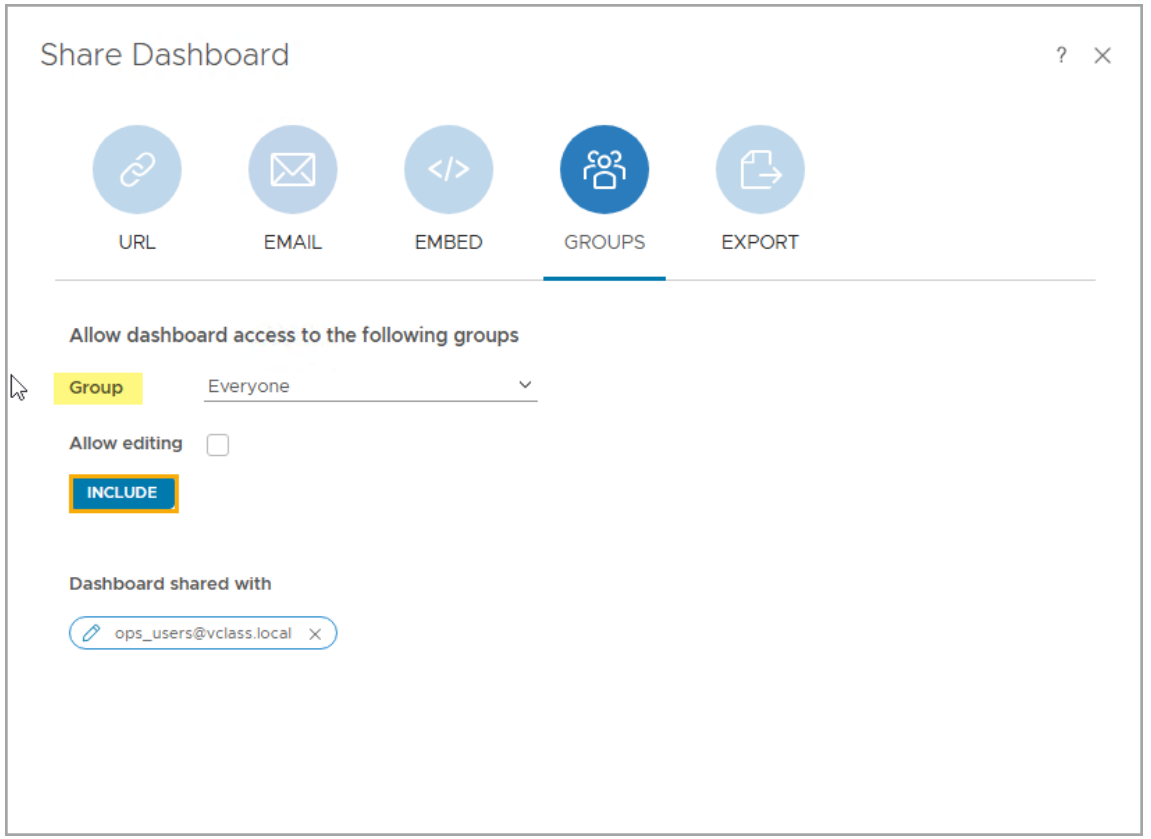


Sharing Dashboards Using Group Sharing

Predefined or custom dashboards can be shared with different authentication groups.

Select the group to which you want to grant dashboard access from the drop-down menu and click **INCLUDE**.

To share dashboard edit privileges with the group, select the **Allow editing** checkbox.

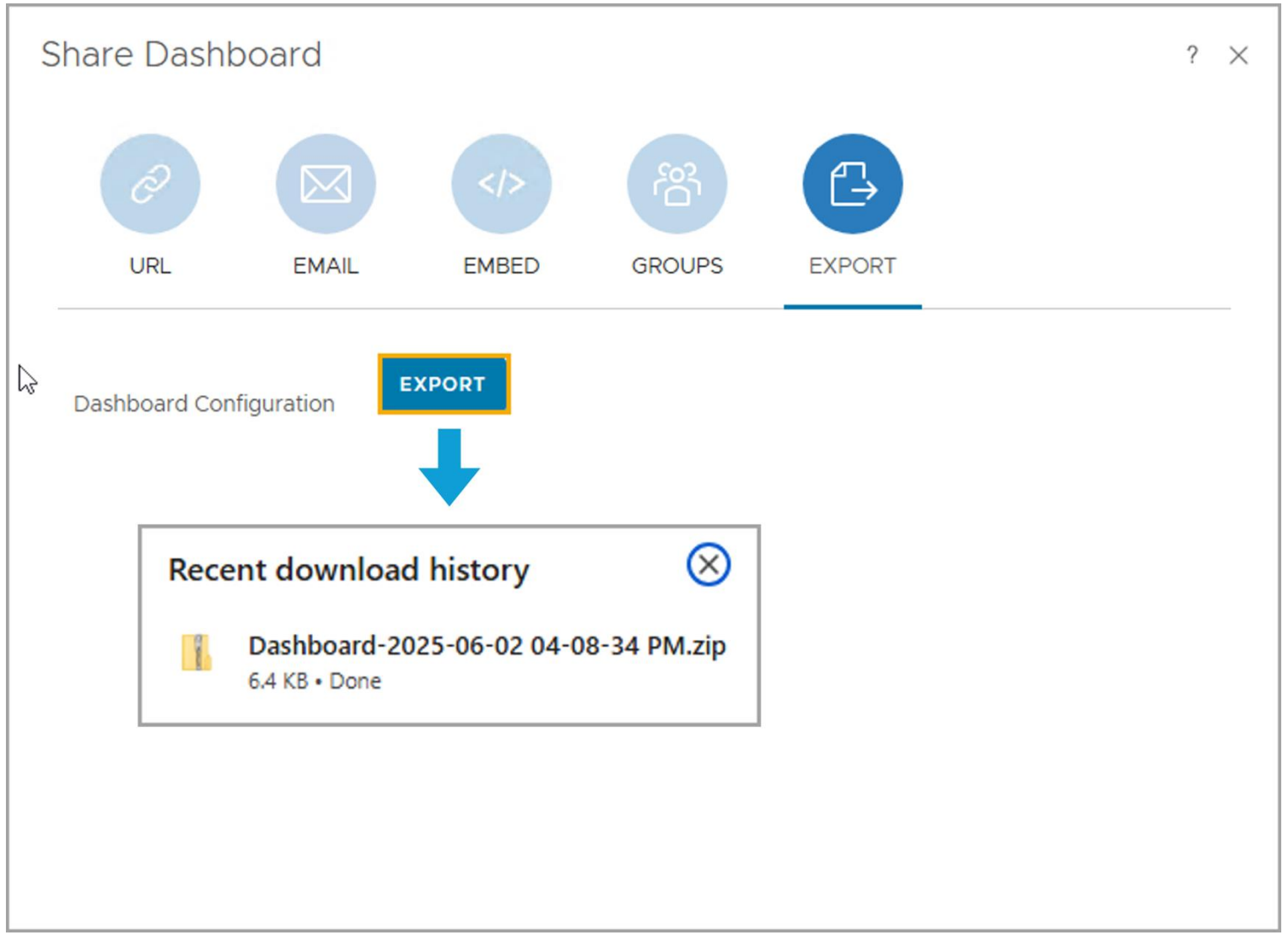


Sharing Dashboards Using Export

Predefined or custom dashboards can be exported to different VCF Operations environments.

Click **EXPORT** to generate a ZIP file containing the dashboard. The ZIP file can be unzipped to an XML file, which can be imported to any other VCF Operations environment.

The Export sharing option can be useful when you need to move complex dashboards between VCF Operations environments, for example, moving a multi-interaction inventory dashboard from your testing environment to your production environment.

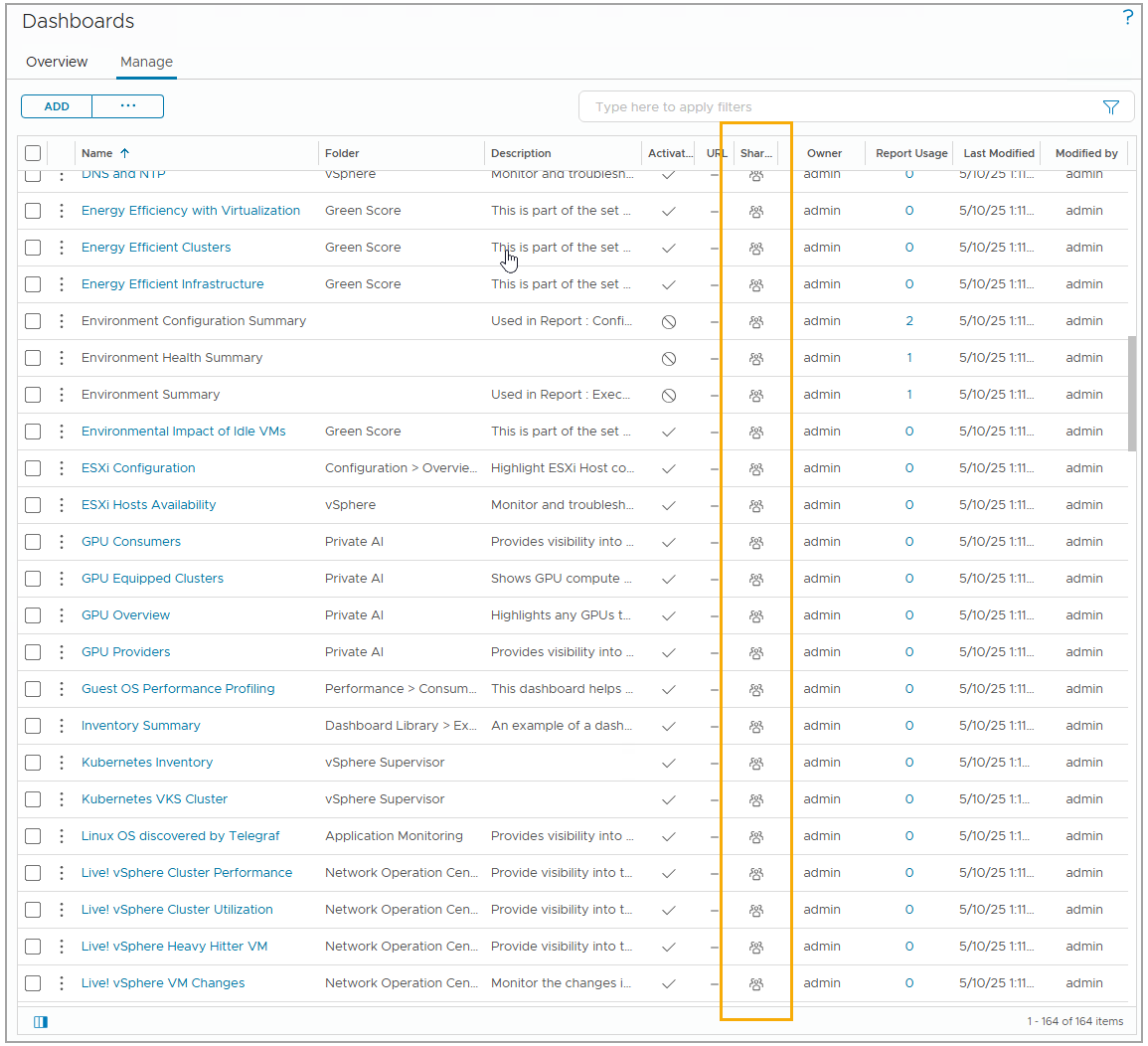


Understanding Dashboard Ownerships

When you share a dashboard, it becomes available to all the users in the user group that you select for sharing.

When a dashboard is shared, only the owner of the dashboard can edit it.

The Shared Dashboards column indicates whether a dashboard is shared or not shared.



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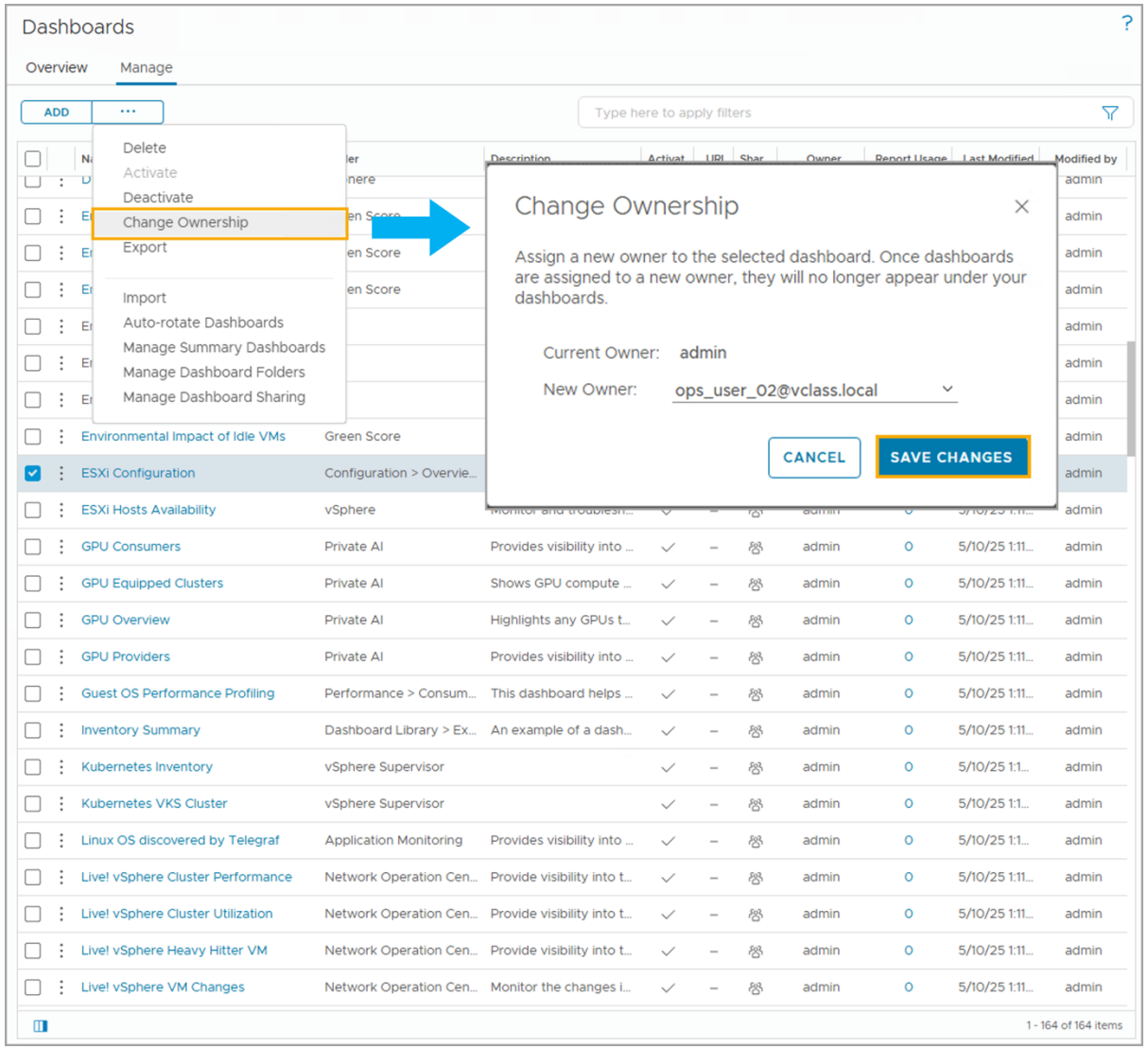
Dashboard Ownership Transfers

Dashboards can be transferred to different users. After the dashboard is transferred, the dashboard disappears from the current owner's login account.

Select the dashboard from the Dashboard list and select **Change Ownership** from the dashboard management menu.



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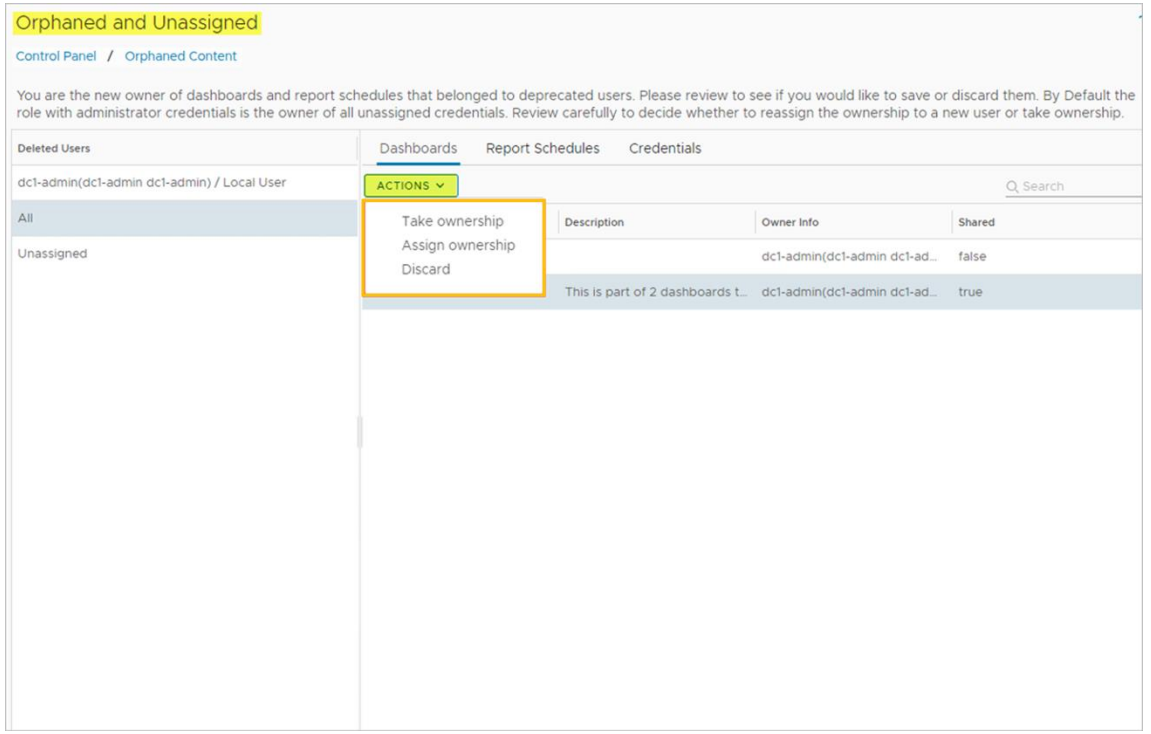
Managing Orphaned and Unassigned Content

When the user who created the dashboards, report schedules, and credentials created are deleted, or when the dashboards, report schedules, and credentials are unassigned, this content becomes Orphaned or Unassigned in VCF Operations.

To access the Orphaned and Unassigned content, navigate to **Administration > Control Panel > Orphaned Content**.

As an admin user, you can take ownership, assign ownership, discard orphaned dashboards, or report schedules and credentials from the **ACTIONS** menu.

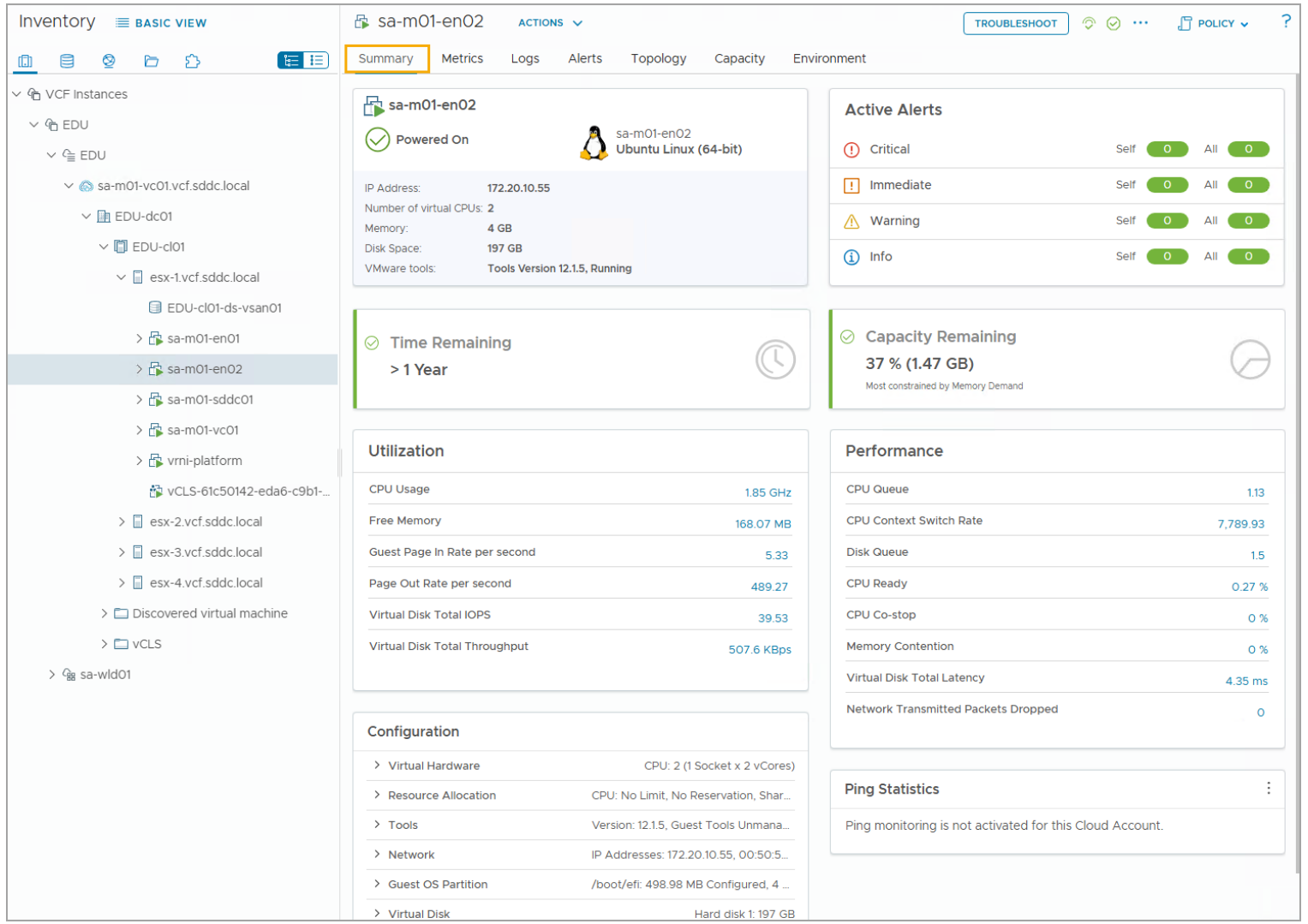


Understanding the Summary Tab

In the VCF Operations console, you can view the summary of an object by navigating to Inventory and selecting the object.

By default, the **Summary** tab provides an overview of the health, risk, and efficiency states of the selected object, group, or application.

You can change the **Summary** tab to a different dashboard to get information specific to your needs.



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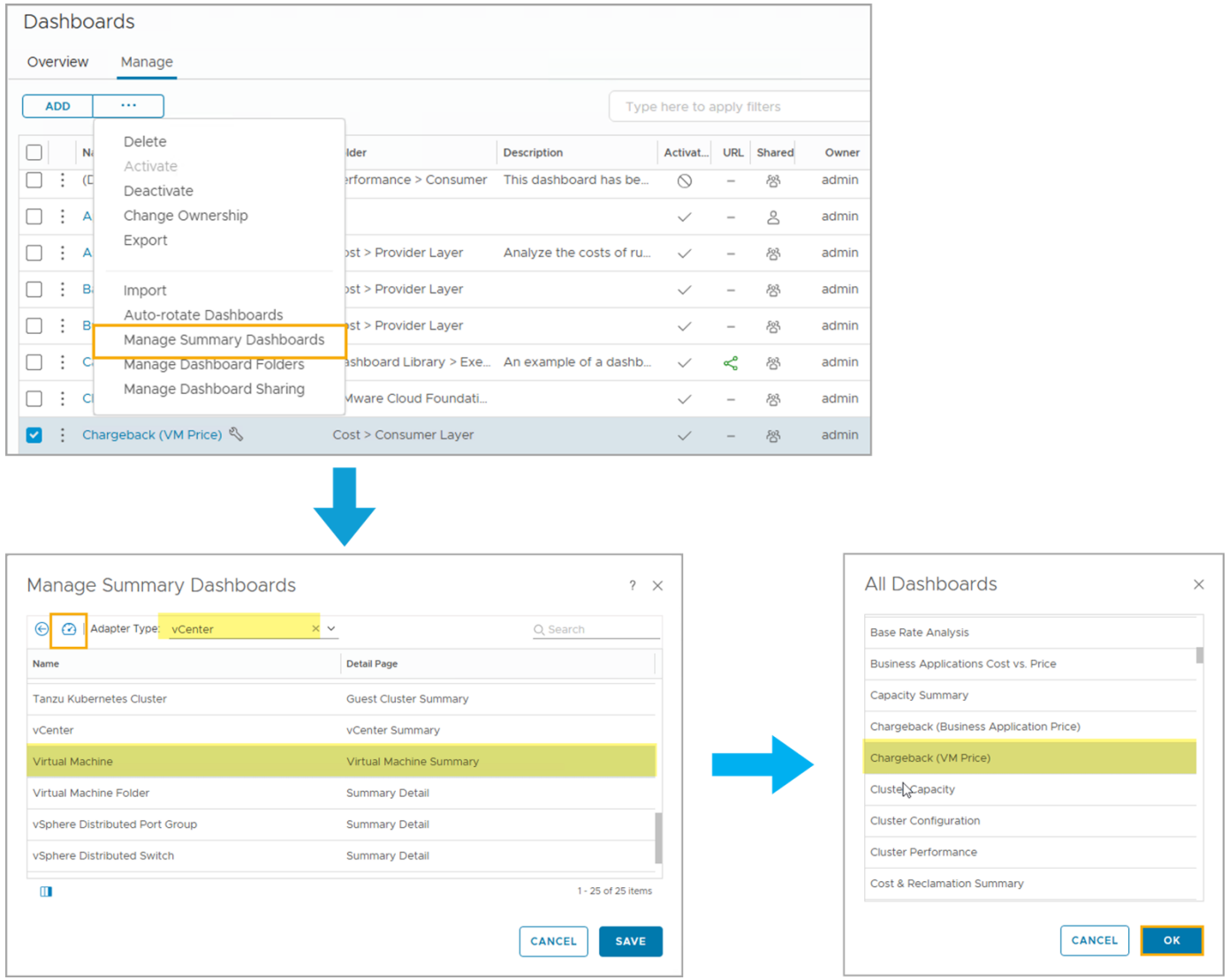
Changing the Summary Tab

In the **Manage Summary Dashboards** dialog box, you can assign a dashboard to the object type selected.

To assign a dashboard to an object type:

1. Select **Manage Summary Dashboards** from the dashboard management menu.
2. Select the adapter type and object and click the **Assign a dashboard** icon.
3. Select a dashboard from the list of dashboards and click **OK**.
4. Click **Save**.



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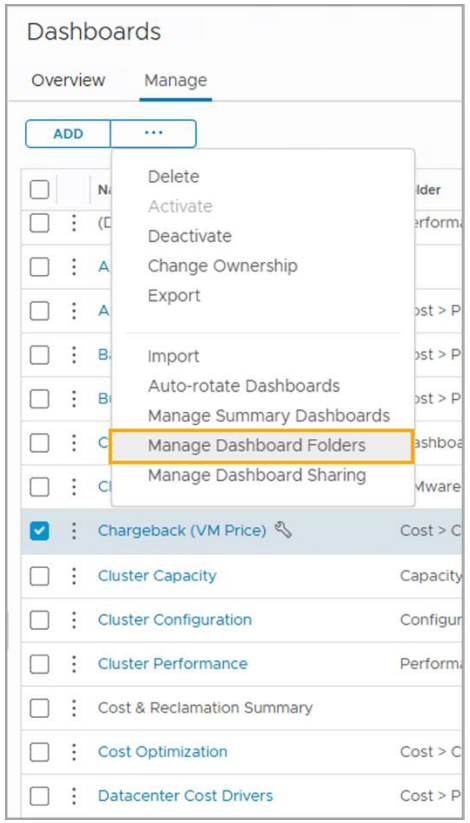
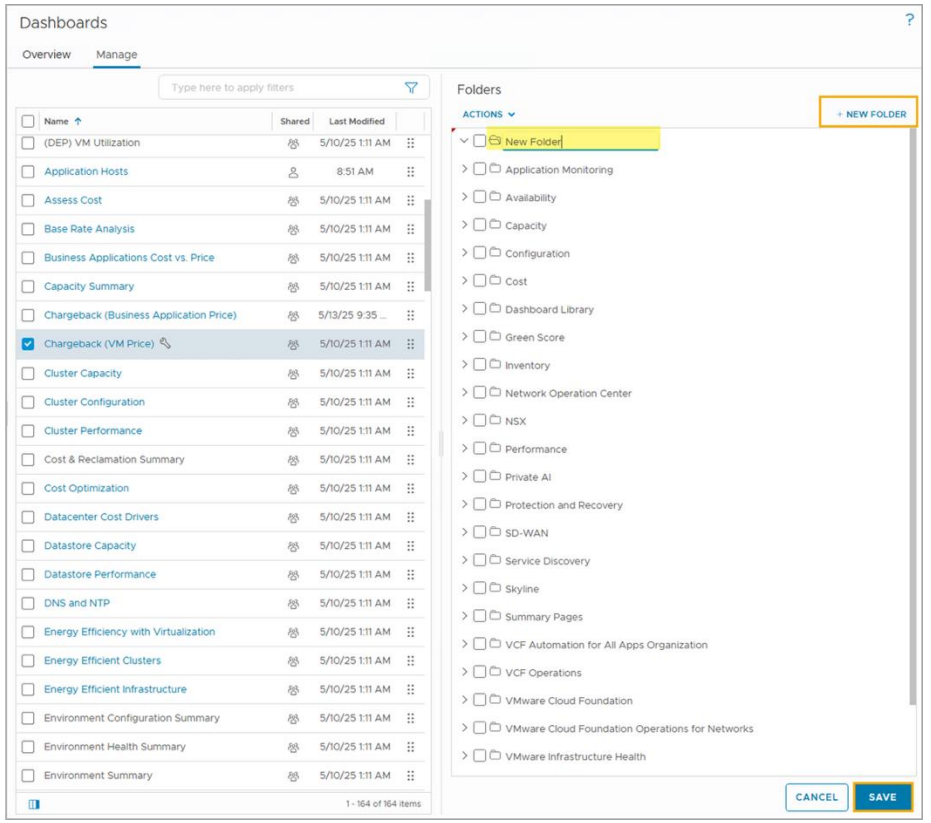
Managing Dashboard Folders

You can create dashboard folders to group the dashboards in a way that is meaningful to you.

To create a dashboard folder, click **NEW FOLDER** in the **Folders** pane and enter the name of the folder.

You can add a dashboard to the folder by dragging the dashboard to the folder.





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Lab: Creating Dashboards and Configuring Widgets

Create a vSphere dashboard and configure widgets:

1. Create the vSphere Metrics Dashboard
2. Add Widgets to the vSphere Metrics Dashboard
3. Configure a Widget Interaction in the vSphere Metrics Dashboard

Review of Learner Objectives

- Configure dashboard sharing options
- Manage dashboards