Metrics, Views, and Reports

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Importance

Views and reports provide perspectives on data collected for health, risk, and capacity trending for the objects and fleet in your environment.

Although inbuilt views and reports are available to track metric data, you can also create your own custom views and reports for monitoring your environment.

You must understand the capabilities of views and reports, and when to use each function to monitor your private cloud deployment.

Module Lessons

1. Introduction to Metrics
2. Creating and Managing Views
3. Viewing and Managing Reports

Introduction to Metrics

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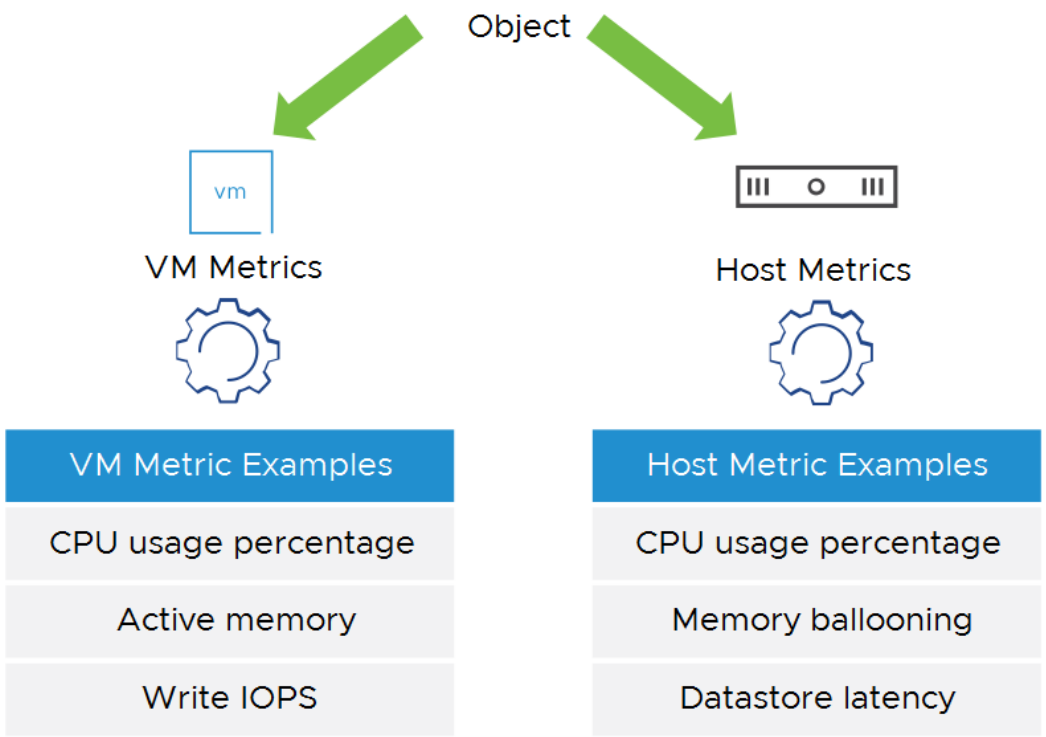
Learner Objectives

- Outline the role of metrics in VCF Operations
- Distinguish between metrics and properties

Understanding Metrics

Metrics are quantitative measurements collected from various objects, such as virtual machine, storage device, and so on. Metrics are usually time-based and numerical. Metrics data can reflect performance and health of the objects, such as CPU utilization, memory usage, network latency, etc.

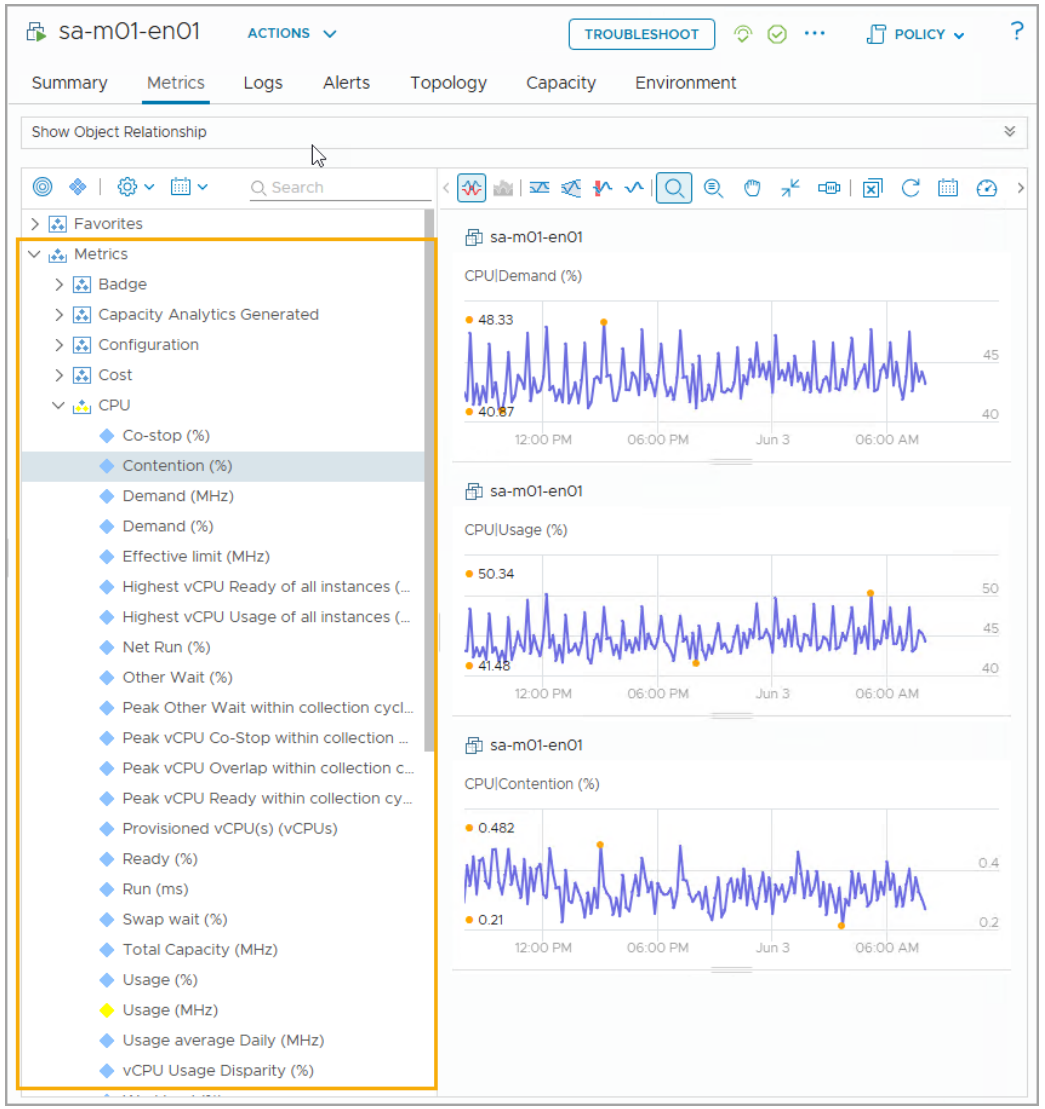
VCF Operations can collect metrics data from such objects in your environment, use the metrics data in analysis, and provide key performance and health insights for environment optimization and troubleshooting.



Understanding Predefined Metrics

VCF and VCF Operations are built to support various types of infrastructure objects powered by VMware and other third-party cloud infrastructure platforms. With this ability, VCF Operations can naturally collect a wide range of metrics from these infrastructure objects. These types of metrics are categorized as predefined metrics.

For example, VCF Operations can collect CPU usage, data store, memory utilization, disk space utilization, and network metrics from a virtual machine for administrators to understand its runtime statistics and performance condition.



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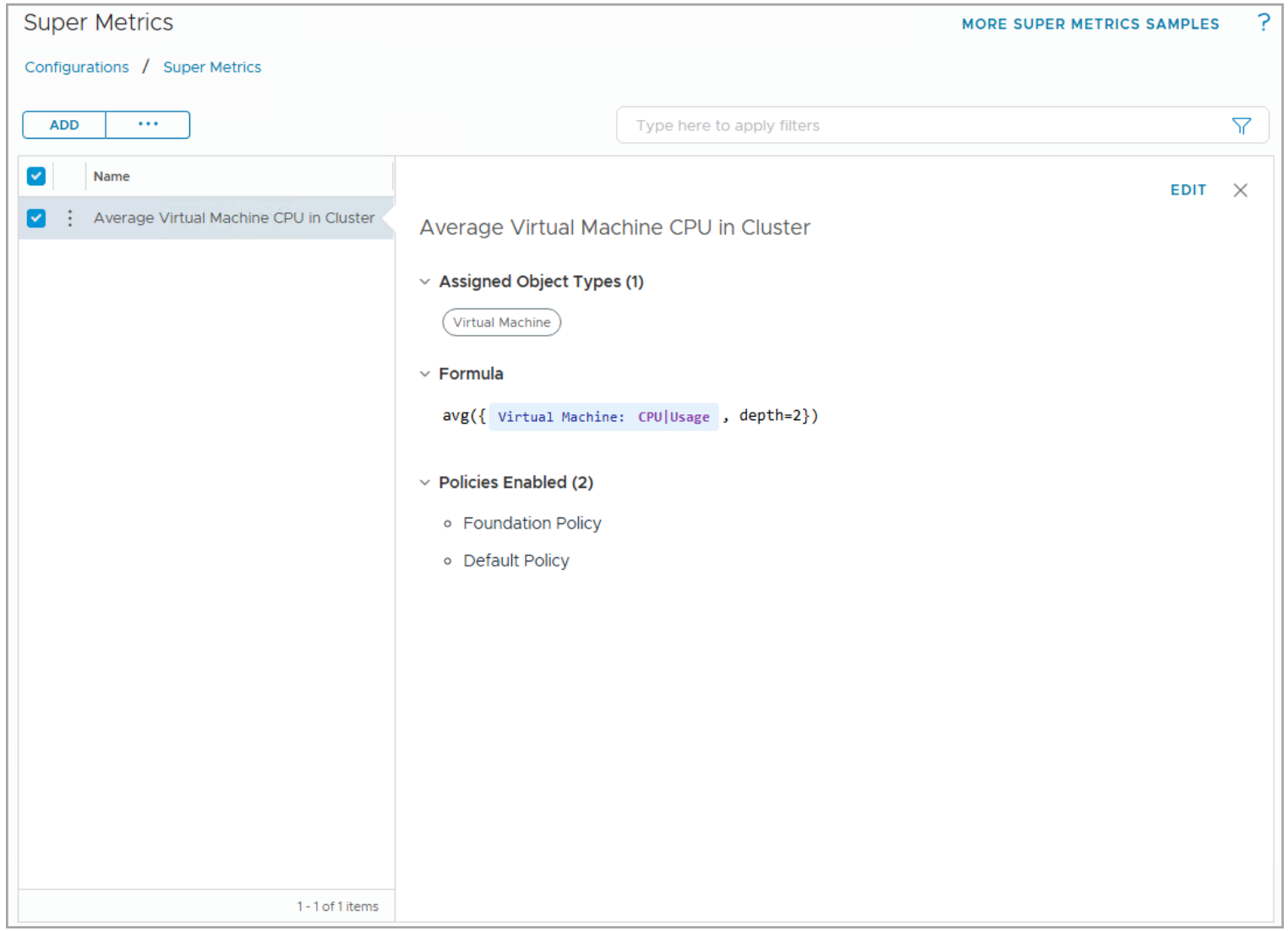
Understanding Super Metrics

A Super Metric in VCF Operations is a custom metric that you can create when you want to check the health of your environment but cannot find a suitable metric to perform the analysis.

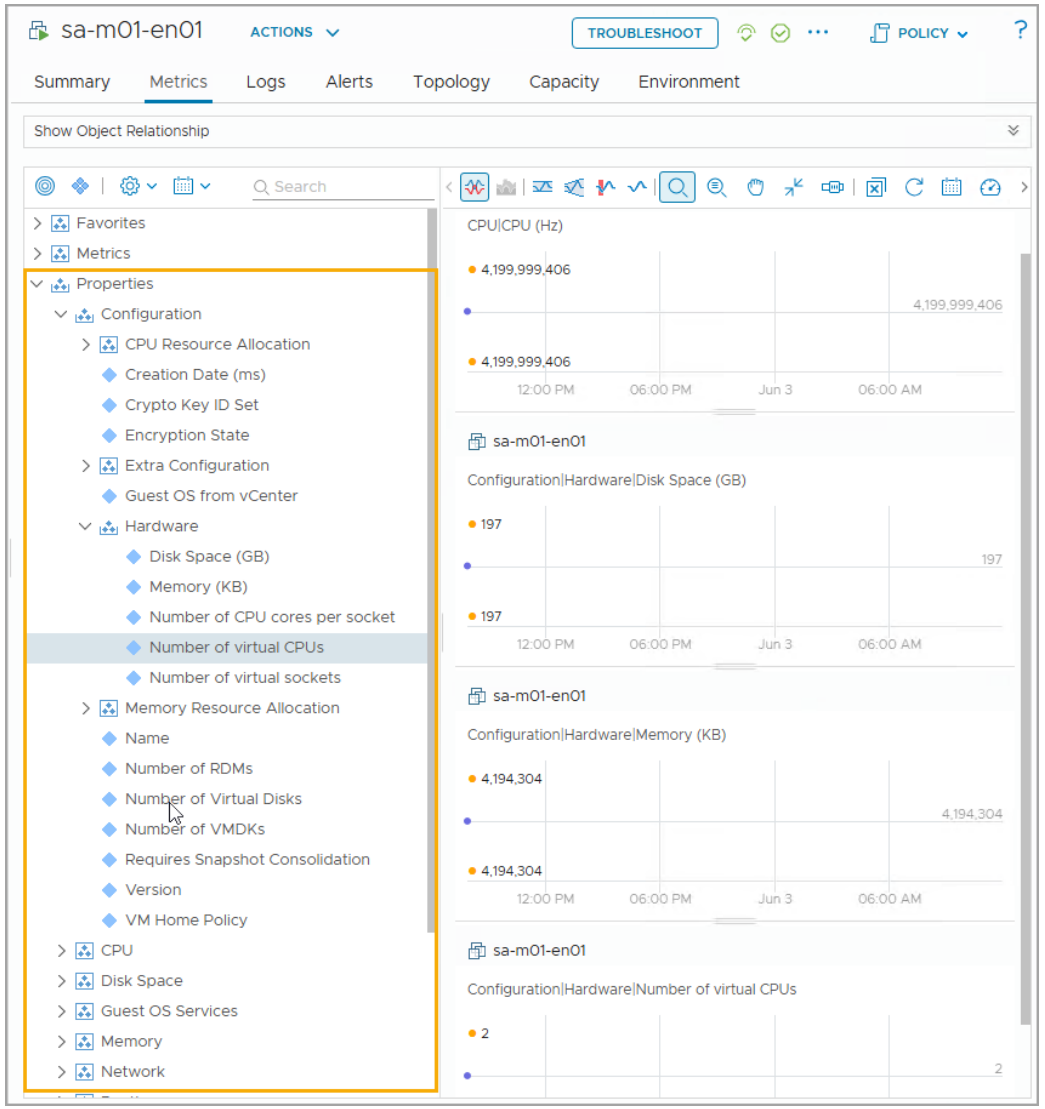
In a super metric, you can include multiple metrics and formula expressions to calculate the desired metric. For example, you can create a super metric to calculate the average virtual machine CPU utilization across an entire cluster.



Understanding Property

Properties are attributes or characteristics collected from various objects. Properties are descriptive and non-time-based, and property values usually do not change frequently. Examples of properties include VM names, number of CPU cores per socket, number of virtual disks, etc. Properties data are often useful for planning system setups, grouping, and other high-level decision making.

VCF Operations can collect properties data from objects in your environment. Administrators can use the properties data to understand configuration and state of resources.



Review of Learner Objectives

- Outline the role of metrics in VCF Operations
- Distinguish between metrics and properties

Creating and Managing Views

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Learner Objectives

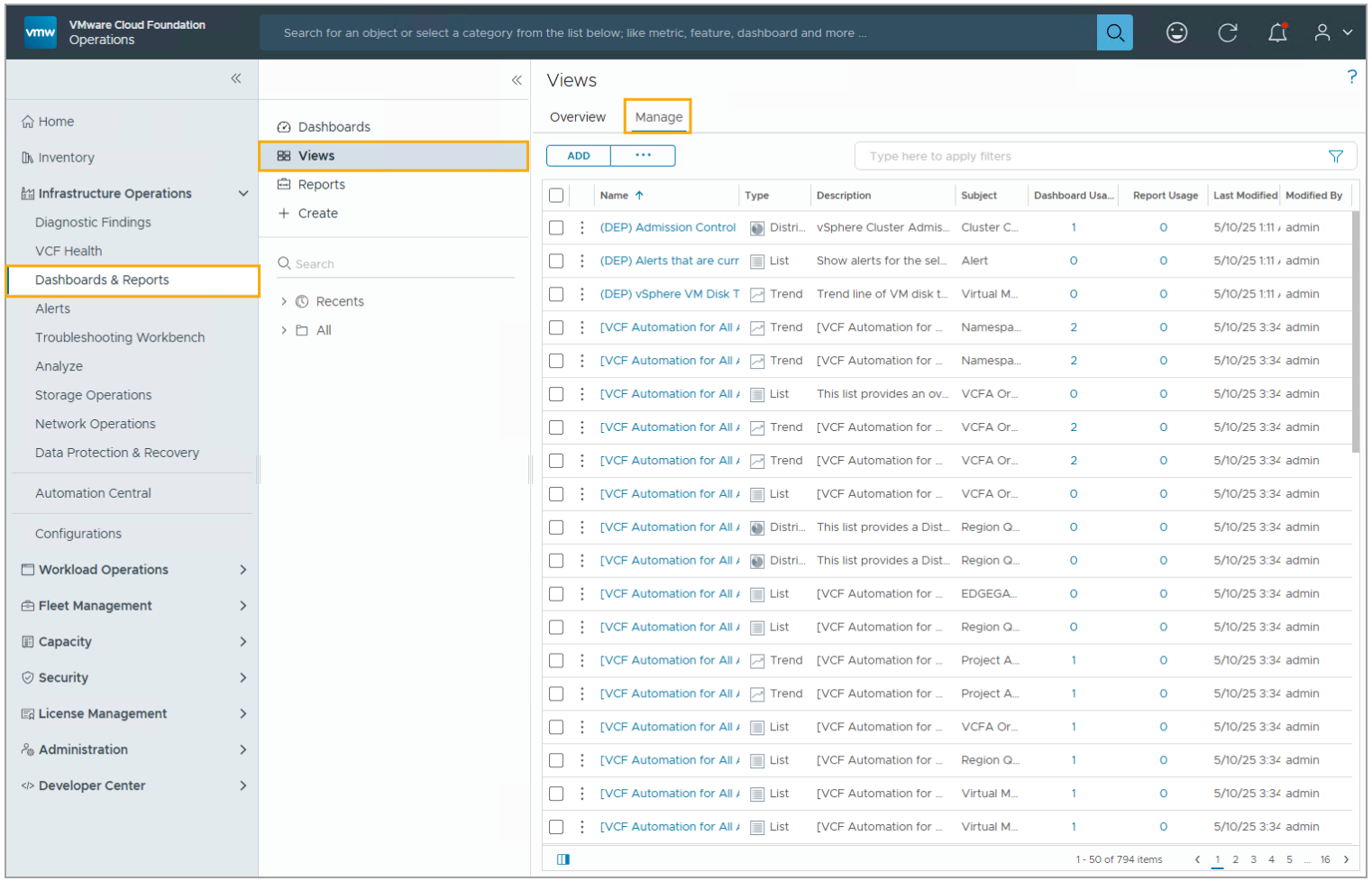
- Outline the role of views in VCF Operations
- Create a basic custom view and configure view settings

Understanding Views

A View in the VCF Operations console can display metrics collected from the environment. Views are also reusable building blocks for building dashboards and reports.

You can display and manage views by clicking **Infrastructure Operations > Dashboards & Reports > Views**.

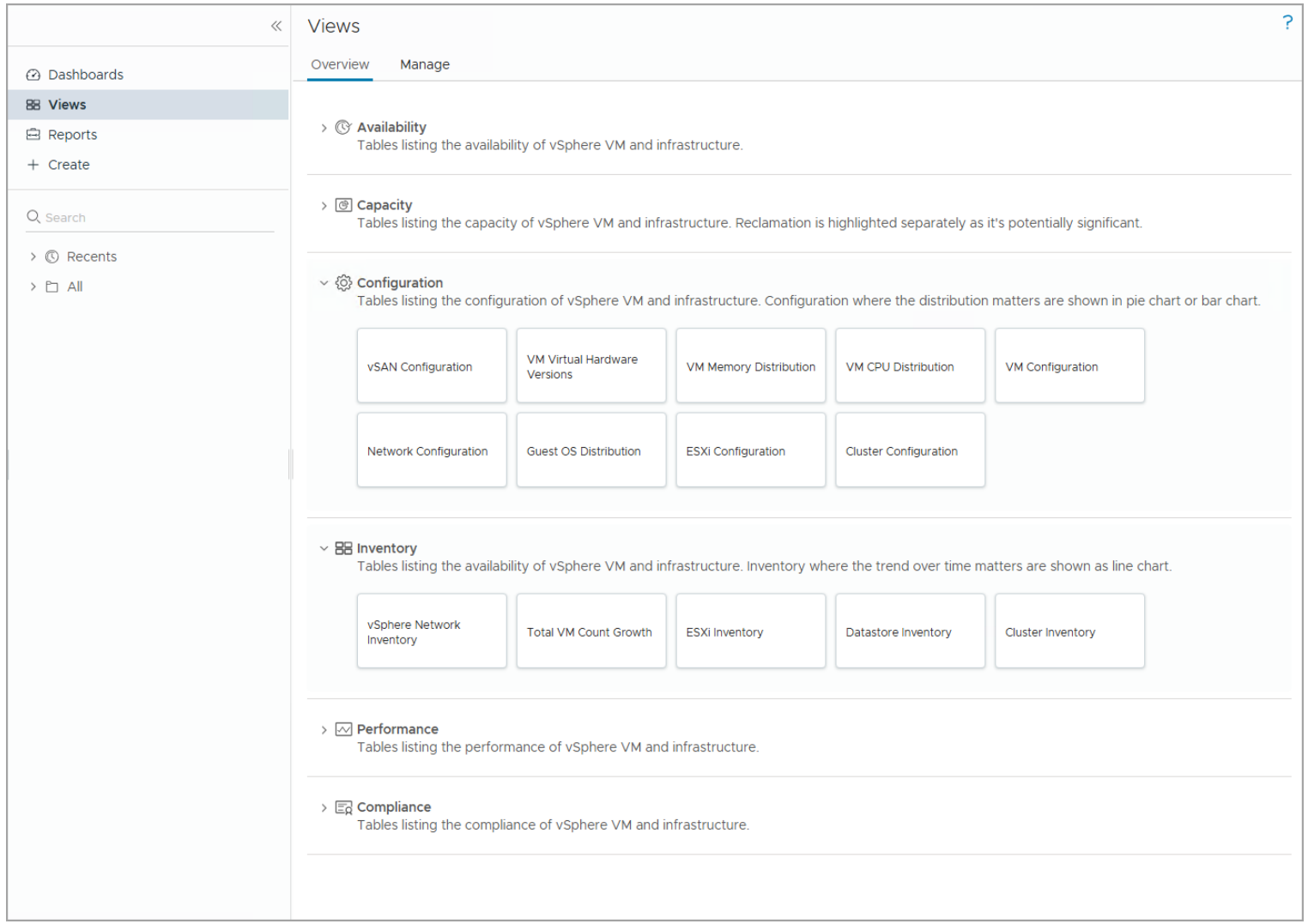
In the **Views** pane, click **Manage** to see all the views currently available.



Predefined Views

Predefined views are available in VCF Operations. Each view is based on a subject.

A view presents collected information for VCF and other objects in your environment in a certain way depending on the view type.

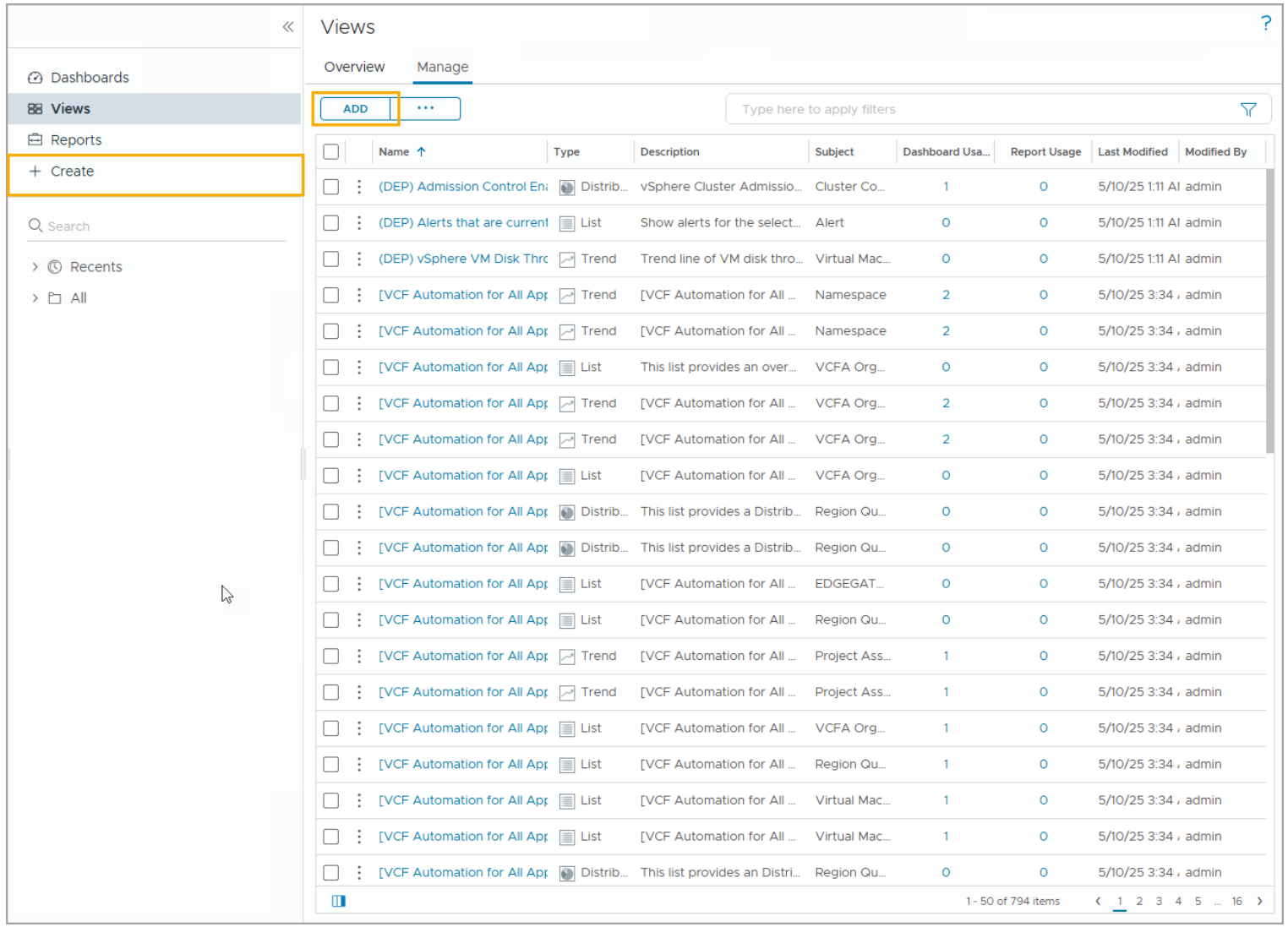


Creating a Custom View

You can create a custom view to collect and display information for a specific object. To add a new view, click the **ADD** button or click **+ Create**.

You need to complete the following tasks when creating a custom view:

1. Specify the view type.
2. Configure subjects and metrics.
3. Configure the time settings.
4. Add any data filter.

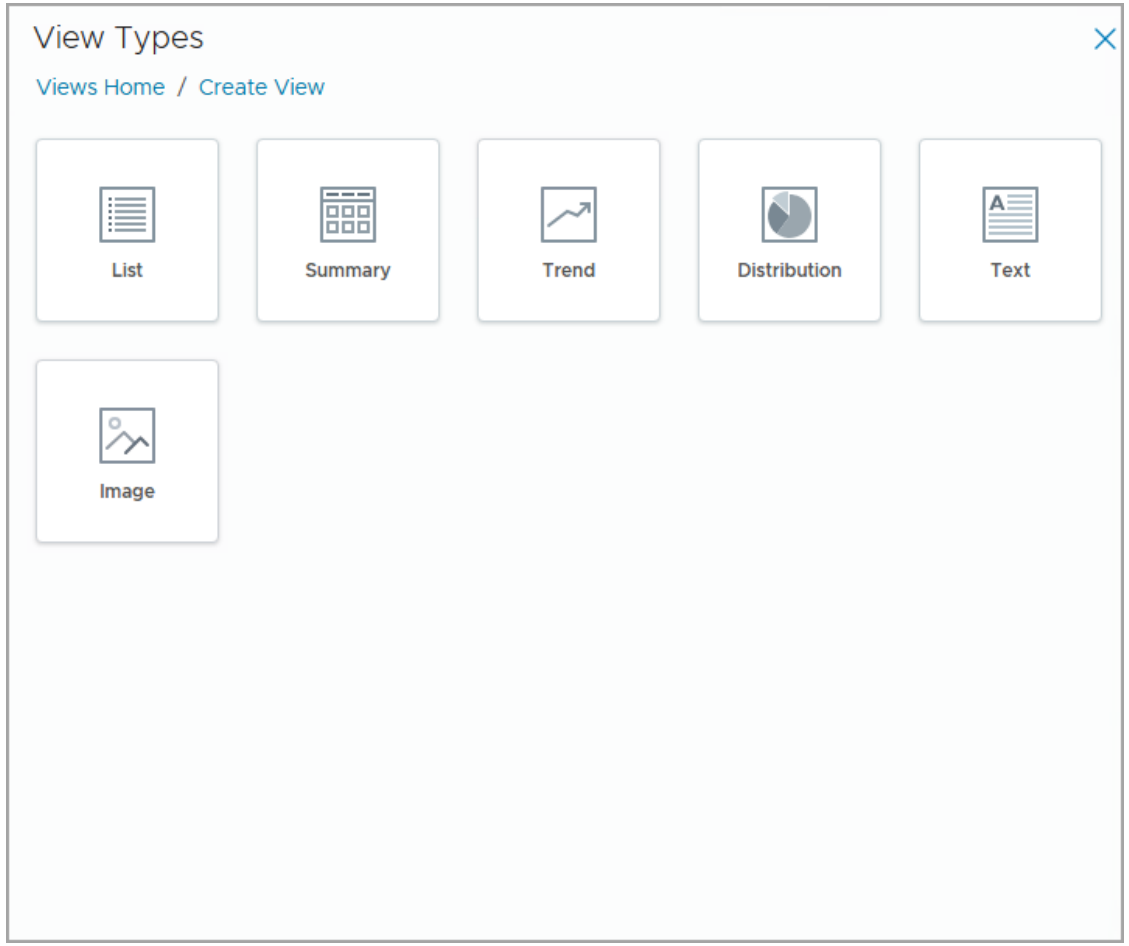


Understanding View Types

When you create a view, you first need to choose a view type. Each type of view helps you to interpret metrics and properties in a different way.

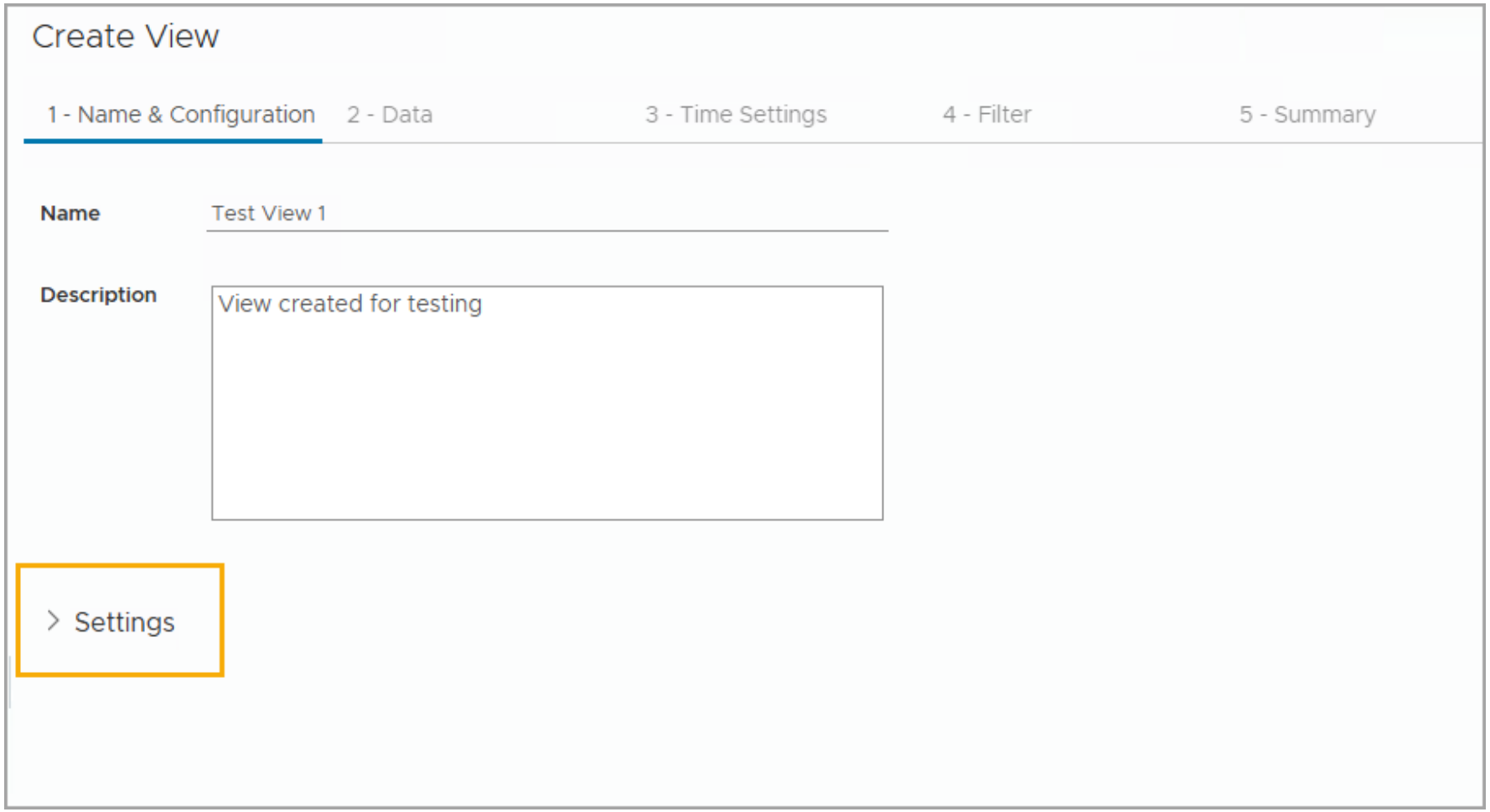
The following view types are available to choose from:

- **List** views: Provide tabular data about specific objects
- **Summary** views: Provide tabular data about the use of resources
- **Trend** views: Use historic data to generate trends and forecasts for resource use and availability
- **Distribution** views: Provide aggregated data about resource distribution
- **Text** views: Allow you to insert provided text
- **Image** views: Allow you to insert a static image



Specifying the View Name and Configuration

You must specify the name and description of the view as they appear in the list of views on the **Views** page. Click **Settings** to configure visibility for the view.

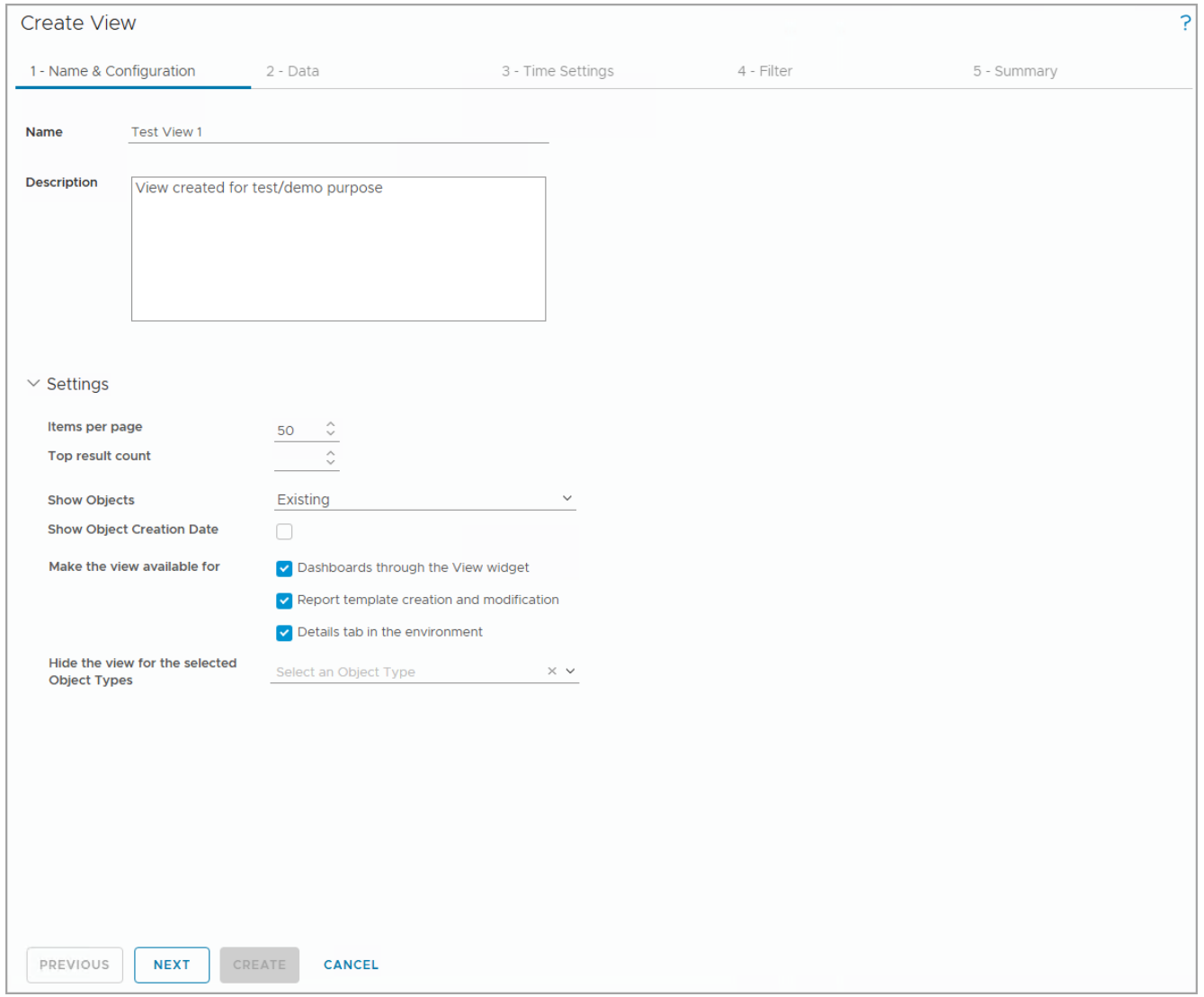


Configuring View Visibility Settings

In View Visibility Settings, you can specify where the view appears and where it can be reused, such as when creating Dashboards and Reports.

You can customize result display, such as items per page, maximum plot lines, etc. This setting varies based on different view types.

You can also specify object types in which the view is not available.

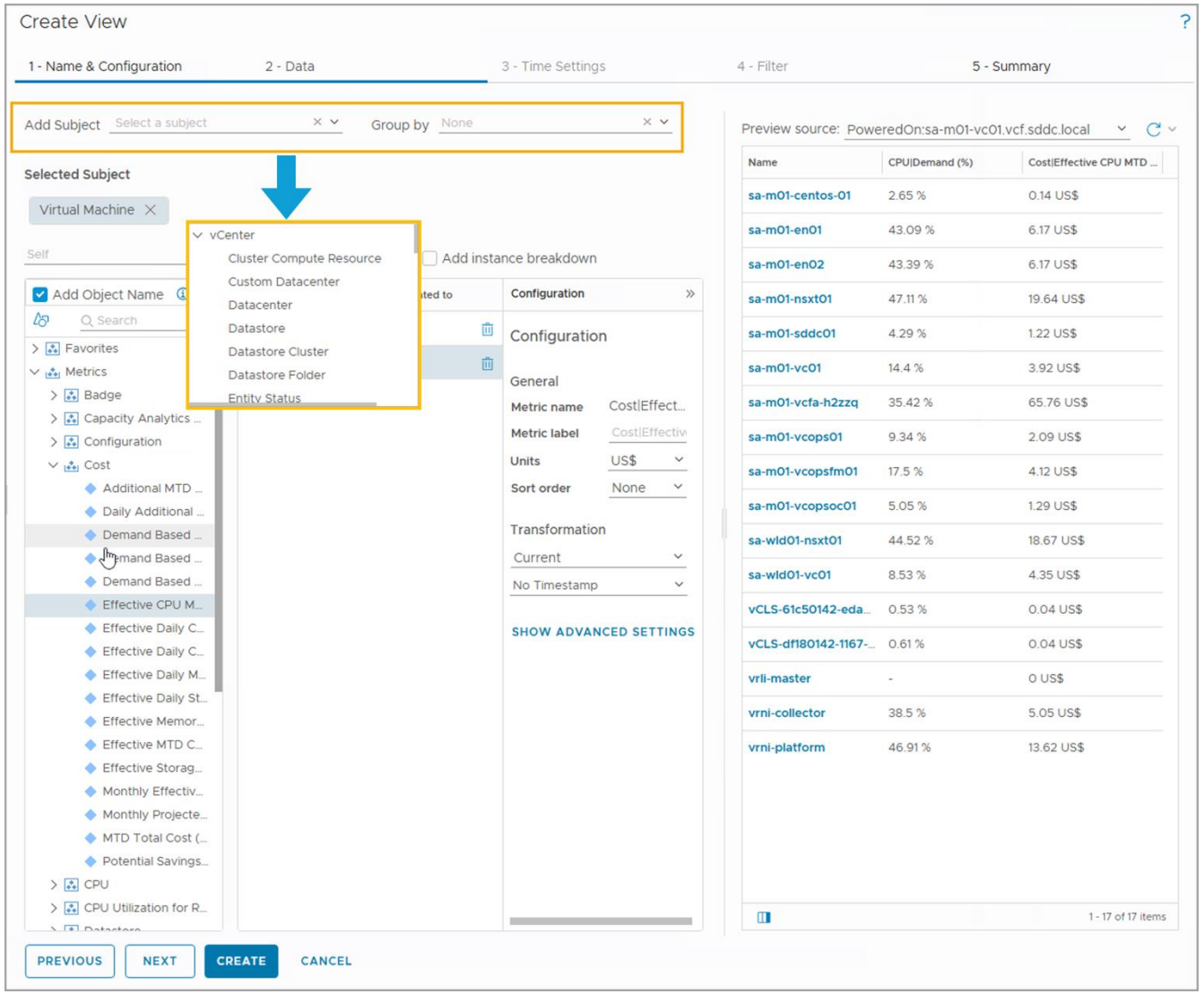


Adding Data Subject

When creating a view, you need to specify the data subjects for this view. A subject is the base object type for which the view shows information.

You can use the **Add Subject** drop-down menu to select the desired data subjects. Or you can enter keywords in the **Add Subject** field and select the desired data subjects from the search result list.

The subject that you specify determines where the view is applicable. If you select more than one subject, the view is applicable for each subject.



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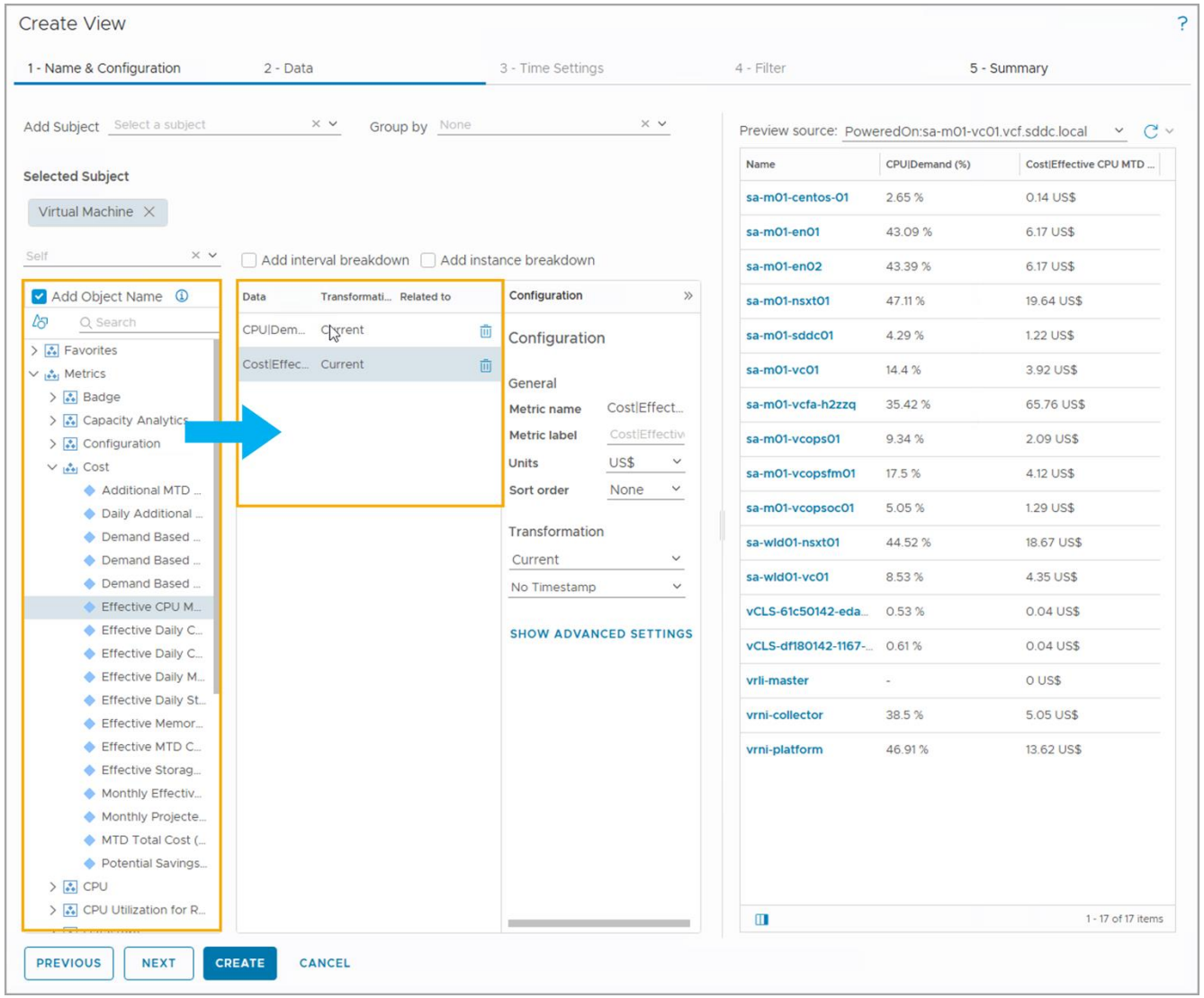
Selecting Data Subjects

After you select the data subjects, you need to define the data that VCF Operations collects, calculates, and presents in the view.

When defining data, you can include:

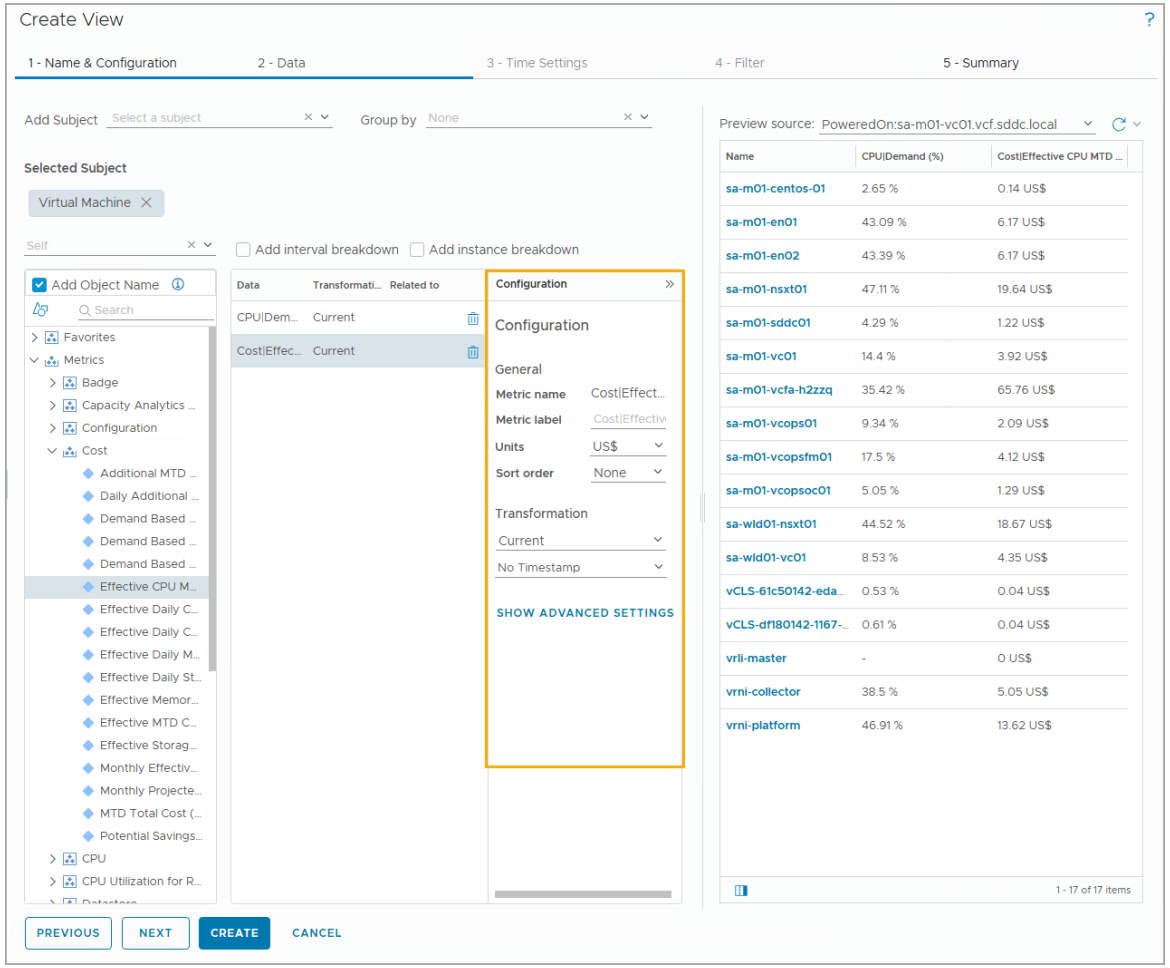
- Properties
- Metrics
- Policies
- Adapter-provided data

To add any data, you need to drag the data from the available data list into the view data area.



Configuring Data Metrics

For each metric that you drag to the data area, you can configure the general information, transformation type, and advanced settings.



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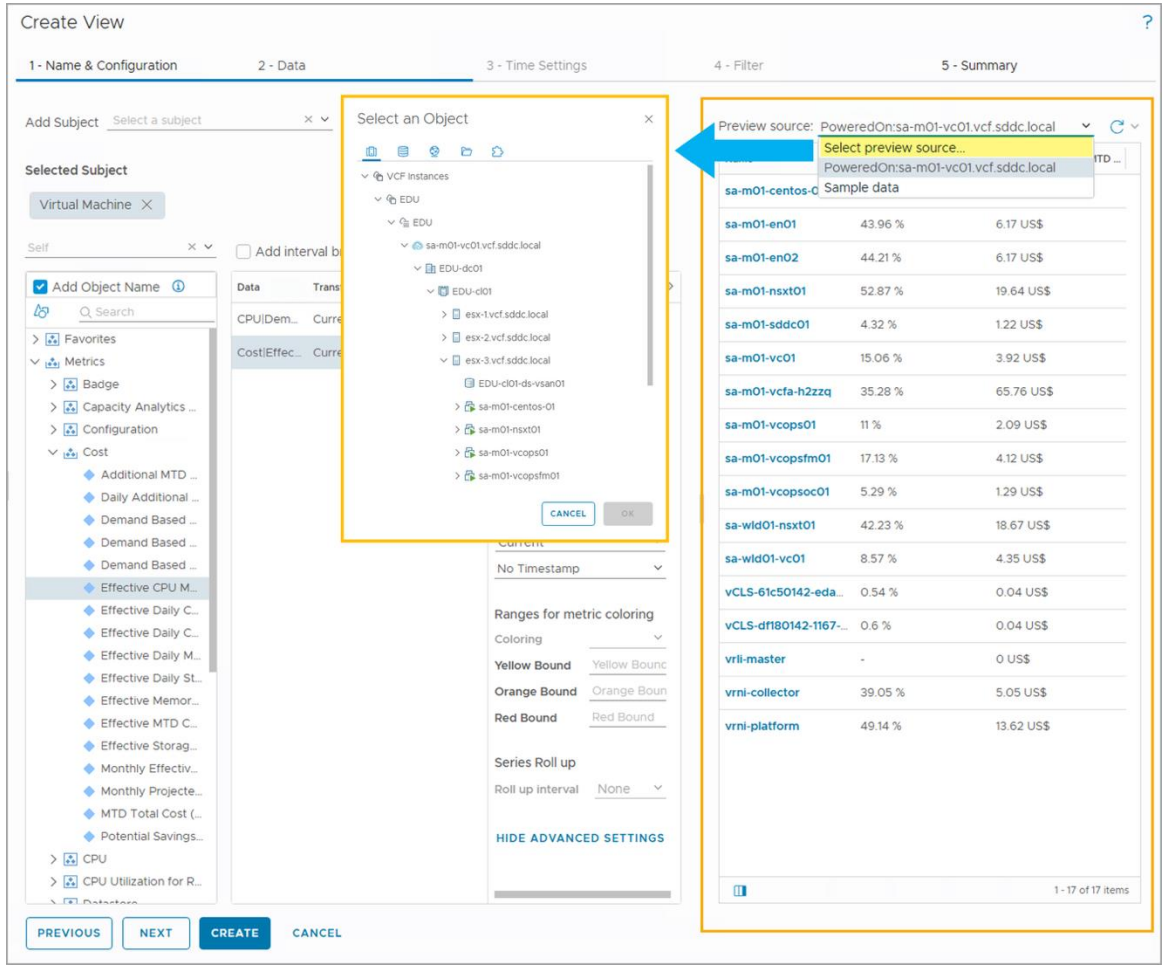
Previewing a View

You can preview a view with sample data or live data. To preview the view with live data, you select the subject or a container in which the subject exists.



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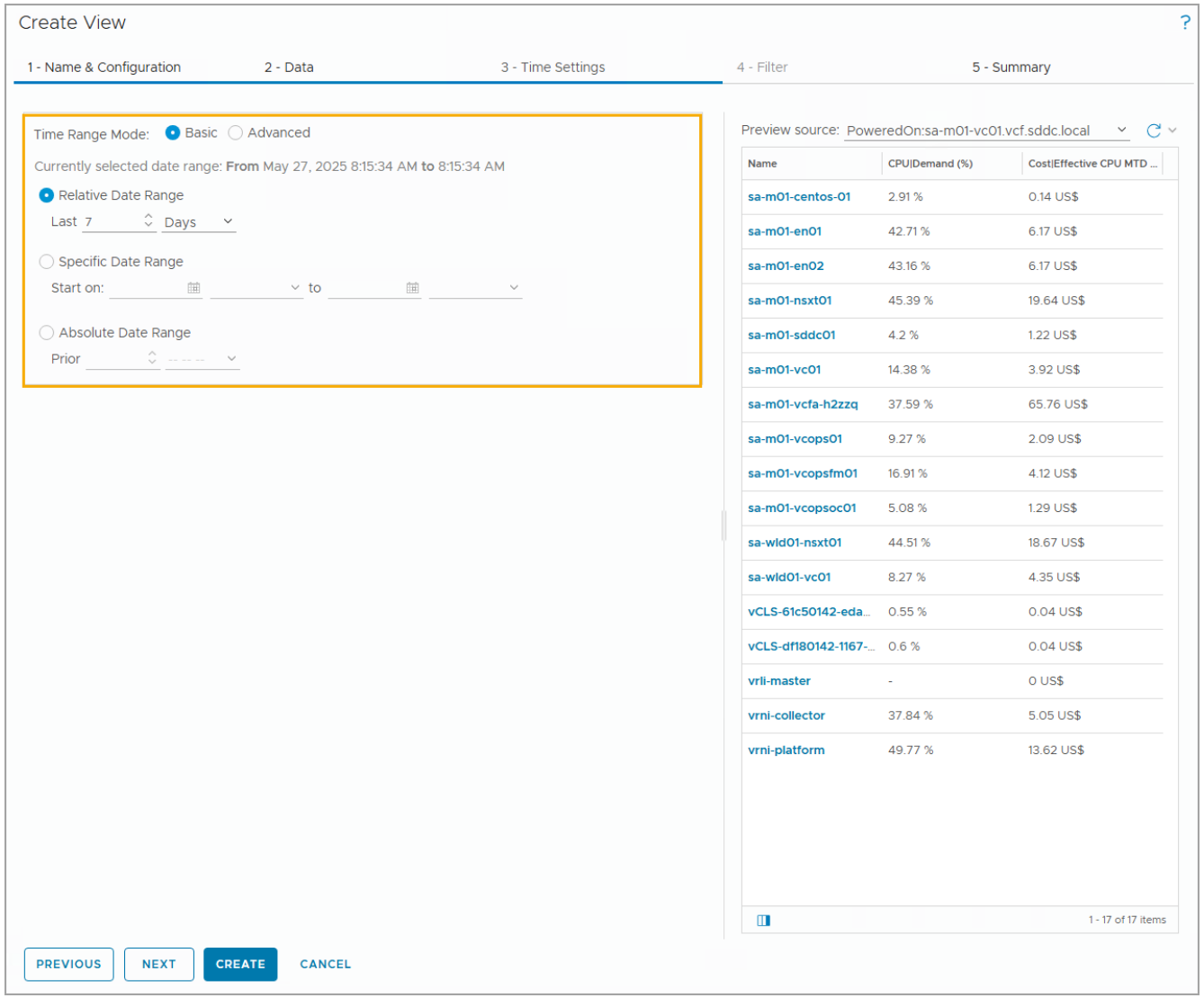
Configuring Basic Time Settings

Use the time settings to select the time interval of data transformation. These options are available for all view types, except Image.

In Basic mode, you can select date ranges. You can set a time range for a past period or set a future date for the end of the time period.

When you select a future end date and no data is available, the view is populated by forecast data. Data is collected based on the browser time.



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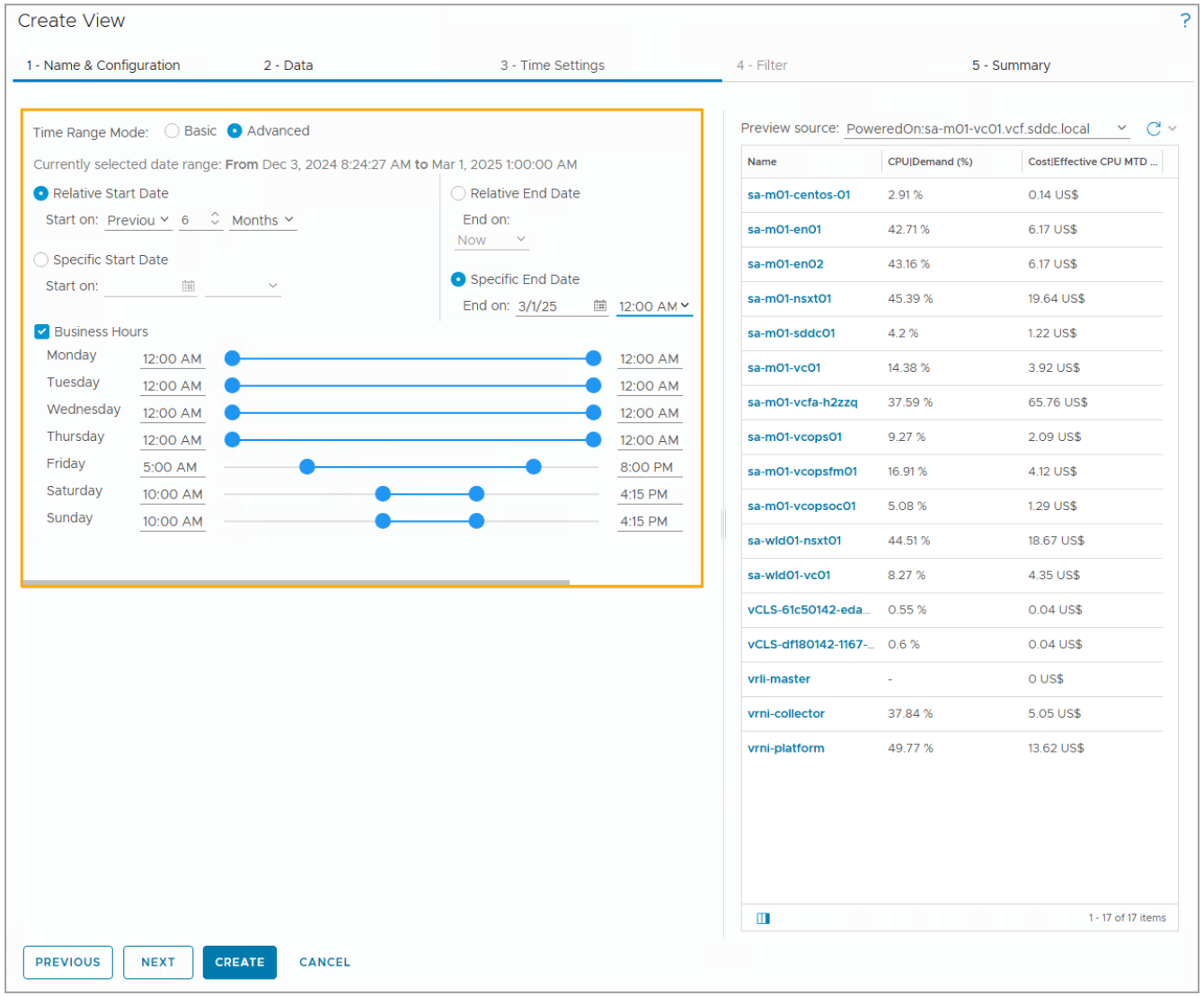
Configuring Advanced Time Settings

In Advanced mode, you can select any combination of relative or specific start and end dates.

To preview the view with live data, you select the subject or a container in which the subject exists.



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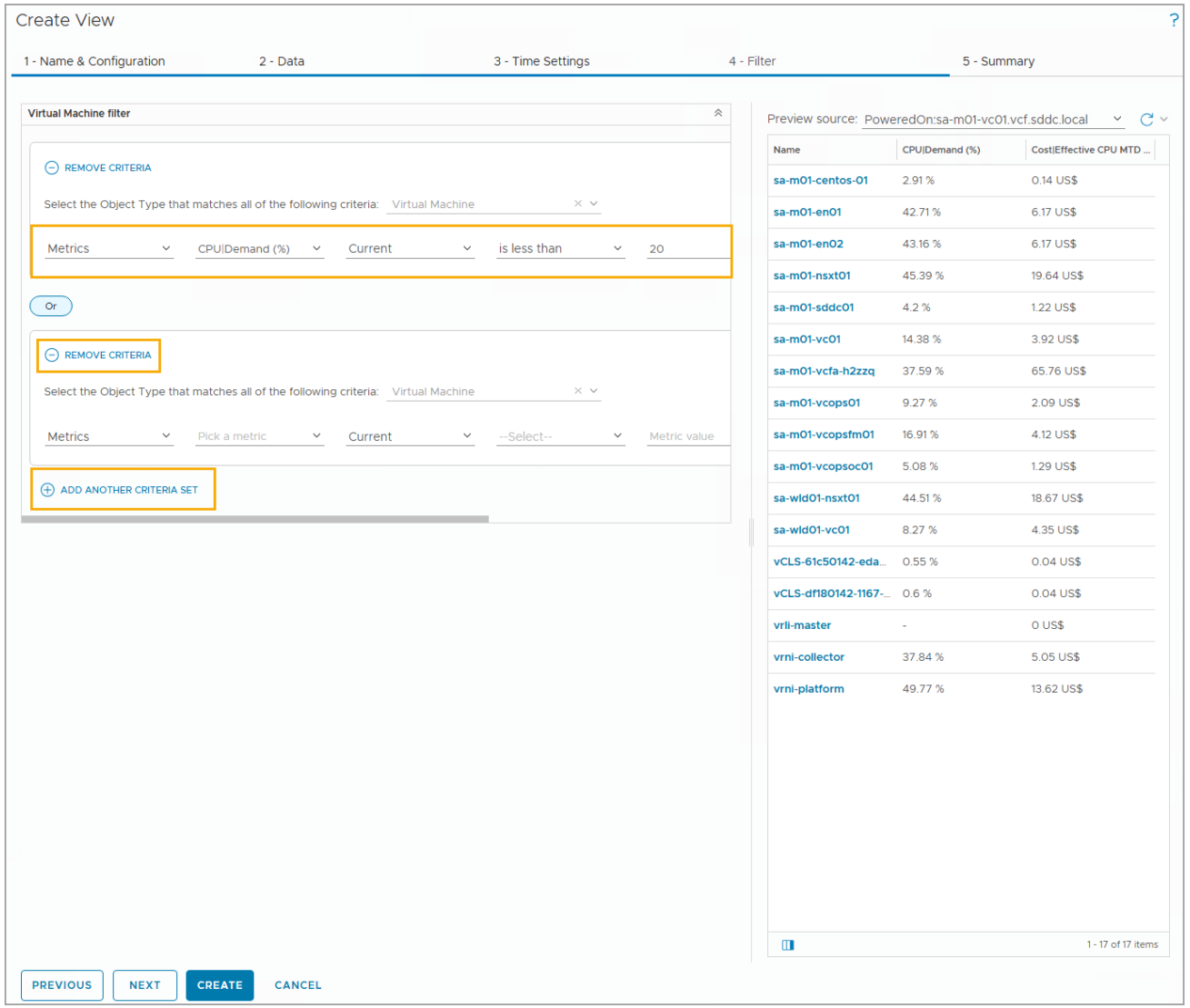
Configuring a Data Filter

The filter option allows you to add additional criteria when the view displays too much information.

You can filter based on object metrics and object properties. To configure a data filter, you need to specify the data type, the data, the data value (historical high/low or timestamp), the logical operator, and a reference value.

You can add multiple criteria to the criteria set. The filter returns results that match all the specified criteria.



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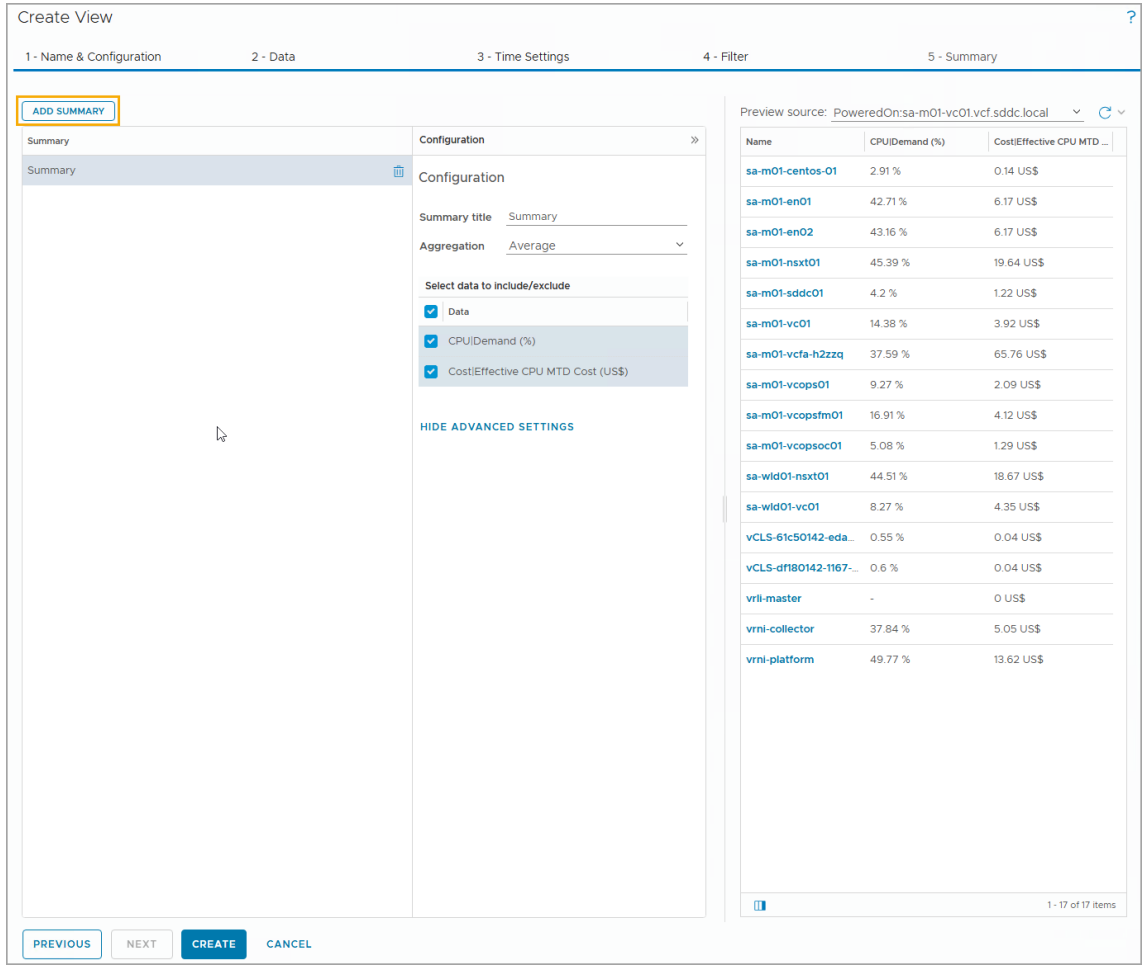
Adding a View Summary

You can add more than one summary row or column and configure each to show different aggregations.



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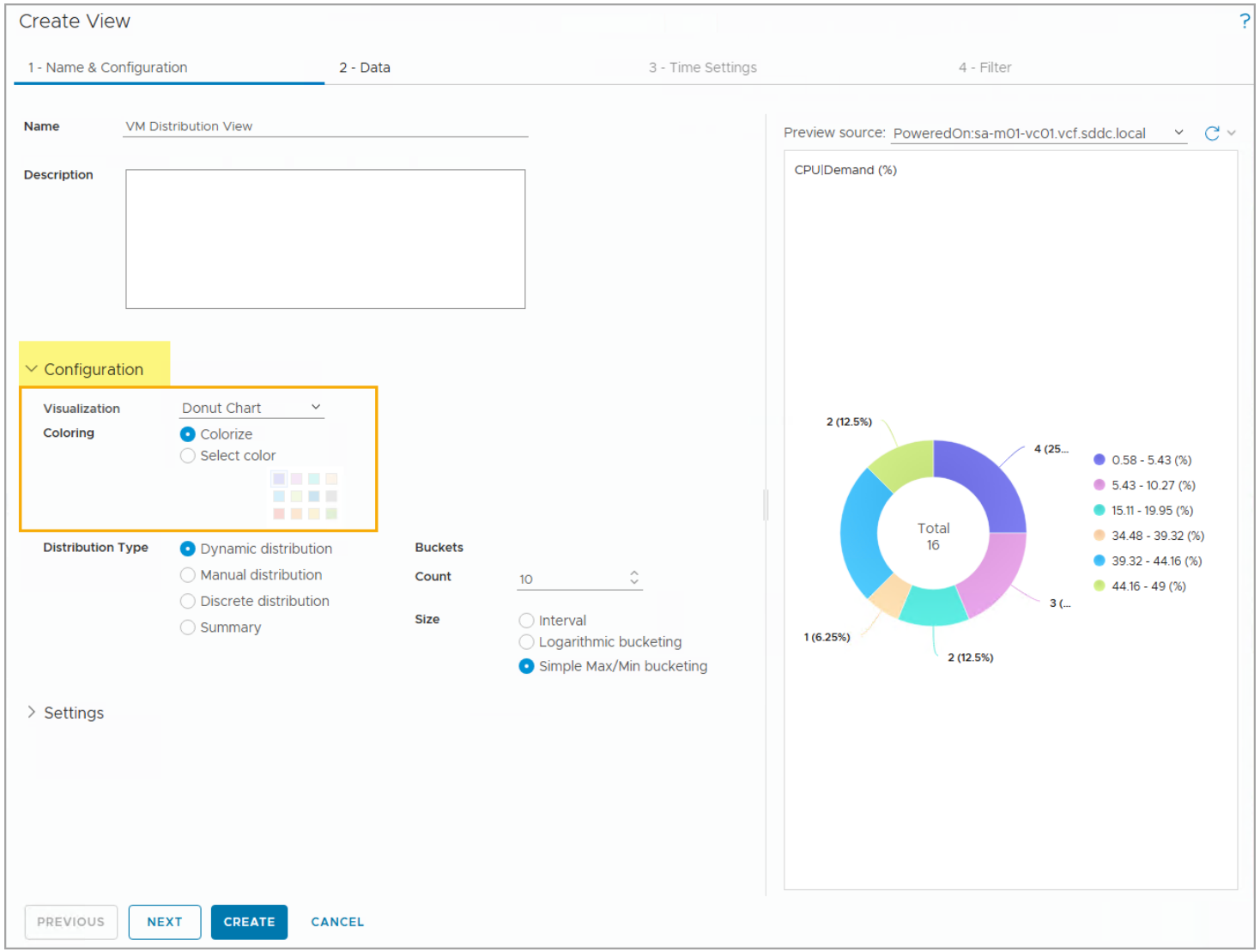
Distribution View Configuration: Visualization

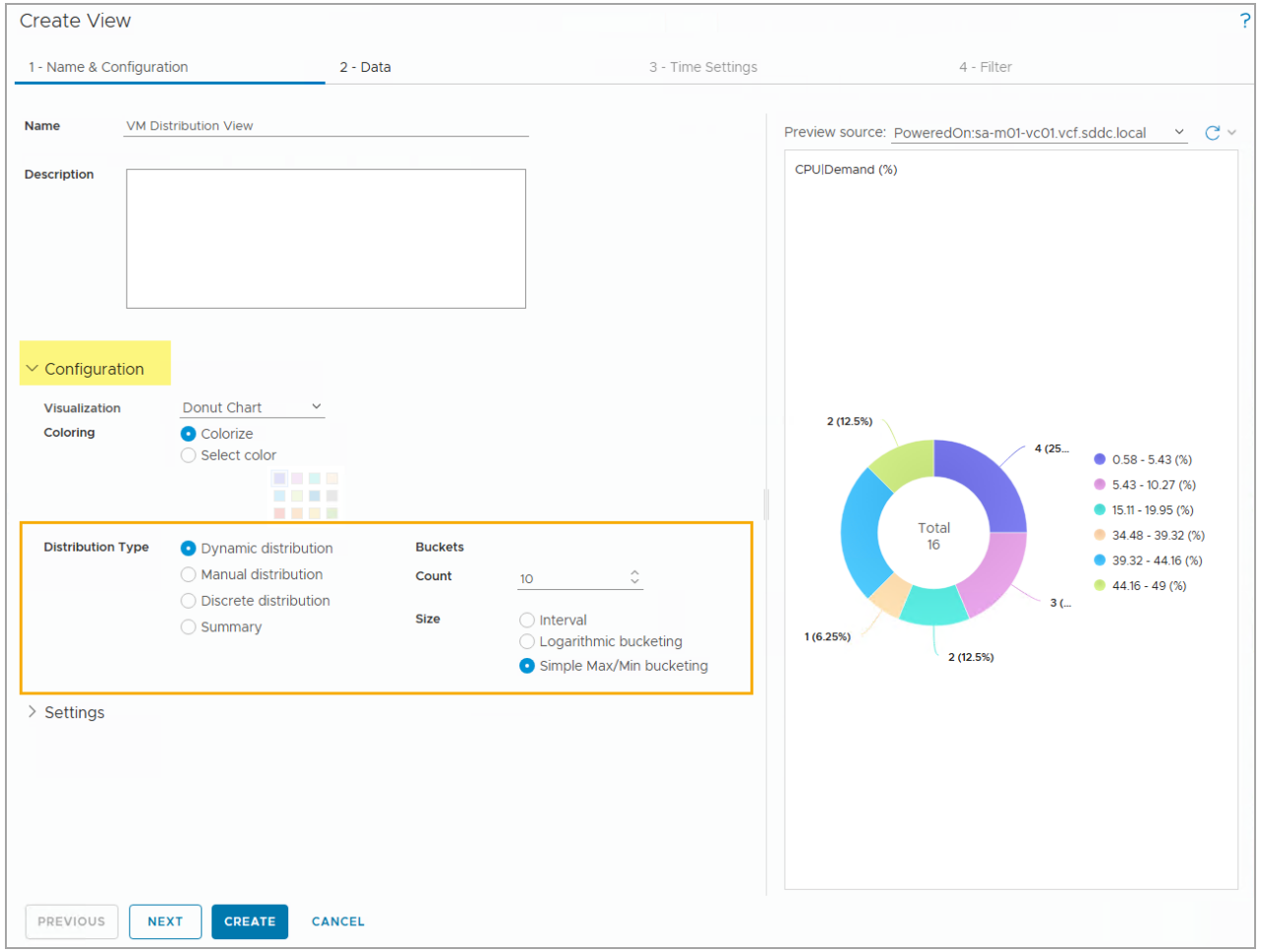
For the Distribution view, you create a pie chart, a bar chart, or donut chart, and specify the Distribution Type. It determines the distribution of objects to buckets.

The colors of the slices in a pie or donut chart appear in the order defined by the default color palette. You can set alternative colors for the chart.



Distribution View Configuration: Distribution Type

The VCF Operations view distribution type provides aggregated data about resource distribution in the monitored environment.



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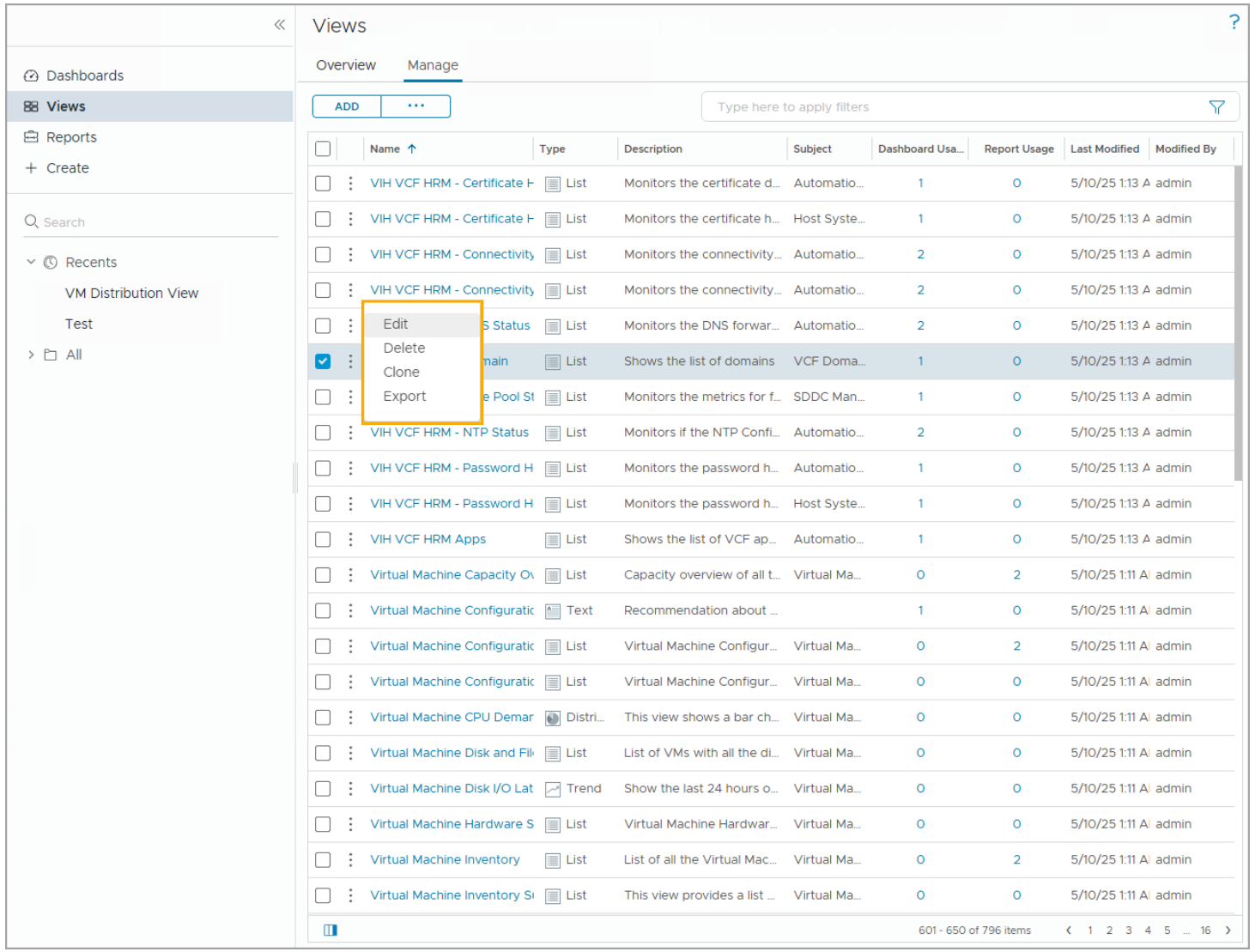
Trend View Configuration

The **Configuration** pane for a view is specific to the type of view that you select. To configure a Trend view, you specify whether you want to use the historical data, forecast data, or both.

Managing Views

You can perform the following actions on views:

- **Edit** a view: When you edit a view, all changes are applied to report templates that contain the view.
- **Delete** a view: When you delete a view, the view is removed from all the report templates that contain the view.
- **Clone** a view: When you clone a view, the changes that you make to the clone do not affect the source view.
- **Export** a view: You can download and share the view configuration details in a ZIP file.



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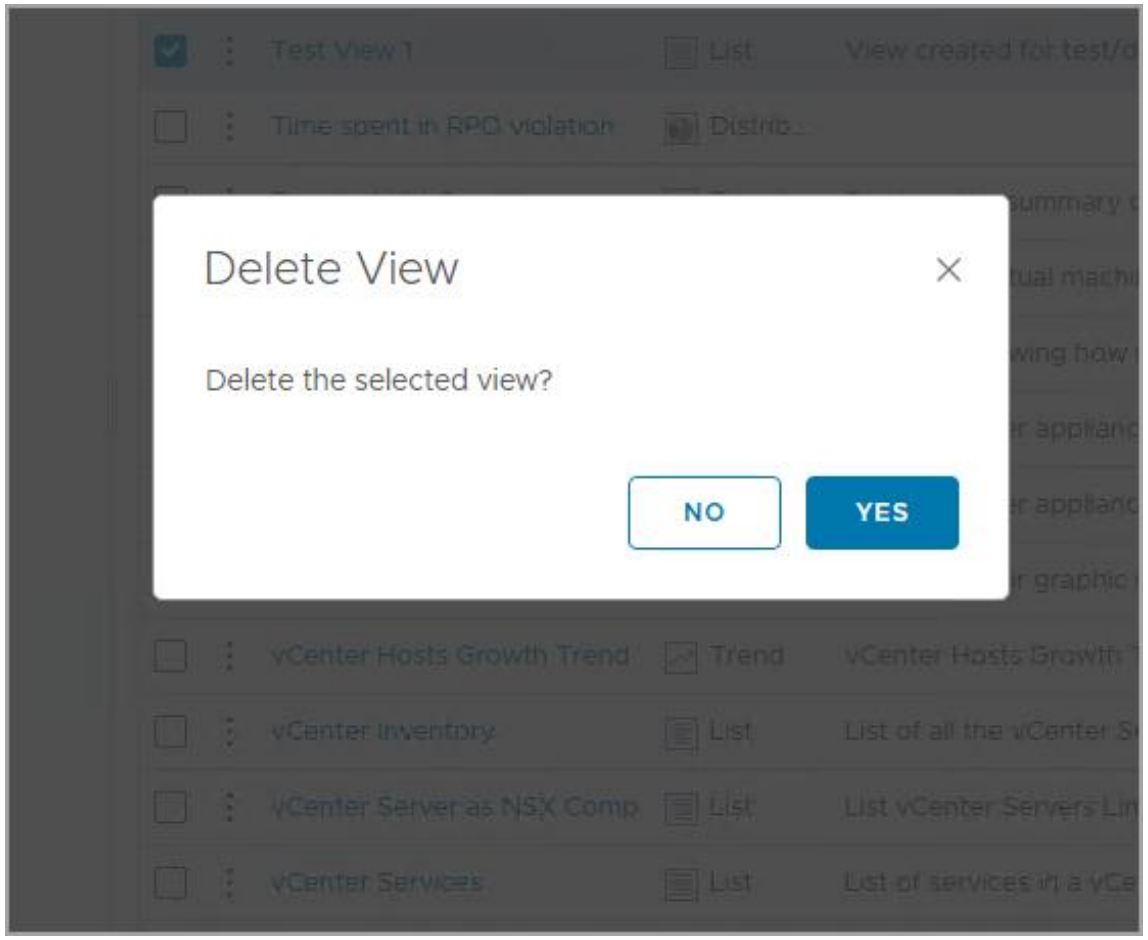
Deleting a View

When a view is deleted, several areas in the user interface are affected:

- Report templates: The view is removed from the report template.
- Dashboards: The View widget appears. The view does not exist.
- **Further Analysis** pane on the **Analysis** tab: The link to the view is removed.
- **Views** tab for the selected object: The view is removed from the list.



Lab: Creating a Custom View

Create a view to display the VM information:

1. Create a View that Provides the VM Configuration Details
2. Define the Data to Include in the VM Configuration Details View
3. Preview Live Data in the VM Configuration Details View
4. Add a Summary Row to the VM Configuration Details View

Review of Learner Objectives

- Outline the role of views in VCF Operations
- Create a basic custom view and configure view settings

Viewing and Managing Reports

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Learner Objectives

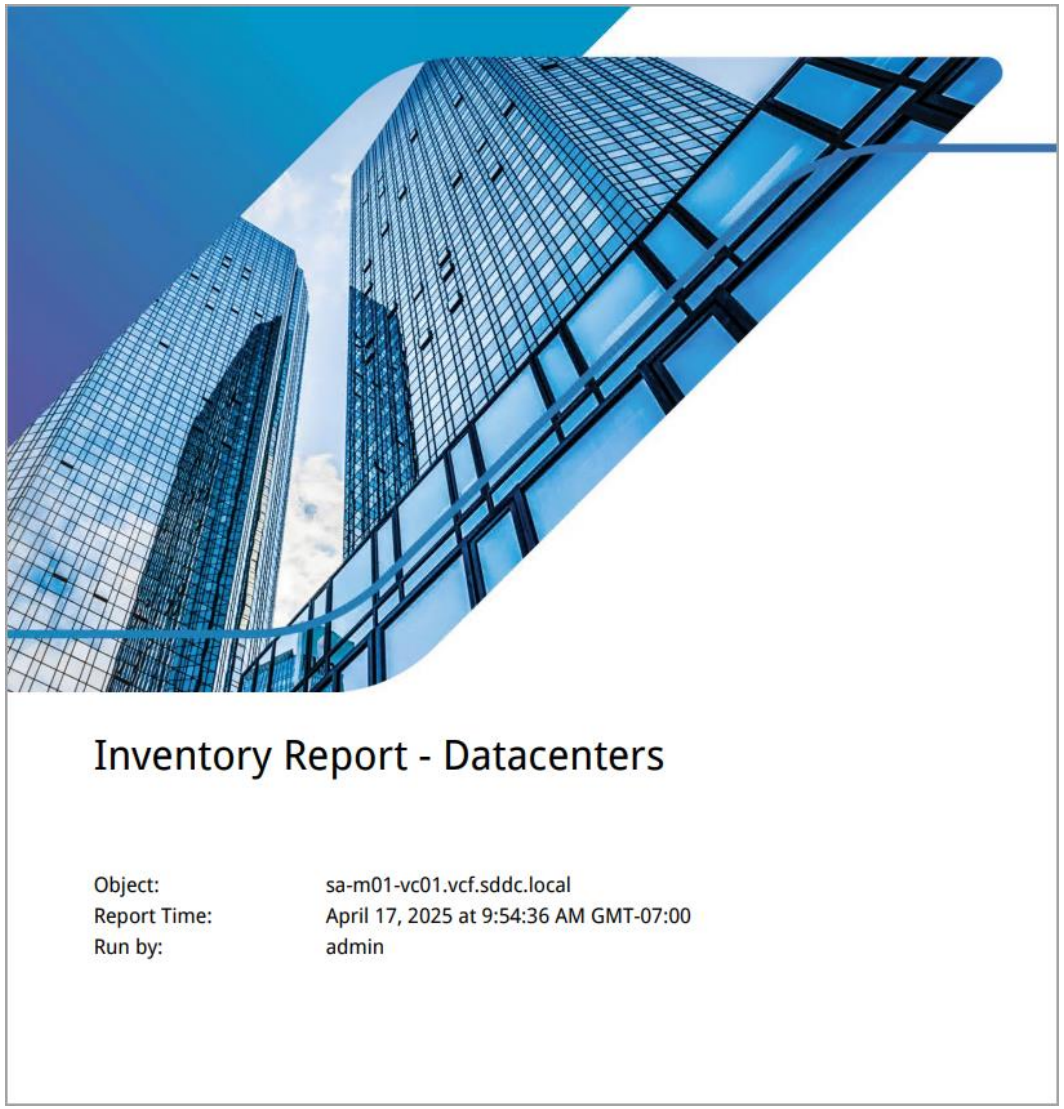
- Outline the roles of reports in VCF Operations
- Create a basic report and configure report settings
- Create a custom report template

Understanding Reports

With the VCF Operations reporting functions, you can generate a report to capture details about the current or predicted resource needs.

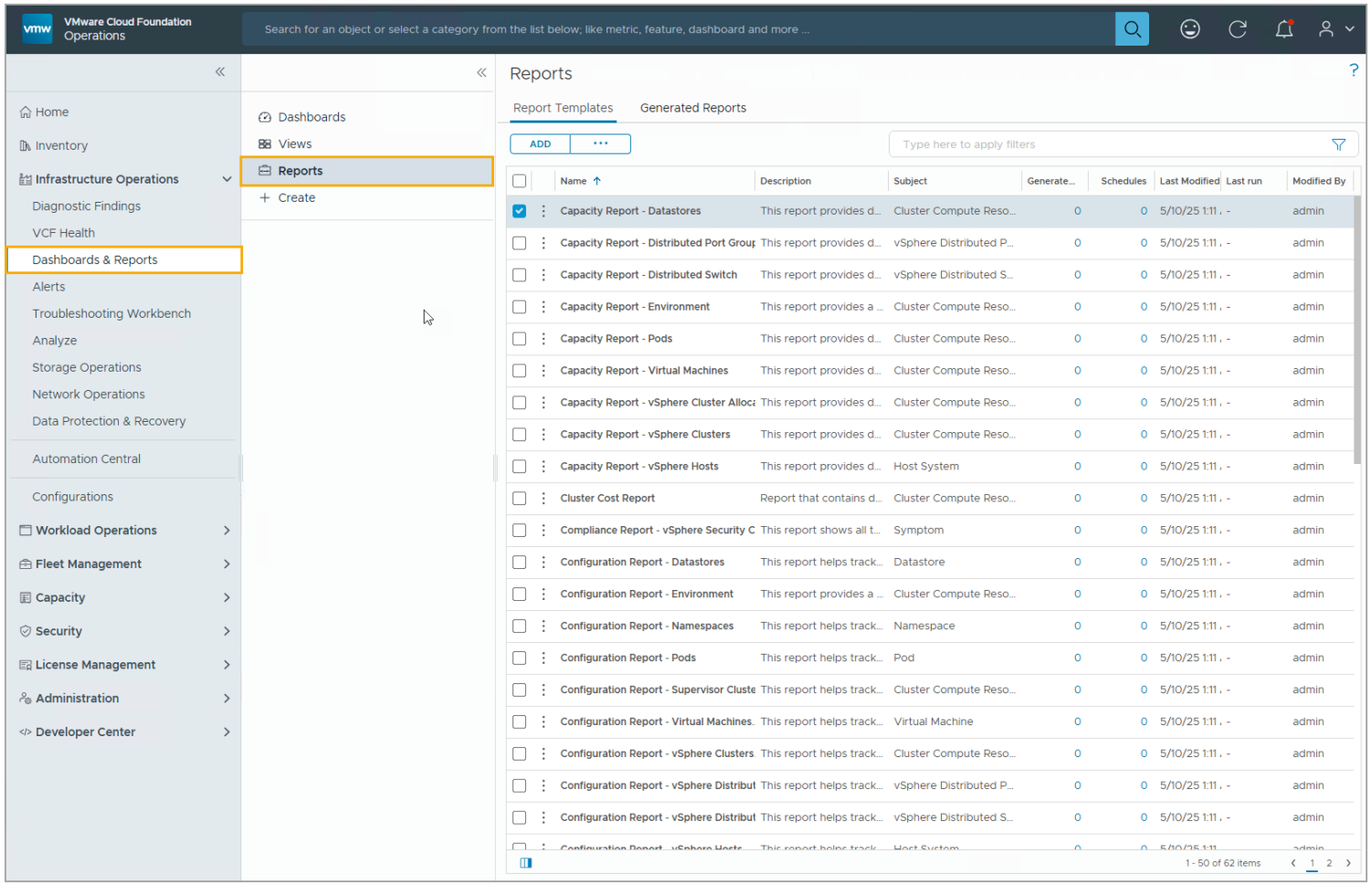
A report is a scheduled snapshot of views and dashboards. Reports represent objects and metrics and can also contain a cover page, table of contents, and footer.

You can download the report in a PDF or CSV file format for future and offline needs.



Report Templates

A report template is a predefined container of one or more views in a specified order. You can access the report templates under **Infrastructure Operations > Dashboards & Reports > Reports**.



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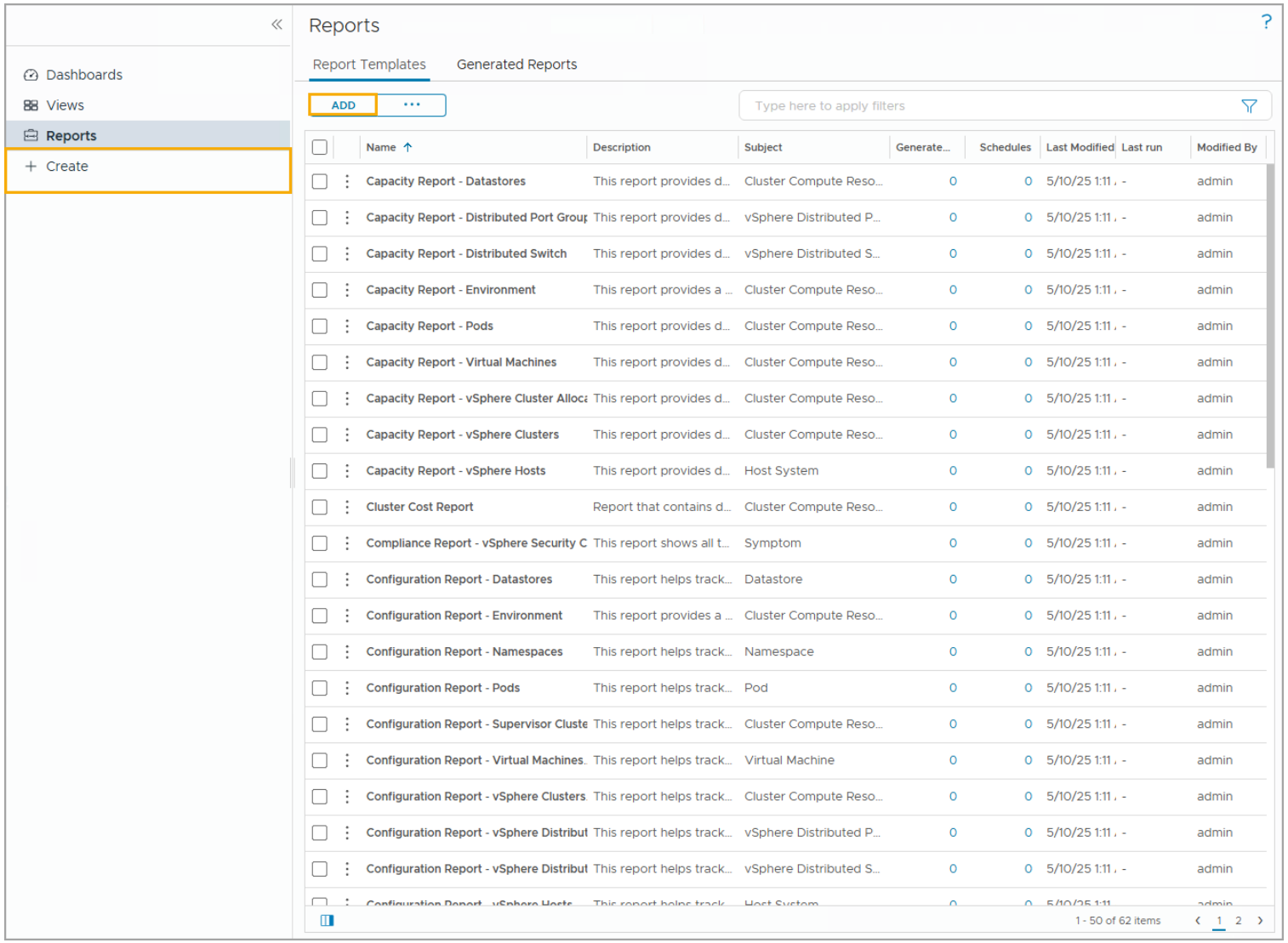
Creating a Report Template

You can create a custom report template based on your requirements. To add a custom template, click the **ADD** button or click **+ Create**.

You need to complete the following tasks when creating a custom report template:

1. Setting name and description.
2. Adding views and dashboards.
3. Configuring layout and format.



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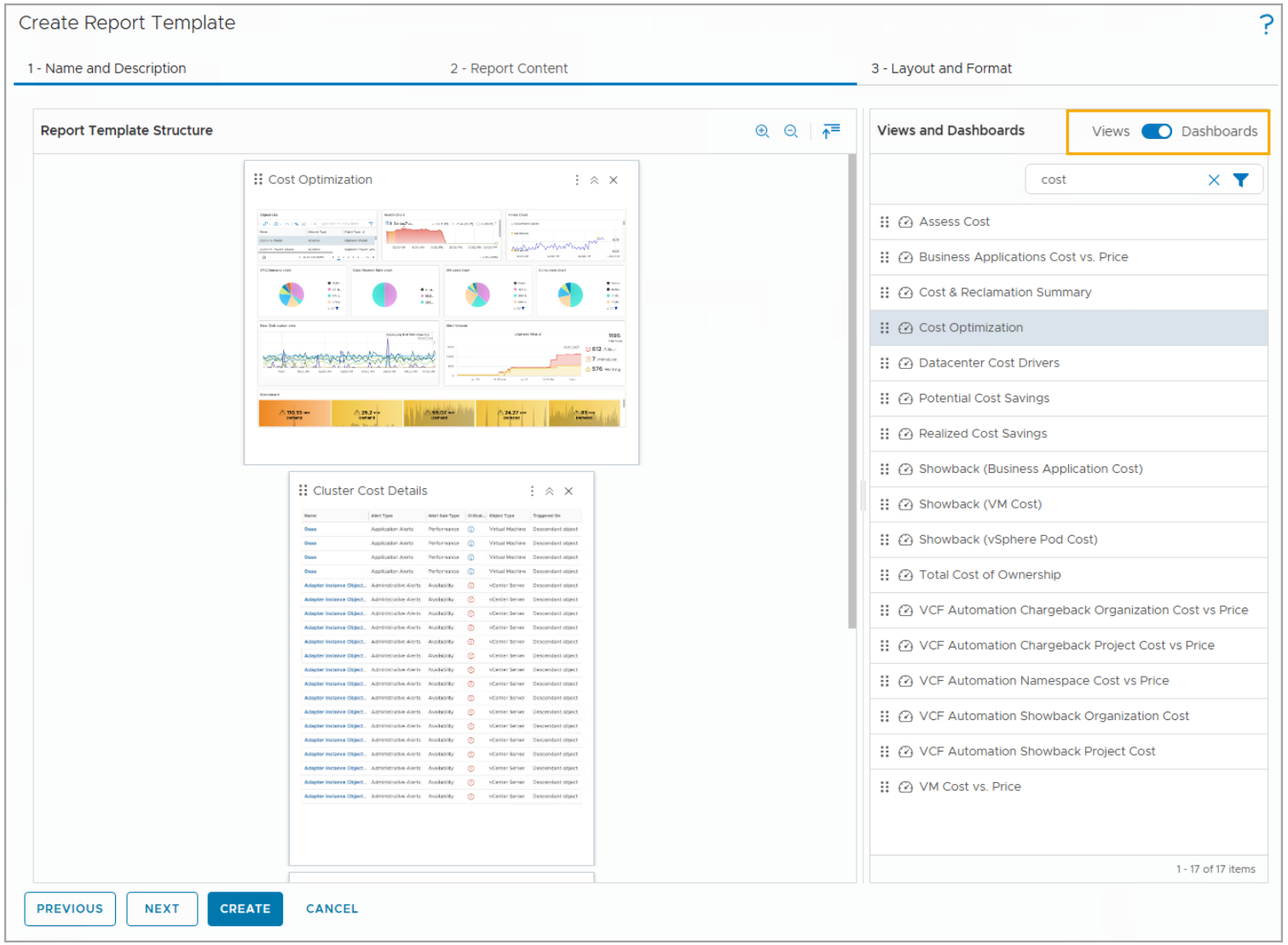
Adding Views and Dashboards to a Report Template

To add a view or a dashboard to your report template, select the view or dashboard from the list in the right pane and drag it to the main **Report Template Structure** pane.

You can use the **Views and Dashboards** toggle to switch between a list of views and a list of dashboards. You can add multiple views and dashboards to a single report template.



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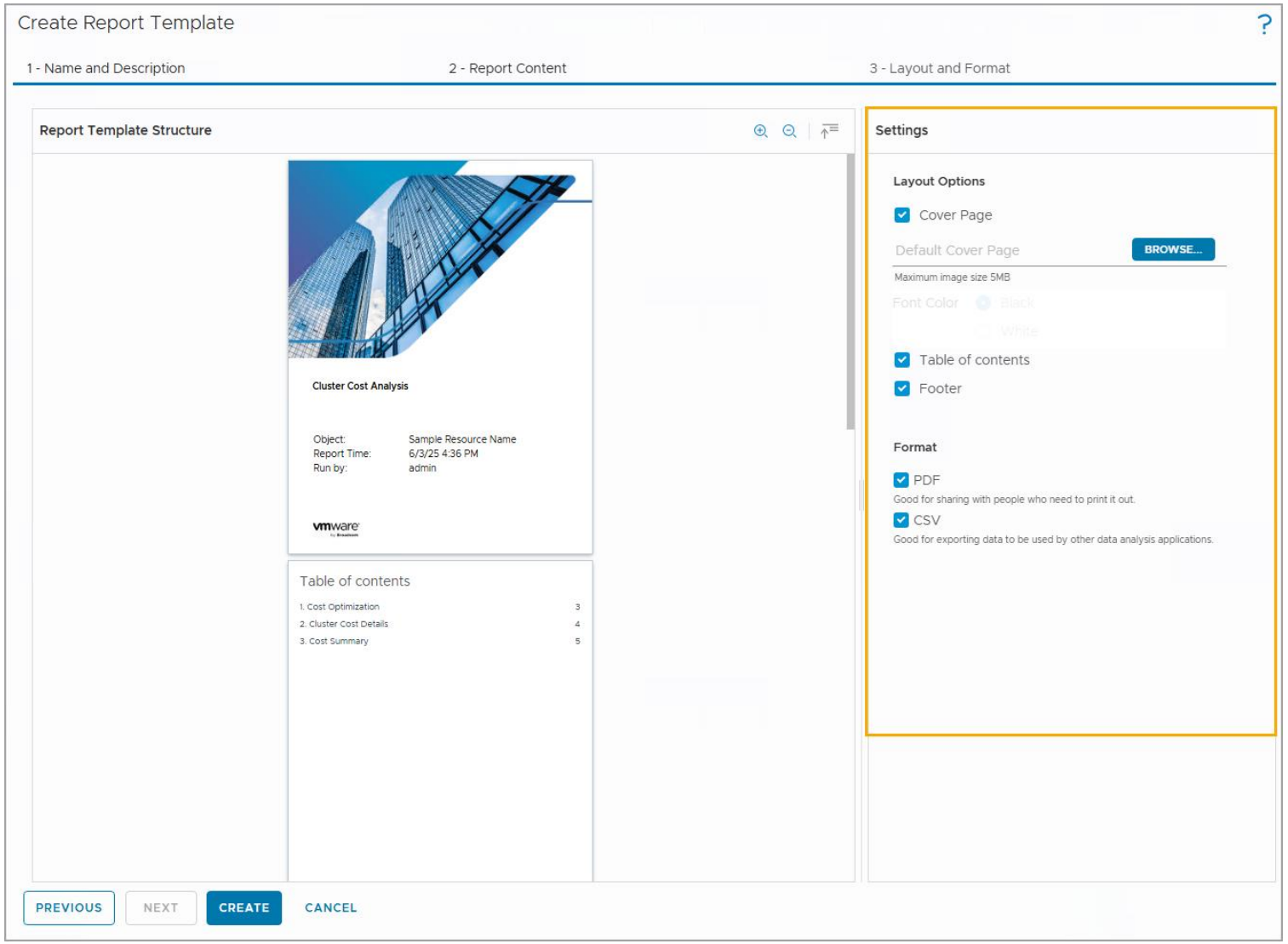
Configuring the Report Layout

The report template provides the following layout options:

- Select **Cover Page** to include an image up to 5 MB. The default report size is 8.5 inches by 11 inches. The image is resized to fit the report front page.
- Select **Table of contents** to include a list of the template parts, organized in the order of their appearance in the report.
- Select **Footer** to include the date when the report is created and when VCF Operations creates the report with the page number.

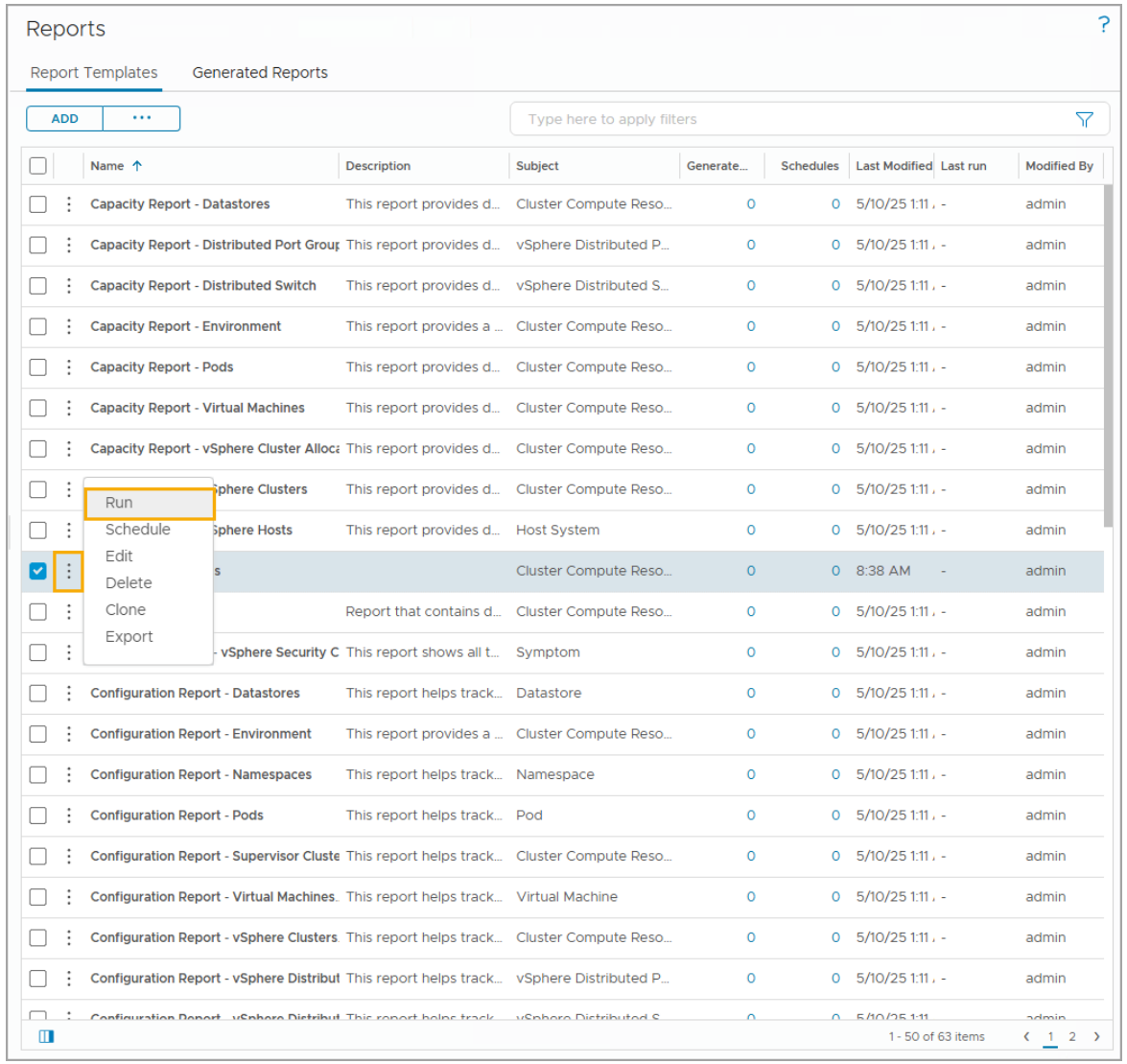


Generating Reports

Any predefined or user-created template is available on the **Report Templates** tab.

Click the vertical ellipsis next to the template name and click **Run** to generate a report.

You can see the number of reports generated from each template and when it was last used.



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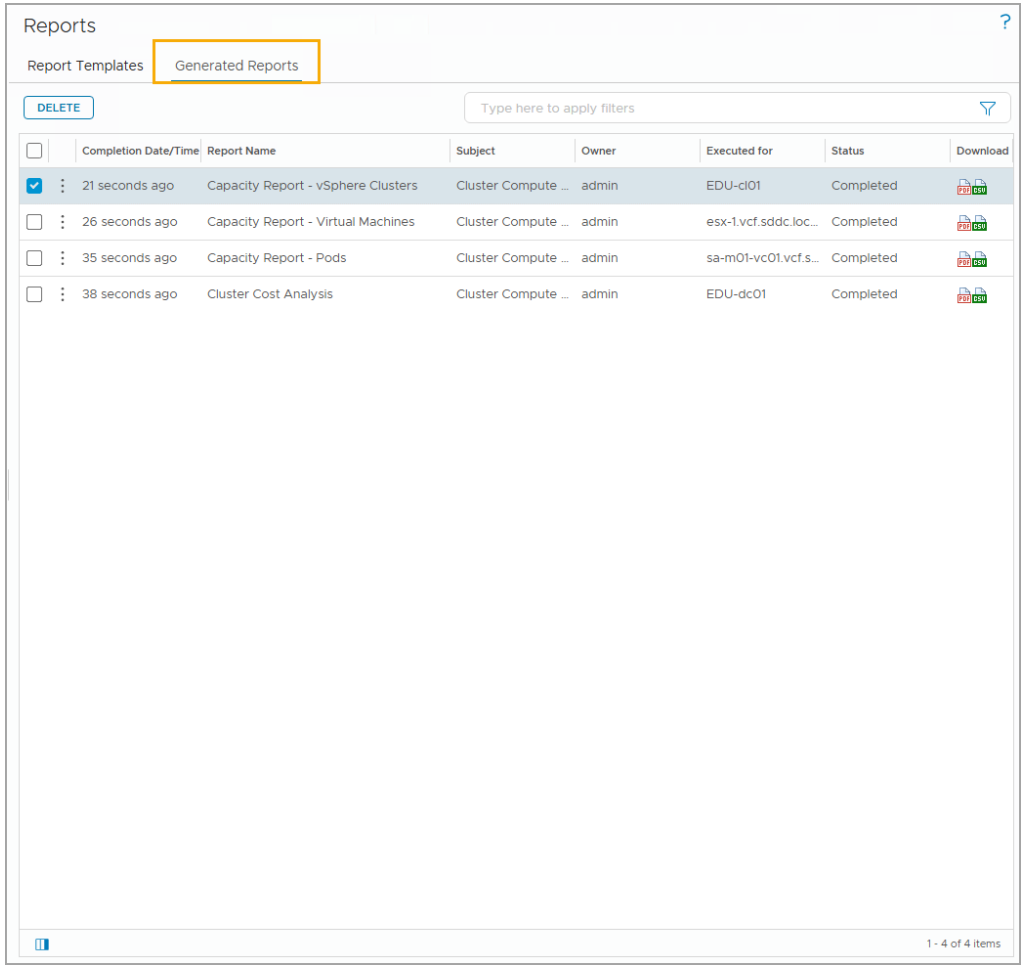
Viewing Generated Reports

You can view generated reports on the **Generated Reports** tab. You can download the selected report or delete any generated reports.

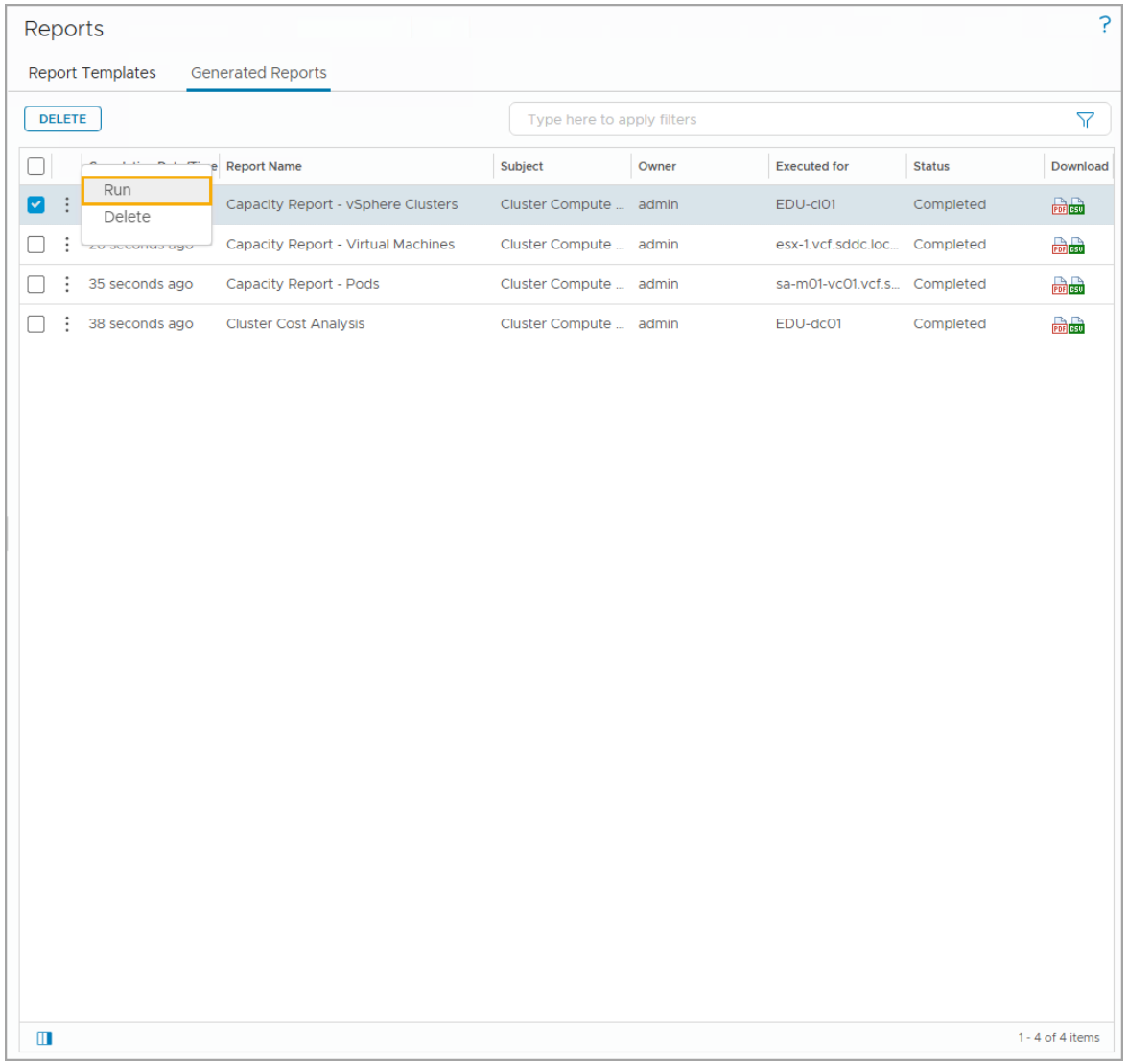


Regenerating Reports

All reports that are generated for a selected object appear on the **Generated Reports** tab.

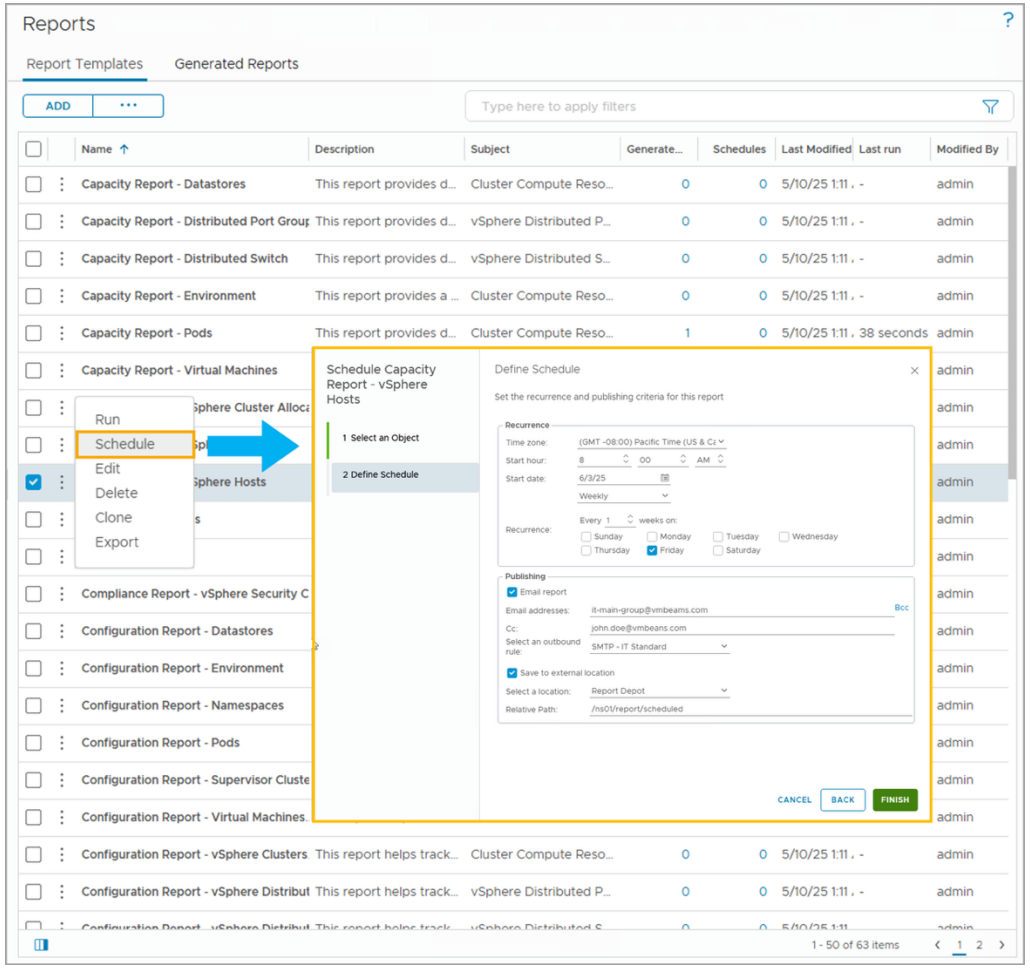
You can download or run the selected report again from this location.

Regenerating a report increments the Generated reports number. The maximum number of reports generated per template is 10.



Scheduling a Report

To generate a report on a selected date, time, and recurrence, you select the object to run the report against and create a schedule for the report template.



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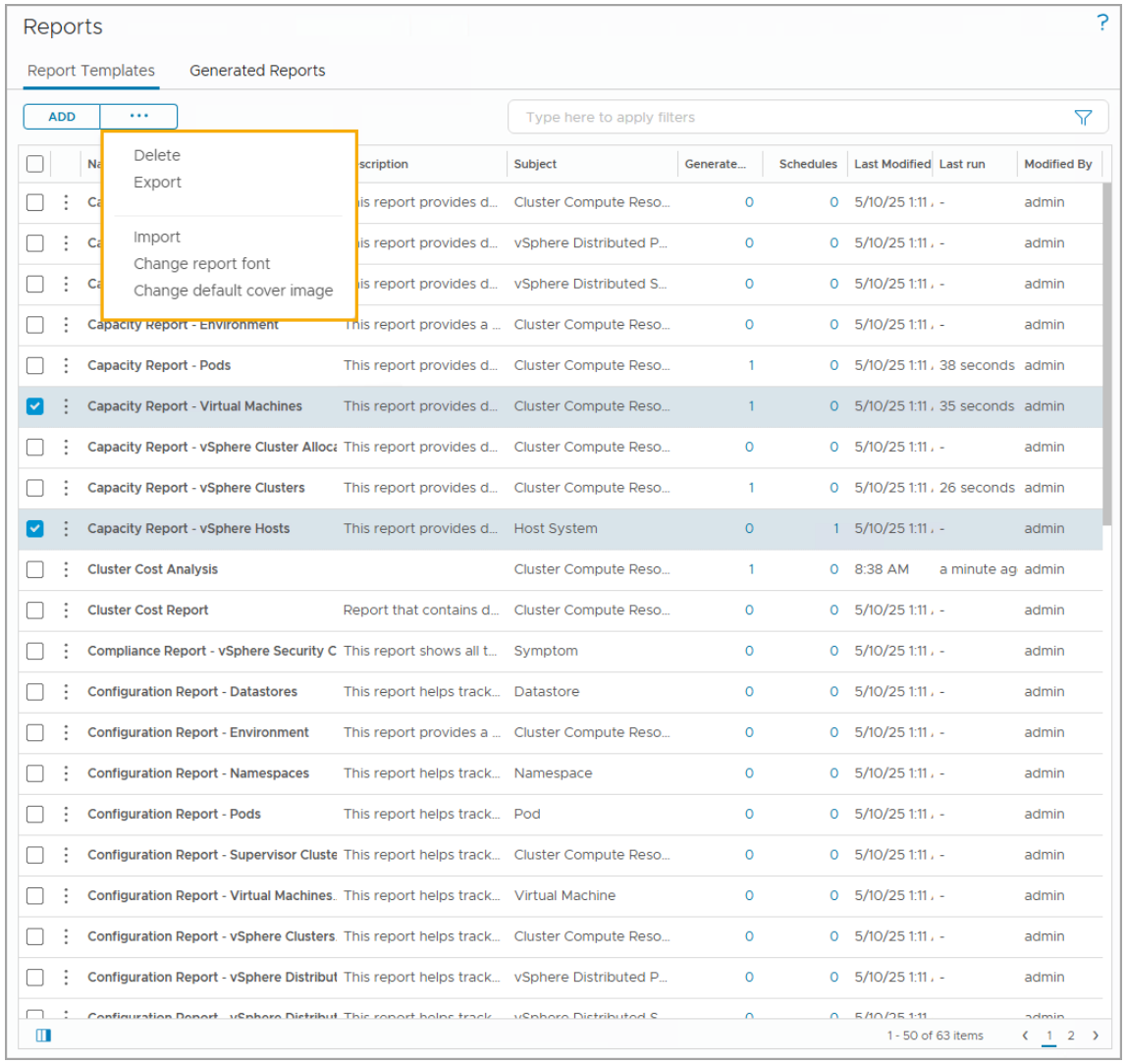
Reporting Template Actions

You can delete, export, and import report templates from the **Actions** menu.

You can also upload a common default image for the cover page of reports.

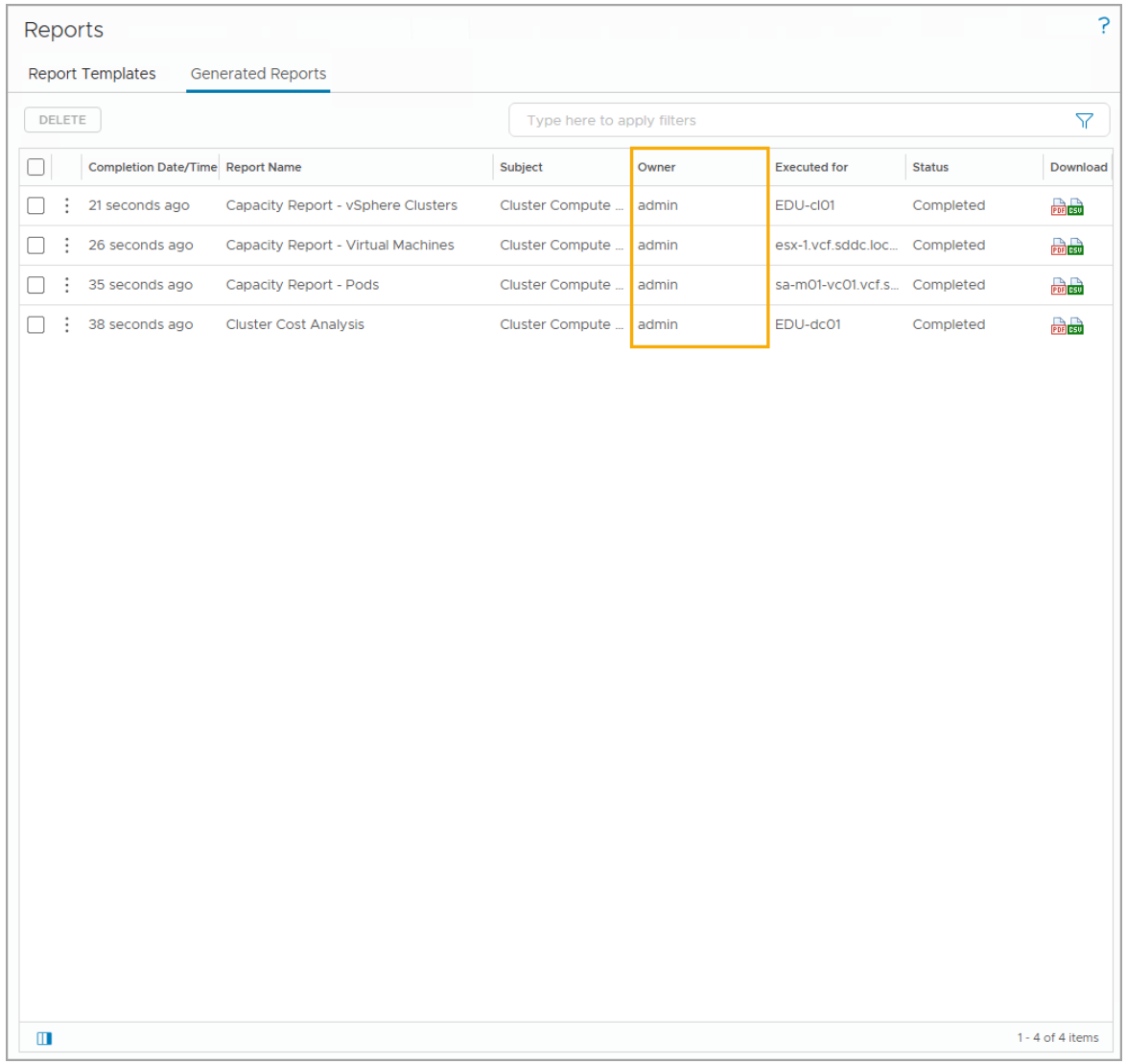
The cover pages of user-defined reports do not change when you update the default cover page image.



Understanding Report Template Ownership

By default, the owner of the report template is the user who creates the template. Any VCF Operations user can see the report template and run the template to generate reports. A generated report is user specific.

When the user is deleted, all the report templates owned by the user are automatically transferred to the System account.



Best Practices for Creating and Using Views and Reports

When you create or use views and reports, you can follow these best practices:

- Use views and reports that are available and predefined: Use the predefined views and reports that provide the needed information.
- Clone views or reports to make changes and rename with your company's naming convention: If minor changes are needed from a predefined view or report, clone the predefined view or report before making changes and save it with a naming convention that identifies the company. The cloned view or report can be easily identified and exported for future use.
- Create customized views and reports: Customize views and reports based on the dashboards and reports that must show the precise information. Use your customized views for your customized dashboards and customized reports.

Lab: Creating Custom Report Templates

Create report templates that can generate required information about your private cloud environment:

1. Create a Report Template Using the Virtual Machine Configuration Summary View
2. Create a Report Template Using Two Dashboards

Review of Learner Objectives

- Outline the roles of reports in VCF Operations
- Create a basic report and configure report settings
- Create a custom report template