



Cisco UCS Director End User Portal Guide, Release 6.9

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Preface

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Audience

This guide is intended primarily for data center administrators who use and who have responsibilities and expertise in one or more of the following:

- Server administration
- Storage administration
- Network administration
- Network security
- Virtualization and virtual machines

Conventions

Text Type	Indication
GUI elements	GUI elements such as tab titles, area names, and field labels appear in this font . Main titles such as window, dialog box, and wizard titles appear in this font .
Document titles	Document titles appear in <i>this font</i> .
TUI elements	In a Text-based User Interface, text the system displays appears in <i>this font</i> .
System output	Terminal sessions and information that the system displays appear in <i>this font</i> .

Text Type	Indication
CLI commands	CLI command keywords appear in this font . Variables in a CLI command appear in <i>this font</i> .
[]	Elements in square brackets are optional.
{x y z}	Required alternative keywords are grouped in braces and separated by vertical bars.
[x y z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
< >	Nonprinting characters such as passwords are in angle brackets.
[]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.



Note Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the document.



Caution Means *reader be careful*. In this situation, you might perform an action that could result in equipment damage or loss of data.



Tip Means *the following information will help you solve a problem*. The tips information might not be troubleshooting or even an action, but could be useful information, similar to a Timesaver.



Timesaver Means *the described action saves time*. You can save time by performing the action described in the paragraph.



Warning IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

Related Documentation

Cisco UCS Director Documentation Roadmap

For a complete list of Cisco UCS Director documentation, see the *Cisco UCS Director Documentation Roadmap* available at the following URL: http://www.cisco.com/en/US/docs/unified_computing/ucs/ucs-director/doc-roadmap/b_UCSDirectorDocRoadmap.html.

Cisco UCS Documentation Roadmaps

For a complete list of all B-Series documentation, see the *Cisco UCS B-Series Servers Documentation Roadmap* available at the following URL: <http://www.cisco.com/go/unifiedcomputing/b-series-doc>.

For a complete list of all C-Series documentation, see the *Cisco UCS C-Series Servers Documentation Roadmap* available at the following URL: <http://www.cisco.com/go/unifiedcomputing/c-series-doc>.



Note The *Cisco UCS B-Series Servers Documentation Roadmap* includes links to documentation for Cisco UCS Manager and Cisco UCS Central. The *Cisco UCS C-Series Servers Documentation Roadmap* includes links to documentation for Cisco Integrated Management Controller.

Documentation Feedback

To provide technical feedback on this document, or to report an error or omission, please send your comments to ucs-director-docfeedback@cisco.com. We appreciate your feedback.

Communications, Services, and Additional Information

- To receive timely, relevant information from Cisco, sign up at [Cisco Profile Manager](#).
- To get the business impact you're looking for with the technologies that matter, visit [Cisco Services](#).
- To submit a service request, visit [Cisco Support](#).
- To discover and browse secure, validated enterprise-class apps, products, solutions and services, visit [Cisco Marketplace](#).
- To obtain general networking, training, and certification titles, visit [Cisco Press](#).
- To find warranty information for a specific product or product family, access [Cisco Warranty Finder](#).

Cisco Bug Search Tool

[Cisco Bug Search Tool](#) (BST) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.



CHAPTER 1

New and Changed Information for This Release

- [New and Changed Information for This Release, on page 1](#)

New and Changed Information for This Release

The following table provides an overview of the significant changes to this guide for this current release. The table does not provide an exhaustive list of all changes made to this guide or of all new features in this release.

Table 1: New and Changed Features in Cisco UCS Director, Release 6.9

Feature	Description	Where Documented
A Disks report added to Viewing VM Details, on page 46 .	With Release 6.9, the disks report displays all of the Datastores associated with the VM.	Virtual Resources, on page 39 .



CHAPTER 2

Overview

- [End User Portal, on page 3](#)
- [Landing Page, on page 4](#)
- [Header, on page 6](#)
- [Menu, on page 6](#)
- [Summary Dashlets, on page 7](#)
- [Dashboard, on page 7](#)
- [Common Icons, on page 7](#)
- [Diagnostic Resource Notifications, on page 9](#)

End User Portal

The End User Portal is a self-service portal that includes a catalog of services provided by your administrator. After you request one of the services available to you, the End User Portal completes the service request workflow configured by your administrator. This workflow may include approval of your self-service provisioning request, assignment of the necessary compute, storage and network resources, and configuration of security and performance settings. After your service is provisioned, you can track the status of your services through the summary dashlets and summary reports on your landing page, and through the service request report available within the End User Portal.

As an end user, based on your administration setup, you can perform one or more of the following operations:

- Provision virtual machines (VMs), application specific infrastructure, and bare metal servers
- Review and manage your service requests
- Upload and deploy OVF and other images
- Monitor and create reports for your provisioned virtual and physical resources
- Approve service requests to provision infrastructure

Additional functionality may be available to you if your administrator provides you with the necessary permissions.

Landing Page

The landing page opens when you log in to the End User Portal. The elements that you see on the landing page depend upon how you and your administrator have configured the display.

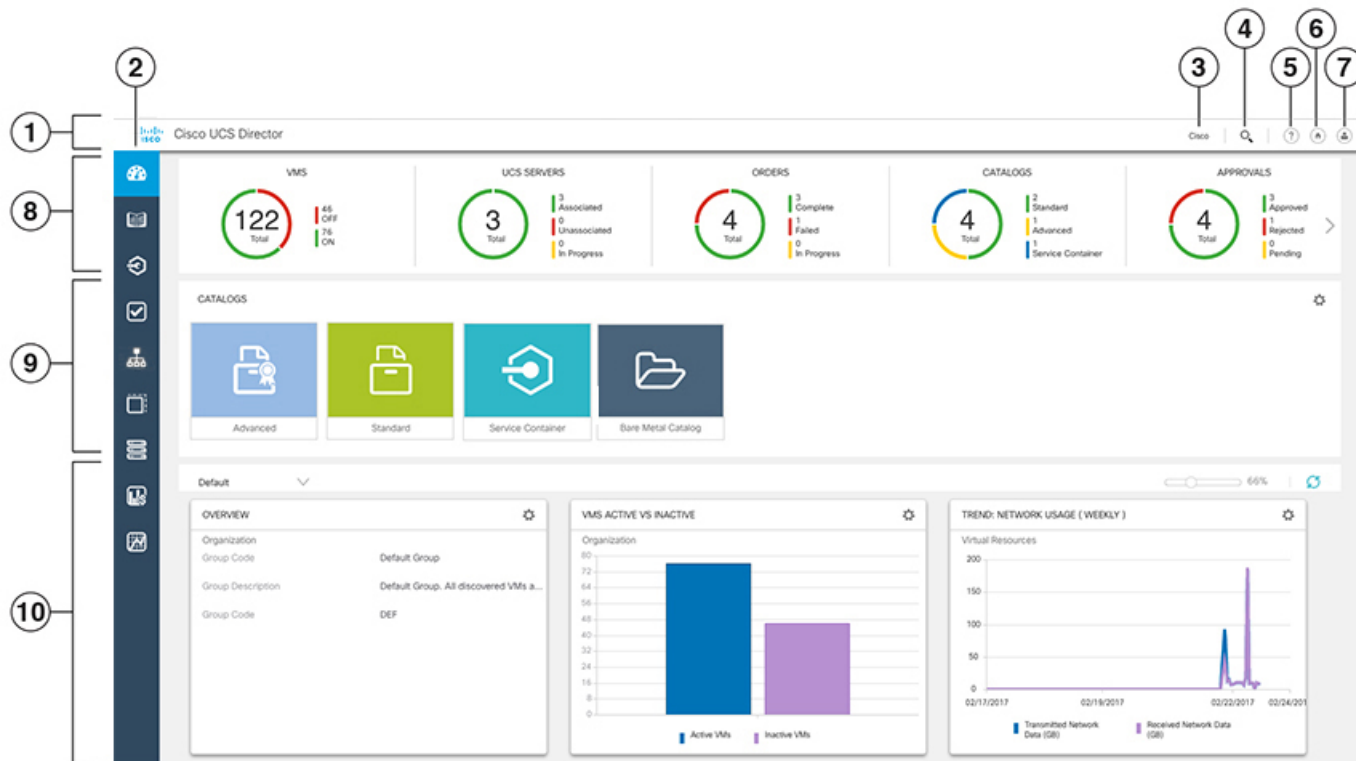
The following are the available elements for your landing page:

- Header—Displays across the top of the page.
- Menu—Displays frequently accessed elements of the End User Portal.
- Summary Dashlets—Optional. Display a visual summary of the current status of your services and resources. The summary dashlets are available only if your administrator configures them and if your dashboard is enabled.
- Catalog—Optional. Displays the catalog folders of VMs, service containers, and other services that are available for you to review and request.
- Dashboard—Optional. Displays the summary reports that you choose to add to your landing page. The summary reports are available if your dashboard is enabled.



Note If your administrator has not configured the dashlets or published any catalogs, the **No Dashlet Configured** or **No Catalogs Published** message appears.

Figure 1: End User Portal Landing Page Showing Dashboard and Summary Dashlets



Number	Name	Description
1	Header	Contains frequently accessed elements, including the menu. The header is always visible.
2	Menu	Expands when you hover over to provide access to further functionality. If you click an option in the menu, the menu collapses.
3	Link	Provides a link to a webpage that is configured by your administrator. This link is optional and may not be implemented by your administrator.
4	Search icon	Allows you to search for and navigate directly to a specific report in the End User Portal.
5	Help icon	Links to the online help system for the End User Portal.
6	Home icon	Returns you to the landing page from any location in the End User Portal.
7	User icon	Allows you to edit your profile, enable or disable the dashboard, and log out.
8	Summary Dashlet area	Provides a high-level overview of the current status of your items. This area may contain up to five dashlets. These dashlets are visible only if your administrator configures them and if your dashboard is enabled.

Number	Name	Description
9	Catalog area	Provides high-level access to the catalogs available for you to review and request. The catalog folders are only available if configured by your administrator. The option to hide the catalog area is available by clicking the settings icon.
10	Dashboard area	Displays the summary reports that you choose to add to your landing page. By default the dashboard is enabled. A scroll bar displays on the right side of the landing page if the summary reports extend beyond the viewable page length.

Header

The header is located at the top of the End User Portal. The header is always visible, no matter what page you are on in the application.

The header will always include the following elements:

- Diagnostic resource notification icon, if you have any resource notifications
- Search icon to search for reports
- Help icon to access the online help
- Home icon to return to the landing page
- User icon to edit your profile, and to log out

Your administrator can also add a link to a website that is relevant to your work or your company.

Menu

The menu is located on the left side of the landing page. This menu is always available, no matter which landing page you use. When you hover over the menu, the menu expands. If you click an option in the menu, the menu collapses.



Note The menu does not have a scroll bar. The menu only displays the number of options that fit in the space available. Some options may not appear if you minimize your screen or zoom in.

You can use the menu to access the functionality of the End User Portal, including the following:

- Dashboard (if the dashboard is enabled)
- Catalogs
- Services
- Approvals
- Organization

- Virtual Resources
- Physical Resources
- Accounting
- CloudSense™

Summary Dashlets

The summary dashlets provide a high-level overview of the current status of your resources. The available dashlets include:

- VMs
- UCS Servers
- Orders
- Catalogs
- Approvals



Note These dashlets are visible only if your administrator configures them and if your dashboard is enabled. Your administrator may choose to configure some or all of the available dashlets.

Each dashlet shows the number of resources, a visual indication of the status of those resources, and a legend with the number of resources in each status.

If you click on a legend in the dashlet, you will be redirected to a filtered view of the report. You will also see the filter conditions that were used to create the filtered view of the report.












Dashboard



The dashboard is an optional configuration of the landing page. This configuration is not universal. By default, the dashboard is enabled, but you can choose to not enable the dashboard in the user settings.

The dashboard adds one or more summary reports to your landing page. These summary reports provide information about your system, such as your deployed VMs, network usage, CPU usage, and trend reports on consolidated usage.

Common Icons

The following table provides information about the common icons used in the End User Portal. You can see the name of an icon when you hover over it with your mouse. Some icons may have a different name, depending upon the context in which they're used. For example, the Delete icon may be named Delete Report or Delete Snapshot.

Icon	Name	Description
	Search	Search is available on the header and on individual screens. Click Search on the header to find a report in the End User Portal. Click Search on an individual screen to find one or more items in the report.
	Alert	Alert is available on the header. Click Alert to view your diagnostic system messages.
	User	User is available on the header. Click User to access your profile, or log out of the End User Portal.
	Export	Export is available on individual screens. Click Export to export the content of the report that is visible on the screen.
	Refresh	Refresh is available on individual screens. Click Refresh to refresh the data that is visible on the screen.
	View Details	View Details is available on individual screens. Click View Details to see details about the selected row in the table.
	Table View	Table view is available for your catalogs and application containers. Click Table View to view your catalogs and application containers in a hierarchical table with details about each catalog item and application container. With this view, you must click on the catalog item type folder to view the available catalog items or application container.
	Tile View	Tile view is available for your catalogs and application containers. Click Tile View to view your catalogs and application containers in a tiled view of icons. With this view, you must click on an icon to see details about that catalog item or application container.
	Create	Create is available on individual screens. Click Create to create a new object, such as a VM disk. This icon is only visible if your administrator has given you permission by enabling the appropriate End User Self-Service option in your group's VDC.
	Add	Add is available on individual screens. Click Add to add an item to an existing object, such as adding a catalog item to an existing catalog folder. The name of this icon may also include the item that you want to add, such as Add Catalog . This icon is only visible if your administrator has given you permission by enabling the appropriate End User Self-Service option in your group's VDC.
	Edit	Edit is available on individual screens. Click Edit to modify an existing object, such as a catalog item or a VM disk. This icon is only visible if your administrator has given you permission by enabling the appropriate End User Self-Service option in your group's VDC.

Icon	Name	Description
	Delete	Delete is available on individual screens. Click Delete to delete an object, such as a catalog item or a VM disk. This icon is only visible if your administrator has given you permission by enabling the appropriate End User Self-Service option in your group's VDC.
	Custom Actions	This icon represents additional tasks that do not have an associated icon.

Diagnostic Resource Notifications

The diagnostic resource notification icon is located on the header. The icon is only visible if you have resource notifications. When you click the icon, you can view all diagnostic resource notifications that are relevant to your actions and permissions in the End User Portal.

The most recent resource notifications display at the top of the list. You cannot delete notifications from this list.






Format of Diagnostic Resource Notifications

The following table describes the format that is used for all diagnostic resource notifications.

Name	Description
Severity	An icon that represents the severity of the diagnostic resource notification. For more information about the severities, see Severities of Diagnostic Resource Notifications, on page 10 .
Category	The category of the item or managed object that has caused the resource notification. For example, this could be one of the following: <ul style="list-style-type: none"> • System Performance • System Configuration • Clouds
Item	The specific item or managed object that has caused the resource notification. Additional information about a specific account may be included in the item name.
Description	A description of the problem that has caused the resource notification. For example, this could describe an issue with a user account, with a cloud account, with a VM or a server.
Recommendation	A recommendation for how to resolve the problem that caused the resource notification.
Audit Time	The date and time when the resource notification was created.

Severities of Diagnostic Resource Notifications

The following table describes the severities of diagnostic resource notifications that you may encounter.

Icon	Severity	Description
	Critical	Service-affecting condition that requires immediate corrective action. For example, this severity could indicate that either a VM or a server is down and needs to be restarted.
	Major	Service-affecting condition that requires corrective action as soon as possible. For example, this severity could indicate a severe degradation in the capability of a VM or a server and that you need to restore its full capability.
	Minor	Non-service-affecting condition that requires corrective action to prevent a more serious issue. For example, this severity could indicate that the detected condition is not degrading the capacity of the managed object.
	Warning	Potential or impending service-affecting condition that is not currently causing significant effects in the system. You should take action to further diagnose, if necessary, and correct the problem to prevent it from becoming a more serious service-affecting issue.
	Normal	Notification or informational message. Does not indicate a condition or issue with the system.



CHAPTER 3

User Settings and Customizations

- [User Settings and Customizations](#), on page 11
- [Logging In to the End User Portal](#), on page 11
- [Logging Out of the End User Portal](#), on page 12
- [Search](#), on page 12
- [User Settings](#), on page 12
- [Dashboard Settings](#), on page 14
- [Table and Column Customizations](#), on page 15
- [Refreshing Report Data](#), on page 16
- [Exporting Data from a Report](#), on page 16
- [Exporting a Summary Report](#), on page 17

User Settings and Customizations

You can customize your view of the End User Portal, including your landing page, dashboard, tables, reports, and actions.

Logging In to the End User Portal

Step 1 In your web browser, enter the web link for the End User Portal.

The default web link is `https://EndUserPortal_IP/app/ui/login.jsp`, where *EndUserPortal_IP* represents the IP address assigned to the End User Portal. If you are unsure of the IP address for your End User Portal, check with your administrator.

Step 2 On the launch page, enter your user name and password.

Step 3 Click **Login**.

Logging Out of the End User Portal

- Step 1** On the header, click **User** and choose **Log Out**.
- Step 2** In the confirmation message, choose one of the following:
- **Yes, Logout** to log out
 - **No** to cancel and remain logged in
-

Search

Search is available on the header and on individual screens. What you are trying to find determines which search field you need to use.

Search for a Report

You can use the search in the header to navigate directly to a specific location or report in the End User Portal. For example, if you want to view your VMs, you can enter VMs in that Search field to be taken to that location. However, you cannot use the search in the header to find a specific VM.

When you enter a term in the **Search** field on the header, the End User Portal provides you with suggested locations or reports.

Search for an Item

You can search for an item from the related location in the End User Portal. For example, you can search for a specific VM in the **VMs** report.

When you type a search term in the **Search** field, the matching entries are filtered and listed. The total count of matching entries is shown in the **Total** field. The search term is also highlighted in the filtered results.



Note

- The Search option is available only in the non-paginated reports.
 - When you search for a catalog, the search results are filtered and listed in a tile or list view format.
-

User Settings

Setting Your Preferred Language

The text in the End User Portal is displayed based on the language that you choose.

-
- Step 1** On the header, click **User** and choose **Edit My Profile**.
- Step 2** In the **User Profile** area of the **Edit My Profile** screen, choose one of the supported languages.
- Step 3** Click **Save** and then click **Close**.
The End User Portal refreshes with the updated language selection.
-

Changing Your Password

- Step 1** On the header, click **User** and choose **Edit My Profile**.
- Step 2** In the **Password** area of the **Edit My Profile** screen, enter your old password, enter your new password, and confirm your new password.
- Step 3** Click **Save**.
-

Viewing Your Access Permissions

Your access permissions determine which tasks you can perform in the End User Portal. Some tasks require that your administrator give you the appropriate End User Self-Service permissions.

- Step 1** On the header, click **User** and choose **Edit My Profile**.
- Step 2** In the **Access Profiles** area of the **Edit My Profile** screen, your access level and profile are listed.
- Step 3** Click **Close** or click the **X** in the upper right corner to close the **Edit My Profile** screen.
-

Changing Your Default Access Profile

Your administrator may assign multiple access profiles to your user profile with different access levels and permissions. You can change the default profile used when you log in to the End User Portal.

- Step 1** On the header, click **User** and choose **Edit My Profile**.
- Step 2** In the **Access Profiles** area of the **Edit My Profile** screen, your available access profiles are listed.
- Step 3** Select the radio button of the access profile that you want to set as the default profile.
- Step 4** Click **Save**.
After clicking **Save**, the new default profile will be applied the next time you log back in to the End User Portal.
-

Dashboard Settings

Enabling and Disabling Your Dashboard

With your dashboard enabled, you can add and view summary reports on your landing page. You can also view summary dashlets, if your administrator has enabled them. The dashboard is enabled by default.

-
- Step 1** On the header, click **User** and choose **Edit My Profile**.
- Step 2** In the **Dashboard** area of the **Edit My Profile** screen, do one of the following:
- To enable your dashboard, click the **Enable Dashboard (in the top level menu)** check box and ensure it is checked.
 - To disable your dashboard, click the **Enable Dashboard (in the top level menu)** check box and ensure it is not checked.
- Step 3** Click **Save**.
- Step 4** Click **Close** or click the **X** in the upper right corner to close the **Edit My Profile** screen. After saving your settings and closing the **Edit My Profile** screen, the application refreshes with the dashboard enabled or disabled.
-

Creating a Custom Dashboard

You can create a custom dashboard to add one or more summary reports to your dashboard. Once you create a custom dashboard and add summary reports, you can view them on your landing page.

-
- Step 1** On the landing page, click the down arrow above the dashboard.
- Step 2** From the drop-down list, choose **Create Dashboard**.
- Step 3** Enter your custom dashboard name and click **Submit**. Your custom dashboard appears in the drop-down list.
-

What to do next

You can add one or more summary reports to your custom dashboard by navigating to the summary report.

Adding a Summary Report to Your Dashboard

After you add one or more summary reports to your dashboard, you can view them on your landing page.

-
- Step 1** Choose the desired option and navigate to the summary report you want to add to your dashboard. For example, if you want to add a VM-related summary report, choose **Virtual Resources** and then click **Summary**.
- Step 2** On the **Summary** tab, scroll down to the report that you want to add to your dashboard.

Step 3 In the upper right corner of the report, click **Settings** and then choose **Add to Dashboard**.

Removing a Summary Report from Your Dashboard

Step 1 On your landing page, scroll down to the summary report that you want to remove from your dashboard.

Step 2 In the upper right corner of the report, click **Settings** and then choose **Close View**.

After you remove a report from your dashboard, you must follow the procedure in [Adding a Summary Report to Your Dashboard, on page 14](#) to put it back on your dashboard.

Table and Column Customizations

Organizing Table Columns

For every table in the End User Portal, you can choose which columns you want to view, change the order of the columns in the table, or sort the table entries by column.



Note This procedure assumes that you have already navigated to the table that you want to organize.

Step 1 To show or hide one or more columns in the table, do the following:

- a) Hover over a column header and then click the down arrow that displays on the right side.
- b) From the drop-down list, choose **Columns**.
- c) Check the columns that you want to display and uncheck the columns that you want to hide.

Step 2 To sort the data in a table by the entries in one column, click the column header.

You can sort the column entries alphabetically by ascending or descending.

Filtering Table Entries

Use the **Filter** icon to add advanced criteria to filter the list of table entries.



Note This procedure assumes that you have already navigated to the table that you want to filter.

Step 1 Click the **Filter** icon on top of the table columns.

The **Search in Column** and the **Text** fields appear.

Step 2 In the **Search in Column** field, choose the column that contains the values you want to filter.

Step 3 In the **Text** field, enter the value that you want to view.

Note The value entered into the **Text** field does not need to be case sensitive.

Step 4 To add additional conditions, click **Add Column Filter** field and repeat steps 2 and 3.

Step 5 When you add additional conditions, choose **Match All Conditions** to view items that match all the specified conditions or choose **Match Any Condition** to view results that match any one of the specified conditions.

Step 6 Click the **Filters** button.

Step 7 To clear the filter and view all data in the table, click the **Filter** icon again.

Refreshing Report Data

Data in the End User Portal does not automatically refresh. However, you can refresh all data on a screen at any time.

Step 1 Choose the desired option and navigate to the report that includes the data that you want to refresh.

For example, if you want to refresh the information about your VMs, choose **Virtual Resources**, then click **VMs**.

Step 2 Click **Refresh Report Data**.

Exporting Data from a Report

You can export the data from any report.

Step 1 Choose the desired option and navigate to the report that includes the data that you want to export.

For example, if you want to export information about your VMs, choose **Virtual Resources**, then click **VMs**.

Step 2 Click **Export Report**.

Step 3 On the **Export Report** screen, choose one of the following report formats and then click **Generate Report**.

- **PDF**
- **CSV**
- **XLS**

Step 4 After the report has been generated, click **Download**.

The report is downloaded in the format requested to the download location configured in your browser.

Exporting a Summary Report

You can export the data from any individual report on a **Summary** screen. However, you cannot export multiple reports at one time.

- Step 1** Choose the desired option and navigate to the summary report you want to export.
For example, if you want to export a VM-related summary report, choose **Virtual Resources** and then click **Summary**.
- Step 2** On the **Summary** screen, scroll down to the report that you want to export.
- Step 3** Click **Settings** and then choose **Export**.
- Step 4** On the **Export Report** screen, choose one of the following report formats and then click **Generate Report**.
- **PDF**—Exports the summary report in a graphical format. A PDF of a summary report does not include the individual data points in a tabular format.
 - **CSV**—Exports the data points from the summary report as comma separated values.
 - **XLS**—Exports the data points from the summary report in a spreadsheet.
- Step 5** After the report has been generated, click **Download**.
The report is downloaded in the format requested to the download location configured in your browser.
-



CHAPTER 4

Catalogs

- [Catalogs, on page 19](#)
- [Creating a Service Request for a Standard Catalog, on page 19](#)
- [Creating a Service Request for an Advanced Catalog, on page 20](#)
- [Creating a Service Request for a Service Container Catalog, on page 21](#)
- [Creating a Service Request for a Bare Metal Catalog, on page 21](#)
- [Running a Deployability Assessment, on page 22](#)

Catalogs

You can provision infrastructure using predefined catalog items. A catalog defines parameters, such as the cloud name and the group name to which the infrastructure is bound. Your administrator can create custom folders and catalog items, and can specify a user group or specific users who can view the folders or catalogs. Your administrator can also give you permissions to create catalog items.

The following folders are available by default. You cannot edit or delete them.

- Standard
- Advanced
- Service Container
- Bare Metal

By default, the catalogs display in a tile view format. You can toggle in the upper right corner to display the catalogs in a list view format.

You can view additional details about a catalog item by clicking the row with the catalog item and clicking **View Details**.

Creating a Service Request for a Standard Catalog

Standard catalog items are used for generic service requests, such as creating service requests for VM provisioning using images from a list of clouds.

Step 1 Choose **Catalogs**.

- Step 2** From the navigation pane, choose **Standard**.
- Step 3** Choose the catalog item for which you want to create a service request and click **Create Request**.
- Step 4** On the **Catalog Selection** screen, complete the required fields, including the following:
- Select the **Group** or **User** radio button to specify if you want to provision the VM for a group or set of users.
If you select the **User** radio button, you can choose the users who will have VM ownership, VM access privilege, and VM management privilege.
 - Check **Perform deployment assessment** to perform a VM deployment assessment before creating the service request.
- Step 5** Click **Next**.
- Step 6** On the **Deployment Configuration** screen, complete the required fields, including the following:
- From the **Provision** drop-down list, choose when to provision the VM.
If you choose **Now**, the VM is provisioned immediately. If you choose **Later**, a calendar and a time drop-down list appear.
 - Check **Lease Time** to configure a lease time for the VM specified in days and hours.
 - From the **Charge Duration** drop-down list, choose a duration for which the default cost is calculated.
By default, this duration is set to **Monthly**. You can specify the duration in days, months, or hours depending on the duration you choose.
- Step 7** Click **Next**.
- Step 8** On the **Custom Specification** screen, specify the CPU cores and memory and click **Next**.
- Step 9** On the **Custom Workflow** screen, if applicable, complete the required fields and click **Next**.
Custom workflow inputs are applicable if your administrator enabled post-provisioning custom actions for the catalog selected for VM provisioning. The post-provisioning workflow includes custom inputs, which depend on the workflow attached to a catalog.
- Step 10** On the **Summary** screen, review the information for the service request.
- Step 11** Click **Submit**.
-

Creating a Service Request for an Advanced Catalog

Advanced catalog items are used for orchestration workflow execution. You can execute workflow catalog items that have been provisioned by your administrator.

- Step 1** Choose **Catalogs**.
- Step 2** From the navigation pane, choose **Advanced**.
- Step 3** Choose the catalog item for which you want to create a service request and click **Create Request**.
- Step 4** On the **Catalog Selection** screen, enter an optional email address in the **Service Request Support Email Field** and then click **Next**.
- Step 5** On the **Custom Workflow** screen, if applicable, completed the required fields and then click **Next**.

Custom workflow inputs are applicable if your administrator enabled post-provisioning custom actions for the catalog selected for VM provisioning. The post-provisioning workflow lets you specify custom inputs, which are dependent on the workflow attached to a catalog.

- Step 6** On the **Summary** screen, review the information for the service request.
- Step 7** Click **Submit**.
-

Creating a Service Request for a Service Container Catalog

Service container catalog items are used for application container VM provisioning.

- Step 1** Choose **Catalogs**.
- Step 2** From the navigation pane, choose **Service Container**.
- Step 3** Choose the catalog item for which you want to create a service request and click **Create Request**.
- Step 4** On the **Catalog Selection** screen, click **Next**.
- Step 5** On the **Deployment Configuration** screen, complete the required fields, including the following:
- From the **Provision** drop-down list, choose when to provision the VM.
If you choose **Now**, the VM is provisioned immediately. If you choose **Later**, a calendar and a time drop-down list appear.
 - In the **Service Container Name** field, enter a name for the service container.
- Step 6** Click **Next**.
- Step 7** On the **Summary** screen, review the information for the service request.
- Step 8** Click **Submit**.
-

Creating a Service Request for a Bare Metal Catalog

Bare metal catalog items are used for workflow execution of a bare metal server. You can execute a catalog item with a bare metal server provisioning policy that has been defined by your administrator.

- Step 1** Choose **Catalogs**.
- Step 2** From the navigation pane, choose **Bare Metal**.
- Step 3** Choose the catalog item for which you want to create a service request and click **Create Request**.
- Step 4** On the **Catalog Selection** screen, click **Next**.
- Step 5** On the **Custom Workflow** screen, if applicable, complete the required fields and then click **Next**.
Custom workflow inputs are applicable if your administrator enabled post-provisioning custom actions for the catalog selected for bare metal server provisioning. The post-provisioning workflow lets you specify custom inputs, which are dependent on the workflow attached to a catalog.
- Step 6** On the **Summary** screen, review the information for the service request.

Step 7 Click **Submit**.

Running a Deployability Assessment

You can run a deployability assessment on a standard catalog item to assess the deployable hosts. The report displays if a host is deployable or not and lists any reasons for exclusion. You can create a deployability assessment report on all configured VDCs or on selected VDCs.

Before you begin

The administrator should have enabled the **Allow Deployability Assessment** permission for your role for you to perform this action.

Step 1 Choose **Catalogs**.

Step 2 Choose the standard catalog item on which you want to run a deployability assessment and click **Deployability Assessment**.

Step 3 On the **Select vDC** screen, do one of the following:

- Check **Run Assessment Across all VDCs**.
- Uncheck **Run Assessment Across all VDCs** and check the VDCs that you want to include in the deployability assessment report.

Step 4 Click **Submit**.



CHAPTER 5

Services

- [Services, on page 23](#)
- [Service Requests, on page 23](#)
- [User OVF Management, on page 29](#)
- [Downloads, on page 30](#)

Services

You can view and manage service requests, OVF files, and downloads. The OVF files and downloads are provided by your administrator. By default, the **Services** menu option displays all service requests and their status.

Service Requests

You can create a service request to provision virtual machines (VMs), services, or applications. The service request process creates a provisioning workflow for VM creation that includes the following actions:

- Budget validation
- Dynamic resource allocation
- Approvals
- Provisioning
- Lifecycle setup and notifications

Your administrator can provide an orchestration workflow as a catalog item. To provision a VM or execute an orchestration workflow, you must first create a service request. Once your administrator or the designated approver approves the service request, the VM is provisioned. VMs can be immediately approved or scheduled to be approved within a maximum of 90 days from the original request. You can view the Service Requests report by choosing **Service Requests** under **Services**.

The Service Requests reports screen displays all service requests, as well as the following information:

- Service Request ID
- Request Type

- Initiating User
- Group
- Catalog/Workflow Name
- Initiator Comments
- Request Time
- Request Status
- Rollback Type

You can view additional information about a service request by clicking the row with service request and clicking **View Details**.

Creating a Service Request for a Standard Catalog

Standard catalog items are used for generic service requests, such as creating service requests for VM provisioning using images from a list of clouds.

-
- Step 1** Choose **Services**.
- Step 2** On the **Services** page, click **Service Requests**.
- Step 3** Click **Create Request**.
- Step 4** On the **Create Request** screen, choose **Standard** from the **Catalog Type** drop-down list.
- Step 5** Click **Submit**.
- Step 6** On the **Catalog Selection** screen, complete the required fields, including the following:
- a) Select the **Group** or **User** radio button to specify if you want to provision the VM for a group or set of users.
If you select the **User** radio button, you can choose the users who will have VM ownership, VM access privilege, and VM management privilege.
 - b) Choose a catalog from the **Select Catalog** drop-down list.
 - c) Check **Perform deployment assessment** to perform a VM deployment assessment before creating the service request.
- Step 7** Click **Next**.
- Step 8** On the **Deployment Configuration** screen, complete the required fields, including the following:
- a) From the **Provision** drop-down list, choose when to provision the VM.
If you choose **Now**, the VM is provisioned immediately. If you choose **Later**, a calendar and a time drop-down list appear.
 - b) Check **Lease Time** to configure a lease time for the VM specified in days and hours.
 - c) From the **Charge Duration** drop-down list, choose a duration for which the default cost is calculated.
By default, this duration is set to **Monthly**. You can specify the duration in days, months, or hours depending on the duration you choose.
- Step 9** Click **Next**.
- Step 10** On the **Custom Specification** screen, specify the CPU cores and memory and click **Next**.

- Step 11** On the **Custom Workflow** screen, if applicable, complete the required fields and click **Next**.
Custom workflow inputs are applicable if your administrator enabled post-provisioning custom actions for the catalog selected for VM provisioning. The post-provisioning workflow includes custom inputs, which depend on the workflow attached to a catalog.
- Step 12** On the **Summary** screen, review the information for the service request.
- Step 13** Click **Submit**.
-

Creating a Service Request for an Advanced Catalog

Before you begin

Advanced catalog items are used for orchestration workflow execution. You can execute workflow catalog items that have been provisioned by your administrator.

- Step 1** Choose **Services**.
- Step 2** On the **Services** page, click **Service Requests**.
- Step 3** Click **Create Request**.
- Step 4** On the **Create Request** screen, choose **Advanced** from the **Catalog Type** drop-down list.
- Step 5** Click **Submit**.
- Step 6** On the **Catalog Selection** screen, choose a catalog from the **Select Catalog** drop-down list and then click **Next**.
- Step 7** On the **Custom Workflow** screen, if applicable, complete the required fields and then click **Next**.
Custom workflow inputs are applicable if your administrator enabled post-provisioning custom actions for the catalog selected for VM provisioning. The post-provisioning workflow lets you specify custom inputs, which are dependent on the workflow attached to a catalog.
- Step 8** On the **Summary** screen, review the information for the service request.
- Step 9** Click **Submit**.
-

Creating a Service Request for a Service Container Catalog

Service container catalog items are used for application container VM provisioning.

- Step 1** Choose **Services**.
- Step 2** On the **Services** page, click **Service Requests**.
- Step 3** Click **Create Request**.
- Step 4** On the **Create Request** screen, choose **Service Container** from the **Catalog Type** drop-down list.
- Step 5** Click **Submit**.
- Step 6** On the **Catalog Selection** screen, choose a catalog from the **Select Catalog** drop-down list and then click **Next**.
- Step 7** On the **Deployment Configuration** screen, complete the required fields, including the following:
- From the **Provision** drop-down list, choose when to provision the VM.

If you choose **Now**, the VM is provisioned immediately. If you choose **Later**, a calendar and a time drop-down list appear.

b) In the **Service Container Name** field, enter a name for the service container.

Step 8 Click **Next**.

Step 9 On the **Summary** screen, review the information for the service request.

Step 10 Click **Submit**.

Creating a Service Request for a Bare Metal Catalog

Bare metal catalog items are used for workflow execution of a bare metal server. You can execute a catalog item with a bare metal server provisioning policy that has been defined by your administrator.

Step 1 Choose **Services**.

Step 2 On the **Services** page, click **Service Requests**.

Step 3 Click **Create Request**.

Step 4 On the **Create Request** screen, choose **Bare Metal** from the **Catalog Type** drop-down list.

Step 5 Click **Submit**.

Step 6 On the **Catalog Selection** screen, choose a catalog from the **Select Catalog** drop-down list and then click **Next**.

Step 7 On the **Custom Workflow** screen, if applicable, complete the required fields and then click **Next**.

Custom workflow inputs are applicable if your administrator enabled post-provisioning custom actions for the catalog selected for bare metal server provisioning. The post-provisioning workflow lets you specify custom inputs, which are dependent on the workflow attached to a catalog.

Step 8 On the **Summary** screen, review the information for the service request.

Step 9 Click **Submit**.

Canceling a Service Request

You can cancel a pending or approved service request. Canceling the request denies the request and removes it from your approval list. The workflow for a pending approval stops in a failed state at the approval task.

You can cancel an approved service request that you may want to resubmit later. If you resubmit a service request for a cancelled request that was previously approved, the workflow starts from the approval task.

Step 1 Choose **Services**.

Step 2 On the **Services** page, click **Service Requests**.

Step 3 Click the row with the service request that you want to cancel.

Step 4 Click **Cancel**.

Step 5 On the **Cancel Service Request** screen, click **Submit**.

The service request is removed from the **Approvals** page. On the **Service Requests** page, the **Request Status** for the service request changes to Canceled.

Resubmitting a Service Request

You can resubmit a rejected or failed service request. A service request can fail for the following reasons:

- Budget limit (if defined by your administrator) is exceeded for the group under which the VM is being provisioned.
- Resource limits (if defined by your administrator) are exceeded for the group under which the VM is being provisioned.
- Provisioning could fail if relevant information is not provided when creating a service request.

When a service request is resubmitted, you can choose the task in the workflow from which you want to start the service request. For example, if a service request fails in the Resource Allocation workflow, you can resubmit the service request to start from this step.

- Step 1** Choose **Services**.
- Step 2** On the **Services** page, click **Service Requests**.
- Step 3** Click the row with the service request that you want to resubmit.
- Step 4** Click **Resubmit Request**.
- Step 5** On the **Resubmit Service Request** screen, choose the task from which you want to start the service request, from the **Resubmit Step** drop-down list.
- Step 6** Click **Submit**.
- On the **Approvals** page, the **My Approval Status** for the service request changes to Pending.
-

What to do next

On the **Approvals** page, choose and approve the service request.

Archiving a Service Request

You can archive a service request for future use. Once you archive a service request, contact your administrator if you want to reinstate the service request.

- Step 1** Choose **Services**.
- Step 2** On the **Services** page, click **Service Requests**.
- Step 3** Click the row with the service request that you want to archive.
- Step 4** Click **Archive**.

Step 5 On the **Archive Request** screen, click **Archive**.

Adding Notes to a Service Request

You can add notes to a service request, to provide information for yourself, for the requestor, or for other approvers.

- Step 1** Choose **Services**.
- Step 2** On the **Services** page, click **Service Requests**.
- Step 3** Click the row with the service request to which you want to add a note.
- Step 4** Click **Add Notes**.
- Step 5** On the **Add Notes** screen, add any necessary information to the **Notes** field.
- Step 6** Click **Submit**.
-

Rolling Back a Service Request

You can undo all or part of an executed workflow by rolling back a service request. You can roll back tasks that executed successfully. Exceptions include:

- Some tasks are designed such that they cannot be rolled back.
- Rollback can be disabled for a task within a particular workflow.

Any changes made by tasks that are not selected to be rolled back are not undone. For example, if the task for creating virtual resources is not selected, virtual resources are not removed when the service request is rolled back. If you choose to roll back an entire successful service request, all of its workflow tasks are rolled back with the exceptions of those that are disabled.

- Step 1** Choose **Services**.
- Step 2** On the **Services** page, click **Service Requests**.
- Step 3** Click the row with the service request that you want to roll back.
- Step 4** From the **More Actions** drop-down list, choose **Rollback Request**.
- Step 5** On the **Rollback Service Request** screen, verify that the tasks you want to roll back are checked.
By default, all of the tasks are checked.
- Step 6** Click **Submit**.
On the **Approvals** page, the **Approval Status** for the service request changes to Pending.
-

What to do next

On the **Approvals** page, choose and approve the service request.

User OVF Management

You can manage Open Virtualization Format (OVF) files and deploy them to your group or to customer organizations. The OVF files can be in OVA, zip, and jar formats. You can view the user OVF Management report by choosing **User OVF Management** under **Services**.

The User OVF Management report displays all available OVF files, as well as the following information:

- File Name
- Description
- Date/Time Added
- Folder Type
- User ID

Uploading an OVF File

You can upload OVF and image files (OVA, zip, and jar formats) to a predefined storage location.

-
- Step 1** Choose **Services**.
- Step 2** On the **Services** page, click **User OVF Management**.
- Step 3** Click **Upload File**.
- Step 4** On the **Upload File** screen, complete the required fields.
- You can choose a file or drag and drop a file into the **OVF file** field.
- Step 5** Click **Submit**.
-

Deploying an OVF File

You can deploy OVF and image files (OVA, zip, and jar formats) to a group or to a customer organization.



Note At least twice the file size disk space is required for OVF and image file uploads.

-
- Step 1** Choose **Services**.
- Step 2** On the **Services** page, click **User OVF Management**.
- Step 3** Click the row with the OVF file that you want to deploy.
- Step 4** Click **Deploy**.
- Step 5** On the **Deploy OVF** screen, complete the required fields.

Step 6 Click **Submit**.

Downloads

Your administrator can provide files for you to download. Downloads can include binary files and executable files. You can view the Downloads report by choosing **Downloads** under **Services**.

The Downloads report displays all available downloads, as well as the following information:

- Name
- Description
- File Name

Downloading a File

You can download a file provided by your administrator.

Before you begin

Disable pop-up blockers in your browser.

- Step 1** Choose **Services**.
- Step 2** On the **Services** page, click **Downloads**.
- Step 3** Click the row with the file that you want to download.
- Step 4** Click **Download**.
-



CHAPTER 6

Approvals

- [Approvals, on page 31](#)
- [Approving a Service Request, on page 32](#)
- [Rejecting a Service Request, on page 32](#)
- [Canceling a Service Request, on page 32](#)
- [Resubmitting a Service Request, on page 33](#)
- [Archiving a Service Request, on page 33](#)
- [Adding Notes to a Service Request, on page 34](#)
- [Rolling Back a Service Request, on page 34](#)

Approvals

An approval, via email, by a supervisor or manager can be set up as a policy for infrastructure provisioning requests made by end users. Approvals allows your administrator to give visibility to supervisors and to manage exceptions often needed to meet business policies while automatically provisioning infrastructure. Your administrator can define two approval groups (primary and secondary). Primary or secondary approvers must approve the service request at the first or second level. Your administrator can also specify if approval is required from all users. Once a service request is created, a service request notification email is sent to the approvers. You can view all requests that require your approval, or your service requests that are pending approval from either primary or secondary approvers on the **Approvals** screen. Once the service request is approved, the next step, infrastructure provisioning, is initiated.

The **Approvals** screen displays all approved, pending, and rejected service requests and the following information for each service request:

- Service Request ID
- Request Type
- Initiating User
- Group
- Catalog Name
- Initiator Comments
- Request Time
- My Comments

- My Approval Status

You can view additional details about a service request by clicking the row with the service request and clicking **View Details**.

Approving a Service Request

If you are assigned as an approver for your VDC, pending service requests that require your approval appear on the **Approvals** screen.

-
- Step 1** Choose **Approvals**.
 - Step 2** Click on the row with the pending service request that you want to approve.
 - Step 3** Click **Approve**.
 - Step 4** On the **Service Request** screen, add any necessary comments to the **Comment** field.
 - Step 5** Click **Approve**.

On the **Approvals** page, the **Approval Status** for the service request changes to Approved once the service request completes.

Rejecting a Service Request

Rejecting a pending service request in your approval list denies the request, and the request appears in your approval list as rejected.

-
- Step 1** Choose **Approvals**.
 - Step 2** Click on the row with the pending service request that you want to reject.
 - Step 3** Click **Reject**.
 - Step 4** On the **Service Request** screen, add any necessary comments to the **Comment** field.
 - Step 5** Click **Reject**.

On the **Approvals** page, the **Approval Status** for the service request changes to Rejected. On the **Service Requests** page, the **Request Status** for the service request changes to Failed.

Canceling a Service Request

You can cancel a pending or approved service request. Canceling the request denies the request and removes it from your approval list. The workflow for a pending approval stops in a failed state at the approval task. You can cancel an approved service request that you may want to resubmit later. If you resubmit a service request for a cancelled request that was previously approved, the workflow starts from the approval task.

-
- Step 1** Choose **Approvals**.
- Step 2** Click the row with the service request that you want to cancel.
- Step 3** Click **Cancel**.
- Step 4** Click **Submit**.

The service request is removed from the **Approvals** page. On the **Service Requests** page, the **Request Status** for the service request changes to Canceled.

Resubmitting a Service Request

You can resubmit a rejected or failed service request. A service request can fail for the following reasons:

- Budget limit (if defined by your administrator) is exceeded for the group under which the VM is being provisioned.
- Resource limits (if defined by your administrator) are exceeded for the group under which the VM is being provisioned.
- Provisioning could fail if relevant information is not provided when creating a service request.

When a service request is resubmitted, you can choose the task in the workflow from which you want to start the service request. For example, if a service request fails in the Resource Allocation workflow, you can resubmit the service request to start from this step.

- Step 1** Choose **Approvals**.
- Step 2** Click on the row with the service request that you want to resubmit.
- Step 3** Click **Resubmit Request**.
- Step 4** On the **Resubmit Service Request** screen, choose the task from which you want to start the service request, from the **Resubmit Step** drop-down list.
- Step 5** Click **Submit**.

On the **Approvals** page, the **My Approval Status** for the service request changes to Pending.

What to do next

On the **Approvals** page, choose and approve the service request.

Archiving a Service Request

You can archive a service request for future use. Archiving a service request removes it from your approval list. Once you archive a service request, contact your administrator if you want to reinstate the service request.

-
- Step 1** Choose **Approvals**.
- Step 2** Click the row with the service request that you want to archive.
- Step 3** Click **Archive**.
- Step 4** On the **Archive Request** screen, click **Archive**.
- The service request is removed from the **Approvals** page.
-

Adding Notes to a Service Request

You can add notes to a service request, to provide information for yourself, the requestor, or other approvers.

- Step 1** Choose **Approvals**.
- Step 2** Click on the row with the service request to which you want to add notes.
- Step 3** Click **Add Notes**.
- Step 4** On the **Add Notes** screen, add any necessary information to the **Notes** field.
- Step 5** Click **Submit**.
-

Rolling Back a Service Request

You can undo all or part of an executed workflow by rolling back a service request. You can roll back tasks that executed successfully. Exceptions include:

- Some tasks are designed such that they cannot be rolled back.
- Rollback can be disabled for a task within a particular workflow.

Any changes made by tasks that are not selected to be rolled back are not undone. For example, if the task for creating virtual resources is not selected, virtual resources are not removed when the service request is rolled back. If you choose to roll back an entire successful service request, all of its workflow tasks are rolled back with the exceptions of those that are disabled.

- Step 1** Choose **Approvals**.
- Step 2** Click on the row with the service request that you want to roll back.
- Step 3** Click **Rollback Request**.
- Step 4** On the **Rollback Service Request** screen, verify that the tasks you want to roll back are checked.
- By default, all of the tasks are checked.
- Step 5** Click **Submit**.

On the **Approvals** page, the **Approval Status** for the service request changes to Pending.

What to do next

On the **Approvals** page, choose and approve the service request.



CHAPTER 7

Organizations

- [Organization](#), on page 37
- [Resource Limits](#), on page 37
- [OS Usage](#), on page 38

Organization

The **Organization** menu option provides summary information on the resources, resource limits, and OS usage for a group of users or a single user.

On the **Summary** screen, you can set the reports to be displayed or exported. You can view daily, hourly, weekly, or monthly summary reports containing the following data:

- Active and inactive VMs
- Trends on consolidated resource usage
- Organizational overview

Resource Limits

The Resource Limits report displays the following information about limits assigned on the infrastructure resources for the user group:

- Resource Name
- Limit
- Current Usage
- Pending SR Usage
- Status

Your administrator assigns the resource limit for each user group. Resources limits can be specified for virtual resources, operating system resources, and physical resources. You can view the resource limits of your user group by choosing **Resource Limits** under **Organization**.

OS Usage

The OS Usage report displays the Operating Systems (OS) usage details for your user group. You can view the name of the OS and their current usage by choosing **OS Usage** under **Organization**.



CHAPTER 8

Virtual Resources

- [Virtual Resources, on page 39](#)
- [VDCs, on page 40](#)
- [Application Containers, on page 40](#)
- [VMs, on page 45](#)
- [VM Action Requests, on page 47](#)
- [Images, on page 47](#)
- [Resource Pools, on page 48](#)

Virtual Resources

The **Virtual Resources** menu option displays a summary of your virtual resources with customizable reports. The Summary page displays an overview of all VDCs and VMs, reports for new VMs and deleted VMs, and trending reports for network usage, CPU usage, memory usage, disk usage.

You can manage the following virtual resources:

- VDCs
- Application Containers
- VMs
- VM Action Requests
- Images
- Port Groups
- DV Port Groups
- Resource Pools
- Datastores
- Datastore Clusters

VDCs

During VM provisioning, you can associate a VM with a virtual data center (VDC). When you create a service request, you can choose the VDC on which the VM is provisioned. You can view a list of VDCs available for a group and choose the required VDC when provisioning the VM.

You can view available VDCs and their details by choosing **vDCs** under **Virtual Resources**.

The VDCs report displays all available VDCs, as well as the following information:

- Cloud
- vDC
- Type
- Lock State
- Total VMs
- Active VMs
- Custom Categories
- Status
- Tag

You can view additional details about a VDC by clicking on the row with the VDC and clicking **View Details**.

Application Containers

Application containers are a templated approach to provisioning applications for end users. Each application container is a collection of VMware virtual machines (VMs) and/or bare metal servers (BMs) with an internal private network that is based on rules specified by the administrator. An application container can have one or more VMs and BMs and can be secured by a fencing gateway (for example, a Virtual Secure Gateway) to the external or public cloud.

Administrators can create one or more application container templates with the appropriate policies, workflows, and templates. The application container template determines how the application is provisioned for the end user.

You can view all available application containers and all associated VMs, bare metal servers, network tier mappings, L4-L7 services, and contracts. You can view additional details about an application container by clicking the row with the application container and clicking **View Details**.

Viewing Application Container Reports

For each application container, you can generate summary reports, a detailed report with credentials, and a detailed report without credentials. If you choose to generate a report with credentials, the passwords appear in plain text. The report header displays the service request ID used to create the container.



Note Generating a report without credentials hides the passwords in the report.

-
- Step 1** Choose **Virtual Resources**.
 - Step 2** On the **Virtual Resources** page, click **Application Containers**.
 - Step 3** Click the row with application container for which you want to view reports.
 - Step 4** Click **View Reports**.
 - Step 5** On the **View Container Reports** screen, choose the type of report to generate from the **Select Report Type** drop-down list.
 - Step 6** Click **Submit**.
-

Managing an Application Container's Power

You can enable and disable power for an application container.

-
- Step 1** Choose **Virtual Resources**.
 - Step 2** On the **Virtual Resources** page, click **Application Containers**.
 - Step 3** Click the application container that you want to power on or power off.
 - Step 4** Click **Power On Container** or **Power Off Container**.
 - Step 5** On the **Power On Container** or the **Power Off Container** screen, select the provisioned VMs to power on or power off.
 - Step 6** Click **Submit**.
-

Decommissioning an Application Container

You can decommission an application container that you no longer require. When you decommission an application container, the provisioned VMs are powered off but not deleted.

-
- Step 1** Choose **Virtual Resources**.
 - Step 2** On the **Virtual Resources** page, click **Application Containers**.
 - Step 3** Click the application container that you want to decommission.
 - Step 4** Click **Decommission Container**.
 - Step 5** On the **Decommission Container** screen, select the provisioned VMs to power off.
 - Step 6** Click **Submit**.
-

Cloning an Application Container

You can clone an existing application container. Cloning an application container retains all of the settings and configuration data with the VMs that are contained in the original application container.

-
- Step 1** Choose **Virtual Resources**.
 - Step 2** On the **Virtual Resources** page, click **Application Containers**.
 - Step 3** Click the application container that you want to clone.
 - Step 4** Click **Clone Container**.
 - Step 5** On the **Clone Container** screen, specify the new container name and new container label.
The container label must be unique.
 - Step 6** Click **Submit**.
The cloned container appears in the Application Container table.
-

Adding a VM to an Application Container

You can add a VM exclusively to any of the deployed application containers available for you or your group.

-
- Step 1** Choose **Virtual Resources**.
 - Step 2** On the **Virtual Resources** page, click **Application Containers**.
 - Step 3** Click the application container to which you want to add one or more VMs.
 - Step 4** From the **More Actions** drop-down list, choose **Add VMs**.
 - Step 5** On the **Manage VMs** screen, choose a row and click the pencil icon.
 - Step 6** On the **Edit Virtual Machines Entry** screen, enter the number of additional VM instances to provision, and click **Submit**.
Note Your administrator defines the maximum number of VM instances that you can provision. An error message appears if you enter a value higher than the maximum instances allowed.
 - Step 7** On the **Manage VMs** screen, click **Submit**.
-

Adding a Bare Metal Server to a Deployed APIC Application Container

Bare metal servers are supported only in APIC containers. You can add a bare metal server to a deployed APIC application container.

-
- Step 1** Choose **Virtual Resources**.
 - Step 2** On the **Virtual Resources** page, click **Application Containers**.
 - Step 3** Click the application container to which you want to add one or more bare metal servers.
 - Step 4** From the **More Actions** drop-down list, choose **Add BMs**.

- Step 5** On the **Add BMs** screen, click **Add** to add a new bare metal server.
- Step 6** On the **Add Entry to Bare Metal Application Components** screen, complete the required fields.
- Step 7** Click **Submit**.
The newly added bare metal server is added to the **Bare Metal Application Components** list.
- Step 8** On the **Add BMs** screen, you can add more bare metal servers or click **Submit**.
-

Deleting an Application Container

You can delete an application container that you no longer require. When you delete an application container, you also delete the resources that are provisioned for that application container. When the **Delete Container** action is initiated, the application container setup is rolled back, and a service request is created.

- Step 1** Choose **Virtual Resources**.
- Step 2** On the **Virtual Resources** page, click **Application Containers**.
- Step 3** Click the application container that you want to delete.
- Step 4** From the **More Actions** drop-down list, choose **Delete Container**.
- Step 5** On the **Delete Container** screen, click **Submit**.
- Note** If you choose to delete an application container with associated L4-L7 services, the L4-L7 services are also deleted.
-

Accessing a VM Console

You can view the VM console of a VM associated with an application container.

Before you begin

VNC must be configured on the VM you want to access.

- Step 1** Choose **Virtual Resources**.
- Step 2** On the **Virtual Resources** page, click **Application Containers**.
- Step 3** Click the application container for which you want to view the VM console.
- Step 4** From the **More Actions** drop-down list, choose **Open Console**.
- Step 5** On the **Access VM Console** screen, choose a VM from the **Select VM** drop-down list.
- Step 6** Click **Submit**.
The console for the selected VM opens in a new browser window.
-

Editing Resource Limits

You can edit the resource limits for an application container. You can specify the number of vCPUs, the amount of memory, the limit for maximum storage, and the maximum number of half-width and full-width servers for the container.

-
- Step 1** Choose **Virtual Resources**.
 - Step 2** On the **Virtual Resources** page, click **Application Containers**.
 - Step 3** Click the application container for which you want to edit the resource limits.
 - Step 4** From the **More Actions** drop-down list, choose **Edit Resource Limits**.
 - Step 5** On the **Container Limits** screen, check **Configure Resource Limit**.
 - Step 6** Complete the required fields and click **Submit**.
-

Editing a Cost Model

A cost model is used to define the unit level costs of virtual resources such as CPU, RAM, and storage. These costs are used for chargeback calculations of VMs within the virtual infrastructure. Your administrator can map a cost model to an application container template. You can edit the cost model for an application container.

-
- Step 1** Choose **Virtual Resources**.
 - Step 2** On the **Virtual Resources** page, click **Application Containers**.
 - Step 3** Click the application container for which you want to edit the cost model.
 - Step 4** From the **More Actions** drop-down list, choose **Edit Cost Model**.
 - Step 5** On the **Container Cost Model** screen, choose a cost model from the **Cost Model** drop-down list.
The drop-down list displays the available cost models mapped to the application container.
 - Step 6** Click **Submit**.
-

Adding an Application Container Contract

Contracts are policies that enable inter-End Point Group (inter-EPG) communication. These policies are the rules that specify communication between application tiers.

-
- Step 1** Choose **Virtual Resources**.
 - Step 2** On the **Virtual Resources** page, click **Application Containers**.
 - Step 3** Click the application container to which you want to add a contract.
 - Step 4** Click **View Details**.
 - Step 5** On the detail page for the application container, click **Contracts**.
 - Step 6** Click **Add Contract**.
 - Step 7** On the **Add Contract** screen, complete the required fields, including the following:

- a) Choose the source network and destination network to which you want to apply the contract rule.
If the contract is between the tiers of the same container, you can choose the tiers that belong to the same container, otherwise, you can choose the tiers from different containers.
- b) Check **Create Rule** to create a filter rule.
If **Create Rule** is not checked, only an empty contract is created.
- c) Choose the protocol to use for communication.
If you choose **TCP** or **UDP**, additional fields for the starting and ending range for the source port and destination port appear.
- d) Check **Apply Both Directions** to apply the contract to the traffic from the source to the destination, and the traffic from the destination to the source.
- e) From the **Action** drop-down list, choose the action to be taken for the traffic that matches the contract.

Step 8

Click **Submit**.

VMs

You can perform post-provisioning lifecycle management actions that are permitted by your administrator. You can view the entire list of VMs provisioned using service requests under a user group. You can view the VMs report by choosing **VMs** under **Virtual Resources**.

The VMs report lists all available VMs, as well as the following information:

- Cloud
- VM-ID
- VM Label
- VM Name
- Host Name
- IP Address
- Image ID
- Power State
- VM Protected
- Group Name
- VDC
- Category
- Provisioned Time
- Scheduled Termination Time
- Last Status Update

- Guest OS Type
- VM Annotation
- Custom Attributes
- Assigned To User
- Users Can Access
- Users Can Manage
- Tags
- VMM Cloud

You can view additional details about a VM by clicking the row with the VM and clicking **View Details**.



Note The VMs report no longer displays the vCenter VM ID and the vCenter IP fields in End User Portal versions 6.5 and later.

Viewing VM Details

The VM details page displays related reports and trending data for the selected VM. You can also view associated VM action requests, events, VM snapshots, and vNICs on the VMs details page.

Step 1 Choose **Virtual Resources**.

Step 2 On the **Virtual Resources** page, click **VMs**.

Step 3 Click the row with the VM that you want to view.

Step 4 Click **View Details** to view the following information about the VM:

- **Summary**—Displays trending reports for CPU usage, memory usage, network usage, and disk I/O. Also displays reports for overview, ownership, resources, storage, network, guest information, and catalog details.
 - **VM Action Requests**—Displays all of the available action IDs and related information.
 - **Events**—Displays the current events associated with the VM
 - **VM Snapshots**—Displays all of the available VM snapshots and related information.
 - **vNICs**—Displays all of the vNICs associated with the VM.
 - **Disks**—Displays all of the Datastores associated with the VM.
-

Requesting Inventory Collection on a VM

You can request on-demand inventory collection for a VM.

-
- Step 1** Choose **Virtual Resources**.
- Step 2** On the **Virtual Resources** page, click **VMs**.
- Step 3** Click the row with the VM for which you want to collect inventory.
- Step 4** From the **More Actions** drop-down list, choose **Inventory Collection Request for VM**.
- Step 5** On the **Request VM Inventory Collection** screen, click **Submit**.
- The VMs report and the VM's detail page are refreshed with updated information from the inventory collection request.
-

VM Action Requests

You can view all available VM action requests and their details by choosing **VM Action Requests** under **Virtual Resources**.

You can also view VM action requests associated with a specific VM by choosing **VM Action Requests** on the VM's details page.

The VM Action Requests report displays all available VM action requests, as well as the following information:

- VM ID
- Action ID
- User Name
- Comment
- Schedule Time
- Status

Images

An image is a template that can be used to create and provision virtual machines (VMs). An image typically includes a specified operating system and a configuration that provides virtual counterparts to hardware components. Images offer a secure way of preserving a VM's configuration that you want to deploy multiple times.

You can view all available VM images and their details by choosing **Images** under **Virtual Resources**. The image IDs in the Images report have been assigned to you or your group. You can use an image ID to provision a new VM. Additionally you can select and delete any image IDs that you do not require.

The Images report displays all available images, as well as the following information:

- ID
- Cloud
- Image ID
- Parent Node

- Datacenter
- Guest OS
- VMware Tools Installed
- VMware Tools Version
- VM Version
- Platform
- Architecture
- Number of CPUs
- Memory (MB)
- Provisioned Disk (GB)
- Image Location
- CPU Reservation (MHz)
- CPU Limit (MHz)
- CPU Shares
- Memory Reservation (MHz)
- Memory Limit (MHz)
- Memory Shares
- Uncommitted Storage (GB)
- Group/User

Resource Pools

You can view available clouds and related configuration information. The resource details are at the host node level. You can view the Resource Pools report by choosing **Resource Pools** under **Virtual Resources**.

The Resource Pools report displays all available resource pools, as well as the following information:

- ID
- Cloud
- Datacenter Name
- Owner
- Resource Pool Name
- Parent
- Status
- CPU Configured Reservation (MHz)

- CPU Limit (MHz)
- CPU Used Reservation (MHz)
- CPU Expandable Reservation
- Memory Configured Reservation
- Memory Limit (MHz)
- Memory Used Reservation (MHz)
- Memory Expandable Reservation
- Group/User
- Tag



CHAPTER 9

Physical Resources

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Physical Resources

The **Physical Resources** menu option displays a summary of your physical resources and customizable reports.

You can view or manage the following physical resources:

- Volume Groups
- vFilers
- SVMs
- VLANs
- Servers
- Service Profiles
- VNX LUNs
- Block Storage Pools
- RAID Groups
- File Storage Pools

- VNX Volumes
- Rack Servers
- CloudSense Reports

Volume Groups

Invicta volume groups combine the physical disks or drives that are mounted on your system into a single administrative unit. Logical volumes are created on top of the volume groups to provide flexibility for managing physical resources. You can view the Volume Groups report by choosing **Volume Groups** under **Physical Resources**.

The Volume Groups report displays all available volume groups, as well as following information:

- Account Name
- Volume Group Name
- Size (GB)
- Size Available (GB)
- Status
- SSNs
- Group/User

vFilers

vFilers are NetApp ONTAP 7-mode virtual containers that are deployed on physical storage arrays, creating multiple instances within controllers. They are used to partition the storage and network resources of a single storage system, providing the appearance of multiple storage systems on the network. You can view the vFilers report by choosing **vFilers** under **Physical Resources**.

The vFiler report displays all available vFilers, as well as the following information:

- Account Name
- Filer
- Name
- IP Space
- IP Address
- Subnet mask
- DNS Name
- DNS Server
- Admin Host

- UUID
- Group/User

You can view additional details about a vFiler by clicking the row with the vFiler and clicking **View Details**.

vFiler Volumes

You can view the details and manage the volumes associated with a vFiler. You can view the vFiler Volumes report by choosing **vFiler Volumes** from the vFilers details page.

The vFiler Volumes report displays all the volumes associated with a vFiler, as well as the following information:

- Account Name
- Filer Name
- vFiler Name
- Name
- Type
- Containing Aggregate
- Available, Used, and Total space (GB)
- Percentage Used
- Space Guarantee
- Snapshot Reserved
- Dedup Enabled
- Storage Savings and Storage Efficiency
- Blocks Reserved
- Export Path
- CIFS Share Name
- Security Style
- Mirror Status

You can view additional details about a vFiler volume by clicking the row with the vFiler volume and clicking **View Details**.

vFiler Volume LUNs

You can view the logical unit numbers (LUNs) that are associated with an vFiler volume by selecting a volume and viewing the details for the volume.

The LUNs report displays information about the vFiler LUN:

- Account Name

- Filer Name
- Name
- Type
- Containing Aggregate
- State
- Available (GB)
- Used (GB)
- Total (GB)
- Percentage Used
- Space Guarantee
- Snapshot Reserved
- Dedup Enabled
- Storage Savings
- Storage Efficiency

SnapMirrors

NetApp SnapMirror software is an enterprise-level disaster recovery and data distribution solution. SnapMirror is a data replication feature of Data ONTAP that mirrors data to one or more network filers at high speed over LAN or WAN connections. You can view the SnapMirrors report by choosing **SnapMirrors** from the vFilers details page.

The SnapMirrors report displays all the SnapMirrors associated with a vFiler, as well as the following information:

- Account Name
- File Name
- Source and Destination Location
- Status
- State
- Last Transfer Type, Size, and Duration
- Transfer Progress
- Current Transfer Type and Error
- Lag Time
- Mirror Time Stamp
- Contents

- Base Snapshot

You can view scheduled SnapMirror relationships and status history by clicking on the row with the SnapMirror and clicking **View Details**.

Storage Virtual Machines

Storage Virtual Machines (SVMs), formerly known as NetApp virtual storage servers (Vservers), are virtualized servers that support multiple protocols and unified storage. SVMs securely isolate the shared virtualized data storage and network, and each SVM appears as a single dedicated server to the clients.

SVMs provide data access to clients without regard to physical storage or controller, similar to any storage system. SVMs use the storage and network resources of the cluster, but they contain volumes and logical interfaces (LIFs) that are exclusive to each SVM.

Each SVM contains at least one volume and one logical interface, and each SVM has a separate administrator authentication domain and can be managed independently by an SVM administrator. An SVM administrator can manage an SVM and its resources, such as volumes, protocols, and services, depending on the capabilities assigned by the cluster administrator.

Each cluster must have at least one SVM to serve data. Multiple SVMs can coexist in a single cluster without being bound to any single node in a cluster, but they must be bound to the physical cluster on which they exist.

You can view the SVMs report by choosing **SVMs** under **Physical Resources**. The SVMs report displays all available SVMs, as well as the following information:

- Account Name
- Cluster Name
- Name
- Type
- State
- NFS Service Status
- Root Volume
- Aggregate
- LIFs
- Max Volumes
- Allowed Protocols
- Antivirus On Access Policy
- Quota Policy
- Name Service Switch
- Name Mapping Switch
- Node Name

- Group/User
- Tag

You can view additional details about an SVM by clicking the row with the SVM and clicking **View Details**.

SVM Volumes

You can view the details of the volumes associated with an SVM by choosing **Volumes** on the SVM details page. The Volumes report displays all the volumes associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- SVM
- Name
- Type
- Is SVM Root
- Containing Aggregate
- Node Name
- Status
- Available, Used, and Total space (GB)
- Space Saved by Compression
- Space Saved by Deduplication
- Security Style
- Snapshot Policy
- Export Policy
- Percentage Used
- Space Guarantee
- Snapshot Reserved
- Junction Path
- CIFS Share Name
- Dedupe Enabled
- Group/User

You can view additional details about a volume associated with an SVM by clicking on the row with the volume and clicking **View Details**.

SVM LUNs

You can view the details of the LUNs associated with an SVM by choosing **LUNs** from the SVM details page. The LUNs report displays all the LUNs associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- SVM
- Volume
- Name
- LUN ID
- Datastore
- Hostnode
- Path
- State
- Read Only
- Size and Sized Used (GB)
- Mapped To
- Space Reservation Enabled
- Share State
- OS Type

You can view additional details about a LUN associated with an SVM by clicking on the row with the LUN and clicking **View Details**.

SVM Initiator Groups

An initiator group (igroup) specifies which initiators can have access to a LUN. You can view the details of the initiator groups associated with an SVM by choosing **Initiator Groups** from the SVMs details page. The Initiator Groups report displays all the initiator groups associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- SVM
- Name
- Group Type
- OS Type

- Portset Name

SVM Initiators

An initiator is a host that can access specified LUNs on the storage system. Each initiator is identified by a World Wide Port Name (WWPN). All initiators in the same initiator group must run the same operating system. An initiator cannot be a member of two initiator groups with different operating system types. An initiator also cannot be in multiple initiator groups that are mapped to the same LUN. You can view the Initiators report by choosing **Initiators** from the SVMs details page.

The Initiators report displays all the initiators associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- Name
- Initiator Group
- Group Type
- OS Type

SVM CIFS Shares

A CIFS share is a named access point on a volume that enables CIFS clients to access files on a file server. You can view the CIFS Shares report by choosing **CIFS Shares** from the SVMs details page. The CIFS Shares report displays all the CIFS shares associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- Share Name
- Mount Point
- User/Group
- Access Control
- Description

SVM SIS Policies

You can define a Single Instance Storage (SIS) policy to perform SIS operations that include compression and deduplication. Data compression can be used on demand, or as a scheduled background operation. The policy can include deduplication, which is a method of reducing disk space usage by eliminating duplicate data blocks on a FlexVol volume, where only a single instance of each unique data block is stored. You can view the SIS Policies report by choosing **SIS Policies** from the SVMs details page.

The SIS Policies report displays all the SIS policies associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- SVM
- Policy Name
- QoS Policy
- Scheduled
- Enabled
- Duration
- Comment

SVM Export Policies

An export policy includes export rules to control client access to volumes. An export policy must exist on an SVM for clients to access data. An export policy must be associated with each volume to configure client access to the volume.

A single SVM can contain multiple export policies. An SVM with multiple volumes can have the following::

- Different export policies assigned to each volume of the SVM for individual client access control to each volume.
- The same export policy assigned to multiple volumes of the SVM for identical client access control without having to create a new export policy for each volume.

You can view the Export Policies report by choosing **Export Policies** from the SVMs details page.

The Export Policies report displays all the export policies associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- SVM
- Policy Name

SVM Export Rules

Export rules determine how to handle the client access requests to volumes. At least one export rule needs to be added to an export policy to allow access to clients. If an export policy contains more than one rule, the rules are processed based on a rule index. You can specify the rule's index number when creating the rule. You can rearrange the order in which the export rules are processed.

The permissions defined in a rule are applied to the clients that match criteria specified in the export rule. You can view the Export Rules report by choosing **Export Rules** from the SVMs details page.

The Export Rules report displays all the export rules associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- Policy Name
- Client Match
- Rule Index
- RO Access Rule
- RW Access Rule
- Access Protocol
- NTFS Unix Secure Ops
- Chown Mode

SVM Snapshot Policies

A snapshot policy automatically manages snapshot policy schedules on the SVM. A snapshot policy can have up to five snapshot policy schedules, and specifies the frequency and the maximum number of automatically created snapshot copies.

A snapshot policy can be used to specify a NetApp SnapMirror label that identifies the snapshots made according to a designated schedule. SnapMirror labels are used to identify snapshots to transfer to SnapVault. If a prefix is specified in the snapshot policy, snapshots are created with the prefix in the snapshot name. Using prefixes in snapshot names provides more flexibility than using schedule names in naming the automatic snapshots.

You can view the Snapshot Policies report by choosing **Snapshot Policies** from the SVMs details page.

The Snapshot Policies report displays all the snapshot policies associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- SVM
- Name
- Policy Owner
- Enabled
- Total Schedules
- Comment

You can view additional details about a snapshot policy by clicking the row with the snapshot policy and clicking **View Details**.

SVM Port Sets

A port set consists of a group of Fibre Channel (FC) target ports. You bind a port set to an igroup, to make the LUN available only on a subset of the storage system's target ports. Any host in the igroup can access the LUNs only by connecting to the target ports in the port set.

If an igroup is not bound to a port set, the LUNs mapped to the igroup are available on all of the storage system FC target ports. The igroup controls which initiators LUNs are exported to. The port set limits the target ports on which those initiators have access.

You can view the Portsets report by choosing **Portsets** from the SVMs details page.

The Portsets report displays all the port sets associated with an SVM, as well as following details:

- Account Name
- Cluster Name
- SVM
- Name
- Portset Type
- Total Ports
- Ports

SVM WWPN Aliases

A WWPN is a unique, 64-bit identifier displayed as a 16-character hexadecimal value in Data ONTAP. Your administrators may find it easier to identify FC ports using an alias instead. You can view the details of WWPN aliases associated with an SVM. You can view the WWPN Aliases report by choosing **WWPN Aliases** from the SVMs details page.

The WWPN Aliases report displays all the WWPN aliases associated with an SVM, as well as the following information:

- Account Name
- Cluster Name
- SVM
- WWPN Alias
- WWPN

Servers

You can monitor and view the details for all available physical servers. You can view the Servers report by choosing **Servers** under **Physical Resources**.

The Servers report displays all available physical servers, as well as the following information:

- Name

- Model
- Total Memory (MB)
- Associated Status
- Operation Status
- Service Profile
- Power State
- IP Address

Service Profiles

A service profile ensures that the associated server hardware has the configuration required to support the applications it hosts. The service profile maintains configuration information about the server hardware, interfaces, fabric connectivity, and server and network identity.

Every active server must be associated with a service profile.



Note At any given time, each server can be associated with only one service profile. Similarly, each service profile can be associated with only one server at a time.

After a service profile is associated with a server, the server is ready to have an operating system and applications installed, and you can use the service profile to review the configuration of the server. If the server associated with a service profile fails, the service profile does not automatically fail over to another server.

When a service profile is disassociated from a server, the identity and connectivity information for the server is reset to factory defaults.

You can view the Service Profiles report by choosing **Service Profiles** under **Physical Resources**.

The Service Profiles report displays the following information for each available service profile:

- DN
- Name
- Associated Status
- Type
- FSM Status
- Assigned Server/Server Pool
- Operation State
- Config State
- Assign State
- Group/User

- Template Instance
- Policy Owner
- Maintenance Policy
- Storage Profile
- vMedia Policy

You can view additional details about a service profile by clicking the row with the service profile and clicking **View Details**.

VNX LUNs

EMC VNX LUNs are logical unit numbers (LUNs) that are used to identify storage entities in volumes on block or file storage arrays. You can view the VNX LUNs report by choosing **VNX LUNs** under **Physical Resources**.

The VNX LUNs report displays all available VNX LUNs, as well as the following information:

- Account Name
- Name
- ID
- Storage Pool
- RAID Group ID
- User Capacity (GB)
- Current Owner
- Default Owner
- Read Cache Enabled
- Write Cache Enabled
- Group/User

VNX Volumes

EMC VNX volumes reside in the block or file storage pools that distribute storage space to file systems. You can view the VNX Volumes report by choosing **VNX Volumes** under **Physical Resources**.

The VNX Volumes report displays all available VNX volume groups, as well as the following information:

- Volume Name
- Type
- Storage Capacity (GB)

- Free Capacity (GB)
- Storage Pool
- Data Movers

Block Storage Pools

Block storage pools are groups of available disk volumes on collections of storage-area network (SAN) disks. They are used to allocate available storage to file systems. You can view the Block Storage Pools report by choosing **Block Storage Pools** under **Physical Resources**.

The Block Storage Pool report displays all available block storage pools, as well as the following information:

- Account Name
- Name
- Description
- Total Capacity (GB)
- Used Capacity (GB)
- Free Capacity (GB)
- Physical Capacity (GB)
- RAID Type
- Storage Pool ID
- Number of LUNs
- Group/User

RAID Groups

RAID (Redundant Array of Independent Disks) provides a way of storing the same data in different places on multiple hard disks. By placing data on multiple disks, input/output operations can overlap in a balanced way, improving performance. You can view the RAID Groups report by choosing **RAID Groups** under **Physical Resources**.

The RAID Groups report displays all available RAID groups, as well as the following information:

- Account Name
- RAID Group ID
- RAID ID
- Drive Type
- Raw Capacity (GB)
- Logical Capacity (GB)

- Free Capacity (GB)
- Power Savings Setting
- Number of LUNs
- Number of Disks
- Percent Expanded
- Group/User

File Storage Pools

File storage pools are groups of available disk volumes on collections of network file system (NFS) disks that are used to allocate available storage to file systems. You can view the File Storage Pools report by choosing **File Storage Pools** under **Physical Resources**.

The File Storage Pools report displays all available file storage pools, as well as following information:

- Name
- Description
- Storage Capacity (GB)
- Storage Used (GB)
- Type
- Disk Type
- Uses Volumes
- Used By
- Group/User

Rack Servers

You can view the Rack Servers report by choosing **Rack Servers** under **Physical Resources**.

The Rack Servers report displays all available rack servers, as well as the following information:

- Account Name
- Model
- Operation Status
- UUID
- Power State
- IP Address

CloudSense Reports

CloudSense analytics provide visibility into the infrastructure resources utilization, critical performance metrics across the IT infrastructure stack, and capacity in real time. CloudSense reports can show significant improvements in capacity trending, forecasting, reporting, and planning of virtual and cloud infrastructures.

The following reports are available from CloudSense, but the number of reports available in the system for a user depends on your user role:

- Billing Report for a Customer
- ENC Storage Inventory Report
- NetApp Storage Inventory Report
- NetApp Storage Savings Per Group
- NetApp Storage Savings Report
- Network Impact Assessment Report
- Organizational Usage of Virtual Computing Infrastructure
- PNSC Account Summary Report
- Physical Infrastructure Inventory Report for a Group
- Storage Dedupe Status Report
- Storage Inventory Report for a Group
- Thin Provisioned Space Report
- UCS Data Center Inventory Report
- VM Activity Report by Group
- VMware Host Performance Summary
- Virtual Infrastructure and Assets Report



Note If the CloudSense option is enabled for MSP administrators, only reports relevant to their customer organizations are displayed.

Generating a CloudSense Report

-
- Step 1** Choose **Physical Resources**.
 - Step 2** On the **Physical Resources** page, click **CloudSense**.
 - Step 3** Click **Generate Report**.
 - Step 4** On the **Generate Report** screen, choose the type of report that you want to generate from the **Report Type** drop-down list.

Step 5 Click **Submit**.



CHAPTER 10

Accounting

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Accounting

The **Accounting** menu option displays usage details of VM resources and the usage cost. You can view the resource accounting details and chargeback information for VMs.

Resource Accounting Details

You can view the resources usage of VMs that belong to a selected group. The resource usage is calculated on an hourly basis. You can view the Resource Accounting Details report by choosing **Resource Accounting Details** under **Accounting**.

The Resource Accounting Details report displays accounting information for all VMs, along with the following information:

- Active and inactive period of the VMs
- Usage of CPU
- Memory space
- Storage
- Received network data
- Transmitted network data

You can view additional resource accounting details about a VM by clicking the row with the VM ID and clicking **View Details**.

Chargeback

You can view the VM's resource usage details and its associated cost for a particular group. The cost is calculated based on the cost model that is associated with the vDC of the group. You can view the Chargeback report by choosing **Chargeback** under **Accounting**.

The resources details include the following:

- Instance name
- Resource type
- Provisioned time
- Active VM hours
- Inactive VM hours
- Average CPU usage
- Average memory usage
- Committed disk

The resource associated costs include the following:

- Costs pertaining to active VM
- One-time cost
- CPU usage
- Allocated memory
- Reserved memory
- Used memory
- Server
- Committed disk
- Uncommitted disk
- Received network data
- Transmitted network data
- Fixed cost



CHAPTER 11

Reports

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- [Viewing a Report, on page 71](#)
- [Emailing a Report, on page 72](#)

Reporting

The **CloudSense™** menu provides four types of reports for a specific group. Each of the reports has a predefined format. Following are the types of CloudSense reports:

- **Billing End User Report for a Customer**—This report displays the cost summary for the VM, CPU, storage, and memory utilized by the customer. It also displays the details of VM resource usage and charges.
- **Group Infrastructure Inventory Report**—This report displays the server details, such as power-on status, service profiles, VLANs, vFilers, volumes under vFilers, volume groups, and vServers. This report also provides the inventory details of the virtual resources, such as VMs, images, resource pools, datastores, port groups, and DV port groups.
- **Physical Infrastructure Inventory Report for an End User Group**—This report displays the details of the physical infrastructure inventory resources, such as compute, network, and storage for the specified group.
- **Storage Inventory Report for an End User Group**—This report displays the details of storage inventory, such as vFilers, the top five volumes, and top five LUNs for the specified group.

Viewing a Report

- Step 1** Choose **CloudSense**.
- Step 2** On the **CloudSense** page, click the required report type.
- Step 3** In the reports table, click the row with the report that you want to view.
- Step 4** Click **Open Report**.
- Step 5** On the **Launch Report** screen, from the **Format Type** drop-down list, choose the format type for the report.
- Step 6** Click **Submit**.

The selected report appears in a separate window.

Emailing a Report

- Step 1** Choose **CloudSense**.
- Step 2** On the **CloudSense** page, click the required report type.
- Step 3** In the reports table, click the row with the report that you want to email.
- Step 4** Click **Email Report**.
- Step 5** On the **Email Report** screen, complete the required fields, including the following:
- In the **To** field, enter the recipient address.
 - Modify the subject, if necessary.
 - From the **Format Type** drop-down list, choose the format type for the report to be attached.
- Step 6** Click **Submit**.
A message appears confirming the success or failure of the email.
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