Viewpoint for Moab Cloud Suite 7.0

User Guide

Contents

About this guide

Welcome to the Viewpoint for Moab Cloud Suite User Guide. This guide is intended to help administrators and users understand, navigate, and use Viewpoint for Moab Cloud Suite. It is important to note that, depending on your permissions, you may not have access to pages or actions described in this guide. Administrators set user roles and permissions for page and action access.

This guide is organized to match the navigation of the Viewpoint user interface. You will notice that chapter titles match menu navigation options. All of the tasks associated with a particular Viewpoint page are grouped together so that you can easily find help for the actions you want to take on the page.

For more information about this guide, see these topics:

- Chapter 1: Viewpoint basics on page 1 contains basic information about getting started using Viewpoint. It explains how to log in/out, understand Homepage gadgets, and use the "Contact Us" page.
- Chapter 2: "New" menu options on page 9 describes the tasks associated with all the "New" menu pages, including requesting services and reservations.
- Chapter 3: "View" menu options on page 21 describes the tasks associated with all the "View" menu pages, including viewing services and viewing nodes.
- Chapter 4: "History" menu options on page 35 describes the tasks associated with all the "History" menu pages, including viewing event logs, viewing reports, and viewing requested actions.
- Chapter 5: "Administration" menu options on page 47 describes the tasks associated with all the "Administration" menu pages, including managing services, managing VMs, managing nodes, managing policies, and managing users.

> Please refer to the Viewpoint for Moab Cloud Suite Administrator Guide for information about how to use the Configuration options in Viewpoint.

Chapter 1: Viewpoint basics

This chapter is intended to help you begin finding your way around Viewpoint. It contains the following topics:

1.1 Logging in/out

Regardless of the configured security type, you must log in to Viewpoint in order to use it. For security purposes, it is important to log out of Viewpoint after each use.

To log in to Viewpoint

1. In a web browser, navigate to Viewpoint.

   You are automatically taken to the login page.

2. Enter your **User name** and **Password** into the respective fields.
3. Choose **Log in** to log in.

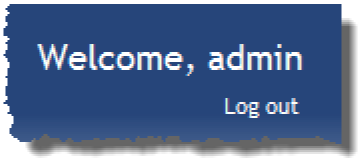
   Image 1-1: Logging in

   You will be redirected to the Viewpoint home page.

To log out of Viewpoint

1. From any Viewpoint page, locate the **Log out** link in the top right corner of the page.

2. Click the link to log out.

   You will be redirected to the login page.

Related topics

- **Viewpoint basics** on page 1
- **Using "Contact Us" to send email** on page 2

1.2 Using "Contact Us" to send email

If configured, the Contact Us page allows you to send an email to the Viewpoint administrator.

To send email using the Contact Us page

1. Navigate to the Contact Us page. The link is typically located in the top right corner of the page beside the **Log out** link, but it could also be included in the main navigation bar.

   The page contains an email form.

2. Enter your name in the **From** field.
3. Enter the subject of the email in the **Subject** field.
4. Write the content of the email in the **Message** field.
5. When you finish writing the email, click the **Send** button.

   If you wish to clear the fields and start over, use the **Clear** button.

Related topics

- **Viewpoint basics** on page 1
- **Logging in/out** on page 1

1.3 Understanding Homepage gadgets

The Viewpoint Homepage supports the use of gadgets that indicate the current state of Moab. The following gadgets are currently supported and may be available to you:

- **My Workload** on page 4
- **Jobs Needing Attention** on page 5
- **Troubled Resources** on page 6
- **System Events** on page 6
- **Resource Utilization** on page 7

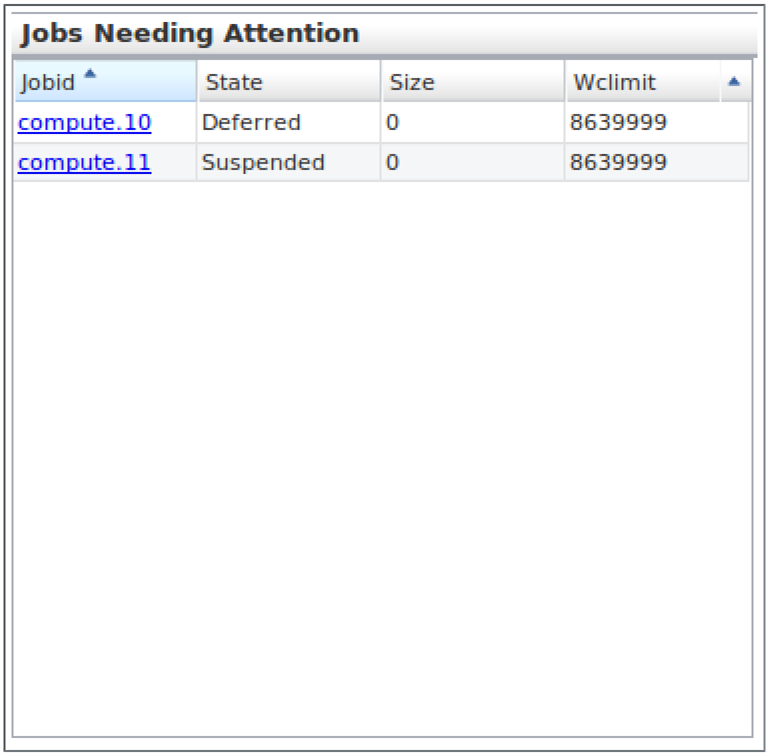
My Workload

My Workload

Jobid	State	Size	Wclimit
compute.10	Deferred	0	8639999
compute.11	Suspended	0	8639999
compute.8	Idle	0	60
compute.9	Idle	0	8639999
compute.2	Running	0	8639999
compute.5	Idle	0	60

The My Workload gadget displays all your jobs and the jobs' **Jobid**, **State**, **Size**, and **Wclimit** attributes.

Jobs Needing Attention



Jobs Needing Attention

Jobid	State	Size	Wclimit
compute.10	Deferred	0	8639999
compute.11	Suspended	0	8639999

The Jobs Needing Attention gadget displays jobs with special state values of interest. This gadget shows the same job attributes as the My Workload gadget. The possible job state values of interest are: Lost, None, Suspended, System Hold, Unknown, Deferred, and Batch Hold.

Troubled Resources

Troubled Resources

Server	Status
node01	Down
node02	Down
node03:v10	temperror-0
node04	Down
node05:v11	clusterqueryfail-4
node07	Down
node09	clusterqueryfail-4
node10	customfail-2
node11	customfail1-1
node12	nodepowerfail-3
node13	vmdestroyfail-4
node14	vmcreatefail-2
node15	nodemodifyfail-1
node16	clusterqueryfail-4

The Troubled Resources gadget displays nodes and VMs with a status of 'down', and all nodes and VMs with G-Events on them. The gadget also provides drill-through capability to drill down to the node or VM in the Viewpoint Node Management page.

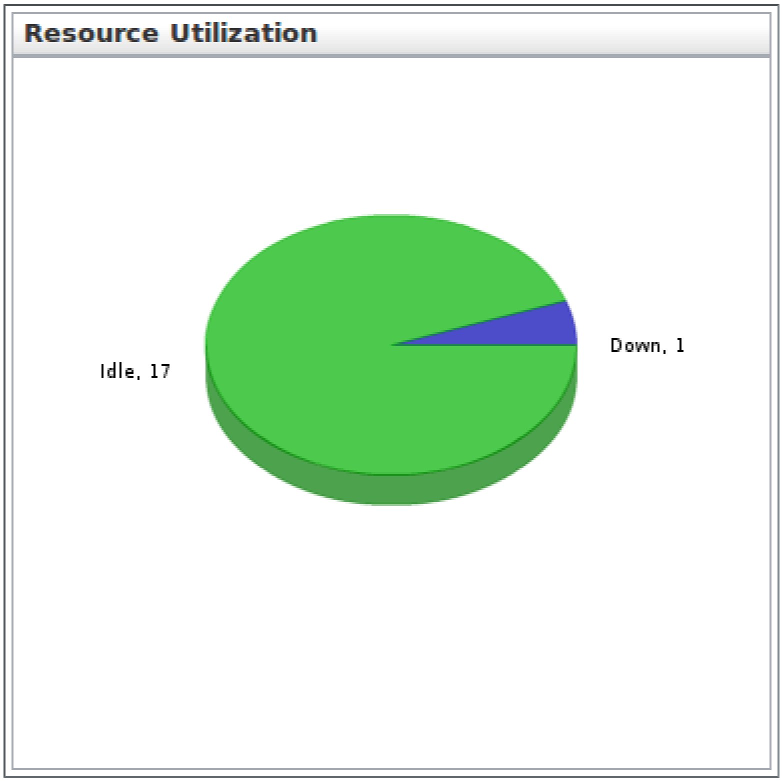
System Events

System Events

Server	Sv	Event	Time
node03:v10		temperror	2010.04.05:14:38:57
node05:v11	4	clusterqueryfail	2010.04.05:14:38:57
node09	4	clusterqueryfail	2010.04.05:14:38:57
node10	2	customfail	2010.04.05:14:38:57
node11	1	customfail1	2010.04.05:14:38:57
node12	3	nodepowerfail	2010.04.05:14:38:57
node13	4	vmdestroyfail	2010.04.05:14:38:57
node14	2	vmcreatefail	2010.04.05:14:38:57
node15	1	nodemodifyfail	2010.04.05:14:38:57
node16	4	clusterqueryfail	2010.04.05:14:38:57

The System Events gadget displays nodes and VMs with G-Events on them. The severity (1-Info, 2-Warning, 3-Alert, 4-Fatal), event, and timestamp of the event are displayed. The gadget also provides drill-through capability to drill down to the node or VM in the Viewpoint Node Management page (see **Managing nodes on page 64**).

RESOURCE UTILIZATION



The Resource Utilization gadget displays state information for all servers. These are the possible states:

State	Description
Down	The node is not available for workload.
Idle	The node is available for workload but is not running anything.
Busy	The node is running workload and cannot accept more.
Running	The node is running workload and can accept more.
Drained	The node has been sent the drain request and has no workload on it.
Draining	The node has been sent the drain request, but still has workload on it.
Flush	The node is being reprovisioned.
Reserved	The node is being reserved. This is an internal Moab state.
Unknown	The state of the node is unknown.
Up	The node is up, but the usage is being determined.
All	All Servers.

The gadget also provides capability to drill down to the node and the appropriate status in the Node Management page (see **Managing nodes** on page 64).

Related topics

- **Sorting a Gadget's Information** on page 8
- **Viewpoint basics** on page 1

1.3.1 Sorting a Gadget's Information

Most of the gadgets, namely My Workload, Jobs Needing Attention, Troubled Resources, and System Events, allow you to sort the contained information by any chosen column.

To sort a gadget's contents

1. In the desired gadget's table, choose a column by which to sort the information, and click the column's heading.

   The information is presented in alphanumeric order according to that column.

   An arrow appears to the right of the column name to indicate the order of the information as one of the following:

	Descending
	Ascending

2. To switch the order from descending to ascending and vice versa, click the column heading again.

   The arrow direction changes and the information order reverses.

Related topics

- **Understanding Homepage gadgets** on page 3
- **Viewpoint basics** on page 1

Chapter 2: "New" menu options

By default, the "New" menu contains links to the following pages:

Administrators can customize Viewpoint menu names, page names so that they do not match what is delivered in Viewpoint by default. Additionally, administrators can customize user roles that affect what pages you may have permissions to access and what actions you are allowed to perform on those pages.

Menu option	Page	What can I do there?	Link to more information
Reservation	New Reservation	You can set a reservation on resources	**Creating a new reservation** on page 9
Service	Request Service	You can request services from templates or create your own custom service.	**Requesting services** on page 11

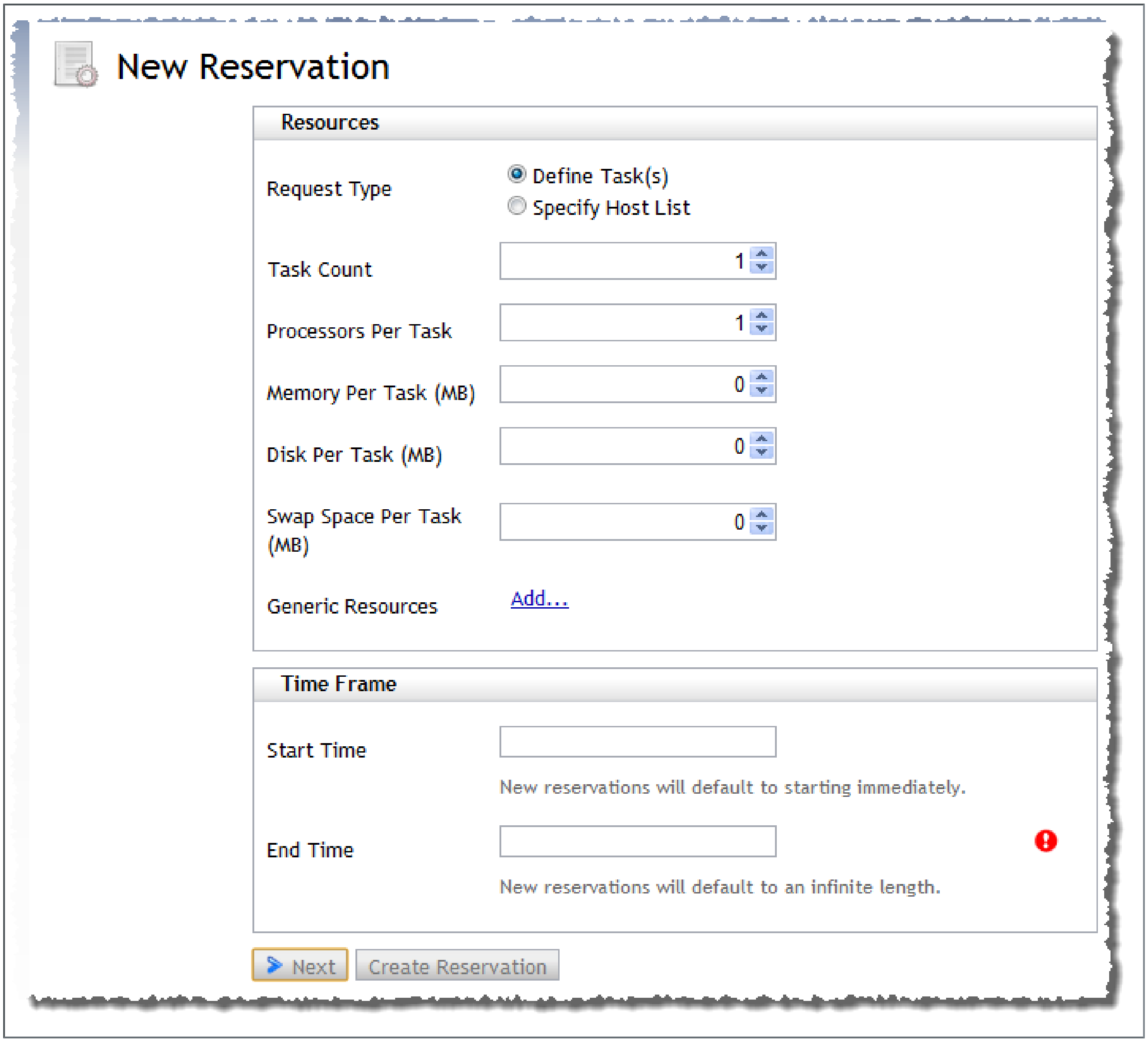
2.1 Creating a new reservation

In Viewpoint, you can reserve resources or a set of tasks. You can create these reservations on the New Reservation page (**New > Reservation**).

Administrators can modify the New Reservation form to fit their needs and preferences.

To create a reservation

1. Go to New Reservation page (**New > Reservation**).



2. Select a **Request Type**. Reservations must have resources to reserve and the resources can be a list of nodes or a set of tasks.
3. Specify a **Start Time** and an **End Time**.
4. All other fields in the form are optional and can be configured or left blank.
5. When all desired fields are configured, choose **Create Reservation**.

Related topics

- **"New" menu options** on page 9

2.2 Requesting services

Viewpoint allows you to request services for use. You can request services from templates that have been created by administrators, or you can request your own custom service.

> **Note to administrators:** You can create and manage service templates on the Manage Service Catalog page (for details, see **Managing service templates (Manage Service Catalog)** on page 47.

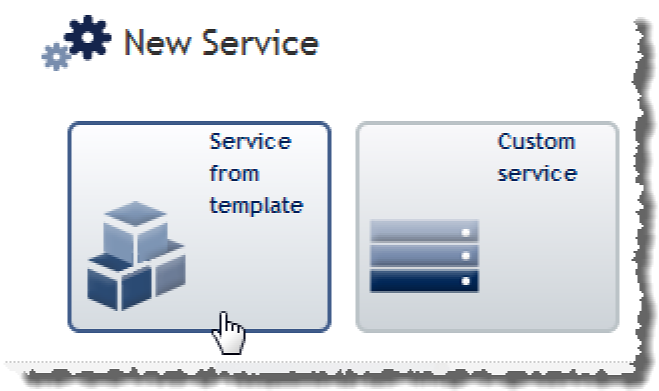
This section contains these topics:

2.2.1 Requesting a service from a template

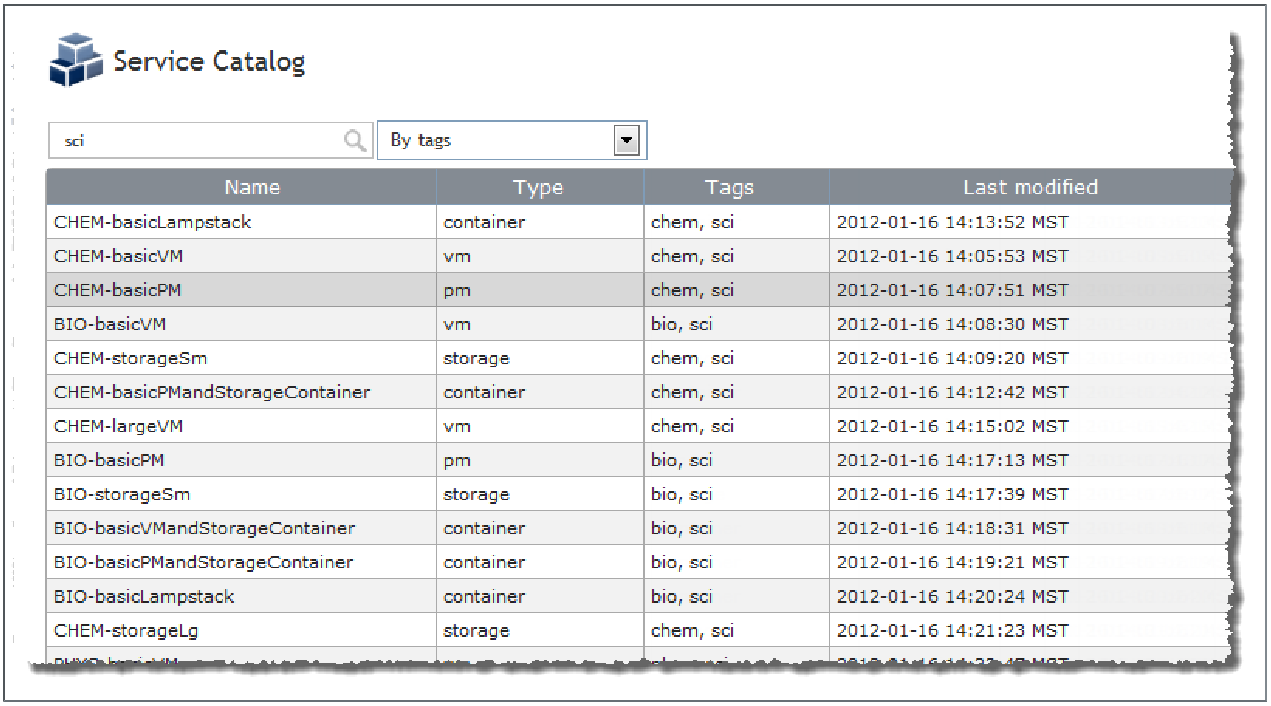
Viewpoint's New Service page lets you specify if you want to request a service from a template or request your own custom service. Once you select a template, you can request its resources and add what you need to your cart for purchase and use.

To request a service from a template

1. Navigate to the New Service page (**New > Service**).
2. Choose **Service from template**.



The **Service Catalog** appears and displays the available service templates.

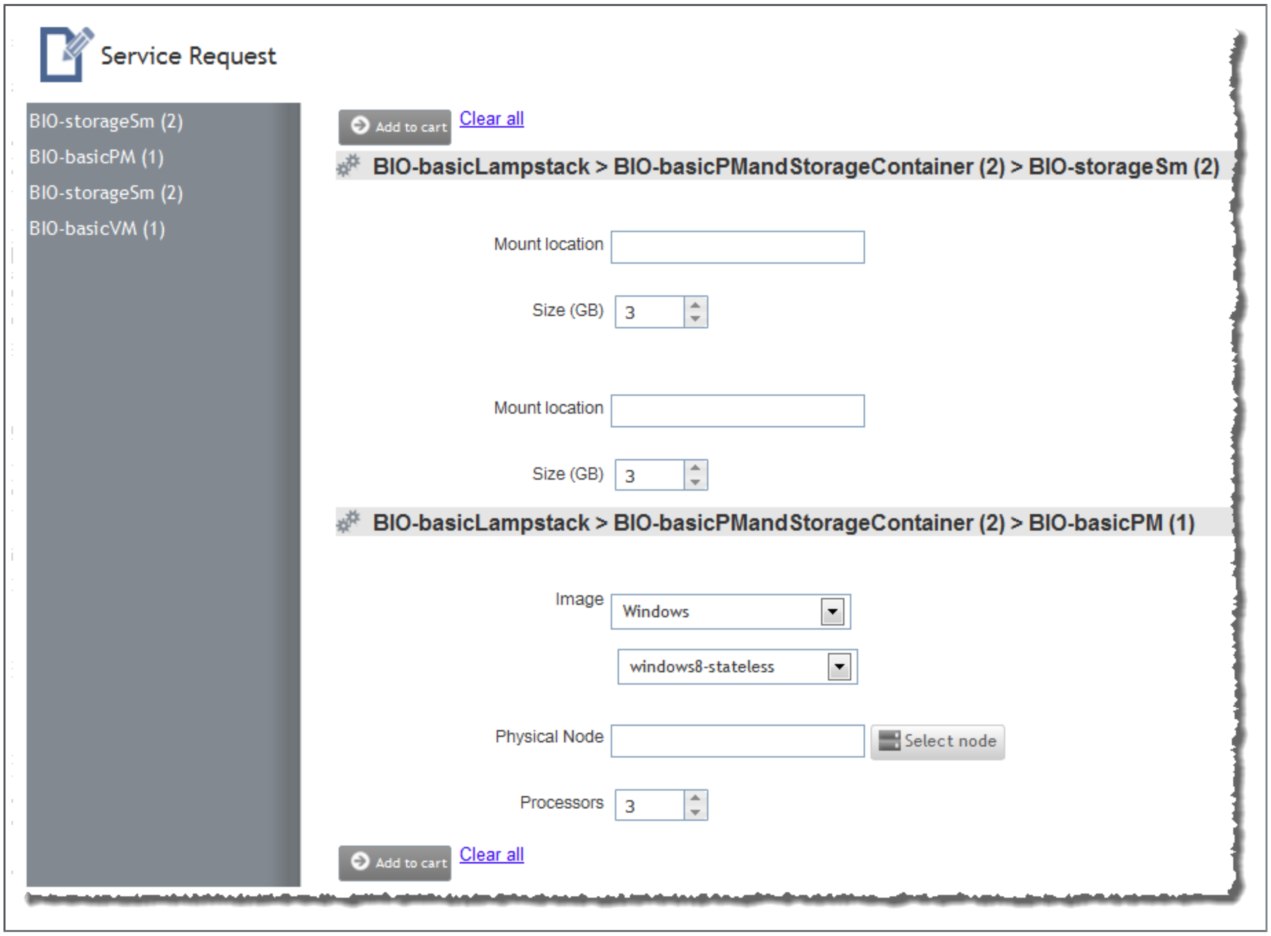


Name	Type	Tags	Last modified
CHEM-basicLampstack	container	chem, sci	2012-01-16 14:13:52 MST
CHEM-basicVM	vm	chem, sci	2012-01-16 14:05:53 MST
CHEM-basicPM	pm	chem, sci	2012-01-16 14:07:51 MST
BIO-basicVM	vm	bio, sci	2012-01-16 14:08:30 MST
CHEM-storageSm	storage	chem, sci	2012-01-16 14:09:20 MST
CHEM-basicPMandStorageContainer	container	chem, sci	2012-01-16 14:12:42 MST
CHEM-largeVM	vm	chem, sci	2012-01-16 14:15:02 MST
BIO-basicPM	pm	bio, sci	2012-01-16 14:17:13 MST
BIO-storageSm	storage	bio, sci	2012-01-16 14:17:39 MST
BIO-basicVMandStorageContainer	container	bio, sci	2012-01-16 14:18:31 MST
BIO-basicPMandStorageContainer	container	bio, sci	2012-01-16 14:19:21 MST
BIO-basicLampstack	container	bio, sci	2012-01-16 14:20:24 MST
CHEM-storageLg	storage	chem, sci	2012-01-16 14:21:23 MST

3. Double-click the service template you want to use.

   The **Service Request** page opens.

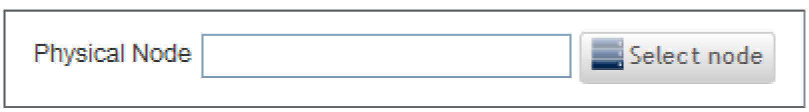
4. If the service is a container, navigate through the templates using the tabs on the left.



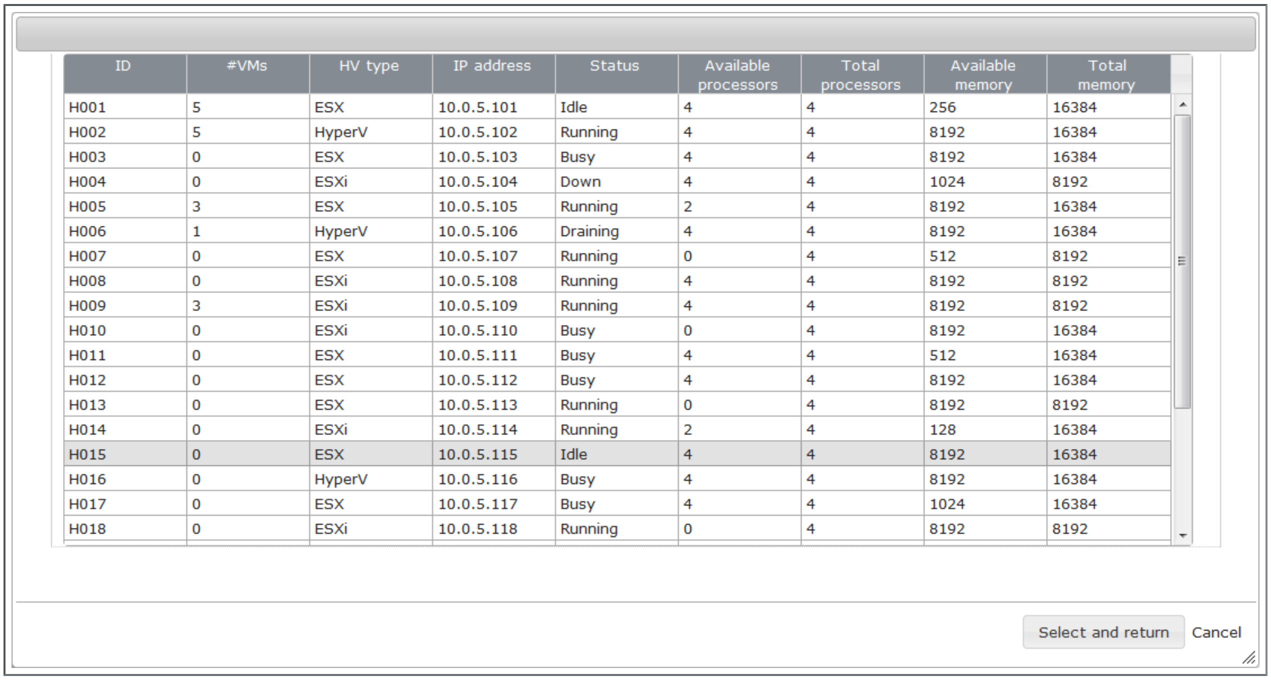
5. Provide the requested information for each included template.

   You can expand or collapse each section using the arrow buttons.

6. If you are requesting a physical machine, the form requests a physical node.



   This field produces a pop-up window with a list of possible nodes, their resources, state, etc. Select a node and click **Select and return**.



ID	#VMs	HV type	IP address	Status	Available processors	Total processors	Available memory	Total memory
H001	5	ESX	10.0.5.101	Idle	4	4	256	16384
H002	5	HyperV	10.0.5.102	Running	4	4	8192	16384
H003	0	ESX	10.0.5.103	Busy	4	4	8192	16384
H004	0	ESXi	10.0.5.104	Down	4	4	1024	8192
H005	3	ESX	10.0.5.105	Running	2	4	8192	16384
H006	1	HyperV	10.0.5.106	Draining	4	4	8192	16384
H007	0	ESX	10.0.5.107	Running	0	4	512	8192
H008	0	ESXi	10.0.5.108	Running	4	4	8192	8192
H009	3	ESXi	10.0.5.109	Running	4	4	8192	8192
H010	0	ESXi	10.0.5.110	Busy	0	4	8192	16384
H011	0	ESX	10.0.5.111	Busy	4	4	512	16384
H012	0	ESX	10.0.5.112	Busy	4	4	8192	16384
H013	0	ESX	10.0.5.113	Running	0	4	8192	8192
H014	0	ESXi	10.0.5.114	Running	2	4	128	16384
H015	0	ESX	10.0.5.115	Idle	4	4	8192	16384
H016	0	HyperV	10.0.5.116	Busy	4	4	8192	16384
H017	0	ESX	10.0.5.117	Busy	4	4	1024	16384
H018	0	ESXi	10.0.5.118	Running	0	4	8192	8192

To clear your specifications, select **Clear all**.

7. When the fields for each template contain the desired settings, choose **Add to cart**.

   A pop-up window displays what information has been submitted.

Once you have added your service to the cart, you can click the **Cart** icon ( ) to view all items in your cart on the Cart Details page. For more information, see **Using the cart** on page 18.

Related topics

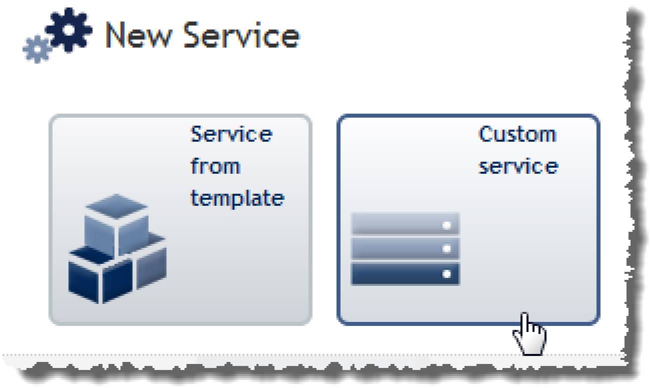
- **Requesting services** on page 11
- **Requesting a custom service** on page 14

2.2.2 Requesting a custom service

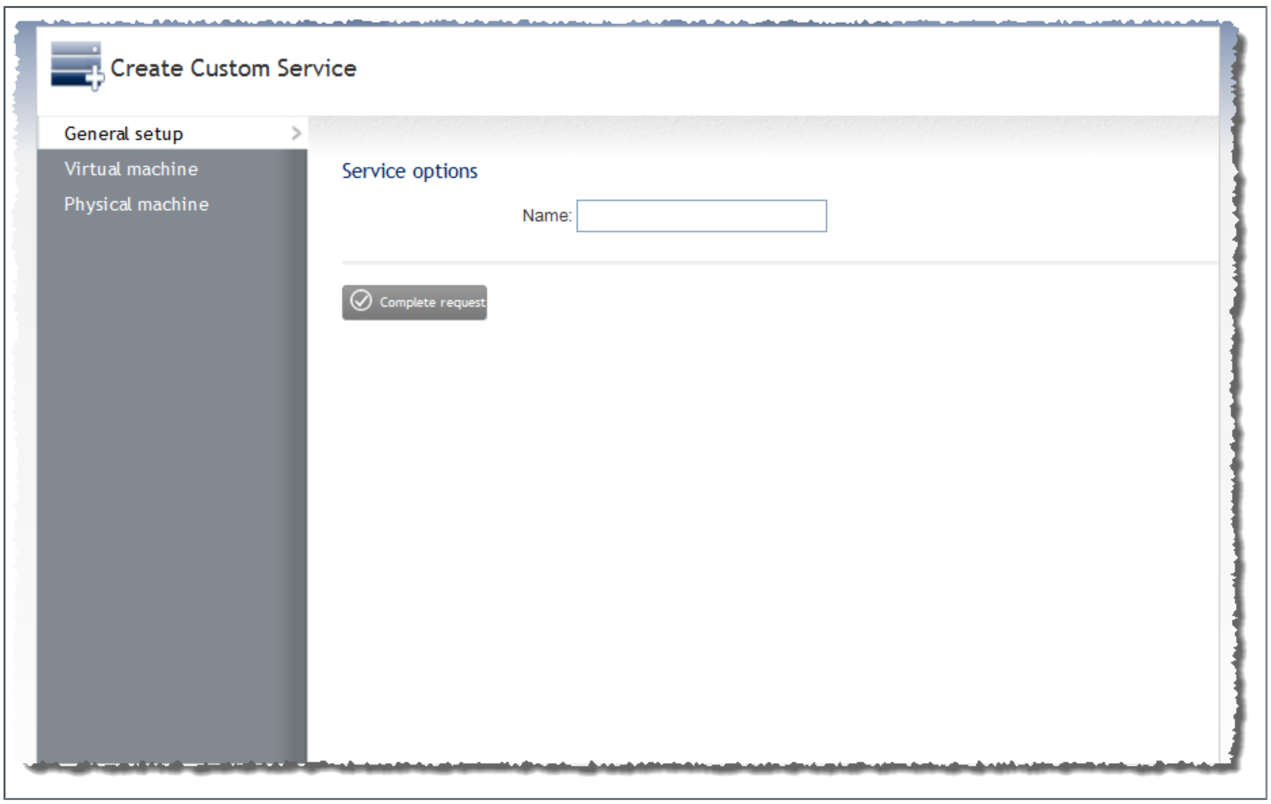
When you request a service, you can create your own custom service to request. You can customize your service parameters and storage requirements.

To request a custom service

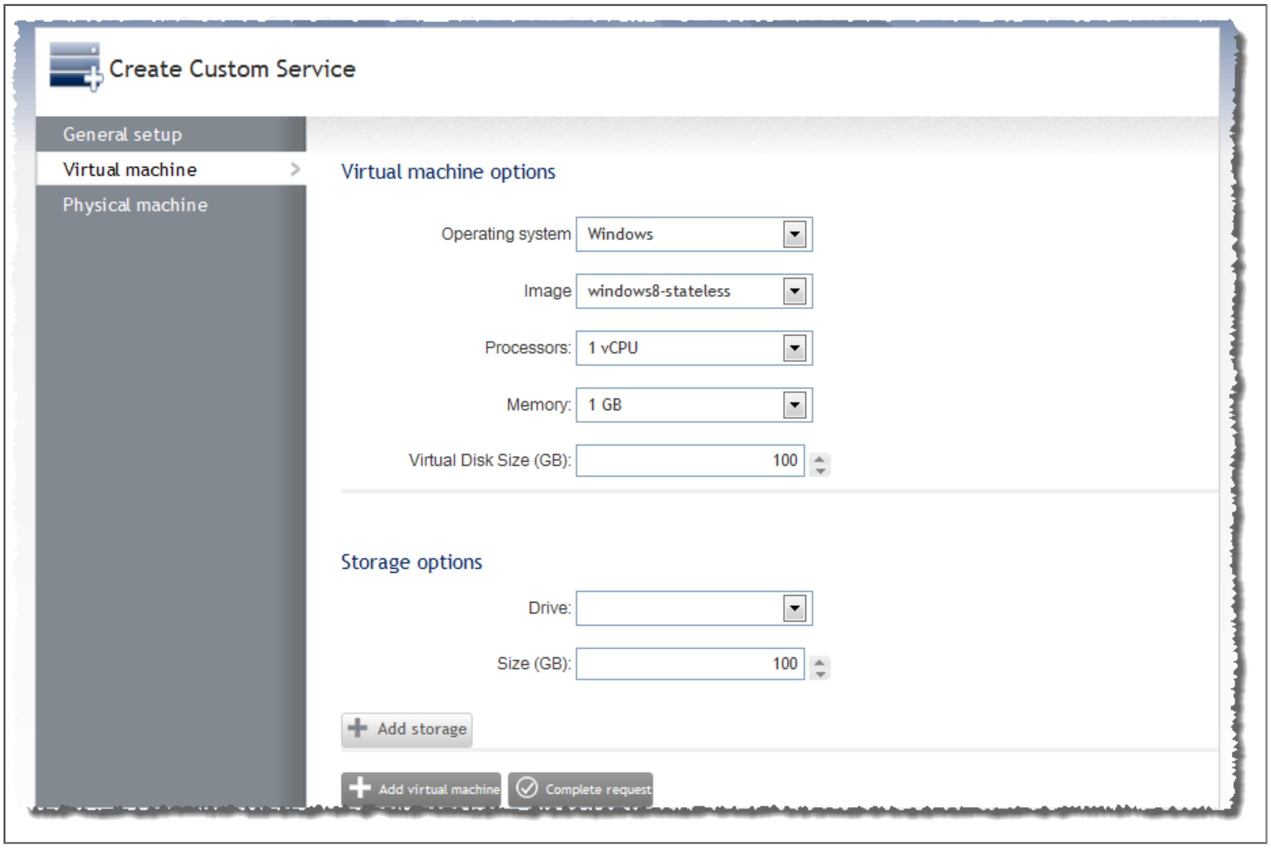
1. Navigate to the New Service page (**New > Service**).
2. Choose **Custom service**.



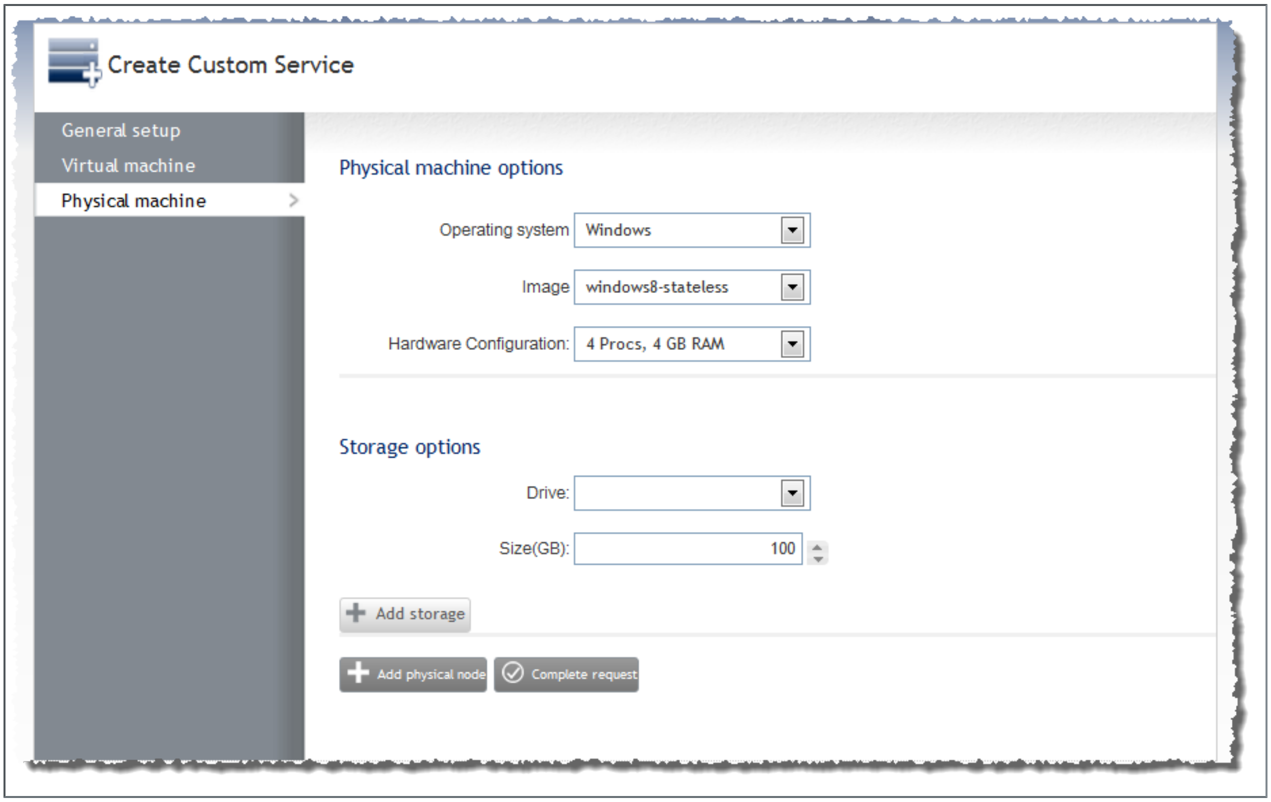
3. Select the **General setup** tab.



4. In the **Name** field, enter a name for the environment. This field is required.
5. Select the **Virtual machine** tab.



6. On this page, do the following:
   a. In the **Operating Systems** field, select an operating system for the VM.
   b. In the **Image** field, select an image for the VM. (The contents of this drop-down change depending on which operating system you select.)
   c. In the **Processors** field, specify the number of processors for the VM. The maximum number of processors you can have is 4.
   d. In the **Memory** field, specify the amount of memory for the VM. The maximum amount of RAM you can specify is 8 GB.
   e. In the **Virtual Disk Size** field, specify the amount of disk space for the VM. The maximum amount of disk space you can specify is 1000 GB.
   f. If you want to add storage, do the following:
      - In the **Mount** field, specify a drive for storage.
      - In the **Size** field, specify the amount of space for the storage.
      - Click **Add storage**.
   g. Click **Add virtual machine**.
7. Select the **Physical machine** tab.



8. On this page, do the following:
    a. In the **Operating System** field, select an operating system for the physical machine.
    b. In the **Image** field, select an image for the physical machine. (The contents of this drop-down change depending on which operating system you select.)
    c. In the **Hardware Configuration** field, specify the configuration of the physical machine.
    d. If you want to add storage, do the following:
        - In the **Mount** field, specify a drive for storage.
        - In the **Size** field, specify the amount of space for the storage.
        - Click **Add** storage.
    e. Click **Add physical node**.
9. When you are finished, select **Complete request**.

Once you have added your service to the cart, you can click the **Cart** icon ( ) to view all items in your cart on the Cart Details page. For more information, see **Using the cart** on page 18.

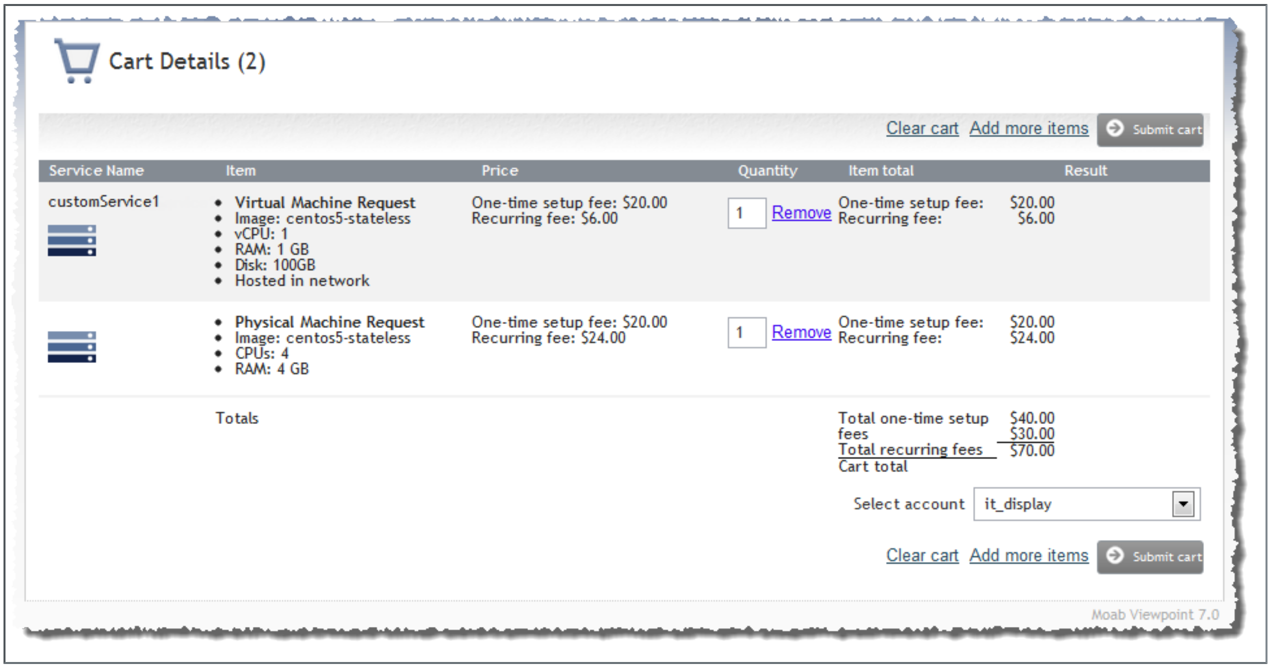
Related topics

- **Requesting services** on page 11
- **Requesting a service from a template** on page 11

2.2.3 Using the cart

The cart is used for submitting and purchasing services from templates and custom services in Viewpoint. Summaries of items you add to the cart will appear when you hover on the Cart icon at the top-right of the Viewpoint navigation bar. Once you have added all the services you wish to submit (for details, see **Requesting services** on page 11), you can go to the Cart Details page for review and final submission of your order.

Image 2-1: Cart Details page



The Cart Details page displays the following for each item in your cart:

- Name of the service
- Type of request (Virtual Machine or Physical Machine)
- What items are included in the request
- Quantity of the service you are requesting
- One-time setup fee and Recurring fee associated with the service items. (This billing information comes from Moab Workload Manager.)
- Total cost for the service
- Cart total cost

From the Cart Details page, you can do the following:

Option	Description
Quantity	Lets you specify the number of service items you want to request. By default, **Quantity** is set to 1. Do not enter 0 (zero). If you need to remove the item, click **Remove**.
Remove	Lets you remove service items from the cart.
Clear cart	Lets you remove all services from the cart.
Add more items	Lets you leave the Cart Details page to add more items to your cart. When you select Add more items, you are brought to the New Services page where you can request a service from a template or a custom service (for more information, see **Requesting services** on page 11). During this process, the items in your Cart are saved. You can go back to the Cart Details page at any time by clicking the Cart icon.
Select account	Lets you specify which account will be charged for the service(s). This field will only appear if quoting is turned on in Moab.
Submit cart	Lets you submit payment for the items in your cart.

To use the cart

1. Add the services to your cart that you wish to submit (for details, see **Requesting services** on page 11).
2. Once you have added all the services you want to submit, choose **Complete request**, or click the **Cart** icon ( ).

   The Cart details page opens and displays the items in your cart.
3. Review the items in your cart.
4. In the **Quantity** box, specify the number of services (if more than 1) that you want to submit.
5. In the **Select account** drop-down, select the account that will be charged for this request.
6. Do one of the following:
   - If you want to clear your cart, select **Clear cart**.
   - If you want to go back to add more items to your cart, select **Add more items**.
   - If you are pleased with your order and want to proceed with the submission, select **Submit cart**.

Related topics

- **Requesting services** on page 11

Chapter 3: "View" menu options

By default, the "View" menu contains links to the following pages:

> Administrators can customize Viewpoint menu names, page names so that they do not match what is delivered in Viewpoint by default. Additionally, administrators can customize user roles that affect what pages you may have permissions to access and what actions you are allowed to perform on those pages.

Menu option	Page	What can I do there?	Link to more information
Accounting Manager	Accounting	You can access Moab Accounting Manager through Viewpoint.	**Viewing Moab Accounting Manager** on page 21
Nodes	View Nodes	You can see all the nodes in your data center in tile form.	**Viewing nodes** on page 21
Reservations	View Reservations	You can view a list of all reservations in your system.	**Viewing reservations** on page 28
Services	View Services	You can view all your Moab services in tile view.	**Viewing services** on page 24

3.1 Viewing Moab Accounting Manager

If administrators have configured Viewpoint to embed Moab Accounting Manager, you can access it in the Viewpoint interface by navigating to **View > Accounting Manager**. The Accounting page is simply a Viewpoint-side access to the Moab Accounting Manager URL.

If you have questions regarding this page, please contact your administrator.

Related topics

- **"View" menu options** on page 21

3.2 Viewing nodes

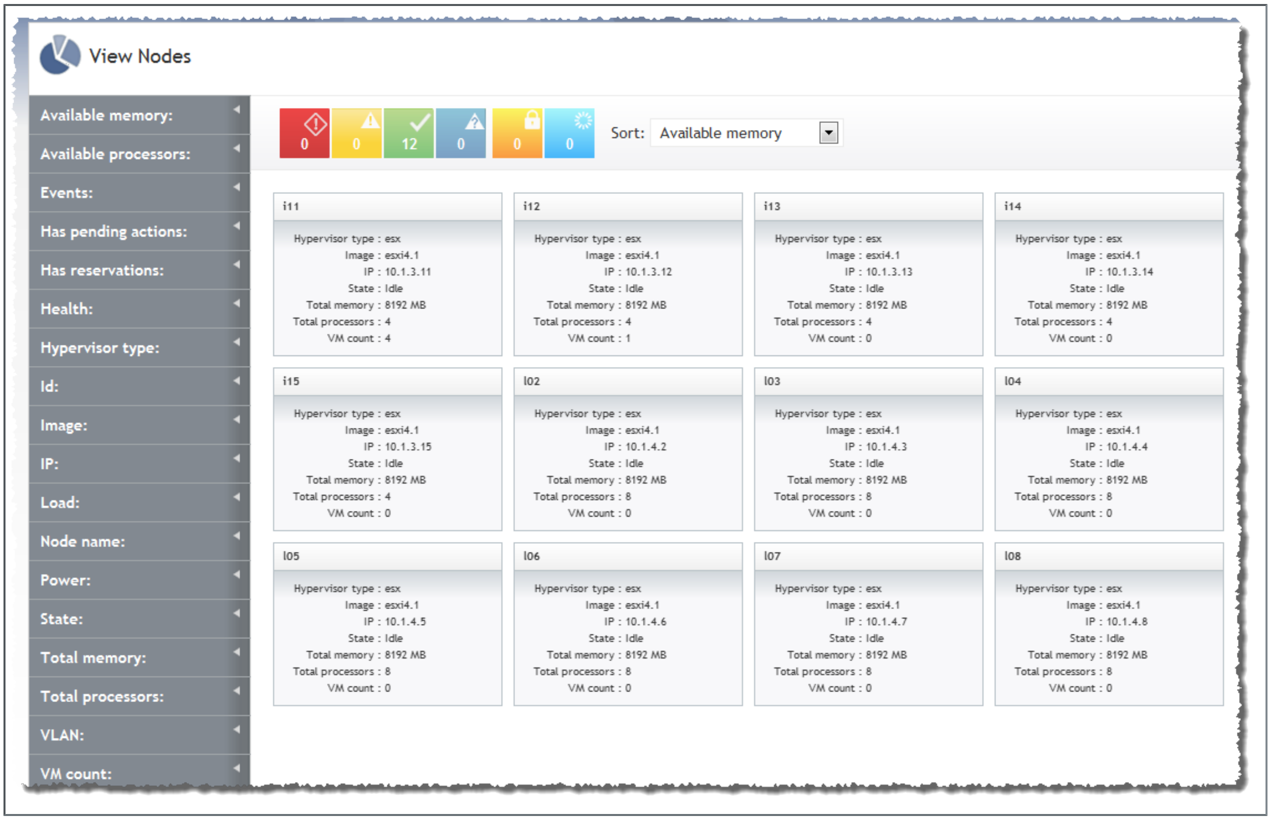
You can use the View Nodes page to obtain visibility into, and information about, your data center. The View Nodes page offers a holistic view of the nodes and virtual machines (VMs) in your data center in tile view. It also allows you to select one specific node to view its details. Likewise in a node detail view, you can view summaries of all the associated VMs in a tile view, and you can select a specific VM to view its details. In the nodes and VMs tile view, you can use filtering and sorting options to help you quickly find what you're looking for (for details, **Understanding "View" pages features** on page 30).

Access the View Nodes page by navigating to **View > Nodes**.

VIEWING NODE SUMMARIES IN TILE DISPLAY

Nodes appear on the View Nodes page. They also appear and in the detail view of services on the View Services page.

Image 3-1: View Nodes page



> The View Nodes page will not display any storage node tiles. (Storage nodes are nodes without any processors or memory.)

Tiles also graphically display the node state using the following logic (for more information, see **Understanding health/state information** on page 30):

- A node in an OK health state does not display any icon.
- A node with a health state other than OK displays the health state.

- If a node is in a Requested Actions state but also has a health state of anything other than OK (i.e., Failure, Warning, or Unknown), the health icon will display instead of the Requested Actions icon. The same applies for a Reserved node.
- A node in both a Reserved state and Requested Actions state displays the Requested Actions icon.

In addition to displaying the node state, each tile contains summary information about the node it represents, including the following:

Field	Description
Alias	An alternate name for the resource
Hypervisor type	Type of hypervisor
Image	Operating system
IP	IP address
State	State of the node (for example, Idle or Running)
Total memory	Total amount of memory
Total processors	Total number of processors
VM count	Number of VMs associated with the node (for example, 3)
OS	Operating system

You can use the **Filters** tool to limit the nodes that display in the tile view, and you can sort the limits that do display by using the **Sort** tool. For more information, see **Understanding "View" pages features** on page 30.

Viewing node details

Click any node tile to see its detail information. The details view contains all of the same content as the summary tile view and the following additional information:

Field	Description
Available memory	Amount of available memory
Available processors	Number of available processors
Events	List of generic events associated with the node
Has pending actions	Either Yes or No

Field	Description
Has res-ervations	Either Yes or No
Health	One of OK, Unknown, Warning, or Failure (for more information, see **Understanding health/state information** on page 30)
Load	CPU load
Power	Either On or Off
VLAN	Virtual LAN name

Additionally, if there are any VMs or storage associated with the node, they appear as summary tiles in the node detail view. For more information, see **Viewing VMs** on page 26 and **Viewing storage** on page 27.

Related topics

- **Viewing services** on page 24
- **Viewing VMs** on page 26
- **Viewing storage** on page 27
- **Understanding "View" pages features** on page 30
- **"View" menu options** on page 21

3.3 Viewing services

The Viewpoint View Services page lets you view all your Moab services. This page displays all services in a summary (tile) view. You can also select one specific service tile to view its details, including the services, nodes, virtual machines (VMs), and storage it contains. The nodes, VMs, and storage are also displayed in tiles, and you can select them to view their details as well. In tile views of services, you can use filtering and sorting options to quickly find what you're looking for.

Access the View Services page by navigating to **View > Services**.

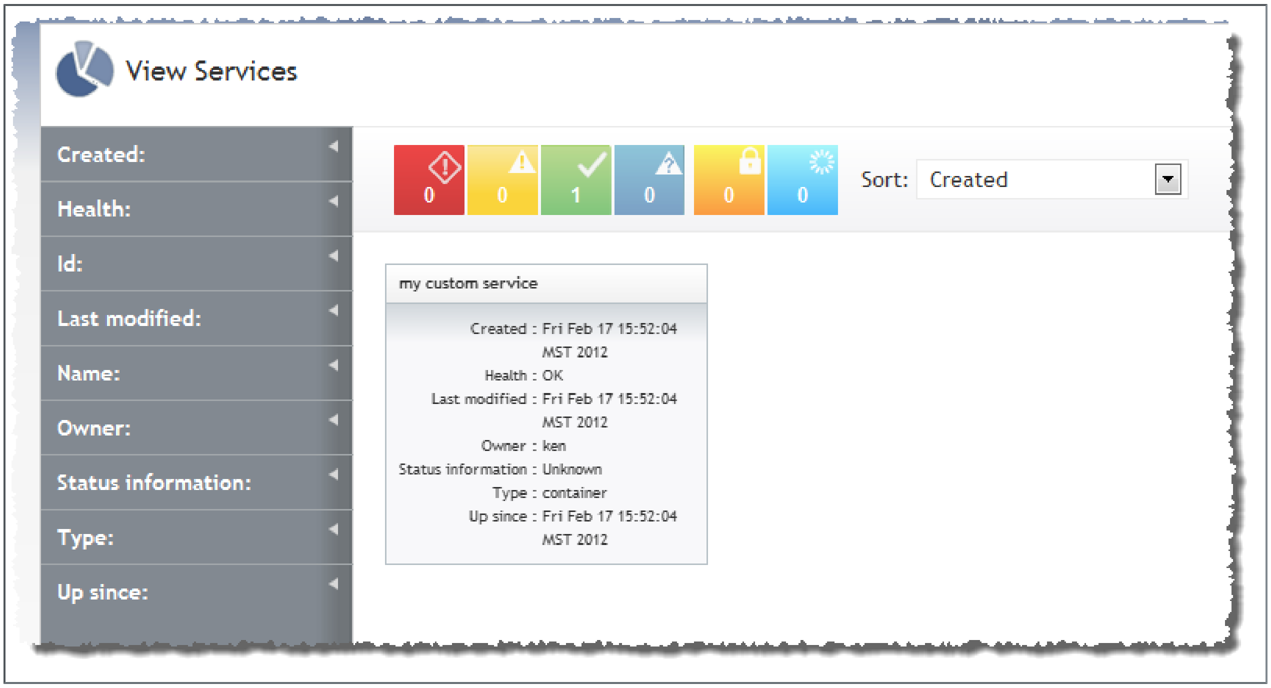
For more information, see these sections:

- **Viewing service summaries in tile display** on page 24
- **Viewing service details** on page 26

Viewing service summaries in tile display

When you open the View Services page, tiles display representing each Moab service.

Image 3-1: View Services page



Each tile contains a summary information about the service it represents, including the following:

Field	Description
Name	Name of the service
Created	Date and time service was created For example: Tue Dec 06 09:20:54
Health	Health state (for more information, see **Understanding health/state information** on page 30)
Last modified	Date the service was last modified For example: 11/11/11
Owner	Name of the service owner
Status information	State of the provisioning process
Type	Type of service
Up since	Amount of time the service has been up For example: 5d 2h 23m

You can use the **Filters** tool to limit the services that display in the tile view, and you can sort the limits that do display by using the **Sort** tool. For more information, see **Understanding "View" pages features** on page 30.

Viewing service details

Click any service tile to see its detail information. Services contain nodes, VMs (see **Viewing VMs** on page 26), and storage (see **Viewing storage** on page 27). They can also contain other services. The details view contains all of the same information as the summary tile view.

The nodes, VMs, storage, or other services contained in the service appear as summary tiles in the service detail view. You can select any tile to see its details. Node and VM summary tiles graphically display health and state information. For more information, see **Understanding health/state information** on page 30.

Related topics

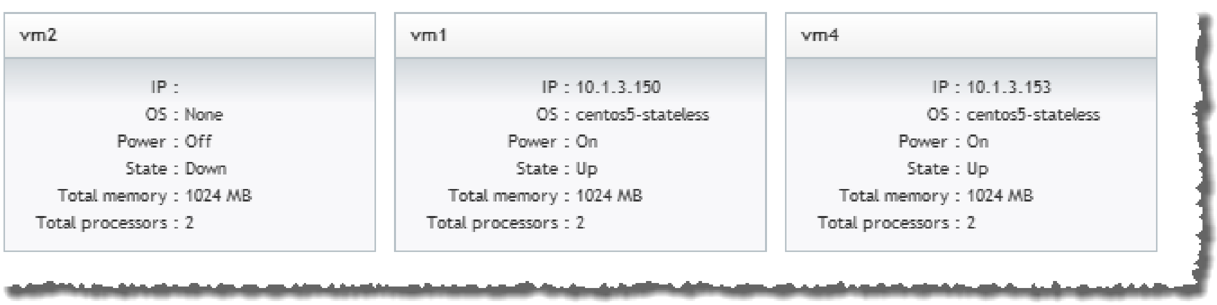
- **Viewing nodes** on page 21
- **Viewing VMs** on page 26
- **Viewing storage** on page 27
- **Understanding "View" pages features** on page 30
- **"View" menu options** on page 21

3.3.1 Viewing VMs

You can view VMs from the node detail view and from the View Services page. You can see all the VM summaries in a tile view, or you can select a single VM to view its details.

Viewing VM summaries in tile display

When you open a node detail view, tiles representing each VM display.



Tiles also graphically display the VM state using the following logic (for more information, see **Understanding health/state information** on page 30):

- A VM in an OK health state does not display any icon.
- A VM with a health state other than OK displays the health state.
- If a VM is in a Requested Actions state but also has a health state of anything other than OK (i.e., Failure, Warning, or Unknown), the health icon will display instead of the Requested Actions icon. The same applies for a Reserved VM.
- A VM in both a Reserved state and Requested Actions state displays the Requested Actions icon.

In addition to displaying the VM state, each tile contains summary information about the VM it represents, including the following:

Field	Description
Alias	An alternate name for the resource
IP	IP address
OS	Operating system
Power	Either On or Off
State	State of the VM (for example, Idle of Running)
Total memory	Total amount of memory
Total processors	Total number of processors

Viewing VM details

Click any VM tile to see its detail information. The details view contains all of the same content as the summary tile view along with the following additional information:

Field	Description
Available memory	Amount of available memory
Events	List of generic events associated with the VM
Has pending actions	Either Yes or No
Health	One of OK, Unknown, Warning, or Failure (for more information, see **Understanding health/state information** on page 30)
Hypervisor	Hypervisor type
Load	CPU load
VM name	Name of the VM
VLAN	Virtual LAN name

Related topics

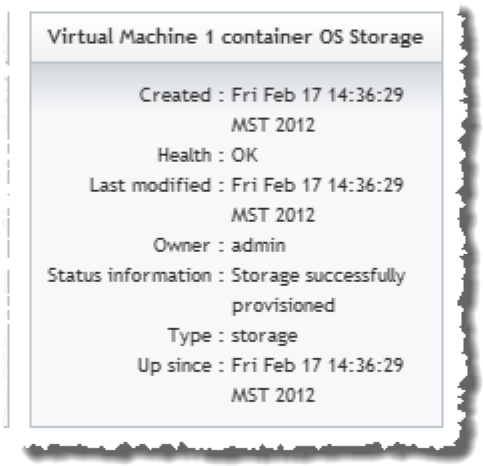
- **Viewing nodes** on page 21
- **Viewing services** on page 24

3.3.2 Viewing storage

You can view storage inside of services on the View Services page. You can see storage summaries in a tile view, or you can select a single storage to view its details.

VIEWING STORAGE SUMMARIES IN TILE DISPLAY

Storage appears in the detail view of services and VMs on the Services page.



Each tile contains summary information about the storage it represents, including the following:

Field	Description
Size	Size of the storage (in MB)
Mount point	File path for the storage mount point

You can use the **Filters** tool to limit the storage that displays in the tile view, and you can sort the limits that do display by using the **Sort by** tool. For more information, see **Filtering and sorting** on page 31.

VIEWING STORAGE DETAILS

Click any storage tile to see its detail information.

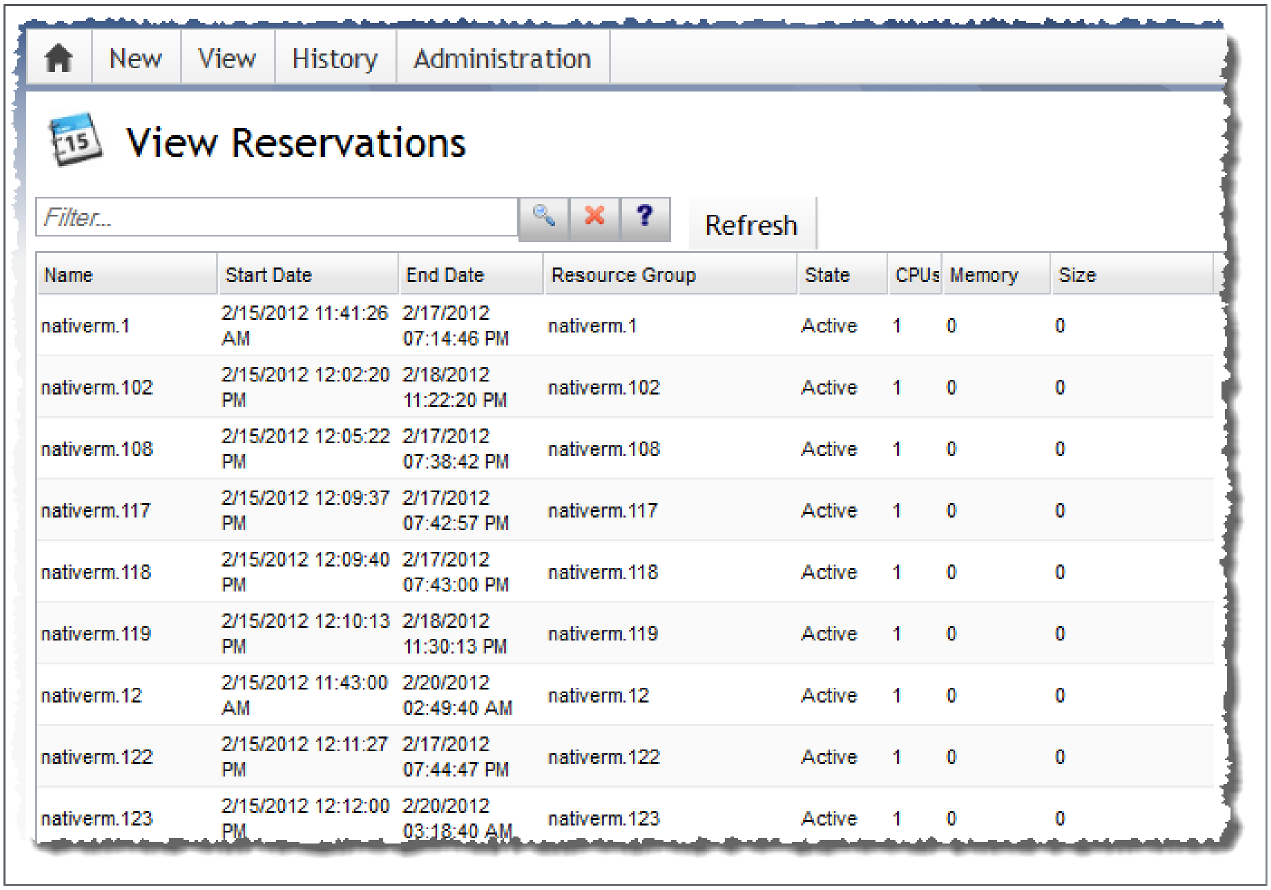
Related topics

- **Viewing VMs** on page 26
- **Viewing services** on page 24

3.4 Viewing reservations

The View Reservations page is a table grid that displays reservations and their current states.

Image 3-1: Reservation Management page



Name	Start Date	End Date	Resource Group	State	CPUs	Memory	Size
nativerm.1	2/15/2012 11:41:26 AM	2/17/2012 07:14:46 PM	nativerm.1	Active	1	0	0
nativerm.102	2/15/2012 12:02:20 PM	2/18/2012 11:22:20 PM	nativerm.102	Active	1	0	0
nativerm.108	2/15/2012 12:05:22 PM	2/17/2012 07:38:42 PM	nativerm.108	Active	1	0	0
nativerm.117	2/15/2012 12:09:37 PM	2/17/2012 07:42:57 PM	nativerm.117	Active	1	0	0
nativerm.118	2/15/2012 12:09:40 PM	2/17/2012 07:43:00 PM	nativerm.118	Active	1	0	0
nativerm.119	2/15/2012 12:10:13 PM	2/18/2012 11:30:13 PM	nativerm.119	Active	1	0	0
nativerm.12	2/15/2012 11:43:00 AM	2/20/2012 02:49:40 AM	nativerm.12	Active	1	0	0
nativerm.122	2/15/2012 12:11:27 PM	2/17/2012 07:44:47 PM	nativerm.122	Active	1	0	0
nativerm.123	2/15/2012 12:12:00 PM	2/20/2012 03:18:40 AM	nativerm.123	Active	1	0	0

From this page, you can view reservation details (see **Viewing a reservation's details** on page 29) or delete a reservation (see **Deleting reservations** on page 30). To manually refresh the table, choose **Refresh**.

Access the View Reservations page by navigating to **View > Reservations**.

This section contains these topics:

- **Viewing a reservation's details** on page 29
- **Deleting reservations** on page 30

3.4.1 Viewing a reservation's details

In addition to the reservation information that displays in the View Reservations table grid, you can get more information about a reservation by opening detail view.

The reservation detail view displays on the right of the table and contains detailed information about the reservation, including ownership and features, who is authorized to use it, its duration, and its allocated resources. From the detail view, you can also delete a reservation. For more information, see **Deleting reservations** on page 30.

To view a reservation's details

1. Go to the View Reservations page (**View > Reservations**).
2. Double-click the reservation from the table that you want to see in a detail view.
3. The reservation's details appear in a new window to the right of the table.
4. Choose **Close** when you are finished viewing the reservation's details.

Related topics

- **Viewing reservations** on page 28
- **Deleting reservations** on page 30

3.4.2 Deleting reservations

From the Reservation page, you can delete a reservation. These steps explain how this is to be done.

To delete a reservation

1. Go to the View Reservations page (**View > Reservations**).
2. Double-click the reservation you want to delete to view the reservation detail view, and click **Delete**.

   A confirmation window appears and asks if you are sure you want to delete the reservation.
3. Choose **Yes** to delete or **No** to cancel.

Related topics

- **Viewing reservations** on page 28
- **Viewing a reservation's details** on page 29

3.5 Understanding "View" pages features

The View Nodes and View Services pages contain tiles that display health and state information. They also have sorting and filtering options. This topic explains how to understand and use these features.

UNDERSTANDING HEALTH/STATE INFORMATION

There are four different health states for a node or VM resource: Failure, Warning, OK, and Unknown. Each resource will be in one of these states.

State	Summary icon	Tile icon
Failure/Down		

State	Summary icon	Tile icon
Warning		
OK		(none)
Unknown		

There are two other states that are not health-related: Reserved and Requested Actions.

State	Summary icon	Tile icon
Reserved		
Requested Actions		

Because each resource must be assigned a health state, the Reserved and Requested Actions states are additional states added to the resource. (For example, a Reserved node will also have a health state of Failure, Warning, OK, or Unknown.)

Health/state information does not display for storage.

The Quick Filter table displays the number of nodes in your data center in each state. For example:

The Quick Filter table allows you to filter the resources that appear on the page. For more information, see **Filtering and sorting** on page 31.

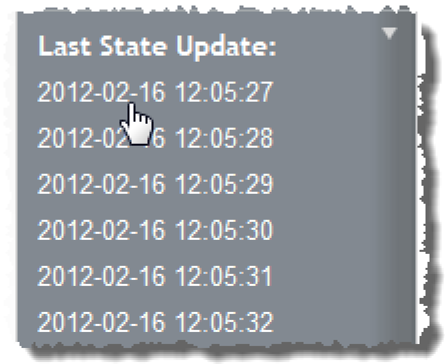
Filtering and Sorting

The page has filtering and sorting options to help you find what you need and organize what you see. The **Filters** option includes a list of fields (for instance, Health [for nodes and VMs], Alias, Available Processors, and so forth) that you can use to filter what resources display.

For example, if you wanted to display all nodes that were last updated on February 16, 2012, you can select **2012-02-16** from the **Last State Update** field in the list. Then only the nodes that were last updated on that day appear in the page.

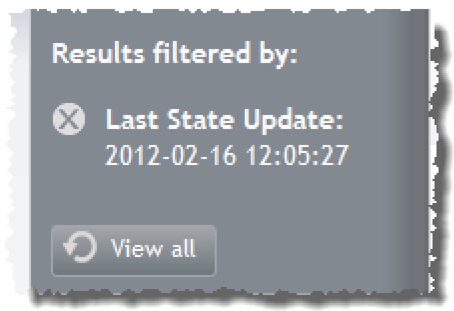
To use the Filters list

1. Locate the field you want to filter by. (Expand and collapse the field by clicking the field name.)
2. Select the field value you want to filter by (in this example, **Last State Update**).



The page is updated so that only the resource summary tiles that fit that field value display.

Also, the field value you selected is noted at the top of the Filters list.

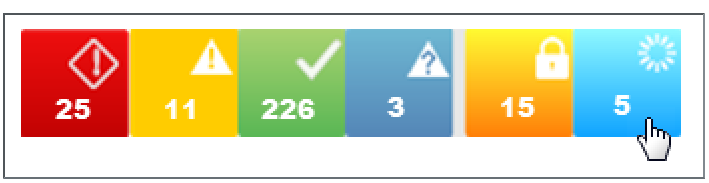


3. If you want to filter by other field values, repeat this process.
4. To remove individual selected field values, click the remove icon ().
5. To remove all filters, choose **View all**.

To use the Quick Filter table

- Click the icon for the resource state you want to filter by.

  (For example, if you want to see only the resources that are in a Requested Actions state, click the Requested Actions icon.)



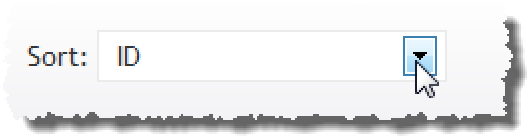
It is possible that when you filter by Requested Actions or Reserved states, the resource tiles that display will have a Failure, Warning, or Unknown icon. This is because every resource has a health status. If the health status is anything but OK, the health icon overrides the Requested Actions or Reserved icon, even though the resource will still appear in the filter.

For example, you might have a Reserved resource that has a health status of Warning. If you filter by Reserved, that resource will appear, but its tile will display the Warning icon, not the Reserved icon.

The page also includes a **Sort** option that allows you to sort the order of the resources that appear on the page. This option sorts by the field that you select (for example, ID, Alias, Load, Total Memory, etc.) numerically or alphabetically, depending on the specified criterion. By default, resources are sorted by ID.

To sort resources

- From the **Sort** drop-down, select the field you want to sort by (for example, **ID**).



The resources will reorder to match your sort selection.

Related topics

- **Viewing nodes** on page 21
- **Viewing services** on page 24

Chapter 4: "History" menu options

By default, the "History" menu contains links to the following pages:

Administrators can customize Viewpoint menu names, page names so that they do not match what is delivered in Viewpoint by default. Additionally, administrators can customize user roles that affect what pages you may have permissions to access and what actions you are allowed to perform on those pages.

Menu option	Page	What can I do there?	Link to more information
Event Logs	Event Logs	You can query major events that have been reported to the Moab event logs.	**Viewing event logs** on page 35
Reports	Reports	You can execute reports in HTML, PDF, or Microsoft Excel formats.	**Viewing reports** on page 41
Requested Actions	Requested Actions	You can view user requests that are associated with nodes or VMs.	**Viewing requested actions** on page 44

4.1 Viewing event logs

The Viewpoint Event Logs page lets you query major events that have been reported to the Moab event logs. These events include JOBSTART, JOBEND, and JOBMODIFY. By default, the event log is maintained in the statistics directory and rolls on a daily basis.

The Event Logs page displays items returned from the Moab event logs in list form with the following fields:

- ID
- Date
- Time
- Event
- Object
- Name
- Description

Because your system can potentially have a very large number of items in the event log, the Viewpoint interface has filtering and sorting tools to help you find the items in the log you are looking for (see **Using filters** on page 36).

You can access the Event Logs page by navigating to **History > Event Logs**.

This section explains how to set up and manage your own search filters and how to navigate the Event Logs page. It contains these topics:

- **Using filters** on page 36
- **Creating new filters** on page 39
- **Managing filters** on page 40

4.1.1 Using filters

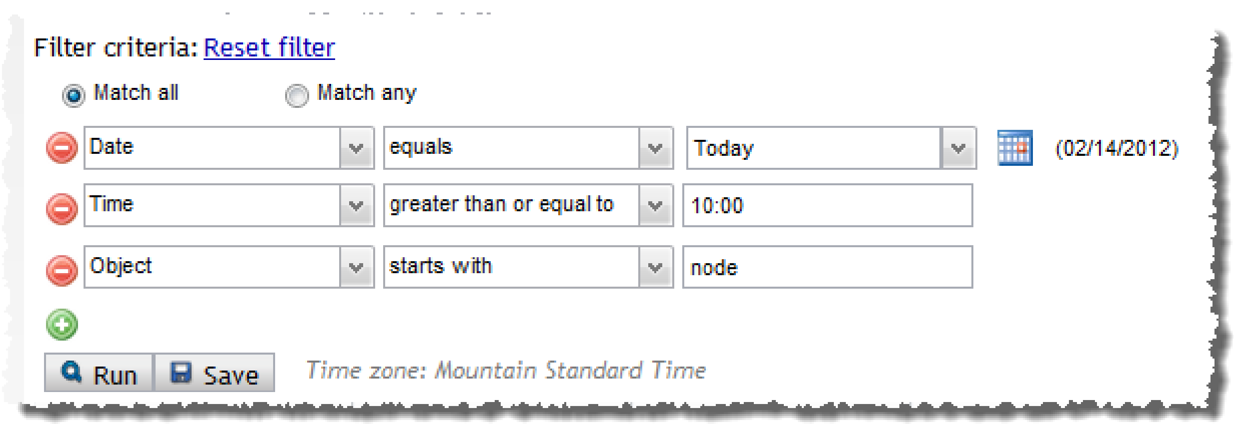
Event log filters are used to save and load queries on the Event Logs page. The Viewpoint user interface lets you set your own filter criteria to run filtered searches against the log items in your system. This section explains the following tasks associated with using filters:

- **Setting filter criteria** on page 36
- **Loading saved filters** on page 37
- **Sorting log items in the list** on page 38

Setting filter criteria

Filters consist of different search criteria options that you configure. A search criterion can be any of the following:

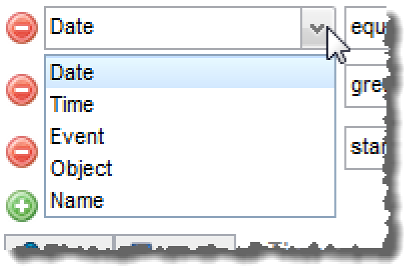
- Date
- Time
- Event
- Object
- Name



When you open the Event Logs page, the filter criterion is set to the current date by default.

To set filter criteria

1. Go to the Event Logs page (**History > Event Logs**).
2. Load a saved filter (see **Loading saved filters** on page 37), or begin with the default filter already displayed.
3. Choose the criterion option you want to use from the drop-down.



4. Set the option parameters.

   For example, if you want a criterion to filter items that were logged after 10:00 am today, you would select **greater than** in the second drop-down, and enter **10:00** in the third drop-down.
5. If you need more than one criterion, select the **Add** button (), and repeat the process.

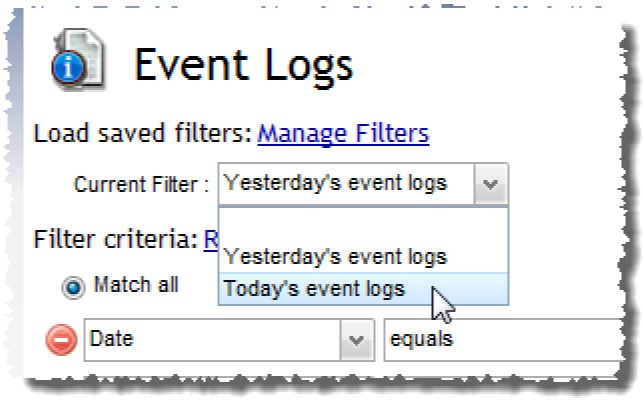
   To remove a criterion, select the **Remove** button ().
6. When you run your search, you can set Viewpoint return items that match all your search criteria by selecting **Match all**. If you want your search to return items that match one or more of your criteria options select **Match any**.
7. When you are finished setting your criteria, choose **Run** to run the search.

LOADING SAVED FILTERS

You can load previously saved filters (a grouped set of search criteria) to filter the log items.

To load a saved filter

1. Go to the Event Logs page (**History > Event Logs**).
2. Select the filter you want to load from the **Current Filter** drop-down.



The search runs when you load select a saved filter, and the log items in the list update automatically.

Sorting log items in the list

You can sort the log items in the list by these fields:

- ID
- Date
- Time
- Event
- Object
- Name
- Description

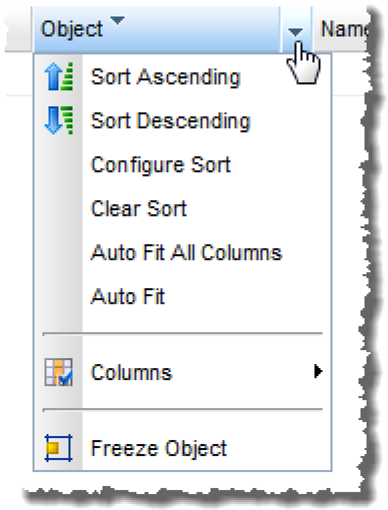
To sort log items in the list

Do one of the following:

- Click the field that you want to sort by. (For example, if you want to sort by item name, click **Name**.) Click once to sort ascending; click again to sort descending.

  OR

- Select the option drop-down on the field you want to sort by and select the option you wish to apply.



Related topics

- **Viewing event logs** on page 35
- **Creating new filters** on page 39
- **Managing filters** on page 40

4.1.2 Creating new filters

You can save your customized filters for later use. This allows you to quickly retrieve saved filters without having to fill in the form each time. Saved filters are stored using the internal Viewpoint database so you will still see your filters even if you are logged in on a different machine.

To create new a filter

1. Go to the Event Logs page (**History > Event Logs**).
2. Set your search criteria (for details, see **Setting filter criteria** on page 36).
3. Choose **Save.**
4. Enter the name you want to specify as the name of the filter.
5. If you are modifying an existing filter, select the name of the filter you are modifying. This will overwrite the old saved filter with the new one.
6. Choose **Save.**

Related topics

- **Using filters** on page 36
- **Viewing event logs** on page 35

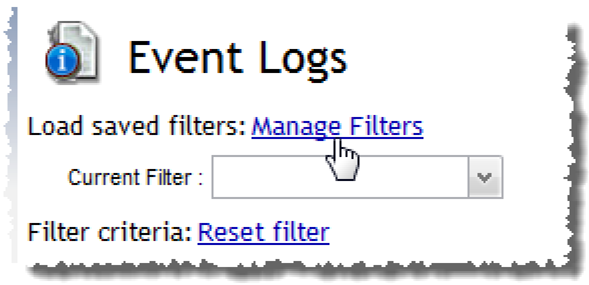
- **Managing filters** on page 40

4.1.3 Managing filters

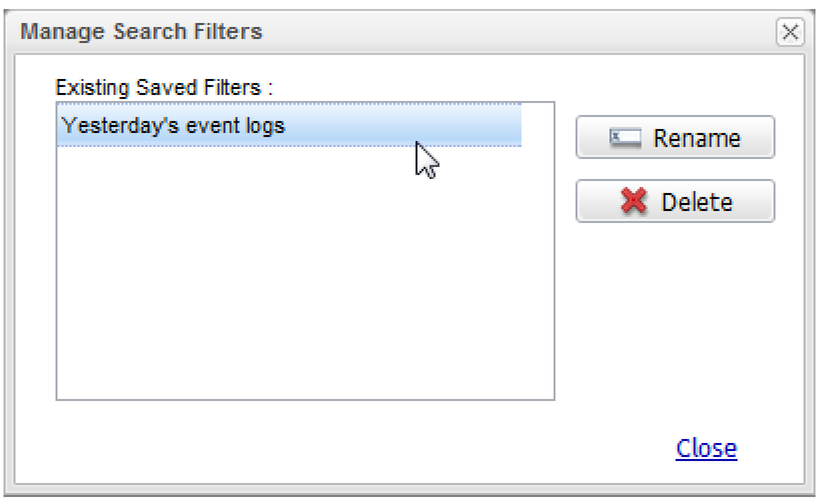
Viewpoint's Manage Search Filters option lets you rename or delete existing filters.

To manage filters

1. Go to the Event Logs page (**History > Event Logs**).
2. Choose **Manage Filters**.



The Manage Search Filters window opens.



3. To rename a filter, do the following:
   a. Select the filter you want to rename and choose **Rename**.

      The name text becomes editable.

   b. Enter the new name, and click outside the text box.

4. To delete a filter, do the following:
    a. Select the filter you want to rename and choose **Delete**.

       A confirmation box appears and asks if you are sure you want to delete.
    b. Choose **Yes** if you want to delete, or **No** to cancel.
5. When you are finished, close the Manage Search Filters window.

Related topics

- **Using filters** on page 36
- **Viewing event logs** on page 35

4.2 Viewing reports

When Viewpoint is configured to include the Reporting Portal, new reports included in the `reporting.xml` file appear on the Reports page. They can include any of the following:

Report	Description
Events	A report showing historical event information in the form of a table, pie chart, or bar chart
Job and Processor Hours by Credential	A list report of processor hours and jobs by credential. The data is displayed in table format by year, then by month.
Job and Processor Hours by Month	A bar chart of the chosen year with total processor hours and jobs for each month
Jobs and Processor Hours by Quarter and Year Bar Chart	A bar chart of totals for jobs and processor hours by quarter and year
Jobs Submitted	A report presenting the jobs submitted by credentials (user, group, account, and quality of service) for the supplied time in table format with name and total of jobs
Jobs Submitted and Completed Line Chart	A line chart showing number of jobs over the specified time and for the specified credential with the option of showing completed jobs
Total Active Processor Count	Line chart showing the number of active processors over the specified credential and credential name
Total Allocated Node Count	Displays the number of total allocated nodes over time in a line chart for the given start and end time by credential and credential name
Total Queue Time	A table and pie chart view of queue hours over the specified time and for the specified credential

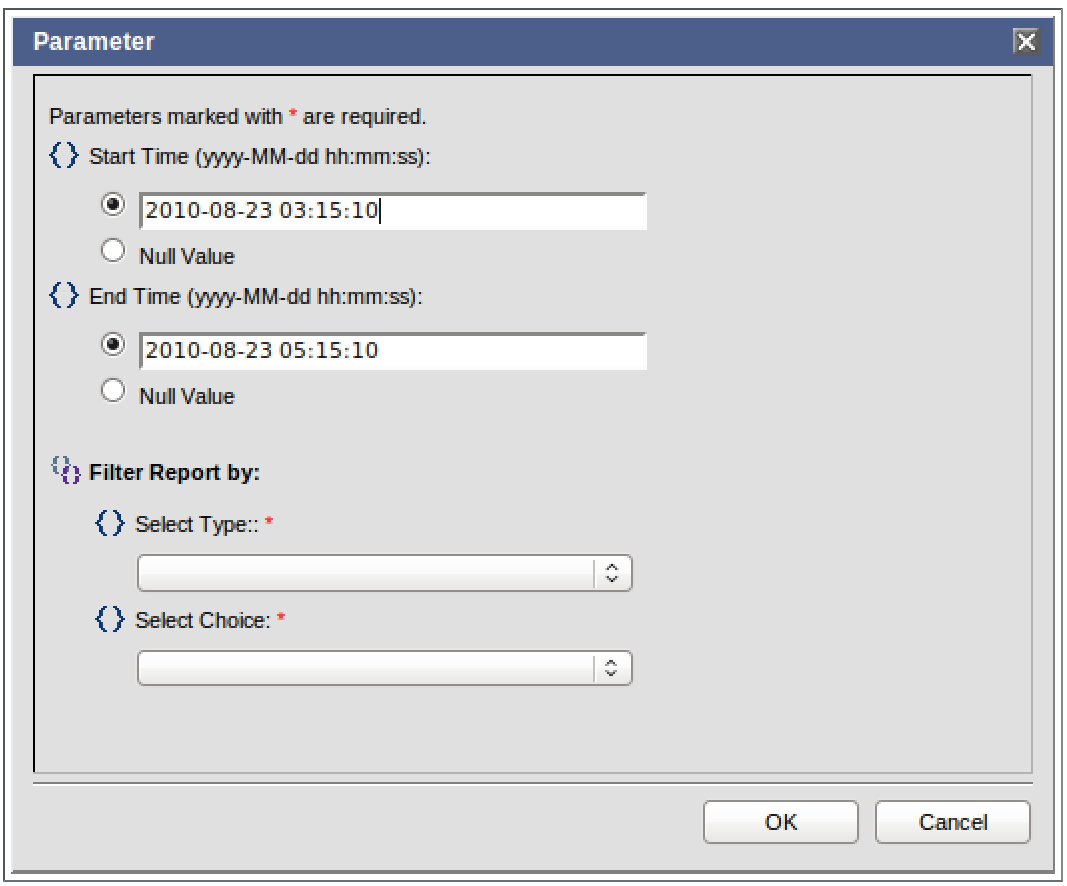
Report	Description
Used Wallclock Time	A table and pie chart view of used wallclock hour for the specified time and for the specified credential
VM Lifecycle Report	A report displaying events occurring on a VM by user and time

To run a report

1. Open the report according to the desired format. To view a report in HTML format, click the title of the report. To view the report in PDF or Excel format, click on the corresponding icon:

	PDF
	Microsoft Excel

2. A pop-up window prompts you for parameters. Select or fill in all required fields and any desired optional fields. Required parameters are indicated by a red asterisk (*). Some report parameters are cascading. This means the first parameter in a group determines the available choices in the second parameter. In the image below, the **Select Choice** parameter options are determined by the **Select Type** selection. The Type and the Choice parameters are indicated as required.

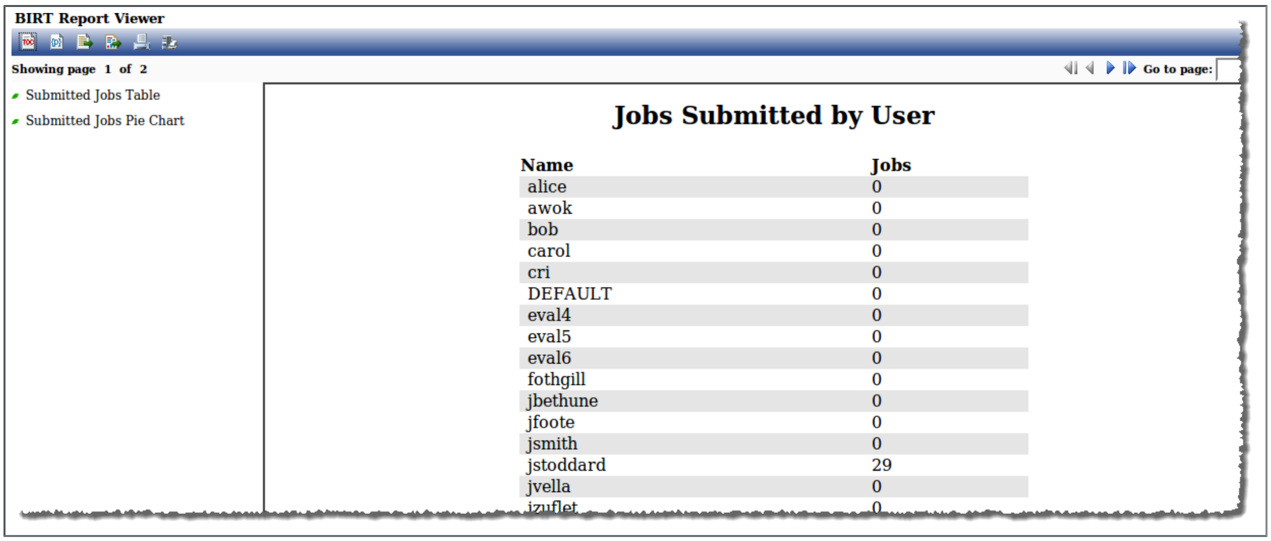


3. Click **OK**. The report runs based on your parameters, and then the report displays in the specified format.

4. (Optional) When you run an HTML report, you can use the buttons at the top of the BIRT Report Viewer.

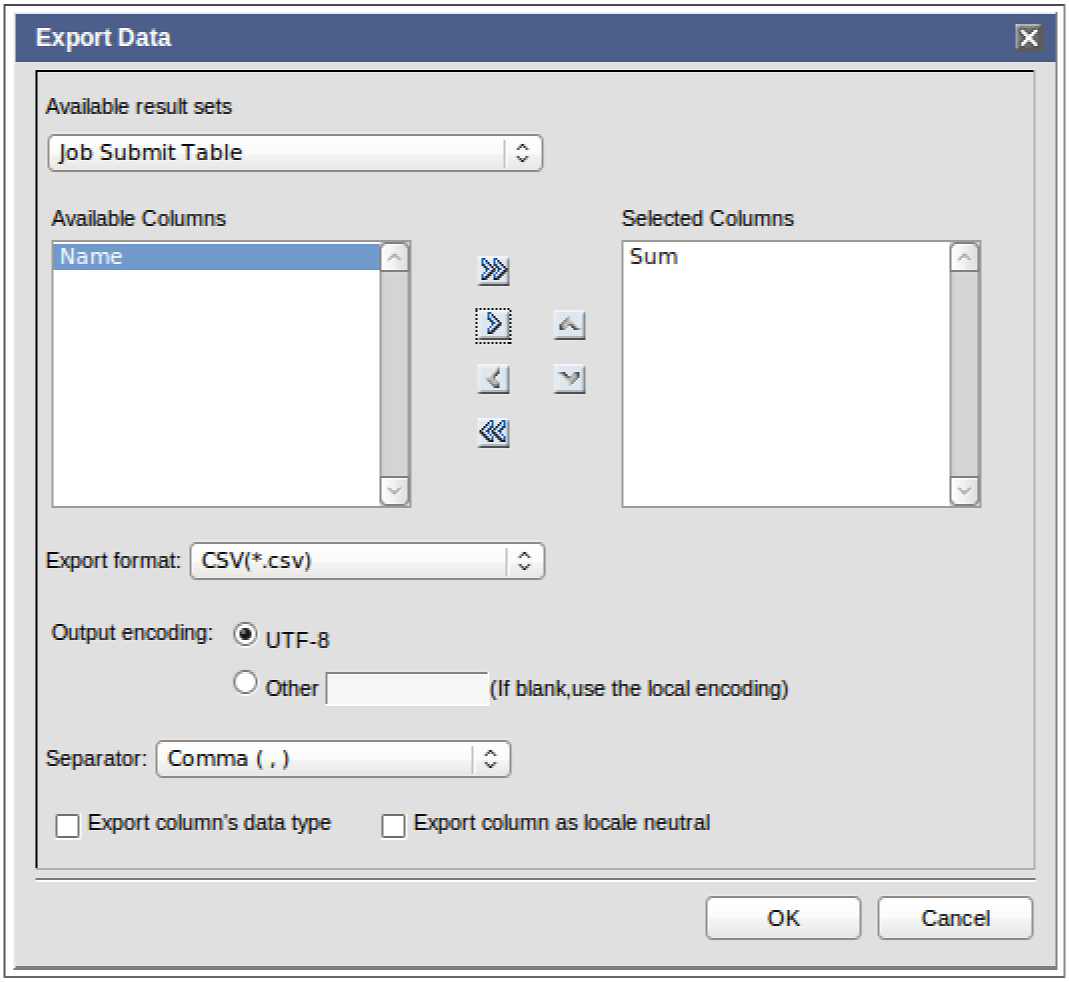
Use these buttons to do the following:

- View, and select from, the TOC



- Rerun the report with a new set of parameters
- Choose a different format

- Export data



- Print the report

Related topics

- **"History" menu options** on page 35

4.3 Viewing requested actions

The Requested Actions page displays user requests that are associated with nodes or VMs. Node pending actions are "starting", "stopping" and "reprovisioning" (the node's operating system is being changed). VM pending actions represent similar and additional actions such as "creating", "deleting", "migrating" (to another server or node), "powering on", "powering off", and "reprovisioning" (the VM's operating system is being changed).

Access the Requested Actions page by navigating to **History > Requested Actions**.

The Requested Actions page consists of a table where each row represents a pending action and each column represents attributes. The columns included in the default view are:

- ID
- Type
- VM
- Status
- Started
- Requester
- Source
- Destination
- Failure Details
- Hosts
- Substate

The **Refresh** button requests the most current list of pending actions.

You can sort the items that appear in the Requested Actions list. Click the field column that you want to sort by. (For example, if you want to sort by item ID, click **ID**.) Click once to sort ascending; click again to sort descending.

Related topics

- **"History" menu options** on page 35

Chapter 5: "Administration" menu options

By default, the "Administration" menu contains links to the following pages:

Administrators can customize Viewpoint menu names, page names so that they do not match what is delivered in Viewpoint by default. Additionally, administrators can customize user roles that affect what pages you may have permissions to access and what actions you are allowed to perform on those pages.

Menu option	Page	What can I do there?	Link to more information
Catalog Management	Catalog Management	You can view, create, copy, modify, or delete service templates.	**Managing service templates (Manage Service Catalog)** on page 47
Configuration	Viewpoint Configuration	You can configure and modify connection information to Moab Workload Manager, the Viewpoint database, Moab Web Services, etc.	Please refer to the Viewpoint for Moab Cloud Suite Administrator Guide for information about how to use the Configuration options in Viewpoint.
Node Management	Node Management	You can view nodes in a list or their details. You can also power nodes on/off or reprovision them.	**Managing nodes** on page 64
Policy Management	Policy Management	You can edit Moab policies.	**Managing policies** on page 66
User Management	User Management	You can add users, modify user permission roles, or change user passwords.	**Managing users** on page 70
VM Management	VM Management	You can view VMs in a list or their details. You can also power Vms on/off or reprovision them.	**Managing VMs** on page 73

5.1 Managing service templates (Manage Service Catalog)

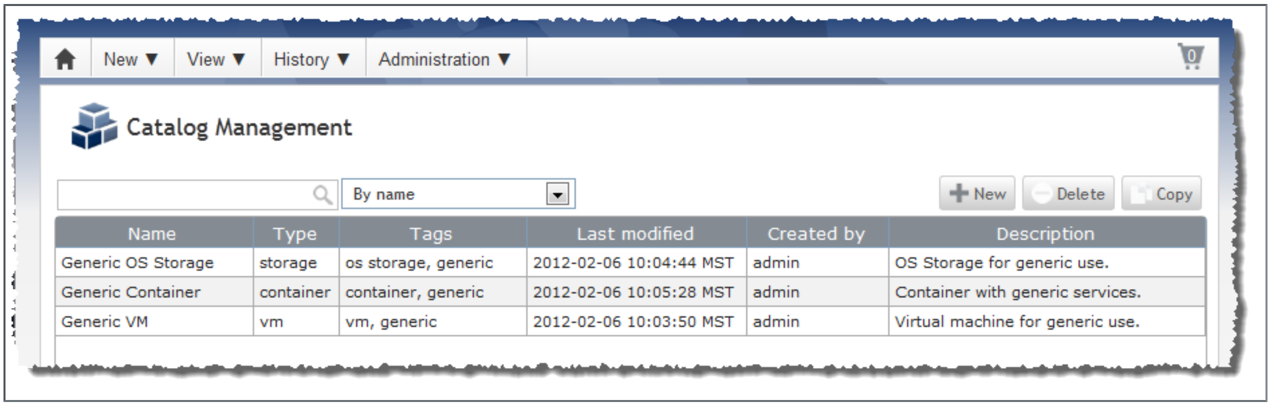
The Service Catalog is a UI method of submitting and defining templates for services such as virtual machines, physical machines, virtual containers, and storage that are offered to consumers. It lets you create the template, define its resources, and save it for user use. The templates' resource definitions may be constrained or user-editable.

You can duplicate and modify templates in order to preserve the essential configuration of the master template while making minor alterations, such as decreasing or locking a resource.

Service templates can contain other service templates. This opens up the opportunity to create complex services such as a virtual or physical machines with attached storage, a nested service to contain multiple instances of such services, and other complex service templates.

Access the Manage Service Catalog page by navigating to **Administration > Catalog Management**.

Image 5-1: Manage Service Catalog page



You can select templates by clicking on them individually (the rows highlight when selected). The buttons above the table that apply to selected templates then become usable so that the template(s) can be copied or deleted.

This chapter describes the following tasks that you can perform from the Manage Service Catalog page:

- Preview and search for your service templates (for details, see **Searching and sorting service templates** on page 48).
- Create new service templates or modify existing service templates (for details, see **Creating/modifying service templates** on page 49).
- Copy service templates (for details, see **Copying service templates** on page 62).
- Delete service templates (for details, see **Deleting service templates** on page 63).

5.1.1 Searching and sorting service templates

Searching service templates

You can search the Service Catalog for easy navigation and management.

To search for service templates

1. Go to the Manage Service Catalog page (**Administration > Catalog Management**).
2. Enter your search terms in the text box.

   You can use the wildcard (*) character, or search for a partial word.

3. Use the drop-down to narrow your search to a specific field (Name, Type, Tags, Last modified, Created by, or Description).
4. Select the **Search** icon or press Enter to do the search.

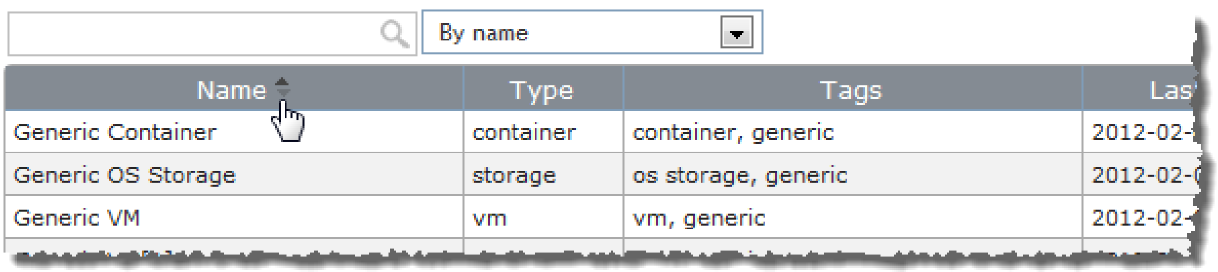
The Service Catalog updates to show only the service templates that match your search criteria.

SORTING SERVICE TEMPLATES

The Service Catalog fields have sorting options to help you find the templates you are looking for.

To sort service templates in the catalog

1. Go to the Manage Service Catalog page (**Administration > Catalog Management**).
2. (Optional) Search for templates (see **Searching service templates** on page 48).
3. Click the sort icon next to the field name you want to sort by. For example, if you want to sort by name, click the sort icon in the Name column.



Click once to sort in ascending order; twice to sort descending order.

Related topics

- **Managing service templates (Manage Service Catalog)** on page 47

5.1.2 Creating/modifying service templates

As an administrator, you can create service templates for you and your users to use when they request services in Viewpoint.

The Create Service Template page guides you through the process of creating virtual machine, physical machine, container, and storage in a template. For virtual and physical machines, a form builder allows you to create custom, optionally restricted fields in which you or a user may request resources for the service.

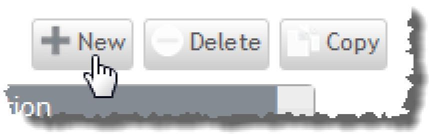
You can also create a template out of a service container. This allows you to select other services to be included in the container and to specify an established workflow.

Service templates must be a container type for users to request the service. To make a template of another type (virtual machine, physical machine, storage, or custom) usable for your users, place it and any other service templates to be included inside of a separate container template.

To create/modify a service template

1. Go to the Manage Service Catalog page (**Administration > Catalog Management**), and do one of the following:

    - If you are creating a new service template, choose **New**.

    - If you are modifying an existing template, double-click the template from the Service Catalog.

    A new page opens with a series of configuration options which you can navigate using the buttons on the left. The form automatically opens to the **Template properties** tab.

2. Fill out or update the template properties form (see **Setting template properties** on page 51).

3. If available for the service type, use the **Templates included** and **Sequence** tabs to specify which services to include and define the sequence. (For more information, see **Defining a service template workflow** on page 59.)

4. If available for the service type, click the **Resources** tab to configure the service template's resource form. (For more information, see **Configuring a service template Resource form** on page 52.)

5. Select the **Summary** tab to view your service template's configuration, modification information, and a list services included in the template.

6. Select **Preview** form if you want to review the template's settings.

    A pop-up window displays the form configured under the **Resources** tab. Review the template's settings and click **Close**.

7. If satisfied with the template's settings, click **Save template**.

    Incomplete templates can be saved if you have specified a name, but they cannot be used to create a service.

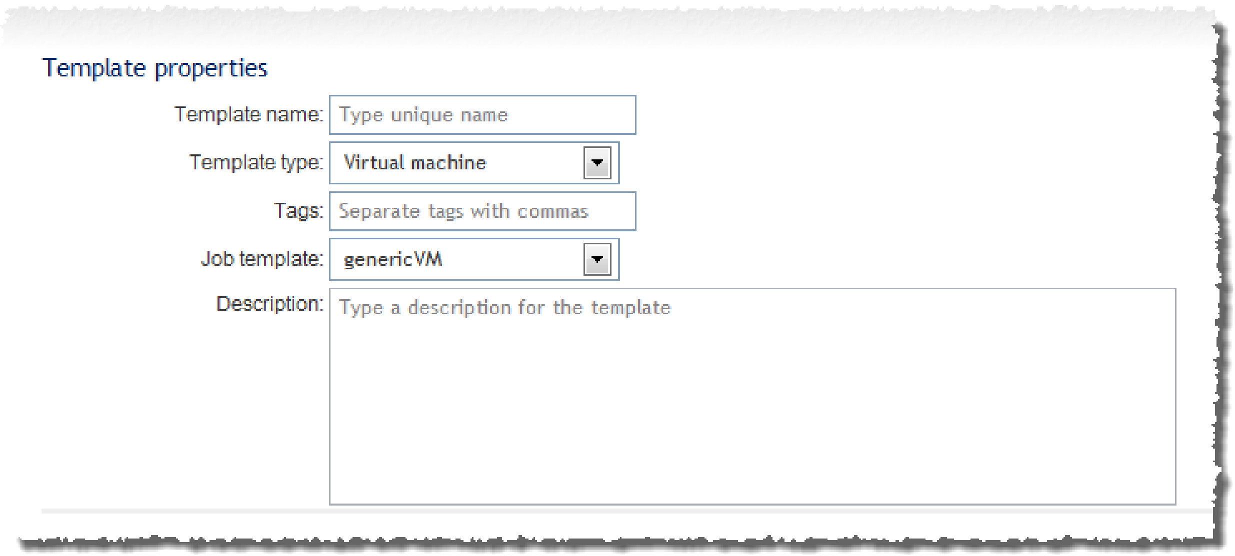
To make a template types other than container usable to users, place it inside of a container template. To do so, follow steps 2-8 again, specifying the template type as **Container** and inserting the service template(s) inside of the container.

Related topics

- **Copying service templates** on page 62
- **Deleting service templates** on page 63
- **Managing service templates (Manage Service Catalog)** on page 47

5.1.2.1 Setting template properties

When creating a service template, you must fill out the **Template properties** form to provide general information about the template.



To fill out the Template properties form

1. Give the template a unique name.
2. Specify whether the template is for a Virtual Machine, Physical Machine, Container, or Storage in the **Template type** field.
3. Insert any desired tags in a comma-separated list.

   The list can contain spaces, but spaces are not required.

4. Select a workflow to provision the service from the Job Template drop-down menu. Job templates are configured using the Moab JOBCFG[] parameter (see the Moab Workload Manager Administrator documentation).
5. Provide a description to appear in the Service Templates table.

Related topics

- **Creating/modifying service templates** on page 49
- **Configuring a service template Resource form** on page 52

- **Defining a service template workflow** on page 59
- **Nesting service templates** on page 60

5.1.2.2 Configuring a service template Resource form

For most service template types, you can define which resources it requests. You can also specify which ones can be edited by a user, set limits and defaults for user input, and organize the forms into sections with headers.

Some fields are required for the template; they can be modified but not deleted. For instance, a VM template comes with a **Processors** and **Memory** field by default. Certain features of these fields may be modified, but the fields cannot be removed from the template.

To configure a service template's Resource form

1. When creating or modifying a service template, go to the **Resources** tab. Some required fields are already configured and may be modified.
2. Modify fields as desired. Note that you may not be able to modify some settings of a particular field.

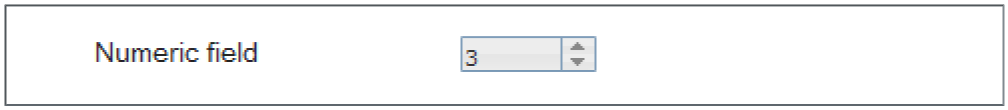
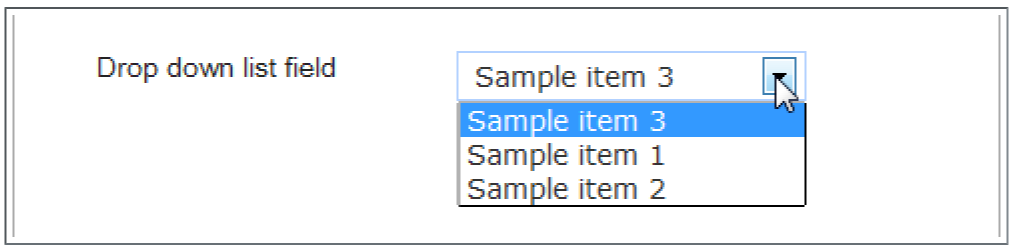
Field	Description
Field type	Component that is provided for the user to make his/her selection.
Label	Descriptive name of the field that appears to the user.
ID	Unique identifier of the field. This should only be modified according to the keywords described in this topic (see **"ID" field keywords** on page 58).
Default value	Value that appears when the user loads the form. Make sure that you do not set the default value greater than the **Maximum** value or less than the **Minimum** value.
Minimum	Smallest number that the user may request of the resource.
Maximum	Largest number that the user may request of the resource.
Schedulable resource	Whether the field represents a schedulable resource or a variable .
Visible to user	Whether or not the field appears in the user's service template form.
Editable to user	Whether or not the user may modify the specifications of the resource.

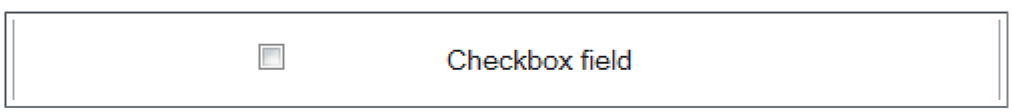
You cannot allow a user to edit a Header field type.

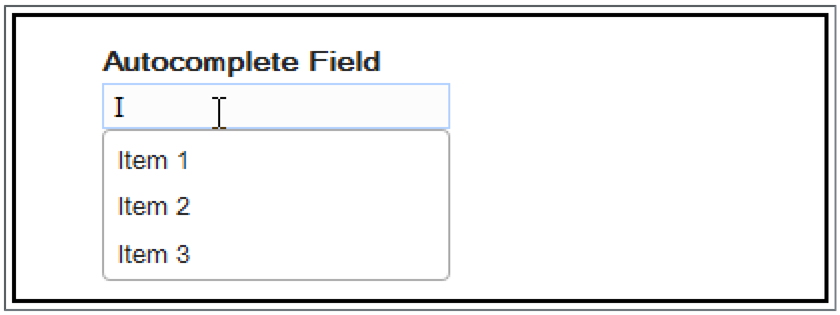
3. To create a new field, click the **Add Field** button under the Catalog options category.


Add field

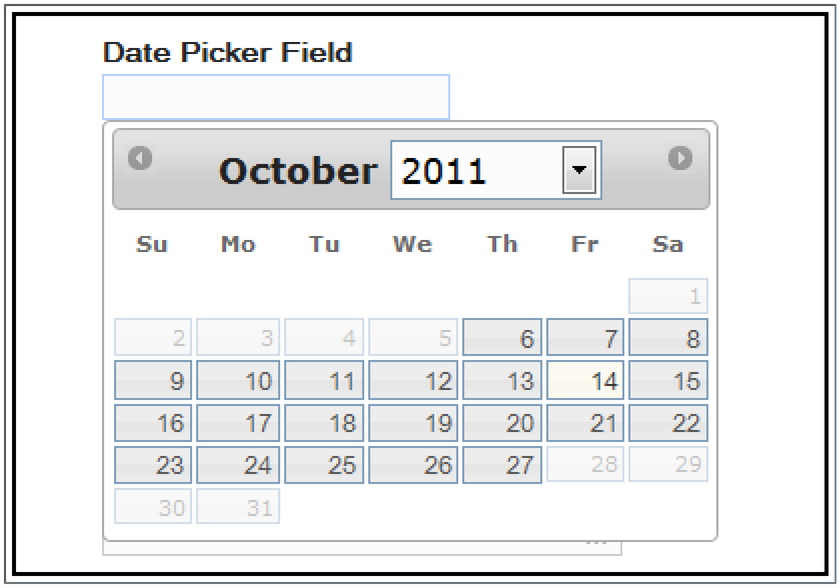
a. Select the **Field type** from the following options:

<table>
<tr><th>Field type</th><th>Description</th></tr>
<tr><td>Text</td><td>Creates a field in which a user can specify any string data.
</td></tr>
<tr><td>Numeric</td><td>Creates a number spinner in which a user inputs numeric data.
</td></tr>
<tr><td>Drop-down list</td><td>Creates a list field in which the user may choose from one or more predefined options.

For drop-down lists, configure the list options by inserting one into the Item text box and clicking Add List Item.

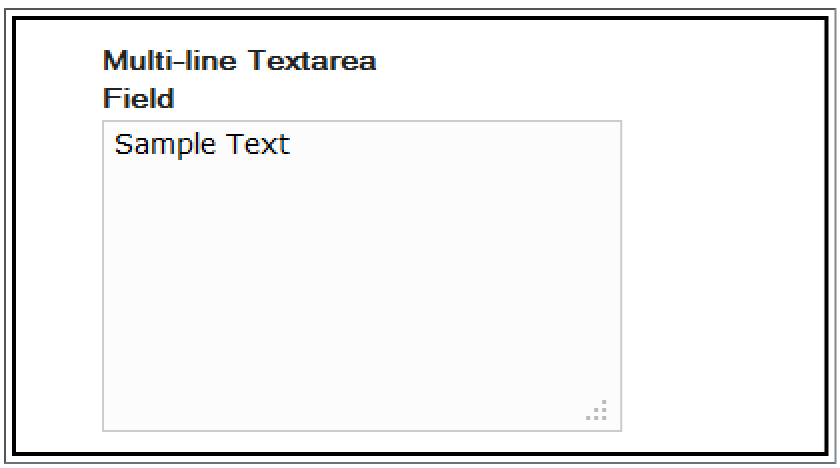
The new item appears in the option table below and the Item text box clears. Repeat the process for each item. You can remove options by clicking the Remove button in the corresponding row's right cell.</td></tr>
<tr><td>Checkbox</td><td>Creates a checkbox that the user clicks to indicate that a value is true.
</td></tr>
<tr><td>Header</td><td>Creates a display-only, organizational header to categorize fields and set them apart from others.
</td></tr>
</table>

Field type	Description
Open	Creates a custom field that you configure with HTML, JavaScript, etc. Take special care when using the Open field because the code you provide can be executed. If you want to create an input that is not saved to the service, such as filtering lists or radio buttons that toggle other sections, add the noSave class to the input. Inputs containing the noSave class are not sent to the service generation system as a variable or resource. `<input ID="myInput" class="noSave">`
Autocomplete	Creates a text box in which the user begins typing and suggestions appear beneath the box. The user clicks, or uses the arrow keys to navigate to, a suggestion to insert into the field.  In the **Source** field and insert JSON values or the URL of a service that will return a JSON array that determines what values the autocomplete box can suggest. The returned JSON array should consist of a series of objects, each of which has a "label" and "value" entry. For example: [{"label":"1","value":"1"}, {"label":"2","value":"2"}, {"label":"2a","value":"2a"} {"label":"2b","value":"2b"}, {"label":"2c","value":"2c"}, {"label":"3","value":"3"}, {"label":"31","value":"31"}]

<table>
<tr><th>Field type</th><th>Description</th></tr>
<tr><td>Date picker</td><td>Creates a field in which the user specifies a date value by navigating to the date in a pop-up calendar and selecting it.



</td></tr>
<tr><td>Multi-line text area</td><td>Creates a custom-sized field in which the user can input any string data.



</td></tr>
</table>

b. Change the field's **ID** from the default `newField` to one of the keywords that maps directly to a Moab resource. See **"ID" field keywords** on page 58.

> If the **ID** does not match one of the keywords AND the **Schedulable resource** option is checked, it is assumed to be a generic resource. Otherwise, it is assumed to be a variable. The value of **ID** must match the exact name of the generic resource configured in Moab.
>
> See the "Moab Managing Consumable Generic Resources" documentation in the Moab Workload Manager Admininstrator Guide for more information on generic resource configuration.

c. Fill in the fields according to the instructions in step 3.

4. To move a field up or down, use the arrow buttons:

5. To remove a field, choose **Delete field**.

> Some fields are required for the service and cannot be deleted.

6. Go to the **Summary** tab. If desired, select **Preview form**.

"ID" FIELD KEYWORDS

The following table contains the keywords to insert in the ID field and their corresponding Moab resources:

Keyword	Resource
disk	Disk per task (MB)
image	OS image
mem	Memory (GB)
node	Node to provision (used by physical machines)
procs	Processors per node (ppn)

Related topics

- **Creating/modifying service templates** on page 49
- **Managing service templates (Manage Service Catalog)** on page 47

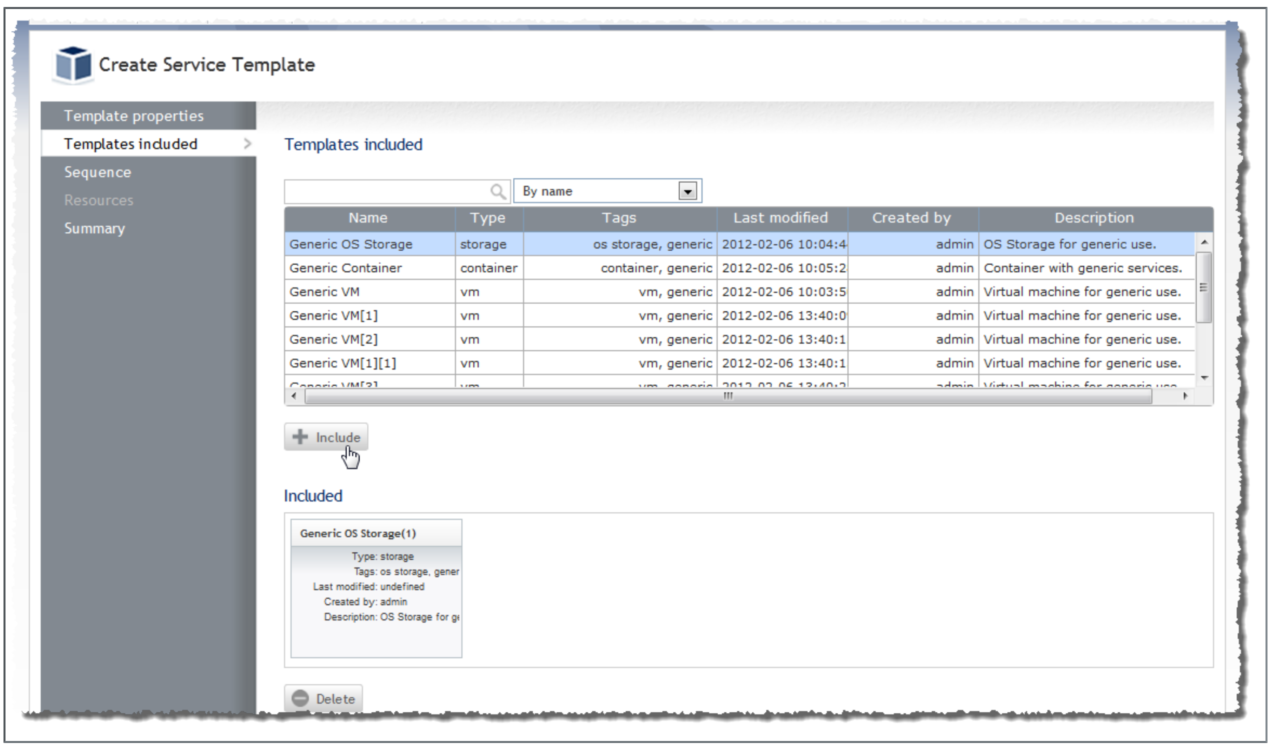
5.1.2.3 Defining a service template workflow

Virtual containers hold various other service templates. The Included section of the Create Service Templates page allows you to select which service templates to add to the container from a table, and the Sequence section allows you to establish dependencies between them.

To define a service template's services and their sequence

1. When creating or modifying a service template, go to the **Templates included** tab.

2. Locate the service templates to include. If necessary, use the search feature above the table (for more information, see **Searching and sorting service templates** on page 48). Specify the services either by clicking the desired service then the **Include** button or by double-clicking each service template you want to include. The templates you select appear in the **Included** section below.



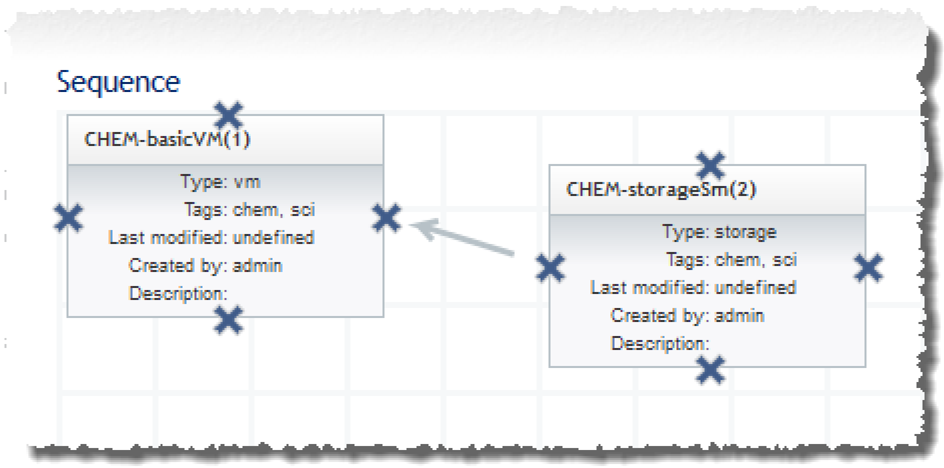
3. To remove an added service template, click on it in the Included pane. The service template darkens. Choose **Delete**.

4. Go to the **Sequence** tab. Each of the selected services appears on the page. The boxes may be arranged as desired in the work window for easy organization.

5. Configure the services' dependencies on one another.

   a. To create a dependency, drag each template up into the work area. Use one of the following methods to create the sequence:

      - Click the dependent service template. The dotted border turns blue. Click the dependent template, and an arrow will point to it from the first template. Repeat the process as needed to complete your sequence.
      - Drag the dependent service to the service that it depends on and drop it. Click it again and drag it away from the one it depends on. An arrow points from the first service to the second. Repeat the process as needed to complete your sequence.



   b. To remove a dependency between services, hover your cursor over the arrow. Once the scissors image appears, click the arrow.

When a logical error, such as a circular dependency, is made in the workflow, the arrows turn red. Resolve the issue by deleting the conflicting connection.

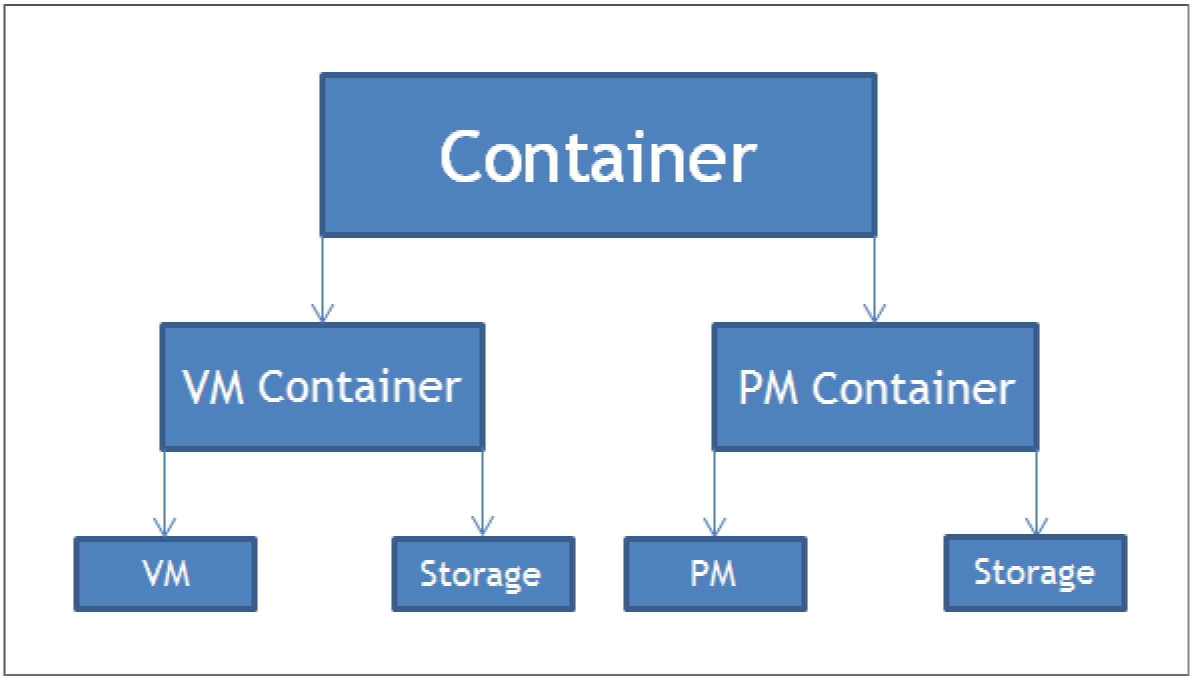
Related topics

- **Creating/modifying service templates** on page 49
- **Managing service templates (Manage Service Catalog)** on page 47
- **Configuring a service template Resource form** on page 52

5.1.2.4 Nesting service templates

Service templates can contain other service templates. For instance, you might want to create a LAMP stack service including a virtual machine with storage to hold a web server, and a physical machine with storage to hold the corresponding database.

Image 5-1:



To create a nested service including both a virtual and physical machine with attached storage

1. Create 4 service templates: a virtual machine template, a storage template to attach to the VM, a physical machine template, and a storage template to attach to the PM. For detailed instructions, see **Creating/modifying service templates** on page 49.
2. Now, create a container for the VM template and its storage template. Fill out the general information requested for your service.
   a. Go to the **Templates included** tab.
      - Click the VM template and its storage template.

        The rows darken.
      - Choose **Include**.

        Both services appear in boxes below.

   b. Go to the **Sequence** tab.
      - Click the virtual machine template.

        The box's outline turns blue.
      - Click the storage template.

        An arrow appears between them.

   c. Go to the **Summary** tab to view the information configured on the Template properties tab, modification information, and the names of the virtual machine and storage template included. If you are satisfied with the template's settings, click **Save template**.

3. Repeat step 2 to create another container for the physical machine and its storage.

4. Once both containers have been created, create a large container for both the virtual machine and its storage and the physical machine and its storage. Fill out the general information requested for your service.

   a. Go to the **Templates included** tab.

      - Click the container template with the VM and the container template with the PM.

        The rows darken.

      - Choose **Include**.

        Both services appear in boxes below.

   b. Go to the **Sequence** tab.

      - Click the physical machine service.

        The box's outline turns blue.

      - Click the virtual machine service.

        An arrow appears between them.

   c. Go to the **Summary** tab to view a summary of the new container. If you are satisfied, click the **Save template** button.

Related topics

- **Defining a service template workflow** on page 59
- **Creating/modifying service templates** on page 49
- **Managing service templates (Manage Service Catalog)** on page 47

5.1.3 Copying service templates

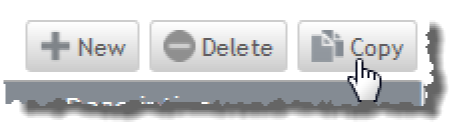
You can copy service templates from the Manage Service Catalog page.

To copy a service template

1. Go to the Manage Service Catalog page (**Administration > Catalog Management**).

2. Select the service template(s) you want to copy.

3. Choose **Copy**.



Duplicate service templates appear in the Service Catalog.

Copied templates are given the same name as the template they were copied from plus the copy number in brackets. For example, if you copied a template "myTemplate-01", the first time copy would produce a duplicate template named "myTemplate-01[1]".

4. (Optional) You can rename the copied template by modifying it (for details, see **Creating/modifying service templates** on page 49).

Related topics

- **Creating/modifying service templates** on page 49
- **Managing service templates (Manage Service Catalog)** on page 47

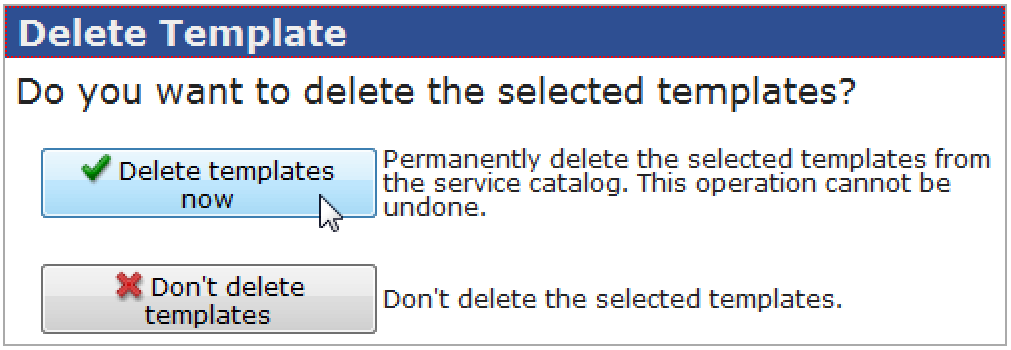
5.1.4 Deleting service templates

You can delete service templates from the Manage Service Catalog page.

To delete service templates

1. Go to the Manage Service Catalog page (**Administration > Catalog Management**).
2. Select the service template(s) you want to delete.
3. Choose **Delete**.

When you delete selected templates, a confirmation message appears.



4. Select **Delete templates now** and the templates are removed from the table. Select **Don't delete templates** to cancel.

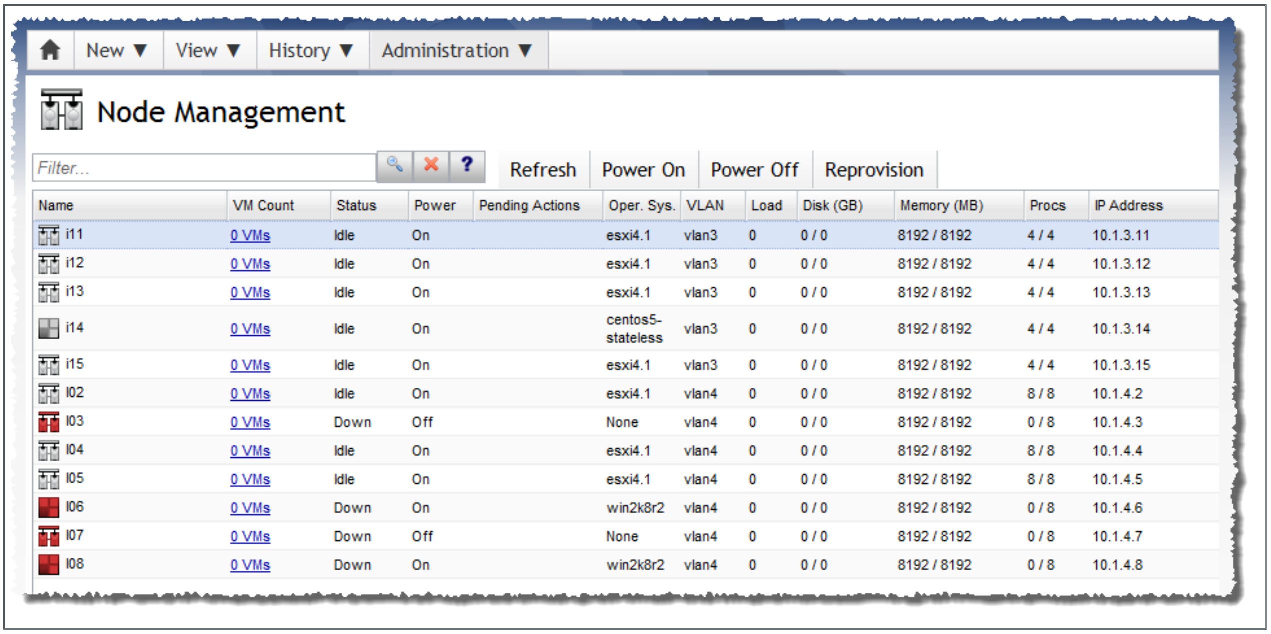
Related topics

- **Managing service templates (Manage Service Catalog)** on page 47

5.2 Managing nodes

The Node Management page is a table grid that displays nodes with drill-through capability for viewing VMs. When you select a node's VMs, Viewpoint redirects you to view the VM in the VM Management page. (For more information, see **Managing VMs** on page 73.)

Image 5-1: Node Management page



Name	VM Count	Status	Power	Pending Actions	Oper. Sys.	VLAN	Load	Disk (GB)	Memory (MB)	Procs	IP Address
i11	0 VMs	Idle	On		esxi4.1	vlan3	0	0 / 0	8192 / 8192	4 / 4	10.1.3.11
i12	0 VMs	Idle	On		esxi4.1	vlan3	0	0 / 0	8192 / 8192	4 / 4	10.1.3.12
i13	0 VMs	Idle	On		esxi4.1	vlan3	0	0 / 0	8192 / 8192	4 / 4	10.1.3.13
i14	0 VMs	Idle	On		centos5-stateless	vlan3	0	0 / 0	8192 / 8192	4 / 4	10.1.3.14
i15	0 VMs	Idle	On		esxi4.1	vlan3	0	0 / 0	8192 / 8192	4 / 4	10.1.3.15
l02	0 VMs	Idle	On		esxi4.1	vlan4	0	0 / 0	8192 / 8192	8 / 8	10.1.4.2
l03	0 VMs	Down	Off		None	vlan4	0	0 / 0	8192 / 8192	0 / 8	10.1.4.3
l04	0 VMs	Idle	On		esxi4.1	vlan4	0	0 / 0	8192 / 8192	8 / 8	10.1.4.4
l05	0 VMs	Idle	On		esxi4.1	vlan4	0	0 / 0	8192 / 8192	8 / 8	10.1.4.5
l06	0 VMs	Down	On		win2k8r2	vlan4	0	0 / 0	8192 / 8192	0 / 8	10.1.4.6
l07	0 VMs	Down	Off		None	vlan4	0	0 / 0	8192 / 8192	0 / 8	10.1.4.7
l08	0 VMs	Down	On		win2k8r2	vlan4	0	0 / 0	8192 / 8192	0 / 8	10.1.4.8

From this page, you can power nodes on or off. You can also reprovision nodes. To manually refresh the table, choose **Refresh**.

Access the Node Management page by navigating to **Administration > Node Management**.

This section contains these topics:

5.2.1 Viewing a node's details

In addition to the node information that displays in the Node Management table grid, you can get more information about a node by opening the node detail view.

The node detail view displays on the right of the table and contains detailed information about the node, including capabilities, associated VM, and metrics information. From the detail view, you can also take the following actions:

Action	Icon	Description
Power off node		If the node is on, the option will be to power off. For more information, see **Powering a node on/off** on page 65.
Power on node		If the node is off, the option will be to power on. For more information, see **Powering a node on/off** on page 65.
Reprovision this node		Reprovisions the node. For more information, see **Reprovisioning a node** on page 66.

To view a node's details

1. Go to the Node Management page (**Administration > Node Management**).
2. Double-click the node from the table that you want to see in a detail view.
3. The node's details appear in a new window to the right of the table.
4. Choose **Close** when you are finished viewing the node's details.

Related topics

- **Managing nodes** on page 64

5.2.2 Powering a node on/off

From the Node Management page, you can power a node on or off. These steps explain how this is to be done.

To power a node on/off

1. Go to the Node Management page (**Administration > Node Management**).
2. Do one of the following:
   - Select the node you want to power on or off (it will become highlighted), and choose **Power on/Power off**.

     OR
   - Double-click the node you want to power on or off to view the node detail view, and click the **Power on node** or **Power off node** icon.

   A confirmation window appears and asks if you are sure you want to power the node on/off.
3. Choose **Yes** to power the node on/off or choose **No** to cancel.

   A confirmation statement appears and tells you if your request to power the node on/off was submitted successfully or not.

Related topics

- **Managing nodes** on page 64
- **Powering a node on/off** on page 65
- **Viewing a node's details** on page 64

5.2.3 Reprovisioning a node

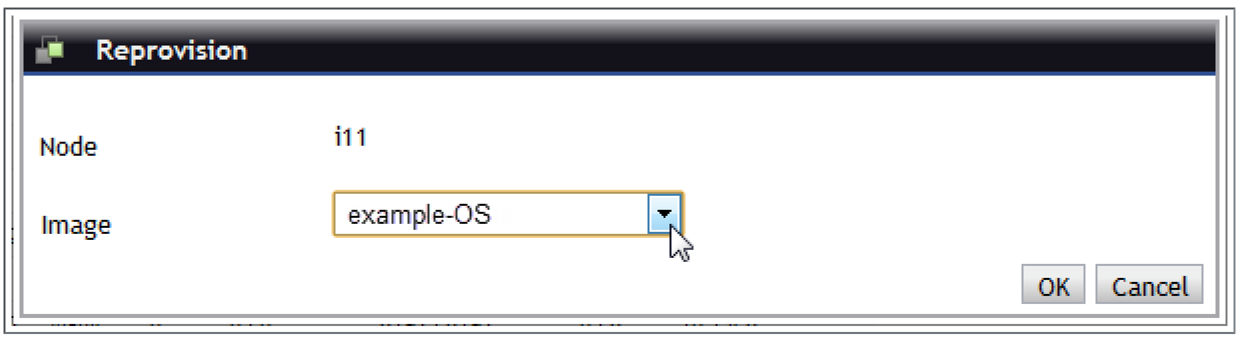
From the Node Management page, you can reprovision your nodes. These steps explain how this is to be done.

To reprovision a node

1. Go to the Node Management page (**Administration > Node Management**).
2. Do one of the following:
   - Select the node you want to reprovision (it will become highlighted), and choose **Reprovision**.

     OR
   - Double-click the node you want to reprovision to view the node detail view, and click the **Reprovision this node** icon.

   A new Reprovision window appears.



3. Select the image you want to use from the **Image** field drop-down.
4. Choose **OK** to save your changes.

Related topics

- **Managing nodes** on page 64
- **Powering a node on/off** on page 65
- **Viewing a node's details** on page 64

5.3 Managing policies

The Policy Management page lets you edit Moab policies. You can currently edit the following policies in Viewpoint:

- Allocation Policy (see **Editing the Allocation Policy** on page 67)
- VM Policies (see **Editing VM policies** on page 69)

To manage policies

1. Go to the Policy Management (**Administration > Policy Management**).
2. Select a policy to modify.

   The policy opens in the right of the window for editing.

Related topics

- **Editing the Allocation Policy** on page 67
- **Editing VM policies** on page 69
- **"Administration" menu options** on page 47

5.3.1 Editing the Allocation Policy

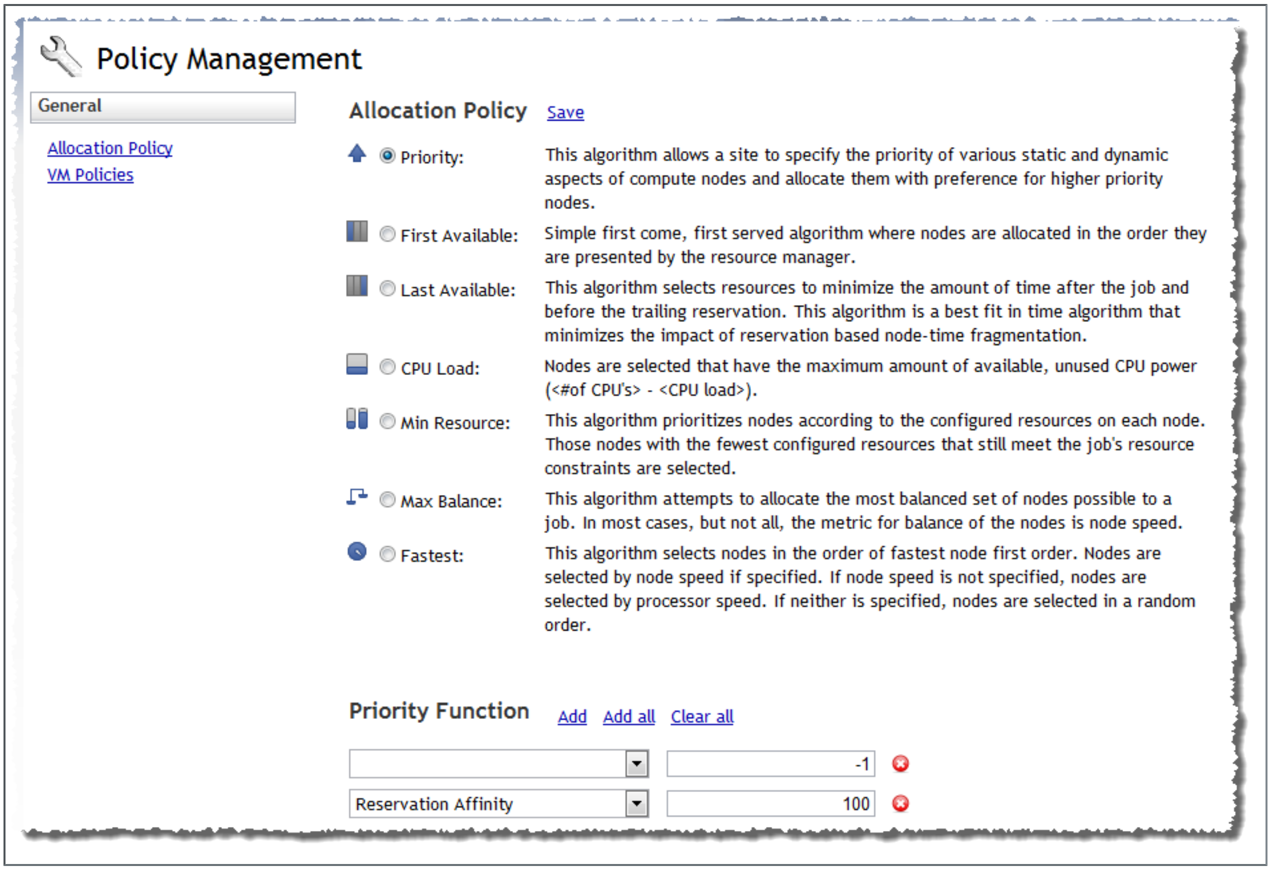
The Allocation Policy editor allows you to edit the allocation algorithm associated with Moab scheduling (for more information, see the Moab Workload Manager documentation). The Allocation Policy Viewpoint page includes the ability to select from various algorithms.

> You must restart Moab in order for any Allocation Policy changes to take effect.

To edit the Allocation Policy

1. Go to the Policy Management page (**Administration > Policy Management**).
2. Select **Allocation Policy**.

   The Allocation Policy opens in the window for editing.



3. Select the algorithm you want to use.
4. If you select the **Priority** algorithm, the Priority Function editor appears.

> The node allocation priority function specified in Viewpoint is done on a cluster-wide basis. Node-by-node allocation is permitted through the `moab.cfg` file.

Do the following:

a. Choose from the drop-down any priority function you want to apply for compute nodes, and enter a coefficient in the text box.

b. If you want to add another priority function, choose **Add** (or choose **Add All** to add all possible functions).

c. If you want to remove a priority function, click the **Clear** icon ( ) (or choose **Clear All** to remove all priority functions).

5. When you are finished, choose **Save**.

A dialog displays and gives you the following options:

Option	Description
Save and Restart Moab	Saves your changes and restarts Moab.
Save	Saves your changes, but does not restart Moab. If you choose this option, your changes will not take effect until Moab is restarted.
Cancel	Takes you back to the editor.

Related topics

- **Managing policies** on page 66
- **Editing VM policies** on page 69

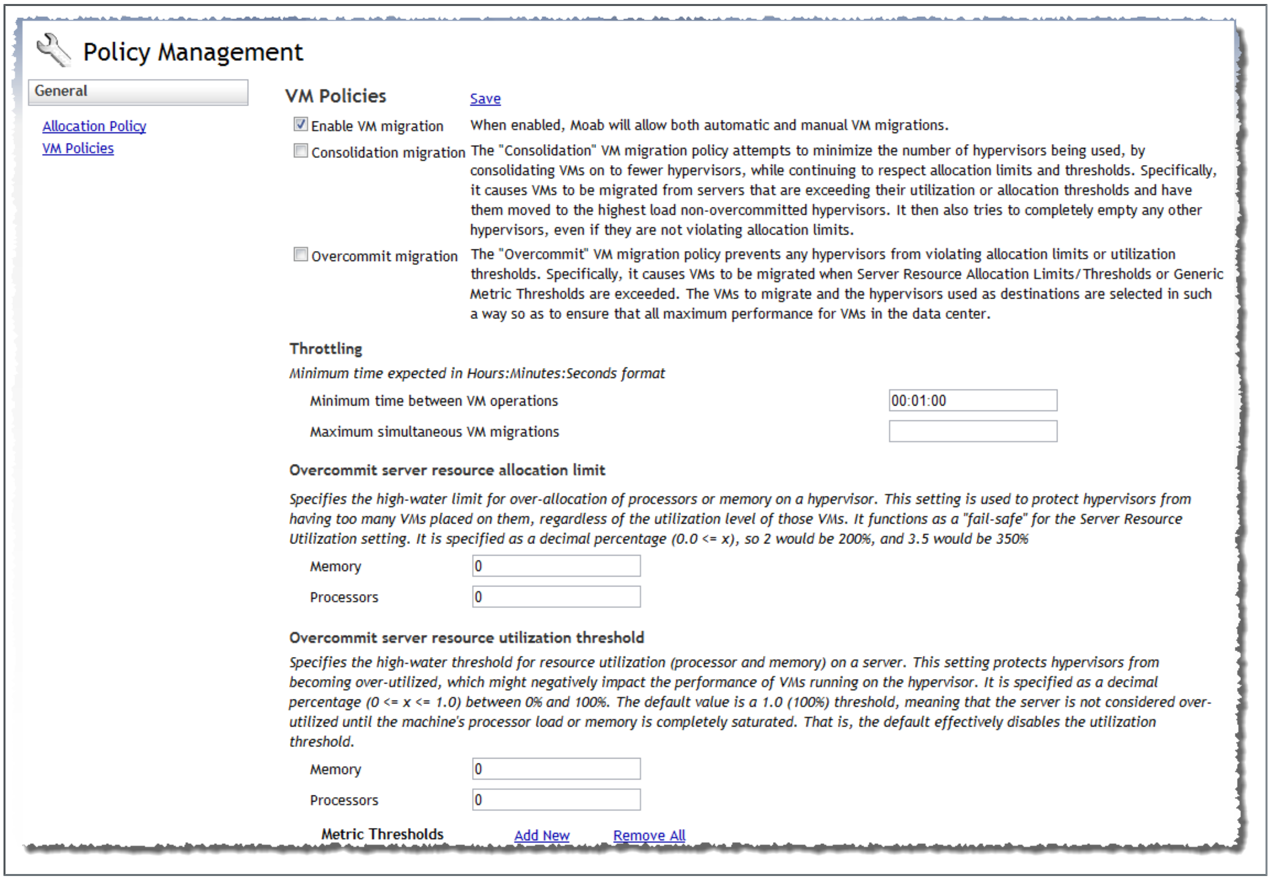
5.3.2 Editing VM policies

The VM Policies editor lets you set policy options for VM migration, throttling, and overcommit limits and thresholds.

To edit VM Policies

1. Go to the Policy Management page (**Administration > Policy Management**).
2. Select **VM Policies**.

   VM Policies opens in the window for editing.



3. Edit the following fields as necessary.
4. When you are finished, choose **Save**.

   A confirmation window opens and asks if you are sure you want to save.
5. Choose **Save** to save or **Cancel** to go back to the editor.

Related topics

- **Managing policies** on page 66
- **Editing the Allocation Policy** on page 67

5.4 Managing users

The User Management page in Viewpoint lets you manage users and their respective roles in the system. It lets you add or modify users, and change users' passwords.

When ViewpointLoginModule is used for security, user roles grant users permissions to access certain pages and to perform certain actions in the Viewpoint user interface.

To use the User Management page, you must use ViewpointLoginModule as your authentication module (not LDAP or SSO).

This section contains these topics

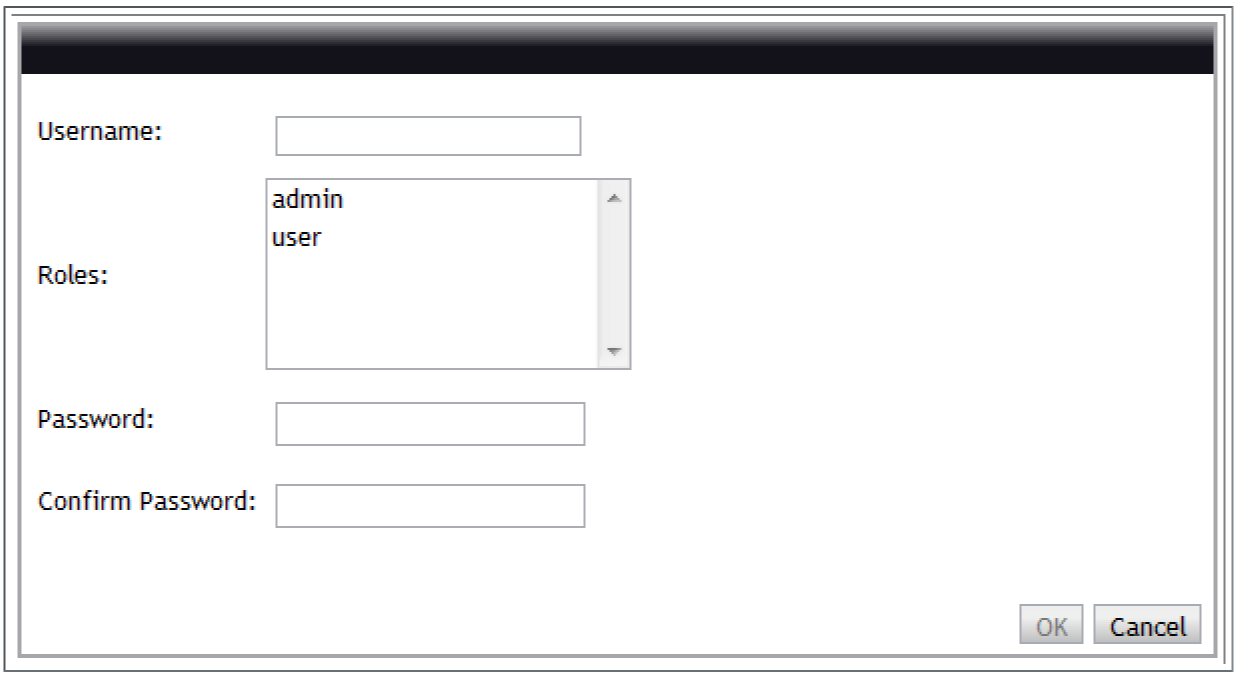
5.4.1 Adding users

From the User Management page, you can create new users and assign them permission roles. These steps explain how this is to be done.

To add a new user

1. Go to the User Management page (**Administration > User Management**).
2. Choose **Add**.

   A new window opens and displays the user fields.



3. In the **Username** field, enter the name of the user. (This will be used to log in to Viewpoint.)
4. The **Roles** field displays all the available roles. Select the role(s) you want to associate with the user.

   If you want to assign more than one role to a user, simply *Ctrl + click* so that all the roles you want to assign are highlighted.

5. In the **Password** field, enter the new password.
6. Retype the new password in the **Confirm Password** field.
7. Choose **OK** to save your changes.

Your new user will now appear on the User Management page.

Related topics

- **Managing users** on page 70
- **Modifying users** on page 72

5.4.2 Modifying users

From the User Management page, you can modify (add or remove) the roles associated with a specific user. These steps explain how this is to be done.

To modify a user

1. Go to the User Management page (**Administration > User Management**).
2. Select the user whose roles you want to modify, and choose **Modify User**.

   A new window opens and displays a list of roles. Highlighted roles are assigned to the user.

   In the following example, the user "ken" is assigned the **admin** role.

3. To assign a new user role, select it so that it is highlighted.

   > If you want to assign more than one role to a user, simply *Ctrl + click* so that all the roles you want to assign are highlighted.

4. To remove roles from the user, *Ctrl + click* the role(s) you want to deactivate so they are no longer highlighted.

> There must always be ate least one role associated with a user.

5. When you are finished, choose **OK** to save your changes.

Related topics

- **Managing users** on page 70
- **Adding users** on page 71

5.4.3 Changing user passwords

From the User Management page, you can change different users' passwords. These steps explain how this is to be done.

To change a user's password

1. Go to the User Management page (**Administration > User Management**).
2. Select the user user whose password you want to change, and choose **Change password**.

   A new window opens.

3. In the **Password** field, enter the new password.
4. Retype the new password in the **Confirm Password** field.
5. Choose **OK** to save your changes.

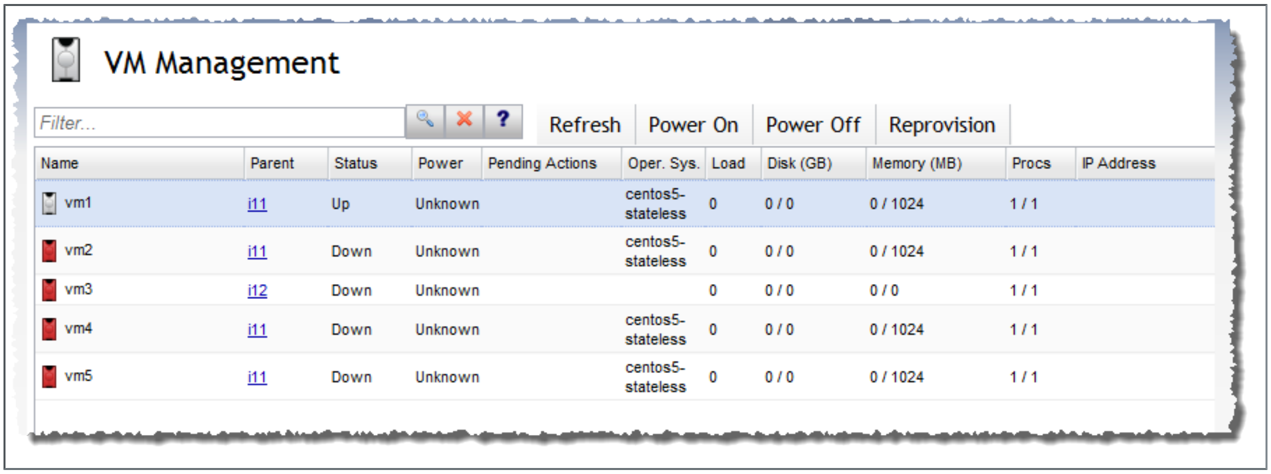
Related topics

- **Modifying users** on page 72
- **Managing users** on page 70

5.5 Managing VMs

The VM Management page is a table grid that displays VMs.

Image 5-1: VM Management page



From this page, you can power VMs on or off, migrate VMs, reprovision VMs, or destroy VMs. To manually refresh the table, choose **Refresh**.

Access the VM Management page by navigating to **Administration > VM Management**.

This section contains these topics:

- **Viewing a VM's details** on page 74
- **Powering a VM on/off** on page 75
- **Reprovisioning a VM** on page 76
- **Migrating a VM** on page 76
- **Destroying a VM** on page 77

5.5.1 Viewing a VM's details

In addition to the VM information that displays in the VM Management table grid, you can get more information about a VM by opening the VM detail view.

The VM detail view displays on the right of the table and contains detailed information about the VM. From the detail view, you can also take the following actions:

Action	Icon	Description
Start this VM		Powers the VM on. For more information, see **Powering a VM on/off** on page 75.
Stop this VM		Powers the VM off. For more information, see **Powering a VM on/off** on page 75.
Reprovision this VM		Reprovisions the VM. For more information, see **Reprovisioning a VM** on page 76.

Action	Icon	Description
Migrate this VM		Migrates the VM. For more information, see **Migrating a VM** on page 76.
Destroy this VM		Destroys the VM. For more information, see **Destroying a VM** on page 77

To view a VM's details

1. Go to the VM Management page (**Administration > VM Management**).
2. Double-click the VM from the table that you want to see in a detail view.
3. The VM 's details appear in a new window to the right of the table.
4. Choose **Close** when you are finished viewing the VM's details.

Related topics

- **Managing VMs** on page 73

5.5.2 Powering a VM on/off

From the VM Management page, you can power a VM on or off. These steps explain how this is to be done.

To power a VM on/off

1. Go to the VM Management page (**Administration > VM Management**).
2. Do one of the following:
    - Select the VM you want to power on or off (it will become highlighted), and choose **Power on/Power off**.

      OR

    - Double-click the VM you want to power on or off to view the VM detail view, and click the **Start this VM** or **Stop this VM** icon.

   A confirmation window appears and asks if you are sure you want to power the VM on/off.
3. Choose **Yes** to power the VM on/off or choose **No** to cancel.

   A confirmation statement appears and tells you if your request to power the VM on/off was submitted successfully or not.

Related topics

- **Managing VMs** on page 73
- **Viewing a VM's details** on page 74
- **Reprovisioning a VM** on page 76
- **Migrating a VM** on page 76
- **Destroying a VM** on page 77

5.5.3 Reprovisioning a VM

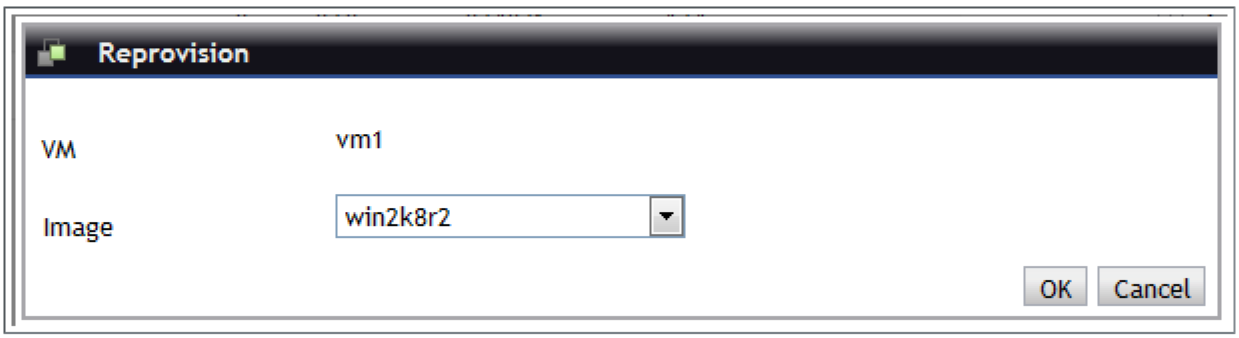
From the VM Management page, you can reprovision your VMs. These steps explain how this is to be done.

To reprovision a VM

1. Go to the VM Management page (**Administration > VM Management**).
2. Do one of the following:
   - Select the VM you want to reprovision (it will become highlighted), and choose **Reprovision**.

     OR
   - Double-click the VM you want to reprovision to view the VM detail view, and click the **Reprovision this VM** icon.

   A new Reprovision window appears.



3. Select the image you want to use from the **Image** field drop-down.
4. Choose **OK** to save your changes.

Related topics

- **Managing VMs** on page 73
- **Viewing a VM's details** on page 74
- **Powering a VM on/off** on page 75
- **Migrating a VM** on page 76
- **Destroying a VM** on page 77

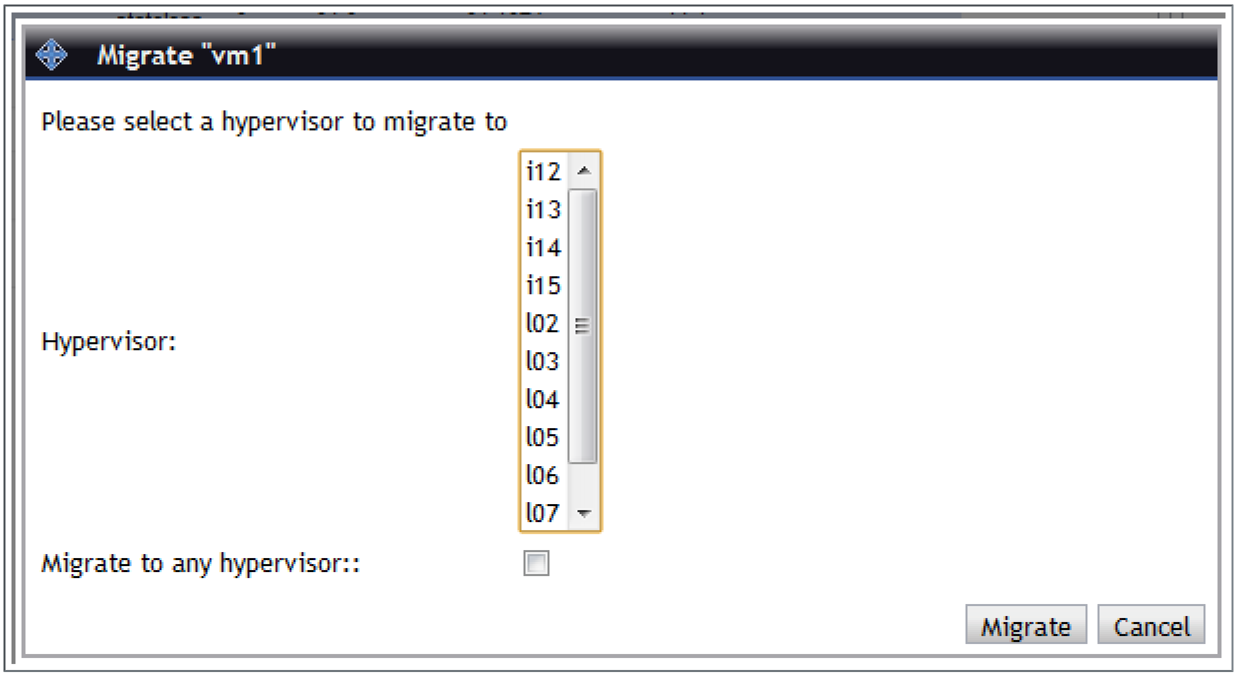
5.5.4 Migrating a VM

From the VM Management page, you can migrate your VMs. These steps explain how this is to be done.

To migrate a VM

1. Go to the VM Management page (**Administration > VM Management**).
2. Double-click the VM you want to migrate to view the VM detail view, and click the **Migrate this VM** icon.

   A new Migrate window appears.



3. Select the hypervisor you want to use from the **Hypervisor** list, or choose **Migrate to any hypervisor**.
4. Choose **Migrate** to save your changes.

Related topics

- **Managing VMs** on page 73
- **Viewing a VM's details** on page 74
- **Powering a VM on/off** on page 75
- **Reprovisioning a VM** on page 76
- **Destroying a VM** on page 77

5.5.5 Destroying a VM

From the VM Management page, you can destroy (delete) your VMs. These steps explain how this is to be done.

To destroy a VM

1. Go to the VM Management page (**Administration > VM Management**).
2. Double-click the VM you want to destroy to view the VM detail view, and click the **Migrate this VM** icon.

   A confirmation window appears and asks if you are sure you want to delete the VM.
3. Choose **Yes** to delete the VM or **No** to cancel.

Related topics

- **Managing VMs** on page 73
- **Viewing a VM's details** on page 74