



Moab Viewpoint™

User Guide

version 6.1

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Overview

Moab Viewpoint is a web application that interacts with Moab Workload Manager to allow users to manage jobs, resources, and policies without the complexities of maintaining Moab via the command line. Moab Viewpoint uses a customizable portal to allow users to view and configure jobs, reservations, nodes, virtual machines, reports, homepage gadgets, and billing capabilities for chargeable actions. The flexibility of Moab Viewpoint facilitates customized settings, such as the amount and type (verbosity level) of information in the log files; the type of security, which can be LDAP, Single Sign-on, or storing passwords in the Moab Viewpoint database; and permissions. Permissions allow administrators to specify which pages, tools, and settings certain users or groups are permitted to use, manage, and view.

1.0 VPC Management Overview

A virtual private Cloud (VPC) is a set of resources configured and provisioned for a particular application. A VPC can contain multiple reservations (where each reservation is a defined set of resources) or represents a single virtual machine. Resources might include servers, databases, networks, or specialized hardware. These resources are set aside for a specific organization or user and can only be utilized by that organization for the duration of the VPC. Once the duration of the VPC has elapsed, resources are released and can be used for other requests.

After a VPC is set up, Viewpoint allows you to change some the VPCs resources and attributes, as organization demands change. For example, a VPC is created for a duration of two months to handle some workload. However, near the end of the two months, the organization requires the VPC for an additional month. Through Viewpoint, you can request to extend the duration of the VPC, and then pay for the additional month of resources (assuming billing is enabled).

The following actions modify all resources in a VPC:

- Modify VPC user roles
- Granting VPC Access to a New User
- Modifying VPC Duration

Resources that make up a VPC are divided into reservations. Each reservation has a set of resources that are contained on a single node. For some applications, the reservation represents a single virtual machine. In Viewpoint, users modify the resources for each reservation separately, instead of modifying the resources of the entire VPC. This allows certain applications to be modified without affecting other reservations in the VPC. For example, adding more processors to a VM running a Web server would not affect a unrelated VM running a different application.

The following actions will modify individual reservations inside a VPC:

- Adding a Reservation to an Existing VPC
- Adding Resources to a Reservation
- Adding Storage to a Reservation
- Cloning a Reservation
- Deleting a Reservation
- Deleting Storage from a Reservation
- Removing Resources from a Reservation



Bare metal reservations cannot be modified. If you want to modify the reservation, you must delete the reservation and create a new one with the desired resources.

1.1 Adding a Reservation to an Existing VPC

As demands for resources change, it might be necessary to increase the number of reservations on a VPC. For example, you might need to provision another virtual machine to handle some unforeseen issue or add a new dedicated server to your existing environment. Viewpoint allows you to add more reservations through the Manage Environment page.

Adding a new reservation to a VPC will not modify the existing reservations on the VPC. For information on how to add resources to an existing reservation, see [Modifying Resources on a Reservation](#).

To add a reservation to an existing VPC, follow these steps:

1. Click **VPCs...** tab, then click **Manage VPCs** to load the VPC Management page.
2. Select the VPC you want to add a reservation to.
3. Click **Add Reservation**.
4. Select the desired reservation settings and click **OK**.
5. If billing is enabled, click **Add To Cart**.
6. [Checkout](#).

1.2 Creating a VPC

To create a VPC, follow these steps:

1. Click the **VPCs...** tab, then click **Request A VPC** to open the **Create VPC** page.
2. Select the desired VPC settings and click **Next**.
3. Select the desired settings for a new reservation on the VPC and click **Add To Request**.
4. Click **Verify Request**.
5. Click **Submit**.



If billing is enabled, click **Add To Cart**.

6. [Checkout](#).


1.3 Modifying Resources on a Reservation

As workload demands change, you can add or remove resources on existing reservations to fit the new workload. Modifying reservation resources does not change the number of reservations on the VPC, but instead modifies a single reservation within the VPC.



This topic is solely about modifying resources on an existing reservation. If you want to [add a reservation](#) to or [delete a reservation](#) from a VPC, please see the appropriate topic.

To modify resources on a reservation, follow these steps:

1. Click the **VPCs...** tab, then click **Manage VPCs** to open the VPC Management page.
2. Double-click the reservation you want to modify.
3. Click **Modify** – .
4. Modify the resources for the reservation and click **OK**.
5. If you added resources to the reservation, you must [check out](#).




Once resources are removed from a reservation, they can be used by other organizations. You are not billed for resources once they are removed from the reservation. You are only billed for the duration the resources were used.

1.4 Cloning a Reservation

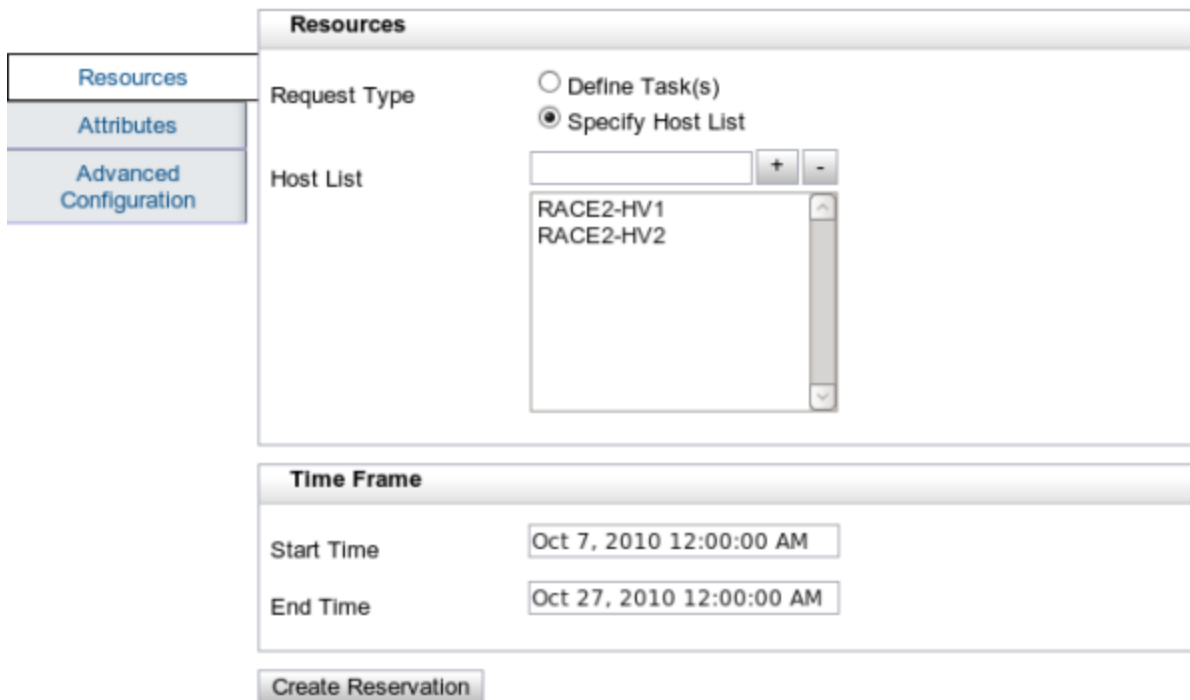
Cloning a reservation is the process of adding an additional reservation to a VPC with the same configuration (including resources and settings) of an existing reservation. This is helpful in cases where a developer might want to deploy a duplicate virtual machine for testing or backup purposes.

To clone a reservation to a new environment or VPC, follow these steps:

1. Click the **VPCs...** tab, then click **Manage VPCs** to load the VPC Management page.
2. Double-click the reservation you want to clone.
3. Click **Clone** – .
4. Select to clone the reservation from the same VPC or from another VPC and click **OK**.
5. [Checkout](#).

1.5 Creating a Reservation

Create Reservation



The screenshot shows a web form titled "Create Reservation". On the left, there is a vertical navigation bar with three tabs: "Resources" (selected), "Attributes", and "Advanced Configuration". The main form area is divided into two sections. The top section, "Resources", has a "Request Type" field with two radio buttons: "Define Task(s)" (unselected) and "Specify Host List" (selected). Below this is a "Host List" field with a text input box, plus and minus buttons, and a scrollable list box containing "RACE2-HV1" and "RACE2-HV2". The bottom section, "Time Frame", has "Start Time" and "End Time" fields, both containing the date and time "Oct 7, 2010 12:00:00 AM" and "Oct 27, 2010 12:00:00 AM" respectively. At the bottom of the form is a "Create Reservation" button.



This form is customizable by your administrator. Your form might differ from the example.

To create a Reservation,

1. Load the Create Reservation page by clicking the **Create Reservation** link in the navigation bar.
 2. Choose a **Request Type**. Reservations must have resources to reserve and the resources can be a list of nodes or a set of tasks.
 3. All other fields in the form (in the **Attributes** and **Advanced Configuration** tabs on the left side of the form) are optional and can be configured or left blank.
 4. When all desired fields are configured, click **Create Reservation**.
- You can manage the reservation using the Reservation management window.

1.6 Deleting a Reservation

As demands for resources change, it might be necessary to decrease the number of reservations on a VPC such as when a user no longer requires a virtual machine that they are being billed for. Viewpoint allows you to remove existing reservations through the Manage Environment page.

Deleting reservations on a VPC does not affect other reservations on the VPC. If you want to decrease (or otherwise modify) the resources on an existing reservation, see [Modifying Resources on a Reservation](#).

To delete a reservation from a VPC,

1. Click **Manage** to load the Management Environment.
2. Choose the reservation you want to delete.
3. Click **Delete**.

1.7 Granting VPC Access to a New User

To grant VPC access to a new user,


1. Click **Manage** to load the Management Environment.
2. Choose the VPC you want to add a user to.
3. Click **Manage Users**.
4. Type the username you want to have access to the VPC and click **Add (+)**.

To verify the new user is listed on the VPC, click **Refresh** and then double-click the VPC to view its details.

1.8 Modifying the VPC Duration

As demands for resources change, it might be necessary to modify the duration of a VPC. For example, a VPC is created for a duration of two months to handle some workload. However, near the end of the two months, the organization requires the VPC for an additional month. Through Viewpoint, you can request to extend the duration of the VPC, and then pay for the additional month of resources.

To modify the duration of an existing VPC, follow these steps:

1. Click the **VPCs...** tab, then click **Manage VPCs** to load the VPC Management page.
2. Double-click the VPC you want to extend.
3. Click **Modify this VPC** — .
4. Select the duration in months and click **OK**.
5. [Checkout](#).

1.9 Modifying VPC Users

Users can be modified on a per-VPC basis. Users can be added or removed from a VPC, or have their access rights (roles) modified.

1.9.1 Adding Users to a VPC

To add users to a VPC, follow these steps:

1. Click the **VPCs...** tab, then click **Manage VPCs** to load the VPC Management page.
2. Select the VPC you want to add users to and click **Manage Users**.
3. Type a new username and click add (+).
4. Select the new username and verify it has the desired VLAN or Admin access.
5. Click **OK**.

1.9.2 Removing Users from a VPC

To remove users from a VPC, follow these steps:

1. Click the **VPCs...** tab, then click **Manage VPCs** to load the VPC Management page.
2. Select the VPC you want to remove users from and click **Manage Users**.
3. Select the username you want to remove and click remove (-).
4. Click **OK**.

1.9.3 Changing a User's Role

To change a user's role, follow these steps:

1. Click the **VPCs...** tab, then click **Manage VPCs** to load the VPC Management page.
2. Select the VPC you want to modify and click **Manage Users**.
3. Select the username you want to modify.
4. Select the roles you want the username to access.
5. Click **OK**.

2.0 Environment Management







- [Virtual Machine Management](#)
- [Creating a VM](#)
- [Environments Table](#)
- [Environment Permissions](#)
- [Delete Virtual Environment](#)
- [Delete Virtual Machine](#)
- [Migrating a Virtual Machine](#)

2.1 Virtual Machine Management

Use the Virtual Machine Management page to view properties and other details of the virtual machines (VMs) in your environment.

In the Environments page, click the VM you want to view details on. The VM Management page opens. On the left side of the page, all the VMs in the environment are displayed. On the right side, the details for the VM you selected on the Environments page are displayed.

You can complete the following actions on the selected VM:

-  Starts the virtual machine
-  Stops the virtual machine
-  Revisions the virtual machine
-  Migrates the virtual machine
-  Destroys the virtual machine
-  Shows pending actions of the virtual machine

2.2 Creating an Environment

Use the Create Environment page to create a virtual machine within an environment. You can set the VM's parameters and storage requirements here.

1. Click the **Environments** tab.
2. Click **Create Environment**.

Virtual Machine Options

Operating System:

Image:

Processors:

Memory:

Virtual Disk Size (GB):

Additional Storage

Mount:

Size (GB):

3. In the left navigation pane, click **General Setup**.
4. Type a name for the environment in the **Name** text box.
5. Specify when you want the request to begin. If you click **Select Start Date** and click the **Start Time** box, a calendar displays. Click the day you want the request to begin.
6. In the left navigation pane, click **Virtual Machine**. In the Virtual Machine Options box, select an operating system. Select an image from the Image drop-down list. The contents of this drop-down change depending on which Operating System you selected. Specify the number of processors, the amount of memory, and the size of the virtual disk (in GB). The maximum number of processors is 4, the current maximum amount of RAM is 8 GB, and the maximum amount of disk space is 1000 GB. In the Additional Storage box, specify a drive, and size of the storage (in GB), and click **Add Storage**. Click **Add Virtual Machine** to add the VM.

7. In the left navigation pane, click **Physical Machine**. In the Physical Machine Options box, select an operating system. Select an image from the Image drop-down list. The contents of this drop-down change depending on which Operating System you selected. Specify the configuration of the physical machine in the **Hardware Configuration** box. Specify a mount, and size of the storage, and click **Add Storage**. Click **Add Physical Node** to add the physical machine.

2.3 Environments Table

The **Environments** table lists all the environments in your system. Many of the columns in the Environments table can be sorted. Some of the columns contain items which can be clicked on to view additional information. For example, clicking on an item in the ID column takes you to the Environment Details page. Other columns with clickable items include Owner, VMs, and Actions.

To open the Environments table,

1. In Viewpoint, click the **Environments** tab > click **View Environments**.

Environments

Name	ID	Owner	VMs	Resources	State	Request Date	Actions
vc1	vc1	user:jmecham Permissions		Processors: 13 Memory: 13 GB Network Disk: 1500 GB	Available	6/15/11 2:26 PM	Delete
vc30	vc30	user:admin Permissions		Processors: 2 Memory: 2 GB Network Disk: 200 GB	Provisioning	6/15/11 4:28 PM	Delete
vc36	vc36	user:adaptive Permissions		Processors: 2 Memory: 2 GB Network Disk: 200 GB	Provisioning	6/16/11 12:16 PM	Delete

Showing 1 to 3 of 3 entries

[First](#) [Previous](#) [1](#) [Next](#) [Last](#)

2.4 Environment Details

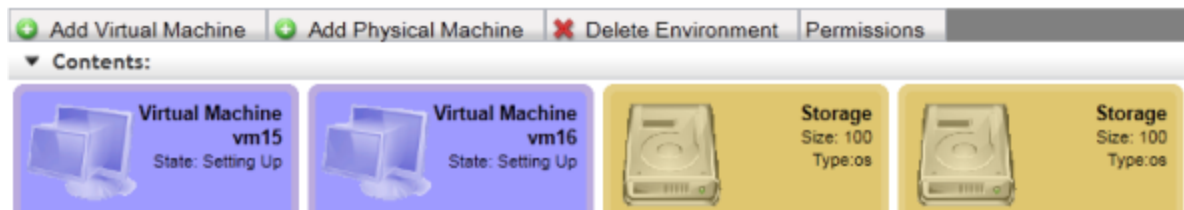
Use the Environment Details page to view additional information on the selected environment.

1. In the Environments page, click the ID of the environment you want to view details for. For example, click the ID “vc1” to view the environment details.

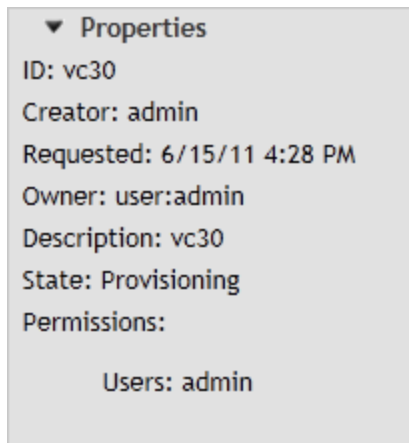
The Environment Details page is composed of two sections: **Contents** and **Properties**.

The environment’s contents are displayed in the **Contents** section (the left side of the page). Each content entity is displayed as an icon. Inside the icon are details on the particular component of the VE. Click on **Virtual Machine** or **Physical Machine** to view details of the machine. To remove the machine from the VE, click the **Delete** tab and click **Yes**.

Environment Details: vc30



The environment’s properties are displayed on the right side of the page. The ID, Creator, the date it was requested, the Owner, Description, State, and any environment attributes are displayed.



To add a virtual machine to the environment,

1. Click **Add Virtual**.
2. Specify an operating system.
3. Select an image in the **Image** drop-down list. The contents of this drop-down change depending on which operating system you selected.

4. Specify the number of processors, the amount of memory, and the size of the virtual disk (in GB).
The maximum number of processors is 4, the current maximum amount of RAM is 8 GB, and the maximum amount of disk space is 1000 GB.
5. Click **Host VM disk on the network** to host the VM disk on the default network. Specify a mount, the size of the storage, and click **Add storage**. Click **Add Virtual Machine**.

To add a physical or bare-metal machine to the virtual environment,

1. Click **Add Physical**.
2. Specify an operating system.
3. Select an image from the **Image** drop-down list.
4. Select a hardware configuration (number of processors, amount of RAM).
5. Specify a mount, the size of the storage, and click **Add storage**.
6. Click **Add Physical Machine**.

To delete an environment,

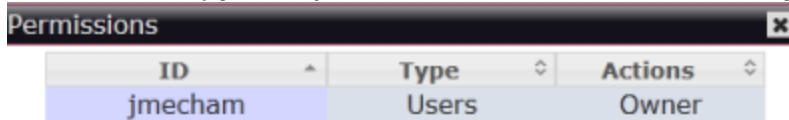
1. Click **Delete Environment**. Click **Yes** to confirm the action.

2.5 Environment Permissions

Use the Permissions dialog to manage the user and/or group permission list for a specific environment.

To add an item,

1. In the Environments page, click **Permissions** of the environment whose permissions you want to manage.
2. Type the user or group name in the **ID** box.
3. In the **Type** drop-down list, select **User** or **Group**. Click **Add**.



ID	Type	Actions
jmecham	Users	Owner

Add Items to Permissions List:

ID:

Type:

To delete an item,

1. In the row of the ID you want to delete, click **Remove**. Click **Yes** to confirm the action.

2.6 Delete Virtual Environment

Use the Delete action to remove a virtual environment from your system.

1. In the Virtual Environments page, select the VE you want to remove, and click **Delete** (in the far-right column). Click **Yes** to confirm this action.


2.7 Delete Virtual Machine

Use the Delete button in the Virtual Machine Details page to remove a virtual machine from a virtual environment.

1. In the Virtual Environments page, in the VMs column, click the VM you want to delete.
2. In the Virtual Machine Details page, click **Delete**. Click **Yes** to confirm this action.

2.8 Migrating a Virtual Machine

Use the Migrate button to move a virtual machine to a different hypervisor.

1. In the Environments page, in the VMs column, click the VM you want to migrate.
2. On the right side of the screen, click Migrate  on the toolbar.
3. Select the hypervisor to migrate the VM to, or select the **Migrate to any hypervisor** checkbox, and click **Migrate**.

3.0 Billing and Accounting

- [Checking Out](#)
- [Accessing the Shopping Cart Pages](#)

3.1 Checking Out

To pay for a request you've created, follow these steps:

1. If you are not already in the shopping cart, click the **Cart(s)** link in the upper-right part of the page.
 - If you have multiple shopping carts, select the cart that has the desired request and click **Verify Checkout**.
2. Select an account to pay for the request and click **Fund**.

3.2 Accessing the Shopping Cart Pages

If billing is enabled in your environment, you are redirected to the shopping cart page when paying for certain items. These items include new virtual private clouds (VPCs), duration extensions, and archive requests. To access the shopping cart at any time, click the "Cart(s)" link at the top right of the Viewpoint navigation.

[user](#) | [Contact Us](#) | [Cart\(s\)](#) | [About](#)



3.2.1 Shopping Cart Page Overview

Once in the shopping cart, you can view what items constitute the cart. Quantity cannot be changed because of implications with Moab Workload Manager scheduling conflicts. An empty shopping cart looks like this:

Shopping Cart

Your Shopping Cart		
Qty	Item Description	Total Price
<i>There are no items in this shopping cart</i>		

Payment Options
<input checked="" type="radio"/> New Project

3.2.2 Funding a Cart

In this example, a "Create New VPC" request is added to the cart with its associated summary of information. The billing information coming from Moab Workload Manager calculates the cost of the VPC at \$500.00. From the "Shopping Cart" page, you can select a payment option and checkout. Depending on your Viewpoint configuration, you can fund the shopping cart using an external payment mechanism that generates a new account to fund with, or you can fund the shopping cart through Moab's allocation management system.

Shopping Cart

Your Shopping Cart		
Qty	Item Description	Total Price
Create New VPC		
<input type="button" value="Remove"/>	<input type="text" value="1"/>	<i>New VPC with 1 Reservation(s).</i> 1. RedHat AS 4.6 32bit, Procs:1 CPU, RAM:1 GB, Storage (GB):0, Zone:Development 29 Days 23 Hours 59 Minutes 56 Seconds
		US\$500.00

Payment Options	
<input checked="" type="radio"/> New Project	
<input type="radio"/> Existing Project	<input type="text" value="abc001 \$0.00"/>

3.2.3 Shopping Carts Table

If you have multiple shopping carts from previous sessions in Viewpoint, or you have access to other users' shopping carts, the "Show All Shopping Carts" link appears in the "Shopping Cart" page.

Shopping Cart

[Show all shopping carts](#)

Your Shopping Cart		
Qty	Item Description	Total Price
Create New VPC		
<input type="button" value="Remove"/>	<input type="text" value="1"/>	<i>New VPC with 2 Reservation(s).</i> 1. RedHat AS 4.6 32bit, Procs:1 CPU, RAM:1 GB, Storage (GB):0, Zone:Development 2. RedHat AS 4.6 32bit, Procs:1 CPU, RAM:1 GB, Storage (GB):0, Zone:Development 29 Days 23 Hours 59 Minutes 54 Seconds
		US\$1,000.00



Payment Options	
<input type="radio"/> New Project	
<input checked="" type="radio"/> Existing Project	<input type="text" value="abc001 \$500,000.00"/>

If the "Show All Shopping Carts" link is clicked, a table summary of all shopping carts you have access to is shown. This includes shopping carts that

have been funded already. The table summarizes the cart's ID, original owner, state, creation time, cost, and number of items.





Shopping Carts

Refresh Delete

ID	Owner	Cost	State	Created	#/Items	Description
 1	user	\$500.00	Funded	4/2/2010	1	Shopping cart for user user created on F
 2	user	\$1000.00	Editing	4/2/2010	1	Shopping cart for user user created on F

3.2.4 Shopping Cart State Legend

Here is a legend of states that appear in the "Shopping Carts" page:

-  Not Funded - Editing
-  Funded - Executing
-  Funded - Success
-  Funded - Failure

3.2.5 Funded Shopping Cart Details

If a shopping cart has been funded, you can double-click the row representing the cart. The "Shopping Cart" page displays with the funded information. Notice that the "Payment Options" section does not appear.

Shopping Cart

[Show all shopping carts](#)

Your Shopping Cart		
Qty	Item Description	Total Price
	Create New VPC	
<input type="text" value="1"/>	<i>New VPC with 1 Reservation(s).</i> 1. RedHat AS 4.6 32bit, Procs:1 CPU, RAM:1 GB, Storage (GB):0, Zone:Development 29 Days 23 Hours 59 Minutes 56 Seconds	US\$500.00

3.2.6 Invalid Payment Options

There are certain cases where billing rules conflict with what you are trying to fund. One example is adding a reservation to a preexisting VPC. If the VPC was created and funded by "userA" with account "ABC001", and a reservation is added by "userB" who does not have access to account "ABC001", "userB" cannot fund the shopping cart. Notice that the "Payment Options" section is blank to show that the cart cannot be funded.

Shopping Cart

Your Shopping Cart		
Qty	Item Description	Total Price
Add new reservation to vpc.1		
<input type="button" value="Remove"/>	<input type="text" value="1"/> <i>Add a new VOE with the following configuration: 1Processor(s), 1GB Memory, 0GB Disk Space.</i>	US\$850.00
Payment Options		

4.0 Getting Viewpoint Support

- [About and Diagnostics](#)
- [Using the Contact Us Page to Send Email](#)

4.1 About and Diagnostics

The About Viewpoint page displays general server information and diagnostic data pertaining to the Viewpoint database, the Moab connection, and the Viewpoint application (configuration and status).

4.1.1 Database

The Viewpoint database section displays the JDBC connection information Viewpoint is using to connect to a database. When the About page loads, Viewpoint contacts the database and validates its current schema against the schema Viewpoint expects to see. Any errors in connecting or validating the schema are reported.

4.1.2 Moab

The Moab section displays configuration details pertaining to the Viewpoint connection to Moab. When the About page opens, Viewpoint contacts Moab and displays the current version and home directory.

4.1.3 ViewpointApplication

The Viewpoint **Configuration** and Viewpoint **Status** sections display information specific to Viewpoint. The configuration section shows the current version of Viewpoint, the current version of Java that it is running on, and its current home directory. The status section displays how successful Viewpoint was in loading configuration files and applying the configuration settings. If a mail server is configured, Viewpoint contacts the mail server and reports whether the contact is successful.

4.2 Using the Contact Us Page to Send Email

The **Contact Us** page is useful for requesting help from support staff.

To use the **Contact Us** page to send an email message, follow these steps:

1. Click **Contact Us**.
2. Type a valid email address in the **From:** field.
3. Type an optional subject in the **Subject:** field.
4. Type a message in the **Message:** field.
5. Click **Send**.

If the e-mail successfully sends, a successful status message displays.

Your message was sent successfully.

If the e-mail does not send, a failure status message displays.

Could not send mail. Please contact your administrator.

5.0 User Management

- [User Management Page](#)

5.1 User Management Page

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



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

The roles a user is associated with grant them permissions to view pages and perform actions in Viewpoint when ViewpointLoginModule is used for Viewpoint security.

To add a user,

1. Click **Administration > User Management**.
2. Click **Add**.
3. Type a username.
4. Select the role(s) you want the user to perform.
5. Type a password, and retype it in the **Confirm Password** box.
6. Click **OK**.

To modify a user,

1. Click **Administration > User Management**.
2. Double-click a user, or select a user, and click **Modify user**.
3. Add or remove the role(s) associated with the selected user.
4. Click **OK**.

To change a user's password.

1. Click **Administration > User Management**.
2. Double-click a user, or select a user, and click **Change password**.
3. Type the old password, type the new password, and retype the new password.
4. Click **OK**.

6.0 Node Management

- [Node Management page](#)

6.1 Node Management page

The Node Management page consists of a table grid that displays nodes with drill-through capability for viewing VMs, a set of buttons above the table for operating on one or more rows selected in the table, and configurable panels for displaying individual nodes in detail.

To view the VMs associated with a node,

1. Click **Administration > Nodes**.
2. Click a node's entry in the VM Count column. This opens the VM Management page, which lists the VMs associated with the node.

To power on or power off a node,

1. Click **Administration > Nodes**.
2. Select a node or nodes, and click **Power On** or **Power Off**.

The node or nodes are powered on or powered off.

To reprovision a node,

1. Click **Administration > Nodes**.
2. Select a node or nodes, and click **Reprovision**. Select an image from the Image drop-down list, and press **OK**.

7.0 VM Management

- [VM Management page](#)

7.1 VM Management page

The VM Management page consists of a table for displaying VMs, a set of controls above the table for operating on one or more rows selected in the table, and configurable panels for displaying individual VMs in detail.

To view a VM's hypervisor,

1. Click **Administration > VM Management**.
2. Click a VM's entry in the Parent column. This opens the Node Management page, which lists the details of the hypervisor associated with the VM.

To power on or power off a VM,

1. Click **Administration > VM Management**.
2. Select a VM or VMs, and click **Power On** or **Power Off**.

The VM or VMs are powered on or off.

To reprovision a VM,

1. Click **Administration > VM Management**.
2. Select a VM or VMs, and click **Reprovision**. Select an image from the Image drop-down list, and press **OK**.

8.0 Moab Workload Manager Policies

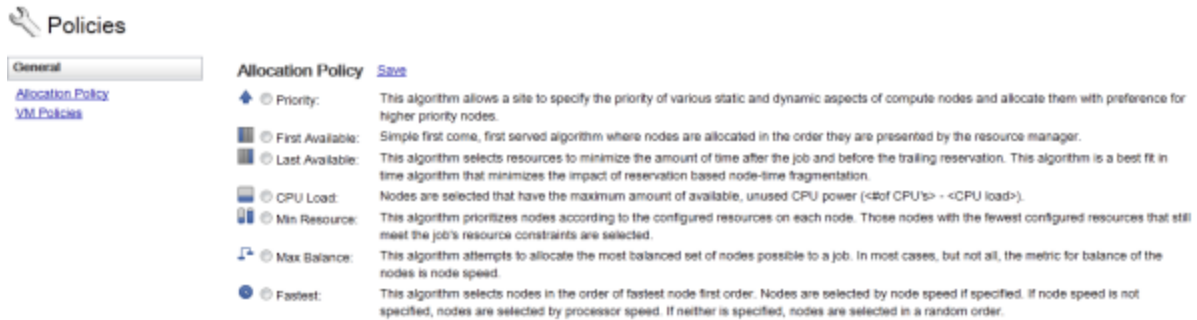
The Viewpoint Policies page gives you the ability to edit Moab policies. Policy subgroups (such as the Node Policy Group) are located on the left side of the Policies page. Selecting one of the links available for a policy subgroup loads the editor and allows policy editing.

8.0.1 Sub Policy Groups

- [Node Policy Types](#)

8.1 Node Policy Types

8.1.1 Allocation Policy



Policies

Allocation Policy [Save](#)

- Priority: This algorithm allows a site to specify the priority of various static and dynamic aspects of compute nodes and allocate them with preference for higher priority nodes.
- First Available: Simple first come, first served algorithm where nodes are allocated in the order they are presented by the resource manager.
- Last Available: This algorithm selects resources to minimize the amount of time after the job and before the trailing reservation. This algorithm is a best fit in time algorithm that minimizes the impact of reservation based node-time fragmentation.
- CPU Load: Nodes are selected that have the maximum amount of available, unused CPU power (<#of CPUs> - <CPU load>).
- Min Resource: This algorithm prioritizes nodes according to the configured resources on each node. Those nodes with the fewest configured resources that still meet the job's resource constraints are selected.
- Max Balance: This algorithm attempts to allocate the most balanced set of nodes possible to a job. In most cases, but not all, the metric for balance of the nodes is node speed.
- Fastest: This algorithm selects nodes in the order of fastest node first order. Nodes are selected by node speed if specified. If node speed is not specified, nodes are selected by processor speed. If neither is specified, nodes are selected in a random order.

The Allocation Policy editor allows you to edit the allocation algorithm associated with Moab [scheduling](#). The Allocation Policy GUI includes the ability to select from various algorithms. If the Priority algorithm is selected, the Priority Function editor appears. Using node allocation [priority](#), you can specify several priority components for compute nodes. The Allocation Policy editor permits simple editing of these coefficients. The node allocation priority function specified in the GUI is done on a cluster-wide basis. Node-by-node allocation is permitted through the Moab.cfg file.

8.1.1.1 Restart for Changes to Take Effect

For Allocation Policy changes to take effect, a restart of Moab is required. When attempting to save, a dialog displays and gives you the option to restart Moab or save the changes without a restart. If **Save** is selected, the changes do not take effect until a restart occurs.



8.1.2 VM Policies

The VM Policies page lets you set policy options for VM migration, green migration, Reservation Priority, and Overcommit Migration.

VM Migration: Enables migration of VMs within the entire system.

Green Migration: Places as many VMs on as few machines as possible.

Reservation Priority: Asserts that when one or more VMs resides on a machine, and a reservation shows up on that machine, the VMs should be moved off of that machine for the duration of the reservation.

Overcommit Migration: Allows VM resource consumption to go beyond the resources on the actual machine. The following resources can have an Overcommit Factor to specify how far to allow overconsumption. For example, if Processors is set to 1.5 on a machine that has 8 processors, then VMs will be allowed to require up to a total of 12 processors ($8 \times 1.5 = 12$) before the machine is considered "full". Overcommit Threshold is a multiplier between 0 and 1 that tells the system the percentage of the available resources on a node to consume before reporting the node as being full.

Throttling: Stops thrashing during VM migration. Basically, if a VM is migrated to a location that it just left (within less than the specified time), it will not be migrated away from that machine again.

Max Allowed Duration Before Failure: Set the maximum amount of time (in hours, minutes, and seconds) a VM Creation, Migration, or Deletion is allowed to continue before it fails.

Migration Scheduling Intervals: Set an interval for how often a Green Migration and/or Overcommit Migration should take place.

9.0 Job Management

- [Saving and Loading Form Values](#)
- [Submitting a Job](#)

9.1 Saving and Loading Form Values

The [Submit Job](#) page allows you to save frequently used values and load them back in when you want to complete a job submission form with similar values to the saved form. Not all pages can save and load form values. Your administrator must configure the saving and loading feature on specific pages. Additionally, you must have the appropriate permissions to perform the save or load actions. If you have the appropriate permissions, the **Save** and **Load** links appear at the top of eligible forms.

9.1.1 Saving a Form

To save a form, follow these steps:

1. Fill out the form with your desired values and click the **Save** link.

Home Jobs... VPCs... Reservations... Administration... Reporting

Submit Job

[Save](#) [Load](#)

Basic Options

Optional Attributes

Advanced Options

Job Information

Script Type * Upload Create New

Upload Script File *

Job Name

Resource Definition

Node Count * 1

Processors Per Node 1

Memory (in MB) 0



Values that are empty are not saved to the database and remain empty when the saved form is loaded in the future.

2. In the **Save Form** dialog box, fill out the following fields and click **OK**:
 - **Name** - This should be a unique value for the saved form values.
 - **Description (optional)** - This describes the content of the saved form values.

- **Category (optional)** - This defines the category the saved form values should be saved under. The category can be used to organize many saved form values and allow others to easily find the form later.
- **Access Type** - This defines who has access to load the form.

The screenshot shows a dialog box titled "Save Form Template". It has the following fields and controls:

- Name:** A single-line text input field.
- Category:** A single-line text input field.
- Description:** A multi-line text area with a small icon in the bottom right corner.
- Who can access?:** Two radio buttons. The first is "All Users" and is selected. The second is "Users With These Permissions:".
- Permissions List:** A list box with a vertical scrollbar, containing no items. Above it are two small buttons, "+" and "-".
- Buttons:** "Save" and "Cancel" buttons are located at the bottom right of the dialog.



The user that saved the form is the form's owner and will always be able to load the form regardless of what permissions are set. If another user with the necessary permissions overwrites an existing form, that user becomes the new form owner.

9.1.2 Loading a Form

The forms you have access to are retrieved from the server and organized by category. Forms without a category are shown as top-level branches in the selection tree. Clicking a form template automatically populates the "Description:" field at the bottom of the form.

When you load a saved form, all values that were not specified by the saved form are set to their default values or made blank. You can load a form, modify it, and then save it again to apply changes to it.

To load a form, follow these steps:

1. Click the **Load** link.

Submit Job

[Save](#) [Load](#)

Basic Options	Job Information
Optional Attributes	Script Type * <input checked="" type="radio"/> Upload <input type="radio"/> Create New
Advanced Options	Upload Script File * <input type="text"/> <input type="button" value="Browse..."/> <input type="button" value="Upload"/>
	Job Name <input type="text"/>

2. Select the saved form you want to load and click **Load**.

Load Form Template

Select a template:

- generalHighPro
- finance
- administrative
- IT
- engineering
 - highMemory
 - Bare-Metal
 - matlab**
 - Ubuntu-LAMP

Description: [Select a template to view description](#)

9.2 Submitting a Job

The Submit Job page is designed to help you quickly and easily submit a job. Here is an example of the form you might see:



Submit Job

Basic Options	Job Information
Optional Attributes	Script Type * <input checked="" type="radio"/> Upload <input type="radio"/> Create New
Advanced Options	Upload Script File * <input type="text"/> <input type="button" value="Browse..."/> <input type="button" value="Upload"/>
	Job Name <input type="text"/>
	Resource Definition
	Node Count * <input type="text"/> 1 <input type="button" value="▲"/> <input type="button" value="▼"/>
	Processors Per Node <input type="text"/> 1 <input type="button" value="▲"/> <input type="button" value="▼"/>
	Memory (in MB) <input type="text"/> 0 <input type="button" value="▲"/> <input type="button" value="▼"/>
	Time Frame
	Duration <input type="text"/> (Examples: 4d 3h 2m and/or 3s)
	<input type="button" value="Submit"/>



Your administrator can customize this form, so your form may differ from the example image.

To submit a job, follow these steps:

1. Choose whether to upload an existing script or to create a new script.
 - If uploading an existing script, specify the script.
 - If creating a new script, type your script (or copy and paste from another file) into the provided text area.
2. Fill in the various input fields on the form. Required fields are marked with an asterisk (*).
3. Navigate through the form using the **Next** and **Previous** buttons.
4. When all desired options are configured, click **Add To Request**.


Viewpoint determines the commands necessary to submit your job. You can view your job on the Job Management page.

10.0 Table Management

- [Adding a New Filter](#)
- [Loading A Saved Filter](#)
- [Renaming a Filter](#)
- [Saving a Filter](#)
- [Filtering Results](#)
- [Deleting a Filter](#)
- [Filter help](#)

10.1 Adding a New Filter

To add a new filter to Moab Events,

1. Click the add  button.
2. Select the filter criteria from the first drop-down list.
3. Select an operator from the second drop-down list.
4. Select a date range to query from the third drop-down list.
5. Click **Run**.
6. Add additional filters to narrow the query.

10.2 Loading A Saved Filter

To load a saved filter, select a filter from the **Current Filter** drop-down list. The filter criteria for the saved filter is loaded and the data is displayed.


10.3 Renaming a Filter

To rename a filter,

1. Click the **Manage Filters** link.
2. Select a filter from the **Existing Saved Filters** list.
3. Click **Rename**.
4. Enter the new name of the filter, then press **Enter**.

10.4 Saving a Filter




To save a filter,

1. Select the filter criteria from the first drop-down list.
2. Select an operator from the second drop-down list.
3. Select a date range to query from the third drop-down list.
4. Click the Add filter  button to add additional criteria.
5. Click **Save** to save the filter to the Viewpoint database.
6. In the **Save Search Filter** dialog box, enter the new filter name.
7. Click **Save**.

10.5 Filtering Results



Near the top of certain pages such as Job Management, Reservation Management and Node Management pages is a text area, a Submit Filter button, a Remove Filter button, and a Help button. This functionality allows you to filter the results on these pages to your liking. Filters are of the format, *name:value*. Multiple filters are allowed and are delimited by a space, such as, *account:astrophysics user:mike*. All entered name-value pairs are used to obtain the filter results. These are the components of the filter mechanism:

- **Filter Text Area** - The text area accepts any text input. If the beginning of one of the valid filter [keywords](#) is being typed, an auto-complete drop-down appears. Clicking, or selecting and pressing **[Enter]**, on a desired keyword completes the word and adds the required colon at the end.
- **Submit Filter Button**  - Clicking this button applies the filter that is currently in the text area.
- **Remove Filter Button**  - Clicking this button removes all filters and displays the page with no filters applied.
- **Help Button**  - Clicking this button displays help and tips related to filtering.

For any field configured in the management framework, you can specify a filter sub-element like so:

```
<fieldX>
  <title>Data</title>
  <filter text="data" enabled="true">
    <suggestions>data1, data2, data3</suggestions>
  </filter>
</fieldX>
```

This will configure the `<fieldX>` field to have a column title of "Data", be filterable by using a "data:" operator, and give "data1", "data2", and "data3" as suggestions.



You can only filter on columns that have been configured in the table.

10.5.1 Filter Keywords

There are different, valid keywords for each page that supports filtering.

- [Keywords for Job Management Filtering](#)
- [Keywords for Node Management Filtering](#)
- [Syntax for Time Period Keywords](#)
 - [Date](#)
 - [Time](#)
 - [Full Date and Time](#)
 - [Hyphen \(wildcard\)](#)

10.5.1.1 Keywords for Job Management Filtering

- **account** - The account that this job is to run under for billing purposes.
- **drmjid** - The destination resource manager job ID.
- **expected-state** - The expected state of the job based on scheduler action.
- **flags** - Allows filtering based on flags applied to a job. For more information on specific flags, see [Job Attributes/Flags Overview](#).
- **holds** - The types of holds that are currently on the job.
- **group** - The group the job is run under.
- **id** - The unique ID of the job.
- **name** - The user-specified name of the job.
- **memory-requested** - The amount of memory in MB requested by the job.
- **proc-count** - The number of processors the job requires.
- **qos** - The QoS the job is actually running under.
- **run-priority** - The priority to start running the job.
- **start-priority** - The effective job priority level.
- **user** - The user running the job.
- **wallclock-requested** - The wallclock the job requested in seconds.

10.5.1.2 Keywords for Node Management Filtering

Numeric Filters

- **disk-available** - This filters nodes based on their available disk.
- **disk-total** - This filters nodes based on total or configured disk.
- **disk-utilized** - This filters nodes based on their currently-utilized disk.
- **load** - This filters nodes based on their current load.
- **memory-available** - This filters nodes based on their available memory.
- **memory-total** - This filters nodes based on their total memory.
- **memory-utilized** - This filters nodes based on their currently-utilized memory.
- **processors-available** - This filters nodes based on available processors.
- **processors-total** - This filters nodes based on configured processors.

- **processors-utilized** - This filters nodes based on their currently-utilized processors.

numericFilters These filters match anytime the specified filter value is contained in the reported value. Here are some examples:

- The filter value 6 matches values of 6, 16, 61, and 123456789.
- The filter value 0 does not match a value of 12.

String Filters

- **access-policy** - This filters nodes based on their node access policy.
- **alias** - The alias of the node as reported by Moab.
- **architecture** - This filters nodes based on their architecture value reported by Moab.
- **features** - This filters nodes based on their feature list. The filter value must exactly match at least one feature in a node's feature list to match.
- **hypervisor-type** - This filters nodes based on their hypervisor type.
- **id** - This filters nodes based on their names.
- **ip-address** - This filters nodes based on their current IP address.
- **os** - This filters nodes based on their operating system.
- **power** - This filters nodes based on their power status.
- **power-policy** - This filters nodes based on their power policy.
- **priority** - This filters nodes based on their numeric priority value.
- **state** - This filters nodes based on their current state.
- **substate** - This filters nodes based on the substate of a node.
- **vlan** - This filters nodes based on their VLAN list. The filter value must exactly match at least one VLAN in a node's VLAN list to match.

stringFilters These filters match anytime the filter value is equal to, or if the reported value contains, the filter value. The filter is case-insensitive. Here are some examples:

- The filter value n1 matches N1, n10, n123, fan1, and FAN12.
- The filter value n1 does not match n21.

10.5.1.3 Keywords for Pending Actions Filtering

- **id** - The ID of the pending action that you wish to view.
- **type** - The type of pending actions you wish to view.
- **status** - The state of the pending actions you wish to view.
- **starttime** - A period of time that has a start and an end. The format for a valid value for this keyword is described [here](#).
- **requester** - The user who performed this action.
- **nodeid** - The ID given to the node the action is being performed upon.
- **targetos** - The operating system that is related to the Pending Action.
- **vmid** - The ID given to the Virtual Machine to which the Pending Action is related.

- **migrationsource** - The source node of the Virtual Machine being migrated.
- **migrationdestination** - The destination node of the Virtual Machine being migrated.
- **substatus** - The sub-status of the Pending Action you wish to view.

10.5.1.4 Syntax for Time Period Keywords

Date

The syntax for a date is *mm/dd/yyyy* or *mm/dd*. An example of March 31, 2012 is 3/31/2012.

- **day** (*dd* or *d*) - An integer from 1 through 31.
- **month** (*mm* or *m*) - An integer from 1 through 12.
- **year** (*yy* or *yyyy*) - An integer.

Time

The syntax for time is *hh:mm*, *hh:mm:ss*, *kk:mm*, or *kk:mm:ss*. In all cases where *hh*, or *h*, is used for the hour element, the last element in the sequence must be an *am* | *pm* element. An example of a valid time input is 11:30:00am.

- **hour** (*hh*, *h*, or *kk*) - The *hh*, or *h*, value is an integer from 1 through 12. The *kk* value is an integer from 00 through 23. When *h*, or *hh*, is used, the time statement must be followed by "am" or "pm" (see below).
- **minutes** (*mm*) - An integer from 00 through 60.
- **seconds** (*ss*) - An integer from 00 through 60.
- **am** | **pm** ("am" or "pm") - This is used only when *h*, or *hh*, is used for the hour value.

Full Date and Time

- **date@time** - When only a *date* is provided, the *time* is set for the earliest time of that day. When only *time* is provided, the *date* is set for the current day.

Hyphen

The hyphen is interpreted as a wildcard.

- **date@time-** - Everything from the given *date@time* to infinity is filtered. *5/31/2012@11:30am-* filters everything from 11:30am on May 31st, 2012, to infinity.
- **date@time-date@time** - Everything between the specified *date@time* pairs is filtered.

- **-date@time** - Everything from now to the specified date and time is filtered.

Examples

- **12/12/10-12/12/2011** - This indicates from December 12th, 2010 to December 12th, 2011.
- **12/12/2010@7:00am-12/12/2011@9:00pm** - This indicates from December 12th, 2010 at 7:00 AM to December 12th, 2011 at 9:00 PM.
- **12/12/2010@7:00-12/12/2011@21:00** - This indicates from December 12th, 2010 at 7:00 AM to December 12th, 2011 at 9:00 PM.
- **12/02/2010-** - This indicates from December 2nd, 2010 at 12:00 AM to infinity.
- **-12/2/10** - This indicates from now to December 2nd, 2010.

10.6 Deleting a Filter

To delete a filter,

1. Click the **Manage Filters** link.
2. Select a filter from the **Existing Saved Filters** list.
3. Click **Delete**.

10.7 Filter Help

The Filter Widget contains a text area, a Submit Filter button, a Remove Filter button, and this Help button. Their descriptions are:

Filter text box: The text box accepts any text input. If the beginning of one of the valid filter keywords is being typed, an auto-complete drop-down appears. Click the keyword you are searching for, and press Enter. Selecting the desired keyword and clicking Enter will complete the word (followed by the required “:”), and allow you to type in the value you wish to filter on. For example, “name:name_of_thing”. You may enter multiple filters, and all of the key-value pairs will be used to obtain the filter results. When the cursor is in this field and the Enter key is pressed, the filter is applied and the resulting records are displayed on the page.

Submit Filter: The Submit Filter button may be clicked to apply the filter that is currently in the Filter text area.

Remove Filter: This button removes all filters and displays everything that would normally be displayed on the page when no filters are applied.

By default, the column names can be searched as text input.

Below are the fields that can be searched on (by feature).

- [Jobs filter](#)
- [Node Management filter](#)
- [Pending Actions filter](#)
- [Reservations filter](#)
- [Server Management filter](#)
- [Users filter](#)
- [VM Management filter](#)

Jobs filter:

- **account:** The account that this job is to run under for billing purposes
- **expectedstate:** The expected state of the job based on scheduler action
- **holds:** The types of holds that are currently on the job
- **group:** The group the job is run under
- **jobid:** The unique ID of the job
- **name:** The user specified name of the job
- **mem:** The amount of memory in MB requested by the job
- **nodes:** Sets the number of nodes the job has requested
- **procs:** The number of processors the job has requested
- **qos:** The QoS the job is actually running under
- **runpriority:** The priority to start running the job
- **startpriority:** The effective job priority level
- **startdate:** The job's actual start time
- **state:** The job's current state

- **submitdate:** The date this job was submitted
- **user:** The user running the job
- **vmusagepolicy:** The requested virtual machine usage policy for the job
- **wallclock:** The wallclock the job requested in seconds

Node Management filter:

- **access-policy:** The policy set for access to this item
- **alias:** The alias of the node
- **architecture:** The architecture for this item
- **disk-available:** The amount of disk space available for this item
- **disk-total:** The total amount of disk space this item has
- **disk-utilized:** The amount of disk space currently being used on this item
- **features:** The features that pertain to this item
- **hypervisor-type:** The type of the hypervisor
- **id:** The name of the node
- **ip-address:** The ip address of this item
- **load:** The current load on the item
- **memory-available:** The total amount of available memory currently unutilized by item
- **memory-total:** The total amount of memory belonging to this item
- **memory-utilized:** The total amount of memory currently being used by this item
- **os:** The operating system of the item
- **pending-actions:** The pending actions of this item
- **power:** The power state of the item
- **power-policy:** The policy set for the power of the item
- **priority:** The priority level of the item
- **processors-available:** The total number of available processors
- **processors-total:** The total number of processors belonging to this item
- **processors-utilized:** The total number of processors being used by this item
- **state:** The current state of this item
- **substate:** The current substate of this item
- **vans:** The vans this item is on

Pending Actions filter:

- **id:** The ID of the pending action that you wish to view
- **type:** The type of pending actions you wish to view
- **status:** The state of the pending actions you wish to view
- **starttime:** A period of time that has a start and an end. The format for a valid value for this key is described here
- **requester:** The user who performed this action

- **nodeid:** The ID given to the node the action is being performed upon
- **targetos:** The operating system that is related to the Pending Action
- **vmid:** The ID given to the Virtual Machine to which the Pending Action is related
- **migrationsource:** The source node of the Virtual Machine being migrated
- **migrationdestination:** The destination node of the Virtual Machine being migrated
- **substatus:** The sub-status of the Pending Action you wish to view

Reservations filter:

- **cpu:** The number of processors reserved
- **disk-size:** The amount of disk reserved
- **duration:** The duration of the reservation in seconds
- **end-date:** The end date of the reservation
- **id:** The unique ID of the reservation
- **label:** The label of the reservation
- **memory:** The amount of memory reserved
- **name:** The name of the reservation
- **owner:** The owner of the reservation
- **resource-group:** Text describing the resources used by the reservation
- **start-date:** The start date of the reservation
- **state:** The reservation's current state

Server Management filter:

- **access-policy:** Relates to the ACCESS node attribute
- **alias:** Primary DNS alias used by the node
- **architecture:** Relates to the ARCH node attribute
- **disk-available:** The amount of disk space reported as available
- **disk-total:** The total amount of disk space
- **disk-utilized:** The amount of disk space utilized
- **features:** Relates to the FEATURES node attribute
- **hypervisor-type:** If the node is a hypervisor, the type of hypervisor technology used
- **id:** The name used by Moab to identify this node
- **ip-address:** The primary network address of the node
- **load:** A measure of CPU utilization
- **memory-available:** The amount of RAM reported as available
- **memory-total:** The total amount of RAM
- **memory-utilized:** the amount of RAM utilized
- **os:** The operating system currently running on the node
- **power:** The state of power. "On" if the node is turned on. "Off" otherwise
- **power-policy:** The power-saving policy currently in place. If power saving is enabled, "Power Saving", otherwise "Manual"

- **priority:** The priority value (as calculated by Moab's policy engine)
- **processors-available:** The number of CPUs available for use
- **processors-total:** The total number of CPUs
- **processors-utilized:** The number of CPU's currently in use
- **state:** The current operational state of the node
- **substate:** A secondary state showing detailed information
- **vlan:** A list of VLANs to which the node belongs

Users filter:

- **username:** The user's username
- **roles:** The roles associated with the user

VM Management filter:

- **id:** The name of the VM
- **ip-address:** The ip address of this VM
- **os:** The operating system of the VM
- **power:** The setting for the power of the VM
- **state:** The state of the VM as reported by Moab
- **substate:** The substate of the VM as reported by Moab
- **load:** The current load average reported by the VM
- **disk-utilized:** The amount of disk currently in use
- **disk-available:** The amount of disk available
- **disk-total:** The total or configured amount of disk
- **processors-utilized:** The number of processors in use
- **processors-available:** The number of processors still available for use on this VM
- **processors-total:** The total or configured number of processors
- **memory-utilized:** The amount of memory currently in use
- **memory-available:** The amount of memory available
- **memory-total:** The total or configured amount of disk

11.0 Reporting

- [Viewing Reports](#)
- [Viewpoint Reports](#)

11.1 Viewing Reports



Reporting

Report ^	Display Options	Category	Description
Jobs Submitted		Adaptive	Presents the Jobs submitte
Total Queue Time		Adaptive	Table and pie chart views
Used Wallclock Time		Adaptive	Pie chart and table views
Total Allocated Node Count		Adaptive	Displays the number of tot
Total Active Proc Count		Adaptive	Line chart showing the nur
Jobs and Proc Hours by Credential		Adaptive	Jobs and dedicated proc h
Jobs and Proc Hours by Month		Adaptive	Jobs and dedicated proc h
Jobs Submitted and Completed		Adaptive	Line chart showing numbe
Jobs and Proc Hours by Quarter and Ye		Adaptive	Bar chart showing jobs and

When Viewpoint is configured to include the Reporting Portal, new reports included in the **reporting.xml** file appear in the portal. Reports can be executed by choosing a format (HTML, PDF, etc.) and double clicking the desired report or clicking **Run Report**.

11.1.1 Report Viewer



Jobs Submitted by User

Name	Jobs
alice	0
awok	0
bob	0
carol	0
cri	0
DEFAULT	0
eval4	0
eval5	0
eval6	0
fothgill	0
jbethune	0
jfoote	0
jsmith	0
jstoddard	29
jvella	0
jzuflet	0
kforbes	0

Reports open in a new window in the **BIRT Report Viewer**. The **BIRT Report Viewer** allows you to interact with the report and perform tasks such as viewing and selecting from the table of contents, rerunning the report, extracting data, printing, choosing a different report format, and so on.

11.1.2 Report Parameters

Parameter [X]

Parameters marked with * are required.

{ } Filter Report By:: *

User

{ } Start Time (mm-dd-yyyy HH:mm:ss): *

06-17-2011 11:41:42

{ } End Time (mm-dd-yyyy HH:mm:ss): *

06-17-2011 13:46:42

OK Cancel

Prior to execution of most reports a parameters dialog appears. 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 above, the **Select Choice** parameter options are determined by the **Select Type** selection. The type and the choice parameters are indicated as required.

11.1.3 Report Table of Contents

The screenshot shows a BIRT Report Viewer window with a table of contents for a report titled "Jobs Submitted by User". The table lists various users and their corresponding job counts.

Name	Jobs
alton	0
beck	0
bill	0
carol	0
chris	0
DELLALI	0
eric	0
evan	0
frank	0
frank	0
gabriel	0
jack	0
janis	0
john	25
john	0
john	0

Some reports have a Table of Contents. The ToC can be viewed by using clicking a button in the viewer.

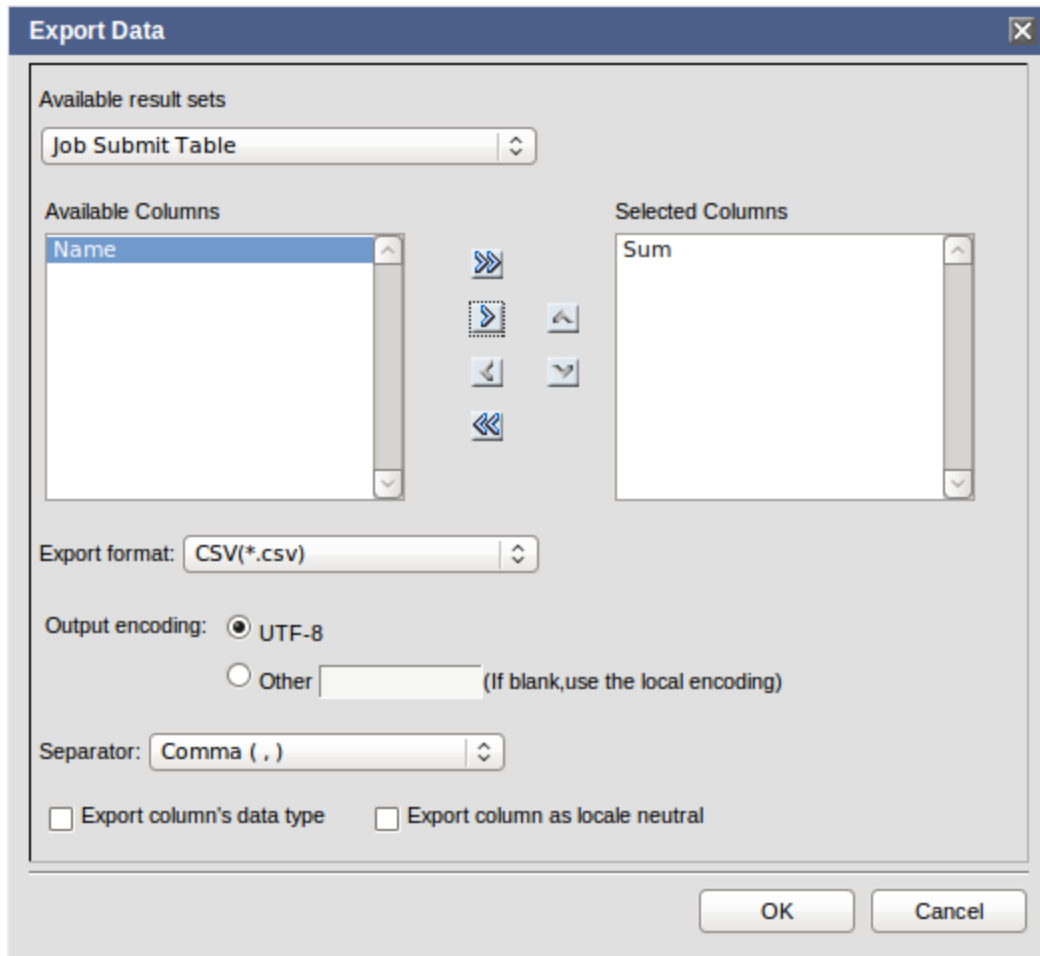
11.1.3.1 Buttons



The button panel allows you to:

- view, and select from, the ToC.
- rerun the report.
- export data from the report.
- choose a different format.
- print the report.
- print on the server.



















11.1.4 Exporting Report Data



The data in a report can be exported to a comma- or otherwise separated file. The **Export Data** dialog permits reordering of the data.

11.2 Viewpoint Reports

You can specify whether a user can generate reports. On the Reporting page, users choose from a list of available options, which report(s) to run.

Report ^	Display Options	Category	Description
Jobs Submitted	 	Adaptive	Presents the Jobs submitted
Total Queue Time	 	Adaptive	Table and pie chart view
Used Wallclock Time	 	Adaptive	Pie chart and table view
Total Allocated Node Count	 	Adaptive	Displays the number of nodes
Total Active Proc Count	 	Adaptive	Line chart showing the number of active processors
Jobs and Proc Hours by Credential	 	Adaptive	Jobs and dedicated processor hours by credential
Jobs and Proc Hours by Month	 	Adaptive	Jobs and dedicated processor hours by month
Jobs Submitted and Completed	 	Adaptive	Line chart showing the number of jobs submitted and completed
Jobs and Proc Hours by Quarter and Year	 	Adaptive	Bar chart showing jobs and processor hours by quarter and year

Report output can be delivered in HTML, PDF, Excel, and, through the BIRT Viewer export function, in postscript. The following are available:

- [Events](#)
- [Jobs and Processor Hours by Credential](#)
- [Jobs and Processor Hours by Month](#)
- [Jobs and Processor Hours by Quarter and Year Bar Chart](#)
- [Jobs Submitted](#)
- [Jobs Submitted and Completed Line Chart](#)
- [Total Active Processor Count](#)
- [Total Allocated Node Count](#)
- [Total Queue Time](#)
- [Used Wallclock Time](#)
- [VM Lifecycle](#)

Events

Information Presented: Report showing historical event information.

Input Parameters:

- Chart type: No Chart, Pie Chart, Bar Chart
- Start Date and Time
- End Date and Time
- Events

File Name: general_events.rptdesign

Jobs and Processor Hours by Credential

Information Presented: List report of processor hours and jobs by credential. The data is displayed in table format by year, then by month.

Input Parameters: Credential: User, Group, Account, Quality of Service

File Name: jobs_n_ded_proc_hours_by_cred.rptdesign

Jobs and Processor Hours by Month

Information Presented: Bar chart of the chosen year with total processor hours and jobs for each month.

Input Parameters: Year

File Name: jobs_n_ded_proc_hours_by_month.rptdesign

Jobs and Processor Hours by Quarter and Year Bar Chart

Information Presented: Bar chart of totals for jobs and processor hours by quarter and year.

Input Parameters: None

File Name: jobs_n_ded_proc_hours_by_quarter_years.rptdesign

Jobs Submitted

Information Presented: Presents the jobs submitted by credential (user, group, account and quality of service) for the supplied time in table format with name and total of jobs.

Input Parameters:

- Credential: User, Group, Account, Quality of Service
- Start Time
- End Time

File Name: jobs_submitted.rptdesign

Jobs Submitted and Completed Line Chart

Information Presented: Line chart showing number of jobs over the specified time and for the specified credential with the option of showing completed jobs.

Input Parameters:

- Credential: User, Group, Account, Quality of Service
- Start Time
- End Time
- Option to show time without submitted jobs or zero values

- Option to view by submitted jobs or completed jobs

File Name: jobs_submitted_totals_line.rptdesign

Total Active Processor Count

Information Presented: Line chart showing the number of active processors over the specified time and for the specified credential and credential name.

Input Parameters:

- Credential User, Group, Account, Quality of Service
- Credential Name
- Start Time
- End Time

File Name: total_active_proc_count.rptdesign

Total Allocated Node Count

Information Presented: Displays the number of total allocated nodes over time in a line chart for the given start and end time by credential and name.

Input Parameters:

- Start Time
- End Time
- Credential: User, Group, Account, Quality of Service
- Credential Choice or Name

File Name: total_allocated_node_count.rptdesign

Total Queue Time

Information Presented: Table and pie chart views of queue hours over the specified time and for the specified credential.

Input Parameters:

- Start Time
- End Time
- Credential: User, Group, Account, Quality of Service
- Show or Hide Zero Values

File Name: total_queue_time.rptdesign

Used Wallclock Time

Information Presented: Table and pie chart views of used wallclock hour for the specified time and for the specified credential.

Input Parameters:

- Start Time
- End Time
- Credential: User, Group, Account, Quality of Service

File Name: used_wallclock_time.rptdesign

VM Lifecycle Report

Information Presented:

Events occurring on a VM by user and time.

Input Parameters:

- VM Name
- Start Time
- End Time
- Show By: Week, Month, Quarter, Year
- Chart Orientation: Vertical, Horizontal
- User

File Name: vm_lifecycle.rptdesign

12.0 Moab Events

- [Moab Events Overview](#)

12.1 Moab Events Overview

The Viewpoint Moab Events page allows you to query major events that have been reported to the Moab event log. These events include JOBSTART, JOBEND, and JOBMODIFY. By default, the event log is maintained in the statistics directory and rolls on a daily basis. However, in order to use the Moab Events feature, Moab needs to be configured to report its events to a database instead of to files in the statistics directory. To configure Moab to report events to the database, see [Database Configuration](#).

Viewpoint, Moab, and the Moab database need to be running on machines that are in the same time zone. They also need to react the same way to Daylight Savings Time changes. For example, Arizona and Utah are both technically on Mountain Standard Time (MST) but if Daylight Savings Time (DST) is in effect, it will be a different time in Utah than in Arizona. You don't want to have Viewpoint and the database running in different time zones. This is important in order for events to be queried accurately. For example, if it's 12:15 PM in the time zone where Moab is running, it must also be 12:15 PM in the time zone where Viewpoint is running and where the database running Moab Events is located. The Web browser can be located anywhere, but the time stamp on the Moab Events page will display the time zone where Viewpoint is located. If you choose to have Viewpoint and the database run in different time zones, event queries that involve date or time will not be accurate.

12.1.1 Moab Events Filters

Event log filters are used to save and load queries on the Moab Events page. 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. When you open the Moab Events page, the filter criteria is set to the current date by default.

You can create a filter which will allow you to query data by:

- Date
- Time
- Event
- Object
- Name

The list of events returned are listed by:

- Date
- Time
- Event
- Object

- Name
- Description

To create a Moab Events filter,

1. Click **Reports > Events**.
2. If the filter is already saved, click **Manage Filters** and select the filter.
3. Click the minus sign. Select a data item, select an operator, and a criterion. The date is set to the current date. If you want to change the date, click the **Calendar** icon.
4. Click the Plus sign to add another line to the filter. Complete the line.
5. Click **Match All** to connect lines of the filter using the AND operator, or click **Match Any** to connect them using the OR operator.
6. Click **Run** to run the filter, or click **Save** to save it. Type a name for the filter and click **Save**.

12.1.2 Managing Filters

Moab Events allows you to delete or rename previously created filters. Once a filter is created, it is stored in the Viewpoint database. Click **Manage Filters** from the Moab Events page. To close this dialog, click **Close** or press the **Escape** key

12.1.3 Known Issues

- The Moab database must be a MySQL database.
- By default, Moab is configured to record certain event types. Any other events types must be specifically configured in the Moab configuration file (Moab.cfg) using the [RECORDEVENTLIST](#) parameter. For more information on configuring the Moab configuration file, see [Initial Moab Configuration](#).
- Databases with more than 5,000,000 entries may result in unresponsive queries. You should use extra caution when utilizing the **Match Any** filter setting on a large system, because the number of entries can grow quickly enough to slow or stall the events page. To ensure responsiveness, it is strongly recommended that queries refine searches on larger systems through the use of a date parameter.