

# Moab Viewpoint

## Administrator Guide 9.0.0

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# Welcome

**Revised December 15, 2015**

Welcome to the *Moab Viewpoint Reference Guide* for version 9.0.0.

Viewpoint is a web application that, interacting with Moab Workload Manager, lets users manage jobs and resources without the complexities of maintaining Moab via the command line. Viewpoint uses a customizable portal which enables users to view and configure jobs and to compute node resources, principals, and roles. Viewpoint permissions allow system administrators to specify which pages, tools, and settings certain users or groups are permitted to use, manage, and view.

This guide is intended as a reference for system administrators *and* users. This guide is broken up into functional chapters to help you quickly navigate and use Viewpoint.

 This guide contains all functional chapters. The actual functions that are available to you will vary depending on the rights and privileges associated with your user profile.

In this guide:

- [Chapter 1 Viewpoint Configuration on page 3](#) – Provides the necessary information for you to set up and configure your Viewpoint portal.
- [Chapter 2 Viewpoint Basics on page 33](#) – Gives a general overview of basic Viewpoint portal. This includes logging in/signing out and general navigation information.
- [Chapter 3 Workload on page 39](#) – Gives a general overview of the Workload page and provides information on viewing and managing workloads.
- [Chapter 4 Application Templates on page 59](#) – Gives a general overview of the Application Templates page and provides information on managing the application templates that are used predefine the job requirements available to users when creating jobs.
- [Chapter 5 Nodes on page 125](#) – Gives a general overview of the Nodes page and provides information on viewing and managing nodes for your workload.
- [Chapter 6 File Manager on page 137](#) – Gives a general overview of the File Manager page and provides information on using the RFS for file management.



# Chapter 1 Viewpoint Configuration

The Configuration page lets you set up and configure your Viewpoint portal.

Viewpoint configuration involves:

1. Initial setup and configuration procedures crucial to the functionality of Viewpoint; performed when you first installed and configured Viewpoint. See [Installing Moab Viewpoint](#) in the *Moab HPC Suite Installation and Configuration Guide*.
2. Managing roles. Viewpoint, by default, includes an HPCAdmin and HPCUser role. See [About Roles on page 11](#).
3. Managing principals. [About Principals on page 28](#).

Related Topics

[Configuration Page on page 4](#)

[About Roles on page 11](#)

[About Principals on page 28](#)

# Configuration Page



Only privileged users can see the Configuration page. In addition, the user's credentials determine which configuration functions are available.

The Configuration page lets you perform administrative functions for Viewpoint. Using this page you can set up the connection to MWS and manage roles and principals.

- If you log into Viewpoint as the Viewpoint administrative user (viewpoint-admin by default), the Configuration page displays with no other pages available.
- After the initial configuration, if you log in as any user besides the Viewpoint administrative user, the Home page displays by default. To access the Configuration page, click **Configuration** from the menu or click  next to where you sign out.

The Configuration page has three functional pages:

- **Basic Configuration** – This is the default view when you access the Configuration page. This page is primarily used only after Viewpoint is installed or upgraded. This page also lets you, at any time, reset the default roles. See [Basic Configuration Page on page 5](#) for more information about this page.
- **Roles** – Available when you click **Roles** from the left pane. This page lets you manage roles and role permissions. See [Role Management Page on page 13](#) for more information about this page.
- **Principals** – Available when you click **Principals** from the left pane. This page lets you assign users, groups, or OUs to roles. See [Principal Management Page on page 28](#) for more information about this page.

## Related Topics

[Basic Configuration Page on page 5](#)

[Role Management Page on page 13](#)

[Principal Management Page on page 28](#)

[Chapter 1 Viewpoint Configuration on page 3](#)

# Basic Configuration Page

This topic provides an example of the Basic Configuration page and describes its layout and available information.

**i** This page is primarily used only after Viewpoint is installed or upgraded. This page also lets you, at any time, reset the default roles.

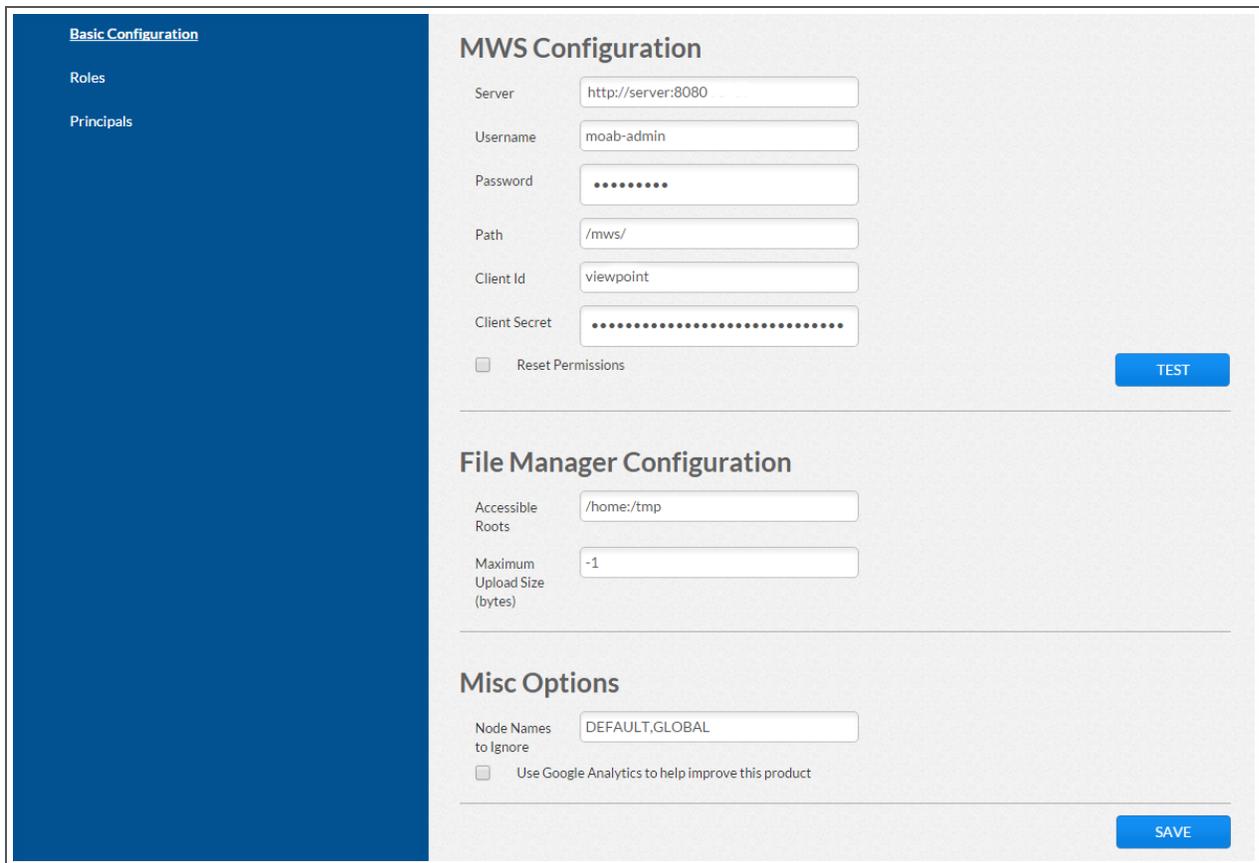
To access this page click **Configuration** from the menu.

In this topic:

- [Page Example on page 5](#)
- [Available Fields on page 6](#)

## Page Example

The following image is an example of the Basic Configuration page.



## Available Fields

The following table describes the fields on the Basic Configuration page.

Field	Description
<b>MWS Configuration</b>	
<b>Server</b>	<p>IP address or the server name and the port number of the MWS Server Host to which Viewpoint connects (for example, "http://server:8080").</p> <div style="border: 1px solid #0070c0; border-radius: 10px; padding: 10px; background-color: #e6f2ff;"> <p> If your configuration uses a secure the connection between Viewpoint and MWS, the full URL must contain "https" and the secure port. See <a href="#">Securing the Connection between Viewpoint and MWS on page 10</a> for more information.</p> </div>
<b>Username</b>	<p>Name of the admin user (for example, "moab-admin"). This is the user who is given MWS access and access to all Viewpoint pages as the default. However, this user is typically not a LDAP/PAM user and does not have operating system permissions (like creating application templates). This user can assign users to roles, including the HPCAdmin role (for LDAP/PAM users).</p> <p>This is the "auth.defaultUser.username" specified when MWS Server was installed. This information is stored in the <code>mws-config.groovy</code> file.</p>
<b>Password</b>	<p>Password authentication for the admin user.</p> <p>This is the "auth.defaultUser.password" specified when MWS Server was installed. This information is stored in the <code>mws-config.groovy</code> file.</p>
<b>Path</b>	<p>Path prefix of the Moab Web Services URL. This will almost always be <code>"/mws/"</code>.</p>
<b>Client ID</b>	<p>ID used to authorize Viewpoint as a client in MWS.</p> <p>This is the "OAuth clientId" specified when Viewpoint was installed. This information is stored in the <code>mws-config.groovy</code> file.</p>
<b>Client Secret</b>	<p>Permission (secret) used to authorize Viewpoint as client in MWS.</p> <p>This is the "OAuth clientSecret" specified when Viewpoint was installed. This information is stored in the <code>mws-config.groovy</code> file.</p>
<b>Reset Permissions</b>	<p>Lets you reset the HPCAdmin and HPCUser roles back to their default settings. See <a href="#">Resetting Default Roles on page 11</a> for more information about this check box.</p> <div style="border: 1px solid #0070c0; border-radius: 10px; padding: 10px; background-color: #e6f2ff;"> <p> This function resets not only the role's permissions, but will also unassign any principal from the role. If you want to reset permissions, but retain the principals, use the RESET button on the Permissions page.</p> </div>

Field	Description
<b>Test</b>	Tests the connection to Moab Web Services. If successful,  appears outside the Server field.
<b>File Manager Configuration</b>	
<b>Accessible Roots</b>	<p>Lets you designate the root folders that users can access from the File Manager page. This can be used to limit users' access to certain directories, without giving them access to the "/" folder on the remote file system (RFS). Separate root folders with a colon (:).</p> <p>For example, if you define /home and /user/share/groups as accessible roots, although users will be able to see a tree similar to the following, the users will not be able to see (access) anything inside /usr other than "share" and anything inside "share" other than "groups".</p> <pre>   - /home/       user1/   user2/   youruser/ - /usr/       - share/           groups/ </pre>
<b>Maximum Upload Size (bytes)</b>	Lets you limit the total amount of data that can be uploaded in a single file. Specify '-1' to disable the upload size limit.
<b>Misc Options</b>	
<b>Node Names to Ignore</b>	Names of nodes for which you want to be ignored when submitting jobs. Separate names with a comma. For example, to prevent jobs from accessing the DEFAULT and GLOBAL nodes, type "DEFAULT,GLOBAL".
<b>Use Google Analytics to help improve this product</b>	Indicates whether you want to track usage through Google Analytics.

### Related Topics

[Chapter 1 Viewpoint Configuration on page 3](#)

# Configuring Viewpoint to Use SSL

Adaptive Computing strongly recommends using Viewpoint on a secure channel (SSL).

This topic explains how to enable SSL for Viewpoint.

**i** The steps in this topic must be performed before you set up the connection to MWS.

Do the following in order:

- [Create a Self-Signed Certificate](#)
- [Enable SSL for Viewpoint](#)

## Create a Self-Signed Certificate

Do the following:

1. Generate a private key.

```
[root]# openssl genrsa -out server.key 1024
```

**i** This will create an unencrypted private key. It is recommended that this private key has only root privileges.

If you want to encrypt this private key (add a passphrase), do the following:

```
[root]# openssl genrsa -des3 -out server.key 1024
```

2. Generate the certificate signing request from the private key (what is used to create a self-signed certificate).

```
[root]# openssl req -new -key server.key -out server.csr
```

- a. If you encrypted the private key, enter the passphrase when prompted.
- b. Enter the certificate metadata when prompted. For example:

```
...
Country Name (2 letter code) [XX]:US
State or Province Name (full name) []:Utah
Locality Name (eg, city) [Default City]:Provo
Organization Name (eg, company) [Default Company Ltd]:Adaptive Computing
Enterprises, Inc.
Organizational Unit Name (eg, section) []:Engineering
Common Name (eg, your name or your server's hostname)
[]:test1.adaptivecomputing.com
...
```

### 3. Generate the self-signed certificate from the CSR.

```
[root]# openssl x509 -req -in server.csr -signkey server.key -out server.crt
```

You should have both a private key (server.key) and a certificate (server.crt).

## Enable SSL for Viewpoint

Do the following:

### 1. Install the Apache SSL Module.

- Red Hat 6-based or Red Hat 7-based systems

```
[root]# yum install mod_ssl
```

### 2. Install the private key and certificate you generated earlier in this topic.

```
[root]# chmod 400 server.key server.crt
[root]# chown root:root server.key server.crt
[root]# cp -p server.key server.crt /etc/httpd
```

### 3. Edit /etc/httpd/conf.d/viewpoint.conf as follows:

```
Listen 443
LoadModule ssl_module modules/mod_ssl.so

<VirtualHost *:443>

    SSLEngine On
    SSLCertificateKeyFile /etc/httpd/server.key
    SSLCertificateFile /etc/httpd/server.crt

    ---

</VirtualHost>
```

**i** Viewpoint needs its own VirtualHost on its own port. Therefore, if Apache is serving pages or applications besides Viewpoint over SSL, choose a port for Viewpoint besides 443.

### 4. Start or restart Apache.

- Red Hat 6-based systems

```
[root]# service httpd restart
```

- Red Hat 7-based systems

```
[root]# systemctl restart httpd.service
```

# Securing the Connection between Viewpoint and MWS

Adaptive Computing strongly recommends using Viewpoint on a secure channel (SSL). See [Configuring Viewpoint to Use SSL on page 8](#).

Optionally, and depending on your system requirements, you can secure the connection between Viewpoint and MWS.

This topic explains how secure the connection between Viewpoint and MWS.

**i** The steps in this topic must be performed before you set up the connection to MWS.

## Secure the Connection between Viewpoint and MWS

Do the following:

1. Configure the MWS Server for HTTPS. See *Securing Client Connections to MWS* in the *Moab Web Services Reference Guide* for more information.
2. Import the MWS Server Certificate.

**i** If the MWS server is using a certificate signed by a certificate authority, skip this step.

Import the MWS server certificate by running the following command on the Viewpoint server:

```
[root]# openssl s_client -showcerts -connect <hostname>:<secure_port> < /dev/null
2> /dev/null |
  sed -n -e '/-BEGIN CERTIFICATE-/,/-END CERTIFICATE-/p' \
  >> $(python -m requests.certs)
```

Where *<hostname>* is the MWS host name and *<secure\_port>* is the secured port number defined in the certificate.

3. Precede with instructions to set up the connection to MWS (see [1.1 Setting Up the Connection to MWS](#)), noting that:
  - you must use the full secure URL for MWS. For example: `https://mws.example.com:8443`
  - the host name must match the Common Name (CN) of the MWS server certificate.
  - the Viewpoint server must be able to resolve the host name using `/etc/hosts` or DNS.

## About Roles

A role in Viewpoint is simply a collection of permissions. Once permissions are assigned, a role is assigned to users or user groups in a principal. This means that each user in the principal will be bound by the role permissions.

This section describes the features and functions available to manage roles.

In this section:

- [Default Roles on page 11](#)
- [Role Management Page on page 13](#)
- [Roles Page on page 14](#)
- [Role Permissions on page 16](#)
- [Creating or Editing Roles on page 26](#)
- [Deleting Roles on page 27](#)

Related Topics

[Chapter 1 Viewpoint Configuration on page 3](#)

## Default Roles

Viewpoint is delivered with these default roles:

- **HPCAdmin** – Global administrative role that grants users operating system and most Viewpoint page permissions. By default, this role does not enable users to create or edit roles; they can only see existing roles that can be assigned to principals.
- **HPCUser** – Global user role that enables permissions for users to perform non-administrative workload tasks.

**i** Viewpoint lets you reset permissions for the default roles and restore the default roles if deleted. See [Resetting Default Roles on page 11](#) and [Restoring Default Roles on page 12](#), respectively.

Related Topics

[About Roles on page 11](#)

## Resetting Default Roles

Viewpoint comes configured with the HPCAdmin and HPCUser default roles and offers the ability to reset these roles back to their original default settings at any time.

You can choose whether to:

- reset the permissions and remove principals.
- reset the permissions only.

This topic provides the information on the different options available to reset the default roles.

## Reset Permissions and Remove Principals

Do the following:

1. If you have not already done so, log in to the Viewpoint portal. This can be the moab-admin user or any user granted permission to reset roles from the Roles page.
2. Click **Configuration** from the menu. The Basic Configuration page displays.
3. In the MWS Configuration area, click the Reset Permissions check box. A warning appears informing you that this will reset the defaults.
4. Click **Save**. Once the permissions have finished resetting, you will be logged out of the Viewpoint portal and will need to log in again.
5. Go to the Principals page and reassign the principals to the default roles, as needed.

## Reset Permissions Only

Do the following:

1. If you have not already done so, log in to the Viewpoint portal. This can be the moab-admin user or any user granted permission to reset roles from the Roles page.
2. If you have not already done so, access the Role Management page. (Click **Configuration** from the menu, then click **Roles** from the left pane.)
3. Click  next to the default role for which you want to reset permissions.

The Roles page displays.

4. Click **RESET**.
5. When a message appears asking to your confirm the reset, click **OK**; otherwise, click **Cancel**.

## Restoring Default Roles

In addition to being able to reset the default permissions for the default roles (HPCAdmin or HPCUser), Viewpoint lets you restore the role if it was deleted. Restoring a default role, automatically restores it with the default permissions.

Do the following:

1. If you have not already done so, access the Role Management page. (Click **Configuration** from the menu, then click **Roles** from the left pane.)

2. Click . The button is orange with a white triangle icon and the text 'RECREATE BASE ROLES'.

Related Topics

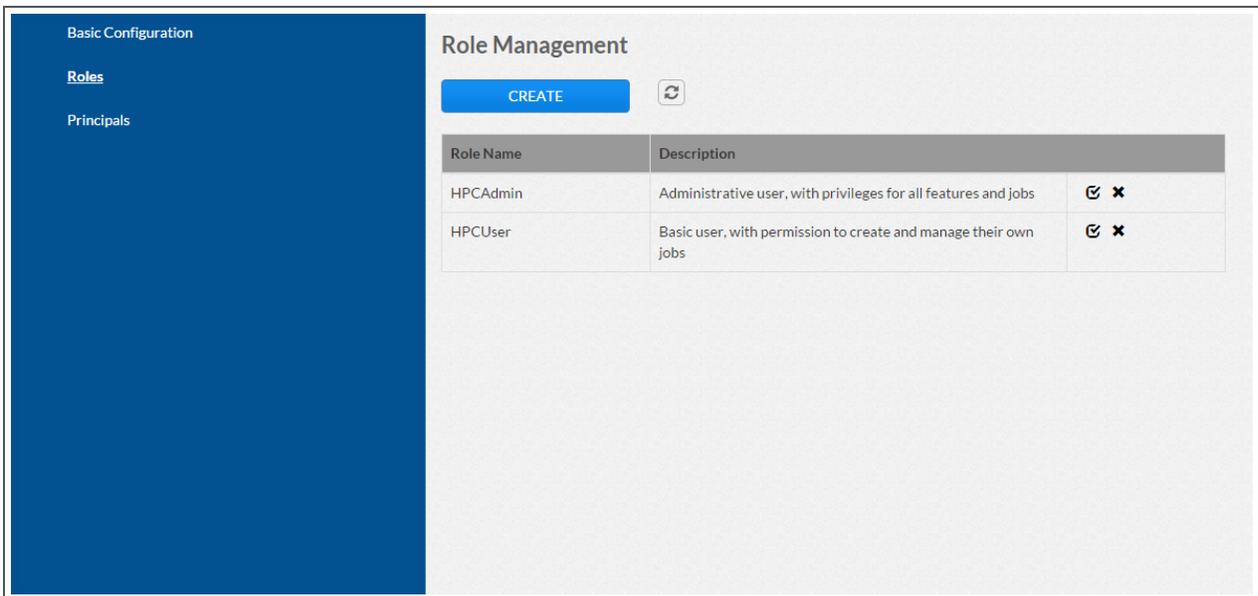
[About Roles on page 11](#)

## Role Management Page

The Role Management page displays the default and custom roles available for your Viewpoint configuration. Using this page you can create, edit, and delete roles. Click  at any time to refresh the page display.

To access this page, click **Configuration** from the menu and then click **Roles** from the left pane.

The following image is an example of the Role Management page.



Related Topics

[Creating or Editing Roles on page 26](#)

[Deleting Roles on page 27](#)

[About Roles on page 11](#)

## Roles Page

The Roles page lets you manage the permissions for the specified role.

To access this page, click **Configuration** from the menu, click **Roles** from the left pane, and then click either **Create** to add a new role *or* click  next to the role you want to edit.

This topic provides an example of the Roles page and describes its layout and available information.

In this topic:

- [Page Example on page 14](#)
- [Available Fields on page 15](#)
- [Page Actions on page 16](#)

### Page Example

The following image is an example of the Roles page.

## Available Fields

The following table identifies fields in the Roles page.

Field	Description
<b>Enter Role Name</b>	Lets you specify the name of the role. The name you specify appears in the list of roles on the Role Management page and in the list of role options when you edit a principal. The name must be alpha-numeric but may contain dashes (-), periods (.), and underscores (_).  <div style="border: 1px solid #ccc; padding: 5px; background-color: #e6f2ff;"> <span style="font-size: 1.2em; font-weight: bold;">i</span> You cannot modify the role name after creating a role.                 </div>
<b>Description</b>	Lets you specify/modify the text description of the role. This description appears in the list of roles on the Role Management page.

Field	Description
<b>Viewpoint Permissions</b>	These fields let you specify the Viewpoint page permissions you want to set for the role. See <a href="#">Role Permissions</a> for more information.
<b>Domain Permissions</b>	These fields let you specify the MWS domain permissions you want to set for the role. See <a href="#">Role Permissions</a> for more information.

## Page Actions

These buttons let you perform actions on this page:

- **CANCEL** – Closes the page without saving any changes.
- **DONE** – Saves the changes and closes the page.
- **APPLY** – Saves the changes but does not close the page.
- **RESET** – For the default (HPCAdmin and HPCUser) roles only. Resets the role back to the default settings and stays on the page. This does *not* remove principals from the role. The "Reset Permissions" check box on the Basic Configuration page will reset the role back to the default settings and remove all principals assigned to the role. See [Resetting Default Roles on page 11](#) for more information.

Related Topics

[Role Permissions on page 16](#)

[Creating or Editing Roles on page 26](#)

[Role Management Page on page 13](#)

[About Roles on page 11](#)

## Role Permissions

This topic describes the different permissions you can manage for a role.

In this topic:

- [About Permissions on page 16](#)
- [Viewpoint Permissions on page 17](#)
- [Domain Permissions on page 18](#)

## About Permissions

Viewpoint uses permissions to let you control user access. For example, you can grant a user the ability to see a feature, but not edit it. Permissions are broken into two areas: Viewpoint and Domain. The Viewpoint permissions

control access to the various pages and the Domain permissions control access to specific functions on that page.

## Viewpoint Permissions

The following table describes each of the Viewpoint permissions. For ease of use, the permissions are listed in this topic in alphabetical order.

Permission	Description
Configuration Page	Lets the user access the Configuration page. This permission should only be set for administrators.
Create Job Page	Lets the user access the Create Job page.
File Manager Page	Lets the user access the File Manager page. When applied, the File Manager page becomes active and the user is able to upload or download files.
Home Page	Indicates whether "Home" appears in the menu bar for the user.
Job Details	Lets the user access the Job Details page to view additional information about the job details.
Job Details - Priority	Lets the user see or modifying the prioritization factors for the job. This permission also requires the associated read-priority or update-priority Domain permission. See <a href="#">Priority on page 48</a> for more information about the priority information for a job. Also requires the user to have the Job Details and Job Edit-admin permissions.
Job Details - Scheduling Analysis	Lets the user view the available nodes for job scheduling. When applied, the "More Information" button appears on the Job Details page. Click this button to view the Scheduling Analysis pop-up window. See <a href="#">Scheduler Analysis on page 46</a> for more information on the window. Also requires the user to have the Job Details and Job Edit-admin permissions.
Job Edit-admin	Lets the user edit job information for any job; not limited to only the jobs the user (others in the user's principal) submitted. Also requires the user to have the Job Details permission.
Job View All	Lets the user see all jobs in the workload; not limited to only the jobs the user (others in the user's principal) submitted. Also requires the user to have the read-insight-privileged Domain permission.
Principal and Roles Pages	Lets the user view and manage roles and principals. This permission also requires the Configuration page permission. This permission should only be set for administrators.

Permission	Description
Resources	Lets the user view available resources (read list of nodes). When applied, the Node Details page becomes active.
Templates Page	Lets the user view the application templates applicable to him/her and make small changes.
Templates Page-admin	Lets the user view and manage application templates (for the system).
Workload	Lets the user see jobs. Admins will see all jobs; non-admins will only see their jobs, or the jobs within their principal (user group).  This permission is required for all roles.

## Domain Permissions

This section describes each of the Domain permissions. Domain permissions are global in scope. For ease of use, the permissions are listed in this topic by resource type.

In this section:

- [Accounting](#)
- [Credentials](#)
- [Diagnostics](#)
- [Events](#)
- [Insight](#)
- [Jobs](#)
- [Job-Arrays](#)
- [Metric-types](#)
- [Nodes](#)
- [Notifications](#)
- [Permissions](#)
- [Plugins](#)
- [Plugin-Types](#)
- [Policies](#)
- [Principals](#)

- [Priority](#)
- [Reports](#)
- [Reservations](#)
- [Resource-Types](#)
- [Roles](#)
- [Standing-Reservations](#)
- [Virtual Containers \(VCs\)](#)

## Accounting

Name	Description	Action	Resource
balances-accounting-funds	Permission to read accounting funds balances.	read	accounting/funds/balances
quote-accounting-usage-record	Permission to access quote usage-record.	read	accounting/usage-records
read-accounting-accounts	Permission to read accounting accounts.	read	accounting/accounts
read-accounting-allocations	Permission to read accounting allocations.	read	accounting/allocations
read-accounting-charge-rates	Permission to read accounting charge rates.	read	accounting/charge-rates
read-accounting-funds	Permission to read accounting funds.	read	accounting/funds
read-accounting-liens	Permission to read accounting liens.	read	accounting/liens
read-accounting-organizations	Permission to read accounting organizations.	read	accounting/organizations
read-accounting-quotes	Permission to read accounting quotes.	read	accounting/quotes
read-accounting-transactions	Permission to read accounting transactions.	read	accounting/transactions

Name	Description	Action	Resource
read-accounting-usage-records	Permission to read accounting usage-record.	read	accounting/usage-records
read-accounting-users	Permission to read users in the accounting system (MAM users).	read	accounting/users
statement-accounting-funds	Permission to read account funds statement.	read	accounting/funds/reports/statement

### Credentials

Name	Description	Action	Resource
read-credentials	Permission to read credentials.	read	credentials
update-credentials	Permission to update credentials.	update	credentials

### Diagnostics

Name	Description	Action	Resource
read-diagnostics	Permission to read diagnostics.	read	diag

### Events

Name	Description	Action	Resource
read-events	Permission to read events.	read	events

### Insight

Name	Description	Action	Resource
read-insight	Permission to read insight-specific URLs.	read	insight
read-insight-privileged	Permission to read insight-admin URLs.	read	insight
read-insight-user	Permission to read insight-user URLs.	read	insight

## Jobs

Name	Description	Action	Resource
cancel-jobs	Permission to cancel (delete) your jobs. Depending on the user's principal setting, other users within the same user group/account may also be able to cancel the jobs.	delete	jobs
cancel-jobs-any	Permission to cancel (delete) any job, regardless of who created it.	delete	jobs
create-jobs	Permission to create jobs for any tenant.	create	jobs
read-jobs	Permission to read jobs.	read	jobs
read-job-templates	Permission to read job (application) templates.	read	jobs
update-jobs	Permission to update your jobs. Depending on the user's principal setting, other users within the same user group/account may also be able to update your jobs.		
update-jobs-any	Permission to update any job, regardless of who created it.	update	jobs

## Job-Arrays

Name	Description	Action	Resource
create-job-arrays	Permission to create job arrays.	create	job-arrays

## Metric-types

Name	Description	Action	Resource
read-metric-types	Permission to read metric types.	read	metric-types

## Nodes

Name	Description	Action	Resource
read-nodes	Permission to read nodes.	read	nodes
update-nodes-features	Permission to update node features.	update	nodes
update-nodes-image	Permission to update node images.	update	nodes
update-nodes-power	Permission to power node on/off.	update	nodes

## Notifications

Name	Description	Action	Resource
read-notifications	Permission to read notifications.	update	notifications
update-notifications	Permission to update notifications.	read	notifications

## Permissions

Name	Description	Action	Resource
create-permissions	Permission to create permissions.	create	permissions
delete-permissions	Permission to delete permissions.	delete	permissions
read-permissions	Permission to read permissions.	read	permissions

## Plugins

Name	Description	Action	Resource
create-plugins	Permission to create plugins.	create	plugins
delete-plugins	Permission to delete plugins.	delete	plugins
read-plugins	Permission to read plugins.	read	plugins

Name	Description	Action	Resource
read-plugins-rm	Permission to read resource manager plugin.	read	plugins/rm
update-plugins	Permission to update plugins.	update	plugins

### Plugin-Types

Name	Description	Action	Resource
read-plugin-types	Permission to read plugin types.	read	plugin-types
update-plugin-types	Permission to create or update plugin types.	update	plugin-types

### Policies

Name	Description	Action	Resource
read-policies	Permission to read policies.	read	policies
update-policies	Permission to update policies.	update	policies

### Principals

Name	Description	Action	Resource
create-principals	Permission to create principals.	create	principals
delete-principals	Permission to delete principals.	delete	principals
read-principals	Permission to read principals.	read	principals
update-principals	Permission to update principals.	update	principals

### Priority

Name	Description	Action	Resource
read-priority	Permission to read the priority of a job.	read	priority
update-priority	Permission to update the priority of a job.	update	priority

## Reports

Name	Description	Action	Resource
create-reports	Permission to create reports.	create	reports
delete-reports	Permission to delete reports.	delete	reports
read-reports	Permission to read reports.	read	reports
read-report-datapoints	Permission to read datapoints.	read	reports/datapoints
update-reports	Permission to update reports.	update	reports

## Reservations

Name	Description	Action	Resource
create-reservations	Permission to create reservations.	create	reservations
delete-reservations	Permission to delete reservations.	delete	reservations
read-reservations	Permission to read reservations.	read	reservations
update-reservations	Permission to update reservations.	update	reservations

## Resource-Types

Name	Description	Action	Resource
read-resource-types	Permission to read resource types.	read	resource-types

## Roles

Name	Description	Action	Resource
create-roles	Permission to create roles.	create	roles
delete-roles	Permission to delete roles.	delete	roles

Name	Description	Action	Resource
read-roles	Permission to read roles.	read	roles
update-roles	Permission to update roles.	update	roles

### *Standing-Reservations*

Name	Description	Action	Resource
read-standing-reservations	Permission to read standing reservations.	read	standing-reservations

### *Virtual Containers (VCs)*

Name	Description	Action	Resource
create-vcs	Permission to create virtual containers.	create	vcs
delete-vcs	Permission to delete virtual containers.	delete	vcs
read-vcs	Permission to read virtual containers.	read	vcs
update-vcs	Permission to update virtual containers.	update	vcs

#### Related Topics

[Creating or Editing Roles on page 26](#)

## Creating or Editing Roles

Use the Role Management page to create new roles or edit existing roles and their permissions.

Do the following:

1. If you have not already done so, access the Role Management page. (Click **Configuration** from the menu, then click **Roles** from the left pane.)
2. Click **Create** to add a new role *or* click  next to the role you want to edit.

The Roles page displays.

3. If you are creating a role, enter the name of the role.
4. Add or modify the role description if needed.
5. Select and/or clear permissions for the role's purpose and use. See [Role Permissions on page 16](#) for permission descriptions.
6. When finished, click **DONE** to save the changes and close the page; otherwise, click **CANCEL** to discard the changes and close the page. **APPLY** will save the changes, but does not close the page.

**i** If you are editing a default role (HPCAdmin or HPCUser), the "RESET" button displays. Click this button to reset the role back to the default settings. This will not close the page. In addition, this will *not* remove principals from the role. The "Reset Permissions" check box on the Basic Configuration page will reset the role back to the default settings and remove all principals assigned to the role. See [Resetting Default Roles on page 11](#) for more information.

### Related Topics

[Role Permissions on page 16](#)

[About Roles on page 11](#)

## Deleting Roles

Use the Role Management page to delete existing roles.

 You cannot delete roles if the roles have been selected in principals.

Do the following:

1. If you have not already done so, access the Role Management page. (Click **Configuration** from the menu, then click **Roles** from the left pane.)
2. Click  next to the role you want to remove.
3. When the window appears asking you to confirm the delete, click **OK** to delete the role; otherwise, click **Cancel**.

 If you removed a default role (HPCAdmin or HPCUser), a RECREATE BASE ROLES button appears on this page. You can click this button to restore the default role (with its default permissions); *however*, this action also affects the other default role. This action resets the permissions for *both* default roles (but not the assigned principals for the still existing role).

Related Topics

[About Roles on page 11](#)

## About Principals

Principals is the term used to describe the assignment of users to roles. Users, groups, or OUs are assigned to one or more roles to create a principal.

**i** LDAP or PAM must be configured in MWS. See LDAP Configuration using `mws-config.groovy` or PAM (pluggable authentication module) configuration using `mws-config.groovy` in the *Moab Web Services Reference Guide* for details.

This section describes the features and functions available to manage principals.

In this section:

- [Principal Management Page on page 28](#)
- [Principals Page on page 29](#)
- [Creating or Editing Principals on page 31](#)
- [Deleting Principals on page 32](#)

### Principal Management Page

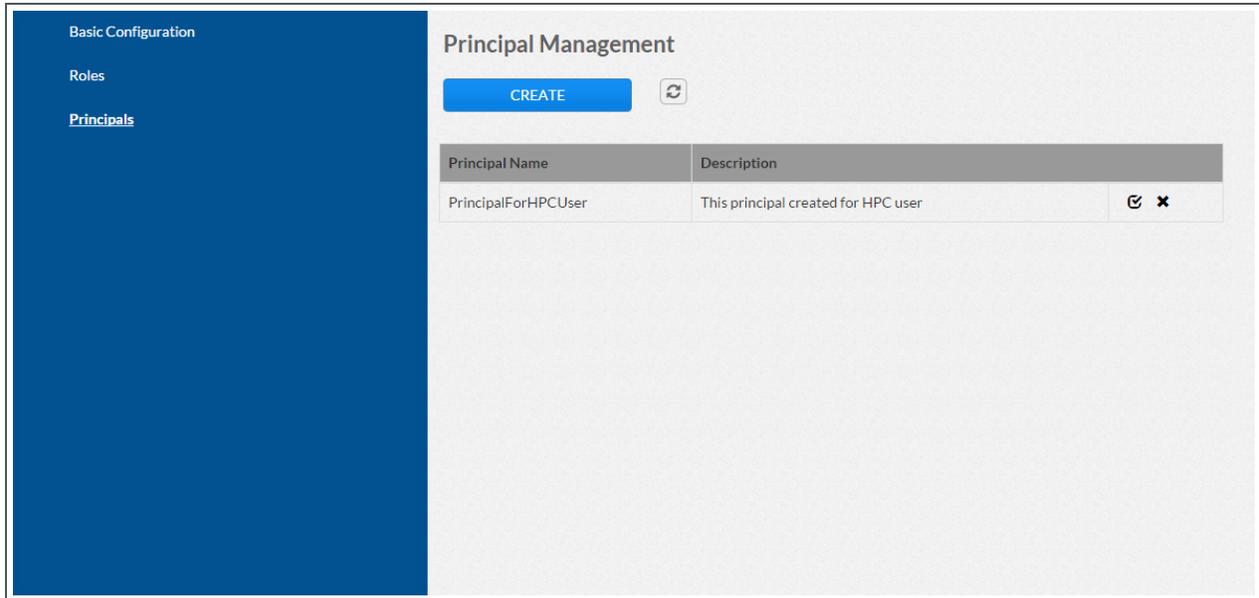
The Principal Management page displays the defined principals for your Viewpoint configuration. Using this page you can create, edit, and delete principals.

This page also provides access to the Principals page that lets you specify the users, groups, or OUs and their applicable roles for a principal configuration.

To access this page, click **Configuration** from the menu and then click **Principals** from the left pane.

The following image is an example of the Principal Management page.

Click  at any time to refresh the page display.



### Related Topics

[Creating or Editing Principals on page 31](#)

[Deleting Principals on page 32](#)

[About Principals on page 28](#)

## Principals Page

The Principals page lets you specify the users, groups, *or* OUs and their applicable roles for a principal configuration.

To access this page click **Configuration** from the menu, click **Principals** from the left pane, and then click either **Create** to add a new principal *or* click 

next to the principal you want to edit.

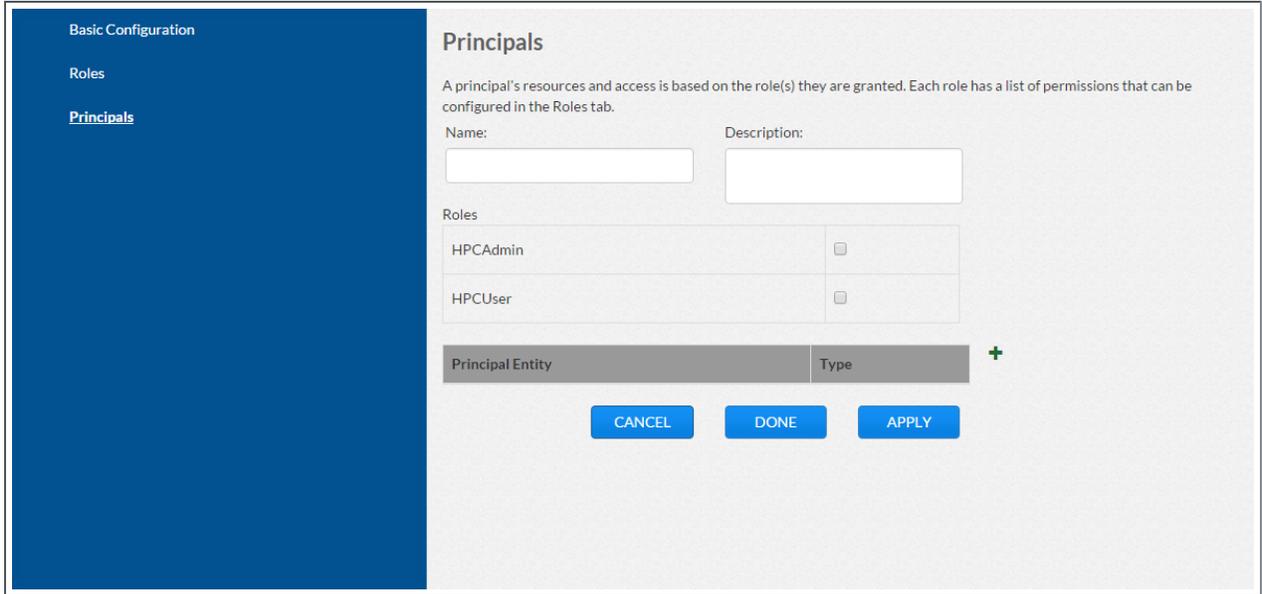
This topic provides an example of the Principals page and describes its layout and available information.

In this topic:

- [Page Example on page 29](#)
- [Available Fields on page 30](#)
- [Page Actions on page 31](#)

## Page Example

The following image is an example of the Principals page.



## Available Fields

The following table identifies fields in the Principals page.

Field	Description
<b>Name</b>	Lets you specify the name of the principal. The name you specify appears in the list of principals on the Principal Management page. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;"> <p><b>i</b> You cannot modify the principal name after creating a principal.</p> </div>
<b>Description</b>	(Optional) Lets you specify a text description of the principal.
<b>Roles</b>	Lets you select which roles are assigned to the principal. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;"> <p><b>i</b> Only roles defined for your Viewpoint configuration will appear in the selection list. See <a href="#">Creating or Editing Roles</a> for details on creating roles.</p> </div>
<b>Principal Entity</b>	Displays the user, group, or OU assigned to this principal. Click <span style="border: 1px solid #ccc; padding: 2px;">+</span> to add or click <span style="border: 1px solid #ccc; padding: 2px;">x</span> to remove an assignee. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 5px;"> <p><b>i</b> If this principal entity is a group or OU, you must provide the entire distinguished name. PAM group names represent the UNIX group on the underlying server.</p> </div>
<b>Type</b>	Lets you select whether the principal entity is a user, group, or OU. Possible values are LDAP, LDAPGROUP, and LDAPOU or PAM and PAMGROUP.

## Page Actions

These buttons let you perform actions on this page:

- **CANCEL** – Closes the page without saving any changes.
- **DONE** – Saves any changes and closes the page.
- **APPLY** – Saves the changes but does not close the page.

Related Topics

[Creating or Editing Principals on page 31](#)

[Principal Management Page on page 28](#)

[About Principals on page 28](#)

## Creating or Editing Principals

Use the Principal Management page to create new principals or edit existing principals.

Do the following:

1. If you have not already done so, access the Principal Management page. (Click **Configuration** from the menu, then click **Principals** from the left pane.)
2. Click **CREATE** to add a new principal or click  next to principal you want to edit.  
The Principals page displays.
3. If you are creating a principal, enter the name of the principal.
4. Add or modify the principal description if needed.
5. Select and/or clear the roles assigned to this principal.
6. Manage the entities (users) assigned to this principal.
  - To *add* a new principal entity, click  to add a new line, fill in the entity's name and type. If this entity is a group or OU, you must provide the entire distinguished name. PAM group names represent the UNIX group on the underlying server. Repeat as needed.
  - To *delete* a principal entity, click  next to the entity you wish to remove. Repeat as needed.
7. When finished, click **DONE** to save the changes and close the page; otherwise, click **CANCEL** to discard the changes and close the page.

 **APPLY** will save the changes, but does not close the page.

Related Topics

[About Principals on page 28](#)

## Deleting Principals

Use the Principal Management page to delete existing principals.

Do the following:

1. If you have not already done so, access the Principal Management page. (Click **Configuration** from the menu, then click **Principals** from the left pane.)
2. Click  next to the principal you want to remove.
3. When the window appears asking you to confirm the delete, click **OK** to delete the principal; otherwise, click **Cancel**.

Related Topics

[About Principals on page 28](#)

## Chapter 2 Viewpoint Basics

This chapter provides a brief overview of Viewpoint, including the Viewpoint Home page and general navigation.

In this chapter:

- [Logging In/Signing Out on page 33](#)
- [Accessing Online Help on page 37](#)
- [Navigating Viewpoint on page 34](#)
- [Home Page on page 34](#)

### Logging In/Signing Out

You must log in to Viewpoint from a web browser. For security purposes, it is important to log out (sign out) of Viewpoint after each use.

This topic provides information on how to successfully log in to and sign out of the Viewpoint portal. This topic assumes that the system administrator, or other authorized user, has set up the Viewpoint portal with user roles and permissions as described in [Chapter 1 Viewpoint Configuration on page 3](#).

 The Menu options available to a user will vary depending on the user's credentials.

#### Log In to Viewpoint

Do the following:

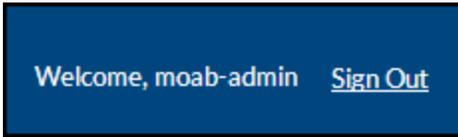
1. In a web browser, navigate to the Viewpoint Login page ([http://<viewpoint\\_host>:8081](http://<viewpoint_host>:8081)). Where *<viewpoint\_host>* is the IP address or name of the Viewpoint Host (actual machine on which Viewpoint was installed).
2. Enter your Username and Password into the respective fields.
3. Click **Login**.

You will be redirected to the Viewpoint homepage. See [Home Page on page 34](#).

#### Sign Out of Viewpoint

Do the following:

1. Locate the Sign Out link in the top right corner of the page.



2. Click **Sign Out**.  
You will be redirected to the login page.

## Navigating Viewpoint

The menu bar is fixed at the top of every page.



At any time you can select a menu item to open directly to that page. You can also use the Homepage widgets to navigate to certain pages. See [Home Page](#) for more information.

**i** If the logged-in user does not have permissions to access a particular page, the page link will not appear in the menu. If a user tries to access a page (by entering a URL) that he/she does not have permissions to see, Viewpoint disallows access.

## Home Page

The Home page displays an overview of your system, including system utilization, a workload summary, and resource allocation. Once the Viewpoint portal has been configured, the Home page is the default view when logging in. You can also click **Home** from the menu to view the Home page.

This topic provides an example of the Home page and describes its layout and available information.

In this topic:

- [Page Example on page 34](#)
- [Widgets on page 35](#)

### Page Example

The following image is an example of the Home page.

The screenshot displays the Viewpoint dashboard interface. At the top, there is a search bar and a 'Job ID' dropdown menu. Below this is the 'Workload' widget, which contains a table of job information. To the right of the table are navigation controls for viewing jobs per page and page number. Further right are three summary widgets: 'Dedicated System Resources' with a CPU and Memory usage graph, 'Node Summary' showing 52 nodes with 49 busy, and 'Workload Summary' showing 52 jobs with 50 running. Each summary widget includes a 'View All' button.

Job ID	Job Name	Submitter ID	Start Date	Submit Date	Job Status	Cores	Nodes	Wall Clock
<a href="#">nativerm.877</a>		dmalfoy	None	2015-09-07 12:51:25	IDLE	16	0	00:01:00:00
<a href="#">nativerm.876</a>		ppatil	2015-09-07 06:50:54	2015-09-07 12:50:54	RUNNING	4	2	00:01:00:00
<a href="#">nativerm.875</a>		adumbledore	2015-09-07 06:50:23	2015-09-07 12:50:23	RUNNING	8	2	00:02:00:00
<a href="#">nativerm.874</a>		strelawney	2015-09-07 06:49:52	2015-09-07 12:49:52	RUNNING	4	2	00:11:06:40
<a href="#">nativerm.873</a>		hpotter	2015-09-07 06:49:21	2015-09-07 12:49:20	RUNNING	8	4	00:02:00:00
<a href="#">nativerm.872</a>		cdiggory	2015-09-07 06:49:12	2015-09-07 12:49:12	RUNNING	4	2	00:00:15:00
<a href="#">nativerm.871</a>		strelawney	2015-09-07 06:48:41	2015-09-07 12:48:41	RUNNING	2	1	00:01:00:00
<a href="#">nativerm.870</a>		rhagrid	2015-09-07 06:48:10	2015-09-07 12:48:10	RUNNING	8	4	00:02:46:40
<a href="#">nativerm.869</a>		hgranger	2015-09-07 06:47:39	2015-09-07 12:47:39	RUNNING	16	2	00:02:00:00
<a href="#">nativerm.868</a>		cdiggory	2015-09-07 06:47:08	2015-09-07 12:34:53	RUNNING	8	5	00:05:33:20

## Widgets

The Home page comes configured with widgets that display different aspects of your system.

Specifically:

- [Workload Widget](#)
- [Dedicated System Resources Widget](#)
- [Node Summary Widget](#)
- [Workload Summary Widget](#)

### Workload Widget

The Workload widget displays the workload information for your system. This workload display directly corresponds to the information provided from the Workload page. This widget includes a search bar to let you find specific job ID.

Using this widget lets you affect changes to the workload and view the results in the Workload Summary and Node Summary widgets without having to leave the Home page.

## Dedicated System Resources Widget

The Dedicated System Resources widget provides a graphical ratio of resources dedicated to jobs compared to total resources. The graphical result is displayed based activity within the last 24 hours.

This widget uses these criteria:

- **CPU** – The percentage of processors dedicated to running jobs over the total processors in the cluster. For example if your cluster has 5,000 processors and 4,500 of those processors are dedicated to jobs, your CPU utilization is 90%.
- **Memory** – The percentage of memory dedicated to running jobs over the total amount of memory in the cluster. For example, if your cluster has 1,000 GB of memory and 850 GB of memory is dedicated to jobs, then your memory utilization is 85%.

You can hover the mouse over the graphical display to view additional information.

**i** The user must be assigned to a role with "read-insight-privileged" permission selected to view information for this widget.

## Node Summary Widget

The Node Summary widget provides a graphical overview of the total nodes within your Viewpoint configuration and their status.

Click on the status line to open the Nodes page to display only the nodes in that status. Using the Home page example provided earlier, click anywhere on the orange line to view the 45 nodes that are busy.

Click **View All Nodes** to open the Nodes page in default view (without specified selection criteria).

**i** The user must be assigned to a role with "read-insight-privileged" permission selected to view information for this widget.

## Workload Summary Widget

The Workload Summary widget provides a graphical overview of the total jobs within your Viewpoint configuration and their status.

Click on the status line to open the Workload page to display only the jobs in that status.

Click **View All Workload** to open the Workload page (without a status filter).

## Accessing Online Help

You can access the Viewpoint online help (documentation) directly from the Viewpoint portal.

Click  next to where you sign out to access the Viewpoint online help. The full Moab HPC Suite, including Viewpoint, is available at [docs.adaptivecomputing.com](https://docs.adaptivecomputing.com).



## Chapter 3 Workload

Viewpoint lets you easily see and manage jobs in the workload. Specifically:

- the Workload page (default) provides a list of the jobs in the workload. Using this page you can view information about the job (for example, to see if the job is running correctly), change a job's status, or create a new job (using an application template).
- the Job Details page provides additional details about a job.

Related Topics

[Workload Page on page 39](#)

[Job Details Page on page 43](#)

[Job Arrays on page 54](#)

[Creating a Job on page 56](#)

[1.1 Changing the Job Status](#)

[Viewing Job Details on page 58](#)

## Workload Page

The Workload page offers a place to determine the status of jobs in your workload. You can also change a job's status or create a new job (using an application template).

To access this page, click **WORKLOAD** from the menu.

This topic provides an example of the Workload page and describes its layout and available information.

In this topic:

- [Page Example on page 39](#)
- [Selection Criteria Area on page 40](#)
- [Workload View Details on page 41](#)

### Page Example

The following image is an example of the Workload page.

**Workload** 
[CREATE JOB](#)

Job ID	Job Name	Submitter ID	Start Date	Submit Date	Job Status	Cores	Nodes	Wall Clock
<a href="#">nativem.1592</a>		dmalfoy	None	2015-09-21 16:32:30	IDLE	32	0	00:01:00:00
<a href="#">nativem.1591</a>		cchang	2015-09-21 10:31:58	2015-09-21 16:31:56	RUNNING	2	0	01:20:26:40
<a href="#">nativem.1590</a>		cdiggory	2015-09-21 10:31:24	2015-09-21 16:18:08	RUNNING	8	0	00:02:00:00
<a href="#">nativem.1589</a>		ssnape	2015-09-21 10:17:37	2015-09-21 16:17:35	RUNNING	32	0	00:05:33:20
<a href="#">nativem.1588</a>		hgranger	2015-09-21 10:17:04	2015-09-21 16:17:02	RUNNING	8	0	00:02:46:40
<a href="#">nativem.1587</a>		dmalfoy	2015-09-21 10:16:30	2015-09-21 16:16:28	RUNNING	8	0	00:05:33:20
<a href="#">nativem.1586</a>		vcrabbe	2015-09-21 10:15:56	2015-09-21 15:16:58	RUNNING	32	0	00:05:33:20
<a href="#">nativem.1585</a>		adumbledore	2015-09-21 09:16:27	2015-09-21 15:16:25	COMPLETED	8	1	00:01:00:00
<a href="#">nativem.1584</a>		vcrabbe	2015-09-21 09:15:53	2015-09-21 15:15:52	COMPLETED	16	7	00:01:00:00
<a href="#">nativem.1583</a>		dthomas	2015-09-21 09:15:21	2015-09-21 15:15:19	RUNNING	8	0	00:02:00:00
<a href="#">nativem.1582</a>		vcrabbe	2015-09-21 09:14:47	2015-09-21 14:15:11	COMPLETED	16	6	00:01:00:00
<a href="#">nativem.1581</a>		dmalfoy	2015-09-21 08:14:40	2015-09-21 14:09:06	COMPLETED	32	13	00:01:00:00
<a href="#">nativem.1580</a>		cchang	2015-09-21 08:08:35	2015-09-21 13:25:27	COMPLETED	2	1	00:00:30:00
<a href="#">nativem.1579</a>		ppatil	2015-09-21 07:24:56	2015-09-21 13:24:54	COMPLETED	2	1	00:01:00:00
<a href="#">nativem.1578</a>		ggoyle	2015-09-21 07:24:23	2015-09-21 13:16:18	RUNNING	16	0	00:05:33:20
<a href="#">nativem.1577</a>		cdiggory	2015-09-21 07:15:47	2015-09-21 13:15:45	COMPLETED	4	2	00:01:00:00
<a href="#">nativem.1576</a>		cdiggory	2015-09-21 07:15:14	2015-09-21 13:09:36	RUNNING	4	0	00:05:33:20
<a href="#">nativem.1575</a>		hpotter	2015-09-21 07:09:05	2015-09-21 13:09:03	COMPLETED	16	2	00:02:00:00
<a href="#">nativem.1574</a>		dmalfoy	2015-09-21 07:08:32	2015-09-21 12:00:43	COMPLETED	16	8	00:01:00:00
<a href="#">nativem.1573</a>		vcrabbe	2015-09-21 06:00:12	2015-09-21 11:16:19	RUNNING	8	0	00:05:33:20

View  Per Page

⏪
⏩
Page  of 60
⏴
⏵

**Current Search:**

- Select -
▼

Narrow Search
Q

**Filters**

Select Job State
▼

Select Job Type
▼

Select
▼

RESET
FILTER

## Selection Criteria Area

The right side of this page provides selection criteria you can use to limit what is displayed in the workload view.

You can choose to display:

- Specific jobs based on the job id or the user who submitted the job (submitter ID). Select the value from the Current Search drop-down, in the Narrow Search box, enter the specific information, and then click .
- Jobs matching a specific status (state). Select the status from the Select Job State drop-down and then click **Filter**.
- Only job arrays or only regular jobs. The job arrays option is only applicable for arrays reported directly from Moab. Arrays reported using Torque will only display as a single (combined) job. Select the job type from the Select Job Type drop-down and then click **Filter**.
- Jobs within a given start date range or within a wallclock range. Selecting Start Date or Wall Clock will provide additional fields to specify the range. Specify the desired range and then click **Filter**.

 You can utilize multiple selection criteria options; however, only the jobs that match all of the defined options will be shown in the workload view.

Click **Reset** at any time to remove all defined selection criteria options (restore the page defaults).

## Workload View Details

The following information explains the layout and additional information available in the workload view.

- **Display Refresh** – You can refresh the information displayed in the workload view (including specified search and filter criteria) to reflect the latest information about the jobs. At the top of the workload view, click .
- **Job Creation** – The CREATE JOB button at the top of the workload view lets you create a new job based on available application templates. See [Creating a Job on page 56](#) for detailed instructions.
- **Columns** – The workload view displays the data in a column format. Column titles that are underlined indicate that you can sort (ascending or descending) the column contents.

The following table describes the different columns and their contents. You can hover the mouse over a column's contents to view additional information.

Column Heading	Description
Job ID	<p>Unique identifier given to a job by Moab (or the resource manager) . In this column you can also:</p> <ul style="list-style-type: none"> <li>Use the  icon to change the status of a non-completed job (as displayed in the Job Status column). See <a href="#">Changing the Job Status</a>.</li> <li>Display additional information about a job. Click a job ID to open the Job Details page. See <a href="#">Viewing Job Details on page 58</a>.</li> <li>See job array information. For a Moab job array, you will see the job array ID and then you can expand it to see the jobs within the job array. See <a href="#">Job Arrays on page 54</a>. Job arrays sent through Torque will be treated as a single job.</li> </ul>
Job Name	Name of the job provided by the user; also called the friendly name.
Submitter ID	Name of the user that submitted the job.
Start Date	Date and time when the job is scheduled to start or has started.
Submit Date	Date and time that the job was submitted.
Job Status	Current state of the job (for example, COMPLETED, RUNNING, IDLE).
Cores	Number of allocated cores.
Nodes	Number of allocated nodes. A zero indicates the job has not yet run or executed.
Wall Clock	<p>Amount of time requested for the job. This represents the maximum amount of time the job is expected to run and is specified when the job is submitted. It does <i>not</i> represent the amount of time for which the job actually ran (if the job is in COMPLETED status).</p> <p>Wall clock time uses the following format: Days:Hours:Minutes:Seconds. For example, 01:02:03:04 means the owner of the job requested the job run for one day, two hours, three minutes, and four seconds. Jobs that exceed their wall clock limits are subject to the corrective action specified in the Moab WCVIOLATIONACTION parameter.</p>

- **Page Controls** – Page controls are available at the bottom of the workload view to let you customize how many jobs appear per page. The page controls also include options for selecting which page to display.

#### Related Topics

[Creating a Job on page 56](#)

[1.1 Changing the Job Status](#)

[Viewing Job Details on page 58](#)

[Job Arrays on page 54](#)

[Chapter 3 Workload on page 39](#)

## Job Details Page

The Job Details page shows additional information about a job and allows you to make certain modifications to a given job.

To access this page, from the Workload view, click on the Job ID link for the job.

This topic provides an example of the Job Details page and describes its layout and functional areas.

In this topic:

- [Page Example on page 43](#)
- [Functional Areas on page 44](#)

### Page Example

The following image is an example of the Job Details page.

## Job Details 🔄

**Job Id:** nativerm.214

**Submission Script:** N/A

**Reservation Name:** N/A

[Return to earlier search](#) Cancel

**Status:** RUNNING

**Template:** N/A

➤ **Job Messages**

**Credentials**

User: cchang    Group: nobody    Account: ravenclaw

Class: batch3    Quality of Service: medium

**CPU Statistics**

Time	Dedicated CPUs	Utilized CPUs
14:16	2.0	0.2
14:19	2.0	0.2
14:22	2.0	0.2
14:25	2.0	0.2
14:28	2.0	0.2
14:31	2.0	0.2
14:34	2.0	0.2
14:37	2.0	0.2
14:40	2.0	0.2
14:43	2.0	0.2
14:46	2.0	0.2
14:49	2.0	0.2
14:52	2.0	0.2
14:55	2.0	0.2
14:58	2.0	0.2
15:01	2.0	0.2
15:04	2.0	0.2
15:07	2.0	0.2
15:10	2.0	0.2
15:13	2.0	0.2
15:16	2.0	0.2

**Time Frame**

Start Time	Duration	Completion Time	Actual Duration
2015-10-17 13:00:16	00:22:13:20	None	00:02:15:24

**Data Management**

Execution Path: /home/cchang

Output Path: None

Error Path: None

**Other Information**

Partition Access List: None

Start Count: 1

**Resource Requirement Summary**

Total Processors Requested	2	Total Nodes Requested	2
Total Memory Requested	N/A	Allocated Node List	node-018, node-017
Total Swap Requested	N/A	Allocated Node Count	2
Total Disk	N/A	Allocated Partition	nativerm
Total Features Requested	N/A	Operating System	N/A
		Architecture	N/A
		Total Generic Resources	N/A

➤ **Requirement Details**

Go Back

## Functional Areas

This section describes the different functional areas, including field descriptions, available on the Job Details page.

**i** The information contained in, and the actions you can perform using, the Job Details page will vary based on the job's status, the user's role permissions and/or the fields available from the application template.

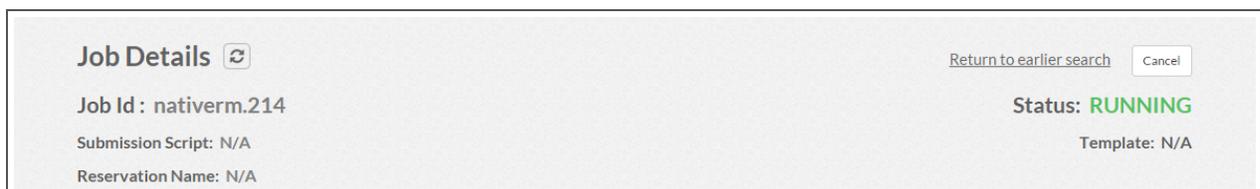
In this section:

- [Job Actions and Basic Information on page 45](#)
- [Scheduler Analysis on page 46](#)
- [Priority on page 48](#)
- [Job Messages on page 49](#)
- [Job Array on page 49](#)
- [Credentials and CPU Statistics on page 49](#)
- [Time Frame on page 51](#)
- [Data Management and Other Information on page 51](#)
- [Resource Requirement Summary on page 52](#)
- [Page Actions on page 54](#)

## Job Actions and Basic Information

At the top of the Job Details page you will find basic information and actions pertaining to the job.

The following image is an example of the Job Actions and Basic Information area.



### Job Actions

At the upper right of the page, you find several links and buttons to perform actions. These are separate from the page-related actions identified later in this topic.

- The "Return to earlier search" link takes you to the Workload page with the search and filter criteria you specified.
- The "Cancel" button, appears for a running or idle job, lets you cancel the job.
- The "Hold" button, appears for an idle job, lets you place the job in idle status.

- The "More Information" button, appears based on the user's permissions, lets you view the Schedule Analysis window. See [Scheduler Analysis on page 46](#).

### *Job Basic Information*

At the upper left and right of the page, you will find several fields displaying basic information.

- **Job Id** – ID given to the job by Moab or the resource manager.
- **Submission Script** – Name of the script used to generate the job. For jobs sent directly from Moab or the resource manager, this will be "N/A".
- **Template** – Name of the application template used to create the job information. For jobs sent directly from Moab or the resource manager, this will be "N/A".
- **Reservation Name** – Name of the reservation, if applicable, associated with the job.

## Scheduler Analysis

 The Scheduler Analysis requires the "Job Details - Scheduling Analysis" Viewpoint permission and applicable domain permissions. See [Role Permissions on page 16](#) for more information about the available permissions you can set.

When Scheduler Analysis is enabled, the "More Information" button appears under the Status information. Click this button to view the Schedule Analysis pop-up window.

This window provides information useful in debugging why Moab is not running the job.

The following image is an example of the Scheduler Analysis window.

### Scheduler Analysis

➤ Block Reasons

➤ Warning Messages

▼ Node Analysis

Showing 1 to 10 of 50 entries Search:

Node Name	Message
node-001	node-001 available: 2 tasks supported
node-002	node-002 available: 2 tasks supported
node-003	node-003 available: 2 tasks supported
node-004	node-004 rejected: State (Busy)
node-005	node-005 rejected: State (Busy)
node-006	node-006 rejected: State (Busy)
node-007	node-007 rejected: State (Busy)
node-008	node-008 rejected: State (Busy)
node-009	node-009 rejected: State (Busy)
node-010	node-010 rejected: State (Busy)

Show  entries Previous      Next



- **Job Start Count** – Number of times Moab has requeued the job after a job failure or preemption.

The second area provides details about how Moab calculated the start priority. The different start priority groups are listed and are also broken down into each factor within the group. The cumulative weight for the group and the how that breaks down into the different factors are provided.

## Job Messages

The Job Message area lists any messages reported by Moab. These are the same messages you can view in Moab using `checkjob -v -v`.

Expand the Job Messages area to view the reported messages, if any. Click  to refresh the job message information.

The following image is an example of the Job Messages area.



## Job Array

 The Job Array area is present when the job is the parent job in a job array.

The Job Array area lists the child jobs within the job array. You can click on any of the child jobs to view job details for that child job.

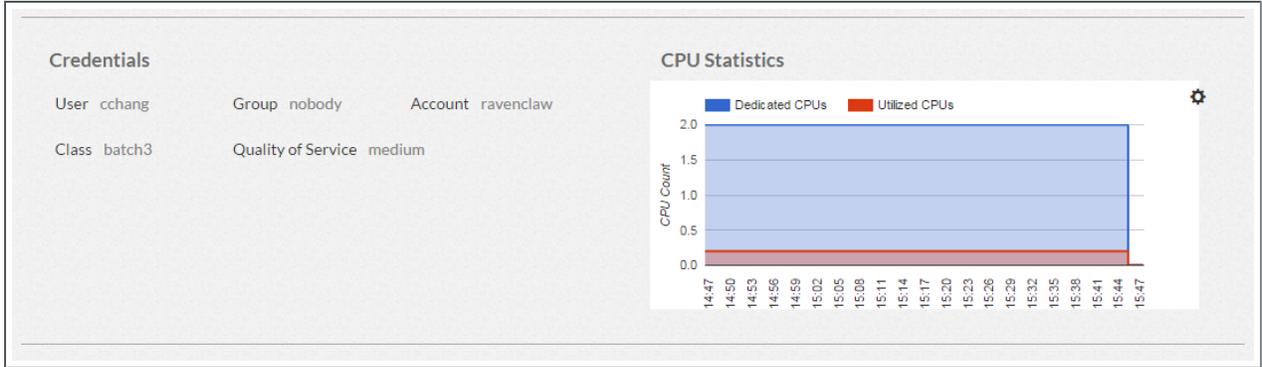
The following image is an example of the Job Array area.



See [Job Arrays on page 54](#) for more information about job arrays.

## Credentials and CPU Statistics

The following image is an example of the Credentials and CPU Statistics areas.



### Credentials Area

The Credentials area displays information about the user who created/submitted the job.

The following table describes the fields in the Credentials area.

Field	Description
<b>User</b>	The user that submitted a job.
<b>Group</b>	Displays the group credential, which represents an aggregation of users. User-to-group mappings are often specified by the operating system or resource manager and typically map to a user's UNIX group ID. However, user-to-group mappings may also be provided by a security and identity management service, or you can specify such directly within Moab.
<b>Account</b>	Displays the account credential. This credential is generally associated with a group of users along the lines of a particular project for accounting and billing purposes.
<b>Class</b>	Displays the job class. The concept of the class credential is derived from the resource manager class or queue object. Classes differ from other credentials in that they more directly impact job attributes. In standard HPC usage, a user submits a job to a class and this class imposes a number of factors on the job. The attributes of a class may be specified within the resource manager or directly within Moab.
<b>Quality of Service</b>	Quality of service status applied to the job (for example, low, medium, or high).

### CPU Statistics Area

The CPU Statics area contains a graph depicting the CPU statistics of the job. Click  to open a pop-window to specify the range and refresh intervals for the displayed statistics. You can also manually update the display.

## Time Frame

The Time Frame area provides information on the job's start and completion times as well as duration information.

The following image is an example of the Time Frame area.

Time Frame			
Start Time	Duration	Completion Time	Actual Duration
2015-10-17 13:00:16	00:22:13:20	None	00:02:46:20

The following table describes the fields in the Time Frame area.

Field	Description
<b>Start Time</b>	The date and time that the job started.
<b>Duration</b>	The amount of time requested for the job in seconds. This represents the maximum amount of time the job is expected to run and is specified when the job is submitted. This does not represent the amount of time the job actually ran if the job is completed. Jobs that exceed their wallclock limits are subject to the corrective action specified in the Moab WCVIOLATIONACTION parameter.
<b>Completion Time</b>	The date and time that the job completed; "None" if the job is running or idle.
<b>Actual Duration</b>	The amount of time the job has been running (or ran if the job is completed).

## Data Management and Other Information

The following image is an example of the Data Management and Other Information areas.

Data Management		Other Information	
Execution Path	/home/cchang	Partition Access List	None
Output Path	None	Start Count	1
Error Path	None		

### Data Management Area

The Data Management area displays the file paths defined for the job. Click  to open the File Manager page to change folder paths.

The following table describes the fields in the Data Management area.

Field	Description
<b>Execution Path</b>	Directory path where the job was executed. This is typically the user's home directory.
<b>Output Path</b>	Directory path where the standard output file is stored. This is typically the user's home directory.
<b>Error Path</b>	Directory path where the error file is stored. This is typically the user's home directory.

### Other Information Area

The Other Information area displays additional Moab-related information job. The following table describes the fields in the Other Information area.

Field	Description
<b>Partition Access List</b>	List of available partitions on which the job can run.
<b>Start Count</b>	Number of times Moab requeued the job after a job failure or preemption.

## Resource Requirement Summary

The Resource Requirement Summary area provides information on the resources requested/required for the job.

The following image is an example of the Resource Requirement Summary area.

Resource Requirement Summary	
Total Processors Requested	2
Total Memory Requested	N/A
Total Swap Requested	N/A
Total Disk	N/A
Total Features Requested	N/A
Total Nodes Requested	2
Allocated Node List	node-018 node-017
Allocated Node Count	2
Allocated Partition	nativerm
Operating System	N/A
Architecture	N/A
Total Generic Resources	N/A

The following table describes the fields in the Resource Requirement Summary area.

Field	Description
<b>Total Processors Requested</b>	Maximum dedicated processors allocated for the node.
<b>Total Memory Requested</b>	Maximum memory made available for the job.
<b>Total Swap Requested</b>	Amount of swap memory made available for the job.
<b>Total Disk</b>	Amount of disk space available for the job.
<b>Total Features Requested</b>	Maximum number of supported node features.
<b>Total Nodes Requested</b>	Number nodes requested at job submission.
<b>Allocated Node List</b>	List of nodes allocated for the job.
<b>Allocated Node Count</b>	Number of nodes actually allocated for the job.
<b>Allocated Partition</b>	Partition allocated for the job.
<b>Operating System</b>	Operating system on which the node can run.
<b>Architecture</b>	Node's processor architecture.
<b>Total Generic Resources</b>	Number of generic resources available.

## Requirement Details

The Requirement Details area provides task-specific details about the job.

Requirement Details			
Task 1			
Processors	2	Generic Resources	N/A
Memory	N/A		
Swap	N/A		
Disk	N/A		
Features:	N/A		

If the job has more than one task definition, this area will list each task separately. In addition, if generic resources were defined, the generic resources field will contain a table listing the name of the resource and its used count.

## Page Actions

These buttons let you perform actions on this page:

- **Go Back** – Returns to the Workload page; if you have authorization to make changes, this will discard any unsaved changes.
- **Done** – Submits any job changes to Moab Workload Manager and returns to the Workload page.
- **Apply** – Submits any job changes to Moab Workload Manager and stays on the Job Details page.

Related Topics

[Viewing Job Details on page 58](#)

[Workload Page on page 39](#)

## Job Arrays

Viewpoint supports Moab job arrays and displays information on the child jobs and the parent job in the job array.

**i** Job arrays sent from Torque are treated as a single job (parent job).

This topic provides information specific to Moab job arrays in Viewpoint.

In this topic:

- [Viewing Job Arrays on page 54](#)
- [Viewing Job Array Details on page 55](#)
- [Creating Job Arrays on page 56](#)

### Viewing Job Arrays

Job array information is viewable from the Workload page. However, with the job array, instead of the Job ID, the job array ID is listed in the Job ID column and the information in the rest of the columns is the parent job information.

Expand the job ID to see a listing of the child jobs in the job array.

The following image shows an example of the expanded job array.

Job ID	Job Name	Submitter ID	Start Date	Submit Date	Job Status	Cores	Nodes	Wall Clock
Moab.10	MyOtherArray	hgranger	None	2015-09-21 23:18:11	IDLE	1	0	99:23:59:59
<b>Job Array</b>			<a href="#">All Subjobs 5</a> <a href="#">Idle 0</a> <a href="#">Running 4</a> <a href="#">Blocked 0</a> <a href="#">Hold 0</a> <a href="#">Removed 1</a> <a href="#">Completed 0</a>					
<a href="#">Moab.10[0]</a>		<a href="#">Moab.10[2]</a>		<a href="#">Moab.10[4]</a>				
<a href="#">Moab.10[1]</a>		<a href="#">Moab.10[3]</a>						

## Viewing Job Array Details

Job detail information for a parent or child job in the job array is viewable using the Job Details page.

- For the parent job, select the job array ID in the Job ID column.
- For a child job, select the link for the child job from the expanded job array.

Once you have selected the job, the Job Details page displays. This page is similar to the Job Details page for non-job arrays, with these differences:

- Parent job:
  - The Job Array area is present. Expand this area to view the child jobs for this job array.

Job Array								
Subjobs			<a href="#">All Subjobs 5</a> <a href="#">Idle 0</a> <a href="#">Running 4</a> <a href="#">Blocked 0</a> <a href="#">Hold 0</a> <a href="#">Removed 1</a> <a href="#">Completed 0</a>					
<a href="#">Moab.10[0]</a>		<a href="#">Moab.10[2]</a>		<a href="#">Moab.10[4]</a>				
<a href="#">Moab.10[1]</a>		<a href="#">Moab.10[3]</a>						

- You cannot make changes to, hold, or cancel the parent job.

**i** If you cancel a parent job, all child jobs will be canceled. However, if you hold the parent job, all the child jobs continue as normal.

- Child job:
  - The parent job ID is listed under the Job Id field. Click the parent job ID to return to the parent job.
  - The Job Array area is not present, as this is a child job.
  - You can make changes to, hold, or cancel the child job.

## Creating Job Arrays

Viewpoint also lets you create job arrays.

**i** The user must have the "create-job-arrays" Domain Permission" applied. The user must also have access to an application template that has the "Job Arrays" label enabled and visible and/or editable and which includes a script with the "Moab Array Env Variables". See [Role Permissions on page 16](#) and [Application Template Details on page 62](#).

You use the Create Job page to also create a job array; however you must choose an application template that enables creation of a job array.

When the Create Job page displays, you will see the job array-specification fields in the Basic Job Settings area. For example:



Job Arrays    From    0    To    1

**i** The "From" number is the first number you want appended to the job for the child job. The "To" number is the maximum number of child job. For example, if you specified the range as From 0 To 3. The job array will have three child jobs: jobID[0], jobID[1], jobID[2].

## Creating a Job

Viewpoint lets you create a job directly from the Workload page.

**i** You must have been granted the "Create Job Page" Viewpoint permissions to create a job.

Do the following:

1. If you have not already done so, display the Workload view. (Select **WORKLOAD** from the menu; depending on your user credentials you may

also access the Workload view from the Home page.)

2. Click **Create Job**.
3. Select the applicable application template from the Template pop-up window.  
The Create Job page appears with the fields from the selected application template.
4. Enter the needed information for the new job.
5. Click **Create** to submit the information; otherwise, click **Cancel** to return to the Workload view.

Related Topics

[Workload Page on page 39](#)

## Changing a Job's State

Viewpoint lets you request a state change for non-completed jobs directly from the Workload view. For example, if a job is idle, can request Moab to cancel the job.

Do the following:

1. If you have not already done so, display the Workload view. (Select **WORKLOAD** from the menu; depending on your user credentials you may also access the Workload view from the Home page.)
2. In the workload view, hover your mouse over the Job ID for a non-completed job and click the  icon.

Depending on the current state of the job, the available request options appear. For example, if the job state is IDLE, the Hold and Cancel options are displayed.

3. Select desired change request option for the job.

Once the state change request has been passed to Moab, a message appears indicating it has been changed and the job's new state appears in Job Status column.

Related Topics

[Workload Page on page 39](#)

## Viewing Job Details

Viewpoint lets you view the job details for any job within your workload. This functionality uses both the Workload page and the Job Details page.

**i** The detailed information available for a job will vary. See [Job Details Page on page 43](#) for more information.

### View Job Details

Do the following:

1. If you have not already done so, access the Workload page. (Click **Workload** from the menu.)
2. Enter the search and/or filter criteria as needed to limit the jobs displayed. See [Selection Criteria Area on page 40](#) for more information.
3. Click on the Job ID of the job for which you want to view details. The Job Details page displays and shows information about that job. For the Job Details page you can view and/or edit job information. See [Job Details Page on page 43](#) for more information.

Related Topics

[Job Details Page on page 43](#)

[Workload Page on page 39](#)

[Chapter 3 Workload on page 39](#)

## Chapter 4 Application Templates

Application templates are used to predefine the job requirements available to users when creating jobs. Specifically:

- the Application Templates page (default) lists the application templates available to you when creating a job. Depending on how the application template was setup, you can also make small changes to the application template at job submission.

If your credentials include the "Templates Page-admin" Viewpoint permission you can view and edit every application template in your Viewpoint configuration. You can also create and import application templates using this page. Viewpoint is delivered with the Free Form application template for you to use as a guide for creating application templates. You may also modify the Free Form application template for use in your Viewpoint configuration. However, this application template does not come defined with a job script. See [Job Submission Script on page 74](#) for information.

**i** The admin user (for example, "moab-admin") can perform application template functions programmatically in Viewpoint; instead of using the Application Templates page in the portal. See [Application Template API](#).

### Related Topics

[Application Templates Page on page 59](#)

[Application Template Details on page 62](#)

[Creating or Editing an Application Template on page 76](#)

[Importing an Application Template on page 77](#)

## Application Templates Page

The Application Templates page lets you manage application templates for your Viewpoint configuration.

To access this page, click **Templates** from the menu.

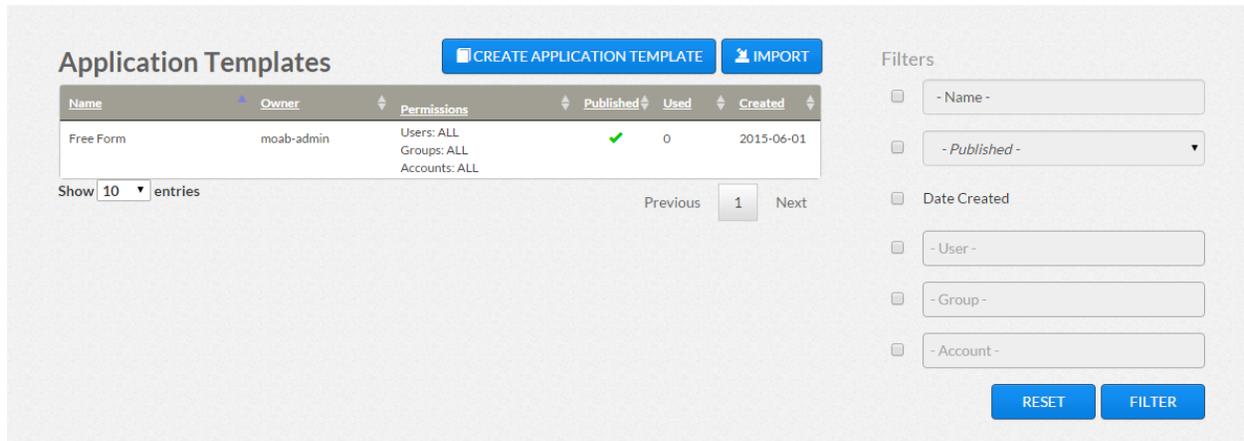
This topic provides an example of the Application Templates page and describes its layout and available information.

In this topic:

- [Page Example on page 60](#)
- [Page Details on page 60](#)
- [Additional Functions on page 62](#)

## Page Example

The following image is an example of the Application Templates page.



## Page Details

This section describes the functional areas of the Application Templates page.

In this section:

- [New Application Template Creation on page 60](#)
- [Filters on page 60](#)
- [Application Templates List on page 61](#)

## New Application Template Creation

Viewpoint lets you create a new application template or import an existing application template you can use when creating jobs. To enable this functionality, two buttons are available towards the top of this page.

- **CREATE APPLICATION TEMPLATE** – Opens up a blank application template. See [Creating or Editing an Application Template on page 76](#).
- **IMPORT** – Opens up a pop-window that lets you import an existing application template. See [Importing an Application Template on page 77](#).

## Filters

Filters let you specify what is displayed in the list of application templates on the main pane.

To use a filter, click the check box next to the filter to activate it, enter in the information, and then click **Filter**. You can click **Reset** at any time to restore the page default view.

The following table describes the different filters.

Filter	Description
Name	Name used to identify the application template.
Published	Whether you want to display applications templates that are published <i>or</i> unpublished.
Date Range	Date range during which the application template was created. When this filter is selected, additional information appears letting you specify the date range.
User	Name of the user or users given permission to use this application template.
Group	User group given permission to use this application template.
Account	Account given permission to use this application template.

## Application Templates List

The main pane of the Application Templates page lists the application templates and their corresponding information in a column format.

**i** Column titles that are underlined indicate that you can sort (ascending or descending) the column contents. Hover the mouse over a column's contents to view additional information.

Page controls are available at the bottom of the application templates list to let you customize how many application templates appear at a time in the list. These controls also include options for moving between pages of listed application templates.

The following table describes the different columns and their contents.

Column Heading	Description
Name	Name used to identify the application template. Click on the application template's name to open the application template and view additional information about the application template.
Owner	Name of the individual who created the application template.
Permissions	User, Group, and Account permissions granted for this application template.
Published	Indicates whether the application template is published.

Column Heading	Description
Used	Number of times the application template has been used (the number of jobs submitted using this application template).
Created	Date on which the application template was created.

## Additional Functions

The Templates page also includes a drop-down with shortcuts to perform additional application template-related functions. To access the shortcuts, hover the mouse near the application template name to display , and then click this icon to display the drop-down.

From this drop-down, you can:

- Go directly to the Create Job page to create a job using this application template.
- Open the Edit Application Template page to edit this application template.
- Toggle this application template between published and unpublished status.
- Export this application template.
- Delete this application template.

### Related Topics

[Creating or Editing an Application Template on page 76](#)

[Importing an Application Template on page 77](#)

[Chapter 4 Application Templates on page 59](#)

## Application Template Details

This topic identifies how the application template information is organized and the available fields and functions available when creating or editing an application template.

On the Application Templates page, click **CREATE APPLICATION TEMPLATE** or click on an application template name in the list to open the Create/Edit Application Templates page. The following is an example of the Create Application Template page. This page displays if you clicked **CREATE TEMPLATE**. If you clicked on an application template name, the page displays as Edit Application Template.

In this topic:

- [Application Template Name on page 63](#) – Identifies the name for the application template.
- [Available Fields on page 63](#) – Provides information on the available fields and how the fields are organized.
- [Field Information and Actions on page 71](#) – Provides a general explanation of the field functions; including how to show or hide fields.
- [Application Template Permissions on page 72](#) – Provides information on how to restrict the users who have access to this application template.
- [Published/Unpublished Application Template on page 73](#) – Provides information regarding the difference between published and unpublished application templates.
- [Job Submission Script on page 74](#) – Explains how to access and use the Script Builder window to manage the job submission script for the application template.

## Application Template Name

The name of the application template appears towards the top of this page. Using the example in this topic, the application template title is "Untitled Application Template". The application template name is displayed in the application template list shown in the Application Templates page.

Click on the application template name to edit it.

## Available Fields

The available fields used for creating/editing application templates are grouped into three areas. Specifically:

- [Basic Settings on page 64](#)
- [Advanced Settings on page 68](#)
- [Custom Settings on page 70](#)

Expand an area to view its fields. This section provides information on these different areas and their associated fields. See [Field Information and Actions on page 71](#) for information on using the fields.

## Basic Settings

This area, as well as the Advanced Settings area, contains Moab-specific input for the job. For example, in the Basic Settings area, you can specify whether this application template will be used for creating job arrays.

This area breaks the basic setting information into functional groups. The information will also be grouped similarly on the Job Details page.

The following images are examples of the functional groups.

- Basic Job

Basic Job Settings

---

**Label**

**Variable Name**

**Default Value**

Visible  Editable

---

**Label**

**Min Variable Name**

**Min Default Value**

**Max Variable Name**

**Max Default Value**

Enabled  Visible  Editable

---

**Label**

**Variable Name**

**Default Value**

Visible  Editable

- Time Management

Time Management

---

**Label** Duration

**Variable Name** DURATION

**Default Value**  

Visible  Editable

---

**Label** Delay Start By

**Variable Name** ELIGIBLEDATE

**Default Value**  

Visible  Editable

- Credentials

Credentials

<b>Label</b>	Account	<b>Label</b>	Quality of Service
<b>Variable Name</b>	ACCOUNT	<b>Variable Name</b>	QOS
<input type="checkbox"/> Visible		<input type="checkbox"/> Visible	

<b>Label</b>	Queue / Class
<b>Variable Name</b>	DESTINATIONQUEUE
<input type="checkbox"/> Visible	

- Resources

Resources

<b>Label</b>	Number of Cores	<b>Label</b>	Total Memory (GB)
<b>Variable Name</b>	NUMOFCORES	<b>Variable Name</b>	MEMORYPERNODE
<input checked="" type="checkbox"/> Visible		<b>Default Value</b>	0.5
		<input checked="" type="checkbox"/> Visible <input checked="" type="checkbox"/> Editable	

<b>Label</b>	Architecture
<b>Variable Name</b>	ARCHITECTURE
<input checked="" type="checkbox"/> Visible	

- Data Management

The screenshot shows a 'Data Management' section with three rows of configuration. Each row contains a 'Label' field, a 'Variable Name' field, and a 'Visible' checkbox. The first row is for 'Execution Path' with variable name 'EXECUTIONDIRECTORY'. The second row is for 'Error Path' with variable name 'ERRORPATH'. The third row is for 'Output Path' with variable name 'OUTPUTPATH'. All 'Visible' checkboxes are currently unchecked.

Label	Variable Name	Visible
Execution Path	EXECUTIONDIRECTORY	<input type="checkbox"/>
Error Path	ERRORPATH	<input type="checkbox"/>
Output Path	OUTPUTPATH	<input type="checkbox"/>

### Advanced Settings

This area contains advanced inputs that can be requested to Moab for the job. For example, whether to include Moab environment variables at job submission time.

The following image is an example of the Advanced Settings area.

Advanced Settings

<p><b>Label</b> Merge Streams</p> <p><b>Variable Name</b> JOIN</p> <p><b>Default Value</b> No</p> <p><input checked="" type="checkbox"/> Visible <input checked="" type="checkbox"/> Editable</p>	<p><b>Label</b> Moab Environment Variables</p> <p><b>Variable Name</b> MOABENVIRONMENTVARIABI</p> <p><b>Default Value</b> Yes</p> <p><input checked="" type="checkbox"/> Visible <input checked="" type="checkbox"/> Editable</p>
<p><b>Label</b> Hold Job</p> <p><b>Variable Name</b> HOLD</p> <p><b>Default Value</b> No</p> <p><input checked="" type="checkbox"/> Visible <input checked="" type="checkbox"/> Editable</p>	<p><b>Label</b> Email Options</p> <p><b>Variable Name</b> EMAILOPTIONS</p> <p><input checked="" type="checkbox"/> Visible</p>
<p><b>Label</b> Script Shell</p> <p><b>Variable Name</b> SHELL</p> <p><b>Default Value</b></p> <p><input checked="" type="checkbox"/> Visible <input checked="" type="checkbox"/> Editable</p>	<p><b>Label</b> Email Notification List</p> <p><b>Variable Name</b> MAILLIST</p> <p><input checked="" type="checkbox"/> Visible</p>
<p><b>Label</b> Generic Resources</p> <p><b>Variable Name</b> GENERICRESOURCES</p> <p><b>Default Value</b></p> <p><input checked="" type="checkbox"/> Visible <input checked="" type="checkbox"/> Editable</p>	<p><b>Label</b> User Priority</p> <p><b>Variable Name</b> USERPRIORITY</p> <p><b>Default Value</b> 0</p> <p><input checked="" type="checkbox"/> Enabled <input checked="" type="checkbox"/> Visible <input checked="" type="checkbox"/> Editable</p>
	<p><b>Label</b> Feature Tags</p> <p><b>Variable Name</b> FEATURETAGS</p> <p><b>Default Value</b> None</p> <p><input checked="" type="checkbox"/> Visible <input checked="" type="checkbox"/> Editable</p>

**i** When enabled, the User Priority field requires the Moab ENABLENEGJOBPRIORITY server parameter set to "TRUE". This Moab parameter should have been set when Viewpoint was installed. See Moab Parameters in the *Moab Workload Manager Administrator Guide* for more information on this parameter.

## Custom Settings

This area lets you add non-Moab fields that you want to require users to complete when submitting the job. For example, you can create a User Name field requiring the user to enter his/her name when submitting the job.

The following image is an example of the Custom Settings area.



This area provides several field types (text box, text area, date/time, number), and lets you specify whether the field information is visible on the left, middle (span across), or right of the page.

The following image is an example of the Custom Settings area where there will be additional field information on the left, middle, and right of the page.

The image shows three separate configuration panels for fields, arranged in a grid. Each panel is enclosed in a dashed border and contains the following elements:

- Type:** A dropdown menu currently showing 'TextBox'.
- Label:** A text input field.
- Variable Name:** A text input field.
- Default Value:** A text input field.
- Visible:** A checked checkbox.
- Editable:** A checked checkbox.
- Delete:** A button with a trash icon.

## Field Information and Actions

This section describes, in general, the different information and actions available for the fields in the Basic Settings, Advanced Settings, and Custom Settings areas of the application template.

- **Label** – User-friendly name shown for the field on the Create/Edit Job page. This is typically similar to the variable name.
- **Variable Name** – Actual name of the variable widget that will contain the user’s input. For Basic and Advanced Settings areas, this is the Moab variable for that field and cannot be changed. For the Custom Settings area, this variable can be any name that does not conflict with a Moab

input variable. See [Job Submission Script on page 74](#) for a list of Moab variable widgets.

- **Default Value** – Lets you specify a default value that will be used when creating/editing a job. Depending on the type of variable for this field, this can be a selection list, a drop-down to select a date/time, or a space to write in the value. If it is a date/time or write-in value, leave this empty if you do not want to assign a default value to the widget's variable and input fields.
- **Enabled, Visible, Editable check boxes** – These three check boxes control if and how fields are used in the application template.
  - **Enabled** – When checked, this field is activated; meaning that this information is reported. At this time only two fields (Job Arrays and User Priority) require activation. If Job Arrays is enabled, then only job arrays can be created using this application template. If User Priority is enabled, users are able to make changes to the user priority information for the job (this option requires additional configuration, see [Advanced Settings on page 68](#)).
  - **Visible** – When checked, this field will be displayed on the Create/Edit Job page. This check box requires the Enabled check box, if present, to be checked.
  - **Editable** – When checked, users can provide information for this field when creating/editing a job. This check box requires the Visible check box to be checked.

## Application Template Permissions

In addition to being able to restrict which fields the user may see or edit, you can also restrict who has access to the application template itself. This is done using the Permissions area at the top right of the page.

The following image is an example of the Permissions area.

**Permissions**

Users

x ALL

Groups

x ALL

Accounts

None

Using this area you can restrict access by:

- Users. In the Users field, type the IDs of the users. Viewpoint will check if the users you added are valid; that is, has a valid operating system account. If the user is valid, the user name turns green; otherwise it turns red. Use "ALL" to remove restrictions.
- Group associations. In the Groups field, type the IDs of the groups. Viewpoint will check if the groups you added are valid; that is, has a valid operating system account. If the group is valid, the group ID turns green; otherwise it turns red. Use "ALL" to remove restrictions.
- Account associations. In the Accounts field, select from the available accounts listed in the drop-down. Leave blank to remove restrictions.

## Published/Unpublished Application Template

Viewpoint also lets you configure whether this application template is available (published) for use.

**i** When an application template is marked "Unpublished" only the creator of the application template or template admins can view/edit the application template; regardless of the Permissions settings. In addition, the application template does not appear in the application templates list when a user creates a job.

On the Create/Application Template page, under the "Permissions" area, select the appropriate radio button for the publish status.

You can also change the publish status directly from the drop-down menu in the Application Templates page. See [Additional Functions on page 62](#).

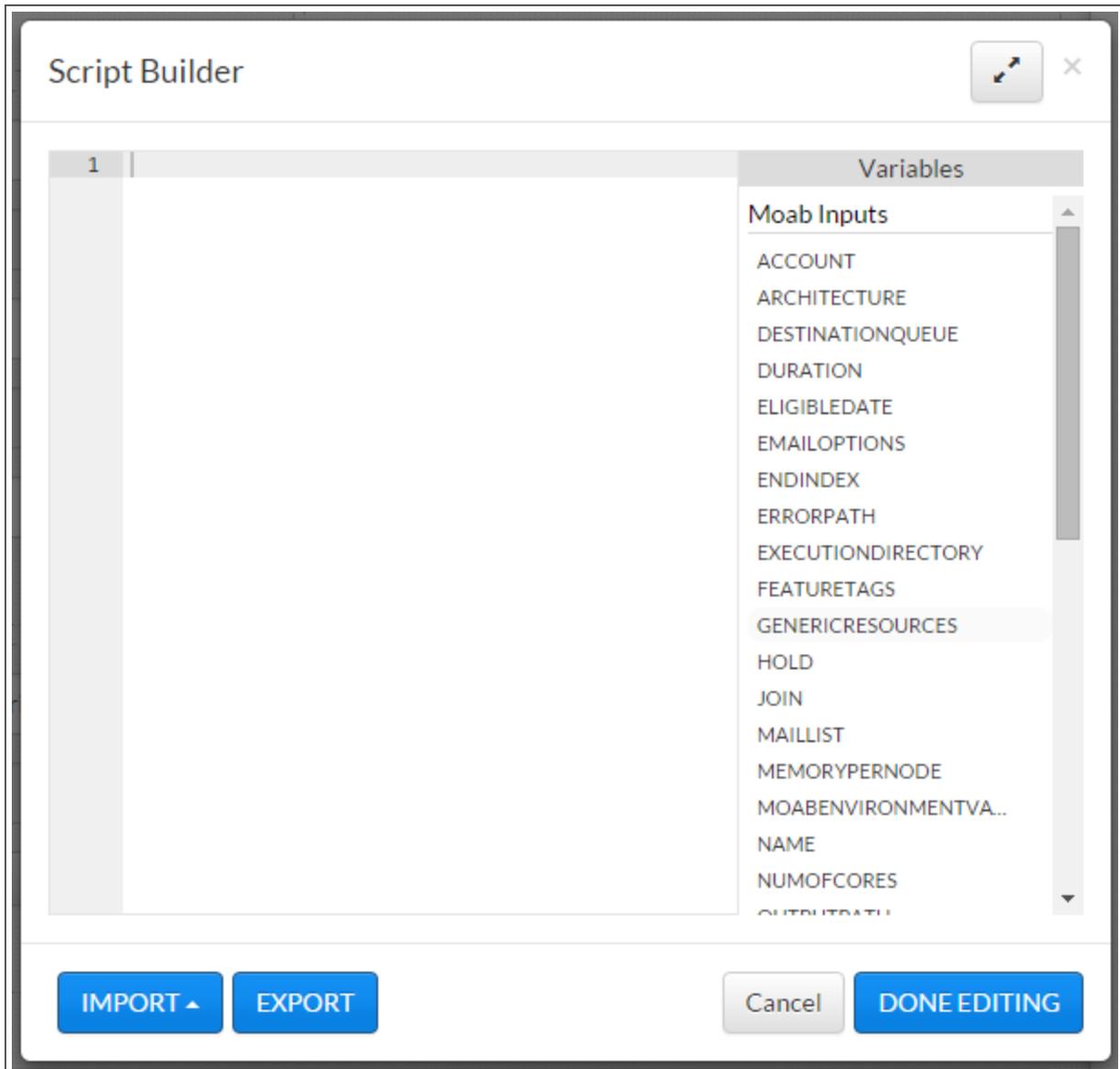
## Job Submission Script

Viewpoint provides a Submission Script widget on the Application Template Details page (in the Basic Job Settings area). This widget provides a Script Builder window where you can create/edit, upload, or export the script information.

**i** In order for users to submit jobs using the application template, the application template must have a defined job submission script. As with any field in the application template, you can choose whether to make the script visible and editable by the user when creating a job.

Click **Customize Script** (located in the Default Value area in the Submission Script field) to access the Script Builder window.

The following image is an example of the Script Builder window.



Using this window you can:

- Create/edit a script.
  1. Add/edit the lines for the script in the left pane.
    - You can drag and drop the available variables from the right pane into the left pane. Hover the mouse over the variable to view its description. When used in the script, the variables shown in the right pane are highlighted and the number of times the variable is used in this script is displayed.

- From inside the left pane, click Ctrl+Space to access to a list of variables. You can select the variables directly in this list instead of having to drag them from the right pane.
2. Click **DONE EDITING** to save the script and close the window.
- Import an existing script. You can import a script from your local computer or from your RFS.
  - Export the script. Exporting a script lets you export a copy of your script to your RFS. Then you can import the script for a additional application templates to use.

#### Related Topics

[Creating or Editing an Application Template on page 76](#)

[Application Templates Page on page 59](#)

[Chapter 4 Application Templates on page 59](#)

## Creating or Editing an Application Template

Viewpoint lets you create and edit application templates that users may use when creating jobs.

### Create or Edit an Application Template

Do the following:

1. If you have not already done so, access the Application Templates page. (Click **TEMPATE** from the menu.)
2. Click **CREATE APPLICATION TEMPLATE** to create a new application template *or* click on an application template name to edit an existing application template.

The Create/Edit Application Templates page displays with the application template fields.

3. Fill in the necessary information or make the necessary changes. See [Creating or Editing an Application Template on page 76](#) for more information.
4. Click **SAVE TEMPLATE** to save the application template and stay on this page *or* click **SAVE AND CLOSE** to save the application template and close this page.

#### Related Topics

- [Application Template Details on page 62](#)
- [Application Templates Page on page 59](#)

- [Chapter 4 Application Templates on page 59](#)

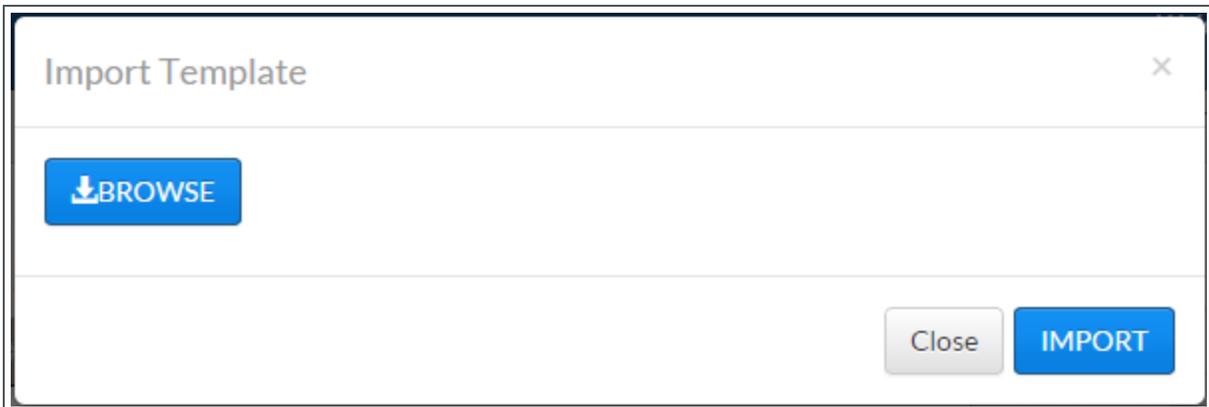
## Importing an Application Template

### Import an Application Template

Do the following:

1. If you have not already done so, access the Application Templates page. (Click **Templates** from the menu.)
2. Click **IMPORT**.

The Import Template pop-up window appears.



3. Click **BROWSE** and navigate to where the application template file is saved.
4. Select the application template file and then click **Open**.
5. When the application template appears in the Import Template window, click **IMPORT**. The application template appears in the application template list and can be edited as needed.

Related Topics

[Creating or Editing an Application Template on page 76](#)

[Application Template Details on page 62](#)

[Chapter 4 Application Templates on page 59](#)

## Application Template API

Application Template API lets the admin user (for example, "moab-admin") to perform application template functions programmatically in Viewpoint; instead of using the Application Templates page in the portal.

This section provides information and example of the supported methods and how to authenticate against the Viewpoint application template API.

In this section:

- [Supported Methods on page 78](#)
- [Authenticate Against the Viewpoint Template API on page 123](#)

## Supported Methods

The table that follows shows the supported methods for the Viewpoint application template API. Detailed information about each method is provided later in this section.

Resource	GET	PUT	POST	DELETE	PATCH
<code>/api/templates/</code>	Get All Templates	---	Create Template	---	---
<code>/api/templates/&lt;id&gt;/</code>	Get Single Template	Modify Template	---	Delete Template	Modify Template Attributes

### Related Topics

- [Create Template on page 78](#)
- [Delete Template on page 95](#)
- [Get All Templates on page 95](#)
- [Get Single Template on page 105](#)
- [Modify Template on page 113](#)
- [Modify Template Attributes on page 113](#)
- [Application Template API on page 77](#)

## Create Template

In this topic:

- [URL on page 79](#)
- [Example on page 79](#)
  - [Request Body on page 80](#)
  - [Response on page 88](#)

## URL

```
POST /api/templates/
```

## Example

```
POST /api/templates/
```

# Request Body

## Request Body

```

{
  "name": "Template Name",
  "published": true,
  "widgets": [
    {
      "default_value": "",
      "label": "Name",
      "variable_name": "NAME",
      "visible": true,
      "editable": true,
      "properties": [
        {
          "name": "id",
          "value": "name"
        }
      ]
    },
    {
      "default_value": 0,
      "label": "Duration",
      "variable_name": "DURATION",
      "visible": true,
      "editable": true,
      "properties": [
        {
          "name": "id",
          "value": "duration"
        }
      ]
    },
    {
      "default_value": "",
      "label": "Job Arrays",
      "variable_name": "arrays",
      "visible": true,
      "editable": true,
      "properties": [
        {
          "name": "id",
          "value": "arrays"
        },
        {
          "name": "enable",
          "value": "true"
        },
        {
          "name": "start-value",
          "value": "0"
        },
        {
          "name": "end-value",
          "value": "1"
        },
        {
          "name": "start-variable",
          "value": "STARTINDEX"
        },
        {
          "name": "end-variable",
          "value": "ENDINDEX"
        }
      ]
    }
  ],
  "tooltip": "Allows you to specify a more friendly name (note: name must be alphanumeric)"
},
{
  "default_value": 0,
  "label": "Duration",
  "variable_name": "DURATION",
  "visible": true,
  "editable": true,
  "properties": [
    {
      "name": "id",
      "value": "duration"
    }
  ],
  "tooltip": "The amount of time the job is expected to run for"
},
{
  "default_value": "",
  "label": "Job Arrays",
  "variable_name": "arrays",
  "visible": true,
  "editable": true,
  "properties": [
    {
      "name": "id",
      "value": "arrays"
    },
    {
      "name": "enable",
      "value": "true"
    },
    {
      "name": "start-value",
      "value": "0"
    },
    {
      "name": "end-value",
      "value": "1"
    },
    {
      "name": "start-variable",
      "value": "STARTINDEX"
    },
    {
      "name": "end-variable",
      "value": "ENDINDEX"
    }
  ]
}

```

```

]
},
{
  "default_value": 0,
  "label": "Delay Start By",
  "variable_name": "ELIGIBLEDATE",
  "visible": false,
  "editable": false,
  "properties": [
    {
      "name": "id",
      "value": "eligibledate"
    }
  ],
  "tooltip": "Declares the time after which the job is eligible for execution"
},
{
  "default_value": "0",
  "label": "User Priority",
  "variable_name": "USERPRIORITY",
  "visible": false,
  "editable": false,
  "properties": [
    {
      "name": "id",
      "value": "priority"
    },
    {
      "name": "enable",
      "value": "false"
    }
  ],
  "tooltip": "Defines the priority of the job"
},
{
  "default_value": "",
  "label": "Submission Script",
  "variable_name": "SCRIPT",
  "visible": true,
  "editable": true,
  "properties": [
    {
      "name": "id",
      "value": "script"
    }
  ]
},
{
  "default_value": "",
  "label": "Account",
  "variable_name": "ACCOUNT",
  "visible": false,
  "editable": true,
  "properties": [
    {
      "name": "id",
      "value": "account"
    }
  ],
  "tooltip": "Defines the account associated with the job"
},
{
  "default_value": "",
  "label": "Queue / Class",
  "variable_name": "DESTINATIONQUEUE",

```

```

    "visible": false,
    "editable": true,
    "properties": [
      {
        "name": "id",
        "value": "destinationQueue"
      }
    ],
    "tooltip": "Defines the destination queue / class of the job"
  },
  {
    "default_value": "",
    "label": "Quality of Service",
    "variable_name": "QOS",
    "visible": false,
    "editable": true,
    "properties": [
      {
        "name": "id",
        "value": "qos"
      }
    ],
    "tooltip": "Defines the desired QoS for the job"
  },
  {
    "default_value": "",
    "label": "Number of Cores",
    "variable_name": "NUMOFCORES",
    "visible": true,
    "editable": true,
    "properties": [
      {
        "name": "id",
        "value": "cpuperiode"
      }
    ],
    "tooltip": "Defines the resources that are required by the job and
establishes a limit to the amount of resource that can be consumed"
  },
  {
    "default_value": "0.5",
    "label": "Total Memory (GB)",
    "variable_name": "MEMORYPERNODE",
    "visible": true,
    "editable": true,
    "properties": [
      {
        "name": "id",
        "value": "memorypernode"
      }
    ],
    "tooltip": "Defines the resources that are required by the job and
establishes a limit to the amount of resource that can be consumed"
  },
  {
    "default_value": "",
    "label": "Architecture",
    "variable_name": "ARCHITECTURE",
    "visible": true,
    "editable": true,
    "properties": [
      {
        "name": "id",
        "value": "architecture"
      }
    ]
  }

```

```

    ],
    "tooltip": "Defines the resources that are required by the job and
establishes a limit to the amount of resource that can be consumed"
  },
  {
    "default_value": "",
    "label": "Execution Path",
    "variable_name": "EXECUTIONDIRECTORY",
    "visible": false,
    "editable": true,
    "properties": [
      {
        "name": "id",
        "value": "exedir"
      }
    ]
  },
  "tooltip": "Your job's execution directory"
},
{
  "default_value": "",
  "label": "Error Path",
  "variable_name": "ERRORPATH",
  "visible": false,
  "editable": true,
  "properties": [
    {
      "name": "id",
      "value": "errorpath"
    }
  ]
},
"tooltip": "Defines the path to be used for the standard error stream of the
job"
},
{
  "default_value": "",
  "label": "Output Path",
  "variable_name": "OUTPUTPATH",
  "visible": false,
  "editable": true,
  "properties": [
    {
      "name": "id",
      "value": "outputpath"
    }
  ]
},
"tooltip": "Defines the path to be used for the standard output stream of the
job"
},
{
  "default_value": "false",
  "label": "Merge Streams",
  "variable_name": "JOIN",
  "visible": false,
  "editable": false,
  "properties": [
    {
      "name": "id",
      "value": "join"
    }
  ]
},
"tooltip": "Merge stderr and stdout streams?"
},
{
  "default_value": "false",
  "label": "Hold Job",

```

```

    "variable_name": "HOLD",
    "visible": false,
    "editable": false,
    "properties": [
      {
        "name": "id",
        "value": "hold"
      }
    ],
    "tooltip": "Specifies that a user hold be applied to the job at submission
time"
  },
  {
    "default_value": "",
    "label": "Script Shell",
    "variable_name": "SHELL",
    "visible": false,
    "editable": false,
    "properties": [
      {
        "name": "id",
        "value": "shell"
      }
    ],
    "tooltip": "Declares the shell that interprets the job script, e.g.
/bin/bash"
  },
  {
    "default_value": "true",
    "label": "Moab Environment Variables",
    "variable_name": "MOABENVIRONMENTVARIABLES",
    "visible": false,
    "editable": false,
    "properties": [
      {
        "name": "id",
        "value": "moabenvironmentvariables"
      }
    ],
    "tooltip": "Push Moab environment variables to job?"
  },
  {
    "default_value": "",
    "label": "Email Notification List",
    "variable_name": "MAILLIST",
    "visible": false,
    "editable": false,
    "properties": [
      {
        "name": "id",
        "value": "maillist"
      }
    ],
    "tooltip": "Specifies the list of users to whom mail is sent by the execution
server. Overrides the EMAILADDRESS specified on the USERCFG [credential]"
  },
  {
    "default_value": "",
    "label": "Email Options",
    "variable_name": "EMAILOPTIONS",
    "visible": false,
    "editable": false,
    "properties": [
      {
        "name": "id",

```

```

        "value": "emailoptions"
      }
    ],
    "tooltip": "A list of requested email options"
  },
  {
    "default_value": "",
    "label": "Generic Resources",
    "variable_name": "GENERICRESOURCES",
    "visible": false,
    "editable": false,
    "properties": [
      {
        "name": "id",
        "value": "genericresources"
      }
    ]
  },
  "tooltip": "Allows for specification of additional job attributes"
},
{
  "default_value": "",
  "label": "Feature Tags",
  "variable_name": "FEATURETAGS",
  "visible": false,
  "editable": false,
  "properties": [
    {
      "name": "id",
      "value": "featuretags"
    }
  ]
},
"tooltip": "The feature tags of compute node"
}
],
"sections": [
  {
    "name": "defaults",
    "value": "Basic Job Settings"
  },
  {
    "name": "timeManagement",
    "value": "Time Management"
  },
  {
    "name": "credentials",
    "value": "Credentials"
  },
  {
    "name": "resources",
    "value": "Resources"
  },
  {
    "name": "dataManagement",
    "value": "Data Management"
  },
  {
    "name": "custom",
    "value": "Custom Settings"
  },
  {
    "name": "basic",
    "value": "Basic Settings"
  },
  {
    "name": "advanced",

```

```
    "value": "Advanced Settings"
  },
  "permissions": [
    {
      "name": "ALL",
      "type": "user"
    },
    {
      "name": "ALL",
      "type": "group"
    },
    {
      "name": "ALL",
      "type": "account"
    }
  ]
}
```

## Response

## Response

```

{
  "url": "http://localhost:8080/api/templates/8/",
  "assigned": "ALL",
  "date": "2015-09-01",
  "id": 8,
  "name": "Template Name",
  "owner": "hpotter",
  "permissions": [
    {
      "name": "ALL",
      "type": "account"
    },
    {
      "name": "ALL",
      "type": "group"
    },
    {
      "name": "ALL",
      "type": "user"
    }
  ],
  "published": true,
  "sections": [
    {
      "name": "defaults",
      "value": "Basic Job Settings"
    },
    {
      "name": "timeManagement",
      "value": "Time Management"
    },
    {
      "name": "credentials",
      "value": "Credentials"
    },
    {
      "name": "resources",
      "value": "Resources"
    },
    {
      "name": "dataManagement",
      "value": "Data Management"
    },
    {
      "name": "custom",
      "value": "Custom Settings"
    },
    {
      "name": "basic",
      "value": "Basic Settings"
    },
    {
      "name": "advanced",
      "value": "Advanced Settings"
    }
  ],
  "use": 0,
  "widgets": [
    {
      "default_value": "",
      "editable": true,
      "label": "Name",
      "variable_name": "NAME",
      "visible": true,

```

```

    "properties": [
      {
        "name": "id",
        "value": "name"
      }
    ]
  },
  {
    "default_value": "0",
    "editable": true,
    "label": "Duration",
    "variable_name": "DURATION",
    "visible": true,
    "properties": [
      {
        "name": "id",
        "value": "duration"
      }
    ]
  },
  {
    "default_value": "",
    "editable": true,
    "label": "Job Arrays",
    "variable_name": "arrays",
    "visible": true,
    "properties": [
      {
        "name": "id",
        "value": "arrays"
      },
      {
        "name": "enable",
        "value": "true"
      },
      {
        "name": "start-value",
        "value": "0"
      },
      {
        "name": "end-value",
        "value": "1"
      },
      {
        "name": "start-variable",
        "value": "STARTINDEX"
      },
      {
        "name": "end-variable",
        "value": "ENDINDEX"
      }
    ]
  },
  {
    "default_value": "0",
    "editable": false,
    "label": "Delay Start By",
    "variable_name": "ELIGIBLEDATE",
    "visible": false,
    "properties": [
      {
        "name": "id",
        "value": "eligibledate"
      }
    ]
  }
]

```

```

    },
    {
      "default_value": "0",
      "editable": false,
      "label": "User Priority",
      "variable_name": "USERPRIORITY",
      "visible": false,
      "properties": [
        {
          "name": "id",
          "value": "priority"
        },
        {
          "name": "enable",
          "value": "false"
        }
      ]
    }
  ],
  {
    "default_value": "",
    "editable": true,
    "label": "Submission Script",
    "variable_name": "SCRIPT",
    "visible": true,
    "properties": [
      {
        "name": "id",
        "value": "script"
      }
    ]
  },
  {
    "default_value": "",
    "editable": true,
    "label": "Account",
    "variable_name": "ACCOUNT",
    "visible": false,
    "properties": [
      {
        "name": "id",
        "value": "account"
      }
    ]
  },
  {
    "default_value": "",
    "editable": true,
    "label": "Queue / Class",
    "variable_name": "DESTINATIONQUEUE",
    "visible": false,
    "properties": [
      {
        "name": "id",
        "value": "destinationQueue"
      }
    ]
  },
  {
    "default_value": "",
    "editable": true,
    "label": "Quality of Service",
    "variable_name": "QOS",
    "visible": false,
    "properties": [
      {

```

```

        "name": "id",
        "value": "qos"
    }
  ],
},
{
  "default_value": "",
  "editable": true,
  "label": "Number of Cores",
  "variable_name": "NUMOFCORES",
  "visible": true,
  "properties": [
    {
      "name": "id",
      "value": "cpupernode"
    }
  ]
},
{
  "default_value": "0.5",
  "editable": true,
  "label": "Total Memory (GB)",
  "variable_name": "MEMORYPERNODE",
  "visible": true,
  "properties": [
    {
      "name": "id",
      "value": "memorypernode"
    }
  ]
},
{
  "default_value": "",
  "editable": true,
  "label": "Architecture",
  "variable_name": "ARCHITECTURE",
  "visible": true,
  "properties": [
    {
      "name": "id",
      "value": "architecture"
    }
  ]
},
{
  "default_value": "",
  "editable": true,
  "label": "Execution Path",
  "variable_name": "EXECUTIONDIRECTORY",
  "visible": false,
  "properties": [
    {
      "name": "id",
      "value": "exedir"
    }
  ]
},
{
  "default_value": "",
  "editable": true,
  "label": "Error Path",
  "variable_name": "ERRORPATH",
  "visible": false,
  "properties": [
    {

```

```

        "name": "id",
        "value": "errorpath"
    }
]
},
{
    "default_value": "",
    "editable": true,
    "label": "Output Path",
    "variable_name": "OUTPUTPATH",
    "visible": false,
    "properties": [
        {
            "name": "id",
            "value": "outputpath"
        }
    ]
},
{
    "default_value": "false",
    "editable": false,
    "label": "Merge Streams",
    "variable_name": "JOIN",
    "visible": false,
    "properties": [
        {
            "name": "id",
            "value": "join"
        }
    ]
},
{
    "default_value": "false",
    "editable": false,
    "label": "Hold Job",
    "variable_name": "HOLD",
    "visible": false,
    "properties": [
        {
            "name": "id",
            "value": "hold"
        }
    ]
},
{
    "default_value": "",
    "editable": false,
    "label": "Script Shell",
    "variable_name": "SHELL",
    "visible": false,
    "properties": [
        {
            "name": "id",
            "value": "shell"
        }
    ]
},
{
    "default_value": "true",
    "editable": false,
    "label": "Moab Environment Variables",
    "variable_name": "MOABENVIRONMENTVARIABLES",
    "visible": false,
    "properties": [

```

```

        "name": "id",
        "value": "moabenvironmentvariables"
    }
  ],
},
{
  "default_value": "",
  "editable": false,
  "label": "Email Notification List",
  "variable_name": "MAILLIST",
  "visible": false,
  "properties": [
    {
      "name": "id",
      "value": "maillist"
    }
  ]
},
{
  "default_value": "",
  "editable": false,
  "label": "Email Options",
  "variable_name": "EMAILOPTIONS",
  "visible": false,
  "properties": [
    {
      "name": "id",
      "value": "emailoptions"
    }
  ]
},
{
  "default_value": "",
  "editable": false,
  "label": "Generic Resources",
  "variable_name": "GENERICRESOURCES",
  "visible": false,
  "properties": [
    {
      "name": "id",
      "value": "genericresources"
    }
  ]
},
{
  "default_value": "",
  "editable": false,
  "label": "Feature Tags",
  "variable_name": "FEATURETAGS",
  "visible": false,
  "properties": [
    {
      "name": "id",
      "value": "featuretags"
    }
  ]
}
]
}
}

```

## Related Topics

[Supported Methods on page 78](#)

## Delete Template

### In this topic:

- [URL on page 95](#)
- [Parameters on page 95](#)
- [Example on page 95](#)

### URL

```
DELETE /api/templates/<id>/
```

### Parameters

Parameter	Required	Type	Description	Example
<b>id</b>	Yes	Integer	Numerical identifier of the template.	1

### Example

```
DELETE /api/templates/2/
```

### Related Topics

[Supported Methods on page 78](#)

## Get All Templates

### In this topic:

- [URL on page 95](#)
- [Parameters on page 96](#)
  - [Page Control on page 96](#)
  - [Filter on page 96](#)
- [Example on page 97](#)
  - [Response on page 98](#)

### URL

```
GET /api/templates/
```

## Parameters

### Page Control

Parameter	Required	Type	Description	Example
<code>page_size</code>	No	Integer	Specifies count of templates per page.	<code>page_size=3</code>
<code>page</code>	No	Integer	Specifies number of page.	<code>page=2</code>

### Filter

Parameter	Required	Type	Description	Example
<code>name</code>	No	String	Specifies name of template for filtering	<code>name=Free Form</code>
<code>owner</code>	No	String	Specifies owner's name for filtering	<code>owner=moab-admin</code>
<code>published</code>	No	Boolean	Specifies status of template for filtering	<code>published=True</code>
<code>permissions_user_name_in</code>	No	List	Specifies list of users that template should contain	<code>permissions_user_name_in=-hpotter,hgranger</code>
<code>permissions_group_name_in</code>	No	List	Specifies list of groups that template should contain	<code>permissions_group_name_in=-hpotter,hgranger</code>
<code>permissions_account_name_in</code>	No	List	Specifies list of accounts that template should contain	<code>permissions_account_name_in=DEFAULT,QA</code>
<code>date_gte</code>	No	Date	Specifies the date before which the template was created	<code>date_gte=2015-09-01</code>
<code>date_lte</code>	No	Date	Specifies the date after which the template was created	<code>date_lte=2015-09-16</code>

## Example

```
GET /api/templates/?page_size=1&published=True
```

# Response

## Response

```

GET /api/templates/?page_size=1&published=True
-----
{
  "count": 7,
  "next": "http://localhost:8080/api/templates/?page=2&page_
size=1&published=True",
  "previous": null,
  "results": [
    {
      "url": "http://localhost:8080/api/templates/2/",
      "assigned": "ALL",
      "date": "2015-08-07",
      "id": 2,
      "name": "asdasd",
      "owner": "hpotter",
      "permissions": [
        {
          "name": "ALL",
          "type": "account"
        },
        {
          "name": "ALL",
          "type": "group"
        },
        {
          "name": "ALL",
          "type": "user"
        }
      ],
      "published": true,
      "sections": [
        {
          "name": "defaults",
          "value": "Basic Job Settings"
        },
        {
          "name": "timeManagement",
          "value": "Time Management"
        },
        {
          "name": "credentials",
          "value": "Credentials"
        },
        {
          "name": "resources",
          "value": "Resources"
        },
        {
          "name": "dataManagement",
          "value": "Data Management"
        },
        {
          "name": "custom",
          "value": "Custom Settings"
        },
        {
          "name": "basic",
          "value": "Basic Settings"
        },
        {
          "name": "advanced",
          "value": "Advanced Settings"
        }
      ]
    }
  ]
}

```

```

],
"use": 0,
"widgets": [
  {
    "default_value": "",
    "editable": true,
    "label": "Name",
    "variable_name": "NAME",
    "visible": true,
    "properties": [
      {
        "name": "id",
        "value": "name"
      }
    ]
  },
  {
    "default_value": "0",
    "editable": true,
    "label": "Duration",
    "variable_name": "DURATION",
    "visible": true,
    "properties": [
      {
        "name": "id",
        "value": "duration"
      }
    ]
  },
  {
    "default_value": "",
    "editable": false,
    "label": "Job Arrays",
    "variable_name": "arrays",
    "visible": false,
    "properties": [
      {
        "name": "id",
        "value": "arrays"
      },
      {
        "name": "enable",
        "value": "false"
      },
      {
        "name": "start-value",
        "value": "0"
      },
      {
        "name": "end-value",
        "value": "1"
      },
      {
        "name": "start-variable",
        "value": "STARTINDEX"
      },
      {
        "name": "end-variable",
        "value": "ENDINDEX"
      }
    ]
  },
  {
    "default_value": "0",
    "editable": false,

```

```

        "label": "Delay Start By",
        "variable_name": "ELIGIBLEDATE",
        "visible": false,
        "properties": [
            {
                "name": "id",
                "value": "eligibledate"
            }
        ]
    },
    {
        "default_value": "0",
        "editable": false,
        "label": "User Priority",
        "variable_name": "USERPRIORITY",
        "visible": false,
        "properties": [
            {
                "name": "id",
                "value": "priority"
            },
            {
                "name": "enable",
                "value": "false"
            }
        ]
    },
    {
        "default_value": "",
        "editable": true,
        "label": "Script",
        "variable_name": "SCRIPT",
        "visible": true,
        "properties": [
            {
                "name": "id",
                "value": "script"
            }
        ]
    },
    {
        "default_value": "",
        "editable": true,
        "label": "Account",
        "variable_name": "ACCOUNT",
        "visible": false,
        "properties": [
            {
                "name": "id",
                "value": "account"
            }
        ]
    },
    {
        "default_value": "",
        "editable": true,
        "label": "Queue / Class",
        "variable_name": "DESTINATIONQUEUE",
        "visible": false,
        "properties": [
            {
                "name": "id",
                "value": "destinationQueue"
            }
        ]
    }
]

```

```

    },
    {
      "default_value": "",
      "editable": true,
      "label": "Quality of Service",
      "variable_name": "QOS",
      "visible": false,
      "properties": [
        {
          "name": "id",
          "value": "qos"
        }
      ]
    },
    {
      "default_value": "",
      "editable": true,
      "label": "Number of Cores",
      "variable_name": "NUMOFCORES",
      "visible": true,
      "properties": [
        {
          "name": "id",
          "value": "cpuperiode"
        }
      ]
    },
    {
      "default_value": "0.5",
      "editable": true,
      "label": "Total Memory (GB)",
      "variable_name": "MEMORYPERNODE",
      "visible": true,
      "properties": [
        {
          "name": "id",
          "value": "memorypernode"
        }
      ]
    },
    {
      "default_value": "",
      "editable": true,
      "label": "Architecture",
      "variable_name": "ARCHITECTURE",
      "visible": true,
      "properties": [
        {
          "name": "id",
          "value": "architecture"
        }
      ]
    },
    {
      "default_value": "",
      "editable": true,
      "label": "Execution Path",
      "variable_name": "EXECUTIONDIRECTORY",
      "visible": false,
      "properties": [
        {
          "name": "id",
          "value": "exedir"
        }
      ]
    }
  ]
}

```

```

    },
    {
      "default_value": "",
      "editable": true,
      "label": "Error Path",
      "variable_name": "ERRORPATH",
      "visible": false,
      "properties": [
        {
          "name": "id",
          "value": "errorpath"
        }
      ]
    },
    {
      "default_value": "",
      "editable": true,
      "label": "Output Path",
      "variable_name": "OUTPUTPATH",
      "visible": false,
      "properties": [
        {
          "name": "id",
          "value": "outputpath"
        }
      ]
    },
    {
      "default_value": "false",
      "editable": false,
      "label": "Merge Streams",
      "variable_name": "JOIN",
      "visible": false,
      "properties": [
        {
          "name": "id",
          "value": "join"
        }
      ]
    },
    {
      "default_value": "false",
      "editable": false,
      "label": "Hold Job",
      "variable_name": "HOLD",
      "visible": false,
      "properties": [
        {
          "name": "id",
          "value": "hold"
        }
      ]
    },
    {
      "default_value": "",
      "editable": false,
      "label": "Script Shell",
      "variable_name": "SHELL",
      "visible": false,
      "properties": [
        {
          "name": "id",
          "value": "shell"
        }
      ]
    }
  ]
}

```

```

    },
    {
      "default_value": "true",
      "editable": false,
      "label": "Moab Environment Variables",
      "variable_name": "MOABENVIRONMENTVARIABLES",
      "visible": false,
      "properties": [
        {
          "name": "id",
          "value": "moabenvironmentvariables"
        }
      ]
    },
    {
      "default_value": "",
      "editable": false,
      "label": "Email Notification List",
      "variable_name": "MAILLIST",
      "visible": false,
      "properties": [
        {
          "name": "id",
          "value": "maillist"
        }
      ]
    },
    {
      "default_value": "",
      "editable": false,
      "label": "Email Options",
      "variable_name": "EMAILOPTIONS",
      "visible": false,
      "properties": [
        {
          "name": "id",
          "value": "emailoptions"
        }
      ]
    },
    {
      "default_value": "",
      "editable": false,
      "label": "Generic Resources",
      "variable_name": "GENERICRESOURCES",
      "visible": false,
      "properties": [
        {
          "name": "id",
          "value": "genericresources"
        }
      ]
    },
    {
      "default_value": "null",
      "editable": false,
      "label": "Feature Tags",
      "variable_name": "FEATURETAGS",
      "visible": false,
      "properties": [
        {
          "name": "id",
          "value": "featuretags"
        }
      ]
    }
  ]
}

```

```
}  
  ]  
  }  
  ]  
}
```

### Related Topics

[Supported Methods on page 78](#)

## Get Single Template

### In this topic:

- [URL on page 105](#)
- [Parameters on page 105](#)
- [Example on page 105](#)
  - [Response on page 106](#)

### URL

```
GET /api/templates/<id>/
```

### Parameters

Parameter	Required	Type	Description	Example
<b>id</b>	Yes	Integer	Numerical identifier of the template.	1

### Example

```
GET /api/templates/1/
```

## Response

## Response

```

{
  "url": "http://localhost:8080/api/templates/1/",
  "assigned": "ALL",
  "date": "2015-09-01",
  "id": 1,
  "name": "Free Form",
  "owner": "moab-admin",
  "permissions": [
    {
      "name": "ALL",
      "type": "account"
    },
    {
      "name": "ALL",
      "type": "group"
    },
    {
      "name": "ALL",
      "type": "user"
    }
  ],
  "published": true,
  "sections": [
    {
      "name": "defaults",
      "value": "Basic Job Settings"
    },
    {
      "name": "timeManagement",
      "value": "Time Management"
    },
    {
      "name": "credentials",
      "value": "Credentials"
    },
    {
      "name": "resources",
      "value": "Resources"
    },
    {
      "name": "dataManagement",
      "value": "Data Management"
    },
    {
      "name": "custom",
      "value": "Custom Settings"
    }
  ],
  "use": 3,
  "widgets": [
    {
      "default_value": "",
      "editable": true,
      "label": "Name",
      "variable_name": "NAME",
      "visible": true,
      "properties": [
        {
          "name": "id",
          "value": "name"
        }
      ]
    }
  ]
}

```

```

    "default_value": "",
    "editable": true,
    "label": "Duration",
    "variable_name": "DURATION",
    "visible": true,
    "properties": [
      {
        "name": "id",
        "value": "duration"
      }
    ]
  },
  {
    "default_value": "",
    "editable": false,
    "label": "Job Arrays",
    "variable_name": "arrays",
    "visible": false,
    "properties": [
      {
        "name": "id",
        "value": "arrays"
      },
      {
        "name": "enable",
        "value": "false"
      },
      {
        "name": "start-value",
        "value": "0"
      },
      {
        "name": "end-value",
        "value": "1"
      },
      {
        "name": "start-variable",
        "value": "STARTINDEX"
      },
      {
        "name": "end-variable",
        "value": "ENDINDEX"
      }
    ]
  },
  {
    "default_value": "",
    "editable": true,
    "label": "Delay Start By",
    "variable_name": "ELIGIBLEDATE",
    "visible": true,
    "properties": [
      {
        "name": "id",
        "value": "eligibledate"
      }
    ]
  },
  {
    "default_value": "0",
    "editable": true,
    "label": "User Priority",
    "variable_name": "PRIORITY",
    "visible": true,
    "properties": [

```

```

        {
            "name": "id",
            "value": "priority"
        },
        {
            "name": "enable",
            "value": "true"
        }
    ]
},
{
    "default_value": "",
    "editable": true,
    "label": "Submission Script",
    "variable_name": "SCRIPT",
    "visible": true,
    "properties": [
        {
            "name": "id",
            "value": "script"
        }
    ]
},
{
    "default_value": "",
    "editable": true,
    "label": "Account",
    "variable_name": "ACCOUNT",
    "visible": true,
    "properties": [
        {
            "name": "id",
            "value": "account"
        }
    ]
},
{
    "default_value": "",
    "editable": true,
    "label": "Queue / Class",
    "variable_name": "DESTINATIONQUEUE",
    "visible": true,
    "properties": [
        {
            "name": "id",
            "value": "destinationQueue"
        }
    ]
},
{
    "default_value": "",
    "editable": true,
    "label": "Quality of Service",
    "variable_name": "QOS",
    "visible": true,
    "properties": [
        {
            "name": "id",
            "value": "qos"
        }
    ]
},
{
    "default_value": "",
    "editable": true,

```

```

        "label": "Number of Cores",
        "variable_name": "NUMOFCORES",
        "visible": true,
        "properties": [
            {
                "name": "id",
                "value": "cpupernode"
            }
        ]
    },
    {
        "default_value": "0.5",
        "editable": true,
        "label": "Total Memory (GB)",
        "variable_name": "MEMORYPERNODE",
        "visible": true,
        "properties": [
            {
                "name": "id",
                "value": "memorypernode"
            }
        ]
    },
    {
        "default_value": "",
        "editable": true,
        "label": "Architecture",
        "variable_name": "ARCHITECTURE",
        "visible": true,
        "properties": [
            {
                "name": "id",
                "value": "architecture"
            }
        ]
    },
    {
        "default_value": "",
        "editable": true,
        "label": "Execution Path",
        "variable_name": "EXECUTIONDIRECTORY",
        "visible": true,
        "properties": [
            {
                "name": "id",
                "value": "exedir"
            }
        ]
    },
    {
        "default_value": "",
        "editable": true,
        "label": "Error Path",
        "variable_name": "ERRORPATH",
        "visible": true,
        "properties": [
            {
                "name": "id",
                "value": "errorpath"
            }
        ]
    },
    {
        "default_value": "",
        "editable": true,

```

```

        "label": "Output Path",
        "variable_name": "OUTPUTPATH",
        "visible": true,
        "properties": [
            {
                "name": "id",
                "value": "outputpath"
            }
        ]
    },
    {
        "default_value": "false",
        "editable": true,
        "label": "Merge Streams",
        "variable_name": "JOIN",
        "visible": true,
        "properties": [
            {
                "name": "id",
                "value": "join"
            }
        ]
    },
    {
        "default_value": "false",
        "editable": true,
        "label": "Hold Job",
        "variable_name": "HOLD",
        "visible": true,
        "properties": [
            {
                "name": "id",
                "value": "hold"
            }
        ]
    },
    {
        "default_value": "",
        "editable": true,
        "label": "Script Shell",
        "variable_name": "SHELL",
        "visible": true,
        "properties": [
            {
                "name": "id",
                "value": "shell"
            }
        ]
    },
    {
        "default_value": "true",
        "editable": true,
        "label": "Moab Environment Variables",
        "variable_name": "MOABENVIRONMENTVARIABLES",
        "visible": true,
        "properties": [
            {
                "name": "id",
                "value": "moabenvironmentvariables"
            }
        ]
    },
    {
        "default_value": "",
        "editable": true,

```

```

        "label": "Email Notification List",
        "variable_name": "MAILLIST",
        "visible": true,
        "properties": [
            {
                "name": "id",
                "value": "maillist"
            }
        ]
    },
    {
        "default_value": "",
        "editable": true,
        "label": "Email Options",
        "variable_name": "EMAILOPTIONS",
        "visible": true,
        "properties": [
            {
                "name": "id",
                "value": "emailoptions"
            }
        ]
    },
    {
        "default_value": "",
        "editable": true,
        "label": "Generic Resources",
        "variable_name": "GENERICRESOURCES",
        "visible": true,
        "properties": [
            {
                "name": "id",
                "value": "genericresources"
            }
        ]
    },
    {
        "default_value": "",
        "editable": true,
        "label": "Feature Tags",
        "variable_name": "FEATURETAGS",
        "visible": true,
        "properties": [
            {
                "name": "id",
                "value": "featuretags"
            }
        ]
    }
]
}

```

## Related Topics

[Supported Methods on page 78](#)

## Modify Template

 The PUT method replaces the existing template with your modified template. To only change one or more specific attributes of an existing template, use the PATCH method. See [Modify Template Attributes on page 113](#).

### In this topic:

- [URL on page 113](#)
- [Parameters on page 113](#)
- [Example on page 113](#)

## URL

```
PUT /api/templates/<id>/
```

## Parameters

Parameter	Required	Type	Description	Example
id	Yes	Integer	Numerical identifier of the template.	1

## Example

See the example information provided in [Create Template on page 78](#).

### Related Topics

[Supported Methods on page 78](#)

## Modify Template Attributes

 The PATCH method lets you modify specific attributes of an existing template. To replace an existing template in its entirety with your modified template, use the PUT method. See [Modify Template on page 113](#).

 Please make sure that you specify a proper Content-Type when using the API. If the content type is not specified, the Viewpoint API will consider it as 'text/html' which might cause side effects in the request processing code.

**In this topic:**

- [URL on page 114](#)
- [Parameters on page 114](#)
- [JSON Structure on page 114](#)
- [Example on page 114](#)
  - [Request Body on page 115](#)
  - [Response on page 116](#)

## URL

```
PATCH /api/templates/<id>
```

## Parameters

Parameter	Required	Type	Description	Example
id	Yes	Integer	The ID of the template	1

## JSON Structure

The following table identifies the template attributes that can be changed via PATCH call.

name	Yes	String	User friendly name
permissions	No	List	List of permissions. See corresponding section of this document for more details
published	No	Boolean	Template's status: published or unpublished. If the template unpublished then only owner can see it
sections	No	List	List of sections. See "Section" section bellow
widgets	No	List	List of widgets. See "Widget" section bellow

## Example

This section provides an example of how to update template 1 with a new name and with the published tag unset.

```
PATCH /api/templates/1/
```

## Request Body

```
{  
  "name": "My New Name",  
  "published": false  
}
```

## Response

## Response

```

{
  "url": "http://localhost:8080/api/templates/1/",
  "assigned": "ALL",
  "date": "2015-09-01",
  "id": 1,
  "name": "My New Name",
  "owner": "hpotter",
  "permissions": [
    {
      "name": "ALL",
      "type": "account"
    },
    {
      "name": "ALL",
      "type": "group"
    },
    {
      "name": "ALL",
      "type": "user"
    }
  ],
  "published": false,
  "sections": [
    {
      "name": "defaults",
      "value": "Basic Job Settings"
    },
    {
      "name": "timeManagement",
      "value": "Time Management"
    },
    {
      "name": "credentials",
      "value": "Credentials"
    },
    {
      "name": "resources",
      "value": "Resources"
    },
    {
      "name": "dataManagement",
      "value": "Data Management"
    },
    {
      "name": "custom",
      "value": "Custom Settings"
    },
    {
      "name": "basic",
      "value": "Basic Settings"
    },
    {
      "name": "advanced",
      "value": "Advanced Settings"
    }
  ],
  "use": 0,
  "widgets": [
    {
      "default_value": "",
      "editable": true,
      "label": "Name",
      "variable_name": "NAME",
      "visible": true,

```

```

    "properties": [
      {
        "name": "id",
        "value": "name"
      }
    ]
  },
  {
    "default_value": "0",
    "editable": true,
    "label": "Duration",
    "variable_name": "DURATION",
    "visible": true,
    "properties": [
      {
        "name": "id",
        "value": "duration"
      }
    ]
  },
  {
    "default_value": "",
    "editable": true,
    "label": "Job Arrays",
    "variable_name": "arrays",
    "visible": true,
    "properties": [
      {
        "name": "id",
        "value": "arrays"
      },
      {
        "name": "enable",
        "value": "true"
      },
      {
        "name": "start-value",
        "value": "0"
      },
      {
        "name": "end-value",
        "value": "1"
      },
      {
        "name": "start-variable",
        "value": "STARTINDEX"
      },
      {
        "name": "end-variable",
        "value": "ENDINDEX"
      }
    ]
  },
  {
    "default_value": "0",
    "editable": false,
    "label": "Delay Start By",
    "variable_name": "ELIGIBLEDATE",
    "visible": false,
    "properties": [
      {
        "name": "id",
        "value": "eligibledate"
      }
    ]
  }
]

```

```

    },
    {
      "default_value": "0",
      "editable": false,
      "label": "User Priority",
      "variable_name": "USERPRIORITY",
      "visible": false,
      "properties": [
        {
          "name": "id",
          "value": "priority"
        },
        {
          "name": "enable",
          "value": "false"
        }
      ]
    }
  ],
  {
    "default_value": "",
    "editable": true,
    "label": "Submission Script",
    "variable_name": "SCRIPT",
    "visible": true,
    "properties": [
      {
        "name": "id",
        "value": "script"
      }
    ]
  },
  {
    "default_value": "",
    "editable": true,
    "label": "Account",
    "variable_name": "ACCOUNT",
    "visible": false,
    "properties": [
      {
        "name": "id",
        "value": "account"
      }
    ]
  },
  {
    "default_value": "",
    "editable": true,
    "label": "Queue / Class",
    "variable_name": "DESTINATIONQUEUE",
    "visible": false,
    "properties": [
      {
        "name": "id",
        "value": "destinationQueue"
      }
    ]
  },
  {
    "default_value": "",
    "editable": true,
    "label": "Quality of Service",
    "variable_name": "QOS",
    "visible": false,
    "properties": [
      {

```

```

        "name": "id",
        "value": "qos"
    }
]
},
{
    "default_value": "",
    "editable": true,
    "label": "Number of Cores",
    "variable_name": "NUMOFCORES",
    "visible": true,
    "properties": [
        {
            "name": "id",
            "value": "cpupernode"
        }
    ]
},
{
    "default_value": "0.5",
    "editable": true,
    "label": "Total Memory (GB)",
    "variable_name": "MEMORYPERNODE",
    "visible": true,
    "properties": [
        {
            "name": "id",
            "value": "memorypernode"
        }
    ]
},
{
    "default_value": "",
    "editable": true,
    "label": "Architecture",
    "variable_name": "ARCHITECTURE",
    "visible": true,
    "properties": [
        {
            "name": "id",
            "value": "architecture"
        }
    ]
},
{
    "default_value": "",
    "editable": true,
    "label": "Execution Path",
    "variable_name": "EXECUTIONDIRECTORY",
    "visible": false,
    "properties": [
        {
            "name": "id",
            "value": "exedir"
        }
    ]
},
{
    "default_value": "",
    "editable": true,
    "label": "Error Path",
    "variable_name": "ERRORPATH",
    "visible": false,
    "properties": [
        {

```

```

        "name": "id",
        "value": "errorpath"
    }
]
},
{
    "default_value": "",
    "editable": true,
    "label": "Output Path",
    "variable_name": "OUTPUTPATH",
    "visible": false,
    "properties": [
        {
            "name": "id",
            "value": "outputpath"
        }
    ]
},
{
    "default_value": "false",
    "editable": false,
    "label": "Merge Streams",
    "variable_name": "JOIN",
    "visible": false,
    "properties": [
        {
            "name": "id",
            "value": "join"
        }
    ]
},
{
    "default_value": "false",
    "editable": false,
    "label": "Hold Job",
    "variable_name": "HOLD",
    "visible": false,
    "properties": [
        {
            "name": "id",
            "value": "hold"
        }
    ]
},
{
    "default_value": "",
    "editable": false,
    "label": "Script Shell",
    "variable_name": "SHELL",
    "visible": false,
    "properties": [
        {
            "name": "id",
            "value": "shell"
        }
    ]
},
{
    "default_value": "true",
    "editable": false,
    "label": "Moab Environment Variables",
    "variable_name": "MOABENVIRONMENTVARIABLES",
    "visible": false,
    "properties": [
        {

```

```

        "name": "id",
        "value": "moabenvironmentvariables"
    }
  ],
},
{
  "default_value": "",
  "editable": false,
  "label": "Email Notification List",
  "variable_name": "MAILLIST",
  "visible": false,
  "properties": [
    {
      "name": "id",
      "value": "maillist"
    }
  ]
},
{
  "default_value": "",
  "editable": false,
  "label": "Email Options",
  "variable_name": "EMAILOPTIONS",
  "visible": false,
  "properties": [
    {
      "name": "id",
      "value": "emailoptions"
    }
  ]
},
{
  "default_value": "",
  "editable": false,
  "label": "Generic Resources",
  "variable_name": "GENERICRESOURCES",
  "visible": false,
  "properties": [
    {
      "name": "id",
      "value": "genericresources"
    }
  ]
},
{
  "default_value": "",
  "editable": false,
  "label": "Feature Tags",
  "variable_name": "FEATURETAGS",
  "visible": false,
  "properties": [
    {
      "name": "id",
      "value": "featuretags"
    }
  ]
}
]
}
}

```

## Related Topics

[Supported Methods on page 78](#)

## Authenticate Against the Viewpoint Template API

The Viewpoint Template API requires users to authenticate to it using cookies.

This topic provides an example on how to authenticate using cURL to get a valid cookie that can be used to validate your access.

Do the following:

1. Create the following script:

```
#!/bin/bash

REQUEST_METHOD=$1
REQUEST_URL=$2

LOGIN_URL=http://localhost:8080/login/
YOUR_USER='moab-admin'
YOUR_PASS='changeme!'
COOKIES=cookies.txt
CURL_BIN="curl -s -c $COOKIES -b $COOKIES -e $LOGIN_URL"
echo "Django Auth: get csrftoken ..."
$CURL_BIN $LOGIN_URL > /dev/null
DJANGO_TOKEN="csrfmiddlewaretoken=$(grep cid $COOKIES | sed 's/^.*cid\s*//')"
echo "DJANGO TOKEN is $DJANGO_TOKEN"
echo "#####"
echo "Performing login..."
$CURL_BIN \
  -d "$DJANGO_TOKEN&uName=$YOUR_USER&pwd=$YOUR_PASS" \
  -X POST $LOGIN_URL
echo "#####"
echo "Request: $REQUEST_METHOD $REQUEST_URL"
$CURL_BIN \
  -d "$DJANGO_TOKEN&..." \
  -X $REQUEST_METHOD \
  -H "Accept:Application/json" \
  $REQUEST_URL \
  | python -m json.tool
rm $COOKIES
```

2. Consume the API by running this script:

```
./iris-curl.sh GET "http://localhost:8080/api/templates/"
```

Related Topics

[Application Template API on page 77](#)



## Chapter 5 Nodes

Viewpoint lets you view all the nodes reported to Moab by your resource manager. Specifically:

- the Nodes page (default) offers a place to determine the status of your compute nodes, how many jobs are running on each node, what features are on each node, and other information.
- the Node Details page provides additional details about a node.
- the Resource Job Timeline page is a sub-page of the Nodes page that displays information about the jobs and reservations that are running on a set of nodes.

Related Topics

- [Nodes Page on page 125](#)
- [Node Details Page on page 128](#)
- [Resource Job Timeline Page on page 131](#)

## Nodes Page

The Nodes page offers a place to determine the status of your compute nodes, how many jobs are running on each node, what features are on each node, and other information.

To access this page, click **Nodes** from the menu.

This topic provides an example of the Nodes page and describes its layout and available information.

In this topic:

- [Page Example on page 125](#)
- [Selection Criteria Area on page 126](#)
- [Nodelist View Details on page 127](#)

### Page Example

The following image is an example of the Nodes page.

The screenshot shows a web interface for managing nodes. On the left, there is a table with columns: Node ID, Status, Class, Feature, Procs (Available/Configured), Jobs, CPU Utilization, and Memory Utilization. The table contains 20 rows of node data. On the right, there is a 'Current Search' section with a dropdown menu and a search box. Below that is a 'Filters' section with a 'Select Status' dropdown and four range filters: Processors, Jobs, CPU Utilization, and Memory Utilization. At the bottom of the table, there is a 'View' dropdown set to 20, 'Per Page', and pagination controls showing 'Page 1 of 3'.

Node ID	Status	Class	Feature	Procs Available/Configured	Jobs	CPU Utilization	Memory Utilization
node-0...	BUSY	batch	InfiniBand	0/8	103	100	0
node-0...	BUSY	batch	InfiniBand	0/8	138	100	0
node-0...	BUSY	batch	InfiniBand	0/4	81	100	0
node-0...	BUSY	batch	InfiniBand	0/4	84	100	0
node-0...	BUSY	batch....	InfiniBa...	0/4	59	100	0
node-0...	BUSY	batch....	InfiniBa...	0/4	107	100	0
node-0...	BUSY	batch	InfiniBand	0/4	75	100	0
node-0...	BUSY	batch	InfiniBand	0/4	76	100	0
node-0...	BUSY	batch	InfiniBand	0/8	151	100	0
node-0...	RUNNING	batch	InfiniBand	2/4	98	50	0
node-0...	BUSY	batch	InfiniBand	0/4	66	100	0
node-0...	BUSY	batch....	InfiniBa...	0/4	53	100	0
node-0...	BUSY	batch	InfiniBand	0/8	118	100	0
node-0...	BUSY	batch	InfiniBand	0/8	117	100	0
node-0...	BUSY	batch	InfiniBand	0/8	103	100	0
node-0...	BUSY	batch....	InfiniBa...	0/8	94	100	0
node-0...	BUSY	batch	InfiniBand	0/4	85	100	0
node-0...	BUSY	batch	InfiniBand	0/8	130	100	0
node-0...	BUSY	batch	InfiniBand	0/4	76	100	0
node-0...	BUSY	batch	InfiniBand	0/4	74	100	0

## Selection Criteria Area

The right side of this page provides selection criteria you can use to limit what is displayed in the nodelist view.

You can choose to display:

- Specific nodes or groups of nodes based on the Node ID, Class, or Feature information. Select the value from the Current Search drop-down, in the Narrow Search box, enter the specific information, and then click .
- Only nodes matching a specific status (state). Select the status from the Select Status drop-down and then click **Filter**.
- Only nodes within a given processor, job, CPU utilization, and/or memory utilization range. Select the minimum and maximum values and then click **Filter**.

 You can utilize multiple selection criteria options; however, only the nodes that match all of the defined options will be shown in the nodelist view.

Click **Reset** at any time to remove all defined selection criteria options (restore the page defaults).

## Nodelist View Details

The following information explains the layout and additional information available in the nodelist view.

- **Display Refresh** – You can refresh the information displayed in the nodelist view (including specified search and filter criteria) to reflect the latest information about the nodes. At the top of the nodelist view, click



- **Columns** – The nodelist view displays the data in a column format. Column titles that are underlined indicate that you can sort (ascending or descending) the column contents.

The following table describes the different columns and their contents. You can hover the mouse over a column's contents to view additional information).

Column Heading	Description
Node ID	Unique identifier for the node. You can click a node ID in the column's contents to view additional information about that node. See <a href="#">Node Details Page</a> .
Status	State of the node (for example, BUSY, IDLE, or DOWN).
Class	Available classes on the node.
Feature	Current features available on this node.
Procs	Number of processors on this node displayed as available/configured; where configured is the number of processors being reported by the resource manager.
Jobs	Number of jobs running on this node.
CPU Utilization	Percentage of this node's CPU utilization; based on the node's operating system reported cpu load average.
Memory Utilization	Percentage of this node's memory that is dedicated to currently running jobs.

- **Page Controls** – Page controls are available at the bottom of the nodelist view to let you customize how many nodes appear per page. The page controls also include options for selecting which page to display.

### Related Topics

[Node Details Page on page 128](#)

[Resource Job Timeline Page on page 131](#)

[Chapter 5 Nodes on page 125](#)

## Node Details Page

The Node Details page shows additional information about a selected node. To access this page, from the Nodes page, click on the Node ID link for the node.

**i** If you defined selection criteria on the Nodes page, when you are done with the Nodes Details page, click the "Return to earlier search" link to preserve the criteria; otherwise, click **Close** to return to the default state of the Nodes page.

This topic provides an example of the Nodes Details page and describes its layout and available information.

In this topic:

- [Page Example on page 128](#)
- [Page Details on page 129](#)

### Page Example

The following image is an example of the Node Details page.

The screenshot displays the Node Details page for a node named 'node-049'. The page is divided into three main sections: Node Details, Resources, and Features. A 'Return to earlier search' link is located in the top right corner. A 'Close' button is in the bottom right corner.

Node Details		Resources					
Name	node-049	Real Processors	8				
State	IDLE	Available Processors	8				
Power	None	Real Memory (GB)	1				
Operating System	Centos6	Available Memory (GB)	1				
Resource Managers	nativern	CPU Utilization	0%				
Jobs	0	<table border="1"> <thead> <tr> <th>Generic Resource</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td colspan="2">No Generic Resources present for this node</td> </tr> </tbody> </table>		Generic Resource	Count	No Generic Resources present for this node	
Generic Resource	Count						
No Generic Resources present for this node							
Reservations	None						

**Features**

InfiniBand

## Page Details

This section describes the different functional areas, including field descriptions, available on the Node Details page.

In this section:

- [Node Details](#)
- [Resources](#)
- [Features](#)

## Node Details

The Node Details area displays specific information about the node. The following table describes the fields in the Node Details area.

Field	Description
<b>Name</b>	The ID of the node.
<b>State</b>	The current state of the node or resource (such as BUSY, IDLE, DOWN).
<b>Power</b>	The power state of the node.

Field	Description
<b>Operating System</b>	The name of the operating system currently running on this node.
<b>Resource Managers</b>	List of resource managers that report the node.
<b>Jobs</b>	The number of jobs running on this node.
<b>Reservations</b>	List of reservations that include this node.

## Resources

The Resources area displays information about the node's available and allocated resources. The following table describes the fields in the Resources area.

Field	Description
<b>Real processors</b>	The number of processors on the node.
<b>Available processors</b>	The number of processors that are not dedicated to currently running jobs.
<b>Real memory (GB)</b>	The amount of memory (in GB) on the node.
<b>Available memory (GB)</b>	The amount of memory (in GB) that is available on the node.
<b>CPU utilization</b>	The current CPU utilization of the node; based on the node's operating system reported cpu load average.
<b>Generic Resource with Count</b>	The generic resources required by the node or resource.

## Features

The Features area lists the reported and the configurable features for this node.

- Reported features are the node features that were reported by the resource manager or configured in the Moab configuration file. You cannot remove these features in the Features area.

- Configurable features are the node features that were added using the Viewpoint portal (additional features available through MWS). You can add/remove these features in the Features area.

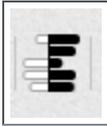
#### Related Topics

[Nodes Page on page 125](#)

[Chapter 5 Nodes on page 125](#)

## Resource Job Timeline Page

The Resource Job Timeline page is a sub-page of the Nodes page that displays information about the jobs and reservations that are running on a set of nodes. You can also utilize selection criteria to narrow the results shown graphically in the timeline view.

To access this page, from the Nodes page, click  (the icon is greyed out until it is selected).

 The Resource Job Timeline View, by default, is set to show the last 24 hours and the next 4 hours when you first visit the page. Depending on how many jobs run in your cluster per day, and how many nodes you are viewing, that time window might contain too many objects for the browser to display. You can change the default setting. See [Threshold Settings on page 134](#) more information.

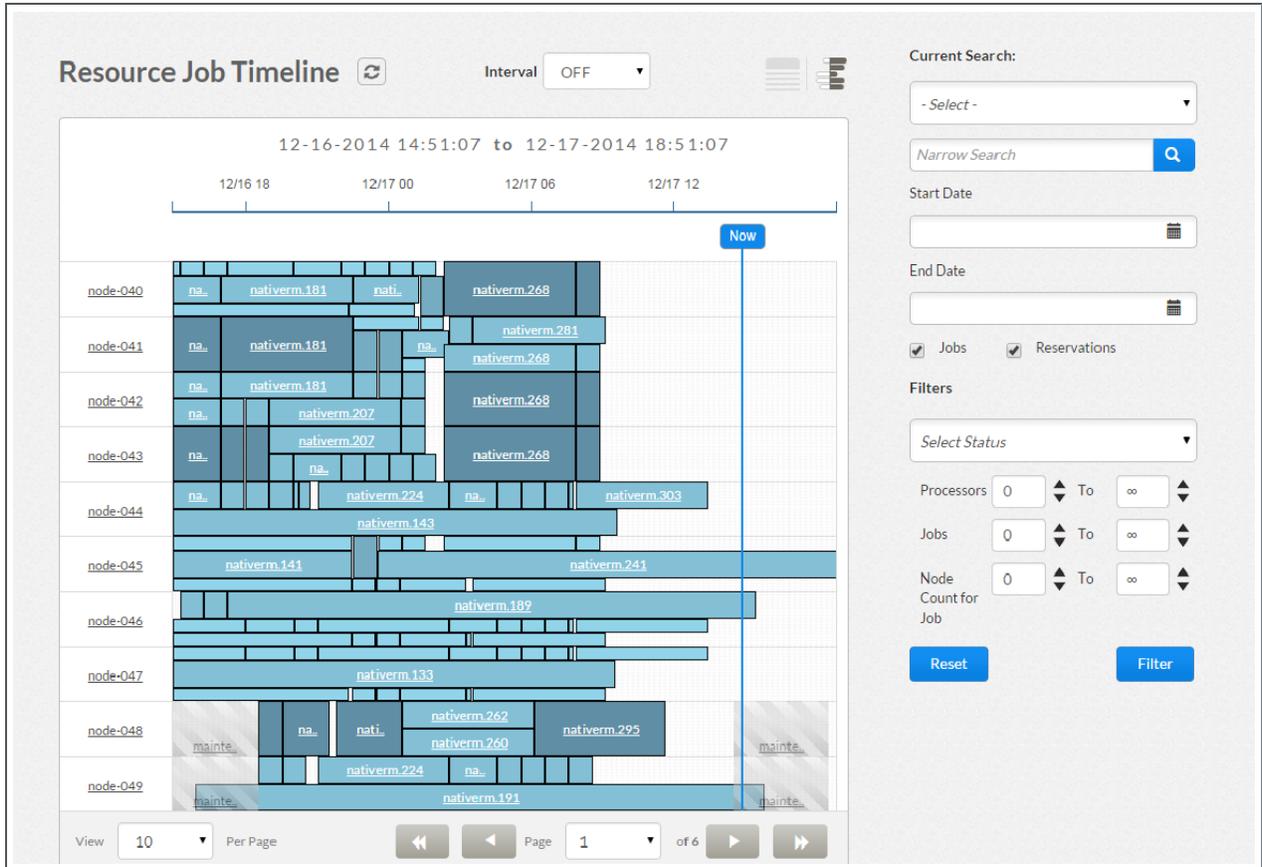
This topic provides an example of the Resource Job Timeline page and describes its layout and available information.

In this topic:

- [Page Example on page 131](#)
- [Selection Criteria Area on page 132](#)
- [Graphical Timeline View Details on page 133](#)

### Page Example

The following image is an example of the Resource Job Timeline page.



## Selection Criteria Area

The right side of this page provides selection criteria you can use to limit what is displayed in the graphical timeline view.

You can choose to display:

- Specific jobs and/or reservations based on node, job and/or reservation ID information. Select the value from the Current Search drop-down, in the Narrow Search box, enter the specific information, and then click .
- Only jobs and/or reservations within a given start and end date range. In the Start Date and End Date fields, select the desired dates, and then click **Filter**.
- Jobs, reservations, or both. Click the desired check boxes, and then click **Filter**.

**i** The Jobs check box is selected by default. If you chose to narrow the search by reservation ID, the Reservations check box is automatically selected. When both the Reservations check box and the Jobs check box are selected, and jobs and reservations co-exist in the same time frame and on the same node, the Reservation block overlaps the Job block on the timeline.

- Only nodes matching a specific status (state). Select the status from the Select Status drop-down and then click **Filter**.
- Only nodes within a given processor, job, CPU utilization, and/or memory utilization range. Select the minimum and maximum values and then click **Filter**.

**i** You can utilize multiple selection criteria options; however, only the nodes that match all of the defined options will be shown in the nodelist view.

Click **Reset** at any time to remove all defined selection criteria options (restore the page defaults).

## Graphical Timeline View Details

The following information explains the layout and additional information available in the graphical timeline view.

- **Display Refresh** – You can refresh the information displayed in the graphical timeline view to reflect the latest information about the jobs running on the nodes. The refresh options are at the top of the graphical time view.
  - The Interval field lets you select a time interval for which the graphical timeline view will automatically refresh.
  - You can also click , at any time, to manually update the graphical timeline view.
- **List of Nodes** – The list of nodes (by node ID) is displayed on the vertical axis on the left.
  - Hover the mouse over the node ID to see the number of processors configured on the node.
  - Click on the node ID to view additional information about that node. See [Node Details Page](#) for more information.
- **Time Span** – The time span is displayed on the horizontal axis at the top. The vertical blue line with the "Now" label denotes the current time.
- **Jobs** – Only if the Jobs check box is selected. A job that is running on a particular node is displayed against the node on the timeline in the form of

a blue block. The color shade of the job block indicates the number of processors used for the job. The darker shade indicates more processors and the lighter shade indicates fewer processors being used for the job (relative to your cluster's average job size). The vertical height of the block indicates the number of processors that the job is using on a particular node. For example, if a job is using 2 out of 4 processors on a particular node, then the job will take up 50 percent of the height of the Node ID row.

- Hover the mouse over the job block to display additional information (such as the job's start and stop time and the number of processors that the job is occupying on the node).
- Click on the job block to open the Job Details page to view additional information about that job on that node. See [Job Details Page](#) for more information.
- **Reservations** – Only if the Reservations check box was selected. A reservation that is running on a particular node is displayed against that node on the timeline in the form of a gray block. If a job and a reservation co-exist in the same time frame and for the same node, then the reservation block is displayed over the job block.
- **Page Controls** – Page controls are available at the bottom of the graphical timeline view to let you customize how many nodes appear per page. The page controls also include options for selecting which page to display.

#### Related Topics

[Threshold Settings on page 134](#)

[Node Details Page on page 128](#)

[Job Details Page on page 43](#)

[Chapter 5 Nodes on page 125](#)

## Threshold Settings

This topic contains instructions on how to configure Insight and Viewpoint settings to adjust the amount of data displayed by Viewpoint.

- The Resource Job Timeline View, by default, is set to show the last 24 hours and the next 4 hours when you first visit the page. Depending on how many jobs run in your cluster per day, and how many nodes you are viewing, that time window might contain too many objects for the browser to display.
  - You can change the default time window by editing PAST\_HOURS and FUTURE\_HOURS in `/opt/viewpoint/iris/settings.py`.

- You can change the default limit on the number of objects to display by editing `RJTV_THRESHOLD` in `/opt/viewpoint/config/config.json`.

#### Related Topics

- [Resource Job Timeline Page on page 131](#)



## Chapter 6 File Manager

Viewpoint lets you connect to a remote file system (RFS) to upload and download files directly from the portal. For example, you can upload or download job submission scripts, access standard output or error files, and upload input files for your job. Specifically:

- the File Manager page (default) lists all of the folders and files that you can access. Using this page you can upload files, create folders, and perform various file and folder maintenance options (such as download, compress or delete).



You can restrict system folder access using the Configuration page. To use the File Manager page, users must have an operating system account on the RFS and be assigned a role that has the "File Manager Page" Viewpoint Permission selected.

### Related Topics

[File Manager Page on page 137](#)

[Uploading Files on page 139](#)

[Creating Folders on page 140](#)

[Maintaining Files and Folders on page 141](#)

## File Manager Page

The File Manager page enables users to organize and manage files on the RFS. For example, you can upload a script or an application template, or you can save an output or error file.

To access this page, click **FILE MANAGER** from the menu.

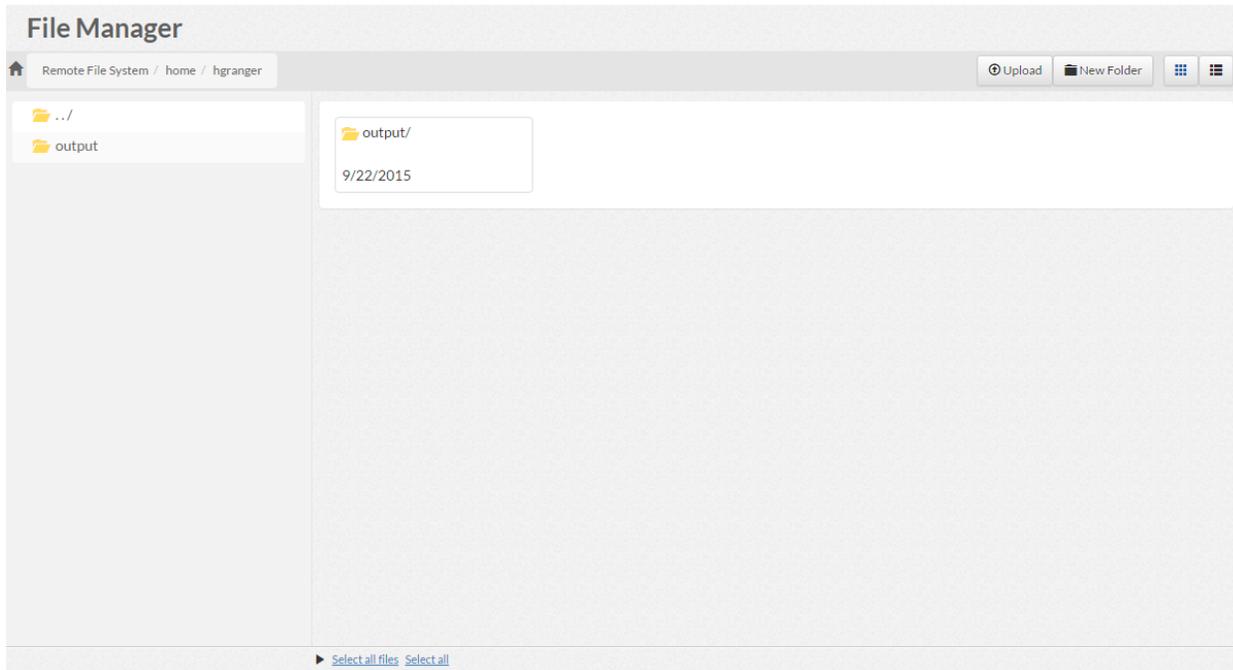
This topic provides an example of the File Manager page and describes its layout and available information.

In this topic:

- [Page Example on page 137](#)
- [Page Details on page 138](#)
- [Additional Functions on page 139](#)

### Page Example

The following image is an example of the File Manager page.



## Page Details

This section describes the functional areas of the File Manager page.

In this section:

- [Directory Structure on page 138](#)
- [View Settings on page 138](#)
- [Folder/File Creation Buttons on page 139](#)

### Directory Structure

At the top of the File Manager page you will see the Home icon and the directory path box. Using the File Manager page example provided earlier, you will see Remote File System/home/hgranger in the directory box.

The File Manager page uses a left pane to list the folders available in the selected directory. The main pane lists the folders *and* any files in that directory.

If you select a folder in the left pane, the directory path changes and the left and main panes display the applicable folders/files. Click the Home icon at any time to go directly to your home directory.

### View Settings

You can change whether the main pane shows the directory contents in grid or list view by clicking the appropriate icon at the top right of the page.

**i** If you use the list view, the folders will have "/" at the end of their name and the files will have information in the Size column.

## Folder/File Creation Buttons

Viewpoint lets you upload a file and/or create a new folder. To enable this functionality, two buttons are available towards the top of this page.

- **Upload** – Opens up a pop-window that lets you upload an existing file from the RFS. See [Uploading Files on page 139](#).
- **New Folder** – Opens up a pop-window that lets you specify the name of the new folder. See [Creating Folders on page 140](#).

**i** The new folder/file is saved in the active directory (shown in the directory box).

## Additional Functions

The File Manager page also includes a drop-down with shortcuts to perform additional folder-/file-related functions. See [Maintaining Files and Folders on page 141](#) for details.

# Uploading Files

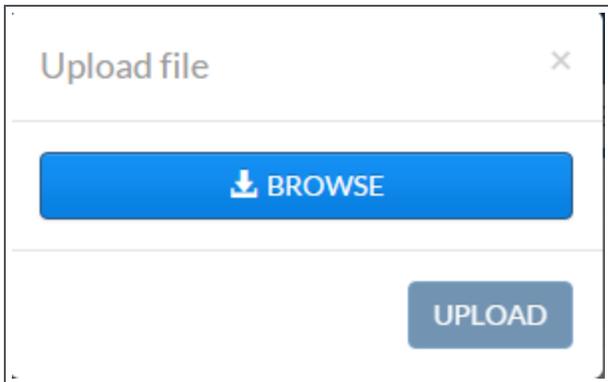
This topic provides information on how to upload files from the RFS.

## Upload Files

Do the following:

1. If you have not already done so, access the File Manager page. (Click **File Manager** from the menu.)
2. Navigate to the directory in which you want the uploaded file to be contained.
3. At the top of the page, click **Upload**.

The Upload file pop-up window appears.



4. Click **BROWSE** and navigate to where the file is located on the RFS.
5. Select the file and then click **Open**.
6. When the file content appears in the Upload file window, click **UPLOAD**.

Related Topics

[File Manager Page on page 137](#)

[Chapter 6 File Manager on page 137](#)

## Creating Folders

This topic provides information on how to add new folders.

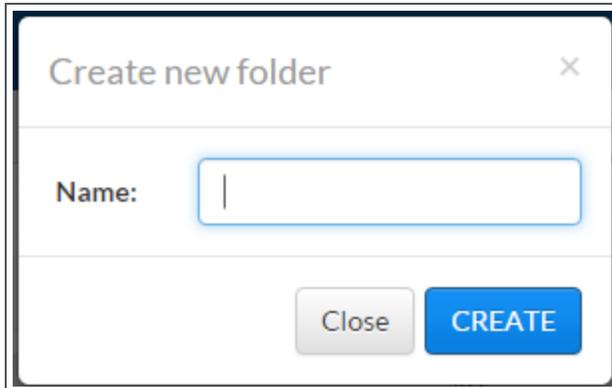
**i** You can only create new folders in the directories to which you have been granted access.

### Create Folders

Do the following:

1. If you have not already done so, access the File Manager page. (Click **File Manager** from the menu.)
2. Navigate to the directory in which you want the new folder to be contained.
3. Click **New Folder**.

The Create new folder pop-window appears.



4. Enter the name for this folder and click **CREATE**; otherwise, click **Close** to exit this window without creating a folder.

#### Related Topics

[File Manager Page on page 137](#)

[Chapter 6 File Manager on page 137](#)

## Maintaining Files and Folders

This topic provides information on the different tasks available for maintaining files and folders, including where to access the maintenance options.

In this topic:

- [Available Maintenance Options on page 141](#)
- [Access Maintenance Options on page 142](#)

### Available Maintenance Options

Viewpoint provides these options for maintaining files and folders:

- **Compress** – Lets you create a copy of the file/folder in a compressed (zipped) format.
- **Copy** – Lets you save a copy of the file/folder in another location.
- **Delete** – Removes the file/folder.
- **Download** – Lets you download the file/folder.
- **Move** – Lets you change the location of the folder/file (without creating a copy).
- **Permissions** – Lets you view the read/write/execute permissions for Owner/Group/Others. The owner of the folder/file can also change the

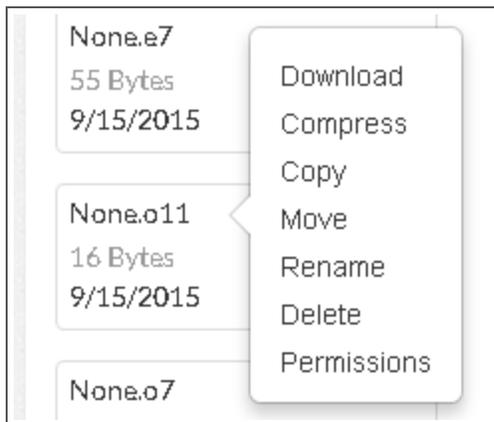
permissions.

- **Rename** – Lets you change the name of the folder/file.

## Access Maintenance Options

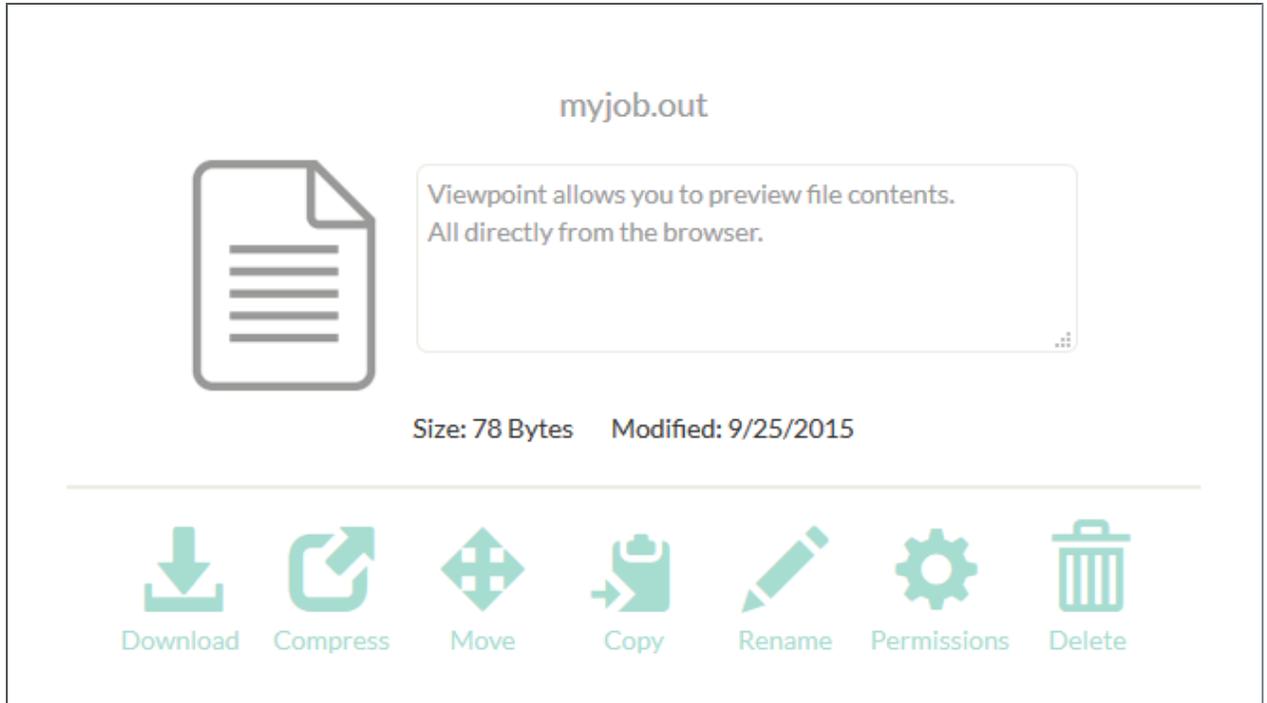
The File Manager page provides two places where you can access folder/file maintenance options.

- In the main pane. Hover over the folder/file to display . Click this icon to display a drop-down containing the available maintenance functions. For example:



**i** You can also apply the same maintenance option to several files/folders at the same time. Click Select All or Select All Files or use the Shift or Ctrl key commands to select multiple files/folders and then display the drop-down. The item you select from the drop-down is applied to all the selected folders/files.

- After you have selected an individual file (clicked the file name, not the icon for the drop-down on the main pane), the file information displays in the main pane. A preview of the file displays and the different maintenance options are represented by icons. For example:



Related Topics

[File Manager Page on page 137](#)

[Chapter 6 File Manager on page 137](#)

