



# Viewpoint 9.0

Adaptive Computing's Next-Gen Workload Management Portal



## Viewpoint 9.0

## Viewpoint Portal: Ease-of-use Driven Productivity

Adaptive Computing's Viewpoint 9.0, web-based graphical user interface, aids in job submission, management and other workload functions, creating greater self-sufficiency for end-users while reducing administrator overhead.

### End User Benefits

Features like portal-based job submission, application templates, script builders, and file management increase the productivity of end-users with easier and faster portal-based submission of tasks/jobs. The portal's ease-of-use has the potential to expand an HPC user base to include even non-IT skilled personnel.

Viewpoint now has the capability to automate best practices information into the submission process in order to speed submission, reduce errors, and optimize processing speed.

### Administrator Benefits

Viewpoint enables easy viewing of workload status, reporting on resource utilization, workload troubleshooting, and other system metrics for the administrator. The portal plays an instrumental role in ensuring SLA's are met, in maximizing uptime, and in proving that services were delivered appropriately and resources were allocated fairly. These capabilities save administrator time managing users' requests. In addition, best-practices based templates, as well as user feedback, help users to help themselves.

With this easy-to-use portal, users can now submit their jobs without needing to learn complex CLI commands. Simple point-and-click helps to avoid mistakes, made more frequently with error-prone command line syntax. Best-practices application templates can be utilized to get results more efficiently.

### Application Template Form Builder

Application Templates enable administrators to help their users in a more time-efficient way. For example, complexity can be reduced by adding application-specific fields while hiding unnecessary ones. Users can also create templates, allowing them to be more productive.

Custom-made best practices templates, integrated through default values, can be shared broadly or with specific users. Administrators can configure permissions, such as selecting whether or not fields are editable or only viewable.

## End User

The end-user interface is easy-to-use, featuring a job submission portal, application template builder, error-reducing script builder, self-help oriented job details, and simple integrated file management.

### End User Submission Portal

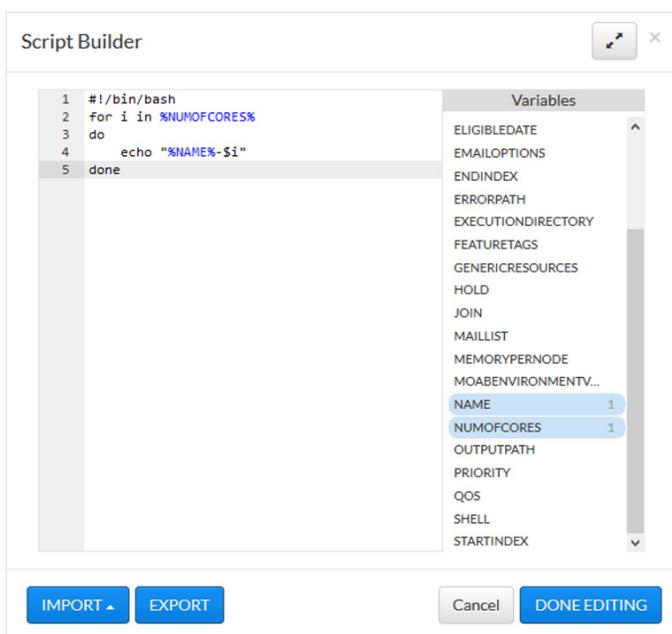
The end-user portal within Viewpoint 9.0 decreases complexity, reduces errors, and facilitates efficiency. The portal includes intelligent drop-down options, customizable applications, and point and click operation, giving the end-user the ability to submit standard jobs and arrays easily.

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### Error-Reducing Script Builder

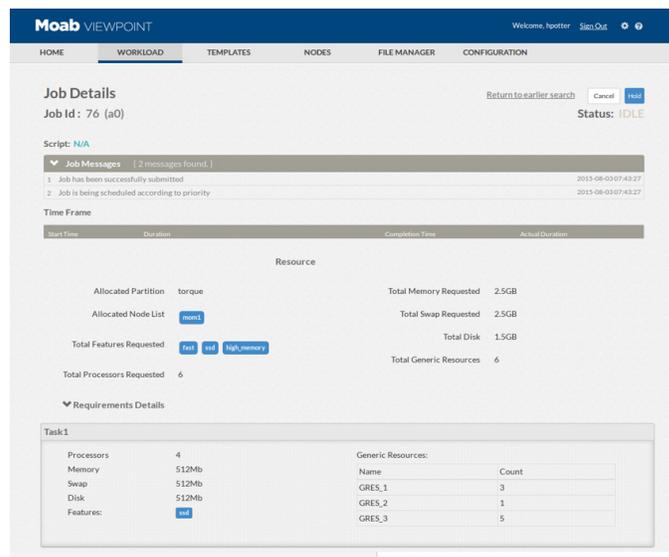
The Script Builder incorporates standard and custom per-application variables to facilitate the submission process. Viewpoint’s easy-to-use script builder allows users to edit scripts right from the browser as well as to share those scripts with simple import/export functions.

Furthermore, drag-and-drop variable insertion and variable usage counting reduce the possibility of making errors. This is beneficial for all users, especially those new to HPC. For them, in-script complexity is minimized by application-specific fields.



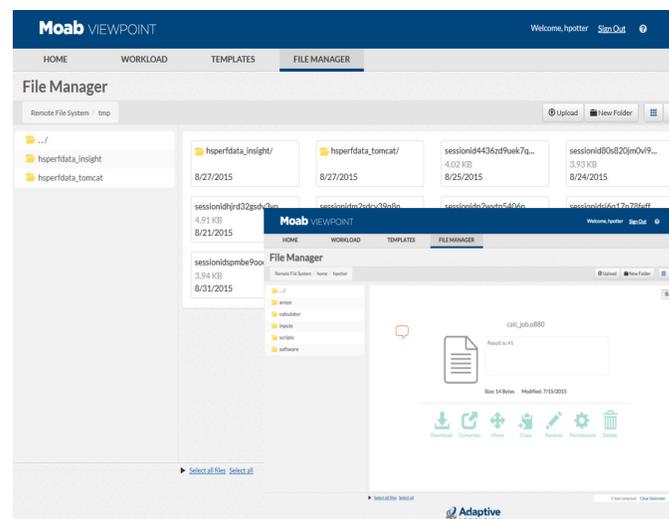
### Self-Help Oriented Job Details

Viewpoint’s Job Details brings self-service to users through several insightful and easy-to-use job status and tracking capabilities. The user portal displays job status details like “RUNNING”, “IDLE”, and “BLOCKED”, along with messages that explain what occurred and why. For example, an issue with job level eligibility could be explained by the message, “One or more job holds are currently in place.” In addition, the Job Details view offers per-task level tracking of jobs. Users can see the difference between what resources they asked for and what they actually used. With this kind of analysis, scheduling decisions can be improved moving forward and greater productivity will be achieved.



### Simple Integrated File Manager

Save time by easily browsing for input, output, and error files with Viewpoint’s simple integrated file management capability. The file manager performs basic functions like moving, renaming, compressing, and deleting files. It can be used to quickly validate and navigate output files with browser-based preview functionality.



# Administrator

## Administrative Reporting

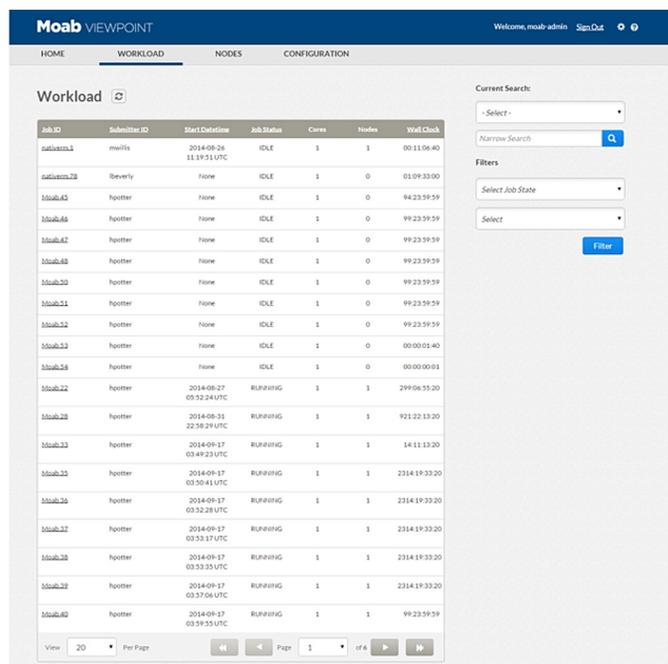
After logging into the Portal, administrators are taken to the dashboard, which offers a real-time snapshot of the HPC environment. The dashboard now offers more advanced reporting capabilities in the following areas:

**Workload View** – This section lists each individual job currently running in the system. Pertinent information about each job is listed, including the job’s ID, user, start time, status, and number of required cores and nodes.

**Dedicated System Resources** – This section displays the cluster’s CPU and memory utilization over a 24-hour period.

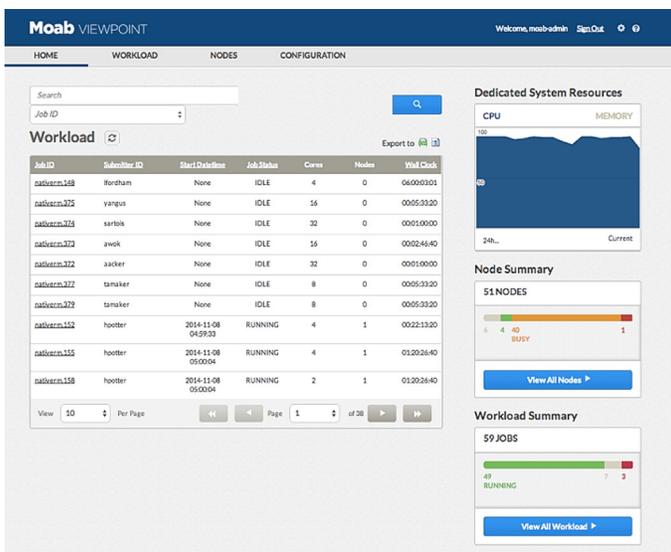
**Node Summary** – This section shows the number of nodes currently in use, and also features a color-coded bar displaying the current states of the system’s nodes (e.g., busy, running, idle, down, unknown).

**Workload Summary** – This section shows the quantity of jobs submitted to the system, as well as a color-coded bar displaying the current job state (e.g., running, removed, idle, completed).



**Searching and Filtering** – This update offers improved search capabilities (e.g., search by job ID or submitter ID) and filtering capabilities, such as filtering by job state (e.g. running, suspended, eligible, blocked, deferred, hold, failed, idle). This makes it easy for administrators to troubleshoot jobs and respond to user issues.

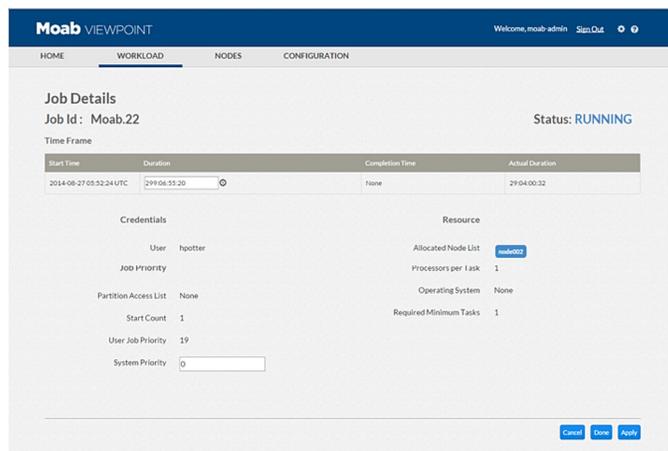
**Job Details** – From the list of current jobs, administrators can select a specific job and go to an individual job page that contains key details, such as job start time, duration, completion time, credentials, job priority, resource information, and job requirements. From the individual job page, admins can make a number of modifications, including adjusting user job priority or system priority, updating requirements, and even cancelling the job. This provides additional admin flexibility for jobs that have already been submitted.



## Workload Status Tracking

To provide a more holistic view of system workloads, Viewpoint has improved administrators’ ability to track workload status. Under the Workload tab, administrators benefit from the following features:

**Workload List** – This provides the same comprehensive list of jobs as seen in the dashboard.



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## Node Usage Tracking

Viewpoint also increases node visibility to provide a comprehensive picture of job resources. Under the Nodes tab, administrators can leverage the following features:

**Node List** – This shows every node in the system and its accompanying node ID, status, class, feature, processors available/configured, jobs, CPU utilization, and memory utilization.

**Searching and Filtering** – This update offers improved search capabilities (e.g., search by node ID, class, feature) and more advanced filtering capabilities, such as filtering by node status (e.g., idle, busy, running, down, unknown).

The screenshot shows the 'Nodes' page in Moab Viewpoint. It features a table with columns for Node ID, Status, Class, Feature, Total Available/Configured, Jobs, CPU Utilization, and Memory Utilization. Below the table are search and filter options, including a 'Current Search' dropdown, a search input field, and various filter controls for Status, Processors, Jobs, CPU Utilization, and Memory Utilization.

Node ID	Status	Class	Feature	Total Available/Configured	Jobs	CPU Utilization	Memory Utilization
node001	BUSY	batch...	GigE...	0/1	2	100	0
node002	BUSY	batch...	GigE...	0/4	22	100	0
node002	BUSY	batch...	GigE...	0/2	8	100	0
node004	BUSY	batch	GigE	0/4	24	100	0
node005	DOWN	-	-	0/14	0	0	0
node002	BUSY	batch	GigE	0/2	6	100	0

In addition, administrators can set numeric ranges for filtering processors, jobs, CPU utilization and memory utilization (e.g., filter between 25–50 percent CPU utilization). This makes it easy for administrators to respond to node failures and reroute jobs to available nodes, thereby maximizing system performance.

**Node Details** – From the list of server nodes, administrators can select a particular node and go to an individual node page that contains relevant information, such as reservations, job quantity, CPU utilization, resource managers and more.

The screenshot shows the 'Node Details' page for node03. It is divided into two main sections: 'Node Details' and 'Resources'. The 'Node Details' section lists attributes like Name, State, Power, IP Address, Image, Resource Managers, Jobs, and Reservations. The 'Resources' section lists Real processors, Available processors, Real memory, Available memory (MB), and CPU Utilization. There is also a 'Generic Resource' section with a 'Count' field.

Node Details		Resources	
Name	node03	Real processors	4
State	IDLE	Available processors	4
Power	None	Real memory	4000
IP Address	None	Available memory (MB)	4000
Image	Centos5	CPU Utilization	0%
Resource Managers	nutivern		
Jobs	0		
Reservations	None		

**Resource Job Timeline** – This major new feature presents individual node usage in a digestible, Tetris-like graph. It enables administrators to monitor workload and resource utilization more easily than ever before and to identify areas where system utilization can be improved. Each node and its corresponding workload is displayed over a configurable time period. Jobs are presented in boxes of different dimensions to show duration and number of cores in use. Different shades indicate job size, with darker colors signifying greater amounts of cores used per job.

The screenshot shows the 'Resource Job Timeline' page in Moab Viewpoint. It displays a Gantt chart for the period from 2014-11-08 11:00:01 to 2014-11-09 15:00:01. The chart shows various jobs running on different nodes, represented by horizontal bars of different colors and lengths. The nodes listed on the y-axis include node011, node005, node007, node003, node000, node008, node002, node002, node006, and node002. The chart includes search and filter options on the right side.

## Summary

Viewpoint 9.0 greatly improves the way both administrators and end users interact with their HPC environment. Its ease-of-use oriented features save time previously spent on complicated processes, improve efficient use of resources, and foster higher overall productivity.

## Let's talk, and set up a demonstration and test in your environment

An Adaptive Computing solutions advisor can guide you to the products and services that will best meet your needs and will work with you to set up a live, online demonstration designed specifically for your organization.

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