User Guide

Contents

Introduction

About *MobileView*

An overview of *MobileView*, the system operator application for *StormCluster*.

MobileView provides a single, mobile interface for monitoring and managing cluster activity within *StormCluster*.

From the *MobileView* dashboard you can oversee cluster operations, monitor system performance, and diagnose problems with cluster activity. You can also create custom views that present metrics specific to your project.

About this guide

A brief description of notes and notices important for understanding this guide.

Notes and notices

The following notes and notices might appear in this guide:

- **Tip**: Suggests how to apply the information in a topic or step.
- **Note**: Explains a special case or expands on an important point.
- **Important**: Points out critical information concerning a topic or step.
- **Caution**: Indicates that an action or step can cause loss of data, security problems, or performance issues.
- **Warning**: Indicates that an action or step can result in physical harm or cause damage to hardware.

How *MobileView* is organized

MobileView is organized according to system operator tabs.

Using *MobileView*, a system operator can monitor and maintain cluster activity tabs associated with active projects. You can view reports that demonstrate how the project is leveraging cluster resources, how the project is progressing towards targets, and whether the system is performing as expected.

Some reports provide a more detailed view of your project's progress, allowing you to view the progression of your project's subordinate tasks towards their targets. This provides more nuanced reporting and manipulation, ensuring that you can manage your project more effectively.

Getting Started

Thunderbird StormCluster features and benefits

StormCluster components work together to give you the advanced cluster management and reporting capabilities that you need within a large computing environment.

The *Thunderbird StormCluster* computing management solution combines powerful cluster management services with a simple-to-use, intuitive *MobileView* front-end application. The combination places control of the full resources of your computing infrastructure into the hands of your team members and it does so in a way the establishes, and sustains, the highest levels of security.

Key *StormCluster* benefits

- Maximum flexibility
- Designed for extensibility
- Ease of management
- Extreme scalability
- Intuitive reports and data visualizations
- Industry-leading support

Key *StormCluster* features

- Easy to use and manage for onsite administrators
- High performing, scalable architecture
- Comprehensive, intelligent scheduling policies
- Complete customization flexibility for integrators
- Heterogeneous platform support
- Continuous live data reporting services
- Robust security services

Component architecture delivers maximum scalability and flexibility

StormCluster calls upon the *ClusterView*, *ClusterAnalyzer*, *ClusterBalance* and *ClusterControl* components become a powerful workload manager for demanding, distributed high-performance computing environments. Not only is a complete set of workload management capabilities available, but the reporting benefits of *ClusterControl*, *ClusterView* and *ClusterAnalyzer* work together to reduce cycle times and maximize productivity in mission critical environments. Equipped with *MobileView* mobile interface, your system administration team and designated system users can collaborate to coordinate their business priorities so that the overall effect is improved even more.

Logging on to *MobileView*

To log on to *MobileView*, you must open the *MobileView* application and connect to the *ClusterControl* server.

Make sure that you have your username, password, and the name of the server that you want to connect to.

Once you are logged on, you can log off and disconnect from a particular project without closing *MobileView*. Logging off without closing the application is helpful if you plan to log on again using a different username and password.

> 📝 **Note:** You might automatically be logged off after a period of inactivity.

To log on to *MobileView*:

1. To open *MobileView*, click **Start** > **All programs** *Thunderbird MobileView*.

   You will see the *MobileView* Login Screen.
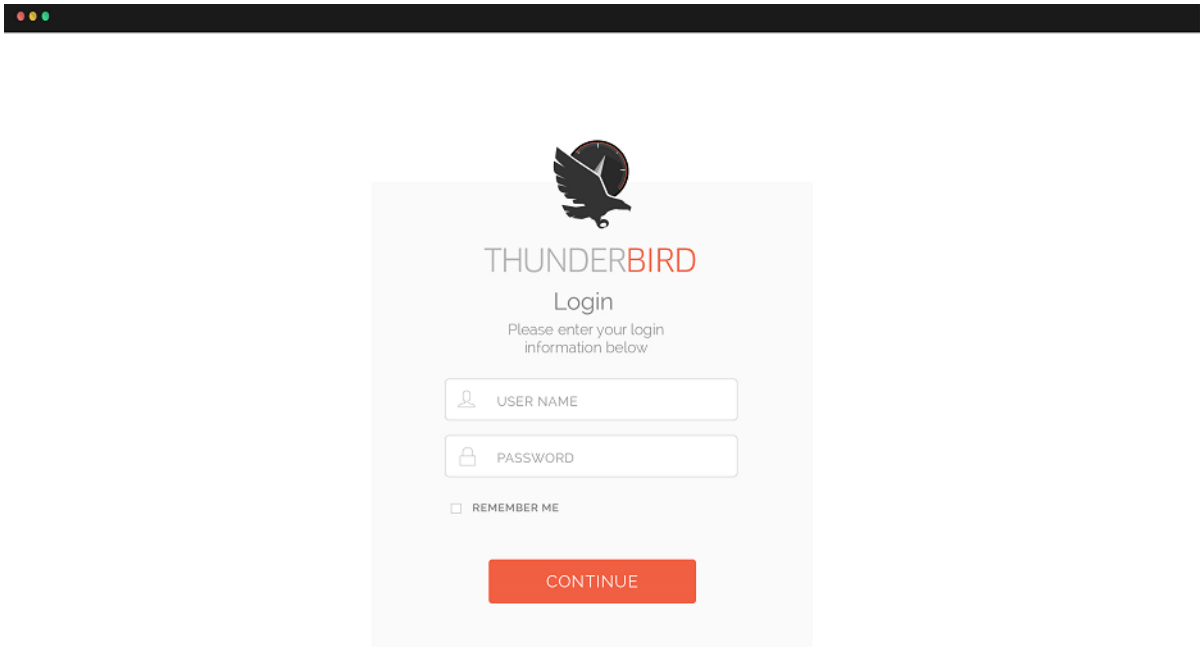
Figure 1: *MobileView* Login Screen

2. In the dialog box, do one of the following:

   - Enter your *MobileView* username and password.
   - Log on using your Windows user account by selecting the **Windows** selection button.

3. In the directory field, enter the name or IP address of the main *StormCluster ClusterControl* server.

4. If you are required to log on with supervision, your supervisor must provide a username and password.

5. Click log in button.

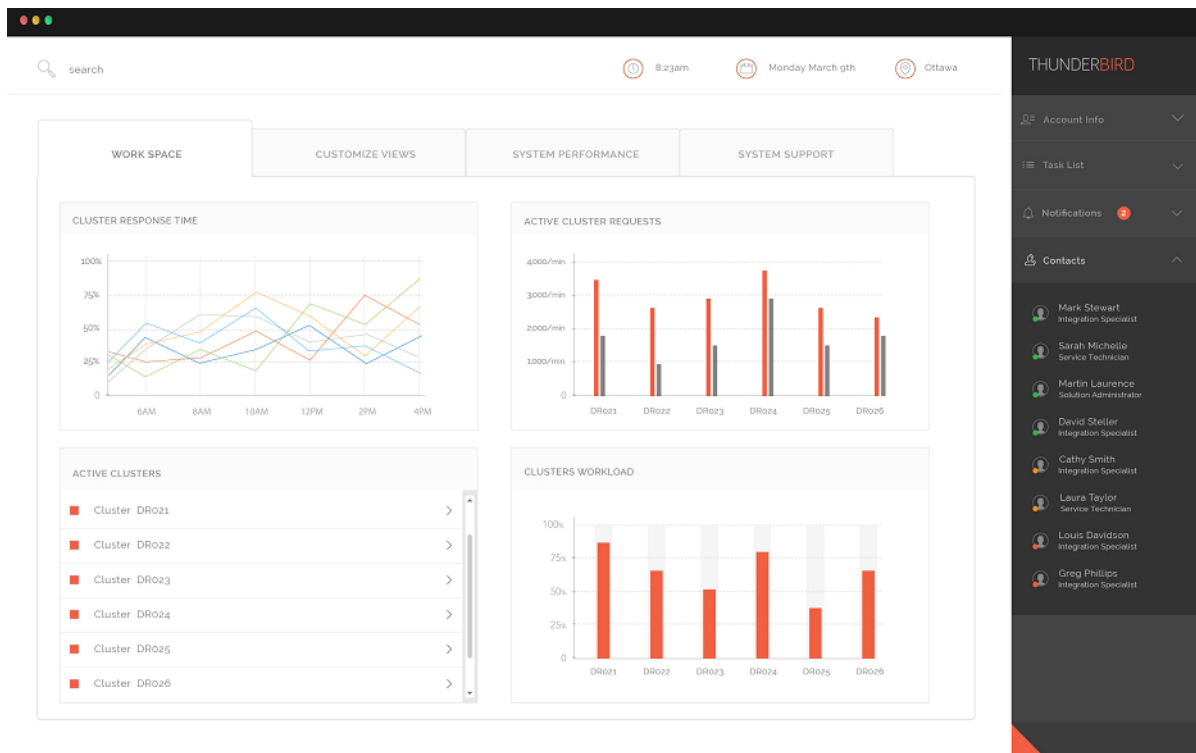6. To log off, click the **Home** tab and then click **Log Off** button.

Workspace environment

View analysis of cluster operations.

The **Workspace Tab** includes four different data views to provide a detailed overview of how your project is using cluster resources. These data views display:

- Cluster response time.
- Cluster requests.
- Active host servers.
- Cluster workload.

Figure 2: *MobileView* **Workspace**

Content is automatically updated in these data views when events occur related to the project you are monitoring. This provides you with real-time information that is crucial for monitoring your project's use of cluster resources as effectively and efficiently as possible.

Account Information	Access and modify account information.
Task List	Access assigned tasks.
Notifications	View notifications.
Contacts	View a list of contacts and interact using messaging.
Search	Search for documentation, cluster hosts, reports, and other resources.
Session Details	Displays current session details including date, time, and location.
Workspace Tab	View reports on cluster operations. The **Workspace** tab includes different data views to provide a detailed overview of how your tasks are using cluster resources.
Customize Views Tab	Access the **Customize View** tab to reconfigure the: • reports are displayed in the **Workspace** tab • the layout of reports within the **Workspace** tab • the definition of individual reports • the design of customer reports
System Performance	View reports on task progression and cluster activity. These reports provide in depth, real-time analytic information about current jobs and the associated cluster activity. View reports on job progression. The **System Performance** tab displays your current jobs as they progress towards their targets.You can modify the reports according to the time period and tasks displayed.

| System Support | The **System Support** tab provides access to three important sub-tabs: |

- **Troubleshooting** which provides access to structured diagnostic procedures to be used to isolate and resolve system problems.
- **Documentation** which can be searched using a combination of full-text queries and filter selections.
- **Discussion board** where past and ongoing moderated discussions can be accessed and participated in.

Contact Support if you have trouble using *MobileView* and cannot find the answers you need on the Troubleshooting or Documentation pages.
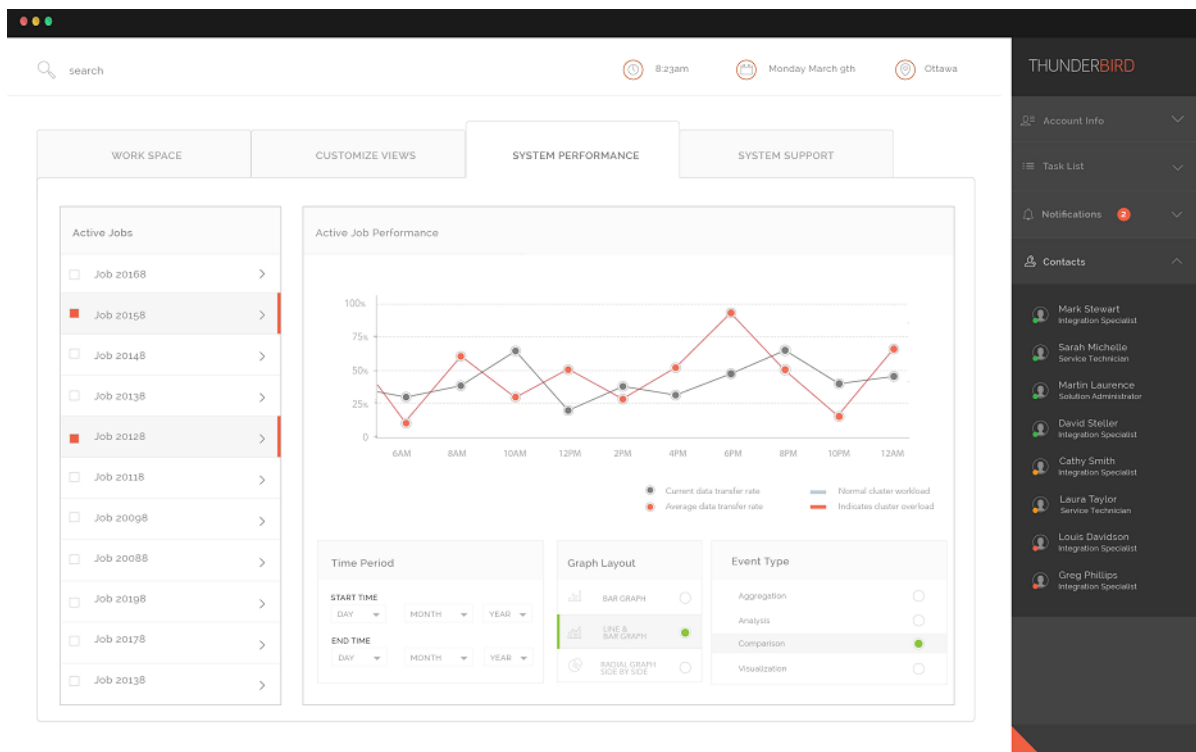
System performance

MobileView reports on system performance.

The **System Performance Tab** provides a data view of your project's progress towards its targets. Using the **Data View** widget in the top right hand corner, you can manipulate the data stream:

- Change the time period displayed using the (insert time period icon) icon.
- Select different tasks to see how specific aspects of your project are progressing using the (insert task icon) icon.

You can use the real-time System Performance readings to better manage your project and subordinate tasks.

Figure 3: *MobileView* **Performance Monitor**

Monitoring **System Performance**

The **System Performance** tab provides the ability to monitor the performance of selected cluster hosts and specific processing jobs. In order to facilitate this, the **System Performance** tab provides simple mechanisms for selecting **active jobs** (tasks), setting the **time period** within which analysis and reporting will occur, and the type of **graphical layout** and **event type** will be applied.

- **Active Jobs** Analysis

- Based on the **Active Clusters** selected in the **Workspace** view, the subordinate active jobs will be displayed.
- The data stream in the data view will be updated to reflect the active jobs selected.
- These settings will be maintained until changed.
- These settings can be saved for later use or shared with colleagues.
- **Time Periods**

  - Use the **Time Period** controls in the **System Performance** view to constrain the analysis being performed to a specific time period.
  - Use the date controls to set a start and end time for the analysis window.

    - When you select a date control, a **Calendar View** will open.
    - Within the **Calendar View**, start and end dates can be chosen.
    - The **Calendar View** provides fields for designating specific start and end times.
    - The **Calendar View** provides the option to define rules that will be used to automatically select date and time ranges.
  - The data stream in the data view will be updated to reflect the time period selected.
  - These settings will be maintained until changed.
  - These settings can be saved for later use or shared with colleagues.

System diagnostics

View analysis of cluster status and performance. The data views will indicate whether active clusters are performing as expected or not.

The **Troubleshooting** sub-tab provides a data view for cluster modules actively engaged with your project's tasks. The data views provide details regarding the current status and projected performance of the cluster modules.
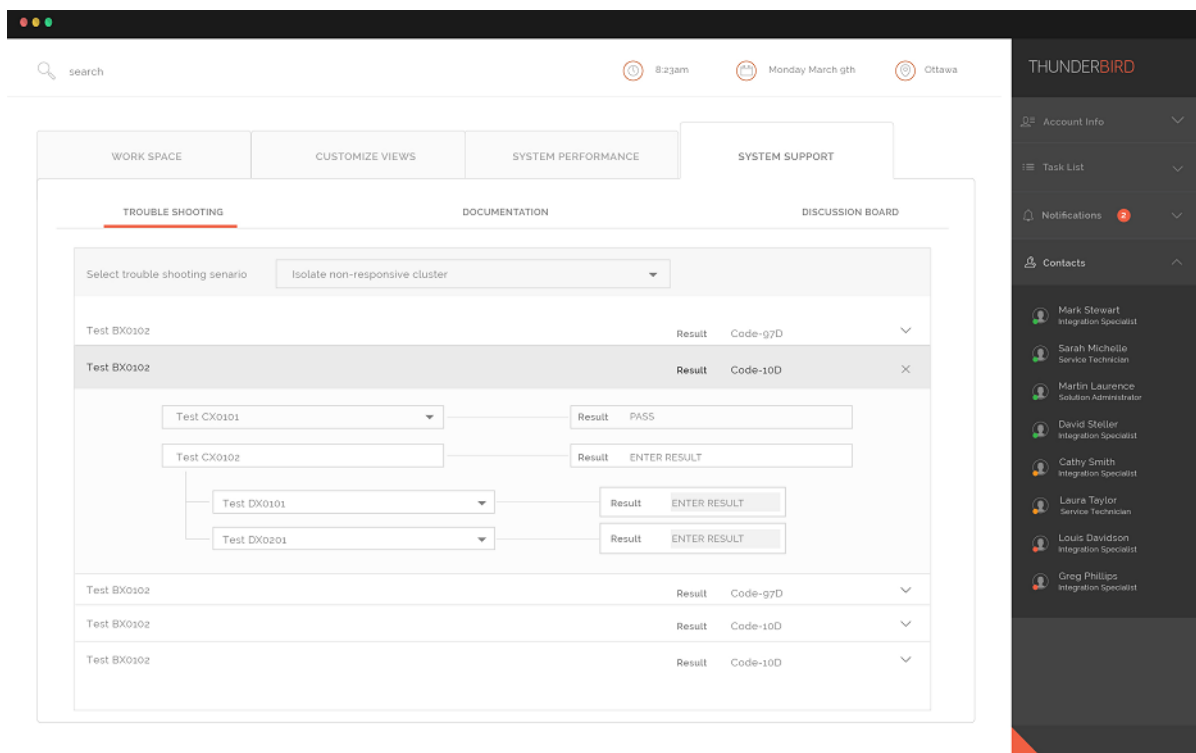
Figure 4: *MobileView* **System Support Tab: Troubleshooting**

The System Diagnostic troubleshooting agent will run a series of interactive tests to identify and isolate problems within the *StormCluster* grid. A typical interaction would proceed as follows:

- User selects the **Troubleshooting Scenario** that best fits the observed situation.
- A series of tests will run, with results either being captured and displayed automatically or being observed and entered by the user.
- The result from one test may lead to one or more additional tests being run.
- One or more problems will be identified, isolated, and confirmed by the tests.
- One or more resolution measures will be identified.
- Resolution measures will include references to the applicable task documentation.

For each cluster module, a data view presents a graph depicting the clusters progress. Three different health indicators signal the current or future processing status:

Table 1: System health indicators

Indicator	Status	Description
⦿	Healthy	Indicates regular and sustained cluster performance.
⚠	Warning	Indicates that the cluster is not performing optimally or cannot address projected workloads.
⦿	Error	Indicates that the cluster has stopped processing a task.

If the cluster has stopped processing a task, it is not performing optimally, or it cannot address projected workloads, you will also receive a notification message alerting you to the problem. Visit the **Diagnostics Tab** to see additional information on the issue, select actions to amend the situation, and monitor the impact of your intervention.

Frequently Asked Questions

Answers to your frequently asked questions about *MobileView*.

How do I change my password?

You can change your password after you log on to *MobileView*.

Select the **Account** button in the top right hand corner, then select the **Settings** option. In the Settings tab, click the **Change Password** button. In the Are-you-sure-you-want-to-change-your-password? dialog box, enter your old password, enter your new password twice, and click **OK**.

Can I create a custom data view?

Yes. You can create custom data views that provide analytics specific to the needs of your project in the **Customize Views** page. You can analyze the tasks, targets, and clusters associated with your project.

How do I generate a custom query?

You can generate customized queries on the tasks, clusters, and targets in your *MobileView* system for investigation or maintenance purposes.

Within the **Customize Views** tab, use the filters in the **Query Pane** to set up your query. Click on a filter heading to turn it on or off and click the **Generate** button to run your data analysis.

How do I diagnose an issue with cluster activity?

If the data views in the **Troubleshooting** sub-tab have either the error icon or the warning icon, you will want to get more details regarding the issue. Initiate the applicable diagnostics sequence of tests.

Table 2: System health indicators

Indicator	Status	Description
▣	Healthy	Indicates regular and sustained cluster performance.
▲	Warning	Indicates that the cluster is not performing optimally or cannot address projected workloads.
▣	Error	Indicates that the cluster has stopped processing a task.

Click on the **Data View** widget, and then select the **Diagnose** option. The system will return a detailed account of the issue and recommended action for amending the problem.

Common Tasks

Messaging Overview

Receiving and sending messages and notifications.

Introduction

The message manager in *MobileView* allows you to do the following:

- Send messages.
- Receive messages and notifications.
- Reply to messages.
- Forward messages to others.
- Save messages for later reference.
- Delete unwanted messages.
- Acknowledge notifications.

Sending Messages

You can send a message to an individual contact or to a group of contacts in *MobileView*. You can compose a message and then add one or more recipients or you can select one or more recipients and then compose your message. All messages are retained within *ClusterStore*.

Receiving Messages and Notifications

You can receive messages from other *MobileView* users. You can also receive automated notifications regarding alerts or alarms associated with your project.

Replying to Messages

You can reply to messages you have received using the **Reply** option. You cannot reply to notifications. See the section, "Acknowledging Notifications", below.

Forwarding Messages

Providing it is not marked as Private, you can forward a message to an individual or group of people using the **Forward** option. When forwarding, you can include your own message.

Saving Messages

Saving messages allows you to store messages for reading at a later time. Once you save a message, you can still reply to the sender or, unless the message is marked as Private, send it to other people or groups of people.

Deleting Messages

You can delete messages by selecting one or more messages and using the **Delete** option. Deleted messages are not removed from the message archive within *ClusterStore*. These archived messages can be retrieved by a system administrator.

Acknowledging Notifications

Each notification you receive will include some text describing the issue, as well as direction towards further information and recommended action. Once the appropriate action has been taken, click the **Acknowledge** button at the bottom of the notification message.

Customize Views

Create custom data views that provide analytics specific to the needs of your project.

In the **Customize Views** page, you can query a range of different entities in order to analyze different aspects of your project and associated cluster activity. You can analyze the tasks, targets, and clusters associated with your project. This allows you to gain more powerful insights into the status and progress of your project.
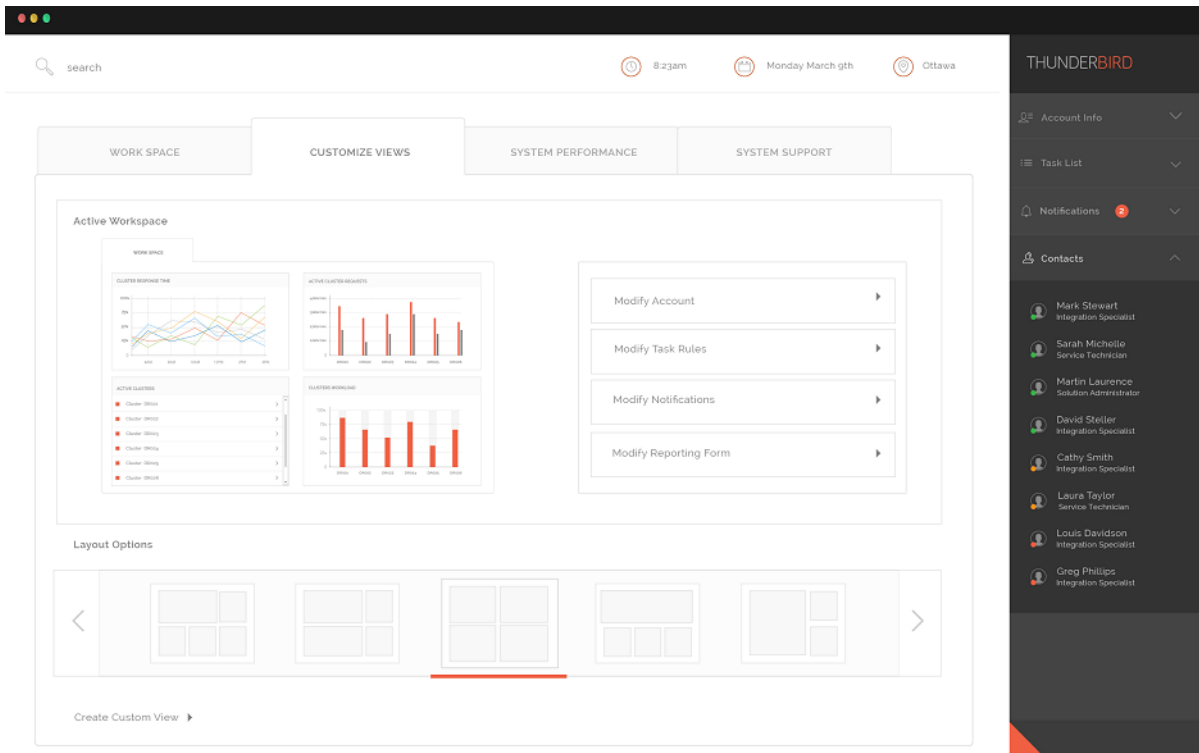
Figure 5: *MobileView* **Customization Tab**

There are a variety of existing data analysis tasks available for constructing your queries or you can develop your own. Once you have developed your custom data view, you can save, print, or export the results.

Analysis Pane	Displays the returned results. The data will be displayed differently and different commands will be available, depending on the type of data analyzed and the types of queries enacted.
Number of Results	Displays the number of returned results. A warning is issued when your query returns too many rows. If this happens, adjust your query filters to reduce the number of results.
Data columns	Right-click a column heading to determine whether a column is displayed in the report pane.
Entity Pane	Lists the data analysis tasks and other parameters - including tasks, clusters, users, and hosts - that are available for analysis.
Query Pane	Use the **Query Pane** to set up the queries from your analysis.
Query filters	Use the filters in the **Query Pane** tab to set up your query. Click on a filter heading to turn it on or off. Invalid filters display as *Warning* or *Error*. Hover your mouse over the filter to view the reason it is invalid.
Generate	Click the **Generate** to run your data analysis.
Export button	Click to export your data analysis once it is generated.
Print button	Click to print your data analysis once it is generated.
Save button	Click to save your data analysis as a data view.

Cluster capacity reports

Reports the usage of all slots in the cluster.

With the *cluster capacity* capability provided by *ClusterView* and *ClusterAnalyzer*, implementation teams can:

- Analyze activity by project and user
- Understand and improve service levels
- Monitor and improve scheduling policies
- Alleviate bottlenecks and boost productivity
- Manage the performance of the *StormCluster* environment
- Analyze capability in order to:

  - Analyze capacity
  - Tune cluster service level definitions
  - Refine job scheduling rules

Worksheets in the *ClusterAnalyzer Dashboard*:

- **Capacity Summary**: Shows a map of the clusters, which you can customize to show locations within a data center. You can view and manage efficiently many years of data.
- **Cluster Usage**: View the number of slots in each state that varies over the time period.
- **Host Usage**: Drill down to the host level and see what servers are used by individuals working on a particular project.
- **Cluster Workload**: Slot status for a particular cluster based on the selected dimension.
- **Data**: Visualize average slots, average CPU usage, and average memory usage data by changing the values on the right.

Related information

Troubleshooting cluster reporting problems on page 16
You can troubleshoot clusters using the **Diagnostic** tool.

Quick reference: data views on page 18
Use the data views to see different metrics about your project.

Generating data views

To analyze your data and generate a data view, you must set the query filters, and then run the query. After you generate the data view, you can work with your results.

Customized data views present your data based on the queries you create to analyze the tasks, clusters, and targets associated with your project.

The maximum number of results you can receive in *MobileView* is 10,000. By default, the maximum number of results is 2,000. This value can be changed in the **Settings** menu within your **Account** page.

To generate a data view:

1. Open an existing data analysis task in the **Entity Pane**, or create a new data analysis task in the **Query Pane**.
2. In the **Query Pane**, use the query filters to further develop or modify your analysis.

   ⓘ   **Tip:** Some of the filters have a **Select All** button. This button does not appear if there are more than 100 entities to select from, because if you query too many entities the report takes too long to generate.
3. Set a date and time range for the report.
4. Click **Generate** button.

   If there are invalid filters, the **Generate** button is unavailable.

   The query results are displayed in the **Analysis Pane**. You can sort the results by column.
5. Analyze the query results.

   The query results depend on the type of data analysis task.
6. Work with the query results.

   Depending on the items in the query results, you can print, export, or save your data analysis as a data view.
7. (Optional) Save the data view as a template.

This will save your current query filter and report column settings.

Related information

Query warning messages on page 17

When you are generating a data view or analyzing entities, you must use filters to specify your search criteria. When a filter is activated, it is indicated with the icon. However, if a filter is invalid, an error or warning message is displayed.

Query filters

Before generating a data view, you must filter your query. This section lists the query filters available for each analysis. This list is organized alphabetically by query filter.

Query filter	Associated reports	Description
Access rule	• Access rule configuration	Select the access rule to investigate.
Acknowledged by	• Alarm report	Users who acknowledged the alarm.
Acknowledged on	• Alarm report	Alarm acknowledgement time range.
Action taken	• Hits	User hit actions (Monitor, Diagnose, Clear).
Acknowledgement type	• Alarm report	Check one of the following acknowledgement type options:
		Alternate — Alarm was acknowledged by a user using the alternate mode.
		Default — Alarm was acknowledged by a user, or auto-acknowledged by the system.
		Forcibly — An administrator forced the alarm to be acknowledged.
Alarm priority	• Alarm report	Alarm priority.
Alarms	• Alarm report	Select the types of alarms you want to investigate.
Application	• Activity trails • Audit trails	Which client application was used for the activity.
Archiver	• Archiver events	Select the Archivers to investigate.
Clusters	• Cluster activities	Select the clusters to investigate.
Compare with	• Inventory report	Compare entities with a source entity of the event.
Creation time	• Incidents	Incidents created/reported within the specified time range.

Query filter	Associated reports	Description
Credential	• Credential management	Specify whether or not the credential is assigned.
Custom fields	• Most reports	If custom fields are defined for the entity you are investigating, they can be included in this report. 📝 **Note:** You might not see the custom fields filter, depending on whether your user is configured to view that custom field.
Description	• Activity trails • Credential management	Restrict the search to entries that contain this text string.
Devices	• IO configuration	Select the devices to investigate.
Entities	• Audit trails	Select the entities you want to investigate. You can filter the entities by name and by type.
Health event	• Health history	Name of the health event.
Health severity	• Health history	Severity level of the health event.
Hit rules	• Hits • Reads	Select the hit rules to include in the report.
Hit type	• Hits	Select the type of hits to include in the report.
Impacted	• Activity trails	The entities that were impacted by this activity.
Incident time	• Incidents	Incidents reported within the specified time range. The incident time corresponds to the event or alarm timestamp the incident refers to. If the incident does not refer to any event or alarm, then the incident time corresponds to the creation time.
Initiator	• Activity trails	User responsible for the activity.
Investigated by	• Alarm report	Which user put the alarm into the *under investigation* state.
Investigated on	• Alarm report	Specify a time range when the alarm was put into the *under investigation* state.
Machine	• Health history	Select a computer that was having health issues to investigate.
Modified by	• Audit trails	User responsible for the entity modification.

Query filter	Associated reports	Description	
Modification time	• Audit trails • Incidents	*Audit trails* **task**	Entities modified within the specified time range.
		Incidents **task**	Incidents modified within the specified time range.
Notes	• Incidents	Enter text to find incidents with a description starting or containing the specified text.	
State	• Alarm report	Current state of the alarm.	
		Active	Alarm is not yet acknowledged. Selecting an active alarm shows the alarm acknowledge buttons in the report pane.
		Acknowledged	Alarm was acknowledged by a user, or auto-acknowledged by the system.
		Under investigation	Alarm with an acknowledgement condition that is still active was put under investigation.
		Acknowledgement required	Alarm with an acknowledgement condition that was cleared is ready to be acknowledged.
Triggered on	• Alarm report	Alarm trigger time range.	
Triggering event	• Alarm report	Events used to trigger the alarm.	
Users	• Hits • Reads	Select the user name.	

Troubleshooting cluster reporting problems

You can troubleshoot clusters using the **Diagnostic** tool.

A cluster that is not properly configured is displayed in yellow. A cluster that is offline is displayed in red. The **Diagnostic** tool can help you troubleshoot the problem with the cluster.

To troubleshoot a cluster:

1. Open the **Diagnostics** tab.
2. Select the data view for the cluster or task in question.

3. From the **Data View** widget, the diagnose tool.

> ⚠️ **Important:** The diagnose tool is only available in **Data View** widget in the **Diagnostics** tab. It is not available as an option in the data views for the **Operations** or **System Performance** tabs.

A troubleshooting tab is displayed, showing the results from the diagnostic test performed on the selected entity.

4. You can save or share the results of the diagnostic test.

   - To save the results of the test, click **Save**.
   - To share the results of the test, click **Send**.

5. Click **Close** to end the diagnostic session.

Related information

Reports the usage of all slots in the cluster.

Query warning messages

When you are generating a data view or analyzing entities, you must use filters to specify your search criteria. When a filter is activated, it is indicated with the icon. However, if a filter is invalid, an error or warning message is displayed.

Code Type	Value	Description
A	12211	`Error.` There is a problem with the information in the filter. You cannot generate the report or search when there is an error.
B	23324	`Warning.` There is a potential problem with the information in the filter. The report or search might take longer than usual to generate.

Hover your mouse over the health status icon to see the warning or error message in a tooltip. The following table lists some examples of messages you can receive, and what you can do to fix the issue.

Warning/Error Message	Try This
The search covers multiple days	Decrease the time range for your report or search.
There are no selected entities	Your filter is empty. Select an entity or turn off the filter.
There is no selection	Your filter is empty. Select an option or turn off the filter.
The dates and times are invalid	The time range is invalid. You might have set the start date and time after the end date and time, or the end date and time before the start date and time. Reconfigure your time range for the report.

Related information

To analyze your data and generate a data view, you must set the query filters, and then run the query. After you generate the data view, you can work with your results.

System notifications

Notifications regarding cluster activity.

Code Type	Value	Description
A	65778	`Error.` A task has failed to be processed and attempts to complete processing have been halted.
B	70945	`Warning.` A task has not been completed within the expected time frame. The system will contine to attemp to complete the task.
G	10010	`Confirmation.` Confirmation that a task has been successfully completed. Code extensions are used to provide further information about the time taken to complete the task: • 3-a. Task completed within a timeframe < 20m • 3-b. Task completed within a timeframe < 40m • 3-c. Task completed within a timeframe = 50m • 3-d. Task completed within a timeframe > 60m • 3-e. Task completed within a timeframe > 80m
X	99999	`Log.` Supplemental message transaction log has been generated (in response to a configuration setting).

Quick reference: data views

Use the data views to see different metrics about your project.

Table 3: Data views

Subject	Data View
Cluster requests	• **Workspace** tab • **System Performance** tab
Cluster workload	• **Workspace** tab
System health indicators	• **System Support** tab • **Diagnostics** sub-tab
Memory usage	• **System Performance** tab
Job progress	• **Workspace** tab • **System Performance** tab

Subject	Data View
Processing speed	• **System Performance** tab
Response time	• **Workspace** tab • **System Performance** tab

Related information

Cluster capacity reports on page 12
Reports the usage of all slots in the cluster.

Quick reference: System health indicators

Health icons indicate the current condition of cluster modules.

Table 4: System health indicators

Indicator	Status	Description
▣	Healthy	Indicates regular and sustained cluster performance.
▲	Warning	Indicates that the cluster is not performing optimally or cannot address projected workloads.
▣	Error	Indicates that the cluster has stopped processing a task.

Index

C

cluster
    capacity *12*
ClusterView
    query filters *14*

M

MobileView
    customize views tab *11*
    data views *18*
    general introduction *3*
    generating data views *13*
    logging in *4*
    messaging overview *10*
    organization *3*
    system diagnostics tab *8*
    system performance tab *7*
    workspace tab
        query warning messages *17*
MobileViewClusterControl
    cluster reporting
        troubleshooting *16*

S

StormCluster
    system health indicators *19*
    system notifications *17*