Marvel-Run

User Guide

Notice

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The Marvel Monitoring Enterprise Portal User's Guide describes the Marvel Enterprise Portal features for working with your Marvel Monitoring products.

Users of this book should be familiar with performance monitoring concepts. If you use the Marvel Data Warehouse, you need to be familiar with the operating system that hosts the warehouse.

The document assumes no previous experience with Marvel Monitoring. To learn more about this family of products:

Legal Information

Document Revision History

The following table provides an overview of the significant changes to this guide for this current release. The table does not provide an exhaustive list of all changes made to the guide.

Document Number	Date	Change Summary
OL-32397-01	June 19, 2023	Initial version of the document.
OL-32397-02	July 07, 2023	Updated Appendix A.
OL-32397-03	July 08, 2023	Updated Appendix B
OL-32397-04	Mar 24, 2024	Chapter 5: Custom Workspaces added.

Conventions

This document uses the following conventions:

Convention	Description
bold font	Commands, keywords, and UI controls appear in bold font.
Italic font	Emphasized terms
`Courier font`	User inputs, code phrases and snippets.
Bold Courier font	Bold Courier font indicates text that the user must enter.
[x]	Elements in square brackets are optional.

Convention	Description
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.

Related Documentation

For additional information about the Cisco RAN Management Systems, refer to the following documents:

- *Marvel Run Management System Administration Guide*
- *Marvel Run Management System API Guide*
- *Marvel Run Management System SNMP/MIB Guide*
- *Marvel Run Management System Release Notes*

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Marvel Run Search Tool, submitting a service request, and gathering additional information, see What's New in Cisco Product Documentation, at: http://www.ANU.com/c/en/us/td/docs/general/whatsnew/whatsnew.html. Subscribe to What's New in Marvel Run Product Documentation, which lists all new and revised Marvel Run technical documentation as an RSS feed and delivers content directly to your desktop using a reader application. The RSS feeds are a free service.

Documentation Feedback

To provide technical feedback on this document, or to report an error or omission, please send your comments to abrar.techwriter@gmail.com. We appreciate your feedback.

Preface

Foreword

Welcome to the Marvel Monitoring Enterprise Portal User's Guide. This document is designed to provide with comprehensive information about the Marvel Enterprise Portal features for effectively working with your Marvel Monitoring products. Whether you are a new user or seeking to enhance your understanding of the portal, this guide will serve as a valuable resource.

To make the most of this guide, it is recommended that users have a basic familiarity with performance monitoring concepts. This foundational knowledge will enable you to grasp the concepts and functionalities discussed throughout the document, empowering you to leverage the full potential of the Marvel Monitoring Enterprise Portal.

If you are utilizing the Marvel Data Warehouse, it is important to note that familiarity with the operating system hosting the warehouse is necessary. Understanding the operating system will facilitate a deeper comprehension of the integration between the Marvel Monitoring products and the warehouse.

It is worth emphasizing that this user's guide is tailored for individuals with no prior experience using Marvel Monitoring. The document has been structured to provide clear and concise explanations, ensuring that users can easily follow along and apply the information to their specific monitoring needs.

By leveraging the insights and instructions outlined in this guide, you will gain a comprehensive understanding of the Marvel Enterprise Portal features and how they can be effectively utilized in conjunction with your Marvel Monitoring products. We encourage you to explore the various sections of this document, acquaint yourself with the portal's capabilities, and harness its power to enhance your performance monitoring processes.

Thank you for choosing the Marvel Monitoring Enterprise Portal User's Guide. We are confident that it will equip you with the necessary knowledge and skills to maximize the value and potential of your Marvel Monitoring products.

Contents

Chapter

1

Introduction

Topics:

Getting Started

The Marvel Enterprise Portal is the window into your Marvel monitored environment. The portal lets you explore your enterprise in the same way that your browser lets you explore the Internet. Consult the topics here to answer the questions, Where do I start? and What can I do here?

New in this Release

The following enhancements have been made to the Marvel Enterprise Portal for Version 6.3.

Application Property Installation attribute group	The Application Property Installation attribute group provides information related to the self-describing agent installation process.
ITM Historical Collection attribute group	The ITM Historical Collection attribute group provides information about the active historical collections that are exporting data from a location, including the metrics about each historical collection.
Historical Export Statistics workspace	The Historical Export Statistics workspace displays the enterprise and private historical exports to a Warehouse Proxy agent instance performed by a selected managed system. This workspace is available for monitoring servers and monitoring agents.
Historical situations	Historical_Exports_Critical, Historical_Exports_Failure, Historical_Exports_Warning, and Historical_RowsCorrupted help you manage your historical exports.
Define symbol name/value pairs for physical or logical navigator nodes	You can now define symbol name/value pairs for physical or logical navigator nodes. You can then create Take Action commands that reference these symbols.
Connect points in plot charts	The plot points are connected with lines even when gaps in time are present. This feature is only available for plot charts. Use the Always connects points option on the Style tab.
Marvel Enterprise Portal browser support for 32-bit and 64-bit browsers	The Marvel Enterprise Portal browser client now supports both 32-bit and 64- bit Firefox and Internet Explorer browsers on both Windows and Linux platforms. Support for the most current Extended Support Release versions of the Firefox browser is now available. Support for earlier versions of Firefox before version 3.6 is no longer supported in the IBM Marvel Monitoring 6.3 release.
Java™ 7 support	The Marvel Enterprise Portal now uses IBM Java 7 as the default JRE for all deployment modes: desktop, browser, and Java WebStart. The use of IBM Java 5 is no longer supported in the IBM Marvel Monitoring 6.3 release.

Ability to access multiple Marvel Monitoring domains from a single browser instance	It is now possible to connect the Marvel Enterprise Portal to multiple IBM Marvel Monitoring domains from a single browser instance. Before release 6.3, if you need to manage multiple domains using the Marvel Enterprise Portal, you were required to either launch separate browser instances (one for each domain) or use alternate client deployment modes (such as a desktop client or Java WebStart). Minor changes were also made to the Marvel Enterprise Portal for content improvements. New features and capability enhancements were made to the Marvel Management Services. For more information, see the following publications on the Marvel Monitoring Information Center.

Marvel Management Services Architecture

The Marvel Enterprise Portal is based on a client-server-agent architecture. It comprises of server hosts, delivers, and manages most of the resources and services to be consumed by the client. The agent collects the monitored data and passes it to the Marvel Enterprise Monitoring Server. A high-level representation of client-server-agent architecture is shown in the following figure.

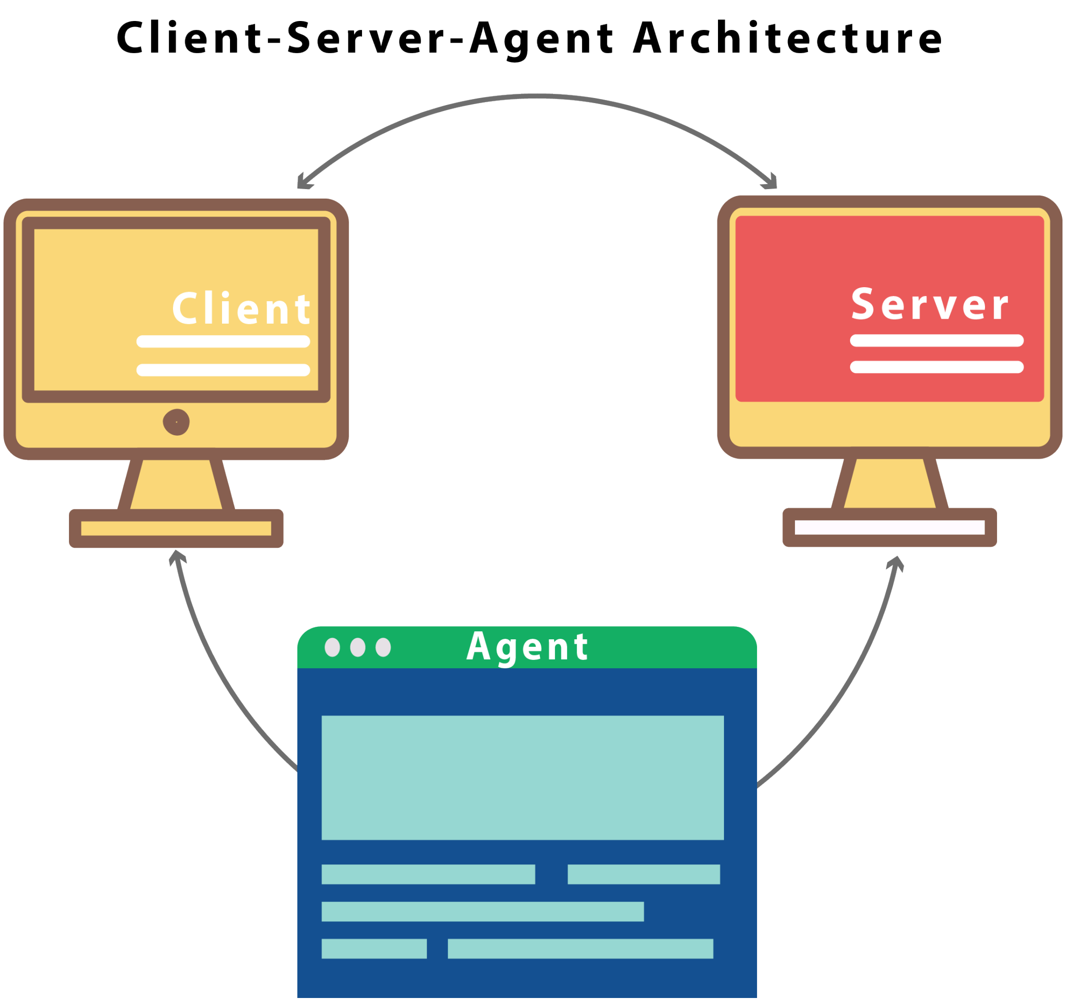


Figure 1: Client server agent architecture

More details on the architecture are provided in the following sections.

Client

The Marvel Enterprise Portal client is a Java-based user interface for viewing and monitoring your enterprise network. Depending on how it was installed, you can start Marvel Enterprise Portal as a desktop application, a web application through your browser, or Java Webstart, which downloads the installable software from the Marvel Enterprise Portal Server, installs it, and then makes it available as a desktop application.

Server

The Marvel Enterprise Portal client connects to its application server, the Marvel Enterprise Portal Server. The Marvel Enterprise Portal Server is a collection of software services for the client that enables retrieval, manipulation and analysis of data from the monitoring agents on your enterprise. This server connects to the Marvel Enterprise Monitoring Server, which acts as a collection and control point for alerts received from the monitoring agents, and collects performance and availability data. The main, or hub, Marvel Enterprise Monitoring Server correlates the monitoring data collected by agents and remote servers and passes it to the Marvel Enterprise Portal Server for presentation and your evaluation.

Agent

Marvel Enterprise Monitoring Agents are installed on the systems whose applications or resources you want to monitor. The monitoring agent collects the monitored data, and passes it to the Marvel Enterprise Monitoring Server to which it is connected. The client gathers the current values of the monitored properties, or attributes, and displays them in views. It can also test the values against a threshold and display an event indicator when that threshold is exceeded.

Marvel Enterprise Portal Window

Use this topic to familiarize yourself with the elements of the Marvel Enterprise Portal window.

The Marvel Enterprise Portal window displays information about monitored resources in your enterprise. On the left is the Navigator, which shows the arrangement of your monitored network and allows you to access information collected by different agents on your monitored systems. On the right is a workspace. The workspace can be divided into as many smaller frames, or panes, as you can reasonably fit inside the window. When you select an item in the Navigator, a new workspace opens with a set of views for that item.

The window comprises the following elements:

Title bar	In browser mode, the title bar displays the name of the workspace. In desktop mode, the title bar displays the name of the workspace, the name, and port number of the Marvel Enterprise Portal Server, and the user name. For example, `NT Cache Details - mars:14000 - JONDO` tells us that the NT Cache Details workspace is open and the user JONDO is connected to the Marvel Enterprise Portal Server named mars through port number 14000.
Banner	The banner is displayed when you run the Marvel Enterprise Portal in the browser mode. You can replace it with your own .GIF graphic, such as your company logo.
Menu bar	Marvel Enterprise Portal has a menu bar that includes the following four menus:

Table 1: Menu bar menus

Menu	Function
File	The File menu has options for working with workspaces, setting a trace, and exiting the Marvel Enterprise Portal. The Trace Options are used only as instructed by an IBM customer support representative.
Edit	The Edit menu has editing options for workspace properties, historical data collection configuration, policies, situations, user IDs, queries, and object groups.
Edit	The View menu has options for opening other workspaces for a Navigator item, hiding or showing the toolbars and status bar, refreshing the data in this workspace, turning off sound for events, and for opening other Navigator views.
Help	The Help menu opens the Marvel Enterprise Portal Help, a 10-minute tour to give you some hands-on experience, and links to the IBM website.

In browser mode you can also use the browser menu bar, which is displayed just below the title bar.

If your user ID does not have View or Modify permission for a function or does not have Workspace Author Mode permission, you will not see certain items in the menus, including the pop-up menus. For example, if you do not have Workspace Author Mode permission, the **Properties** menu item is not displayed.

Browser Client Differences

The Marvel Enterprise Portal can be started as a desktop application or through your browser by entering the URL for the Marvel Enterprise Portal Server. There are a few differences in operation between the two clients..

Marvel Enterprise Portal can be used with either a desktop or a browser client. For a desktop client, the application software is installed on your system and you start it as you would any other application; for a browser client, the application software is installed on the web server that is integrated with the Marvel Enterprise Portal Server and users log on from their browsers. The software is downloaded to your system the first time you log on to Marvel Enterprise Portal, and thereafter only when software updates are available.

Portal toolbar	Marvel Enterprise Portal functionality is the same for both types of clients except for the **Back**, **Forward**, **New Window**, and **Stop** tools, which are not on the portal toolbar because they are already available browser toolbar. As well, keyboard shortcuts also used by Internet Explorer such as F1 for Help and Ctrl+H for the History Configuration window is not available in the browser mode.
Workspaces have URLs	When you are logged on to the Marvel® Enterprise Portal Server through your browser, the address bar displays a URL for each workspace. You can log on and open to the workspace of your choice by adding the workspace URL to the logon URL. You can also send the URL in an email, include it in a hypertext link in an HTML page or other document, or bookmark it.
Tabbed workspaces	Every workspace has properties that control how it accessed and displayed. One of the options enables you to open the workspace in a new window instead of replacing the previous workspace in the same window. For browsers that are enabled for tabbed web pages, the browser client uses those settings and opens the workspace in a new tab.
Launch in context and with single sign-on	You can launch products in context, such as to the IBM Marvel Application Dependency Discovery Manager from the browser client. If your environment and user ID are configured for single sign-on, you do not need to re-authenticate as you launch into other applications.
Custom banner	The browser client has a banner image and text that you can customize for your organization.

Note: As an alternative to the browser client, you can use IBM Web Start for Java to download the Java Web Start client from the Marvel Enterprise Portal Server.

Monitoring Agents

Marvel Enterprise Monitoring Agents are installed where you have resources you want to monitor. The agents and the operating system, subsystem, or computer that they are running on are referred to as managed systems. The Navigator Physical view shows the types of agents installed and running on each managed system.

Some agents also have subagents. In such instances, the agent is the managing agent. For example, the WebSphere® MQ Integrator Series agent has MQSI Broker subagents. Subagents are displayed in the Navigator below the managing agent and its attribute groups.

MQSI Agent - ::KQIA

- MQSI Components
- Product Events
- MQSI Broker MQSIBroker1::KQIB
    - Broker Events
    - Flow Events
    - Broker Information
    - Broker Statistics
    - Execution Group Statistics
    - Message Flow Statistics
    - Neighbors
    - Topics

The agent gathers the current values of the attributes (elements) specified in a view. Gathered attribute values can also be tested against a threshold and display an event indicator when conditions exceed the threshold. Some agents have fewer than 100 attributes and many have several hundred. These attribute values are displayed in the table and chart views of workspaces at the system, agent, and attribute group level of the Navigator Physical view. When an attribute value (or range of values) is specified in a situation, as a table threshold, or as a chart or table view filter, Marvel Enterprise Portal compares the current value with the value specified and does the following:

- If the comparison in the situation is met, then the situation is true, and the event indicators are displayed in the Navigator.
- If the compared value exceeds the threshold specified for the table, the cell is highlighted in red, yellow, or blue.
- If the compared value meets the filter condition, it is included in the chart or table display.

Features

The Marvel Enterprise Portal gives you a single point of control for managing the resources your applications rely on, including a range of operating systems, servers, databases, platforms, and web components. For example, a typical IT network might have a web server on Windows, an application server and database on UNIX, and a transaction processor on CICS® on the mainframe. The Marvel Enterprise Portal brings all these views together in a single window so that you can see when any aspect of your network is not working as expected. Your IBM Marvel Monitoring products use the portal interface with these major features, and you can find demos for many of them on developer works in the Media Gallery.

Table 2: Features

Feature	Description
Customizing workspaces	Marvel Enterprise Portal presents information in a single pane of glass called a workspace, which consists of one or more views. Monitoring data is retrieved at regular intervals and the results sent to the workspace in the form of chart and table views. You can start monitoring activity and system status immediately with the predefined workspaces. With just a few clicks of the mouse, you can tailor your own workspaces to look at specific conditions, display critical threshold values in red, and filter incoming data so you see only what matters.

Feature	Description
Customizing workspace views	The charts display data that the monitoring agents have gathered from the systems where they are running. They can also show data from any ODBC-compliant database you write a custom query for. The notepad view opens a simple text editor for writing text that can be saved with the workspace. The table view displays data that the monitoring agents have gathered from the systems where they are running. The message log shows the status of all situations distributed to the managed systems in your enterprise. The universal message console view shows situation and policy activity, and messages received as the result of universal message generation.

Predefined Workspaces, Situations, and More

Every agent is designed to monitor specific attributes of an operating system or other type of software. With these attributes, come definitions for use with the Marvel Enterprise Portal functions.

Use the definitions that have been designed for your product to begin monitoring and visualizing data immediately. Some definitions are ready to use; others are dormant until activated:

Workspaces

The workspaces that open when you click a Navigator item or select from the Workspace Gallery, are predefined. They provide visual feedback of real-time values from managed systems, and historical values when historical data collection has been configured. They provide a starting point for designing your workspaces.

Queries

The predefined workspaces are populated with data gathered as a result of queries, which are also predefined. Creating your queries from these predefined queries enable you to add or remove attributes, apply a sort order, and pre-filter the data to keep data retrieval at a manageable level and to enable you to more easily see data of interest.

Take action commands

Some agents have predefined take-action commands, such as the Windows OS agent Start Service and Stop Service commands. They are available for selection and they provide examples of the kinds of actions that you might want to define for maintaining managed systems.

Situations

The tests for conditions that you want to be alerted for are available in the predefined situations. To avoid an overwhelming number of events opening in a newly managed environment and, conversely to avoid missing important events because the comparison criteria were set too low, many of the predefined situations for an agent are not set to start automatically. They remain

	stopped until you start them manually or set them to **Run at startup**. A good way to find out which situations are set to run at startup and which ones are not, is to filter the Situation editor tree with Show Situations, which is available when the Situation editor is opened from the Navigator pop-up menu. As agents report monitoring data, especially when that data is being collected and stored in a Marvel Data Warehouse, you can better determine the values and circumstances that are worthy of an alert, such as high CPU activity on a transaction server at peak times.
Policies	The predefined policies that are available with some products are not set to start automatically. This is primarily because policies automate activities, as described in the policy workflow.
Managed system groups	The Marvel Enterprise Monitoring Server and every Marvel Monitoring product has at least one predefined managed system group, indicated by an asterisk at the beginning of the list name, such as `*NT_SYSTEM` for the Windows OS agent. When you assign one of these managed system groups to a situation, policy, historical collection configuration, or custom Navigator, all managed systems with that agent installed are selected.
Navigator views	Some products have custom Navigator views for access to special features.

Related concepts

Using Workspaces on page 42

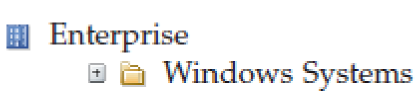
Marvel Enterprise Portal Tour

Welcome to the Marvel Enterprise Portal tour. In under 10 minutes, this hands-on practice introduces you to some of the major features.

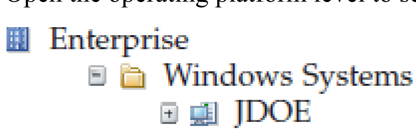
Navigator

The Navigator Physical view shows the physical hierarchy of the network, with *enterprise* at the top, followed by the *operating platform*, and so on. Have a look at the levels of the Navigator.

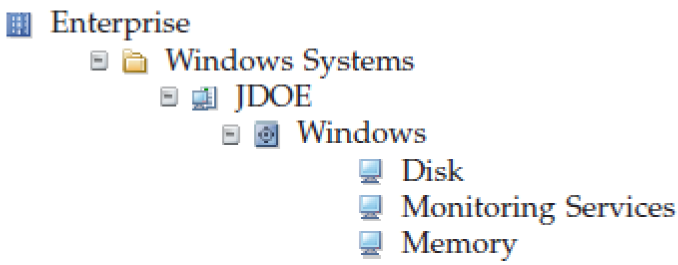
1. Click to open the operating platform level (Linux Systems, UNIX Systems, Windows Systems, or z/OS Systems).

   Opening a level in the Navigator reveals the next level in that branch.
2. Open the operating platform level to see the names for the *systems* running on that platform.

3. Open any system to see the monitoring *agents* installed on that system for monitoring applications and resources, and, below agents, the elements, or *attributes*, for which the agent can collect data for reporting and testing.



Expand and Collapse enables you to open and close levels in the Navigator without selecting an item.

Tip: You can close the tree entirely by double-clicking the Enterprise item. To expand the tree, double-click again.

Workspaces

Every item in the Navigator has a default workspace that opens when you select it. Multiple workspaces can also be accessed from a single navigator item. After you log into the Marvel Enterprise Portal Server, the Marvel Enterprise Portal window opens. The top item in the Navigator, Enterprise, is selected and its workspace is displayed.

- Select another Navigator item by clicking the icon for the operating platform or the name.

The workspace for the operating platform you selected replaces the one that was previously displayed. The workspace displayed when you click a Navigator item is the *default workspace* for that item. Your IBM Marvel Monitoring product might come with multiple workspaces for some items, and you can create additional workspaces of your own.

- Click Workspace gallery to see thumbnail graphics of all the workspaces that you can open for this Navigator item.

If this is a new installation, you will see the splash screen instead of a thumbnail version of the workspace in the gallery until you or another user who is logged on to the same Marvel Enterprise Portal Server opens the workspace for the first time. A check mark by a workspace name indicates that it is the default workspace for this Navigator item. You can reorder the workspaces in your copy of the gallery by clicking a thumbnail graphic and dragging it on top of the workspace to swap positions with.

Together, the Navigator and workspaces show the facets of your Marvel managed enterprise from the highest level to the most detailed.

Views

Marvel Enterprise Portal offers many different views that you can add to your workspaces. The view title bar has buttons for creating another view by splitting the view horizontally or vertically, for maximizing the view, and for deleting the view.

To add a different view complete the following steps:

1. Select a view, then click **Split Horizontally**.
   This tool divides the view space in half horizontally to create a copy of the original view.

   Note: If you cannot split a view and the tools for the notepad and other views are disabled (dimmed), your user ID does not have Workspace Author Mode permission.
2. Click your desired view type from the toolbar.
   For example, click Notepad
   When you click a view tool, the mouse pointer changes to an icon of the chosen view type (hand icon on Linux).
3. Click inside the view pane.
   The new view replaces the previous view.

Rearrange Views

To rearrange views complete the following steps:

1. Drag the title bar of one view and drop over another view.

   While dragging the title bar, you should see a semi-transparent copy of the view.
2. Release the mouse button to switch the views.

Types of Views

Followng are types of views available in the Marvel Portal Window.

Query-based Views	The table and chart views are the first step to getting meaningful information from the data being collected. When you understand what values and states are causing problems, you can refine your views to show what is important. For attribute groups with attributes that can be expressed meaningfully as objects and show their relationship to other attributes in the same group, there is also the *Relational Table Based* topology view. The table view and chart views display data the monitoring agents have gathered from the systems where they are running. The topology shows the arrangement of monitored components associated with its Navigator item.
Event Views	The message log view and console views (universal message, situation event, common event, and Marvel Enterprise Console) update automatically to show new events as they arrive and changes in event status as they occur. The graphic view gives you a pictorial alternative to the Navigator for indicating alerts. The message log view shows the status of events that have been opened on the entire monitored enterprise and can include up to 100 row entries at a time. The universal message console view displays situation and policy activities as they happen, such as when a situation has been created or deleted or a policy has been activated. The graphic view places Navigator items and their alerts as icons on a map or a picture to represent your monitored environment. The situation event console view shows the status of situation events that have been opened on this branch of the Navigator. The console has a toolbar for quick filtering and a menu for responding to alerts. The common event console view integrates events from multiple event repositories: Marvel Enterprise Monitoring Server, Marvel Enterprise Console event server, and Netcool/OMNIbus ObjectServer. This view has the same functional capabilities as the situation event console view, such as the ability to sort and filter events.

The Marvel Enterprise Console event viewer can integrate events from the Marvel Enterprise Console Server with those from the Marvel Enterprise Monitoring Server.

Other Views

Marvel Enterprise Portal workspaces can also have any of the following specialized views:

The notepad view opens a simple text editor for writing notes or other text that can be saved with the workspace.

The take action view enables you to send a command to a managed system.

The terminal view starts a 3270 or 5250 session for working with z/OS applications, or a Telnet session for working with the TCP/IP network.

The browser view opens the integrated browser for accessing web pages.

The graphic view places Navigator items and their alerts as icons on a map or a picture to represent your monitored environment. Alerts show on these icons just as they do in the Navigator.

Situations

In addition to providing a map of your enterprise, the Navigator can alert you of changing conditions in the systems you are monitoring. When a condition changes, the associated item is marked with an icon:

Fatal

Critical

Minor

Warning

Harmless

Informational

Unknown

The Navigator places one of these icons, called *alert indicator* or *event indicator*, at every level of the hierarchy so you can see an alert even if a Navigator branch is closed.

If you see any of these icons in the Navigator now, move the mouse pointer over an event indicator to open a flyover listing of the situations that caused the events at that level of the Navigator and below.

Marvel Enterprise Portal runs tests called situations on systems where monitoring agents are installed. When the conditions of a situation have been met, an event occurs, and an event indicator is displayed over the applicable items in the Navigator.

Procedure

To open the Situation editor, the user ID must have permission to View Situations.

To open a situation,

1. Right-click a system name in the Navigator and click **Situations**.
   The Situation editor opens with a list of situations on the left. This is where you can view and edit situations or create new ones.
2. Click a situation name in the tree to see the Situation editor tabs.
   - Formula to view, add, and change the conditions being tested.
   - Distribution to view and specify the systems on which to run the situation.
   - Expert Advice to write comments or instructions to be read in the event results workspace.
   - Action to send a command to the managed system.
   - Until to close the event after a period of time or when another situation is true.
3. Click **Cancel** to close the Situation editor.

Properties

Use Properties editor to edit the appearance and content of the views chosen for a workspace.

The User account must have the necessary permissions to view the Properties editor.

To open Properties,

1. Click **Properties**.
   The **Properties** editor opens with a list of the views on the left, grouped by type. On the right, the general workspace properties appear.
2. Select one of the views in the **Properties** tree.

   All types of views have a **Style** tab, with different options for the type of view. The table, charts, and topology views have **Query** and **Filters** tabs, table and topology have a **Thresholds** tab, and terminal emulators have a **Configuration** tab. Whenever you want to change the data elements that display for a chart or table or change the styling of a view, go to the Properties editor.
3. Click **Cancel** to close the Properties editor.

Conclusion

You now know the basics of the main functionality of the Marvel Enterprise Portal. For practice, try splitting this view and apply a Browser view.

Troubleshooting

This list provides some general debugging information.

1. When you start the Marvel Run Portal be sure that you direct the output into a local log file where you can examine it. The log file often contains useful information. Examine it when you have a problem, and be prepared to answer questions about it when you talk to a support person.
2. If the Marvel Run Portal appears to have started correctly (which you can determine from the log file), try running `lmstat -a` and lmdiag to see if that program has the same problem as your application.
3. If your application is version 1.0, you can use the `Marvel_DIAGNOSTICS` environment variable. Set `Marvel_DIAGNOSTICS` to 1, 2, or 3. A setting of 3 gives more information than 2, 2 gives more information than 1 (in particular, the feature name that was denied).

4. When you talk to a support person, be prepared with answers to the following questions:
    - What kind of system is your license server running on?
    - What version of the operating system?
    - What system and operating system is the application running on?
    - What version of Marvel Run Portal is in use?
    - What error or warning messages appear in the log file?
    - Did the server start correctly? Look for a message such as: `server xyz started for: feature1 feature2`
    - What is the output from running `lmstat -a`?
    - Are you using a combined license file or separate license files?
    - Are you using three-server redundancy (i.e., there are multiple SERVER lines in your license file)?

Chapter

2

Using the Navigator

Topics:

Navigator Overview

The Navigator provides a hierarchical view of your enterprise. At the highest level you can get a high level overview of the status of your monitored environment. From there you can navigate to specific monitored resources to check activity and investigate problems.

At every level, event indicators alert you to changes in system or application conditions.

Types of Navigator Views

Navigator Physical View

The default Navigator view is Physical and shows the hierarchy of your monitored enterprise. The Navigator Physical view is a discovered view: as new managed systems come online or when they become disconnected, the view is adjusted accordingly.

Table 3: Hierarchy of monitored enterprise

Enterprise, or root, level contains all managed systems
Platform is the operating system
System, or node, is the name of the computer or z/OS image
Agent type. Multiple instance agents have child items; some are grouped into one folder
Resource category being monitored

Here is an example of a system named JDOE, running on Windows, with the Windows OS agent.

Table 4: JDOE enterprise example

Enterprise
Windows Systems
JDOE
Windows OS
Disk
Monitoring Services
Memory

You can collapse the tree by double-clicking the Enterprise item, and expand it by double-clicking again.

Custom Navigator Views

Your Marvel Enterprise Portal configuration can also have a custom-designed Navigator views. These views are selectable from the Navigator toolbar, navigable, and show event indicators (described below) in the same way as the Navigator Physical view. Unlike the Navigator Physical view, custom Navigator views can be edited. You can, for example, design a Navigator view for Manufacturing and another for Marketing.

Your user ID can be assigned to all or a subset of the defined Navigator views, and your access to any of these views can be restricted to a certain branch. To see the list of available Navigator views, click the list box in the Navigator toolbar.

A small white cross over a Navigator item icon means one or more other Navigator items share the characteristics of that item. This happens when an item from one Navigator view has been copied to another Navigator view. All the managed systems, workspaces, link definitions, situations, and policies associated with the original (source) item are applied to the new item. And from then on, changes to one item (such as a new workspace is added) are applied to the other. Right-click a Navigator item and click **Show Navigator List** to see the other Navigator views it is contained in.

Navigator Logical View

Users initially have one custom Navigator view called Logical with a single Navigator item for Enterprise. Click the list box and select the Navigator Logical view from the list.

Workspaces

The *workspace* is the working area of the application window. Selecting an item in the Navigator opens its default workspace. The workspace contains views of information for that item in the Navigator.

If the item has multiple workspaces created for it, you can click **Workspace Gallery** to see thumbnail images of them and select another workspace to open. You can also select any additional workspaces associated with a navigator item by right-clicking on the navigator item and selecting the **Workspaces** menu option, or by selecting that same option from the **View** menu found on the main menu bar.

You can move around the Navigator without selecting workspaces by using the vertical scroll bars and clicking to expand a list or to collapse it.

Use and to return to previously viewed workspaces in the order they were initially visited. The data in those workspaces is not cached, so any chart or table views are refreshed with the most recent data samplings when you revisit them.

Navigator Tools

Use the tools in the Navigator view toolbar to update the display when managed systems have come online or gone offline, to open another Navigator view, to edit custom Navigator views, and to collapse the view.

2**Apply Pending Updates**	The **Apply pending updates tool** updates the Navigator tree with the correct status of agents, in response to the count of agents that have been removed from or added to the Marvel Enterprise Monitoring Server. The counter is displayed next to the tool and in the status bar. Refresh is enabled when the Navigator view has been edited, such as a new item has been added, so that you can update the view with the changes. This tool is dimmed when no updates are required.

Application Support Event	After you start the Marvel Enterprise Portal, the application support version is read from the portal client and the portal server. Any discrepancies in versions between client and server are noted in the Application Support Mismatch list.
Find Navigator Item	Use **Find** in the Navigator toolbar to look for a Navigator item by such criteria as managed system name or associated situation name. When the search has completed, any items that match the criteria are listed in the **Find results** table where you can switch to the default workspace for a found item or open it in a new window.
Edit Navigator View	Opens the Navigator editor for creating, deleting, and modifying Navigator views. **Restriction:** If the tool is disabled (dimmed), your user ID does not have Modify permission for Custom Navigator Views.
	Opens a list that you can select a Navigator view from. The views available are those assigned to your user ID. When you select another Navigator view, a tab is added to the bottom of the Navigator so you can quickly switch among the views by clicking the tab. See Opening a Navigator View on page 36
	Minimizes the Navigator and expands the adjacent workspace views to fill the gap. Click to restore its original size. You can also click *<Navigator name>* in the right-most section of the status bar to restore the Navigator view; or right-click it to see a list of Navigator views to select from.
	Splits the Navigator horizontally to create a new workspace view. **CAUTION:** If the tool is disabled your user ID does not have Author Mode permission.
	Splits the Navigator vertically to create a new workspace view. **CAUTION:** If the tool is disabled your user ID does not have Author Mode permission.

Situation Event Indicators

When you see a small colored icon overlay the Navigator icons, you are seeing an *event indicator* . An event indicator is displayed when a situation (a test of certain conditions) running on a system becomes true.

These indicators alert you that conditions have changed and need attention.

Event indicators can be, from highest severity to lowest. As you move up the Navigator hierarchy, multiple events are consolidated to show only the indicator for the event with the highest severity. Go to the lowest level of the hierarchy to see individual event indicators over attribute groups with values that have met situation definitions.

Table 5: Event indicators

Indicator	Meaning
	Fatal
	Critical
	Minor
	Warning
	Harmless
	Informational
	Unknown

Move the mouse pointer over an indicator to open a flyover listing of the situations that are true for the Navigator item and any branching items. This flyover list might also show a status icon on the right:

Acknowledged	The situation event has been acknowledged.
Expired	The acknowledgement has expired and the situation is still true.
Reopened	The acknowledgement was canceled before it had expired and the situation is still true.
Stopped	The situation has been stopped.
Error	The situation is not functioning properly.
Status Unknown	The monitoring server detects that an agent is offline. The agent might have been taken offline intentionally, there might be a communication problem, or the agent or the system it is running on might have stopped or be failing. The situation flyover listing on this icon shows `*STATUS_UNKNOWN`, which is not actually a situation, but the notation for a problem on the managed system.

More... Indicators

You sometimes see **More** indicators in the Navigator. These indicators are used to keep the Navigator tree compact so that you can see more in the viewable area without having to scroll.

Click **More** to open that branch of the tree.

When clicking **Expand** on a Navigator branch of more than, by default, 25 child items, you are prompted to enter the number to expand at one time. You can also right-click a Navigator item and click **Expand** to open the **Expand child items** window. After you enter the number to expand, a group of child items opens. Click **More** to open the next group of child items.

In large managed environments this feature helps you control the Navigator display and its performance. In this example, the expansion limit of 4 was chosen for the Windows Server branch:

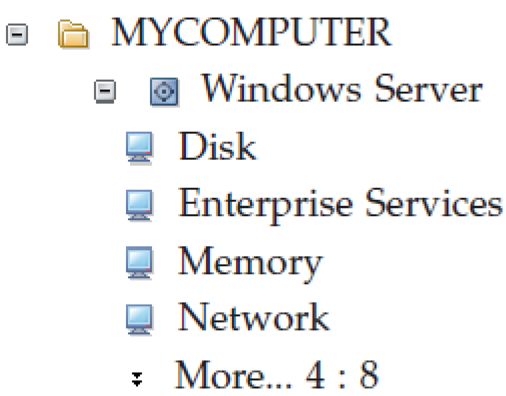


Figure 2: More indicators in the navigator

Expanding the Navigator in Increments

More indicators in the Navigator keep the tree compact. Click the indicator to open that branch of the tree. You can specify how many items to expand at one time.

When clicking **Expand** on a Navigator branch of more than, by default, 25 child items, you are prompted to enter the number to expand at one time.

1. Set the `number of items` to expand:
   a) If the **Expand child items** window is not open, right-click the **Navigator** item whose child items you want to expand incrementally and click **Expand** .
   b) Enter the `number` to expand and click **OK** to open that number of child items.
   c) Click **More**when you want to open the next group of child items.
2. Expand child items.

   You can expand all the child items of a Navigator item. The entire branch does not expand, just the children of the selected item. If the **Expand child items** window is not open, right-click the **Navigator** item whose child items you want to expand and click **Expand Child Items**.

Examples

The examples here show Navigator being expanded in a large managed enterprise.

In large managed environments the expand feature helps you control the Navigator display and its performance. In this example, the expansion limit of 4 was chosen for the Windows Server child items:

Table 6: Example: Expansion limit of 4 for the Windows Server child items

Enterprise
Windows Systems
Computer1
Windows Server
Disk
Enterprise Services

Memory
Network
More...4:8

This example illustrates the result of selecting Expand Child Items at the platform level of the Navigator. The site is monitoring 500 Windows-based systems. The user can quickly see which systems have situation events and at what severity.

Table 7: Example: Expanding Child Items at the platform level of the Navigator

Enterprise
Windows Systems
Computer1
Computer2
Computer3
Computer4
Computer5
Computer6
Computer7
Computer8
Computer9
Computer10
Computer11
Computer12
Computer13
Computer14
Computer15
.
.
.

Computer500

Logical and Custom Navigator Views

A custom Navigator view can be designed to show the same managed system more than once. If you have a managed system repeated somewhere else in the Navigator view, when you use the expand feature on one Navigator item for that managed system, any other items for that managed system will expand at the same time.

Collapsing and Expanding the Navigator

To provide more space for workspace views, you can hide the **Navigator**, then restore it when you want to see it.

You can also can save the workspace with the **Navigator** minimized.

- Click the **Collapse** bar on the right border to collapse the **Navigator** view.

  You can also drag the right border if you prefer to manually adjust the **Navigator** width. The adjacent workspace views expand to fill the gap and the status bar shows the Navigator view icon and name in the right-most section.
- Either click the **Expand** bar on the left border or click **<Navigator name>** in the status bar to restore the Navigator view.

  There is an additional option to open a different Navigator view instead of restoring the original by right-clicking **<Navigator name>** to see and select from a list of available Navigator views.

Finding Navigator Items

The Navigator shows all the managed systems that run on an operating system and this list can get very long. Use the **Find** tool to locate **Navigator** items based on properties such as IP address or associated situations.

To find a Navigator item:

1. Click **Find** in the Navigator toolbar.
2. Select the Navigator item from the **For Navigator** list if the item to search for is in a different Navigator view.
3. Enter the `values of the properties` to search by:

Properties	Value
IP Address	(Distributed systems only) If you know the IP address, you can enter it here. Example: `SCAN == 9.55.1*` finds computers that start with 9.55.1, such as 9.55.105.180 and 9.55.110.180
Hostname	(Distributed systems only) Specify all or part of the host name here. Example: `SCAN == MYHOST??` finds computers that start with MYHOST and have two trailing characters, such as MYHOSTEL and MYHOST33 but not MYHOSTA or myhostess.
SMFID Name	(z/OS-based systems only) Find the item by the session ID value.
Sysplex Name	(z/OS-based systems only) Specify the item by system complex name.

Properties	Value
Product Code	Select the product name from the list to specify the managed system type to find.
Managed System Name	The managed system name is often the same as the host name. Example: `SCAN == *UAGENT0?` finds Universal Agents Navigator items such as onionASFSdp:UAGENT00 and garlicASFSdp:UAGENT05.
Associated Situation Name	Enter a `situation name` to find the Navigator items that the situation is associated with. (For an alert indicator to display in the Navigator for a situation that has become true, the situation must be associated with a Navigator item.)

4. Tick the □ **Include only managed system items** check box to show the found Navigator items at the agent level (and subagent if applicable) but to exclude the child Navigator items (attribute level), .
5. Click **Advanced** and specify the page size to control the number of Navigator items to list per page in the find results.

   The default is 100 rows per page. By reducing the number, you can have the results displayed more quickly and in smaller, more manageable pages; then move through the pages with **Page down** and **Page up**. By increasing the number, you increase the processing time but you can see all the results on one table page.
6. Click **Find**. The **Find results** area is appended to the window with a list of Navigator items that meet the criteria.
7. Click a Navigator item in the Find results area and click **Switch to** after selecting any or none of the following check boxes:

   - □ **Open workspace in new window**

     Keep the current workspace open and open the workspace at the selected Navigator item in a new window (or separate tab if you are in browser mode and your browser is configured for tabbed windows).
   - □**Close after switching to workspace**

     Close the **Find** window after opening the workspace for the selected Navigator item.

The default workspace for the selected Navigator item is opened.

You can keep the window open to switch between one found Navigator item and another or to change the criteria and find other Navigator items.

Examples

In this example, the find criteria looks on the MySystem computers for Navigator items with associated situations that have "CPU" in the situation name.

Table 8: Find criteria

Properties	Value
IP Address	
Hostname	abc == `'MySystem?'`
SMFID Name	
Sysplex Name	

Properties	Value
Product Code	
Managed System Name	
Associated Situation Name	`'*CPU*'`

Table 9: Find results

Item	View	Item Path
Process	Physical	`WindowsOS/MySystem1/ Windows Systems/ Enterprise`
Processor	Physical	`WindowsOS/MySystem1/ Windows Systems/ Enterprise`
Process	Physical	`WindowsOS/MySystem2/ Windows Systems/ Enterprise`
Processor	Physical	`WindowsOS/MySystem2/ Windows Systems/ Enterprise`

Opening a Navigator View

The initial Marvel Enterprise Portal workplace has a Navigator Physical view and a Logical view and any other views that were predefined for your product. You can switch between Navigator views to see the items and workspaces of another Navigator.

Depending on whether the Navigator is displayed or hidden, take either of these steps to open a different Navigator view:

- Click the **View** list in the Navigator toolbar and select the Navigator view you want to open.
- Right-click *<Navigator name>* in the right-most section of the status bar to see and select the Navigator from a list of available Navigator views.

If you do not see the Navigator view you are looking for, it is possible your user ID does not have the authority to access this Navigator view. Ask your Marvel Monitoring administrator.

If there are many Navigator views in the list, you can have them reordered through the **Navigator Views** tab of the Administer Users window.

Refreshing the Navigator

The Navigator refreshes automatically whenever the status of agents changes between offline and online. The Navigator does not update automatically when an agent is removed from or a new agent is added to the managed network. When the tool is enabled, click **Apply pending updates** to manually refresh the Navigator.

If an agent name is dimmed (grayed out), the agent has stopped or is not responding. It might also indicate that Marvel Enterprise Portal has timed out before detecting the availability of the agent.

For custom Navigator views, **Apply pending updates** is enabled in the Navigator toolbar whenever you have edited the view in the Navigator editor (added, removed, or renamed items). The tool is not enabled in the Navigator view when an agent has been removed from the Marvel Enterprise Monitoring Server. In these cases, the agent appears to be offline. To remove this agent from the Navigator display, delete the Navigator item through the Navigator editor.

A count of changes to the Navigator view is kept as agents are removed from, disabled, or added to the monitoring server. The counter shows as a superscripted number next to the tool (such as 9 for nine updates) and in the Navigator view status bar. You must refresh the Navigator to show these changes.

Procedure

To refresh the Navigator:

- Click **Apply pending updates** in the Navigator toolbar.
- Click **Navigator update pending** in the Navigator status bar.

The agent status is updated in the Navigator. (You might not see any change if the branch containing the agent is collapsed.) The tool is disabled until the another status change is detected, at which time the counter starts again. If the workspace has automatic refresh turned on, the Navigator is updated at the end of the refresh interval.

Responding to an Application Support Event

Use the **Show new** or **updated application support** tool to see a count of the version mismatch messages, to view a list of application support version mismatches between the Marvel Enterprise Portal client and server, and to see instructions for correcting the discrepancy.

The number that is displayed after the tool, such as 8 for eight mismatch events, is a count of the events that have accumulated.

Procedure

1. Click the **Application support event** tool in the Navigator toolbar when it is enabled.
   The dialog box shows the list of mismatched applications and their support versions. Each event shows a Warning or Informational indicator followed by the name of the monitoring agent, the version of application support applied at the portal client, and the version applied at the portal server. No portal client version information is available when a new monitoring application is initially installed.
2. Complete the instructions that are displayed after the mismatch event list:

Browser Client and Java WebStart Client

If you are running the browser client or Java WebStart, any required application support updates are downloaded automatically after you log on to the portal server.

An application support version mismatch has been detected. Click Help for more information on possible causes and actions. Warning events indicate that the mismatch was found at client startup.

New or updated application support is available. Restart the Marvel Enterprise Portal client to update your application support. If application support updates become available while you are logged on, an Informational event occurs to show that application support is waiting to be applied. Log out and restart the client to have application support updates applied.

Desktop Client

Application support updates to the desktop client must be made by running the installer on the Marvel Monitoring Agent installation media.

An application support version mismatch has been detected. Use the Marvel Monitoring installer to add the associated application support to the portal desktop client. Warning events indicate that the mismatch was found at client startup.

New or updated application support is available. Use the Marvel Monitoring installer to add the associated application support to the portal desktop client. Informational events indicate that the mismatch was found after logon to the portal server.

Results

After logging off and logging onto the Marvel Enterprise Portal, the **Application support event** tool is disabled. If it is not, contact your network administrator or Support.

The first time the **Show new or updated application support** tool is enabled and after a new event arrives, a "New" indicator is displayed on the tool: . After you open and then close the dialog box, the indicator is no longer shown: . The indicator provides a convenient visual cue when new events arrive that you have not yet seen.

Usage note

If the client application support version is greater than the portal server's application support version, there is no need to recycle the client. The new support will work with the earlier support that is present on the portal server. Recycling the client does not collect the earlier version of support from the portal server unless the Java cache has been cleared to remove the newer version of application support.

To clear the Java cache complete the following steps:

1. Close the browser window to exit Marvel Enterprise Portal.
2. Start the Java Control Panel. Go to **Start** > **Settings** > **Control Panel** > **Java Control Panel** icon.
3. Delete the temporary internet files from the Java Control Panel window, in the **General** tab .
   a) When the JAR cache is cleared, click **OK**.
4. Restart the Marvel Enterprise Portal client.

Removing an Event Item

When you open an event results workspace, a new item is displayed in the Navigator. If you use event acknowledgement, other icons overlay the situation icon. If you close the event, all overlay icons are removed, but the Navigator item itself is not removed until you end your Marvel Enterprise Portal session. If you do not want to have the event item in the Navigator, you can remove it.

This does not affect the event or operation of the situation, only its appearance in the Navigator.

Procedure

To remove an event item, in the Navigator right-click the situation name and click Remove. The event item is removed from the Navigator. To see it again, you need open its workspace by selecting the true situation from the event flyover list.

Example

Here are some examples of event icons that you might see in the Navigator:

A critical event.

A warning event.

A warning event that has been acknowledged.

A warning event whose acknowledgement has expired.

	A warning event whose acknowledgement was removed while the event was still open.
	A true situation whose event has been closed.
	An agent whose status is unknown. The monitoring server detects that the agent is offline. It might have been taken offline intentionally, there might be a communication problem, or the agent or the system it is running on might have stopped or be failing.

Removing an Offline Managed System Navigator Item

Use the Managed System Status workspace to clear offline managed systems from the Navigator view.

When a monitoring agent goes offline or its host name gets changed, its branch is dimmed in the Navigator, as in the following example, and its status is shown as *OFFLINE in any table view that uses the Current Managed Systems status query.

Table 10: Hierarchy of monitored enterprise

Enterprise
Windows Systems
MyComputer
Universal Agent
Windows OS

The Enterprise Navigator item has a Managed System Status workspace that you can use to check for any offline managed systems and remove them from the Navigator view. When the monitoring agent comes online again, it will reappear. Use these steps to clear an offline entry:

Procedure

1. Click the **Enterprise Navigator** item.
   The default workspace opens.
2. Click **Workspace gallery**, scroll to **Managed System Status**, and click the **workspace**.
3. Right-click an ***OFFLINE** row, then click **Clear offline entry**.

The offline entry is now cleared from the Navigator until the managed system comes online.

What to do Next

If this is a custom Navigator view with only one managed system, it is possible for the item to continue to appear in the view. This is possible when the item was added using drag-and-drop in the Navigator editor. Use the Navigator editor to manually remove the item, described in Deleting a Navigator view or item. If the managed system comes online again, it does not appear in the custom Navigator view. If you want it to appear there, assign the managed system in the Navigator item properties as described in Navigator item properties.

Chapter 3

Workspaces

Topics:

Using Workspaces

The workspace is the working area of the Marvel Enterprise Portal window, divided into panes to show different types of views. You can start monitoring activity and system status immediately with the predefined workspaces.

You can tailor your own workspaces to give you summary overviews or to look at specific conditions.

Workspace Characteristics

Every Navigator item has at least one predefined workspace that you can open. Every workspace characteristics such as editable properties and views.

Views

A view is a windowpane, or frame, in the workspace containing a chart or table showing data from one or more monitoring agents. Other types of views such as the topology view and graphic view can give a broader overview of the network. Specialized view such as the browser view and terminal view are also available. You can increase the number of views in a workspace by splitting a view into two separate views.

The data for a table, chart, or relational table-based topology view is chosen by the query it uses. Collectively, they are called query-based views. The query specifies the attributes to include in the view. Although each view uses one query, you can add more views to the workspace, and each can use a different query. The queries can be for different monitoring agents, including those for the Marvel Enterprise Monitoring Server for showing information that is common to your monitored environment (such as all the managed systems and all the situation events). You can also include queries of JDBC or ODBC data sources by writing custom SQL queries.

Properties

Every workspace has a set of properties associated with it: general properties that apply to the entire workspace, and properties for each view in the workspace. Use the Properties editor to customize the workspace characteristics and to change the style and content of each view.

You can also keep the original workspace intact and create another workspace for the same item in the Navigator, customizing it for the types of views you want and the information reported in charts and tables.

Changes you make to a workspace are available only to your user ID. System administrators can work in Administration mode to create and edit workspaces that will be available to all users on the managed network.

Links

The link feature enables you to define a link from one workspace to another. Then you can quickly jump to a related or more detailed workspace to investigate system conditions.

The simplest type of a link originates from the Navigator item: When you right-click that Navigator item, the pop-up menu shows the defined links for the item. Select one to open the linked workspace.

A more specific link originates from a table or from a chart data point to another workspace. Information from one of the attributes in the selected row, bar, pie segment, or plot point is used to determine the content of the target workspace.

You can also define more complex links and use the predefined links that come with your Marvel Monitoring product.

Navigator Level

The monitoring agents available for reporting in a workspace are those assigned to that branch of the Navigator. If you are not sure which monitoring agents are included, do one of the following:

- Expand the branch of the Navigator
- Right-click the Navigator item and select Properties to see which managed systems are assigned.
- Open one of the workspaces at the enterprise, platform, or system level of the Navigator Physical view

This same principle applies to attribute groups. The lowest level of the Navigator Physical view, for example, is the attribute level. The views you can show for the workspaces at that level can draw only from the attribute groups represented by that level. If you were to build a workspace for the **Disk Navigator** item, for example, you could create a chart with data from the **Logical Disk** attributes and another with data from the **Physical Disk** attributes.

Organization of Predefined Workspaces

The Enterprise Navigator item has workspaces that query the Marvel Enterprise Monitoring Server. Use these predefined workspaces to get status information about the monitoring server and monitoring agents and about situations and policies.

Use the **Workspace Gallery** to see what is available for the Navigator item. These are the Enterprise Navigator item workspaces and the workspaces they link to:

Enterprise Status

The default workspace is Enterprise Status, which gives an overview of the situation event status throughout your enterprise.

- Event Details - Similar by Situation Name
- Event Details - Similar by Source
- Event Details - Similar by Resource

Manage Marvel Enterprise Monitoring Servers	The Manage Marvel Enterprise Monitoring Servers workspaces provide a visual health check of the monitoring servers in your enterprise and the application support that has been applied. • Installed Catalogs - Enterprise View • Installed Catalogs - Remote Server • Protocols • Situation Status • System Information
Managed System Status	The Managed System Status is a list of monitoring agents in your managed network and their ONLINE or OFFLINE status. The linked workspaces are only available for online managed systems. • Audit Log • Agent Operations Log • History Exports
EIB Change Log	This workspaces displays entries in the Enterprise Information Base (EIB) log. The EIB is a database used by the Marvel Enterprise Monitoring Server to store situation, policy, user definitions, and configuration information.
Self-Monitoring Topology	The Self-Monitoring Topology workspace provides a high level overview of your managed infrastructure and its health.
Deploy Depot Package List	The Deploy Depot Package List workspace shows the installation packages that are available in the agent depot.
Deployment Status Summary	The Deployment Status Summary workspace shows summary status information about remote agent deployments. • Deployment Status by Deploy Group • Deployment Status by Product
Deployment Status Summary by Transaction	The Deployment Status Summary by Transaction workspace shows summary status information about remote agent deployments, sorted by transaction.

Opening a Workspace

Use the Navigator to open the default workspace for the selected item, then the Workspace Gallery to see and select from a thumbnail display of available workspaces.

As well as a convenient way to open workspaces, you can also move the workspaces around the gallery to change their order. The changes you make are saved with the workspace definition for the Navigator item. If you are in workspace administration mode when you reorder the thumbnail graphics, the reorganization will be reflected in the workspace gallery of all Marvel Enterprise Portal clients connected to this Marvel Enterprise Portal Server.

Every item in the Navigator has a workspace associated with it, called the *default workspace*. Some items have multiple workspaces that you can open, although only one workspace can be open in the Marvel Enterprise Portal window at one time. Some workspaces are only accessible by linking to them from another workspace.

Procedure

Click the item name or icon in the Navigator to open the default workspace:

- Physical view: , , , , or .
- Logical view or other custom Navigator view: .

  The default workspace for that item is displayed, replacing the workspace of the previously selected item. If the workspace shows no data for a chart or table view, it means there is no data to display. This can occur with monitoring data that is not constantly generated, such as Archive Errors, which collects data only when archive errors occur.

To open another workspace associated with the Navigator item:

1. Click **Workspace gallery**.
2. Click the thumbnail graphic of the workspace to open.

   Note: To open the workspace in a new window instead of replacing the current workspace, use `Ctrl + Shift` + click the thumbnail graphic.

   If this is a new installation, you will see the splash screen instead of a thumbnail version of the workspace in the gallery until you or another user who is logged on to the same Marvel Enterprise Portal Server opens the workspace for the first time. A check mark by a workspace name indicates that it is the default workspace for this Navigator item. You can reorder the workspaces in your copy of the gallery by clicking a thumbnail graphic and dragging it on top of the workspace to swap positions with.

Related concepts

Tabbed Workspaces on page 46
Use the tabbed pages capability of your browser to open workspaces, linked workspaces, and Navigator views in new tabs.

Related tasks

Opening a New Window on page 45
Have multiple workspaces open on your desktop at the same time by opening multiple Marvel Enterprise Portal windows.

Opening a New Window

Have multiple workspaces open on your desktop at the same time by opening multiple Marvel Enterprise Portal windows.

You can add more dashboard views to your desktop by opening more Marvel Enterprise Portal windows. Any changes you make these window are saved with the application.

- Click **New Window** to open a new window in the desktop client.
- Press `Ctrl + N` to open a new window in the browser client running in Internet Explorer.
- Click **Workspace gallery** and press `Ctrl + Shift + click` the workspace to open another workspace in a new window and keep the original intact in this window.

The new window is opened as a duplicate of the original; any changes you make to the new window are independent of the original.

Any previously visited workspaces are retained from the parent window; use and to revisit them. Further navigation to other workspaces in either window, however, is independent of the other window.

You can close duplicate windows (click **File** > **Close**) or the original; the work session remains active as long as one window is open.

Related concepts

Tabbed Workspaces on page 46
Use the tabbed pages capability of your browser to open workspaces, linked workspaces, and Navigator views in new tabs.

Related tasks

Opening a Workspace on page 45
Use the Navigator to open the default workspace for the selected item, then the Workspace Gallery to see and select from a thumbnail display of available workspaces.

Tabbed Workspaces

Use the tabbed pages capability of your browser to open workspaces, linked workspaces, and Navigator views in new tabs.

Browser client and browser settings

When your browser supports tabbed web pages, the Marvel Enterprise Portal browser client uses the browser's tab settings to determine how to open a workspace: When tabs are enabled, the workspace is opened in a new tab. You can set the properties of a workspace or the target of a workspace link to always open in a new tab, or you can open a workspace in a new tab by holding down the `Ctrl + Shift` keys while selecting the workspace with a mouse click. Then use the `Ctrl + Tab` keys to switch focus to the next tabbed workspace.

The desktop client and Java Web Start client use these same features to open a workspace, but it is always opened in a new window.

Workspace properties

Every Marvel Enterprise Portal workspace has properties that control the access and method of display when it is opened. The workspace will open in a new tab on browsers that are set to use tabbed pages when **Always open workspace in new window** is enabled.

Link target

The link wizard Target Workspace page has an option to **Always open target workspace in new window**.

It shows in the link wizard Parameters page as *openTargetInNewWindow*. When enabled, this option opens the targeted workspace in a new tab if you are logged on from a tab-enabled browser.

Navigator item find

Find in the Navigator toolbar enables you to locate any Navigator item using simple or advanced search criteria.

The Find window has an option to **Open workspace in new window** that will open the default workspace for the found Navigator item in a new tab if you are logged on from a tab-enabled browser.

On demand

You can open a workspace in a new tab from any context.

Open a Workspace

- `Ctrl + Shift + click` a Navigator item to open its default workspace.
- Click **Workspace gallery** and `Ctrl + Shift + click` the workspace.
- Right-click the active Navigator item, point to **Workspace**, and `Ctrl + Shift + click` the workspace that you want to open.
- **View** > **Workspace** > **Ctrl + Shift + click** the workspace that you want to open.

Link to a Workspace

- `Ctrl + Shift + click` the link anchor.

  If there are multiple choices, click the one you want.
- Right-click the source of a defined link (Navigator item, table view row, pie chart slice, bar chart bar, plot chart point, area chart point), point to **Link to**, and `Ctrl + Shift + click` the link name.

Open a Found Navigator Item at its Default Workspace

1. In the Navigator view toolbar, click **Find**, enter the find criteria and click **Find**.
2. Point to a row and `Ctrl + Shift + click` from the list of Navigator items that is displayed in the Find results area to open the default workspace for that Navigator item in a new tab.

Open a Navigator View at its Default Workspace

- In the Navigator view toolbar, click the **View** list box and `Ctrl + Shift + click` the Navigator view.
- **View** > **Navigator View** > **`Ctrl + Shift + click`** the Navigator view.
- `Ctrl + Shift + click` a Navigator tab.

Troubleshooting

If the workspace or Navigator view opens in a new window rather than a new tab, review the tab options in your browser to ensure that the tab feature is enabled. If you are using Microsoft Internet Explorer 7, be aware that tabbed workspaces are treated as pop-ups: In the Tabbed Browsing Settings window (**Tools** > **Internet Options** > **General** > **Tabs** > **Settings**), **Always open pop-ups in a new tab** must be selected.

Refreshing a Workspace

You can refresh the data that is displayed in the workspace on demand or at a set interval.

The Marvel Enterprise Portal client receives monitoring data from monitoring agents whenever you open a workspace that includes query-based views. The default setting for most predefined workspaces is *On Demand*, which means retrieved data remains static until you refresh manually

- Click **Refresh Now** to refresh a workspace manually, .

- Click **View** > **Refresh Every**, and select one of the following to set a refresh interval.
  - 30 seconds
  - 60 seconds
  - 5 minutes
  - 15 minutes
  - 60 minutes
  - On Demand

Note: In order for your refresh settings to persist, you must save the workspace and optionally select **Assign as default for this Navigator item** in the **Save Workspace As** dialog.

If the workspace includes any plot charts or area charts, you can refresh those views independent of the rest of the workspace by editing the Style properties of the plotted area to specify a refresh rate.

Be aware that the more frequent the automatic refresh, the more network traffic you create. These requests travel from the portal client to the portal server and to the hub monitoring server before reaching the monitoring agent. They might also pass through a remote monitoring server to reach the monitoring agent. The information is returned by the same route.

Related tasks

Suspending and Stopping Refresh on page 48
If the workspace is set to refresh automatically at timed intervals or it includes event status views, you can suspend refreshes to keep the data from changing while you investigate a problem.

Suspending and Stopping Refresh

If the workspace is set to refresh automatically at timed intervals or it includes event status views, you can suspend refreshes to keep the data from changing while you investigate a problem.

When you open a workspace that includes table or chart views, the Marvel Enterprise Portal receives the most recently sampled monitoring data from the agents. Take one of these steps to suspend data refreshes or to stop receiving the data that populates the workspace.

- Click **Pause Refresh** to suspend automatic refreshing of the workspace; click **Resume Refresh** to turn on automatic refresh again.
- Click **Stop** to stop loading the workspace.

Related tasks

Refreshing a Workspace on page 47
You can refresh the data that is displayed in the workspace on demand or at a set interval.

Linking to a Workspace

Use these steps to link to a workspace that has been targeted from the current Navigator item or view.

Many monitoring agent products have workspace links available through their predefined workspaces. You can also create and use links to workspaces that follow a logical progression of investigation into performance and operation issues.

1. Open the workspace from where you will launch the link to open the source workspace.
2. Do one of the following, depending on where the link originates:
   - Right-click the current (highlighted) Navigator item.
   - Click the link indicator on a table row or the graphic view, then skip to step 4. A dimmed link indicator means the link is not available from that row.
   - Right-click a pie chart slice, bar chart bar, plot chart point, table row, graphic view icon, or TMS Infrastructure object.

3. Click **Link To** and click the target workspace in the list.

   The target filter or link expression is used to select the information displayed in the views of the target workspace. If, instead of the workspace opening, you get a `Target not found` message, the definition of the target workspace could not be resolved.
4. Select the Navigator item for the workspace and click **OK**.

   Note: If there is more than one workspace you can link to, the Select Target window opens.
5. Click **OK** if a message asks you to select a leaf node, then select an item deeper in the tree hierarchy.

The target workspace is displayed. If the link was defined to open the workspace in a new window, it is opened in its own window. If you are using the browser client and your browser supports tabs, the workspace is in a new tab next to the source workspace.

Note: Navigation using and to visited workspaces retains the link context. As an example, consider a link to a workspace from a table row. The row from which you linked is remembered when you revisit the target workspace.

View Title Bar and Toolbar

Every workspace view and the Navigator view has a title bar with some or all of these controls.

Table 11: Title bar controls

	Opens the Properties editor to the properties for the view.
	Shows or hides the view toolbar. This button does not display if the view has no toolbar.
	Splits the Navigator horizontally to create a new workspace view.
	Maximizes a view for a closer look. Click **Restore** to return to the original size. You can save the workspace with the view maximized.
	Removes a view. There is no undo for this action except to open a different workspace and answer No when a message asks if you want to save the workspace; -OR- Select **File** > **Save As** to keep the original workspace with the view intact and create a new workspace without this view.

Most view types have a toolbar for performing specific actions in the view. A common tool is **Find**, which is available for finding values in the browser view, notepad view, table view, message log view, and the event console views. Another tool, **Time span**, is for specifying the time period to be displayed in a query-based view when historical data is being collected for it.

Setting a Time Span to Display

You can have the Marvel Enterprise Portal log data samplings into history files or a database for display in a table or chart. These historical data enabled views have a tool for setting a range of previous data samples to be reported.

Historical data collection must be configured and distributed to the managed systems that you are querying data from. Otherwise, Time Span is not displayed in the toolbar of the query-based view. Some attributes groups, such as Situation Status and the Windows Event Log, are historical in nature and show all their entries without you having to specify a time span. For these types of attribute groups, you do not need to configure history collection unless you want to roll off to a data warehouse for long-term storage or limit the amount of data displayed. Thus, the time span feature, rather than showing more data, limits the data reported to the time period indicated. Even if data collection has been started, you cannot use the time span feature if the query for the chart or table includes any column functions. If this is the case, you can select or create another query to enable Time Span.

Take these steps to broaden the time range of data beyond the current data samplings.

1. Open the workspace containing the chart, table, or relational table-based topology view where you want to see historical data.
2. Click **Time Span** the view's toolbar.
3. Select a time frame: **Real time plus Last _ Hours** (enabled for bar, plot, and area charts only), **Last _ Hours** (or Days, Weeks, or Months, if the data is warehoused), or **Custom**.
4. If you selected **Last** or **Custom**, specify the range of data:

   Detailed data is all the data collected for the agent. Summarized data is data that is aggregated across the specified time frame.

   a) Set the time frame interval, work shift, and the days. This option is disabled if no data warehouse and summarization schedule were configured for this attribute group.
   b) To set a custom time frame, click inside the **Start Time** and **End Time** fields to open the date editor. Use the spin boxes to adjust the time, year, or month; and click the calendar day. **HH:MM:SS AM/PM** is initially set to the current time.
   c) To apply the time span to all views that use the same query as this view, select **Apply to all views associated with this view's query**. When this option is enabled, the query is modified to include the time span set here, so any other views using this query report the same time range.
   d) The **Timestamp** column that is added to the historical view can show either the global timestamp (the default) or local. Select **Use Hub time** to reflect the time at the Hub Marvel Enterprise Monitoring Server rather than at the Marvel Enterprise Portal Server or portal client.

After you click **OK**, the view shows data from the time span you specified. If the view is a table, a timestamp is displayed as the first column and is accurate to the nearest minute; seconds are displayed as 00.

If you see null as the value of a table cell or chart point, it means that no value was stored in the Marvel Data Warehouse. This happens when values that were identified as invalid are reported from a monitoring agent for a given summarization period.

The sort function is incompatible with the historical reporting feature. If you are using **Time Span** to retrieve historical data, the chart or table is not sorted even if you have specified a sort order in the query. You can still sort a table by clicking a column heading.

After support for an updated product has been applied to the portal server, it is possible to get a request error message about a missing or unknown column name in the view's status bar after you set a time span with **Use summarized data** selected. Wait until after the next scheduled summarization and pruning procedure has taken place before viewing the summarized data. If need be, you can reschedule summarization and pruning to run sooner.

Moving a View

Move a view to a different position in the workspace to take best advantage of the available space.

Your user ID must have Workspace Author Mode permission to use this function.

You can easily rearrange the views in a workspace to take advantage of the greater width available below the Navigator view and the narrow area to the right.

1. Move the mouse pointer over the title bar of the view you want to relocate.
2. Click and drag the view over the space you want it to occupy. While dragging the title bar, you should see a semi-transparent copy of the view.
3. Release the mouse button to swap the views.

Reordering Columns and Rows

Change how a table view is sorted temporarily to focus on specific column details or in a more permanent way if it should always appear sorted in this manner. You can also reposition columns for a more logical organization or to emphasize columns of interest.

You can set the sort order in three ways. Take one of the following steps:

1. Reorder the table view columns or chart view data series by clicking the column heading and dragging to the new position:
   - If you open a workspace and drag the column heading in a workspace table view, the change is temporary unless you save the workspace. You can also right-click a column heading and click **Lock this Column** to fix the column and any columns to the left of it so that they do not move off the viewable area of the pane when you scroll horizontally.
   - If you click **Edit properties** in the table- or chart view title bar and drag a column heading in the **Filters** tab, the change is temporary unless you save the workspace.
   - If you click **Query Editor** and drag a column heading in the Specification tab, the changes are saved with the query and applied to any views that use that query. Column reordering must be done in a custom query because predefined queries are not editable.
2. Sort the row data in a table view:
   a) Click **Query Editor**, open a custom query, click Advanced, and select a Sort By attribute from the list.
   b) In a table view, click a column heading to sort all rows by that column in ascending order, descending order, and back to the original order the third time you click. You can save the view's sort order with the workspace.

Zooming a Chart View

Zoom in on part of a bar chart, plot chart, or area chart to see a subset of the data in greater detail.

Zooming expands the chart along the category axis; for example, you can zoom a bar chart to show just a few bars, or zoom a plot or area chart to show a shorter span of time. While displaying the chart, complete the following steps to zoom:

1. Select an area of the chart by clicking and dragging the mouse pointer. The selected area immediately expands to fill the available view space. Each time you click and drag, the chart zooms to show more detail.
2. Press `Esc` for each zoom step to undo. The plot area returns to the previous size.

Exporting a Query-based View

Save some or all of the data that was retrieved by the query for a view in a text (.txt) file or comma separated value (.csv) file for further manipulation in another software application.

When you open or refresh a workspace, the queries assigned to the table and chart views are sent to the Marvel Enterprise Monitoring Server, which returns the requested data from the managed systems. Any filters applied to views reduce what displays, such as only the relevant four columns of a seven-column table or only the processes that are using the most memory.

When you export a query-based view, you can save everything returned by the query before any filters are applied. This includes every column queried or only those you select; every row returned or, if there are multiple pages, only the rows from the displayed page. Also, if you save the data to an existing file, you can choose to append the data or to overwrite the previous version. Take these steps to save the data you select from the view to a .txt or .csv file:

1. Open the workspace with the query-based view whose results you want to save.
2. Because the current data display is exported, click **Refresh** if you want the latest results.

3. If this is a table, pie chart or bar chart view with multiple pages and you want to save a particular page rather than all rows, click or at the ends of the vertical scroll bar (or type the number in the *Page* text box) until it displays. A page is 100 rows by default. You can change the view's page size by clicking and changing the **View-level Page Size** value in the Query tab.
4. Right-click inside the query-based view and click **Export**.
5. In the Export to Disk window, select the location for the exported data, select a file type, and type a file name.
6. To export the rows that are visible in the view space and all the columns shown in the **Assigned** list, click **OK**; or, to specify otherwise, do any of the following:
   a) For the all pages returned by the query, click **All rows**.
   b) To exclude a column from those being exported, select from the **Assigned** list and click ; to include a column, select it from the Available Columns list and click. Use Ctrl+click to select multiple columns or Shift +click to select all columns from the first one selected to this one.
   c) To change the order, select a column and click or .

   If this is a new, unsaved table or chart view, **Visible rows** is selected for you.
7. If the file you are saving already exists, you can choose to overwrite the file with the current data selection, append the data to the file, or cancel.

Finding Text in a Browser View or Notepad View

Use the find function to locate text in the selected notepad view or browser view.

Take these steps to find specific text or values in a notepad view or browser view.

1. Open the workspace that contains the notepad view to search.
2. Click **Find** in the toolbar of the view you want to search. (If the tool is hidden, click Show toolbar in the view's title bar.)
3. In the Find window that opens, type the beginning or all of the text to find.
4. Select or clear any of the following check box options, then click **Find**.

Check Box	Preferred Action
Case Sensitive	To find only spellings that match the letter casing as typed. When the check box is disabled, all variations of the letter casing can be found.
Backwards	To search from the cursor point backwards. When the check box is disabled, the default, the search will be from this point forward.
Wrap Search	Instead of stopping the search when the end of the document is reached, continues to search from the beginning and stops when it reaches the point where the search began. Clear the check box if you want the search to stop at the end of the document (or the beginning of the document if the search is backwards).

5. Click **Find Again** to search for the next instance.

You can click **Close** when you are done or leave the Find window open for this view while you continue working with the workspace.

Finding Table Data

Use the find function to locate a text or numeric value in the selected table view, message log, or event console view.

Take these steps to use the Find tool for quickly locating values.

1. Open the workspace that contains the view you want to search.
2. Click **Find** in the table view toolbar. If the tool is hidden, click Show toolbar in the view's title bar. The Find window opens with the first two column headings (attributes) filled in and fields for entering up to five values.
3. Click arrow and select the column to search within. To clear a column name, select the first entry (which is empty) from the list.
4. Click inside the corresponding **Value** field and enter the value to find.
   a) The default function is **Value of expression** (**Compare Date and Time** for time attributes); the default operator is . If you need to change the function or operator, click the or button and select from the list.
   b) You can enter a partial value to find all occurrences of the text or number that begin with those characters. For example, 500 will find 500 and 5000; and West will find West, West006, and Western. You can also use an * asterisk wildcard for any number of characters beginning at that position; use a ? question mark wildcard for a single character at that position. You can also use wildcards with the **Scan for string within a string** and **Return a subset of the string** functions. See the formula function topics for a description of attribute types and other formula functions, including examples. When using the ? question mark wildcard with the **Value of expression** function, append the text with an * asterisk. For example, enter Sa?e* to find Safe and Sale.
   c) Most special characters are processed correctly. If you attempt to find text that includes a special character and it is not found, but you know it exists in your environment, precede it with the \ backslash escape character. These are some of the special characters that require the \ escape character prefix: # pound sign; $ dollar sign; ^ circumflex; \ backslash; (open and) close parentheses; + plus sign; [open square bracket; {open and} close curly braces. For example, \#my_situation to find #my_situation in the Message Log view.

      These special characters do not need the escape character: ! exclamation point; @ at sign; % percentage; & ampersand; = equal sign; < open and > close pointed bracket; _ underscore; - hyphen;] close square bracket; / slash; : colon; and ; semicolon.
5. Select or clear any of the following check box options, then click **Find**.

Check Box	Preferred Action
☑ **Case Sensitive**	To find only spellings that match the letter casing as typed. When the check box is disabled, all variations of the letter casing can be found.
☐ **Backwards**	To search from the cursor point backwards. When the check box is disabled, the default, the search will be from this point forward.
☑ **Wrap Search**	Instead of stopping the search when the end of the document is reached, continues to search from the beginning and stops when it reaches the point where the search began. Clear the check box if you want the search to stop at the end of the document (or the beginning of the document if the search is backwards).

6. Click **Find Again** to search for the next instance.

You can click **Close** when you are done or leave the Find window open for this view while you continue working with the workspace.

Related reference

Table Find Examples on page 53

Table Find Examples

The criteria in this example will find cells whose AvgDiskBytes/Write value is at or above 5,000 and that were written on first day of the month (**Return a subset of the string** in the formula is set to start at the fourth character in the time stamp, so it will find 06/01/09 and 10/01/09 but not 06/13/09).

Column	Type
AvgDiskBytes/Write	>= 5,000
Timestamp	== 4,01

The criteria in this example were written for the table in the EIB Change Log workspace to find entries that have been updated and that have "Disk" somewhere in the name. (**Return a subset of the string** and **Scan for string within a string** are described in STR and SCAN.)

Column	Type
Table Name	== IDDefSituation
Operation	== Update
Object Name	SCAN== 'Disk'

Most special characters are processed correctly in the find function. If you attempt to find text that includes a special character and it is not found, but you know it exists in your environment, precede the character with the \ backslash escape character. In this example, the user is searching through Temporary Storage Queues for a Queue ID of #ETC. This is how it is entered in the Value cell:

Column	Type
QueueID	== '\#ETC'
CICS RegionName	

Related tasks

Finding table data on page 52

Use the find function to locate a text or numeric value in the selected table view, message log, or event console view.

Printing a View or Workspace

You can print the workspace or an individual view and display a preview beforehand.

Do any of the following to see a print preview or print the workspace or selected view:

- To see a print preview of the workspace, click **File** > **Print Preview**.
- To print the current workspace, click **File** > **Print**.
- To see a print preview of the view, right-click in the view and click **Print preview**.
- To print the view, right-click in the view and click **Print**.

When you print a table that has more columns than will fit the width of the page, they will wrap to the next page. If there are more rows than will fit on the page, they are displayed on subsequent pages.

The printing mechanism used by Marvel Enterprise Portal is provided by Java, and has some limitations. When you print a notepad view, the text prints as an image. If you want a better quality, try selecting and copying the text (Ctrl +C), then pasting into your favorite text editor for formatting and printing. When you print a workspace or chart, try sizing the application window or view pane smaller to improve the clarity of the printed copy. You can also use the **Print Screen** key.

As an alternative to printing in Marvel Enterprise Portal, you can export the view to a comma separated value (.csv) file or text (.txt) file, then import it into the program of your choice, and print there.

Related tasks

Exporting a Query-based View on page 51

Save some or all of the data that was retrieved by the query for a view in a text (.txt) file or comma separated value (.csv) file for further manipulation in another software application.

Chapter 4

Responding to Events

Topics:

Responding to Events

Event indicators such as **Minor** or **Harmless** appear on Navigator items when an event is opened for a true situation.

A situation is a test for certain conditions on managed systems that, when met, change the situation status to true. The situation can include a take action command (reflex automation) that will be carried out when the situation is true.

Understanding Situation Events

The products that run in the Marvel Monitoring environment come with their own set of situations. These predefined situations serve as models for defining custom situations for your environment.

Situation Formula

Situations formulas are constructed of one or more expressions. For example, a situation that checks for free disk space below 20% on a Windows system has an expression that uses the Logical Disk attribute "Free Megabytes" and reads as Free Megabytes < 20.The situation will read data samples taken at the managed system at set intervals, such as once a day for the disk space situation in our example.

Other situations might be more elaborate, such as the predefined Windows OS situation, Bottleneck Memory. It embeds two situations: one that tests for excessive memory paging activity (>100 pages per second), and one that tests for processor time over 70%. If both of these situations are true at the same time, the Bottleneck Memory situation becomes true and opens an event.

Situation Event Indicators

When a situation is associated with a managed system, it also has a state setting that determines which light, is displayed on the Navigator item when the situation becomes true. From highest severity to lowest, they are as follows:

Table 12: Event severity

	Fatal
	Critical
	Minor
	Warning
	Harmless
	Informational

	Fatal
	Unknown

As you move up the Navigator hierarchy, multiple events are consolidated to show only the indicator of the highest severity. Go to the lowest level of the hierarchy in the Navigator and you see the event indicator over the attribute category for which it was written.The situation event console and graphic view also show situation event indicators and enable you to respond to events. The Enterprise Status workspace includes the situation event console view.

Enterprise Status Workspace

The initial default workspace is the Enterprise Status workspace. The views in this workspace give an excellent overview of situation events in your monitored environment and their status. One of the views, Situation Event Console, lists the open events and their severities.

Event Flyover List

In the Navigator view or a graphic view, you can hover the mouse over an event indicator to open a flyover listing of open situation events with this information:

- Event state
- Situation name
- Name of the system on which the event occurred Two-letter code for the monitoring agent
- Event timestamp
- Display item, if one was specified
- Situation status icon if:

Table 13: Situation status icons

Icon	Description
	The event has been acknowledged;
	The acknowledgement has expired.
	The acknowledgement was removed before it had expired and the situation is still true.
	The situation is not functioning properly and you will not be able to open its event results workspace.
	The situation has been stopped and you will not be able to open its event results workspace.

The link is to the event results workspace for the situation.

The pop-up menu for the event items has options for working with the situation and event:

Table 14: Options for working with the situation and event

Icon	Description
	Edit the situation
	Start the situation
	Stop the situation
	Quick acknowledge the event
	Acknowledge the event
	Close the event (pure events only)

Event Results Workspace

The event results workspace shows the values of the attributes when the situation fired and their current values. It shows any expert advice the situation author might have written and any hypertext links to go to for more information. The take action view enables you to select or define a command to be invoked at the managed system.The table views showing the initial situation values and their current values also have pop-up menus that include the option to launch an application. If you have a favorite diagnostic tool, you can start it from here.

Event Acknowledgement

When multiple users are monitoring the network for events, one of them can acknowledge an event to indicate it has been seen and the problem is being worked on. Acknowledging an event changes its event status from `Open to Acknowledged` until the acknowledgement expires or until the situation is no longer true.You can add notes to an acknowledgement and attach files that are pertinent to the event.

Automated Responses

Automated responses to events can improve the efficiency of systems management by reducing user workload and errors and allowing quicker responses to problems. Marvel Enterprise Portal provides two levels of automation: *reflex* and *advanced*.

- Reflex automation provides simple automated system actions. It allows you to monitor a condition on a particular system and to specify a command to execute there. The command can be a single action or a script of commands. Marvel Enterprise Portal receives no feedback after it sends the command or notifies the user.

Reflex automation is implemented by adding an action command to a situation definition that runs when an event is opened.

- Advanced automation allows you to implement more complex workflow strategies than you can create through simple reflex automation. *Policies* are used to perform actions, schedule work, and automate manual tasks. A policy comprises a series of automated steps called *activities*, which are connected and can branch to create a *workflow*. After an activity is completed, a return code is received with feedback and the next activity prescribed by the feedback is carried out.

With policies you can monitor multiple conditions simultaneously on any number of systems and have selected activities take place when specific conditions occur. Many monitoring agents come with predefined policies that you can use as is or modify for your environment.

You can also create your own policies. The Workflows editor is provided for designing and managing policies.

Opening the Situation Event Results Workspace

When the conditions of a situation have been met, event indicators appear in the Navigator and in the graphic view. You can investigate the event by opening its workspace.

1. Open the event results workspace from the event flyover list:

a) In the Navigator or graphic view, move the mouse over the event indicator (Fatal, Critical, Minor, Warning, Harmless, Informational, or Unknown) to open a flyover listing of the situation that caused the event. The Navigator shows one event indicator for an item. If more than one situation is true, the event indicator with the highest severity is displayed. Entries in the event flyover list are grouped by severity. Each event reports the situation name, the computer where the event occurred, the two-letter code of the monitoring agent (such as LX for the Linux OS agent), the event timestamp, and the display item if one was specified. As well, if any of the following changes have occurred, a situation status icon displays at the far right:

Table 15: Event Indicators

Event Indicator	Description
	The event has been acknowledged.
	The acknowledgement has expired.
	The acknowledgement was removed before it had expired and the situation is still true.
	The situation is not functioning properly and you will not be able to open its event results workspace.
	The situation has been stopped and you will not be able to open its event results workspace.

b) In the flyover list, click next to the situation to open its event results workspace.

2. Open the event results workspace from the situation event console view:
   a) Right-click the row of the event.
   b) Click **Situation Event Results**.

A new Navigator item is displayed below the one associated with the event and the event results workspace opens. The event results workspace contains four views to help you investigate the condition and determine what action to take next:

Table 16: Event Results

Event Result	Description
Initial Situation Values	The values are from the data sample that triggered the event. Move the mouse pointer over a highlighted value to see the situation formula. The value shows as "Unknown" and the formula does not display if the situation expression uses a group function: CHANGE, PCTCHANGE, AVG, COUNT, MIN, MAX or SUM.
Current Situation Values	The values are from a new data sample that was taken after you selected the event results workspace. If the situation is still true, you will see the same cell highlighting as is shown in the Initial Situation Values view. If this is a pure event, you will see no data. This is because pure events are unsolicited notifications. Situations for pure events have no sampling interval, thus there is no constant metric that can be monitored for current values. If the expression that is responsible for a situation event uses a group function, the situation event results workspace shows neither the attribute value threshold color nor the expression that should display when you hover over an initial situation value.
Command View	Use the command view to send a take action command to an application started on the managed system of your choosing.
Expert Advice	If the situation author wrote any expert advice, it is displayed here. This view opens to a web page if the advice is a URL reference.

Compare the current situation values with the initial situation values that caused the event and read the advice for any explanation and possible solutions.

You can right-click the situation workspace Navigator item to open the pop-up menu. The menu includes functions for responding to the event:

Table 17: Menu Functions

Menu Function	Description
Edit Situation	Opens the Situation editor so you can see and edit the situation definition, distribution, expert advice, take action command, or until modifier.
Acknowledge	Opens the Acknowledgement window so you can acknowledge that you are taking care of the event.

Menu Function	Description
Close Situation Event	If this is a pure event, you will see this option to close the event and remove the event indicator. If the condition goes from true to false and back to true again the next time the situation is evaluated, the indicator will reappear. If the condition remains true, the indicator is not displayed; you must restart the situation if you want to see the indicator. If you close an event manually, you cannot acknowledge it.
Remove Event Item	Removes the event item from the Navigator. To see it again, you must select the true situation from the event flyover list.

User ID permissions for Events are Acknowledge and Close; and those for Situations include Start or Stop, View, and Modify. If any of these fails to appear in the pop-up menu, your user ID does not have permission for the function.

If you have workspace author mode permission, you can also edit the workspace to add any views that are helpful for diagnosing an event for this particular situation. For example, if historical data is collected for an attribute group, you might want to create a plot chart and add a historical baseline to help to get a broader view of past and current values for trend analysis.

Enterprise Status Workspace

At the highest level of the Navigator Physical view is the Enterprise item. The default workspace for the Enterprise is called Enterprise Status.

The Enterprise Status workspace contains four views:

Situation Event Console	The situation event console inserts a row when the status of a situation changes: Open (including expired and reopened events), Problem, and Acknowledged. The Owner column shows who acknowledged the event, and you can acknowledge an event from the pop-up menu. Link indicators in this view and in the My Acknowledged Events view open the "Event Details Workspace" or you can right-click a link indicator and select another of the linked workspaces.
My Acknowledged Events	The My Acknowledged Events table view displays the events assigned to the current user. This view shows both open and closed events. Closed events are displayed to enable you to access the notes and actions taken against them. For each event record listed, you can click the link indicator at the beginning of the event row to open the "Event Details Workspace" with similar events based on the situation name; or you can right-click the link indicator to see the other Event Details workspaces. The Event Details workspace shows any notes and attachments for the acknowledged event, along with other related events and a link to the IBM Integrated Service Management Library (http://www.ibm.com/software/brandcatalog/ismlibrary) where you can find analytical tools for situations.

If the event is from an incident management agent (such as IBM Information Management), you will also see a Reference ID column and, when you open the pop-up menu to select a linked workspace, a link to the Incident Details workspace.

Message Log

The message log view displays a row for every situation in the monitored network whose status changes to any of the following: *Open, Closed, Stopped, Problem, Acknowledged, Expired, or Reopened.*

Open Situations Counts - Last 24 Hours

The Open Situations Counts - Last 24 Hours is a chart view which displays a bar for every situation in the monitored network that has become true in the past 24 hours. The bar size indicates the number of times a situation event has been opened during this time.

More Predefined Workspaces

More predefined workspaces for the Enterprise Navigator item are accessible through the **Workspace Gallery**, or by selecting the **Workspaces** menu option. In addition, your monitoring product might have workspaces at the Enterprise level. Consult your product help for more information.

Event Details Workspace

The Enterprise Status workspace (default for the Enterprise Navigator item) includes the Situation Event Console and My Acknowledged Events views, each of which has links to the Event Details workspace. The Event Details workspace provides detailed information about the event row and has four views.

Selected Event

The Selected Event view provides reference information about the event. You can click the link indicator to see the other two Event Details workspaces, then select one to open it.

Similar Events by...

This is the view that distinguishes each type of Event Details workspace. The events will be similar by situation name, by source, or by resource. This view enables you to identify event patterns to help diagnose the root cause, whether by condition, by managed system or by the specific resource being monitored.

Similar Events by Situation Name

This view lists all the events for the same situation. Such events would occur when the situation is true on more than one managed system or the situation is true on the same managed system more than once (a display item was defined in the Advanced Situation options window).

Similar Events by Source

This view list all the events from the same managed system as the event you are viewing.

Similar Events by Resource

This view displays all the events for situations that were defined with the same attribute group as the one used for this situation.

Event Notes	The Event Notesdisplays any notes and files that have been applied to the event acknowledgement. You can access any attached file by clicking the Attachment hypertext link. The file is launched in your default browser or in the default viewer configured for the file's MIME type. You can print the notes for an event by clicking **Print**. If you want to update the notes for an event, right-click the event in the Selected Event view and click **Event Notes**. Click to view the updates.
Event Tools	The Event Tools browser view provides links to additional resources for managing events. There are downloadable tools, some of which can be used to troubleshoot any problems you have with events. For example, this view provides a link to the Log and Trace Analyzer, which you can use as part of an autonomic event management solution. This view also provides a link to the IBM Integrated Service Management Library (http://www.ibm.com/software/brandcatalog/ismlibrary) website, from where you can access additional problem determination information and tools.

Acknowledging an Event

When an event is opened for a true situation, you can acknowledge it. This notifies other users that you have taken ownership of the problem related to the event and are working on it. The acknowledgement window records the time of the acknowledgement and the ID of the user.

Your user ID must have Acknowledge permission for Events to use this function.

Acknowledgements enable users who are monitoring events to communicate their working status. Follow these steps to acknowledge an open event or one whose acknowledgement has expired or been canceled before the event has been closed.

1. Do one of the following:
   - Move the mouse over an event indicator (such as , , or in the Navigator to open the flyover list of open events, then right-click the event you want to acknowledge.
   - If you have opened the event results workspace, right-click the event item in the Navigator.
   - In the event console view, right-click a row.
2. Point to **Acknowledge Event** and click either **Quick Acknowledge**, to acknowledge the event with the default settings, or **Acknowledge** to open the Acknowledge window. A quick acknowledgement creates an acknowledgement with no expiration and inserts a time stamp, your user ID, and the statement, “Event quick acknowledged, ownership assigned” in the Notes field.
3. If you selected **Acknowledge** in the previous step, do any of the following:
   - Adjust the **Expiration** settings for the time when the acknowledgement should expire. If you select **Expire at a specific time**, click the list box, adjust the year, month, or time, then click the expiration date to close the calendar. Select **Use Server time** to use the time zone of the Marvel Enterprise Monitoring Server to which the monitoring agent is connected.
   - Write notes about the event in the **Add Notes** text box. After you click **Apply** or **OK**, the text will be moved to the **Notes** area and preceded with a time stamp, your user ID, and the statement, “Event quick acknowledged, ownership assigned”.
   - Attach a file that is applicable to the event by clicking **Add an attachment** and selecting the file.

- If your environment includes an incident management agent, such as IBM Information Management, and the event corresponds to an incident, enter the incident identifier in the **Reference ID** field, up to 32 characters.

4. When you are finished, save your notes and settings by clicking **Apply** to keep the Acknowledgement window open or **OK** to close the window.

Any notes just written and attachments added are displayed in the Notes area, including the date and time each note was added, the user ID of the author, and hypertext links to the attachments.

The acknowledged status of the event is indicated by the Acknowledgement icon in the event flyover list. The message log, situation event console, and common event console views also show "Acknowledged" in the Status column. When the event is closed, the acknowledgement is removed. If you want to review the acknowledgement after it has been closed, you can access it through the view of the Enterprise Status workspace. If the acknowledgement expires before the event has been closed, the event status changes to Reopened.

Acknowledgement Status

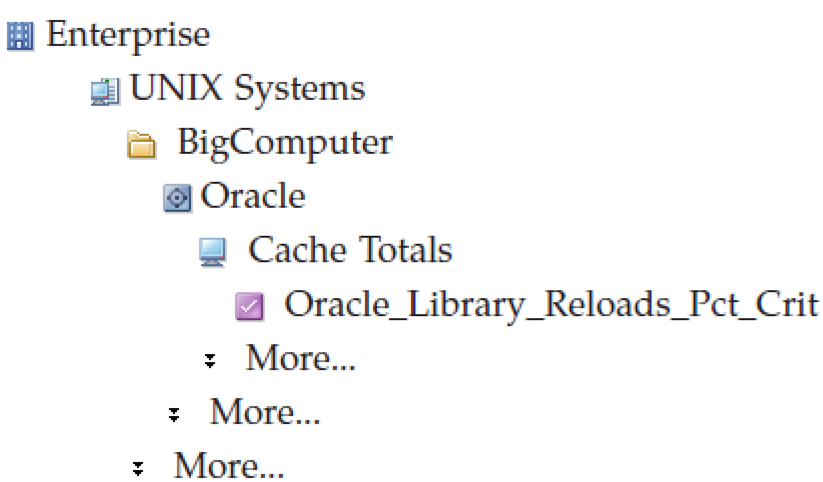
After you acknowledge an event, its status changes to Acknowledged and is displayed in several places.

- Navigator item for the event (which is displayed when you open the Situation Event Results workspace).
- Situation flyover list at the end of the row.
- Status column of the message log view, situation event console view, and in the Enterprise Status workspace view named My Acknowledged Events.

The Acknowledged status changes to Closed when the situation is no longer true.

If the situation is still true when the acknowledgement expires, the status will change to Expired. If the situation is still true and you cancel your ownership (remove acknowledgement) the status will change to Reopened.

Although you can acknowledge a pure event, the acknowledgement does not stop the arrival of more pure events.



Reviewing the Acknowledgement and Adding Notes

The Acknowledgement feature includes a window for adding notes about the event and for attaching files. You can review all the notes that have been written during the lifetime of an open event, including notes that were added before the acknowledgement expired and those that are added automatically when an acknowledgement is removed. And you can append notes and attachments at any time.

1. Do one of the following:
   - Move the mouse pointer over an event indicator (such as or) in the Navigator view to open the flyover list of open events, then right-click the acknowledged event.
   - If you have opened the event results workspace, right-click the event item in the Navigator.
   - In the situation event console view, right-click a row where the Status shows as Acknowledged.
   - In the Enterprise Status workspace, right-click a row in the My Acknowledged Events view.
2. Click **Event Notes**.

The Event Notes window opens for you to review and add notes for this event. You can also attach files.

You can open the window to review the notes and open attachments for the event at any time, event after the event has been closed.

Adding Notes to an Acknowledged Event

You can add notes when you acknowledge an event or after an acknowledgement has been created (but not to events that are in the Open or Closed state) by you or another user. Notes enable you to communicate what steps you have taken thus far to resolve the event or to provide details on the steps you believe must be taken.

1. Do one of the following:
   - Move the mouse pointer over an event indicator (such as or) in the Navigator view to open the flyover list of open events, then right-click the acknowledged event.
   - If you have opened the event results workspace, right-click the event item in the Navigator.
   - In the situation event console view, right-click a row where the Status shows as Acknowledged.
   - In the Enterprise Status workspace, right-click a row in the My Acknowledged Events view.
2. Click **Event Notes**. The Event Notes window opens for you to review and add notes for this event. You can also attach files.

You can continue to open the window to review the notes and open attachments for the event at any time, event after the event has been closed. This is done through the pop-up menu of the view.

Removing an Acknowledgement

If you acknowledged a situation event and must release your ownership before the acknowledgement has expired or the event has closed, you can remove the acknowledgement from the event.

1. Do one of the following:
   - Move the mouse over an event indicator (such as or) in the Navigator view to open the flyover list of open events, then right-click the acknowledged event.
   - If you have opened the event results workspace, right-click the acknowledged event item in the Navigator.
   - In the situation event console view, right-click a row where the status is Acknowledged.
   - In the Enterprise Status workspace, right-click a row in the My Acknowledged Events view.
2. Click **Acknowledge Event** > **Remove Acknowledgement**. Removing the acknowledgement changes the event status to Reopened and removes the user ID from the Owner column.

   A time stamp and user information is attached to the event as a note, along with an audit note signifying that the acknowledgement was removed.

Closing a Situation Event

When the condition of a situation is met, the situation becomes true and an event indicator is displayed over the system name and all related items in the Navigator. For pure events, you can turn off the indicator by closing the event. The situation continues to run but the indicator disappears until another pure event takes place.

In closing an event, you also have the opportunity to add notes and attachments to explain what action you took to resolve it. This can be helpful should a similar event occur in the future. If the event was not previously assigned to an owner, the user who closes it is assigned as the owner.

To use this function, your user ID must have Close permission for Events.

Pure events are indicated in the Type column of the message log view and situation event console view. As well as closing pure events, you can also close events of sampled attributes if the situation has been stopped or deleted. Close an event from any of the following locations:

1. **Situation flyover list**: From the event flyover list, do the following to close a pure event or one whose situation has been stopped or deleted:
   a) In the Navigator, move the mouse pointer over the event indicator to open a flyover listing of the true situations.
   b) In the flyover list, right-click the situation whose pure event you want to close or the situation that has been stopped or deleted and whose event you want to close.
   c) Click **Close Event** → **Close Situation Event** or **Close Event** → **Close Situation Event with Notes**.
2. **Event Navigator item**: From the Navigator item for an event, do the following to close a pure event:
   a) In the Navigator, move the mouse over the event indicator to open a flyover listing of the true situations.
   b) In the flyover list, click a situation name to open its event results workspace. The Navigator focus moves to the event location and shows the situation name, and its event results workspace opens.
   c) In the Navigator, right-click the event item and click **Close Event** → **Close Situation Event** or **Close Event** → **Close Situation Event with Notes**.
3. **Situation event console view**: From the situation event console view, do the following to close a pure event or one whose situation has been stopped or deleted:
   a) In the workspace where the situation event console view displays, right-click the pure event (or the situation that has been stopped or deleted) you want to close. Pure events are indicated by Expand in the first cell and *Pure* in the **Type** cell of the event row.
   b) Click one of the following options:
   - **Close Event** → **Close Situation Event**
   - **Close Event** → **Close Situation Event with Notes**

The indicator disappears until another pure event arrives.

Here are some notes about what you can and cannot do after an event has been closed:

- If you close an event, you cannot acknowledge it.
- You can open the notes and any attachments for a closed event through the pop-up menu of the view.
- If you know you need to take an action that will trigger an event, such as stopping an application, but you do not want notification, you can take preemptive measures to stop an event from opening: You can stop the situation then restart it when you want it to begin running again; or, if you can schedule the time when you don't want the situation to run, you can add a time expression to the situation.

Turning off the Sound

When an event is opened for a situation that has a WAV file assigned, the sound plays while the event is open.

- To turn the sound off, click **Turn Sound OFF**.
- To turn the sound back on, click **Turn Sound ON**.

Use your Windows Sound and Audio Devices or Multimedia utility, accessible from the Control Panel, to adjust the volume of event sounds.

Event Reporting

For situations that are associated with Navigator items, alert indicators are displayed whenever an event is opened. Several workspace views are also available for displaying situation and event status.

Event views present alternatives to event indicators in the Navigator. Message log and situation event console views update automatically to show new events as they arrive and changes in event status as they occur. Graphic views give you a pictorial alternative to the Navigator for indicating alerts.

Chapter 5

Custom Workspaces

Topics:

Customizing Workspaces

Marvel Enterprise Portal product comes with a set of predefined workspaces for every item in the Navigator Physical view. Use these as a starting point for creating and customizing new workspaces to suit your environment.

Custom Workspace Options and Guidelines

The Marvel Enterprise Portal has over a dozen types of views that you can populate a workspace with. Over half of the views are query-based and have a number of embellishments that you can use to observe potential and existing threshold conditions and other metrics.

Workspace Changes

- Split a view horizontally or vertically into two separate views.
- Change the dimensions of the views by dragging the borders between them.
- Rearrange views by clicking a view's title bar and dragging it another view space.
- When you release the mouse button, the views switch position.
- Maximize the view and, if you like, save the workspace while it is still full-screen.
- Change a view to a different type, such as from a pie chart to a gauge.
- Edit the workspace properties, such as to make it the default workspace.
- Edit the properties of the individual views to control their styles and, in table and chart views, what data they display.
- Build a link to another workspace so that you can jump to it from this one quickly.
- Save a copy of the current workspace and edit the copy.

Any changes you make to a workspace are available only to you; no one else will see your changes. The exception is with workspaces that were updated by an administrator while in workspace administration mode, where the changes to that workspace are shared with all users who log on to the same portal server.

Predefined workspaces are protected from editing. You must use **File** > **Save As** to create your own copy for customization.

Design Guidelines

- Display a view full screen.
- Resize views by dragging the borders.
- Swap location with another view by dragging by its title bar to the new position.
- Workspace link definitions.
- Arrange the order of workspaces in the workspace gallery. This gets saved with all workspaces for a **Navigator** item.

Here are some guidelines to plan workspaces:

- Tailor the content of a workspace to the Navigator level: Workspaces at the top of the hierarchy show summary information; those at lower levels provide more in-depth information.
- Provide summary information at the agent level of the Navigator Physical view.
- Use custom queries that pre-filter the data used in a table or chart to ensure fastest data retrieval and not see extraneous data. And use as few different queries as possible in one workspace.
- Design for a specific monitor resolution. To create in workspace administration mode for multiple users, use 1024 x 768, which is the lowest resolution on which the Marvel Enterprise Portal can run.
- Do not crowd too much information in one workspace. Instead, have multiple workspaces at one level or links from one workspace to the next.

- For table views with many columns, arrange them so the important ones are visible. Consider removing some columns by pre-filtering (Properties - Query) or post-filtering (Properties - Filters).
- Consider combining tables with charts in a workspace for the most effective style layout.

Tips

- To edit a predefined workspace or one created in administration mode, restore the original through **File** > **Restore Original Workspace**. The customized version is overwritten by the original. To keep both the customized workspace and the original, save the customized workspace with a new name before restoring the original.
- The managed systems available for reporting are those assigned to the **Navigator** item. If unsure which are assigned, select the **Navigator** item, right-click the item, and click **Properties**.
- The CLI has several tacmds specific to workspaces:
  - `deleteWorkspace` to delete a workspace by its objectid from the Marvel Enterprise Portal Server.
  - `listWorkspaces` to list all of the workspaces, including objectid, on the portal server.
  - `exportWorkspaces` to export one or more portal workspace definitions to a file.
  - `importWorkspaces` to import the workspaces definitions in a file into the portal server.

Workspace Author Mode Permission

The user ID requires Workspace Author Mode permission to create and maintain workspaces, including links. If the main toolbar is disabled (except **Refresh, Back, Forward and Stop**), as well as the **split** and **remove** buttons on the **view** title bar, the user does not have this permission.

Tutorial: Defining a workspace

Use the tutorial to get hands on practice and experience defining a workspace.

In the tutorial exercises you will add new views to an undefined workspace, tailor them with the Properties editor, save the workspace, and, finally, edit the workspace properties.

If the split view and view tools are disabled (dimmed), the user ID does not have Workspace Author Mode permission and is restricted from completing the tutorial.

Split a View

1. Open an undefined workspace.

   An undefined workspace is one that has not been provided with your monitored application or defined by you or an administrator. You can find undefined workspaces initially at the system level (computer or image name is displayed) of the Navigator Physical view, and, if you have custom Navigator views, wherever you have created child Navigator items. A workspace that has not been defined yet will have a browser view with links to this lesson and other relevant topics, and it will have a notepad view.
2. In the notepad view, click Split Vertically to split it into two separate views. The notepad view splits in half vertically, with a duplicate copy in the new view space. Notice that every view in the workspace, including the Navigator, has and tools, as well as (except the Navigator) to delete the view and expand the adjoining view to fill the space.

Change the View Type

Change the new view to a table view:

1. Click **Table**.

2. Click inside the notepad view.

   As you move inside the workspace the mouse pointer changes to the table view icon (Linux shows a hand icon). After you click, the new table view replaces the notepad view. Because a query has never been associated with this view, no data is displayed in the table. You will need to select a query from the Properties editor.
3. When a message asks you to assign the query now, click **No**.

Now add a message log view to the original notepad view:

1. Click **Message Log**.
2. Click inside the notepad view.

   The message log replaces the notepad view.

Tip:

If you select the wrong view or change your mind about the view you chose, press **Escape** or click somewhere in the toolbar.

Swap Views

You can easily move a view to a new position by dragging it by its title bar to the view space it should occupy. When you release the mouse button, the views swap position.

1. Point to the message log view's title bar.
2. Click and drag it to the table view.

   As you drag the view, it appears semi-transparent.

Edit View Properties

Edit the properties for the table view to select what data must display.

1. In the table view title bar, click **Properties**.
2. In the **Query** tab, Click here to assign a query.

   Queries determine from which attribute group to draw data. The Select Query window opens.
3. In the Query tree, expand the **Marvel Enterprise Monitoring Server** branch, then **Managed System**.
4. Select Current Managed Systems Status and click **OK**.

   Back in the Query tab, you can see a preview of the table.
5. Click the **Filters** tab and clear the boxes for these columns (attributes): **HostAddress, Affinities, Host Info**.

   Filters is where you specify the attributes to include in the table and, if you like, show only those values that fall within a range.
6. Click **Test** to see a preview of your changes.
7. Click the Thresholds tab to specify a threshold.
8. In row 1, click the colored column and select Informational. This will be the background color of the cell when the threshold expression becomes true.
9. In row 1, click the **Status** cell, then the arrow, and select **OFFLINE** from the list.

   Any managed systems that are offline will have this background color.
10. Click the **Style** tab to change the appearance of the table.
11. In the **Header**, type the following title in the Title text box: `Marvel Enterprise Monitoring Agent Status`.
12. Click **OK**.

Save a New Workspace

A new workspace can be saved by following the procedure below:

1. Select **Save** Workspace As from the **File** menu.

   If you are running Marvel Enterprise Portal in browser mode, be sure to select its **File** menu and not browser's **File** menu.
2. Type `My Workspace` in the **Name** field.
3. Select **Assign as default for this Navigator Item**.
4. Click **OK**.
5. Take note of which Navigator item `My Workspace` is associated with.
6. Now test your workspace by opening another workspace, then clicking this Navigator item again.

Edit Workspace Properties

The workspace properties can be edited by completing the following procedure:

1. With My Workspace open, click Properties.

   When you open the Properties editor for a workspace from the toolbar as opposed to the pop-up menu, the properties for the workspace display.
2. Clear **Assign as default for this Navigator Item**.
3. Click **OK**.
4. Click Save.
5. Test the new setting by opening another workspace, then clicking this Navigator item again.

   My Workspace does not display. Instead, you see the original undefined workspace, which is the default workspace for this Navigator item.
6. To open My Workspace, right-click the Navigator item, click **Workspace**, and select **My Workspace** from the list.

Opening a New Window

In the desktop mode, click **New Window**.

The new window is a duplicate of the original. Any previously visited workspaces are retained from the parent window; use Go back and Go forward to revisit them. Further navigation to other workspaces in either window, however, is independent of the other window.

Note that you can close duplicate windows (click **File** > **Close**) or the original; the work session remains active as long as one window is open.

Note: To view two workspaces at the same time, create a new window. Any changes you make in this or the other window (or windows, if you open more) are saved with the application.

Tip: You can set the properties of a workspace to open in a new window automatically whenever it is selected. If you are running the Marvel Enterprise Portal in browser mode from a browser that is enabled for tabs, the workspace opens in a new tabbed page.

Conclusion

In this lesson you learned some of the techniques used to define and customize workspaces:

- Split a view.
- Change to a different view: table and message log.
- Swapping views by dragging one view over the other.
- Edit the properties for a view: Select a query for the table, then filter it and add a threshold and title.
- Save the workspace, making the new workspace the default for the Navigator item.
- Edit the properties of the workspace to remove the default status.

Starting Workspace Administration Mode

Typically, workspaces you create are saved with your user ID and no other users can see them. You can turn on administration mode so that all workspaces you edit and save while in this mode are shared with all users who log on to the same Marvel Enterprise Portal Server.

In workspace administration mode, the changes you make to link definitions, launch application definitions, and terminal emulator scripts are also shared with other users. If users edit a shared workspace, the edited workspace becomes their personal copy. Any changes made to that workspace in administrator mode will no longer be received by the user. All other users, including the administrator, continue to use the shared (global) version.

To use this function, your user ID must be SYSADMIN or created from that administrator ID and have View and Administration Mode Eligible permissions for User Administration.

1. Click **Administer Users** to open the profiles for all users and user groups.
2. In the **Users** list, click your user ID.
3. In the **Permissions** tab, scroll down the Authorities tree and click **Workspace Administration**.
4. Enable **Workspace Administration Mode**. (Clearing the check box turns off workspace administration mode.)
5. To save your changes, click **Apply** to keep the window open or **OK** to close it.

The title bar and status bar display ***ADMIN MODE*** after the user name to indicate that your user ID is in workspace administration mode. Any changes that you make to workspaces (including the workspace gallery), link definitions, launch application definitions, and terminal emulator scripts while in workspace administration mode will be shared with other users connected to the same portal server as soon as you save your changes. Likewise, these changes cannot be removed except from within workspace administration mode.

In workspace administration mode, you can access all workspace definitions associated with a particular Navigator item including those that are marked as **Only selectable as the target of a Workspace Link**. This enables you to modify the target workspaces directly without having to first traverse the link. If a target workspace is dependent on information from the source workspace, you will get display errors when you open the workspace through the **Workspace gallery** rather than the **Link To** list.

Private workspaces that were created by a user outside of workspace administration mode cannot be seen while in administration mode, even if you are that user. For example, if you created private workspace "My charts", you will not see "My charts" in the list of available workspaces while you have workspace administration mode turned on.

When editing a workspace in administration mode, select **Do not allow modifications** in the workspace properties. Otherwise, if a user edits that workspace, you no longer control the workspace and cannot override their changes with any changes you make.

When you are finished configuring workspaces for all users, turn off workspace administration mode by repeating these steps and clearing the **Workspace Administration Mode** check box.

Workspace Properties

Every workspace has a name and general characteristics defined in the workspace properties.

When you save a new workspace with **File → Save Workspace As**, click **Properties**, or, if the Properties editor is already open, click the top item in the tree to see the workspace properties.

Workspace Identity

Name	The title of the workspace. The workspace name is displayed in the title bar or browser mode banner, in the **View → Workspace** list, or in the **Link To** list menu, depending on how you have set the workspace options

	(see below). Do not use an & ampersand or # pound sign in the title.
Description	Optional. The description can be a full text description of the workspace.

Workspace Options

☐ **Assign as default for this Navigator Item**	Makes this workspace the default for the Navigator item (the one that opens when you click the Navigator item).
☐ **Assign as Home Workspace**	Specifies this as the workspace that opens whenever you start Marvel Enterprise Portal, much like your browser home page.
☐ **Do not allow modifications**	Protects the workspace from permanent changes and must be selected when you are editing in Workspace administration mode. Users who have access to this workspace can change it temporarily, but if they attempt to save, the Save Workspace As window opens so that it is saved as a new workspace with a different name. Also, when this item is enabled you cannot delete the workspace.
☐ **Only selectable as the target of a Workspace Link**	Marks the workspace as hidden except when it is a possible Link To destination. The workspace does not display in the list of available workspaces for a Navigator item.
☐ **Always open workspace in new window**	When enabled, this option causes the workspace to open in a new window, or in a new tab if your browser supports tabbed pages.

Creating a New Workspace

You can create a new workspace from any existing workspace. The new workspace is associated with the same Navigator item as the original workspace. You cannot save a new workspace if your user ID does not have Workspace Author Mode permission.

To create a new workspace:

1. Open a workspace at the Navigator level for which you want the new workspace to be available.
2. Click **Save Workspace As** in the **File** menu.
3. Type a name for the new workspace. The workspace is saved with the new name and the original left unchanged.
4. Do any of the following to customize the workspace:
   - Add a new view by splitting an existing view into two separate views.
   - Change the dimensions of the views by dragging the borders between them.
   - Change a view to a different type, such as from a notepad view to a browser view.
   - Rearrange views by clicking a view's title bar and dragging it another view space. When you release the mouse button, the views switch position.
   - Edit the general Properties of the workspace, such as making it the default workspace.
   - Edit the Properties of the individual views to control what data to display and the styling.
   - Build a link to another workspace so that you can link to the other workspace from this one at any time.

5. When you are finished editing a workspace, click **Save**. The saved workspace is associated with your Marvel Enterprise Portal user ID. Users with a different ID will not see your changes.

   The workspace is available to all systems with items of the same affinity. For example, if you create a new workspace for your Windows agent then all systems with that monitoring agent will be able to open the new workspace.

Saving a Workspace

You must save a workspace to maintain the changes you make to the workspace properties; otherwise, the changes you have made are lost.

Your user ID requires Workspace Author Mode permission to create and maintain workspaces, including links. If the main toolbar is disabled (except Refresh, Back, Forward and Stop), as well as the split and remove buttons on the view title bar, you do not have this permission.

Whatever changes you make to the workspace properties, such as adding a view or defining a link, are only temporary. They will be lost when you open another workspace or exit Marvel Enterprise Portal unless you save the workspace.

The saved workspace is associated with your Marvel Enterprise Portal user ID. Users with a different ID will not see your changes unless you were in workspace administration mode when you authored them.

1. To save the current workspace, click **Save**.
2. To save the current workspace as a new workspace and leave the original unchanged, click **File > Save Workspace As**, type a name for the new workspace, check any of the workspace options that you want to apply, and click **OK**. The workspace is saved with the name and options you specify, and is available to all systems with items of the same type. For example, if you create a new workspace for your Windows agent then all systems with that monitoring agent will be able to open the new workspace.

Editing a Workspace

Use the Properties editor to change the general characteristics of a workspace and to edit the style and content of any of its views. You can delete or restore the original version of an edited workspace through the File menu.

To edit a workspace, your user ID must have Workspace Author Mode permission.

To edit a workspace:

1. Open the workspace that you want to edit, then click **Properties**. The Properties editor opens. The tree on the left shows the workspace name selected, with the workspace properties on the right.
2. Make any changes to the **Workspace Identity** and **Workspace Options**. You can always return to the general workspace properties by clicking the name of the workspace at the top of the Properties tree.
3. If you want to edit the properties for a particular view, select the view from the Properties tree.
4. When you are finished editing the workspace or view, do one of the following:
   - Click **Apply** to save your changes, then select another view to edit from the Properties tree.
   - Click **OK** to save your changes and close the Properties editor.
5. If you want to keep the changes you made for future work sessions, do one of the following:
   - Click **Save** to update the workspace properties with the changes you just made.
   - Click **File > Save Workspace As** to save this as a new workspace and leave the original workspace unchanged.

Changes you make to a workspace are available only to your user ID; no other users will see your changes. The exception is when you are in workspace administration mode, where any workspace customization you do will be available to all users.

Renaming a Workspace

You can rename a workspace to better suit your environment.

Use the following steps to rename a workspace:

1. Open the workspace whose name you want to change.
2. Click **Properties**. You can also open the Workspace properties from within the Properties editor by selecting the first item in the tree, which is the Navigator item to which the workspace belongs.
3. Edit the title in the **Name** text box.

Deleting or Restoring a Workspace

You can delete a workspace of your creation and restore the original version of a predefined workspace or one created by the administrator.

To delete or restore a workspace, your user ID must have Workspace Author Mode permission.

Marvel Enterprise Portal features enable you to create and edit your own workspaces. You can also edit predefined workspaces and those created by the system administrator (unless they are protected).

Deleting a Workspace

Use the following steps to delete a workspace:

1. Open the workspace you want to delete. You cannot delete predefined workspaces. As well, you cannot delete workspaces that were created in workspace administration mode unless you are currently in workspace administration mode.
2. Click **File > Delete Workspace**. This item is disabled if the workspace is predefined, was created in administration mode and your user ID is not currently in workspace administration mode, or if the workspace properties item Do Not Allow Modifications is selected.

   CAUTION: When you delete a workspace, all link definitions that reference it will be deleted also.
3. When a confirmation message is displayed, click **Yes** to delete the current workspace or **No** if you change your mind. The default workspace for that Navigator item displays.

Restoring the Original Workspace

If you have edited a predefined workspace or one created in administration mode, you can always restore the original version. To restore the original workspace, complete the following procedure:

1. Open the predefined or administration-mode-created workspace you want to restore. If you want to retain the original and edited versions as two separate workspaces, select Save As from the File menu and give the workspace a new name, then repeat this step.
2. Click **File > Restore Original Workspace**. This item is disabled if the original predefined or administrator-created workspace is already displaying or if this is a workspace created with your user ID.
3. When a confirmation message is displayed, click **Yes** to restore the original workspace or **No** if you change your mind. The workspace reverts to its original state.

Defining Links between Workspaces

The Marvel Enterprise Portal enables you to define a link from one workspace to another. Then you can quickly jump to a related workspace or a sequence of workspaces that you like to frequently review.

You can define a link from a Navigator item, or from a table, chart, graphic view within a workspace. A link from a workspace or graphic view provides a shortcut from one workspace to another, as does a link from a table row (or chart data series). Links from a table row are different in that they can use data from one or more values in the row to locate and filter the target workspace.

Your user ID requires Workspace Author Mode permission to create and maintain workspaces, including links. If the view tools are disabled, you do not have this permission.

Related tasks

Linking to a workspace on page 48
Use these steps to link to a workspace that has been targeted from the current Navigator item or view.

Creating a New Link

Use the link wizard to define a link from a Navigator item, graphic view, or query-based view that opens the targeted workspace in the same or new windows.

The workspace link feature in the Marvel Enterprise Portal enables you to create simple links or advanced links. A simple link can originate from a Navigator item or from a data series in a chart or table. Context information is passed from the source workspace to determine which target workspace to open.

Complete these steps to create a new workspace link.

1. Create a new link:
   a) Open the source workspace.
   b) Right-click one of the following possible link source locations:

      The highlighted Navigator item for this workspace.

      An icon in a graphic view.

      An object in a Marvel Management Services Infrastructure view.

      A row in a table view or situation event console view.

      A data point in a chart view.
   c) Click **Link To** > **Link Wizard**.
   d) Select ◉ Create a new link and click **Next>**.
   e) Type a **Name** and **Description** to identify the link, then click **Next**.
2. Select the link type and target:
   a) Select one of the following link types and click **Next** to open the Workspace Link Wizard - Target Workspace window.

◉ **Dynamic**	The dynamic link method offers flexibility in your choice of workspace targets. A dynamic link is similar to a relative link and, with some link definitions, behaves in the same way. What is different is that the path to the target workspace uses a system identifier passed by the source query-based view. The identifier can be managed system name, IP address, host name, Systems Management Facilities ID, or Product Code.
○ **Absolute**	An absolute link stores the managed system name of the chosen target, and goes only there. For example, if you target the **Databases Information** workspace on the **MS SQL Server** branch for the **Paris** computer, that is the workspace that will open. The **Database Information** workspace for the **Geneva** computer is not considered.

Relative	A relative link stores the *type* of source workspace and target workspace. The resulting link is available from any workspace that is of the same type. If more than one workspace fits the definition of the target, you are presented with a list of workspaces to choose from. For example, a link built from the Paris computer's **Windows OS** workspace to its **Memory** workspace will also be available from the Geneva computer's **Windows OS** workspace and link to its **Memory** workspace.If you are linking between Navigator views, relative linking is not recommended. Instead, use the absolute or dynamic method for links to the Navigator Logical view and other custom Navigator views.

b) If you are targeting a workspace in a different Navigator view, select the view from the **Navigator View** list.

c) In the **Navigator** tree, expand the branches and select the Navigator item for the workspace you want to target. The Navigator view is presented in the left frame. As you open branches and select Navigator items, the right frame show their workspaces. With an absolute link, the path you select to the target is interpreted as an exact match, whereas, with a relative or dynamic link the path is interpreted as the pattern to follow from the link source to the target workspace.

d) In the **Workspace** pane, select the workspace to target; or, if this is a dynamic link and you want to more generally classify the link, select **This link does not target a specific workspace**.

e) If you would like the workspace to open in a new window instead of replacing the current workspace, select **Always open target workspace in new window**. If you are running the browser client and your browser supports tabbed pages, the workspace will open in a new tab.

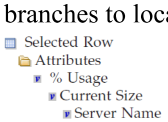
f) Click **Next** or, if this is an absolute or relative link and you are finished defining the link target, click **Next** twice to see the the summary.

3. If this is an absolute or relative link and you want to refine the link definition, click **Next** and add the expressions.
4. If this is a dynamic link, the Target Filters window is displayed for you to select the type of identifier for the target and specify the value to use:

a) Click the identifier to use: Managed system name, Hostname (distributed systems only), IP address (distributed systems only), or SMFID (z/OS-based systems only) If you are not sure which one to choose, click **Managed System name**.

b) Click **Modify Expression** to open the Expression Editor, then click **Symbol**. The list is a reverse hierarchy of available symbols starting from the source context and the current Navigator item and ending at the root Navigator item.

c) Select a symbol that provides the value for the system identifier. For example, **Server Name** will provide the value needed for **Managed system name** when the link is launched. You might need to open different branches to locate a symbol for the type of target filter chosen.



d) Click **OK** add the detailed name for the attribute to the Expression Editor. `$kfw.TableRow:ATTRIBUTE.NTLOGINFO.ORIGINNODE$`

e) Click **Evaluate** to verify that the variable resolves correctly. The Value shown must be valid for the identifier type you specified. For example, for a computer named MARVELUSER, `Primary:MARVELUSER:NT` is a valid Windows OS managed system name and MARVELUSER is a valid host name.

f) If no value is displayed or you get a syntax error or a value that does not identify the system, click **Clear** and select a different symbol or try another identifier.

g) In addition to **Symbol**, you can click **Operator** and **Function** to find and select other elements to complete the expression. When you are finished with the expression, click **OK** to insert the expression in the current target filter row. Note that expressions can evaluate to patterns using the asterisk (*) and question mark (?) wildcard characters. This allows for pattern matching filters.

h) If the target workspace was updated or is new for the latest version of your monitoring product and your environment has a mix of versions, you can disable ☑ **Allow this link to target any version of the target workspace** or leave it enabled: ☑ Enabled is the default setting. The target workspace can be chosen for any version of the monitoring agent. If the query for a view specifies attributes that are available only in the newer version and the target workspace is for an older version of the monitoring agent, no values will be returned for those attributes. ☐ Disable the option if you want the link not to be offered for target workspaces on earlier versions of the monitoring agent.

i) Click **Next** and refine the link definition; or click **Next** twice and review the summary.

5. In the Workspace Link Wizard - Summary page, review the summary, then click **Finish** to save the link definition, **Back** to return to a previous window to make additional changes, or **Cancel** to close the Link Wizard without saving your changes.

If the target workspace is dependent on information that is passed from the source workspace (users will get an error message if they attempt to open the workspace from the list of available workspace), then edit the workspace properties to hide the workspace unless it is targeted by a link definition.

Testing the Link

You can test the link you have created to ensure that it works correctly.

To test a link you have created:

1. In the source workspace, right-click the location where you created the link.
2. Click **Link To** and select the link from the list. The value of the symbols specified in the link definition are used to select the target workspace and filter its content. An example is a link from a row in a view that includes the **Process Name**, and the value of Process Name is passed to the target workspace. The view whose symbol was targeted will show information about that particular process.
3. If the target workspace does not display what you expected or a Target not found message is displayed, edit the link.

> **Tip:** If you were prompted to select the target workspace but wanted the link definition to be specific so you would not have to choose from a list, do one of two things: If you had chosen Relative as the link type, define a new link and select a link type of Absolute; or make it Dynamic and supply the expression in the target filter to target the specific workspace.

Editing a Link Definition

You can edit a link definition after it has been created.

1. Open the workspace where the link originates (source workspace).
2. Right-click the link origination point, which can be one of the following:
   - The highlighted Navigator item for this workspace.
   - An icon in the graphic view.
   - A row in the table view.
   - A row in the situation event console view.
   - A bar in the bar chart view.
   - A slice in the pie chart view.
   - A point in the plot chart view.
3. Click **Link To** > **Link Wizard.**
4. In the Workspace Link Wizard - Welcome page, select ◉ **Modify an existing link** and click **Next>**.
5. In the Workspace Link Wizard - Link to Modify page, select the name of the link to edit, then click **Next>**. Before clicking **Next**, you can clear the ☐ **Hide links that are not available for the select view** check box to see all the links for this workspace.

6. Edit the name or description, then click **Next>** to open the Link editor.
7. Edit the link.
8. Click **Next** until you reach the summary page, then click **Finish**.

Deleting a Link Definition

You can delete a link definition when it is no longer useful.

Follow these steps to permanently remove a link definition.

1. Open the source workspace.
2. Right-click the link origination point, which can be one of the following:
   - The highlighted Navigator item for this workspace.
   - An icon in a graphic view.
   - An object in a TMS Infrastructure view.
   - A row in a table view or situation event console view.
   - A bar in a bar chart view.
   - A slice in a pie chart view.
   - A point in a plot chart view.
3. Click **Link To** > **Link Wizard**.
4. Select **Delete one or more existing links** and click **Next**.
5. Select the name of the link to delete. You can select additional links with Ctrl+Click or select all links from the first selection to this one with Shift+Click.
6. Click **Next** until you reach the summary page, then click **Finish**.

Note: When you delete a workspace, all link definitions that originate from it will be deleted also. This is also true for any absolute links that target this workspace.

Adding or Editing a Link Anchor

You can add or edit a link anchor by using the Link Anchor Properties editor to hide the link indicator, disable it for table rows that do not meet the link criteria, and to assign a different default link or no default link.

When you have a link that originates from a table row or a graphic view icon, a link indicator is displayed: Click to open the default link or to see and select from a list of possible links.

1. Open the workspace where the link originates (source workspace).
2. Right-click a table row or the graphic view icon where you originated the link.
3. Click **Link Anchor**.
4. In the Link Anchor Properties editor, select a default link from the list or select (**No Default**). When you select the option to show the link indicator (next step), you can click the indicator to go directly to the default linked workspace or, if no default link was assigned, to see and select from the list of available links.
5. Clear **Show Link Indicator** if you want no link indicator in the first column of the table or overlaying the graphic view icon. If you disable the indicator, users can still link to the target workspace by right-clicking a table row or the linked graphic view icon.
6. Clear **Link Indicator Always Enabled** only if this is an advanced link from a table, with filtering, and you want to enable the indicator only for rows where the link is available. An example would be a link that is not available for the *Idle* process. The link indicator in this row would be dimmed to show that it was disabled.
7. Click **OK** to close the window, then click **Save** to save your changes to the workspace.

Link Examples

Review these link examples for ideas on how to use the Link Wizard to build links between workspaces.

The graphic shows where you can start the Link Wizard to define a link, and from where you can then launch the link to the workspace that was targeted by the link definition. The mouse icons show how the link is launched: click a link anchor; or right-click a Navigator item or chart view data item. A link that originates from a Navigator item or graphic view is often a simple link to the target workspace, whereas a link from a table row or chart point might be to a workspace with more details about that row. Notice that the link anchors showing in the table view and graphic view appear automatically when you define a link from these views.

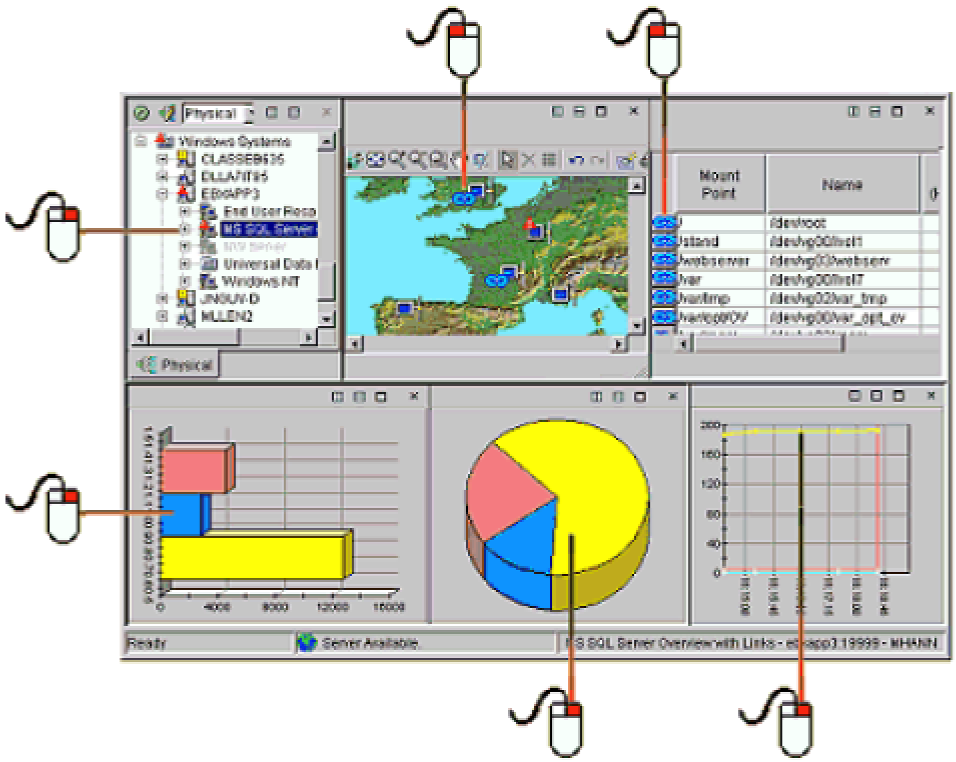


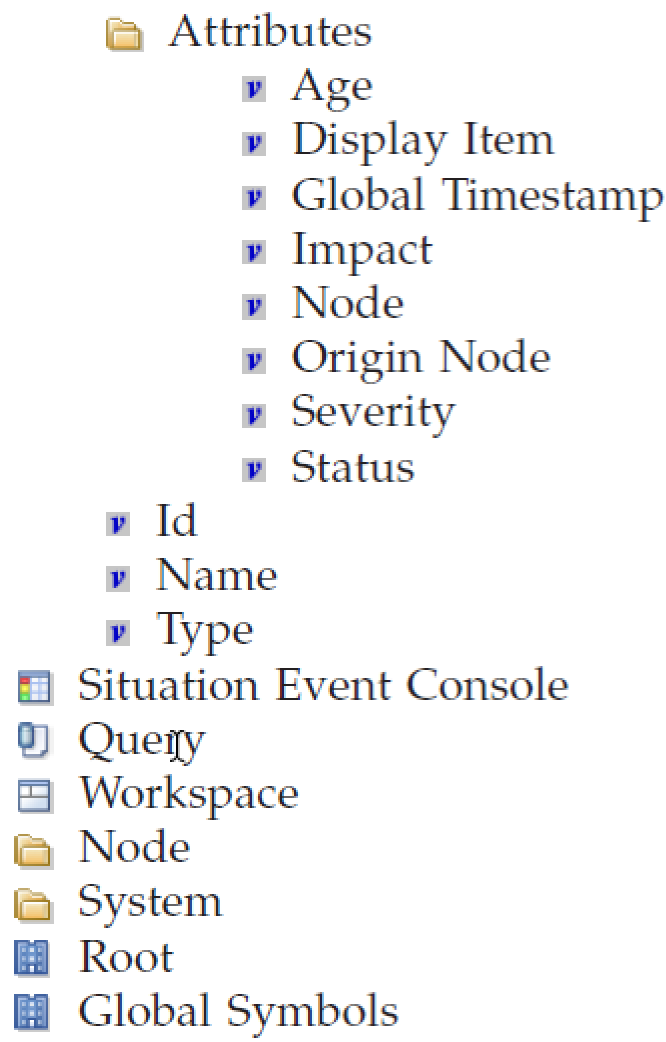
Figure 3: Link Wizard

Dynamic Linking

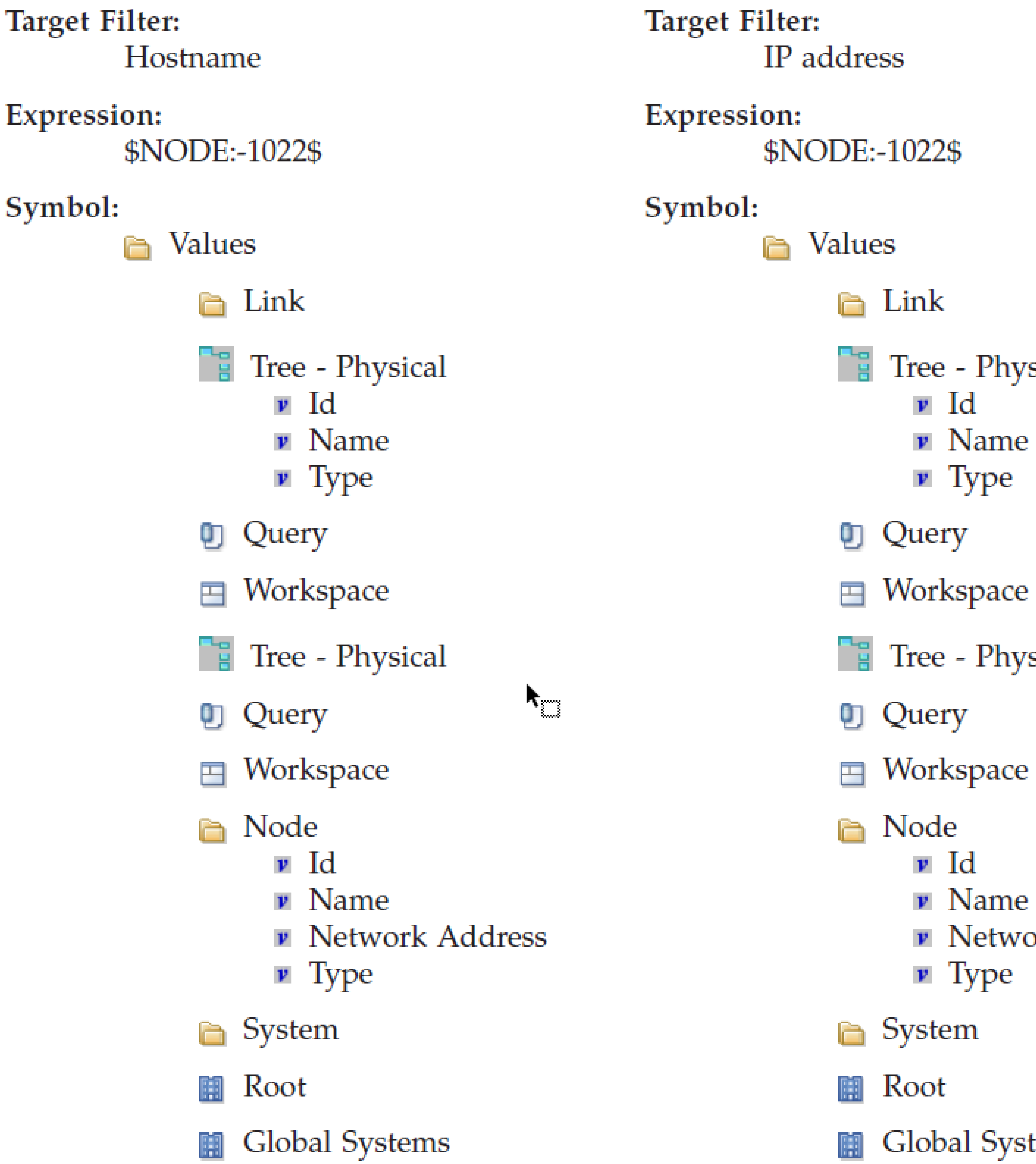
The dynamic link type has you specify an identifier for the target workspace. When the source is a table row or chart point, you can often select a symbol for an attribute that identifies the managed system.

Target Filter	Managed system name
Expression	`$EventConsoleRow:ATTRIBUTE.ISITSTSH.ORIGINNODE $`

Symbol	Values
	    Link
	    Selected Row



When you cannot find a symbol for the managed system, consider using another identifier. In the example here, the link source is a Navigator item and the target filter chosen is either the Hostname or IP address.



Relative Link from a Navigator Item

You can link from a workspace at the system level of the Navigator to a workspace at the platform level. Because it is relative, the link is available from any system level Navigator item (NODE1, NODE2, NODE3) to the parent Windows Systems workspace. In an environment with many Windows systems being monitored, this link enables a quick jump from the expanded branch to the parent workspace.

- Enterprise
  - Windows Systems
    - NODE1
    - NODE2
    - NODE3

Source Point	Any of the NODE Navigator items
Link Type	Relative
Target Workspace	Windows Systems > Windows Systems
Parameters	The expression is built automatically from the source context and the workspace that was selected as the target. • `contextIsAvailable:` • `$kfw.TreeAdapter:-1021A$ == $kfw.LinkSymbolsGroup:PBASED.SOURCE_CONTEXT.0.$ && $kfw.Context:-5000$ &&` • `$kfw.TreeAdapter:-1021A$ == $kfw.LinkSymbolsGroup:PBASED.SOURCE_CONTEXT.3.$ && $kfw.Context:-5000$` • `linkIsEnabled: true`

linkIsEnabled Usage Example

Follow along with these steps to see how a link to the System workspace was created using the **linkIsEnabled** symbol. This example tests the value of the Product cell in the selected row to determine whether or not to offer the link on that row.

1. Open the Managed System Status workspace in the Navigator Physical view: Click **Enterprise** to open the default workspace; right-click **Enterprise** and click **Workspace > Managed System Status**.
2. Right-click a row in the Managed System Status table and click **Link To** > **Link Wizard**.
3. Create a new link, name it `System Details`, select a link type of **Relative**, and target the Windows Systems workspace.
4. Click **Next** to go to the Workspace Link Wizard - Parameters.
5. Click **thelinkIsEnabled** row. The Expression box reads true.
6. Click **Modify Expression**.
7. In the Expression Editor, click **Clear**, and then click **Symbol**.
8. In the **Symbols** list, select **Product** and click **OK**. The expression is displayed as `$kfw.INODESTS:ATTRIBUTE.INODESTS.PRODUCT$`.
9. Click **Operator**, select **Equal** and click **OK** to see the == operator.
10. Type "NT" at the end of the expression, which should then read, `$kfw.INODESTS:ATTRIBUTE.INODESTS.PRODUCT$ == "NT"`.
11. Click **Evaluate**. If the row from where you started the Link Wizard has `NT` in the Product column, the test will betrue; otherwise, it will be `false`.
12. Click **Finish**.

    Click the link indicator in one of the NT rows to open the Services workspace for that monitoring agent. Note that you can disable the link indicator for invalid rows by clearing **Link Indicator Always Enabled**.

Text in Link Expressions

You can add text and spaces to the link expression by enclosing them in " double quotes and joining to any other functions with a + plus sign. Here are some examples.

Link expression	Resolves to
`$kfw.LinkSymbolsGroup:PBASED.SOURCE_CONTEXT.2.-1022$`	`Windows Systems`
`"My" + $kfw.LinkSymbolsGroup:PBASED.SOURCE_CONTEXT.2.-1022$`	`My Windows Systems`
`"My "+ $kfw.LinkSymbolsGroup:PBASED.SOURCE_CONTEXT.2.-1022$ + "Now"`	`My Windows Systems Now`
`$kfw.LinkSymbolsGroup:PBASED.SOURCE_CONTEXT.2.-1022$ +" in the Navigator "+ $kfw.TreeAdapter:-1022$ +" view"`	`Windows Systems in the Navigator Physical view`

Symbols in Text

You can reference a variable (symbol) in a table or chart view header or footer, or in a notepad view, and have it resolve to a value when you link to the workspace. The symbol value is defined in the link wizard customization page.

Link Anchor Properties

The link anchor properties enable you to show a visual indicator on tables where customized links have been defined, and to establish a default link that opens when the user clicks the indicator.

Default Link	When you select the option to show the link indicator, the user can click the link indicator to go directly to the default linked workspace or, if no default link was assigned, to see and select from the list of available linked workspaces. Select from the list of target workspaces or select (No Default) to have no default link.
Options	☑ **Show Link Indicator** adds a new first column to the table, within each row; or it overlays the Navigator item icon in the graphic view with ☑. Clear this option if you want no link indicator in the table or graphic view. ☑ **Link Indicator Always Enabled** shows the links in every row of the table or over every linked Navigator item icon in the graphic view, which is normally what you want. Some links, however, are conditional, based on the value of a particular cell (or a derived value). For example, a link might be defined to work only on rows that have a thread count value over 30. You would clear this option to have the link indicator display only on the rows where the thread count is over 30. The advantage of this option is it guides the user to the valid link rows; the disadvantage is that it takes more time for the table to render.

Appendix A

Formula Functions

Topics:

Boolean AND and OR

The tabular editors work with Boolean AND and OR logic.

Multiple Expressions

Enter multiple expressions in the same row if they must all be met (Boolean AND logic) and on separate rows if any of them can be met (Boolean OR logic) to set the situation to true. For example, if you want a situation to fire when either disk time OR disk space is at least 90% on myserver, the condition would look like the one shown here.

Example

% Disk Time	% Used	Server Name
>= 90		== myserver
	>= 90	== myserver

Branching OR Expressions

If you are building a situation or setting a filter or threshold where you want an OR expression to branch at a specific AND expression, repeat the AND expression in a new row with the OR expression.

In the situation example below, the comparisons are true if the notepad process exceeds 50 seconds AND the virtual bytes exceed one million OR the notepad process on myserver exceeds 50 seconds AND the page faults exceed 100,000 per second.

Example

Table 18: Branching OR expressions - disk time

Process Name	Elapsed Time	Virtual Bytes	Page Faults/sec
== notepad	> 500000	> 1000000	
== notepad	> 500000		> 100000

Repeating Attributes in AND Expressions

Some situation formulas require you to repeat the same attribute in an AND expression for a certain outcome.

If you are constructing a situation that requires repeating an attribute, each instance of the attribute must appear in its own column. To repeat an attribute in a new column of the Situation editor:

Click **Add Conditions** and select it from the **Select condition** window.

Examples

Example 1:

This situation is true when the notepad process occurs more than four times in the same data sampling. The user wrote the first expression to check for notepad, then clicked **Add Conditions** and selected Process Name again to create a new column and add another expression to count these processes.

	Process Name	Process Name
1	== notepad	> 4

Example 2:

This situation is true when the day of the week is 02 to 06 (Monday to Friday).

	Day of Week	**Day of Week**
1	>= 2	<= 6

Appendix B

Marvel Enterprise Monitoring Server and Global Attributes

Topics:

- Situation Definition Attributes
- Universal Time Attributes

Situation Definition Attributes

The Situation Definition attributes supply you with the complete definition of situations. You can apply the predefined query for this group (in the Query editor under **Marvel Enterprise Monitoring Server** > **Situation Definition**) to charts and tables; you cannot use these attributes in situations.

Advice	The expert advice for a situation that appears in the event workspace.
Affinities	The internal identification number for the agent and attribute group referenced in the situation.
Alert List	Whether or not events for this situation belong to an alert list.
Auto SOPT	The auto SOPT.
Auto Start	Whether the situation is set to autostart, `*YES`, or to be started manually, `*NO`.
Command	The type of command specified in the Action tab.
Description	The description written for the situation.
Destination Node	The managed system to which the situation is distributed.
Event Attribute	A single digit to describe the type of event.
HUB	The name of the hub monitoring server that controls the situation.
Interval Days	A two-digit number to express the interval between data samplings.
Interval Seconds	A six-digit number that expresses the time between data samplings.
Last CCSID	Internal identifiers of the situation expressions.
Last Date	The date of the last revision to the situation. The format is CYYMMDDHHMMSSmmm (as in 1050415074501000 for April 15, 2005 at 07:45:01) where: *C =Century (0 for 20th, 1 for 21st)* *Y =Year* *M =Month* *D =Day* *M =Minute* *S =Second* *m =millisecond*
Last Release	The last release to associate with the situation.
Last User	The user ID of the last person to update the situation.
Location Flag	The location flag identifier.
NOCOL	Whether this is a no column attribute.

Notify Arguments	Any notification arguments.
Notify Options	Any notification options.
Object Lock	The object lock.
Predicate	The formula, including the detailed names of the attribute group and attributes.
QIBCLASSID	The query information base class ID.
QIBSCOPE	The scope of the query information base.
Reflex OK	Whether an action command has been set.
Send Message Q	The universal message that will be sent when the situation is true.
Sit Info	Any other information about the situation.
Situation Name	The unique identifier given to the situation or policy.
Full Name	The name given to the situation or policy. The name can be up to 256 bytes long.
Source	The situation source.

Universal Time Attributes

The Universal Time attributes show the time and date at the monitoring agent expressed in UTC (Coordinated Universal Time) format. For example, if the UTC time is 19:15.00 for an agent in New York, the local time is 2:15 PM Standard Time. These attributes are useful for action situations triggered by time. The Universal Time attributes show the time and date at the monitoring agent expressed in UTC (Coordinated Universal Time) format. For example, if the UTC time is 19:15.00 for an agent in New York, the local time is 2:15 PM Standard Time. These attributes are useful for action situations triggered by time.

Note:

- When building situations, you will see that the Universal Time attribute group can be combined with any attribute group to create a condition.
- The attributes are not available in Marvel Enterprise Monitoring Server queries.
- Seconds, Minutes, Hours, and Day Of Month are treated as two-character text attributes. For example, == 05 Minutes is correct, but == 5 Minutes will never be true.

Time	Definition
Day Of Month	The day in the month at the agent location when the data was sampled, from 01 to 31. The first day of the month is 01.
Day Of Week	The numeric representation for the day in the week at the agent location when the data was sampled, from Sunday to Saturday. Select the day from the list.
Hours	The hour in the day at the agent location when the data was sampled, from 00 to 23, such as 01 for 1 am.
Minutes	The minute in the hour at the agent location when the data was sampled, from 00 to 59, such as 05 for the fifth minute.

Time	Definition
Month Of Year	The numeric representation of the month in the year at the agent location when the data was sampled. Select the month from the list.
Time	The time at the agent location when the data was sampled, formatted as HHMMSS. For example, 153000 is 3:30 PM
Timestamp	The time stamp at the agent location when the data was sampled. The format is MM/DD/YY HH:MM:SS.

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