Tivoli® IBM Tivoli Tape Optimizer on z/OS

IBM

Version 2.2

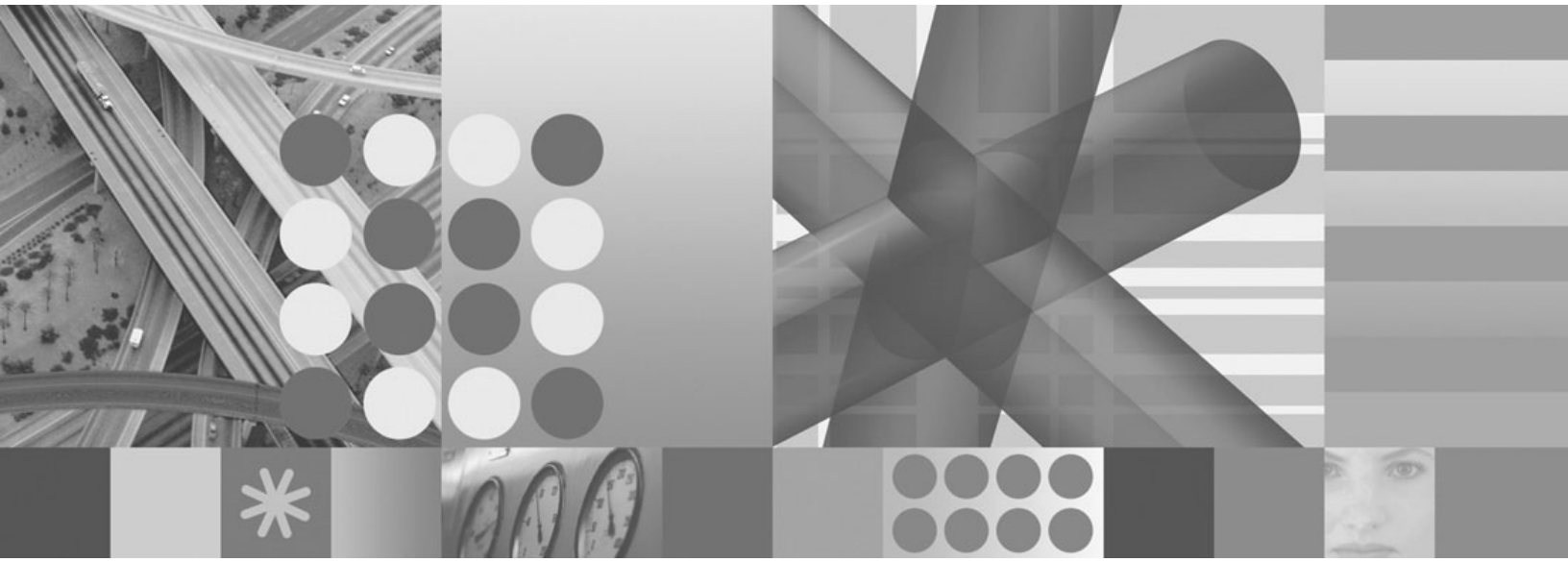
Monitoring Agent User's Guide

SC23-9738-01

Tivoli® IBM Tivoli Tape Optimizer on z/OS

IBM

Version 2.2



Monitoring Agent User's Guide

SC23-9738-01

Note

Before using this information and the product it supports, read the information in Appendix D, “Notices,” on page 93.

This edition applies to version 2.2 of IBM Tivoli Tape Optimizer on z/OS (product number 5698-B26) and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this guide

The *IBM Tivoli Tape Optimizer on z/OS User's Guide* provides information about installing and using the IBM Tivoli Tape Optimizer on z/OS.

Use the information in this guide along with the *IBM Tivoli Monitoring User's Guide* to monitor Tape Optimizer.

Intended audience for this guide

This guide is for system administrators who install and use the IBM Tivoli Tape Optimizer on z/OS Monitoring Agent to monitor and manage IBM Tivoli Tape Optimizer on z/OS resources.

Readers should be familiar with the following topics:

- Tivoli Enterprise Portal interface
- IBM® Tivoli® Monitoring application software
- IBM Tivoli Enterprise Console® (optional)
- IBM Tivoli Tape Optimizer on z/OS environments

What this guide contains

This guide contains the following chapters:

- Chapter 1, "Overview of the Tape Optimizer Monitoring Agent," on page 1

  Provides an introduction to the Tape Optimizer Monitoring Agent.
- Chapter 2, "Requirements for the monitoring agent," on page 5

  Provides information about the requirements for the Tape Optimizer Monitoring Agent.
- Chapter 3, "How to use a monitoring agent," on page 7

  Provides a list of tasks to achieve when using a monitoring agent, a list of procedures for performing each task, and references for where to find information about the procedures. After completing installation and configuration and becoming familiar with the information in Chapter 1 of this guide, use this chapter to see how you can use a monitoring agent.
- Chapter 4, "Workspaces reference," on page 13

  Provides an overview of workspaces, references to additional information about workspaces, and descriptions of predefined workspaces in this monitoring agent.
- Chapter 5, "Attributes reference," on page 17

  Provides an overview of attributes, references to additional information about attributes, descriptions of the attribute groups and attributes in this monitoring agent, and disk space requirements for historical data.
- Chapter 6, "Situations reference," on page 41

  Provides an overview of situations, references to additional information about situations, and descriptions of the predefined situations in this monitoring agent.
- Chapter 7, "Take Action commands reference," on page 49

  Provides detailed information about the Take Action commands, references to additional information about Take Action commands, and descriptions of the Take Action commands provided in this monitoring agent.
- Chapter 8, "Policies reference," on page 53

Provides an overview of policies, references for detailed information about policies, and descriptions of the predefined policies included in this monitoring agent.

- Appendix A, “IBM Tivoli Enterprise Console event mapping,” on page 55

  Provides an overview of the IBM Tivoli Enterprise Console event mapping information for this monitoring agent.
- Appendix B, “Problem determination,” on page 61

  Provides information about troubleshooting the various components of the Tape Optimizer Monitoring Agent and information about log files. This chapter also contains information about your options for obtaining software support.
- Appendix C, “Accessibility,” on page 91

  Provides information about the accessibility features in the Tape Optimizer Monitoring Agent.
- Appendix D, “Notices,” on page 93

  Provides IBM and Tivoli notices and trademark information as it applies to the Tape Optimizer Monitoring Agent.

Publications

This section lists publications relevant to the use of the Tape Optimizer Monitoring Agent. It also describes how to access Tivoli publications online and how to order Tivoli publications.

Prerequisite publications

To use the information in this guide effectively, you must have some knowledge of IBM Tivoli Monitoring products, which you can obtain from the following books:

- *IBM Tivoli Monitoring Administrator’s Guide*
- *IBM Tivoli Monitoring Installation and Setup Guide*
- *IBM Tivoli Monitoring Problem Determination Guide*
- *IBM Tivoli Monitoring User’s Guide*
- *IBM Tivoli Monitoring Readme First*

Related publications

The following documents also provide useful information:

- *IBM Tivoli Enterprise Console Adapters Guide*
- *IBM Tivoli Enterprise Console Event Integration Facility User’s Guide*
- *IBM Tivoli Enterprise Console Reference Manual*
- *IBM Tivoli Enterprise Console Rule Developer’s Guide*

Accessing terminology online

The *Tivoli Software Glossary* includes definitions for many of the technical terms related to Tivoli software. The *Tivoli Software Glossary* is available at the following Tivoli software library Web site:

http://publib.boulder.ibm.com/tividd/glossary/tivoliglossarymst.htm

The IBM Terminology Web site consolidates the terminology from IBM product libraries in one convenient location. You can access the Terminology Web site at the following Web address:

http://www.ibm.com/ibm/terminology

Accessing publications online

The documentation CD contains the publications that are in the product library. The format of the publications is PDF, HTML, or both. See the readme file on the CD for instructions on how to access the documentation.

IBM posts publications for this and all other Tivoli products, as they become available and whenever they are updated, to the Tivoli software information center Web site. Access the Tivoli software information center by first going to the Tivoli software library at the following Web address:

http://publib.boulder.ibm.com/tividd/td/link/tdprodlist.html

In the Tivoli Information Center window, click **Tivoli product manuals**. Click the letter that matches the first letter of your product name to access your product library. For example, click **M** to access the IBM Tivoli Monitoring library.

Note: If you print PDF documents on other than letter-sized paper, set the option in the **File → Print** window that allows Adobe Reader to print letter-sized pages on your local paper.

Ordering publications

You can order many Tivoli publications online at http://www.elink.ibmlink.ibm.com/public/applications/publications/cgibin/pbi.cgi

You can also order by telephone by calling one of these numbers:

- In the United States: 800-879-2755
- In Canada: 800-426-4968

In other countries, contact your software account representative to order Tivoli publications. To locate the telephone number of your local representative, perform the following steps:

1. Go to http://www.elink.ibmlink.ibm.com/public/applications/publications/cgibin/pbi.cgi.
2. Select your country from the list and click **Go**.
3. Click **About this site** in the main panel to see an information page that includes the telephone number of your local representative.

Accessibility

Accessibility features help users with a physical disability, such as restricted mobility or limited vision, to use software products successfully. With this product, you can use assistive technologies to hear and navigate the interface. You can also use the keyboard instead of the mouse to operate most features of the graphical user interface.

For additional information, see Appendix C, “Accessibility,” on page 91.

Tivoli technical training

For Tivoli technical training information, see the following IBM Tivoli Education Web site:

http://www.ibm.com/software/tivoli/education/

Conventions used in this guide

This guide uses several conventions for special terms and actions, and operating system-dependent commands and paths.

Typeface conventions

This guide uses the following typeface conventions:

Bold

- Lowercase commands and mixed case commands that are otherwise difficult to distinguish from surrounding text
- Interface controls (check boxes, push buttons, radio buttons, spin buttons, fields, folders, icons, list boxes, items inside list boxes, multicolumn lists, containers, menu choices, menu names, tabs, property sheets), labels (such as **Tip:**, and **Operating system considerations**:)
- Keywords and parameters in text

Italic

- Citations (examples: titles of books, diskettes, and CDs
- Words defined in text (example: a nonswitched line is called a *point-to-point line*)
- Emphasis of words and letters (words as words example: "Use the word *that* to introduce a restrictive clause."; letters as letters example: "The LUN address must start with the letter *L*.")
- New terms in text (except in a definition list): a *view* is a frame in a workspace that contains data.
- Variables and values you must provide: ... where *myname* represents....

`Monospace`

- Examples and code examples
- File names, programming keywords, and other elements that are difficult to distinguish from surrounding text
- Message text and prompts addressed to the user
- Text that the user must type
- Values for arguments or command options

Operating system-dependent variables and paths

The direction of the slash for directory paths might vary in this documentation. No matter which type of slash you see in the documentation, use the following guidelines for a slash:

- If using UNIX®, use a forward slash (*/*).
- If using Windows®, use a backslash (****).

The names of environment variables are not always the same in Windows and UNIX. For example, %TEMP% in Windows is equivalent to $TEMP in UNIX.

For environment variables, use the following guidelines:

- If using UNIX, use **$***variable*.
- If using Windows, use **%***variable***%**.

Note: If you are using the bash shell on a Windows system, you can use the UNIX conventions.

Chapter 1. Overview of the Tape Optimizer Monitoring Agent

The Tape Optimizer Monitoring Agent provides you with the capability to monitor Tape Optimizer, and to perform basic actions with Tape Optimizer. This chapter provides a description of the features, components, and interface options for the Tape Optimizer Monitoring Agent.

IBM Tivoli Monitoring overview

IBM Tivoli Monitoring is the base software for the Tape Optimizer Monitoring Agent. IBM Tivoli Monitoring provides a way to monitor the availability and performance of all the systems in your enterprise from one or several designated workstations. It also provides useful historical data that you can use to track trends and to troubleshoot system problems.

You can use IBM Tivoli Monitoring to perform the following tasks:

- Monitor for alerts on the systems that you are managing by using predefined situations or custom situations.
- Establish your own performance thresholds.
- Trace the causes leading to an alert.
- Gather comprehensive data about system conditions.
- Use policies to perform actions, schedule work, and automate manual tasks.

The Tivoli Enterprise Portal is the interface for IBM Tivoli Monitoring products. By providing a consolidated view of your environment, the Tivoli Enterprise Portal permits you to monitor and resolve performance issues throughout the enterprise.

See the IBM Tivoli Monitoring publications listed in “Prerequisite publications” on page x for complete information about IBM Tivoli Monitoring and the Tivoli Enterprise Portal.

Features of the Tape Optimizer Monitoring Agent

The Tape Optimizer Monitoring Agent software can identify, notify you of, and correct common problems with the application that it monitors. The software includes the following features:

- Monitoring
- Data gathering
- Event management
- Operations management

Functions of the Tape Optimizer Monitoring Agent

The Tape Optimizer Monitoring Agent offers functions that can be used to manage numerous tape copy jobs and monitor the results of those jobs. The IBM Tivoli Tape Optimizer Monitoring Agent displays the following types of data:

- Take action commands that can be used to launch Tape Optimizer copy request jobs
- Historical statistical information
- Tape migration detail
- Volume chain list

- Volume dataset list
- Tapes pending migration due to replace
- Tapes pending migration due to temporary errors
- SMF statistics such as data set , volume, and job copy status

New in this release

For version 2.2 of the Tape Optimizer Monitoring Agent, the following enhancements have been made:

- New attribute groups
  - Product Action Log
  - Tape Pending Migration Due to Replace
  - Tape Migration Due to Temp Errors
  - Tape Optimizer Actions
  - Dataset Copy Status
  - Job Copy Status
  - Volume Copy List
- Updated krw.baroc file to support TEC event mapping

Components of the IBM Tivoli Monitoring environment

After you install and set up the Tape Optimizer Monitoring Agent, you have an environment that contains the client, server, and monitoring agent implementation for IBM Tivoli Monitoring that contains the following components:

- Tivoli Enterprise Portal client with a Java™-based user interface for viewing and monitoring your enterprise.
- Tivoli Enterprise Portal Server that is placed between the client and the Tivoli Enterprise Monitoring Server and enables retrieval, manipulation, and analysis of data from the monitoring agents. The Tivoli Enterprise Portal Server is the central repository for all user data.
- Tivoli Enterprise Monitoring Server that acts as a collection and control point for alerts received from the monitoring agents, and collects their performance and availability data. The Tivoli Enterprise Monitoring Server is also a repository for historical data.
- Tivoli Enterprise Monitoring Agent, Tape Optimizer Monitoring Agent. This monitoring agent collects and distributes data to a Tivoli Enterprise Portal Server.

IBM Tivoli Enterprise Console is an optional component, which acts as a central collection point for events from a variety of sources, including those from other Tivoli software applications, Tivoli partner applications, custom applications, network management platforms, and relational database systems. You can view these events through the Tivoli Enterprise Portal (using the event viewer), and you can forward events from IBM Tivoli Monitoring situations to the IBM Tivoli Enterprise Console component.

User interface options

Installation of the base software and other integrated applications provides the following interfaces that you can use to work with your resources and data:

Tivoli Enterprise Portal browser client interface
The browser client interface is automatically installed with the Tivoli

Enterprise Portal Server. To start the Tivoli Enterprise Portal browser client in your Internet browser, enter the URL for a specific Tivoli Enterprise Portal browser client installed on your Web server.

Tivoli Enterprise Portal desktop client interface
The desktop client interface is a Java-based graphical user interface (GUI) on a Windows or Linux® workstation.

IBM Tivoli Enterprise Console
An event management application that integrates system, network, database, and application management to help ensure the optimal availability of an IT services for an organization.

Manage Tivoli Enterprise Monitoring Services window
The window for the Manage Tivoli Enterprise Monitoring Services utility is used for configuring the agent and starting Tivoli services not already designated to start automatically.

Chapter 2. Requirements for the monitoring agent

This chapter contains information about the requirements for the Tape Optimizer Monitoring Agent.

To install and configure the Tape Optimizer Monitoring Agent, use the procedures for installing monitoring agents in the *IBM Tivoli Monitoring Installation and Setup Guide* and the *IBM Tivoli Tape Optimizer Monitoring Agent Planning and Configuration Guide*.

Requirements for the monitoring agent

In addition to the requirements described in the *IBM Tivoli Monitoring Installation and Setup Guide*, the Tape Optimizer Monitoring Agent has the following requirements:

- The monitoring agent runs on any of these operating systems:
  - z/OS

  Note: For the most current information about the operating systems that are supported, see http://www-306.ibm.com/software/sysmgmt/products/support/Tivoli_Supported_Platforms.html.
- This agent monitors the following versions:
  - Tape Optimizer 2.2
- A single computer that hosts the hub monitoring server, portal server, and a monitoring agent requires approximately 300 MB of space. A computer that hosts only the monitoring agent requires approximately 30 MB of space, including the specific enablement code for the monitoring agent. More space is required for each additional monitoring agent that you deploy on the monitoring computer.
- The monitoring agent must be connected to the following software:
  - IBM Tivoli Monitoring V6.2.1

  After you install the prerequisite software, install the following software, which is required for the Tape Optimizer Monitoring Agent to operate:
  - Tape Optimizer Monitoring Agent
  - Tape Optimizer Monitoring Agent for Tivoli Enterprise Monitoring Server support
  - Tape Optimizer Monitoring Agent for Tivoli Enterprise Portal Server support
  - Tape Optimizer Monitoring Agent for Tivoli Enterprise Portal Desktop Client support
  - Tape Optimizer Monitoring Agent for Tivoli Enterprise Portal Browser Client support

Chapter 3. How to use a monitoring agent

After you have installed and configured a Tivoli Enterprise Monitoring Agent and the agent is running, you can begin using this agent to monitor your resources. The following sources of information are relevant to installation and configuration:

- *IBM Tivoli Monitoring Installation and Setup Guide*
- Chapter 2, "Requirements for the monitoring agent" in the user's guide for the agent that you are installing and configuring

This chapter provides information about how to use a monitoring agent to perform the following tasks:

- "View real-time data that the agent collects"
- "Investigate an event" on page 8
- "Recover the operation of a resource" on page 8
- "Customize your monitoring environment" on page 9
- "Monitor with custom situations that meet your requirements" on page 10
- "Collect and view historical data" on page 11

For each of these tasks, there is a list of procedures that you perform to complete the task. For the tasks, there is a cross-reference to where you can find information about performing that procedure. Information about the procedures is located in subsequent chapters of this user's guide and in the following publications:

- *IBM Tivoli Monitoring User's Guide*
- *IBM Tivoli Monitoring Administrator's Guide*

View real-time data that the agent collects

After you install, configure, and start the Tivoli Enterprise Monitoring Agent, the agent begins monitoring.

Table 1 contains a list of the procedures for viewing the real-time data that the monitoring agent collects through the predefined situations. The table also contains a cross-reference to where you can find information about each procedure.

Table 1. View real-time data

Procedure	Where to find information
View the hierarchy of your monitored resources from a system point of view (Navigator view organized by operating system type, monitoring agents, and workspaces).	*IBM Tivoli Monitoring User's Guide:* ″Navigating through workspaces″ (in ″Monitoring: real-time and event-based″ chapter)
View the indicators of real or potential problems with the monitored resources (Navigator view).	
View changes in the status of the resources that are being monitored (Enterprise Message Log view).	*IBM Tivoli Monitoring User's Guide: ″*Using workspaces″ (in ″Monitoring: real-time and event-based″ chapter) Chapter 4, "Workspaces reference," on page 13 in this guide

Table 1. View real-time data (continued)

Procedure	Where to find information
View the number of times an event has been opened for a situation during the past 24 hours (Open Situations Account view).	*IBM Tivoli Monitoring User's Guide:* ″Using workspaces″ (in ″Monitoring: real-time and event-based″ chapter) Chapter 4, "Workspaces reference," on page 13 in this guide Chapter 6, "Situations reference," on page 41 in this guide
Manipulate the views in a workspace.	*IBM Tivoli Monitoring User's Guide:* ″Using views″ (in ″Monitoring: real-time and event-based″ chapter)

Investigate an event

When the conditions of a situation have been met, an event indicator is displayed in the Navigator. When an event occurs, you want to obtain information about that event so you can correct the conditions and keep your enterprise running smoothly.

Table 2 contains a list of the procedures for investigating an event and a cross-reference to where you can find information about each procedure.

Table 2. Investigating an event

Procedure	Where to find information
Determine which situation raised the event and identify the attributes that have values that are contributing to the alert.	*IBM Tivoli Monitoring User's Guide:* ″Opening the situation event workspace″ (in ″Monitoring: real-time and event-based″ chapter, ″Responding to alerts″ section)
Review available advice.	Chapter 4, "Workspaces reference," on page 13 in this guide
Notify other users that you have taken ownership of the problem related to an event and are working on it.	*IBM Tivoli Monitoring User's Guide:* ″Acknowledging a situation event″ (in ″Monitoring: real-time and event-based″ chapter, ″Responding to alerts″ section)
Remove the event from the Navigator.	*IBM Tivoli Monitoring User's Guide:* ″Closing the situation event workspace″ (in ″Monitoring: real-time and event-based″ chapter, ″Responding to alerts″ section)

Recover the operation of a resource

When you find out that a resource is not operating as desired, you can control it manually or automatically using Take Action commands.

Table 3 on page 9 contains a list of the procedures for recovering the operation of a resource and a cross-reference to where you can find information about each procedure.

Table 3. Recover the operation of a resource

Procedure	Where to find information
Take an action on a resource manually.	*IBM Tivoli Monitoring User's Guide:* • ″Other views″ (in ″Custom workspaces″ chapter, ″Workspace views″ section) • ″Take action: Reflex automation″ (in Situations for event-based monitoring″ chapter, ″Event-based monitoring overview″ section) • "Take action" (in "Designing customized responses" chapter) Chapter 7, “Take Action commands reference,” on page 49 in this guide
Take an action on a system condition automatically by setting up a situation to run a Take Action command.	*IBM Tivoli Monitoring User's Guide:* ″Situations for event-based monitoring″ chapter • ″Customize a situation″ • ″Create a situation″ • ″Specify an action to take″ • ″Distribute the situation″ Chapter 7, “Take Action commands reference,” on page 49 in this guide
Take multiple actions on system conditions automatically using a policy.	*IBM Tivoli Monitoring User's Guide:* ″Policies for automation″ chapter • ″Creating a policy″ • ″Maintaining policies″ • ″Workflows window″ Chapter 8, “Policies reference,” on page 53 in this guide
Take actions across systems, agents, or computers using a policy.	

Customize your monitoring environment

You can change how your monitoring environment looks by creating new workspaces with one or more views in it.

Table 4 contains a list of the procedures for customizing your monitoring environment and a cross-reference to where you can find information about each procedure.

Table 4. Customizing your monitoring environment

Procedure	Where to find information
Display data in tables or charts (views) in the Tivoli Enterprise Portal.	*IBM Tivoli Monitoring User's Guide:* • ″Custom workspaces″ • ″Table and chart views″
Display an overview of changes in the status of situations for your monitored resources (Message Log View).	*IBM Tivoli Monitoring User's Guide:* ″Message log view″ (in ″Situation event views: message log, situation event console and graphic″ chapter)

Table 4. Customizing your monitoring environment (continued)

Procedure	Where to find information
Specify which attributes to retrieve for a table or chart so you can retrieve only the data you want by creating custom queries.	*IBM Tivoli Monitoring User's Guide:* ″Creating custom queries″ (in ″Table and chart views″ chapter) Chapter 5, “Attributes reference,” on page 17 in this guide
Build links from one workspace to another.	*IBM Tivoli Monitoring User's Guide:* • ″Link from a workspace″ (in ″Custom workspaces″ chapter) • ″Link from a table or chart″ (in ″Table and chart views″ chapter)
Identify which predefined situations started running automatically when you started the Tivoli Enterprise Monitoring Server.	*IBM Tivoli Monitoring User's Guide:* ″What the enterprise workspace shows″ (in ″Monitoring: real-time and event-based″ chapter, ″Using workspaces″ section) Chapter 6, “Situations reference,” on page 41 in this guide
Determine whether to run situations as defined, modify the values in situations, or create new situations to detect possible problems.	Chapter 6, “Situations reference,” on page 41 in this guide

Monitor with custom situations that meet your requirements

When your environment requires situations with values that are different from those in the existing situations, or when you need to monitor conditions not defined by the existing situations, you can create custom situations to detect problems with resources in two ways:

- Create an entirely new situation
- Create a situation by copying and editing a predefined situation

You can specify the following information for a situation:

- Name
- Attribute group and attributes
- Qualification to evaluate multiple rows when a situation has a multiple-row attribute group (display item)
- Formula
- Take Action commands
- Run at startup
- Sampling interval
- Persistence
- Manual or automatic start
- Severity
- Clearing conditions
- Expert Advice
- When a true situation closes
- Available Managed Systems

Table 5 contains a list of the procedures for monitoring your resources with custom situations that meet your requirements and a cross-reference to where you can find information about each procedure.

Table 5. Monitor with custom situations

Procedure	Where to find information
Create an entirely new situation.	*IBM Tivoli Monitoring User's Guide:* ″Creating a new situation″ (in ″Situations for event-based monitoring″ chapter, ″Creating a situation″ section) Chapter 5, "Attributes reference," on page 17 in this guide
Create a situation by copying and editing a predefined situation.	*IBM Tivoli Monitoring User's Guide:* ″Customize a situation″ (in ″Situations for event-based monitoring″ chapter) Chapter 6, "Situations reference," on page 41 in this guide Chapter 5, "Attributes reference," on page 17 in this guide
Run a situation on a managed system.	*IBM Tivoli Monitoring User's Guide:* ″Situations for event-based monitoring″ chapter • ″Associating situations with navigator items″ • ″Distribute the situation″ (in ″Customizing a situation″ section) • ″Starting, stopping or deleting a situation″

Collect and view historical data

When you collect historical data, you specify the following configuration requirements:

- Attribute groups for which to collect data
- Collection interval
- Summarization and pruning of attribute groups
- Roll-off interval to a data warehouse, if any
- Where to store the collected data (at the agent or the Tivoli Enterprise Management Server)

Table 6 on page 12 contains a list of the procedures for collecting and viewing historical data and a cross-reference to where you can find information about each procedure.

Table 6. Collect and view historical data

Procedure	Where to find information
Configure and start collecting short-term data (24 hours).	*IBM Tivoli Monitoring User's Guide:* ″Historical reporting″ (in ″Table and chart views″ chapter) *IBM Tivoli Monitoring Administrator's Guide* "Disk capacity planning for historical data" on page 38 in this guide
Configure and start collecting longer-term data (more than 24 hours).	
View historical data in the Tivoli Enterprise Portal.	
Create reports from historical data using third-party reporting tools.	
Filter out unwanted data to see specific areas of interest.	

Chapter 4. Workspaces reference

This chapter contains an overview of workspaces, references for detailed information about workspaces, and descriptions of the predefined workspaces included in this monitoring agent.

About workspaces

A workspace is the working area of the Tivoli Enterprise Portal application window. At the left of the workspace is a Navigator that you use to select the workspace you want to see. As part of the application window, the right side of the status bar shows the Tivoli Enterprise Portal server name and port number to which the displayed information applies, and the ID of the current user.

When you select an item in the Navigator tree, a default workspace is displayed. When you right-click a Navigator item, a menu that includes a Workspace item is displayed. The Workspace item contains a list of workspaces for that Navigator item. Each workspace has at least one view. Some views have links to other workspaces.

This monitoring agent provides predefined workspaces. You cannot modify or delete the predefined workspaces, but you can create new workspaces by editing them and saving the changes with a different name.

A table view within a workspace corresponds to a group of attributes; the columns in the table view show some or all of the attributes available in the attribute group.

More information about workspaces

For more information about creating, customizing, and working with workspaces, see the *IBM Tivoli Monitoring User's Guide*.

For a list of the predefined workspaces for this monitoring agent and a description of each workspace, refer to the Predefined workspaces section in this chapter and the information in that section for each individual workspace.

Some attribute groups for this monitoring agent might not be represented in the predefined workspaces or views for this agent. For a full list of the attribute groups, see the Attributes reference section.

Predefined workspaces

The Tape Optimizer Monitoring Agent provides the following predefined workspaces, which are organized by Navigator item.

- Tape Optimizer Navigator item
  - Tape Optimizer workspace
- Dataset Copy Status Navigator item
  - Dataset Copy Status workspace
- Job Copy Status Navigator item
  - Job Copy Status workspace
- Product Action Log Navigator item
  - Filtered Product Action Log workspace

  - Product Action Log workspace
- Tape Migration Detail Navigator item
  - Tape Migration Detail workspace
- Tape Optimizer Actions Navigator item
  - Tape Optimizer Actions workspace
- Tape Pending Migration Due To Replace Navigator item
  - Tape Pending Migration Due To Replace workspace
- Tape Pending Migration Due To Temp Errors Navigator item
  - Tape Pending Migration Due To Temp Errors workspace
- Volume Chain List Navigator item
  - Volume Chain List workspace
- Volume Copy Status Navigator item
  - Volume Copy Status workspace
- Volume Dataset List Navigator item
  - Volume Dataset List workspace

Agent Navigator items

This section contains descriptions of predefined workspaces. The workspaces are organized by the Navigator item to which the workspaces are relevant.

Tape Optimizer Navigator item

Tape Optimizer workspace

The IBM Tivoli Tape Optimizer on z/OS workspace provides you with the capability to monitor and perform Tape Optimizer copy requests.

Dataset Copy Status Navigator item

Dataset Copy Status workspace

The Dataset Copy Status workspace provides information about the data sets that are involved in a copy job.

Job Copy Status Navigator item

Job Copy Status workspace

The Job Copy Status workspace provides information about the status of the copy job.

Product Action Log Navigator item

Product Action Log workspace

The Product Action Log workspace lists the actions that have occurred during the current session of Tape Optimizer for z/OS.

This workspace contains the following views:

Product Action Log

The Product Action Log view lists the actions that have occurred during the current session of Tape Optimizer for z/OS.

Filtered Product Action Log

The Filtered Product Action Log view lists a filtered set of actions that have occurred during the current session of Tape Optimizer for z/OS.

Tape Migration Detail Navigator item

Tape Migration Detail workspace

The Tape Migration Detail workspace provides detail information on tapes that were migrated.

Tape Optimizer Actions Navigator item

Tape Optimizer Actions workspace

The Tape Optimizer Actions workspace lists the copy request jobs upon which actions can be taken. The copy request jobs listed are created using IBM Tivoli Tape Optimizer on z/OS.

Tape Pending Migration Due To Replace Navigator item

Tape Pending Migration Due To Replace workspace

The Tape Pending Migration Due To Replace workspace provides information about the tapes that are pending migration due to being replaced.

Tape Pending Migration Due To Temp Errors Navigator item

Tape Pending Migration Due To Temp Errors workspace

The Tape Pending Migration Due To Temp Errors workspace provides information about the tapes that are pending migration due to a temporary error.

Volume Chain List Navigator item

Volume Chain List workspace

The Volume Chain List workspace provides information about all volumes that are part of a copied multi-volume data set.

Volume Copy Status Navigator item

Volume Copy Status workspace

The Volume Copy Status workspace provides information about the tape volumes that are involved in a copy job.

Volume Dataset List Navigator item

Volume Dataset List workspace

The Volume Dataset List workspace lists the data sets that are included on a single volume.

Chapter 5. Attributes reference

This chapter contains an overview of attributes, references for detailed information about attributes, and descriptions of the attributes for each attribute group included in this monitoring agent.

About attributes

Attributes are the application properties being measured and reported by the Tape Optimizer Monitoring Agent.

Attributes are organized into groups according to their purpose. The attributes in a group can be used in the following two ways:

- Chart or table views

  Attributes are displayed in chart and table views. The chart and table views use queries to specify which attribute values to request from a monitoring agent. You use the Query editor to create a new query, modify an existing query, or apply filters and set styles to define the content and appearance of a view based on an existing query.
- Situations

  You use attributes to create situations that monitor the state of your operating system, database, or application. A situation describes a condition you want to test. When you start a situation, the Tivoli Enterprise Portal compares the values you have assigned to the situation attributes with the values collected by the Tape Optimizer Monitoring Agent and registers an *event* if the condition is met. You are alerted to events by indicator icons that are displayed in the Navigator.

More information about attributes

For more information about using attributes and attribute groups, see the *IBM Tivoli Monitoring User's Guide*.

For a list of the attributes groups, a list of the attributes in each attribute group, and descriptions of the attributes for this monitoring agent, see the Attribute groups and attributes section in this chapter.

Attribute groups and attributes for the Tape Optimizer Monitoring Agent

This monitoring agent contains the following attribute groups. The table name depends on the maximum table name limits of the target database being used for Tivoli Data Warehouse. If the maximum name is 30 characters, then any warehouse table name longer than 30 characters is shortened to the table name.

- Attribute group name: Dataset Copy Status
  - Table name: KRWCPYSDS
  - Warehouse table name: KRW_DATASET_COPY_STATUS or KRWCPYSDS
- Attribute group name: Job Copy Status
  - Table name: KRWCPYSJOB
  - Warehouse table name: KRW_JOB_COPY_STATUS or KRWCPYSJOB
- Attribute group name: Performance Object Status
  - Table name: KRWPOBJST

  - Warehouse table name: KRW_PERFORMANCE_OBJECT_STATUS or KRWPOBJST
- Attribute group name: Product Action Log
  - Table name: KRWZZAOPAL
  - Warehouse table name: KRW_PRODUCT_ACTION_LOG or KRWZZAOPAL
- Attribute group name: Tape Migration Detail
  - Table name: KRWTMIGDET
  - Warehouse table name: KRW_TAPE_MIGRATION_DETAIL or KRWTMIGDET
- Attribute group name: Tape Optimizer Actions
  - Table name: KRWTOACT
  - Warehouse table name: KRW_TAPE_OPTIMIZER_ACTIONS or KRWTOACT
- Attribute group name: Tape Pending Migration Due To Replace
  - Table name: KRWTMDTREP
  - Warehouse table name: KRW_TAPE_PENDING_MIGRATION_DUE_TO_REPLACE or KRWTMDTREP
- Attribute group name: Tape Pending Migration Due To Temp Errors
  - Table name: KRWTMIDTER
  - Warehouse table name: KRW_TAPE_PENDING_MIGRATION_DUE_TO_TEMP_ERRORS or KRWTMIDTER
- Attribute group name: Volume Chain List
  - Table name: KRWVOLCHNL
  - Warehouse table name: KRW_VOLUME_CHAIN_LIST or KRWVOLCHNL
- Attribute group name: Volume Copy Status
  - Table name: KRWCPYSVOL
  - Warehouse table name: KRW_VOLUME_COPY_STATUS or KRWCPYSVOL
- Attribute group name: Volume Dataset List
  - Table name: KRWVOLDSL
  - Warehouse table name: KRW_VOLUME_DATASET_LIST or KRWVOLDSL

The remaining sections of this chapter contain descriptions of these attribute groups, which are listed alphabetically. The following information is provided for each attribute group:

Historical group
Whether the attribute group is a historical type that you can roll off to a data warehouse

Attribute descriptions
Description and type for each attribute in the attribute group

Some attributes are designated as key attributes. A key attribute is an attribute that is used in warehouse aggregation to identify rows of data that represent the same object.

Dataset Copy Status attribute group

The Dataset Copy Status attribute group shows the SMF records that include the data set information from the copy job. If the warehouse default setting is enabled, data for this attribute group is stored in Tivoli Data Warehouse.

Historical group

This attribute group is part of the default historical group, and is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Dataset Copy Status attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Timestamp attribute

Description
The local time at the agent when the data was collected.

Type String

Data Set attribute - This attribute is a key attribute.

Description
Tape data set.

Type String

Job Number attribute

Description
Copy job number.

Type String

Input DSSEQ attribute

Description
Input data set sequence number.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Input Volume attribute

Description
Input tape VOLSER.

Type String

Output Volume attribute

Description
Output tape VOLSER.

Type String

Output DSSEQ attribute

Description
Output dataset sequence number.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Copy Return Code attribute

Description
Return code for copy operation.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Catalog Return Code attribute

Description
Return code for catalog operation.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

RMM Var Return Code attribute

Description
Return code for RMM Info copy.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Job Copy Status attribute group

The Job Copy Status attribute group shows the SMF records that include the current status information for a copy job. If the warehouse default setting is enabled, data for this attribute group is stored in Tivoli Data Warehouse.

Historical group

This attribute group is part of the default historical group, and is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Job Copy Status attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Timestamp attribute

Description
The local time at the agent when the data was collected.

Type String

Job Name attribute - This attribute is a key attribute.

Description
Copy job name.

Type String

Job Number attribute

Description
Copy job number.

Type String

Job Return Code attribute

Description
Maximum return code.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Job Message attribute

Description
Job status message

Type String

Performance Object Status attribute group

The Performance Object Status attribute group contains information that reflects the status of other attribute groups so you can see the status of all of the performance objects that make up this application all at once. Each of these other performance attribute groups is represented by a row in this table (or other type of view). The

status for an attribute group reflects the result of the last attempt to collect data for that attribute group, which allows you to see whether the agent is performing correctly. Unlike other attribute groups, the Performance Object Status attribute group does not reflect the state of the monitored application. This attribute group is most often used to determine why data is not available for one of the performance attribute groups. If the warehouse default setting is enabled, data for this attribute group is stored in Tivoli Data Warehouse.

Historical group

This attribute group is part of the default historical group, and is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Performance Object Status attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Timestamp attribute

Description
The local time at the agent when the data was collected.

Type String

Query Name attribute - This attribute is a key attribute.

Description
The name of the attribute group.

Type String

Object Name attribute

Description
The name of the performance object.

Type String

Object Type attribute

Description
The type of the performance object.

Type Integer with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- WMI (0)
- PERFMON (1)
- WMI_ASSOCIATION_GROUP (2)
- JMX (3)
- SNMP (4)
- SHELL_COMMAND (5)
- JOINED_GROUPS (6)
- CIMOM (7)

- CUSTOM (8)
- ROLLUP_DATA (9)
- WMI_REMOTE_DATA (10)
- LOG_FILE (11)
- JDBC (12)
- CONFIG_DISCOVERY (13)
- NT_EVENT_LOG (14)
- FILTER (15)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Object Status attribute

Description
The status of the performance object.

Type Integer with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- ACTIVE (0)
- INACTIVE (1)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Error Code attribute

Description
The error code associated with the query

Type Integer with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- NO_ERROR (0)
- GENERAL_ERROR (1)
- OBJECT_NOT_FOUND (2)
- COUNTER_NOT_FOUND (3)
- NAMESPACE_ERROR (4)
- OBJECT_CURRENTLY_UNAVAILABLE (5)
- COM_LIBRARY_INIT_FAILURE (6)
- SECURITY_INIT_FAILURE (7)
- PROXY_SECURITY_FAILURE (9)
- NO_INSTANCES_RETURNED (10)
- ASSOCIATOR_QUERY_FAILED (11)
- REFERENCE_QUERY_FAILED (12)
- NO_RESPONSE_RECEIVED (13)
- CANNOT_FIND_JOINED_QUERY (14)
- CANNOT_FIND_JOIN_ATTRIBUTE_IN_QUERY_1_RESULTS (15)
- CANNOT_FIND_JOIN_ATTRIBUTE_IN_QUERY_2_RESULTS (16)
- QUERY_1_NOT_A_SINGLETON (17)

- QUERY_2_NOT_A_SINGLETON (18)
- NO_INSTANCES_RETURNED_IN_QUERY_1 (19)
- NO_INSTANCES_RETURNED_IN_QUERY_2 (20)
- CANNOT_FIND_ROLLUP_QUERY (21)
- CANNOT_FIND_ROLLUP_ATTRIBUTE (22)
- FILE_OFFLINE (23)
- NO_HOSTNAME (24)
- MISSING_LIBRARY (25)
- ATTRIBUTE_COUNT_MISMATCH (26)
- ATTRIBUTE_NAME_MISMATCH (27)
- COMMON_DATA_PROVIDER_NOT_STARTED (28)
- CALLBACK_REGISTRATION_ERROR (29)
- MDL_LOAD_ERROR (30)
- AUTHENTICATION_FAILED (31)
- CANNOT_RESOLVE_HOST_NAME (32)
- SUBNODE_UNAVAILABLE (33)
- SUBNODE_NOT_FOUND_IN_CONFIG (34)
- ATTRIBUTE_ERROR (35)
- CLASSPATH_ERROR (36)
- CONNECTION_FAILURE (37)
- FILTER_SYNTAX_ERROR (38)
- FILE_NAME_MISSING (39)
- SQL_QUERY_ERROR (40)
- SQL_FILTER_QUERY_ERROR (41)
- SQL_DB_QUERY_ERROR (42)
- SQL_DB_FILTER_QUERY_ERROR (43)
- PORT_OPEN_FAILED (44)
- ACCESS_DENIED (45)
- TIMEOUT (46)
- NOT_IMPLEMENTED (47)
- REQUESTED_A_BAD_VALUE (48)
- RESPONSE_TOO_BIG (49)
- GENERAL_RESPONSE_ERROR (50)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Product Action Log attribute group

This attribute group provides Tape Optimizer Take Action information. If the warehouse default setting is enabled, data for this attribute group is stored in Tivoli Data Warehouse.

Historical group

This attribute group is part of the default historical group, and is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Product Action Log attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Timestamp attribute

Description
The local time at the agent when the data was collected.

Type String

Mainframe User ID attribute - This attribute is a key attribute.

Description
Mainframe User ID used for executing the task

Type String

Profile Name attribute

Description
Profile name used for the Take Action

Type String

VOLSER1 attribute

Description
Single tape or beginning of range of volsers to be copied

Type String

VOLSER2 attribute

Description
Ending of range of volsers to be copied

Type String

Message Response attribute

Description
Message response for the Take Action

Type String

Tape Migration Detail attribute group

This attribute group provides the details of tape migrations. If the warehouse default setting is enabled, data for this attribute group is stored in Tivoli Data Warehouse.

Historical group

This attribute group is part of the default historical group, and is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Tape Migration Detail attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Timestamp attribute

Description
The local time at the agent when the data was collected.

Type String

Source Volume attribute - This attribute is a key attribute.

Description
Volume serial number of input volume.

Type String

Volume Sequence Number attribute

Description
Volume Sequence Number.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Action Timestamp attribute

Description
Timestamp of when action occured.

Type Timestamp

Number of Files attribute

Description
Total data sets copied this chain.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Input Unit attribute

Description
Unit name of input tape.

Type String

Output Unit attribute

Description
Unit name of output tape.

Type String

Source Volume Base attribute

Description
Volume serial number of base source volume.

Type String

Target Volume Base attribute

Description
Volume serial number of base target volume.

Type String

Copy Return Code attribute

Description
Return code for copy.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Catalog Return Code attribute

Description
Return code for catalog operation.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

RMM Var Copy Return Code attribute

Description
Return code for RMM information copy.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Rename Option attribute

Description
Some or all data sets renamed.

Type String

Nocat Option attribute

Description
Data sets copied without a recatalog.

Type String

Stack Option attribute

Description
Data sets on all volumes stacked to output tape.

Type String

Copy Type attribute

Description
Data copy or data move.

Type Integer with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Move (0)
- Copy (1)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Status attribute

Description
Current tape status.

Type String

New Expiration Date attribute

Description
Date input tape will be scratched.

Type Timestamp

Assign Timestamp attribute

Description
DFHSMSrmm assign time stamp.

Type Timestamp

Request Number attribute

Description
Instance number.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Job Name attribute

Description
JES job name of copy job.

Type String

Tape Optimizer Actions attribute group

The Tape Optimizer Actions attribute group lists the copy request jobs upon which actions can be taken. If the warehouse default setting is enabled, data for this attribute group is stored in Tivoli Data Warehouse.

Historical group

This attribute group is part of the default historical group, and is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Tape Optimizer Actions attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Timestamp attribute

Description
The local time at the agent when the data was collected.

Type String

Profile Name attribute - This attribute is a key attribute.

Description
Action profile.

Type String

Profile Description attribute

Description
Description of the profile.

Type String

Tape Pending Migration Due To Replace attribute group

This attribute group provides a list of tapes pending migration due to being replaced. If the warehouse default setting is enabled, data for this attribute group is stored in Tivoli Data Warehouse.

Historical group

This attribute group is part of the default historical group, and is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Tape Pending Migration Due To Replace attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Timestamp attribute

Description
The local time at the agent when the data was collected.

Type String

Volume Serial Number attribute - This attribute is a key attribute.

Description
Volume serial number of volume pending replace.

Type String

Volume Count attribute

Description
Number of volumes in chain.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Number of Files attribute

Description
Total data sets copied for this chain.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Unit Name attribute

Description
Unit Name.

Type String

Status attribute

Description
Current Tape Status.

Type String

Expiration Date attribute

Description
Expiration/Retention Date.

Type Timestamp

Assign Timestamp attribute

Description
DFHSMSrmm assign timestamp.

Type Timestamp

Jobname attribute

Description
JES Job name of create job.

Type String

First Data Set Name attribute

Description
Data set name.

Type String

Tape Pending Migration Due To Temp Errors attribute group

This attribute group provides a list of tapes pending migration due to a temporary error. If the warehouse default setting is enabled, data for this attribute group is stored in Tivoli Data Warehouse.

Historical group

This attribute group is part of the default historical group, and is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Tape Pending Migration Due To Temp Errors attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Timestamp attribute

Description
The local time at the agent when the data was collected.

Type String

Volume Serial Number attribute - This attribute is a key attribute.

Description
Volume serial number of volume pending replace.

Type String

Unit Name attribute

Description
Unit Name.

Type String

Status attribute

Description
Current Tape Status.

Type String

Expiration Date attribute

Description
Expiration/Retention Date.

Type Timestamp

Assign Timestamp attribute

Description
DFHSMSrmm assign timestamp.

Type Timestamp

Jobname attribute

Description
JES Job name of create job.

Type String

First Data Set Name attribute

Description
Data set name.

Type String

Temporary Errors attribute

Description
Number of Temporary Errors.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Volume Chain List attribute group

This attribute group provides the chain list for individual volumes of a multi-volume data set. If the warehouse default setting is enabled, data for this attribute group is stored in Tivoli Data Warehouse.

Historical group

This attribute group is part of the default historical group, and is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Volume Chain List attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Timestamp attribute

Description
The local time at the agent when the data was collected.

Type String

Volume Sequence Number attribute - This attribute is a key attribute.

Description
Count of volumes in volume chain 1-255.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Volume Chain attribute

Description
Base volume of chain.

Type String

Volume Base attribute

Description
Input or output chain volser.

Type String

Next Volume attribute

Description
Volser of next volume in the chain.

Type String

Previous Volume attribute

Description
Volser of previous volume in the chain.

Type String

Copy Type attribute

Description
Data copy or data move.

Type Integer with enumerated values. The strings are displayed in the

Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Move (0)
- Copy (1)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Original Chain attribute

Description
Input chain or output chain.

Type Integer with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- INPUT (0)
- OUTPUT (1)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Volume Copy Status attribute group

This attribute group provides the detailed information about the tape volumes that were included in a copy request job.

Historical group

This attribute group is part of the default historical group, and is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Volume Copy Status attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Timestamp attribute

Description
The local time at the agent when the data was collected.

Type String

Job Number attribute

Description
Copy job number.

Type String

Source Volume attribute - This attribute is a key attribute.

Description
Volume serial number of input volume.

Type String

Copy Timestamp attribute

Description
Timestamp when copy occured.

Type Timestamp

Source Volume Base attribute

Description
Volume serial number of base source volume.

Type String

Target Volume Base attribute

Description
Volume serial number of base target volume.

Type String

Copy Return Code attribute

Description
Return code for copy.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Catalog Return Code attribute

Description
Return code for catalog operation.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

RMM Var Return Code attribute

Description
Return code for RMM Info copy.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Input Unit attribute

Description
Unit name of input tape.

Type String

Output Unit attribute

Description
Unit name of output tape.

Type String

Request Number attribute

Description
Instance Number.

Type String

Number of Files attribute

Description
Number of files in chain.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Jobname attribute

Description
JES Jobname of copy job.

Type String

New Expiration Date attribute

Description
Date input tape will be scratched.

Type Timestamp

Status attribute

Description
Current Tape Status.

Type String

Assign Timestamp attribute

Description
DFSMSrmm assign timestamp.

Type Timestamp

Stack Option attribute

Description
Data sets on all volumes stacked to output tape.

Type String

Volume Sequence attribute

Description
Number in chain.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Previous Volume attribute

Description
Previous in chain.

Type String

Next Volume attribute

Description
Next in chain.

Type String

Volume Dataset List attribute group

This attribute group provides the chain list of data sets that are included on a volume. If the warehouse default setting is enabled, data for this attribute group is stored in Tivoli Data Warehouse.

Historical group

This attribute group is part of the default historical group, and is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Volume Dataset List attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Timestamp attribute

Description
The local time at the agent when the data was collected.

Type String

Data Set Name attribute - This attribute is a key attribute.

Description
The data set name.

Type String

Data Set Sequence Number attribute

Description
Data set sequence Number.

Type Integer (Counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Value_Exceeds_Maximum (2147483647)
- Value_Exceeds_Minimum (-2147483648)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Volume Base attribute

Description
Volume serial number of base volume.

Type String

Data Set Volume attribute

Description
Volume serial where data set resides.

Type String

Original Chain attribute

Description
Input chain or output chain.

Type Integer with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values shown in parentheses. The following values are defined:

- INPUT (0)
- OUTPUT (1)

Any other values will display the actual value returned by the agent in the Tivoli Enterprise Portal.

Disk capacity planning for historical data

Disk capacity planning for a monitoring agent is a prediction of the amount of disk space to be consumed for each attribute group whose historical data is being collected. Required disk storage is an important factor to consider when you are defining data collection rules and your strategy for historical data collection.

The table in this chapter provides the following information required to calculate disk space for this monitoring agent:

- *Table* is the table name as it is displayed in the warehouse database, if the attribute group is configured to be written to the warehouse.
- *Attribute group* is the name of the attribute group as it is displayed in the warehouse configuration panel.
- *Bytes per instance (agent)* is an estimate of the record length for each row or instance written to the agent disk for historical data collection. This estimate can be used for agent disk space planning purposes.
- *Database bytes per instance (warehouse)* is an estimate of the record length for detailed records written to the warehouse database, if the attribute group is configured to be written to the warehouse. Detailed records are those that have

been uploaded from the agent for long-term historical data collection. This estimate can be used for warehouse disk space planning purposes.

- *Aggregate bytes per instance (warehouse)* is an estimate of the record length for aggregate records written to the warehouse database, if the attribute group is configured to be written to the warehouse. Aggregate records are created by the Summarization agent for attribute groups that have been configured for summarization. This estimate can be used for warehouse disk space planning purposes.

In addition to the information in the tables, you must know the number of instances of data that you plan to collect. An attribute group can have single or multiple instances of data depending on the application environment that is being monitored. For example, if your attribute group is monitoring each processor in your computer and you have a dual processor computer, the number of instances is two.

The following table contains capacity planning information for the data logged by Tape Optimizer.

Table 7. Capacity planning for historical data logged by component

Table	Attribute group	Bytes per instance (agent)	Database bytes per instance (warehouse)	Aggregate bytes per instance (warehouse)
KRWPOBJST	KRW_PERFORMANCE_OBJECT_STATUS	288	289	326
KRWTMIGDET	KRW_TAPE_MIGRATION_DETAIL	282	298	425
KRWVOLCHNL	KRW_VOLUME_CHAIN_LIST	114	117	154
KRWVOLDSL	KRW_VOLUME_DATASET_LIST	142	143	195
KRWTMDTREP	TAPES_PENDING_MIGRATION_DUE_TO_REPLACE	193	198	235
KRWTMIDTER	TAPES_PENDING_MIGRATION_DUE_TO_TEMP_ERRORS	188	192	229
KRWTOACT	TAPE_OPTIMIZER_ACTIONS	114	112	149
KRWZZAOPAL	PRODUCT_ACTION_LOG	204	205	242
KRWCPYSVOL	VOLUME_COPY_STATUS			
KRWCPYSDS	DATA_SET_COPY_STATUS			
KRWCPYSJOB	JOB_COPY_STATUS			

For more information about historical data collection, see the *IBM Tivoli Monitoring Administrator's Guide*.

Chapter 6. Situations reference

This chapter contains an overview of situations, references for detailed information about situations, and descriptions of the predefined situations included in this monitoring agent.

About situations

A *situation* is a logical expression involving one or more system conditions. Situations are used to monitor the condition of systems in your network. You can manage situations from Tivoli Enterprise Portal by using the Situation Editor.

The monitoring agents that you use to monitor your system environment are delivered with a set of predefined situations that you can use as-is or you can create new situations to meet your requirements. Predefined situations contain attributes that check for system conditions common to many enterprises.

Using predefined situations can improve the speed with which you can begin using the Tape Optimizer Monitoring Agent. You can examine and, if necessary, change the conditions or values being monitored by a predefined situation to those best suited to your enterprise.

You can display predefined situations and create your own situations using the Situation Editor. The left frame of the Situation editor initially lists the situations associated with the Navigator item that you selected. When you click a situation name or create a new situation, the right frame opens with the following tabs:

Formula
: Formula describing condition being tested

Distribution
: List of managed systems (operating systems, subsystems, or applications) to which the situation can be distributed. All of the Tape Optimizer Monitoring Agent managed systems are assigned by default.

Expert advice
: Comments and instructions to be read in the event workspace

Action
: Command to be sent to the system

Until
: Options to close the event after a period of time, or when another situation becomes true

About Tape Optimizer situations

Each enabled Tape Optimizer situation will produce two messages in the z/OS TEDA log during each sampling interval. The overhead of producing two messages increases with each Tape Optimizer situation that is enabled and the frequency of the samplings. In order to conserve resources, Tape Optimizer situations are disabled by default. Users should enable only the situations that are important and schedule samplings as infrequently as possible.

To enable a Tape Optimizer situation and specify a sampling interval:

1. Open the Situation Editor of the Tivoli Enterprise Portal.
2. Select the **Run at startup** check box that is associated with the Tape Optimizer situation that you want to enable. You can select multiple situations.

3. Modify the sampling interval to specify how frequently sampling should occur.

More information about situations

IBM Tivoli Monitoring User's Guide contains more information about predefined and custom situations and how to use them to respond to alerts.

For a list of the predefined situations for this monitoring agent and a description of each situation, see the Predefined situations section in this chapter and the information in that section for each individual situation.

Predefined situations

This monitoring agent contains the following predefined situations, which are organized by Navigator item.

- Tape Migration Detail
  - KRW_RC_for_Copy_EQ_4
  - KRW_RC_for_Copy_GT_4
  - KRW_RC_for_Catalog_Op_EQ_4
  - KRW_RC_for_Catalog_Op_GT_4
  - KRW_RC_for_RMM_EQ_4
  - KRW_RC_for_RMM_GT_4
  - KRW_Status_PENDING_RELEASE
  - KRW_Status_INCOMPLETE

The remaining sections of this chapter contain descriptions of each of these situations. The situations are organized by Navigator item. The following information is provided about each situation:

Description
Information about the conditions that the situation tests

Formula
Syntax that contains one or more logical expressions describing the conditions for the situation to monitor

Run at startup
Whether the situation is automatically distributed to instances of the agent or is available for manual distribution

Sampling interval
Number of seconds that elapses between one sample of data that the monitoring agent collects for the server and the next sample

Situation persistence
Whether the conditions specified in the situation evaluate to ″true″ for the defined number of occurrences in a row before the situation is raised. The default of 1 means no persistence checking takes place.

Severity
Severity of the predefined events: Warning, Informational, or Critical

Clearing conditions
Controls when a true situation closes: after a period of time, when another situation is true, or whichever occurs first if both are selected.

Tape Migration Detail Navigator item

KRW_RC_for_Copy_EQ_4 situation

Description
The copy requested on a volume succeeded with a return code = 4.

The situation will be evaluated for each distinct value of the SRCVOL attribute.

Formula
```
*IF ( *VALUE KRW_TAPE_MIGRATION_DETAIL.COPYRC *EQ 4 )
```

See “Attribute groups and attributes for the Tape Optimizer Monitoring Agent” on page 17 for descriptions of the attributes in this formula.

Run at startup
This situation is automatically distributed to instances of this agent.

Sampling interval
1 minute

Situation persistence
The number of times the conditions of the situation must occur for the situation to be true is 1.

Severity
Warning

Clearing conditions
The situation clears when the condition becomes false.

KRW_RC_for_Copy_GT_4 situation

Description
The copy requested on a volume failed with a return code > 4.

The situation will be evaluated for each distinct value of the SRCVOL attribute.

Formula
```
*IF ( *VALUE KRW_TAPE_MIGRATION_DETAIL.COPYRC *GT 4 )
```

See “Attribute groups and attributes for the Tape Optimizer Monitoring Agent” on page 17 for descriptions of the attributes in this formula.

Run at startup
This situation is automatically distributed to instances of this agent.

Sampling interval
1 minute

Situation persistence
The number of times the conditions of the situation must occur for the situation to be true is 1.

Severity
Critical

Clearing conditions
The situation clears when the condition becomes false.

KRW_RC_for_Catalog_Op_EQ_4 situation

Description
The catalog operation requested succeeded with a return code = 4.

The situation will be evaluated for each distinct value of the SRCVOL attribute.

Formula
```
*IF ( *VALUE KRW_TAPE_MIGRATION_DETAIL.CATARC *EQ 4 )
```

See “Attribute groups and attributes for the Tape Optimizer Monitoring Agent” on page 17 for descriptions of the attributes in this formula.

Run at startup
This situation is automatically distributed to instances of this agent.

Sampling interval
1 minute

Situation persistence
The number of times the conditions of the situation must occur for the situation to be true is 1.

Severity
Warning

Clearing conditions
The situation clears when the condition becomes false.

KRW_RC_for_Catalog_Op_GT_4 situation

Description
The catalog operation requested failed with a return code > 4.

The situation will be evaluated for each distinct value of the SRCVOL attribute.

Formula
```
*IF ( *VALUE KRW_TAPE_MIGRATION_DETAIL.CATARC *GT 4 )
```

See “Attribute groups and attributes for the Tape Optimizer Monitoring Agent” on page 17 for descriptions of the attributes in this formula.

Run at startup
This situation is automatically distributed to instances of this agent.

Sampling interval
1 minute

Situation persistence
The number of times the conditions of the situation must occur for the situation to be true is 1.

Severity
Critical

Clearing conditions
The situation clears when the condition becomes false.

KRW_RC_for_RMM_EQ_4 situation

Description
The RMM info copy requested succeeded with a return code = 4.

The situation will be evaluated for each distinct value of the SRCVOL attribute.

Formula
```
*IF ( *VALUE KRW_TAPE_MIGRATION_DETAIL.RMMRC *EQ 4 )
```

See “Attribute groups and attributes for the Tape Optimizer Monitoring Agent” on page 17 for descriptions of the attributes in this formula.

Run at startup
This situation is automatically distributed to instances of this agent.

Sampling interval
1 minute

Situation persistence
The number of times the conditions of the situation must occur for the situation to be true is 1.

Severity
Warning

Clearing conditions
The situation clears when the condition becomes false.

KRW_RC_for_RMM_GT_4 situation

Description
The RMM info copy requested failed with a return code > 4.

The situation will be evaluated for each distinct value of the SRCVOL attribute.

Formula
```
*IF ( *VALUE KRW_TAPE_MIGRATION_DETAIL.RMMRC *GT 4 )
```

See “Attribute groups and attributes for the Tape Optimizer Monitoring Agent” on page 17 for descriptions of the attributes in this formula.

Run at startup
This situation is automatically distributed to instances of this agent.

Sampling interval
1 minute

Situation persistence
The number of times the conditions of the situation must occur for the situation to be true is 1.

Severity
Critical

Clearing conditions
The situation clears when the condition becomes false.

KRW_Status_PENDING_RELEASE situation

Description
The status on the tape copy is PENDING RELEASE.

The situation will be evaluated for each distinct value of the SRCVOL attribute.

Formula
```
*IF ( *VALUE KRW_TAPE_MIGRATION_DETAIL.STAT *EQ 'PENDING RELEASE' )
```

See “Attribute groups and attributes for the Tape Optimizer Monitoring Agent” on page 17 for descriptions of the attributes in this formula.

Run at startup
This situation is automatically distributed to instances of this agent.

Sampling interval
1 minute

Situation persistence
The number of times the conditions of the situation must occur for the situation to be true is 1.

Severity
Warning

Clearing conditions
The situation clears when the condition becomes false.

KRW_Status_INCOMPLETE situation

Description
The status on the tape copy is INCOMPLETE.

The situation will be evaluated for each distinct value of the SRCVOL attribute.

Formula
```
*IF ( *VALUE KRW_TAPE_MIGRATION_DETAIL.STAT *EQ 'INCOMPLETE' )
```

See “Attribute groups and attributes for the Tape Optimizer Monitoring Agent” on page 17 for descriptions of the attributes in this formula.

Run at startup
This situation is automatically distributed to instances of this agent.

Sampling interval
1 minute

Situation persistence
The number of times the conditions of the situation must occur for the situation to be true is 1.

Severity
Critical

Clearing conditions
The situation clears when the condition becomes false.

Chapter 7. Take Action commands reference

This chapter contains an overview of Take Action commands, references for detailed information about Take Action commands, and descriptions of the Take Action commands included in this monitoring agent, if any.

About Take Action commands

Take Action commands can be run from the portal client or included in a situation or a policy.

When included in a situation, the command runs when the situation becomes true. A Take Action command in a situation is also referred to as reflex automation. When you enable a Take Action command in a situation, you automate a response to system conditions. For example, you can use a Take Action command to send a command to restart a process on the managed system or to send a text message to a cell phone.

Advanced automation uses policies to perform actions, schedule work, and automate manual tasks. A policy comprises a series of automated steps called activities that are connected to create a workflow. After an activity is completed, Tivoli Enterprise Portal receives return code feedback, and advanced automation logic responds with subsequent activities prescribed by the feedback.

A basic Take Action command displays the return code of the operation in a message box that is displayed after the action completes or in a log file. After you close this window, no further information is available for this action.

More information about Take Action commands

For more information about working with Take Action commands, see the *IBM Tivoli Monitoring User's Guide*.

For a list of the Take Action commands for this monitoring agent and a description of each command, see the Predefined Take Action commands section in this chapter and the information in that section for each individual command.

Predefined Take Action commands

This monitoring agent contains the following Take Action commands:

- COPY_VOLUME

The remaining sections of this chapter contain descriptions of these Take Action commands, which are listed alphabetically. The following information is provided about each Take Action command:

Description
Which actions the command performs on the system to which it is sent, and the permissions required for the Take Action command to function

Return codes
Information that the Take Action command returns

COPY_VOLUME action

Description

Request a volume or range of volumes to be copied based on a predefined copy request template.

System command

To include the Take Action command in a situation or workflow policy, use the following syntax for the system command:

```
COPY_VOLUME \

   [PROFNAME]

   [VOLSER1]

   [VOLSER2]
```

You can use attribute substitution to supply the Take Action command arguments from the situation, for example:

```
COPY_VOLUME \

[&{PROFNAME}] \

[&{VOLSER1}] \

[&{VOLSER2}]
```

You can also use attribute substitution in a workflow policy though the format is slightly different:

```
COPY_VOLUME \

[&WaitOnSituation:PROFNAME] \

[&WaitOnSituation:VOLSER1] \

[&WaitOnSituation:VOLSER2]
```

Arguments

- **Name:** PROFNAME
  Description: Profile name
  Default:
- **Name:** VOLSER1
  Description: Volser or beginning of volser range to be copied
  Default:
- **Name:** VOLSER2
  Description: Ending of volser range to be copied
  Default:

Return codes

- **Return Code:** 0
  Return Code Type: OK
  Operating systems: Windows
  Message ID: KRW0000I
  Message: `The Copy Volume was successfully requested.`
- **Return Code:** 4

Return Code Type: INSUFFICIENT_USER_AUTHORITY
Operating systems: Windows
Message ID: KRW0004E
Message: `User ID translation failed.`

- **Return Code:** 8
  Return Code Type: GENERAL_ERROR
  Operating systems: Windows
  Message ID: KRW0008E
  Message: `Bad parameter list.`
- **Return Code:** 1
  Return Code Type: NOT_RUNNING
  Operating systems: Windows
  Message ID: KRW0012S
  Message: `Bad KRS environment.`

Chapter 8. Policies reference

This chapter contains an overview of policies, references for detailed information about policies, and descriptions of the predefined policies included in this monitoring agent, if any.

About policies

Policies are an advanced automation technique for implementing more complex workflow strategies than you can create through simple automation.

A *policy* is a set of automated system processes that can perform actions, schedule work for users, or automate manual tasks. You use the Workflow Editor to design policies. You control the order in which the policy executes a series of automated steps, which are also called activities. Policies are connected to create a workflow. After an activity is completed, Tivoli Enterprise Portal receives return code feedback and advanced automation logic responds with subsequent activities prescribed by the feedback.

More information about policies

This monitoring agent does not provide predefined policies. For more information about working with policies, see the *IBM Tivoli Monitoring User's Guide*.

For information about using the Workflow Editor, see the *IBM Tivoli Monitoring Administrator's Guide* or the Tivoli Enterprise Portal online help.

Predefined policies

The Tape Optimizer Monitoring Agent does not provide predefined policies.

Appendix A. IBM Tivoli Enterprise Console event mapping

Each event class corresponds to an attribute group in the IBM Tivoli Enterprise Console. For a description of the event slots for each event class, see the lists in this appendix. For more information about mapping attribute groups to event classes, see the *IBM Tivoli Monitoring Administrator's Guide*.

Generic event mapping provides useful event class and attribute information for situations that do not have specific event mapping defined. BAROC files are found on the Tivoli Enterprise Monitoring Server in the installation directory in TECLIB (that is, *install_dir*/cms/TECLIB for Windows systems and *install_dir*/tables/*TEMS_hostname*/TECLIB for UNIX systems). IBM Tivoli Enterprise Console event synchronization provides a collection of ready-to-use rule sets that you can deploy with minimal configuration. Be sure to install IBM Tivoli Enterprise Console event synchronization to access the correct Sentry.baroc, which is automatically included during base configuration of IBM Tivoli Enterprise Console rules if you indicate that you want to use an existing rulebase. See the *IBM Tivoli Monitoring Installation and Setup Guide* for details.

Each of the event classes is a child of KRW_Base and is defined in the krw.baroc file. The KRW_Base event class can be used for generic rules processing for any event from the Tape Optimizer.

For events generated by situations in the Dataset Copy Status attribute group, Tivoli Enterprise Console events are sent using the ITM_KRW_DATASET_COPY_STATUS class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- dataset: STRING
- jobnum: STRING
- indsnn: INTEGER
- invol: STRING
- outvol: STRING
- outdsnn: INTEGER
- cpyrc: INTEGER
- catrc: INTEGER
- rmmrc: INTEGER

For events generated by situations in the Job Copy Status attribute group, Tivoli Enterprise Console events are sent using the ITM_KRW_JOB_COPY_STATUS class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- jobname: STRING
- jobnum: STRING
- jobrc: INTEGER
- jobmsg: STRING

For events generated by situations in the Performance Object Status attribute group, Tivoli Enterprise Console events are sent using the ITM_KRW_PERFORMANCE_OBJECT_STATUS class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- query_name: STRING
- object_name: STRING
- object_type: INTEGER
- object_type_enum: STRING
- object_status: INTEGER
- object_status_enum: STRING
- error_code: INTEGER
- error_code_enum: STRING

For events generated by situations in the Product Action Log attribute group, Tivoli Enterprise Console events are sent using the ITM_KRW_PRODUCT_ACTION_LOG class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- muser: STRING
- profname: STRING
- volser1: STRING
- volser2: STRING
- msgrpse: STRING

For events generated by situations in the Tape Migration Detail attribute group, Tivoli Enterprise Console events are sent using the ITM_KRW_TAPE_MIGRATION_DETAIL class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- srcvol: STRING
- volseq: INTEGER
- acttime: STRING
- numfile: INTEGER
- inunit: STRING
- outunit: STRING
- srctbase: STRING
- tartbase: STRING
- copyrc: INTEGER
- catarc: INTEGER
- rmmrc: INTEGER
- renopt: STRING
- nocatopt: STRING
- stkopt: STRING
- cpyttyp: INTEGER

- cpyttyp_enum: STRING
- stat: STRING
- nexpdat: STRING
- asntime: STRING
- reqnum: INTEGER
- jobname: STRING

For events generated by situations in the Tape Optimizer Actions attribute group, Tivoli Enterprise Console events are sent using the ITM_KRW_TAPE_OPTIMIZER_ACTIONS class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- profname: STRING
- profdesc: STRING

For events generated by situations in the Tape Pending Migration Due To Replace attribute group, Tivoli Enterprise Console events are sent using the ITM_KRW_TAPE_PENDING_MIGRATION_DUE_TO_REPLACE class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- volser: STRING
- volcnt: INTEGER
- numfiles: INTEGER
- unitname: STRING
- krw_status: STRING
- expdate: STRING
- assigndate: STRING
- jobname: STRING
- fstdsn: STRING

For events generated by situations in the Tape Pending Migration Due To Temp Errors attribute group, Tivoli Enterprise Console events are sent using the ITM_KRW_TAPE_PENDING_MIGRATION_DUE_TO_TEMP_ERRORS class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- volser: STRING
- unitname: STRING
- krw_status: STRING
- expdate: STRING
- assigndate: STRING
- jobname: STRING
- fstdsn: STRING
- tmperr: INTEGER

For events generated by situations in the Volume Chain List attribute group, Tivoli Enterprise Console events are sent using the ITM_KRW_VOLUME_CHAIN_LIST class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- volcnt: INTEGER
- volchn: STRING
- volcbase: STRING
- nxtvol: STRING
- prvvol: STRING
- cpyctyp: INTEGER
- cpyctyp_enum: STRING
- origchn: INTEGER
- origchn_enum: STRING

For events generated by situations in the Volume Copy Status attribute group, Tivoli Enterprise Console events are sent using the ITM_KRW_VOLUME_COPY_STATUS class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- jobnum: STRING
- svol: STRING
- cpytime: STRING
- srcvbase: STRING
- tarvbase: STRING
- cpyrc: INTEGER
- catrc: INTEGER
- rmmrc: INTEGER
- inpunit: STRING
- outunit: STRING
- reqnum: STRING
- numfile: INTEGER
- jobname: STRING
- newexpd: STRING
- krw_status: STRING
- assignt: STRING
- stkopt: STRING
- volseq: INTEGER
- prevvol: STRING
- nextvol: STRING

For events generated by situations in the Volume Dataset List attribute group, Tivoli Enterprise Console events are sent using the ITM_KRW_VOLUME_DATASET_LIST class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- dsn: STRING

- dsseq: INTEGER
- srcdbase: STRING
- dsnvol: STRING
- origchn: INTEGER
- origchn_enum: STRING

Appendix B. Problem determination

This chapter provides agent-specific troubleshooting information. See the *IBM Tivoli Monitoring Problem Determination Guide* for general troubleshooting information. Also see “Support information” on page 76 for other problem-solving options.

Note: You can resolve some problems by ensuring that your system matches the system requirements listed in Chapter 2, “Requirements for the monitoring agent,” on page 5.

Gathering product information for IBM Software Support

Before contacting IBM Software Support about a problem you are experiencing with this product, gather the information in Table 8 that relates to the problem.

Table 8. Information to gather before contacting IBM Software Support

Information type	Description
Log files	Collect trace log files from failing systems. Most logs are located in a `logs` subdirectory on the host computer. See “Trace logging” on page 62 for lists of all trace log files and their locations. See the *IBM Tivoli Monitoring User's Guide* for general information about the IBM Tivoli Monitoring environment.
Tape Optimizer information	• Version number and patch level
Operating system	Operating system version number and patch level
Messages	Messages and other information displayed on the screen
Version numbers for IBM Tivoli Monitoring	Version number of the following members of the monitoring environment: • IBM Tivoli Monitoring. Also provide the patch level, if available. • IBM Tivoli Tape Optimizer on z/OS
Screen captures	Screen captures of incorrect output, if any.
(*UNIX only*) Core dump files	If the system stops on UNIX systems, collect the core dump file from *install_dir*/bin directory, where *install_dir* is the directory where you installed the monitoring agent.

See http://www.ibm.com/software/support/probsub.html for information about working with IBM Software Support.

Built-in problem determination features

The primary problem determination feature in the Tape Optimizer Monitoring Agent is logging. *Logging* refers to the text messages and trace data generated by the Tape Optimizer Monitoring Agent. Messages and trace data are sent to a file.

Trace data captures transient information about the current operating environment when a component or application fails to operate as designed. IBM Software Support personnel use the captured trace information to determine the source of an error or unexpected condition. See “Trace logging” on page 62 for more information.

Problem classification

The following types of problems might occur with the Tape Optimizer Monitoring Agent:

- Installation and configuration
- General usage and operation

- Display of monitoring data
- Take Action commands

This chapter provides symptom descriptions and detailed workarounds for these problems, as well as describing the logging capabilities of the monitoring agent. See the *IBM Tivoli Monitoring Problem Determination Guide* for general problem determination information.

Trace logging

Trace logs capture information about the operating environment when component software fails to operate as intended. The principal log type is the RAS (Reliability, Availability, and Serviceability) trace log. These logs are in the English language only. The RAS trace log mechanism is available for all components of IBM Tivoli Monitoring. Most logs are located in a `logs` subdirectory on the host computer. See the following sections to learn how to configure and use trace logging:

- "Principal trace log files"
- "Examples: using trace logs" on page 64
- "Setting RAS trace parameters" on page 65

Note: The documentation refers to the RAS facility in IBM Tivoli Monitoring as ″RAS1″.

IBM Software Support uses the information captured by trace logging to trace a problem to its source or to determine why an error occurred. All components in the IBM Tivoli Monitoring environment have a default tracing level. The tracing level can be changed on a per-component level to adjust the type of trace information collected, the degree of trace detail, the number of trace logs to be kept, and the amount of disk space used for tracing.

Overview of log file management

Table 9 on page 63 provides the names, locations, and descriptions of RAS1 log files. The log file names adhere to the following naming convention:

Windows systems

hostname_productcode_program_HEXtimestamp-nn.log

Linux and UNIX systems

hostname_productcode_HEXtimestamp-nn.log

where:

- *hostname* is the host name of the computer where the monitoring component is running.
- *productcode* is the two-character product code. For Tape Optimizer, the product code is rw.
- *program* is the name of the program being run.
- *HEXtimestamp* is a hexadecimal time stamp representing the time at which the program started.
- *nn* is a rolling log suffix.

Principal trace log files

Table 9 on page 63 contains locations, file names, and descriptions of trace logs that can help determine the source of problems with agents.

Table 9. Trace log files for problem determination agents

System where log is located	File name and path	Description
On the Tivoli Enterprise Monitoring Server	• **Windows:** The file in the *install_dir*\InstallITM path • **UNIX:** The candle_installation.log file in the *install_dir*/logs path	Provides details about products that are installed. **Note:** Trace logging is enabled by default. A configuration step is not required to enable this tracing.
	The Warehouse_Configuration.log file is in the following location on Windows systems: *install_dir*\InstallITM	Provides details about the configuration of data warehousing for historical reporting.
	The name of the RAS log file is as follows: • **Windows:** *install_dir*\logs\ *hostname*_ms_*timestamp-nn*.log • **UNIX:** *install_dir*/logs/ hostname_productcode_timestamp.log **Note:** File names for RAS1 logs include a hexadecimal time stamp. Also on UNIX, a log with a decimal time stamp is provided: *hostname_productcode_timestamp*.log and *hostname_productcode_ timestamp*.pid*nnnnn* in the *install_dir*/logs path, where nnnnn is the process ID number.	Traces activity on the monitoring server.
On the Tivoli Enterprise Portal Server	The name of the RAS log file is as follows: • **Windows:** *install_dir*\logs\ hostname_cq_HEXtimestamp-nn.log • **UNIX:** *install_dir*/logs/ *hostname*_cq_HEXtimestamp-nn.log **Note:** File names for RAS1 logs include a hexadecimal time stamp. Also on UNIX, a log with a decimal time stamp is provided: *hostname_productcode_timestamp*.log and *hostname_productcode_ timestamp*.pid*nnnnn* in the *install_dir*/logs path, where nnnnn is the process ID number.	Traces activity on the portal server.
	The teps_odbc.log file is located in the following path • **Windows**: *install_dir*\InstallITM path. • **UNIX**: *install_dir*/logs	When you enable historical reporting, this log file traces the status of the warehouse proxy agent.

Table 9. Trace log files for problem determination agents (continued)

System where log is located	File name and path	Description
On the computer that hosts the monitoring agent	The RAS1 log files are as follows: These logs are in the following directories: • **UNIX:** *install_dir*/logs	Traces activity of the monitoring agent.
	The agent operations log files are as follows: *instance_hostname*_RW.LG0 is the current log created when the agent was started *instance_hostname*_RW.LG1 is the backup of the previous log These logs are in the following directory depending on the operating system that you are using:	Shows whether the agent was able to connect to the monitoring server. Shows which situations are started and stopped, and shows other events while the agent is running. A new version of this file is generated every time the agent is restarted. IBM Tivoli Monitoring generates one backup copy of the *.LG0 file with the tag .LG1. View .LG1 to learn the following details regarding the *previous* monitoring session: • Status of connectivity with the monitoring server. • Situations that were running. • The success or failure status of Take Action commands.
	The Take Action command log files are as follows: • *host*_rw_*takeactioncommand*.log The logs are in the following directories:	Traces activity each time a Take Action command runs. For example, when a hypothetical **start_command** Take Action command runs, IBM Tivoli Monitoring generates a start_command.log file.
Definitions of variables: *timestamp* is time stamp whose format includes year (y), month (m), day (d), hour (h), and minute (m), as follows: **yyyymmdd hhmm** *HEXtimestamp* is a hexadecimal representation of the time at which the process was started. *install_dir* represents the directory path where you installed the IBM Tivoli Monitoring component. *install_dir* can represent a path on the computer that host the monitoring system, the monitoring agent, or the portal. *instance* refers to the name of the database instance that you are monitoring. *hostname* refers to the name of the computer on which the IBM Tivoli Monitoring component runs. *nn* represents the circular sequence in which logs are rotated. Ranges from 1-5, by default, though the first is always retained, because it includes configuration parameters. *productcode* specifies the product codes, for example, um for Universal Agent or nt for Windows.		

See the *IBM Tivoli Monitoring Installation and Setup Guide* for more information on the complete set of trace logs that are maintained on the monitoring server.

Examples: using trace logs

Typically, IBM Software Support applies specialized knowledge to analyze trace logs to determine the source of problems. You can open trace logs in a text editor to learn some basic facts about your IBM Tivoli Monitoring environment. The following examples are from the Tivoli Enterprise Monitoring Server log.

Example one

This excerpt shows the typical log for a failed connection between a monitoring agent and a monitoring server with the host name **server1a**:

```
(Thursday, August 11, 2005, 08:21:30-{94C}kdcl0cl.c,105,"KDCL0_ClientLookup") status=1c020006,
 "location server unavailable", ncs/KDC1_STC_SERVER_UNAVAILABLE
(Thursday, August 11, 2005, 08:21:35-{94C}kraarreg.cpp,1157,"LookupProxy") Unable to connect to
```

```
 broker at ip.pipe:: status=0, "success", ncs/KDC1_STC_OK
(Thursday, August 11, 2005, 08:21:35-{94C}kraarreg.cpp,1402,"FindProxyUsingLocalLookup") Unable
 to find running CMS on CT_CMSLIST <IP.PIPE:#server1a>
```

Example two

The following excerpts from the trace log *for the monitoring server* show the status of an agent, identified here as ″Remote node.″ The name of the computer where the agent is running is **SERVER5B**:

```
(42C039F9.0000-6A4:kpxreqhb.cpp,649,"HeartbeatInserter") Remote node SERVER5B:RW is ON-LINE.
. . .
(42C3079B.0000-6A4:kpxreqhb.cpp,644,"HeartbeatInserter") Remote node SERVER5B:RW is OFF-LINE.
```

Key points regarding the preceding excerpt:

- The monitoring server appends the **RW** product code to the server name to form a unique name (`SERVER5B:RW`) for this instance of the Tape Optimizer Monitoring Agent. This unique name enables you to distinguish multiple monitoring products that might be running on **SERVER5B**.
- The log shows when the agent started (ON-LINE) and later stopped (OFF-LINE) in the environment.
- For the sake of brevity an ellipsis (...) represents the series of trace log entries that were generated while the agent was running.
- Between the ON-LINE and OFF-LINE log entries, the agent was communicating with the monitoring server.
- The ON-LINE and OFF-LINE log entries are always available in the trace log. All trace levels that are described in “Setting RAS trace parameters” provide these entries.

On Windows, you can use the following alternate method to view trace logs:

1. In the Windows **Start** menu, choose **Program Files > IBM Tivoli Monitoring > Manage Tivoli Enterprise Monitoring Services**. The Manage Tivoli Enterprise Monitoring Services window is displayed.
2. Right-click a component and select **Advanced > View Trace Log** in the pop-up menu. For example, if you want to view the trace log of the Tape Optimizer agent, right-click the name of the that agent in the window. You can also use the viewer to access remote logs.

   Note: The viewer converts time stamps in the logs to a format that is easier to read.

Setting RAS trace parameters

Objective

Pinpoint a problem by setting detailed tracing of individual components of the monitoring agent and modules.

Background Information

The Tape Optimizer Monitoring Agent uses RAS1 tracing and generates the logs described in Table 9 on page 63. The default RAS1 trace level is ERROR.

Before you begin

See “Overview of log file management” on page 62 to ensure that you understand log rolling and can reference the correct log files when you manage log file generation.

After you finish

Monitor the size of the **logs** directory. Default behavior can generate a total of 45 to 60 MB for each agent that is running on a computer. For example, each database instance that you monitor can generate 45 to 60 MB of log data. See the ″Procedure″ section to learn how to adjust file size and numbers of log files to prevent logging activity from occupying too much disk space.

Regularly prune log files other than the RAS1 log files in the logs directory. Unlike the RAS1 log files that are pruned automatically, other log types can grow indefinitely, for example, the logs in Table 9 on page 63 that include a process ID number (PID).

Consider using collector trace logs as an additional source of information.

Note: The **KDC_DEBUG** setting and the Maximum error tracing setting can generate a large amount of trace logging. Use them only temporarily, while you are problem determination problems. Otherwise, the logs can occupy excessive amounts of hard disk space.

Procedure

On Windows systems, you can use the graphical user interface to set trace options:

1. Open the Manage Tivoli Enterprise Monitoring Services window.
2. Right-click the icon of the monitoring agent whose logging you want to modify.
3. Select **Advanced** > **Edit Trace Parms**. The Tivoli Enterprise Monitoring Server Trace Parameters window is displayed.
4. Select a new trace setting in the pull-down menu in the **Enter RAS1 Filters** field or type a valid string.

   The selections are as follows:

   - General error tracing. `KBB_RAS1=ERROR`
   - Intensive error tracing. `KBB_RAS1=ERROR (UNIT:kqz ALL)`
   - Maximum error tracing. `KBB_RAS1=ERROR (UNIT:kqz ALL) (UNIT:kra ALL)`

     Notes: As this example shows, you can set multiple RAS tracing options in a single statement.
5. Modify the value for ’Maximum Log Size Per File (MB)″ to change the log file size (changes LIMIT value).
6. Modify the value for ’Maximum Number of Log Files Per Session″ to change the number of log files per startup of a program (changes COUNT value).
7. Modify the value for ’Maximum Number of Log Files Total″ to change the number of log files for all startups of a program (changes MAXFILES value).
8. (*Optional*) Click Y (Yes) in the **KDC_DEBUG Setting** menu to log information that can help you diagnose communications and connectivity problems between the monitoring agent and the monitoring server.

   Note: The **KDC_DEBUG** setting and the Maximum error tracing setting can generate a large amount of trace logging. Use them only temporarily, while you are troubleshooting problems. Otherwise, the logs can occupy excessive amounts of hard disk space.
9. Click **OK**. You see a message reporting a restart of the monitoring agent so that your changes take effect.

You can also manually edit the RAS1 trace logging parameters using this method:

1. Open the trace options file:

   Windows: *install_dir*\tmaitm6\KRWENV

   UNIX: *install_dir*/config/rw.ini
2. Edit the line that begins with KBB_RAS1= to set trace logging preferences. For example, if you want detailed trace logging, set the Maximum Tracing option:`KBB_RAS1=ERROR (UNIT:kqz ALL) (UNIT:kra ALL)`
3. Edit the line that begins with **KBB_RAS1_LOG**= to manage the generation of log files:
   - MAXFILES: the total number of files that are to be kept for all startups of a given program. When this value is exceeded, the oldest log files are discarded. Default value is 9.
   - LIMIT: the maximum size, in megabytes (MB) of a RAS1 log file. Default value is 5.
   - IBM Software Support might guide you to modify the following parameters:
     - COUNT: the number of log files to keep in the rolling cycle of one program startup. Default is 3.
     - PRESERVE: the number of files that are not to be reused in the rolling cycle of one program startup. Default value is 1.

   Notes: The **KBB_RAS1_LOG** parameter also provides for the specification of the log file directory, log file name, and the inventory control file directory and name. Do not modify these values or log information can be lost.
4. Restart the monitoring agent so that your changes take effect.

Problems and workarounds

The following sections provide symptoms and workarounds for problems that might occur with the Tape Optimizer Monitoring Agent:

- "Installation and configuration problem determination" on page 67
- "Remote deployment problem determination" on page 69
- "Agent problem determination" on page 70
- "Workspace problem determination" on page 71
- "Situation problem determination" on page 73

Note: You can resolve some problems by ensuring that your system matches the system requirements listed in Chapter 2, "Requirements for the monitoring agent," on page 5.

This section provides agent-specific problem determination information. See the *IBM Tivoli Monitoring Problem Determination Guide* for general problem determination information.

Installation and configuration problem determination

This section provides tables that show solutions for installation, configuration, and uninstallation problems.

Table 10. Problems and solutions for installation and configuration

Problem	Solution
A problem can arise when you install and configure a new monitoring agent to a computer where other agents are running as described in this example: • Agents are running on computer and communicating with a Tivoli Enterprise Monitoring Server, called **TEMS1**. • You install a new agent on the same computer and you want this agent to communicate with a different monitoring server, called **TEMS2**. • When you configure the new agent to communicate with **TEMS2**, all the existing agents are re-configured to communicate with **TEMS2**.	You must reconfigure the previously existing agents to restore their communication connection with **TEMS1**. For example, you can right-click the row for a specific agent in the Manage Tivoli Enterprise Monitoring Services, and select **Reconfigure**. See the *IBM Tivoli Monitoring Installation and Setup Guide* for more information on reconfiguration.
Diagnosing problems with product browse settings (Windows systems only).	When you have problems with browse settings, perform the following steps: 1. Click **Start > Programs > IBM Tivoli Monitoring > Manage Tivoli Enterprise Monitoring Services**. The Manage Tivoli Enterprise Monitoring Services window is displayed. 2. Right-click the Windows agent and select **Browse Settings**. A text window is displayed. 3. Click **Save As** and save the information in the text file. If requested, you can forward this file to IBM Software Support for analysis.
A message similar to ″Unable to find running CMS on CT_CMSLIST″ in the log file is displayed.	If a message similar to ″Unable to find running CMS on CT_CMSLIST″ is displayed in the Log file, the agent is not able to connect to the monitoring server. Confirm the following points: • Do multiple network interface cards (NICs) exist on the system? • If multiple NICs exist on the system, find out which one is configured for the monitoring server. Ensure that you specify the correct host name and port settings for communication in the IBM Tivoli Monitoring environment.
The system is experiencing high CPU usage.	**Agent process:** View the memory usage of the KRWCMA process. If CPU usage seems to be excessive, recycle the monitoring agent. **Network Cards:** The network card configurations can decrease the performance of a system. Each of the stream of packets that a network card receives (assuming it is a broadcast or destined for the under-performing system) must generate a CPU interrupt and transfer the data through the I/O bus. If the network card in question is a bus-mastering card, work can be off-loaded and a data transfer between memory and the network card can continue without using CPU processing power. Bus-mastering cards are generally 32-bit and are based on PCI or EISA bus architectures.

Table 11. General problems and solutions for uninstallation

Problem	Solution
On Windows, uninstallation of IBM Tivoli Monitoring fails to uninstall the entire environment.	Be sure that you follow the general uninstallation process described in the *IBM Tivoli Monitoring Installation and Setup Guide*: 1. Remove Tivoli Enterprise Monitoring Server Application support by completing the following steps: a. Use Manage Tivoli Enterprise Monitoring Services. b. Select **Tivoli Enterprise Monitoring Server**. c. Right-click and select **Advanced**. d. Select **Remove TEMS application support**. e. Select the agent to remove its application support. 2. Uninstall monitoring agents first, as in the following examples: • Uninstall a single monitoring agent for a specific database. -OR- • Uninstall all instances of a monitoring product, such as IBM Tivoli Monitoring for Databases. 3. Uninstall IBM Tivoli Monitoring.
The way to remove inactive managed systems (systems whose status is OFFLINE) from the Navigator tree in the portal is not obvious.	Use the following steps to remove, but not uninstall, an offline managed system from the Navigator tree: 1. Click the Enterprise icon in the Navigator tree. 2. Right-click, then click **Workspace** > **Managed System Status**. 3. Right-click the offline managed system, and select **Clear offline entry**. If you also want to uninstall the monitoring agent, use the procedure described in the *IBM Tivoli Monitoring Installation and Setup Guide*.

Remote deployment problem determination

Table 12 lists problems that might occur with remote deployment. This section provides agent-specific problem determination information. See the *IBM Tivoli Monitoring Problem Determination Guide* for general problem determination information.

This section describes problems and solutions for remote deployment and removal of agent software using Agent Remote Deploy.

Table 12. Remote deployment problems and solutions

Problem	Solution
While you are using the remote deployment feature to install the Tape Optimizer Monitoring Agent, an empty command window is displayed on the target computer. This problem occurs when the target of remote deployment is a Windows computer. (See the *IBM Tivoli Monitoring Installation and Setup Guide* for more information on the remote deployment feature.)	Do not close or modify this window. It is part of the installation process and is dismissed automatically.
The removal of a monitoring agent fails when you use the remote removal process in the Tivoli Enterprise Portal desktop or browser.	This problem might occur when you attempt the remote removal process immediately after you have restarted the Tivoli Enterprise Monitoring Server. You must allow time for the monitoring agent to refresh its connection with the Tivoli Enterprise Monitoring Server before you begin the remote removal process.

Agent problem determination

This section lists problems that might occur with agents.

This chapter provides agent-specific problem determination. See the *IBM Tivoli Monitoring Problem Determination Guide* for general problem determination information.

Table 13. Agent problems and solutions

Problem	Solution
Log data accumulates too rapidly.	Check the RAS trace option settings, which are described in “Setting RAS trace parameters” on page 65. The trace options settings that you can set on the `KBB_RAS1=` and `KDC_DEBUG=` lines potentially generate large amounts of data.
When using the F1 key or selecting Help --> Contents and Index, you receive a message in your Microsoft Internet Explorer browser which states, ″It seems javascript is disabled in your browser, please enable it and reload again, or click here to view without javascript.″ If you select ’here’, the Tivoli Enterprise Portal V6.1 Help is displayed, but the agent help is not.	Ensure that the local site is added to the trusted site for the browser, and then enable the javascript.
If you want to receive multiple trace logs for separate invocations of the same Take Action command, leaving this setting on permanently fills the available disk space.	Do not leave this setting on permanently. By doing so, you create a new log file for each invocation of the Take Action command and ALL of them are left on the agent system.

Table 13. Agent problems and solutions (continued)

Problem	Solution
A configured and running instance of the monitoring agent is not displayed in the Tivoli Enterprise Portal, but other instances of the monitoring agent on the same system do appear in the portal.	Tivoli Monitoring products use Remote Procedure Call (RPC) to define and control product behavior. RPC is the mechanism that allows a client process to make a subroutine call (such as GetTimeOfDay or ShutdownServer) to a server process somewhere in the network. Tivoli processes can be configured to use TCP/UDP, TCP/IP, SNA, and SSL as the desired protocol (or delivery mechanism) for RPCs. ″IP.PIPE″ is the name given to Tivoli TCP/IP protocol for RPCs. The RPCs are socket-based operations that use TCP/IP ports to form socket addresses. IP.PIPE implements virtual sockets and multiplexes all virtual socket traffic across a single physical TCP/IP port (visible from the netstat command). A Tivoli process derives the physical port for IP.PIPE communications based on the configured, well-known port for the HUB Tivoli Enterprise Monitoring Server. (This well-known port or BASE_PORT is configured using the 'PORT:' keyword on the KDC_FAMILIES / KDE_TRANSPORT environment variable and defaults to '1918'.) The physical port allocation method is defined as (BASE_PORT + 4096*N) where N=0 for a Tivoli Enterprise Monitoring Server process and N={1, 2, ..., 15} for a non-Tivoli Enterprise Monitoring Server. Two architectural limits result as a consequence of the physical port allocation method: • No more than one Tivoli Enterprise Monitoring Server reporting to a specific Tivoli Enterprise Monitoring Server HUB can be active on a system image. • No more than 15 IP.PIPE processes can be active on a single system image. A single system image can support any number of Tivoli Enterprise Monitoring Server processes (address spaces) provided that each Tivoli Enterprise Monitoring Server on that image reports to a different HUB. By definition, there is one Tivoli Enterprise Monitoring Server HUB per monitoring Enterprise, so this architecture limit has been simplified to one Tivoli Enterprise Monitoring Server per system image. No more that 15 IP.PIPE processes or address spaces can be active on a single system image. With the first limit expressed above, this second limitation refers specifically to Tivoli Enterprise Monitoring Agent processes: no more that 15 agents per system image. This limitation can be circumvented (at current maintenance levels, IBM Tivoli Monitoring V6.1 Fix Pack 4 and later) if the Tivoli Enterprise Monitoring Agent process is configured to use EPHEMERAL IP.PIPE. (This is IP.PIPE configured with the 'EPHEMERAL:Y' keyword in the KDC_FAMILIES / KDE_TRANSPORT environment variable). There is no limitation to the number of ephemeral IP.PIPE connections per system image. If ephemeral endpoints are used, the Warehouse Proxy Agent is accessible from the Tivoli Enterprise Monitoring Server associated with the agents using ephemeral connections either by running the Warehouse Proxy Agent on the same computer or by using the Firewall Gateway feature. (The Firewall Gateway feature relays the Warehouse Proxy Agent connection from the Tivoli Enterprise Monitoring Server computer to the Warehouse Proxy Agent computer if the Warehouse Proxy Agent cannot coexist on the same computer.)

Workspace problem determination

Table 14 on page 72 shows problems that might occur with workspaces. This chapter provides agent-specific problem determination information. See the *IBM Tivoli Monitoring Problem Determination Guide* for general problem determination information.

Table 14. Workspace problems and solutions

Problem	Solution
The process application components are available, but the Availability status shows PROCESS_DATA_NOT_ AVAILABLE.	This problem occurs because the **PerfProc** performance object is disabled. When this condition exists, IBM Tivoli Monitoring cannot collect performance data for this process. Do the following to confirm that this problem exists and resolve it: 1. Choose **Run** in the Windows **Start** menu. 2. Type perfmon.exe in the **Open** field of the Run window. The Performance window is displayed. 3. Click the plus sign (+) in the tool bar located above the right pane. The Add Counters window is displayed. 4. Look for **Process** in the **Performance object** pull-down menu. 5. Perform one of the following actions: • If you see **Process** in the pull-down menu, the **PerfProc** performance object is enabled and the problem is coming from a different source. You might need to contact IBM Software Support. • If you do not see **Process** in the pull-down menu, use the Microsoft utility from the following Web site to enable the **PerfProc** performance object: `http://www.microsoft.com/windows2000/techinfo /reskit/tools/existing /exctrlst-o.asp` The **Process** performance object becomes visible in the **Performance object** pull-down menu of the Add Counters windows, and IBM Tivoli Monitoring is able to detect Availability data. 6. Restart the monitoring agent.
The name of the attribute does not display in a bar chart or graph view.	When a chart or graph view that includes the attribute is scaled to a small size, a blank space is displayed instead of a truncated name. To see the name of the attribute, expand the view of the chart until there is sufficient space to display all characters of the attribute name.
You start collection of historical data but the data cannot be seen.	Managing options for historical data collection: • Basic historical data collection populates the Warehouse with raw data. This type of data collection is turned off by default. See the *IBM Tivoli Monitoring Administrator's Guide* for information on managing this feature including how to set the interval at which data is collected. By setting a more frequent interval for data collection you reduce the load on the system incurred every time data is uploaded. • You use the Summarization and Pruning monitoring agent to collect specific amounts and types of historical data. Be aware that historical data is not displayed until the Summarization and Pruning monitoring agent begins collecting the data. By default, this agent begins collection at 2 AM daily. At that point, data is visible in the workspace view. See the *IBM Tivoli Monitoring Administrator's Guide* to learn how to modify the default collection settings.

Table 14. Workspace problems and solutions (continued)

Problem	Solution
Historical data collection is unavailable because of incorrect queries in the Tivoli Enterprise Portal.	The column, Sort By, Group By, and First/Last functions are not compatible with the historical data collection feature. Use of these advanced functions makes a query ineligible for historical data collection. Even if data collection has been started, you cannot use the time span feature if the query for the chart or table includes column functions or advanced query options (Sort By, Group By, First / Last). To ensure support of historical data collection, do not use the Sort By, Group By, or First/Last functions in your queries. See the *IBM Tivoli Monitoring Administrator's Guide* or the Tivoli Enterprise Portal online help for information about the Historical Data Collection function.
When you use a long process name in the situation, the process name is truncated.	Truncation of process or service names for situations in the Availability table in the portal display is the expected behavior. 100 bytes is the maximum name length.
Regular (non-historical) monitoring data fails to be displayed.	Check the formation of the queries you use to gather data. For example, look for invalid SQL statements.
Navigator items and workspace titles are labeled with internal names such as `Kr6:KR60000` or `Knt:KNT0000` rather than the correct names (such as Disk).	Ensure application support has been added on the monitoring server, portal server, and portal client. For more information and instruction on installing application support see ″Installing and enabling application support″ in the *IBM Tivoli Monitoring Installation and Setup Guide*.

Situation problem determination

This section provides information about both general situation problems and problems with the configuration of situations. See the *IBM Tivoli Monitoring Problem Determination Guide* for more information about problem determination for situations.

General situation problems

Table 15 lists general problems that might occur with situations.

Table 15. General situation problems and solutions

Problem	Solution
Monitoring activity requires too much disk space.	Check the RAS trace logging settings that are described in "Setting RAS trace parameters" on page 65. For example, trace logs grow rapidly when you apply the **ALL** logging option.
Monitoring activity requires too many system resources.	"Disk capacity planning for historical data" on page 38 describes the performance impact of specific attribute groups. If possible, decrease your use of the attribute groups that require greater system resources.
A formula that uses mathematical operators appears to be incorrect. For example, if you were monitoring Linux, a formula that calculates when **Free Memory** falls under 10 percent of **Total Memory** does not work: `LT #'Linux_VM_Stats.Total_Memory' / 10`	This formula is incorrect because situation predicates support only logical operators. Your formulas cannot have mathematical operators. **Note:** The Situation Editor provides alternatives to math operators. Regarding the example, you can select **% Memory Free** attribute and avoid the need for math operators.

Table 15. General situation problems and solutions (continued)

Problem	Solution
You want to change the appearance of situations when they are displayed in the Navigation tree.	1. Right-click an item in the Navigation tree. 2. Select **Situations** in the pop-up menu. The Situation Editor window is displayed. 3. Select the situation that you want to modify. 4. Use the **State** pull-down menu in the lower right of the window to set the status and appearance of the Situation when it triggers. **Note:** The **State** setting is not related to severity settings in IBM Tivoli Enterprise Console.
When a situation is triggered in the Event Log attribute group, it remains in the Situation Event Console as long as the event ID entry is present in the Event Log workspace. When this event ID entry is removed from the Event Log workspace on the Tivoli Enterprise Portal, the situation is also cleared even if the actual problem that caused the event is not resolved, and the event ID entry is also present in the Windows Event Viewer.	There is a timeout on the cache of events for the NT Event Log group. Increase the cache time of Event Log collection to meet your requirements by adding the following variable and timeout value to the KXXENV file for the agent: CDP_NT_EVENT_LOG_CACHE_TIMEOUT=3600 This variable determines how long events from the NT Event Log are kept.

Problems with configuration of situations

Table 16 lists problems that might occur with configuring situations.

This section provides problem determination information for agent situations. Be sure to consult the *IBM Tivoli Monitoring Problem Determination Guide* for more general problem determination information.

Table 16. Problems with configuring situations that you solve in the Situation Editor

Problem	Solution
Note: To get started with the solutions in this section, perform these steps: 1. Launch the Tivoli Enterprise Portal. 2. Click **Edit > Situation Editor**. 3. In the tree view, choose the agent whose situation you want to modify. 4. Choose the situation in the list. The Situation Editor view is displayed.	
The situation for a specific agent is not visible in the Tivoli Enterprise Portal.	Open the Situation Editor. Access the All managed servers view. If the situation is absent, confirm that the monitoring server has been seeded for the agent. If not, seed the server, as described in the *IBM Tivoli Monitoring Installation and Setup Guide.*
The monitoring interval is too long.	Access the Situation Editor view for the situation that you want to modify. Check the **Sampling interval** area in the **Formula** tab. Adjust the time interval as needed.
The situation did not activate at startup.	Manually recycle the situation as follows: 1. Right-click the situation and choose **Stop Situation**. 2. Right-click the situation and choose **Start Situation**. **Note:** You can permanently avoid this problem by placing a check mark in the **Run at Startup** option of the Situation Editor view for a specific situation.
The situation is not displayed.	Click the **Action** tab and check whether the situation has an automated corrective action. This action can occur directly or through a policy. The situation might be resolving so quickly that you do not see the event or the update in the graphical user interface.

Table 16. Problems with configuring situations that you solve in the Situation Editor (continued)

Problem	Solution
An Alert event has not occurred even though the predicate has been properly specified.	Check the logs, reports, and workspaces.
A situation fires on an unexpected managed object.	Confirm that you have distributed and started the situation on the correct managed system.
The product did not distribute the situation to a managed system.	Click the **Distribution** tab and check the distribution settings for the situation.
The situation does not fire.	This problem can be caused when incorrect predicates are present in the formula that defines the situation. For example, the managed object shows a state that normally triggers a monitoring event, but the situation is not true because the wrong attribute is specified in the formula. In the **Formula** tab, analyze predicates as follows: 1. Click the *fx* icon in the upper-right corner of the Formula area. The Show formula window is displayed. a. Confirm the following details in the **Formula** area at the top of the window: • The attributes that you intend to monitor are specified in the formula. • The situations that you intend to monitor are specified in the formula. • The logical operators in the formula match your monitoring goal. • The numerical values in the formula match your monitoring goal. b. (*Optional*) Click the **Show detailed formula** check box in the lower left of the window to see the original names of attributes in the application or operating system that you are monitoring. c. Click **OK** to dismiss the Show formula window. 2. (*Optional*) In the Formula area of the **Formula** tab, temporarily assign numerical values that immediately trigger a monitoring event. The triggering of the event confirms that other predicates in the formula are valid. **Note:** After you complete this test, you must restore the numerical values to valid levels so that you do not generate excessive monitoring data based on your temporary settings. See the *IBM Tivoli Monitoring Problem Determination Guide* for additional information about situations that do not fire.

Table 17. Problems with configuration of situations that you solve in the Workspace area

Problem	Solution
Situation events are not displayed in the Events Console view of the workspace.	Associate the situation with a workspace. **Note:** The situation does not need to be displayed in the workspace. It is sufficient that the situation be associated with any workspace.
You do not have access to a situation.	**Note:** You must have administrator privileges to perform these steps. 1. Select **Edit** > **Administer Users** to access the Administer Users window. 2. In the **Users** area, select the user whose privileges you want to modify. 3. In the **Permissions** tab, **Applications** tab, and **Navigator Views** tab, select the permissions or privileges that correspond to the user role. 4. Click **OK**.

Table 17. Problems with configuration of situations that you solve in the Workspace area (continued)

Problem	Solution
A managed system seems to be offline.	1. Select Physical View and highlight the Enterprise Level of the navigator tree. 2. Select **View** > **Workspace** > **Managed System Status** to see a list of managed systems and their status. 3. If a system is offline, check network connectivity and the status of the specific system or application.

Take Action commands problem determination

Table 18 lists general problems that might occur with Take Action commands. When each Take Action command runs it generates the log file listed in Table 9 on page 63. This chapter provides agent-specific problem determination information.

See the *IBM Tivoli Monitoring Problem Determination Guide* for general problem determination information.

Table 18. Take Action commands problems and solutions

Problem	Solution
Take Action commands often require several minutes to complete.	Allow several minutes. If you do not see a pop-up message advising you of completion, try to run the command manually.
Situations fail to trigger Take Action commands.	Attempt to manually run the Take Action command in the Tivoli Enterprise Portal. If the Take Action command works, look for configuration problems in the situation. See “Situation problem determination” on page 73. If the Take Action command fails, see *IBM Tivoli Monitoring Problem Determination Guide* for general problem determination information on Take Action commands.

Tivoli Common Reporting problem determination

Table 19 contains a list of problems that might occur with the Tivoli Common Reporting predefined reports for Tape Optimizer Monitoring Agent.

For information about problem determination for the Tivoli Common Reporting tool, see http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/topic/com.ibm.tivoli.tcr.doc/tcr_welcome.html.

Table 19. Tivoli Common Reporting for Tape Optimizer Monitoring Agent problems and solutions

Problem	Solution

Support information

If you have a problem with your IBM software, you want to resolve it quickly. IBM provides the following ways for you to obtain the support you need:

Online

Go to the IBM Software Support site at http://www.ibm.com/software/support/probsub.html and follow the instructions.

IBM Support Assistant

The IBM Support Assistant (ISA) is a free local software serviceability workbench that helps you resolve questions and problems with IBM

software products. The ISA provides quick access to support-related information and serviceability tools for problem determination. To install the ISA software, go to http://www.ibm.com/software/support/isa.

Informational, warning, and error messages

This section introduces message logging and explains how to gather information from those logs.

Message logging refers to the text and numeric messages created by the software. These messages relay information about how the system or application is performing and can alert you to exceptional conditions when they occur. Messages are sent to an output destination, such as a file, database, or console screen.

If you receive a warning or error message, you can do one of the following:

- Follow the instructions listed in the Detail window of the message if this information is included there.
- Consult the message details listed in this chapter to see what action you can take to correct the problem.
- Consult the message log for message ID and text, time and date of the message, as well as other data you can use to diagnose the problem.

Message format

Tape Optimizer Monitoring Agent messages have the following format:

Message ID and text
Explanation
Operator Response

The message ID has the following format:

`CCC####severity`

where:

CCC Prefix that indicates the component to which the message applies. The component is one of the following:

KRW General Tape Optimizer Monitoring Agent messages

KRS TEDA Server messages

Number of the message

severity
Severity of the message. There are three levels of severity:

I Informational messages provide feedback about something that happened in the product or system that might be important. These messages can provide guidance when you are requesting a specific action from the product.

W Warning messages call your attention to an exception condition. The condition might not be an error but can cause problems if not resolved.

E Error messages indicate that an action cannot be completed because of a user or system error. These messages require user response.

The *Text* of the message provides a general statement regarding the problem or condition that occurred. The *Explanation* provides additional information about the message and what might have caused the condition. The *Operator Response* provides actions to take in response to the condition, particularly for error messages (messages with the ″E″ suffix).

Note: Many message texts and explanations contain variables, such as the specific name of a server or application. Those variables are represented in this chapter as symbols, such as ″&1.″ Actual messages contain values for these variables.

This appendix includes the messages for the following software:

- Tape Optimizer Monitoring Agent
- IBM Common Data Collection Agent (TEDA) messages

Tape Optimizer Monitoring Agent messages

Notes:

1. In the following KRS messages, *id* is replaced by the TEDA server ID. This ID matches the TEDA(K*pp*) parameter passed to the TEDA server started task program.
2. When any of the IBM Tivoli Enterprise Portal agents (KRJ, KRG, KRN, or KRH) share the same address space, the *id* and K*pp* values will be those of the TEDA server address space.

KRW0000I The Copy Volume was successfully requested.

Explanation: A Copy Volume was requested.

Operator response: None

KRW0004E User ID translation failed.

Explanation: An invalid user ID was used for the Take Action command.

Operator response: Verify that the specified user ID has sufficient authority to perform the requested Take Action command. For more specific information check the TEDA log. For more specific information check the TEDA log.

KRW0008E Bad Parameter List

Explanation: Parameter list is invalid.

Operator response: Verify that the parameters used are valid. For a more specific reason check the TEDA log.

KRW0012S Bad KRS environment

Explanation: An invalid KRS environment was encountered.

Operator response: Verify that the KRS environment is up and running. For a more specific reason check the TEDA log.

KRS0001E *id* **Required LE module** *module* **not loaded**

Explanation: The indicated load module *module* is required by the Language Environment interface cannot be found or loaded.

Operator response: Validate that the indicated load module can be found in either the JOBLIB/STEPLIB data sets or the z/OS system linklist. A server restart will be required to resolve the problem.

KRS0002E *id* **LE Environment initialization failed RC=***rc*

Explanation: An attempt to initialize Language Environment for this task has failed with the indicated return code *rc*. The return code is issued from the init_sub_dp function call to CEEPIPI.

Operator response: Please refer to the *z/OS Language Environment Programming Guide* for an explanation of the return codes and possible corrective actions. A server restart will be required to resolve the problem.

KRS0003E *id* **LE Environment termination failed RC=***rc*

Explanation: An attempt to initialize Language Environment for this task has failed with the indicated return code *rc*. The return code is issued from the term function call to CEEPIPI.

Operator response: Please refer to the *z/OS Language Environment Programming Guide* for an explanation of the return codes and possible corrective actions.

KRS0004E *id* **CEEPIPI add of** *module* **failed RC=***rc*

Explanation: An attempt to add the indicated load module *module* to the Language Environment function table has failed with the indicated return code *rc*. The return code is issued from the add_entry function call to CEEPIPI.

Operator response: Please refer to the *z/OS Language Environment Programming Guide* for an explanation of the return codes and possible corrective actions. A server restart will be required to resolve the problem.

KRS0005E *id* **CEEPIPI function** *module* **missing**

Explanation: The required Language Environment function load module *module* could not be found.

Operator response: There should be an AGENT statement of type ″PIPI″ for the indicated load module *module* in the KppSHRxx member that is being used by the TEDA server. A server restart will be required to resolve the problem.

KRS0006E *id* **CEEPIPI call of** *module* **failed RC=***rc*

Explanation: An attempt to call the indicated load module *module* to the Language Environment function table has failed with the indicated return code *rc*. The return code is issued from the call_sub function call to CEEPIPI.

Operator response: Please refer to the *z/OS Language Environment Programming Guide* for an explanation of the return codes and possible corrective actions. A server restart will be required to resolve the problem.

KRS0007I *id* **Agent** *agent* **using port** *portnum*

Explanation: The indicated TEP agent *agent* is using the indicated port number *portnum*. The value of the port number is taken from the KppPORT keyword on the GLOBAL statement in the KppPRDxx member.

Operator response: No action is required.

KRS0008I *id* **Agent** *agent* **connected to TEMA**

Explanation: The indicated TEP agent *agent* has successfully connected to the TEMA address space.

Operator response: No action is required.

KRS0009I *id* **Agent** *agent* **disconnected from TEMA**

Explanation: The indicated TEP agent *agent* has successfully disconnected from the TEMA address space.

Operator response: No action is required.

KRS0010E *id* **Agent** *agent* **service** *function* **failed RC=***rc*

Explanation: The indicated agent *agent* encountered a non-zero return code *rc* when calling the indicated CPCI function *function*.

Operator response: Refer to the following list of return codes

- CP_PORT_NOT_SET
- CP_SOCKET_OPEN_FAILED
- CP_STATE_ERROR
- CP_WRITE_ERROR
- CP_PARSING_ERROR
- CP_ATTRIBUTE_GROUP_NOT_REGISTERED
- CP_HANDLE_NOT_FOUND
- CP_ID_NOT_FOUND
- CP_MALLOC_FAILED

For CP_SOCKET_OPEN_FAILED, check that the TEMA address space is active and accepting connections from the ″Kpp″ product. When this condition is received, the TEDA address space retries every 30 seconds. For all other return codes, please contact IBM Support.

KRS0011E *id* **Attribute group register not found**

Explanation: The internal attribute group register was not found. All attribute groups will not be registered with TEP.

Operator response: Ensure that the KppTEP00 agent statement is present in the KppSHRxx member. A server restart will be required to resolve the problem.

KRS0012E *id* **Attribute group register is full**

Explanation: There is no more room in the internal attribute group register. All subsequent attribute groups will not be registered with TEP.

Operator response: Contact IBM Support.

KRS0013E *id* **Attribute group module** *module* **not found**

Explanation: One or more attribute groups require the indicated load module *module* and it could not be found or loaded.

Operator response: Verify that the indicated load module can be found in either the JOBLIB or STEPLIB data sets or the z/OS system linklist. A server restart will be required to resolve the problem.

KRS0014I *id* **Attribute group** *group* **assigned handle** *handle*

Explanation: The indicated attribute group *group* has been assigned the indicated handle *handle*.

Note: This message is only shown for MsgLevel(1) and above.

Operator response: No action is required.

KRS0015I *id* **Attribute group** *group* **inactivated**

Explanation: The indicated attribute group *group* has been inactivated and no further requests will be handled. This message is normally issued during server termination.

Operator response: No action is required.

KRS0016E *id* **Attribute group** *group* **already registered**

Explanation: An attempt to register the indicated attribute group *group* has been made when there is already one of the same name registered. The register request will be refused.

Operator response: Contact IBM Support.

KRS0017I *id* **Attribute group** *group* **registered with TEMA**

Explanation: An attempt to register the indicated attribute group *group* has been made successfully. Data can now flow between TEP and the TEDA server for this attribute group.

Operator response: No action is required.

KRS0018I *id* **Attribute group registration complete for** *agent*

Explanation: The indicated agent *agent* has completed its registration phase.

Operator response: No action is required.

KRS0019I *id text*

Explanation: This message is issued in response to a Take Action TEP request. The text of *text* varies depending on the context of the action.

Operator response: It is intended that this message is processed by your automated operations software.

KRS0020W *id* **Agent** *agent* **has no associated attribute groups**

Explanation: The indicated agent *agent* has completed its registration phase and has not registered any attribute groups. This happens when all of the attribute groups are asynchronous in nature (pure event table) but the KppSYNC agent is defined so that it can respond to the TEP shutdown requests.

Operator response: No action is required.

KRS0021W *id* **TaskRequest received but no handler defined for** *product*

Explanation: A take action request from TEP has been received for this product but there are no take action handlers defined for this product.

Operator response: Contact IBM Support.

KRS0030W TEDA Kpp not found - Retrying every 60 seconds

Explanation: The KppSIGNL utility program could not find the TEDA server specified on the runtime parameter. It will retry in 60 seconds.

Operator response: Start the indicated TEDA server.

KRS0031E TEDA Kpp not found and maximum retry attempts exceeded

Explanation: The KppSIGNL utility program could not find the TEDA server specified on the runtime parameter and the maximum number of retry attempts has been exceeded. The KppSIGNL program will terminate with a return code of 8.

Operator response: Start the indicated TEDA server.

KRS0032W TEDA Kpp not found - Retry or Cancel (R/C)

Explanation: The KppSIGNL utility program could not find the TEDA server specified on the runtime parameter and RETRY(WTOR) was either specified or defaulted to.

Operator response: Start the TEDA server indicated. Specify **R** to retry or **C** to cancel the wait for the TEDA server.

KRS0033W TEDA Kpp not found and retry cancelled by operator

Explanation: The KppSIGNL utility program could not find the TEDA server specified on the runtime parameter and RETRY(WTOR) was either specified or defaulted to. The operator then replied **C** to Kpp0032W.

Operator response: No action is required.

KRS0034I Signal service failed RC=*rc* RSN=*rsn*

Explanation: The KppSIGNL utility program failed with the indicated return code *rc* and reason code *rsn*.

Operator response: Examine any previous messages issued by the KppSIGNL utility.

KRS0035W Signal *signal* not found for *teda*

Explanation: The KppSIGNL utility program could not find the indicated signal *signal* the TEDA *teda*.

Operator response: Check that the signal name is correct and has been defined as a resource for the TEDA server.

KRS0036I Signal *signal* updated for *teda*

Explanation: The KppSIGNL utility program found the indicated signal *signal* for the TEDA *teda* and its value has been updated.

Operator response: No action is required.

KRS0053I *id agent* initializing

Explanation: The indicated agent *agent* is initializing.

Operator response: No action is required.

KRS0054I *id agent* initialization complete

Explanation: The indicated agent *agent* has completed its initialization phase.

Operator response: No action is required.

KRS0055W *id agent* invalid runtime keyword *keyword* ignored

Explanation: The indicated agent *agent* has encountered an invalid runtime keyword *keyword*. The keyword will be ignored.

Operator response: Correct the specification of the runtime keyword or contact IBM Support. A server restart will be required to resolve the problem.

KRS0056I *id agent* terminating

Explanation: The indicated agent *agent* is terminating.

Operator response: No action is required.

KRS0057I *id agent* termination complete

Explanation: The indicated agent *agent* has completed its termination phase.

Operator response: No action is required.

KRS0059I *id* Current user ASID *id* Jobname *Jobname*

Explanation: During shutdown, the TEDA server has detected that some address spaces that still have outstanding active connections. Each address space is listed by the Kpp0059I message. The TEDA server will retry shutdown in 30 seconds.

Operator response: No action is required.

KRS0060I *id* **There are no current users**

Explanation: During shutdown, the TEDA server has detected that there are no current connections—termination can now proceed.

Operator response: No action is required.

KRS0062E *id* **Operating system level not supported**

Explanation: The TEDA server has detected a level of z/OS that is not supported. The server will terminate.

Operator response: Check the installation instructions for the software prerequisites.

KRS0063E *id* **Architecture level not supported**

Explanation: The TEDA server has detected a level of hardware that is not supported. The server will terminate.

Operator response: Check the installation instructions for the hardware prerequisites.

KRS0064W *id* **Shutdown prevented by active users : Retry/Ignore (R, I)**

Explanation: The TEDA server shutdown is prevented because there are still active sessions with other address spaces. The TEDA server will automatically retry every 30 seconds if the operator does not reply to this message.

Operator response: Reply **R** to retry or **I** to ignore. Replying **I** should be used with extreme caution and only in an emergency situation or when the z/OS system is being shutdown in preparation for an IPL. If you specify **I**, the TEDA server termination will remove critical resources from the system without attempting normal serialization and it will not free the common storage control blocks — leaving approximately 240K of orphaned E-CSA. The TEDA server will also not be able to restart until the address spaces that were in session have completely disconnected. Therefore, it is strongly recommended that you reply **R** or wait for the TEDA server to retry every 30 seconds.

KRS0074I *id* **TEDA initialization complete**

Explanation: The TEDA server has successfully completed its initialization phase.

Operator response: No action is required.

KRS0075I *id* **Waiting for active connections to terminate**

Explanation: The TEDA server is terminating but cannot continue until all active connections are terminated. If active connections are present, message KRH0064W will be issued.

Operator response: No action is required.

KRS0078I *id* **TEDA shutdown proceeding**

Explanation: The TEDA server is shutting down and is about to pass control to its termination routines.

Operator response: No action is required.

KRS0080I *id* **TEDA removing services**

Explanation: All active connections are terminated. The TEDA server is now removing internal services.

Operator response: No action is required.

KRS0082I *id* **Dataspace** *dataspace* **created successfully**

Explanation: The indicated dataspace *dataspace* has been successfully created.

Note: This message is only shown for MsgLevel(1) and above.

Operator response: No action is required.

KRS0083I *id* **Dataspace** *dataspace* **removed**

Explanation: The indicated dataspace *dataspace* has been successfully removed.

Note: This message is only shown for MsgLevel(1) and above.

Operator response: No action is required.

KRS0085E *id* **Required keywords not specified**

Explanation: Required keywords on the TEDA server modify command were not specified.

Operator response: Check the TEDA server modify command syntax and re-specify the required keywords.

KRS0086E *id* **Unknown server** *server* **specified**

Explanation: An agent specified a server *server* that is not valid.

Operator response: Correct the agent statement and restart the server.

KRS0088I *id* **Command accepted**

Explanation: The TEDA server operator command has been accepted.

Operator response: No action is required.

KRS0089E *id* **Invalid command** *command*

Explanation: The TEDA server operator command *command* is not valid.

Operator response: Check the TEDA server modify command syntax and re-issue the command.

KRS0090I *id* **TEDA starting**

Explanation: The TEDA server is starting.

Operator response: No action is required.

KRS0092I *id* **Server** *server* **control task terminated**

Explanation: The indicated server *server* control task has terminated.

Operator response: No action is required.

KRS0093E *id* **Server** *server* **already stopped**

Explanation: An attempt was made to stop a server that was already stopped. The request was ignored.

Operator response:

KRS0097I *id* **Agent** *agent* **in server** *server* **quiesced**

Explanation: The indicated agent named *agent* in server *server* is now quiesced. This message is issued for all matching agents when the TEDA server quiesce command has been issued. If the agent code supports the quiesce command, it will cease activity until its is resumed.

Operator response: No action is required.

KRS0098I *id* **Agent** *agent* **in server** *server* **already quiesced - no action taken**

Explanation: The indicated agent named *agent* in server *server* was already quiesced when a new attempt to quiesce it was received. No action was taken.

Operator response: No action is required.

KRS0099I *id* **No matches for Agent** *agent* **in server** *server*

Explanation: There was no matches for the agent mask *agent* for the indicated server *server*.

Operator response: Re-specify the AGENT() keyword on the TEDA server operator modify command.

KRS0100I *id* **No action taken for agent** *agent* **in server** *server*

Explanation: There was no actions taken against any agent *agent* in the indicated server *server*. This is usually caused by the agents already being in the desired state when the quiesce or resume commands were issued.

Operator response: Verify that the correct modify command was issued to the TEDA server.

KRS0102I *id* **Agent task name** *agent* **heartbeat**

Explanation: Trace message written by the indicated agent *agent* when the MsgLevel is greater than 0.

Operator response: No action is required.

KRS0103E *id* **Common Dataspace** *dataspace* **ALESERV failed RC=***rc*

Explanation: During initialization the TEDA server could not perform the ALESERV ADD for the TEDA common dataspace. All SMF record intercept functions will be disabled.

Operator response: Contact IBM Support.

KRS0104E *id* **Required** *type name* **missing**

Explanation: The required object of type *type* named *name* could not be found.

Operator response: Ensure that the associated statement is present in the KppSHRxx or KppPRDxx member. A server restart will be required to resolve the problem.

KRS0105E *id* **Required keyword** *type* **missing for** *command*

Explanation: The required keyword of type *type* is missing for the operator modify command *command*.

Operator response: Verify the syntax of the modify command and re-issue the command.

KRS0107I *id agent msgtext*

Explanation: Trace message written by the indicated agent *agent* when the MsgLevel is greater than 0.

Operator response: No action is required.

KRS0109I *id* **Agent task name** *agent* **terminated RC=***rc*

Explanation: The indicated agent *agent* has terminated with the specified return code *rc*.

Operator response: If the return code is non-zero and unexpected please contact IBM Support.

KRS0115I *id* **Agent** *agent* **: Quiesced(Y/N) Address (***address***)**

Explanation: Issued as the response from the `D AGENT(mask)` modify command, this message shows the quiesced state and the address *address* in common storage of the agent block for the indicated agent *agent*.

Operator response: No action is required.

KRS0118I *id* **Agent** *agent* **in server** *server* **resumed**

Explanation: The indicated agent *agent* in server *server* has been resumed and will restart its work.

Operator response: No action is required.

KRS0119I *id* **Agent** *agent* **in server** *server* **already active - no action taken**

Explanation: The indicated agent *agent* in server *server* is already active and an attempt was made to resume it. The request is ignored.

Operator response: Ensure that the `R AGENT(mask)` command was issued correctly.

KRS0126I *id* **IBM Tivoli/***product* **TEDA** *version*

Explanation: The version *version* or the IBM Tivoli product *product* shown at TEDA server startup.

Operator response: No action is required.

KRS0127I *id* **Agent task name** *agent* **initialization complete**

Explanation: The indicated agent *agent* has completed its initialization phase.

Operator response: No action is required.

KRS0134E *id* **Unknown keyword** *keyword*

Explanation: An unknown keyword was discovered in the TEDA KppPRDxx or KppSHRxx member or as part of the `T AGENT(mask)` operator command.

Operator response: Re-specify the keyword and restart the server or re-issue the operator command.

KRS0135E *id* **Error in statement :** *statement*

Explanation: During the process of reading the KppPRDxx and KppSHRxx members, the TEDA server encountered one or more errors in the statement shown *statement*.

Operator response: Examine earlier messages that explain the errors discovered.

KRS0143E *id* **One or more parameters missing from the** *type* **statement**

Explanation: During the process of reading the KppPRDxx and KppSHRxx members, the TEDA server encountered one or more missing parameters for the indicated statement type *type*.

Operator response: Correct the statement in error and restart the TEDA server.

KRS0144E *id* **Dataspace** *dataspace* **DSPSERV failed RC=***rc* **RSN=***rsn*

Explanation: During the creation of the indicated dataspace *dataspace*, the DSPSERV service failed with return code *rc* and reason code *rsn*.

Operator response: Contact IBM Support.

KRS0145E *id* **ALESERV failed RC=***rc*

Explanation: During an attempt to add a dataspace ALET to the access list, the ALESERV service failed with return code *rc*.

Operator response: Contact IBM Support.

KRS0147I *id* **Agent task name** *agent* **initializing**

Explanation: The indicated agent *agent* is beginning its initialization phase.

Operator response: No action is required.

KRS0151E *id* **Required keyword** *keyword* **missing from** *type* **for** *agent*

Explanation: During the process of reading the KppPRDxx and KppSHRxx members, the required keyword *keyword* was missing from the statement type *type* for the indicated agent *agent*.

Operator response: Correct the statement in error and restart the TEDA server.

KRS0152I *id* **Module** *module* **loaded successfully at address** *address*

Explanation: The indicated load module *module* has been loaded at address *address*.

Note: This message is only shown for MsgLevel(1) and above.

Operator response: No action is required.

KRS0153E *id* **Agent task name** *agent* **storage obtain failed**

Explanation: The indicated agent *agent* could not obtain the required storage to perform its actions. Processing is suspended and retried during the next sampling interval.

Operator response: Increase the REGION size allocated to the TEDA server.

KRS0157W *id* **Agent task name** *agent* **disabled - maximum restart count exceeded**

Explanation: The indicated agent *agent* has terminated unexpectedly too many times and has exceeded its Restart() value. The agent will not be restarted.

Operator response: Examine the cause of the unexpected termination and contact IBM Support.

KRS0161E *id* **Fatal error** *error* **in module** *module*

Explanation: There has been a non-recoverable error *error* in server module *module*. The TEDA server will terminate.

Operator response: Contact IBM support.

KRS0162I *id* **Agent** *agent* **in server TEDA updated with new value**

Explanation: The indicated agent *agent* has been updated with a new value using the `SET` modify operator command.

Operator response: No action is required.

KRS0164E *id* **Agent task name** *agent* **data collection failed RC=***rc* **RSN=***rsn*

Explanation: The indicated agent *agent* has encountered problems during its data collection processing, the return code *rc* and reason code *rsn* is shown.

Operator response: Contact IBM Support.

KRS0166I *id* **PC Routine** *routine* **installed for index** *index*

Explanation: The indicated PC Routine *routine* has been installed and its index value *index* is shown.

Note: This message is only shown for MsgLevel(1) and above.

Operator response: No action is required.

KRS0167I *id* **Invoking initialization routine** *routine*

Explanation: The indicated initialization routine *routine* has been invoked.

Note: This message is only shown for MsgLevel(1) and above.

Operator response: No action is required.

KRS0168I *id* **Invoking termination routine** *routine*

Explanation: The indicated termination routine *routine* has been invoked.

Note: This message is only shown for MsgLevel(1) and above.

Operator response: No action is required.

KRS0176I *id* **Dealt SMF record type** *number*

Explanation: The SMF record number *number* has been intercepted by the TEDA server and successfully dealt to a SMF record handler agent.

Note: This message is only shown for MsgLevel(1) and above.

Operator response: No action is required.

KRS0177W *id* **Discarded SMF record type** *number*

Explanation: The SMF record number *number* has been intercepted by the TEDA server but was not given to any interested SMF record handler agent.

Note: This message is only shown for MsgLevel(1) and above.

Operator response: No action is required.

KRS0180E *id* **No supplied parameters for** *statement*

Explanation: During the process of reading the KppPRDxx and KppSHRxx members, the indicated statement *statement* did not contain any valid parameters.

Operator response: Refer to the Monitoring Agent Planning and Configuration Guide for more information on the keywords and expected values and formats. Correct the statement and restart the TEDA server.

KRS0181E *id* **Maximum number of** *object* **reached**

Explanation: The maximum number of items has been reached for the indicated object *object*. All following items of the same type will be ignored.

Operator response: Contact IBM Support.

KRS0182E *id* **Invalid length of** *keyword_or_statement*

Explanation: An invalid length was detected for the indicated keyword or statement *keyword_or_statement*.

Operator response: Refer to the Monitoring Agent Planning and Configuration Guide for more information on the keywords and expected values and formats. Re-specify the keyword with valid values.

KRS0183E *id* **Non-Hexadecimal characters in** *keyword*

Explanation: A keyword *keyword* was expecting only hexadecimal characters (0-9 and A-F) its value, however non-hexadecimal characters have been detected.

Operator response: Refer to the Monitoring Agent Planning and Configuration Guide for more information on the keywords and expected values and formats. Re-specify the keyword with valid values.

KRS0184E *id* **Value of** *value* **greater than maximum allowed** *maximum*

Explanation: The keyword value *value* is greater than the allowed maximum *maximum*. The value is rejected.

Operator response: Refer to the Monitoring Agent Planning and Configuration Guide for more information on the keywords and expected values and formats. Re-specify the keyword with valid values.

KRS0185E *id* **Value of** *value* **less than minimum allowed** *minimum*

Explanation: The keyword value *value* is less than the allowed minimum *minimum*. The value is rejected.

Operator response: Refer to the Monitoring Agent Planning and Configuration Guide for more information on the keywords and expected values and formats. Re-specify the keyword with valid values.

KRS0186E *id* **Non-Numeric characters in** *keyword*

Explanation: A keyword *keyword* was expecting only numerical characters (0-9) in its value, however non-numerical characters have been detected.

Operator response: Refer to the Monitoring Agent Planning and Configuration Guide for more information on the keywords and expected values and formats. Re-specify the keyword with valid values.

KRS0187E *id* **Invalid time specification in** *keyword*

Explanation: A keyword was expecting a time format value and it detected an invalid value. The time format is : hh:mm:ss.th with all leading zeros included.

Operator response: Refer to the Monitoring Agent Planning and Configuration Guide for more information on the keywords and expected values and formats. Re-specify the keyword with valid values.

KRS0188E *id* **Invalid range specification in** *keyword*

Explanation: The value in keyword *keyword* is not in a valid range as required by the keyword.

Operator response: Refer to the Monitoring Agent Planning and Configuration Guide for more information on the keywords and expected values and formats. Re-specify the keyword with valid values.

KRS0189E *id* **Invalid value specification in** *keyword*

Explanation: The value in keyword *keyword* is invalid.

Operator response: Refer to the Monitoring Agent Planning and Configuration Guide for more information on the keywords and expected values and formats. Re-specify the keyword with valid values.

KRS0190W *id* **Bad statement found : Abort, Continue or Ignore (A,C,I)**

Explanation: During the process of reading the KppPRDxx and KppSHRxx members, there has been an error encountered in at least one statement.

Operator response: Examine earlier error messages to determine the reason for the failure. Refer to the Monitoring Agent Planning and Configuration Guide for more information on the keywords and expected values and formats. Reply with one of the following choices :

- A — Abort the server startup.
- C — Continue with startup and ignore this statement only.
- I — Continue with startup and ignore all following statement errors.

KRS0191E *id* **Load failed for module** *module* **RC=***rc* **RSN=***rsn*

Explanation: The indicated load module *module* could not be loaded. The return code *rc* and reason code *rsn* is shown.

Operator response: Verify that the indicated load module can be found in either the JOBLIB or STEPLIB data sets or the z/OS system linklist. A server restart will be required to resolve the problem.

KRS0192E *id* **Invalid reply**

Explanation: The reply to the TEDA server WTOR did not match one of the valid value. The reply will be ignored.

Operator response: Reply to the WTOR with one of the listed values.

KRS0194I *id* **Server Abend** *ac* **RSN=***rsn*

Explanation: The TEDA server abended with the indicated abend code *ac* and reason code *rsn*.

Operator response: Please contact IBM Support.

KRS0195I *id* **SMF Exit** *exit* **installed successfully**

Explanation: The indicated SMF exit *exit* has been installed successfully.

Operator response: No action is required.

KRS0196E *id* **CSVDYNEX DEFINE for** *exit* **failed RC=***rc* **RSN=***rsn*

Explanation: During the DEFINE for the indicated SMF exit *exit*, the TEDA server received an unexpected return code *rc* and reason code *rsn*.

Operator response: Please contact IBM Support.

KRS0197E *id* **CSVDYNEX ADD for** *exit* **failed RC=***rc* **RSN=***rsn*

Explanation: During the ADD for the indicated SMF exit *exit*, the TEDA server received an unexpected return code *rc* and reason code *rsn*.

Operator response: Please contact IBM Support.

KRS0198E *id* **Service** *service* **failed RC=***rc* **RSN=***rsn*

Explanation: The indicated service *service* failed with return code *rc* and reason code *rsn*.

Operator response: Please contact IBM Support.

KRS0999I *id msgtext*

Explanation: This is a trace message written by the various agents when the MsgLevel is greater than 0.

Operator response: No action is required.

Appendix C. Accessibility

Accessibility features help users with physical disabilities, such as restricted mobility or limited vision, to use software products successfully. The major accessibility features in this product enable users to do the following:

- Use assistive technologies, such as screen-reader software and digital speech synthesizer, to hear what is displayed on the screen. Consult the product documentation of the assistive technology for details on using those technologies with this product.
- Operate specific or equivalent features using only the keyboard.
- Magnify what is displayed on the screen.

In addition, the product documentation was modified to include the following features to aid accessibility:

- All documentation is available in both HTML and convertible PDF formats to give the maximum opportunity for users to apply screen-reader software.
- All images in the documentation are provided with alternative text so that users with vision impairments can understand the contents of the images.

Navigating the interface using the keyboard

Standard shortcut and accelerator keys are used by the product and are documented by the operating system. See the documentation provided by your operating system for more information.

Magnifying what is displayed on the screen

You can enlarge information on the product windows using facilities provided by the operating systems on which the product is run. For example, in a Microsoft® Windows environment, you can lower the resolution of the screen to enlarge the font sizes of the text on the screen. See the documentation provided by your operating system for more information.

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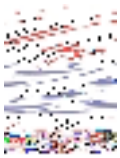

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