Warehouse Proxy Agent
Version 6.3

User's Guide

SC22-5456-00

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Note
Before using this information and the product it supports, read the information in "Notices" on page 95.

This edition applies to version 6, release 3 of IBM Tivoli Monitoring (product number 5724-C04) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. Overview of the agent

The Warehouse Proxy Agent is a unique agent that performs only one task: collecting and consolidating all historical data from the individual agents to store in the Tivoli® Data Warehouse. If you are using the Tivoli Data Warehouse, at least one Warehouse Proxy Agent is required for each Tivoli Monitoring installation..

IBM® Tivoli Monitoring overview

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 achieve 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 take actions, schedule work, and automate manual tasks.

The Tivoli Enterprise Portal is the interface for IBM Tivoli Monitoring products. You can use the consolidated view of your environment as seen in the Tivoli Enterprise Portal to monitor and resolve performance issues throughout the enterprise.

See the IBM Tivoli Monitoring publications listed in “Documentation for the base agents” on page 88 for complete information about IBM Tivoli Monitoring and the Tivoli Enterprise Portal.

New in this release

For version 6.3 of this monitoring agent, the following enhancements have been made since version 6.2.3, including the fix packs:

- New attributes, Average Queue Time (Minutes), Queue Timeout Consumed (Percent), and Percent Work Queue Filled, have been added to the Work Queue attribute group.
- New product-provided situations, KHD_Queue_Time_Warning, KHD_Queue_Fill_Warning, and KHD_Queue_Fill_Critical, have been added.
- New attributes, Managed System Count Hour, Managed System Count 12 Hour, Managed System Count 24 Hour, and Managed System Count Older, have been added to the Load Statistics attribute group.
- New agent parameters, Database Table Partitioning, Number of future partitions to maintain, Default table container, Default index container, have been added as Configuration values.
- New attributes, Table Partitioning, Forward Partitions, Default Table Container, and Default Index Container, have been added to the Config attribute group.
- New view, Database Table Information, has been added to the Configuration workspace.

Components of the IBM Tivoli Monitoring environment

After you install and set up the Warehouse Proxy agent, you have an environment that contains the client, server, and monitoring agent implementation for IBM Tivoli Monitoring.

This IBM Tivoli Monitoring environment contains the following components:

Tivoli Enterprise Portal client
The portal has a user interface based on Java™ for viewing and monitoring your enterprise.

Tivoli Enterprise Portal Server
The portal server 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
The monitoring server 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.

IBM Tivoli Enterprise Console
The Tivoli Enterprise Console® is an optional component that acts as a central collection point for events from a variety of sources, including events 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 (by using the event viewer), and you can forward events from IBM Tivoli Monitoring situations to the Tivoli Enterprise Console component.

IBM Tivoli Netcool/OMNIbus
Tivoli Netcool/OMNIbus is an optional component and an alternative to the Tivoli Enterprise Console. The Netcool/OMNIbus software is a service level management (SLM) system that delivers real-time, centralized monitoring of complex networks and IT domains. The Tivoli Netcool/OMNIbus components work together to collect and manage network event information.

Tivoli Common Reporting
Tivoli Common Reporting is a separately installable feature available to users of Tivoli software that provides a consistent approach to generating and customizing reports. Some individual products provide reports that are designed for use with Tivoli Common Reporting and have a consistent look and feel.

Agent Management Services

You can use IBM Tivoli Monitoring Agent Management Services to manage the Warehouse Proxy agent.

Agent Management Services is available for the following IBM Tivoli Monitoring OS agents: Windows, Linux, and UNIX. The services are designed to keep the Warehouse Proxy agent available, and to provide information about the status of the product to the Tivoli Enterprise Portal. For more information about Agent Management Services, see "Agent Management Services" in the *IBM Tivoli Monitoring Administrator's Guide*.

User interface options

Installation of the base IBM Tivoli Monitoring software and other integrated applications provides a variety of interfaces that you can use to work with your resources and data.

The following interfaces are available:

Tivoli Enterprise Portal user interface
You can run the Tivoli Enterprise Portal as a desktop application or a browser application. The client interface is a graphical user interface (GUI) based on Java on a Windows or Linux workstation. The browser application is automatically installed with the Tivoli Enterprise Portal Server. The desktop application is installed by using the Tivoli Monitoring installation media or with a Java Web Start application. 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.

Command-line interface
You can use IBM Tivoli Monitoring commands to manage the Tivoli Monitoring components and their configuration. You can also run commands at the Tivoli Enterprise Console event server or the Tivoli Netcool/OMNIbus ObjectServer to configure event synchronization for enterprise situations.

Manage Tivoli Enterprise Monitoring Services window
You can use the window for the Manage Tivoli Enterprise Monitoring Services utility to configure the agent and start Tivoli services not designated to start automatically.

IBM Tivoli Enterprise Console
You can use the Tivoli Enterprise Console to help ensure the optimal availability of an IT service for an organization. The Tivoli Enterprise Console is an event management application that integrates system, network, database, and application management.

IBM Tivoli Netcool/OMNIbus event list
You can use the event list to monitor and manage alerts. An alert is created when the ObjectServer receives an event, alarm, message, or data item. Each alert is made up of columns (or fields) of information that are held in a row in the ObjectServer alerts.status table. The Tivoli Netcool/OMNIbus web GUI is also a web-based application that processes network events from one or more data sources and presents the event data in various graphical formats.

Tivoli Common Reporting
Use the Tivoli Common Reporting web user interface for specifying report parameters and other report properties, generating formatted reports, scheduling reports, and viewing reports. This user interface is based on the Tivoli Integrated Portal.

Data sources

Monitoring agents collect data from specific data sources.

The Warehouse Proxy agent collects data from the following sources:

Scripts

The agent uses application-specific commands and interfaces to gather metrics.

Chapter 2. Agent installation and configuration

Agent installation and configuration requires the use of the *IBM Tivoli Monitoring Installation and Setup Guide* and agent-specific installation and configuration information.

To install and configure the Warehouse Proxy agent, use the "Installing monitoring agents" procedures in the *IBM Tivoli Monitoring Installation and Setup Guide* along with the agent-specific installation and configuration information.

If you are installing silently by using a response file, see "Performing a silent installation of IBM Tivoli Monitoring" in the *IBM Tivoli Monitoring Installation and Setup Guide*.

With the self-describing agent capability, new or updated IBM Tivoli Monitoring agents using IBM Tivoli Monitoring V6.2.3 or later can become operational after installation without having to perform additional product support installation steps. To take advantage of this capability, see "Enabling self-describing agent capability at the hub monitoring server" in the *IBM Tivoli Monitoring Installation and Setup Guide*. Also, see "Self-describing monitoring agents" in the *IBM Tivoli Monitoring Administrator's Guide*.

In addition to the installation and configuration information in the *IBM Tivoli Monitoring Installation and Setup Guide*, use this agent-specific installation and configuration information to install the Warehouse Proxy agent.

Configuration values

For both local and remote configuration, you provide the configuration values for the agent to operate.

When you are configuring an agent, a panel is displayed so you can enter each value. When a default value exists, this value is pre-entered into the field. If a field represents a password, two entry fields are displayed. You must enter the same value in each field. The values you type are not displayed to help maintain the security of these values.

The configuration for this agent is organized into the following groups:

Database Type (KHD_DB_TYPE)
Choose the database type

The configuration elements defined in this group are always present in the agent's configuration.

This group defines information that applies to the entire agent.

Database (KHD_DBMS)
Database Type

The valid values include "DB2", "ORACLE", "MSSQL" when using addSystem and configureSystem CLIs.

This value is required.

Default value: DB2

Agent Parameters (KHD_PARMS)

Agent Parameters Details

The configuration elements defined in this group are always present in the agent's configuration.

This group defines information that applies to the entire agent.

Use Batch (KHD_BATCH_USE)

Batch Database Operations

The type is checkbox.

This value is optional.

Default value: true

JDBC Driver (KHD_DB2_JDBCDRIVER)

The Warehouse JDBC Driver when connecting to a DB2 Linux/UNIX/Windows, or DB2 z/OS database

The type is string.

This value is required. This setting is only valid for Warehouse Proxy agents that are installed on operating systems other than Windows

Default value: For All UNIX and Linux Operating Systems: com.ibm.db2.jcc.DB2Driver.

JDBC URL (KHD_DB2_JDBCURL)

The Warehouse JDBC URL when connecting to a DB2 Linux/UNIX/Windows, or DB2 z/OS database

The type is string.

This value is required. This setting is only valid for Warehouse Proxy agents that are installed on operating systems other than Windows

Default value: For All UNIX and Linux Operating Systems: jdbc:db2://localhost:50000/WAREHOUS.

Database Compression (KHD_DB_COMPRESSION)

Database Compression option

The type is checkbox.

This value is optional.

Default value: false

JDBC Driver (KHD_MSSQL_JDBCDRIVER)

The Warehouse JDBC Driver when connecting to a Microsoft SQL Server database

The type is string.

This value is required. This setting is only valid for Warehouse Proxy agents that are installed on operating systems other than Windows

Default value: For All UNIX and Linux Operating Systems: com.microsoft.sqlserver.jdbc.SQLServerDriver.

JDBC URL (KHD_MSSQL_JDBCURL)
The Warehouse JDBC URL when connecting to a Microsoft SQL Server database

The type is string.

This value is required. This setting is only valid for Warehouse Proxy agents that are installed on operating systems other than Windows

Default value: For All UNIX and Linux Operating Systems: jdbc:sqlserver://*server*:*port*;databasename=*database*;SelectMethod=cursor.

ODBC DSN (KHD_ODBC_DSN)
The data source name used by the Warehouse Proxy agent

The type is string.

This value is required. This setting is only valid for Warehouse Proxy agents that are installed on Windows operating systems.

Default value: For All Windows Operating Systems: ITM Warehouse.

JDBC Driver (KHD_ORACLE_JDBCDRIVER)
The Warehouse JDBC Driver when connecting to an Oracle database

The type is string.

This value is required. This setting is only valid for Warehouse Proxy agents that are installed on operating systems other than Windows.

Default value: For All UNIX and Linux Operating Systems: oracle.jdbc.driver.OracleDriver.

JDBC URL (KHD_ORACLE_JDBCURL)
The Warehouse JDBC URL when connecting to an Oracle database

The type is string.

This value is required. This setting is only valid for Warehouse Proxy agents that are installed on operating systems other than Windows.

Default value: For All UNIX and Linux Operating Systems: jdbc:oracle:thin:@*server*:*port*:*database*.

Warehouse Compression for Distributed Sources (KHD_SERVER_DIST_COMPRESSION_ENABLE)
Enable the compression of historical data from distributed sources before upload to the Warehouse Proxy Server

The type is checkbox.

This value is optional.

Default value: true

Warehouse Compression for Z/OS Sources (KHD_SERVER_Z_COMPRESSION_ENABLE)
Enable the compression of historical data from Z/OS sources before upload to the Warehouse Proxy Server

The type is checkbox.

This value is optional.

Default value: false

JDBC JARs List (KHD_WAREHOUSE_JARS)
Fully qualified paths to JDBC JAR files (comma separated)

The type is string.

This value is required.

Default value: None

Password (KHD_WAREHOUSE_PASSWORD)
The Warehouse database user password

The type is password.

This value is required.

Default value: None

Warehouse TEMS List (KHD_WAREHOUSE_TEMS_LIST)
Space or comma separated list of Tivoli Enterprise Monitoring Server instances served by this Warehouse Proxy agent. *ANY can be specified if this Warehouse Proxy agent will export data of any agents connected to any TEMS. If the list is left blank, this Warehouse Proxy agent will be the default Warehouse proxy agent.

The type is string.

This value is optional.

Default value: None

Username (KHD_WAREHOUSE_USER)
The Warehouse database username

The type is string.

This value is required.

Default value: ITMUSER

Database Table Partitioning (KHD_PARTITION)
Enable the usage of table partitioning, if supported.

The type is checkbox.

This value is required.

Default value: false

Number of future partitions to maintain (KHD_PARTITIONS_UPWARD)
Define the number of partitions in the future that should be created. Valid values are between 1 and 10.

The type is numeric.

This value is required.

Default value: 10

Default table container (KHD_DEFAULT_TABLE_CONTAINER)
Define the default table container which should be used when creating new tables. The value must follow the naming rules of the

database system being used. A blank value causes the database to select the container in which the table will be created.

The type is string.

This value is optional.

Default value: None

Default index container (KHD_DEFAULT_INDEX_CONTAINER)
Define the default index container which should be used when creating new tables. Use this to place indices in a separate container from tables. The value must follow the naming rules of the database system being used. For DB2, if indices are stored in a separate tablespace from the table data, both the table and index containers must be Database Managed Tablespaces.

The type is string.

This value is optional.

Default value: None

Disable data warehouse log tables

With IBM Tivoli Monitoring v6.2.3, there is now the ability to disable the creation of the data warehouse log tables so that fewer database resources are needed. This is the now the default configuration for both the Warehouse Proxy Agent and the Summarization and Pruning Agents. If upgrading from an existing installation, you can truncate the existing tables in the database to allow their storage space to be reclaimed.

About this task

If you want to revert to the previous behavior the configuration files need to be edited. For the Warehouse Proxy Agent, edit the Warehouse Proxy Agent configuration file (hd.ini on UNIX and Linux systems, KHDENV on Windows systems) and change the variable KHD_WHLOG_ENABLE to Y. The default value is N.

Remote installation and configuration

You can install the monitoring agent remotely from the Tivoli Enterprise Portal or from the command line.

When installing the agent remotely, you must provide the configuration values for the agent to operate. See “Configuration values” on page 5.

To install from the portal, see the *IBM Tivoli Monitoring Installation and Setup Guide*.

To remotely install or configure an agent through the Tivoli Enterprise Portal, you must have installed the application support for that agent (Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal). You must also have installed the agent bundle into the Remote Deploy Depot. Use the **addBundles** command to populate the depot.

For information about displaying the configuration options that are available to use with the **configureSystem** or **addSystem** commands, see "tacmd describeSystemType" in the *IBM Tivoli Monitoring Command Reference*.

If you are using the command line, the following command is an example of remote installation and configuration for Windows operating systems: After performing a remote configuration

```
tacmd addSystem -t HD -n Primary:sample.node.name:NT
-p KHD_DB_TYPE.KHD_DBMS=value
KHD_PARMS.KHD_BATCH_USE=value
KHD_PARMS.KHD_DB2_JDBCDRIVER=value
KHD_PARMS.KHD_DB2_JDBCURL=value
KHD_PARMS.KHD_DB_COMPRESSION=value
KHD_PARMS.KHD_MSSQL_JDBCDRIVER=value
KHD_PARMS.KHD_MSSQL_JDBCURL=value
KHD_PARMS.KHD_ODBC_DSN=value
KHD_PARMS.KHD_ORACLE_JDBCDRIVER=value
KHD_PARMS.KHD_ORACLE_JDBCURL=value
KHD_PARMS.KHD_SERVER_DIST_COMPRESSION_ENABLE=value
KHD_PARMS.KHD_SERVER_Z_COMPRESSION_ENABLE=value
KHD_PARMS.KHD_WAREHOUSE_JARS=value
KHD_PARMS.KHD_WAREHOUSE_PASSWORD=value
KHD_PARMS.KHD_WAREHOUSE_TEMS_LIST=value
KHD_PARMS.KHD_WAREHOUSE_USER=value
KHD_PARMS.KHD_PARTITION=value
KHD_PARMS.KHD_PARTITIONS_UPWARD=value
KHD_PARMS.KHD_DEFAULT_TABLE_CONTAINER=value
KHD_PARMS.KHD_DEFAULT_INDEX_CONTAINER=value
```

The following command is an example of using the **configureSystem** command to enable partitioning with 7 partitions forward:

```
tacmd configureSystem -m <WPA managed system name> -p
 KHD_PARMS.KHD_PARTITION=true KHD_PARMS.KHD_PARTITIONS_UPWARD=7
```

Chapter 3. Workspaces reference

A workspace is the working area of the Tivoli Enterprise Portal application window. The Navigator tree that is displayed at the left of the workspace contains a list of the workspaces provided by the agent.

About workspaces

Use the Navigator tree that is displayed at the left of the workspace 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. You can also use the Workspace Gallery tool as described in the *Tivoli Enterprise Portal User's Guide* to open workspaces.

The workspaces in the Navigator are displayed in a Physical view that shows your enterprise as a physical mapping or a dynamically populated logical view that is agent-specific. You can also create a Logical view. The Physical view is the default view.

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.

Workspace views can be any combination of query-based views, event views, and special purpose views.

Additional information about workspaces

For more information about creating, customizing, and working with workspaces, see "Using workspaces" in the *Tivoli Enterprise Portal User's Guide*.

For a list of the predefined workspaces for this monitoring agent and a description of each workspace, see Predefined workspaces and the information about 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 "Attribute groups for the monitoring agent" on page 15.

Predefined workspaces

The Warehouse Proxy agent provides predefined workspaces, which are organized by Navigator item.

- Warehouse Proxy Navigator item
  - Warehouse Proxy workspace
- Configuration Navigator item

  - Agent Registration workspace
  - Configuration workspace
- Statistics Navigator item
  - Internal Statistics workspace
  - Statistics workspace

Workspace descriptions

Each workspace description provides information about the workspace such as the purpose and a list of views in the workspace.

Workspaces are listed under Navigator items.

Warehouse Proxy Navigator item

The workspace descriptions are organized by the Navigator item to which the workspaces are relevant.

Warehouse Proxy workspace
This workspace displays the Warehouse Proxy Agent overview status.

This workspace contains the following views:

Top 10 nodes with the greatest number of exports
Displays the top 10 nodes with the greatest number of exports since the Warehouse Proxy Agent started.

Database Information
Displays the database information: database type, version, driver name, driver version and connectivity status.

10 more recent errors in the last 24 hours
Displays the recent 10 errors that happened to the Warehouse Proxy Agent in the last 24 hours. If applicable, the SQL State and SQL Code are provided. The SQL Code is database specific and documented by the database vendor.

Configuration Navigator item

The workspace descriptions are organized by the Navigator item to which the workspaces are relevant.

Agent Registration workspace
This workspace provides information about the Warehouse Proxy Agent registered addresses.

This workspace contains the following views:

Agent Registration Address List
This view shows the addresses registered by the Warehouse Proxy Agent along with their registration status.

Warehouse TEMS List
This view shows the list of TEMS entries provided in the KHD_WAREHOUSE_TEMS_LIST configuration variable.

Configuration workspace
This workspace displays configuration information about the Warehouse Proxy Agent.

This workspace contains the following views:

Database Information
This view displays the database information configuration variables used by the Warehouse Proxy Agent and status of the database connection.

JDBC Information
This view displays the database JDBC configuration variables used by the Warehouse Proxy Agent.

ODBC Information
This view displays the database ODBC configuration variables used by the Warehouse Proxy Agent.

Agent Information
This view displays the agent configuration variables used by the Warehouse Proxy Agent.

Agent Self Monitoring Variables
This view displays self monitoring configuration variables used by the Warehouse Proxy Agent.

Compression Information
This view displays compression variables used by the Warehouse Proxy Agent.

Database Tables Information
This view displays database table variables used by the Warehouse Proxy Agent.

Statistics Navigator item

The workspace descriptions are organized by the Navigator item to which the workspaces are relevant.

Internal Statistics workspace
This workspace provides internal statistics about the Warehouse Proxy Agent.

This workspace contains the following views:

Work Queue Rates
This view shows the work queue insertion and removal rates.

Work Queue Statistics
This view shows the work queue statistics since the Warehouse Proxy Agent started.

RPCSource Rates
This view shows the RPCSource creation and deletion rates.

RPCSource Statistics
This view shows the RPCSource statistics since the Warehouse Proxy Agent started.

Statistics workspace
This workspace displays statistics about the Warehouse Proxy Agent.

This workspace contains the following views:

Rows Statistics
Displays the rows statistics since the Warehouse Proxy Agent started. This contains the number of rows exported by the agents, the number of rows read by the Warehouse Proxy Agent, and the number of rows inserted into the database. Under normal

operation, the numbers will be same but the number of rows retrieved and sent may be greater than rows inserted when errors occur.

Failures/Disconnections
Displays the number of failures and disconnections since the Warehouse Proxy Agent started.

Row Throughput
Displays the row throughput of the Warehouse Proxy Agent.

Chapter 4. Attributes reference

Attributes are the application properties that are being measured and reported by the Warehouse Proxy Agent.

About attributes

Attributes are organized into attribute groups. Attributes in an attribute group relate to a single object such as an application, or to a single kind of data such as status information.

Attributes in a group can be used in queries, query-based views, situations, policy workflows, take action definitions, and launch application definitions. Chart or table views and situations are two examples of how attributes in a group can be used:

- 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 Properties editor to 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 values you have assigned to the situation attributes are compared with the values collected by the Warehouse Proxy agent and registers an *event* if the condition is met. You are alerted to events by indicator icons that are displayed in the Navigator.

Additional information about attributes

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

For a list of the attribute groups, a list of the attributes in each attribute group, and descriptions of the attributes for this monitoring agent, see "Attribute groups for the monitoring agent" and "Attributes in each attribute group" on page 16.

Attribute groups for the monitoring agent

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

- Attribute group name: Config
  - Table name: KHDCONF
  - Warehouse table name: KHD_CONFIG or KHDCONF
- Attribute group name: DB Info
  - Table name: KHDDBINFO
  - Warehouse table name: KHD_DB_INFO or KHDDBINFO
- Attribute group name: Last Error Details

  - Table name: KHDLASTERR
  - Warehouse table name: KHD_LAST_ERROR_DETAILS or KHDLASTERR
- Attribute group name: Load Statistics
  - Table name: KHDLOADST
  - Warehouse table name: KHD_LOAD_STATISTICS or KHDLOADST
- Attribute group name: Node List
  - Table name: KHDNODELST
  - Warehouse table name: KHD_NODE_LIST or KHDNODELST
- Attribute group name: Registration Address List
  - Table name: KHDRGADLST
  - Warehouse table name: KHD_REGISTRATION_ADDRESS_LIST or KHDRGADLST
- Attribute group name: RPCSource Statistics
  - Table name: KHDRPCS
  - Warehouse table name: KHD_RPCSOURCE_STATISTICS or KHDRPCS
- Attribute group name: Warehouse TEMS List
  - Table name: KHDTEMSLST
  - Warehouse table name: KHD_WAREHOUSE_TEMS_LIST or KHDTEMSLST
- Attribute group name: Work Queue
  - Table name: KHDWORKQ
  - Warehouse table name: KHD_WORK_QUEUE or KHDWORKQ

Attributes in each attribute group

Attributes in each Warehouse Proxy agent attribute group collect data that the agent uses for monitoring.

The descriptions of the attribute groups contain the following information:

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

Attribute descriptions
Description, type, and Warehouse name (if applicable) 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.

Config attribute group

Warehouse Proxy Agent Configuration Information.

Historical group
This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions
The following list contains information about each attribute in the Config attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Warehouse name
NODE

Timestamp attribute

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

Type String

Warehouse name
TIMESTAMP

Start Time attribute

Description
The time the Warehouse Proxy Agent was started.

Type Timestamp

Warehouse name
START_TIME

Work Queue Size attribute

Description
The maximum size of the work queue, set using the variable KHD_QUEUE_LENGTH (the default value is 1000).

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
WORK_QUEUE_SIZE or MAX_WKQ

Worker Threads attribute

Description
The number of worker threads, set using the variable KHD_EXPORT_THREADS (the default value 10).

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
WORKER_THREADS or WK_THRD

Connection Pool Size attribute

Description
The number of connection handles reserved in the pool, set using the variable KHD_CNX_POOL_SIZE (the default value is 10).

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
CONNECTION_POOL_SIZE or MAXCNXPOOL

Export Timeout (Sec) attribute

Description
The number of seconds to process an export before a timeout occurs (this is set using the variable KHD_SRV_STATUSTIMEOUT and the default value is 600 (10 minutes)).

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
EXPORT_TIMEOUT or SRV_TMOUT

RPCSource Cleanup Wait (Sec) attribute

Description
The number of seconds the RPCSource cleanup operation will wait before starting again (this is set using the variable KHD_CLEANUP_WAIT and the default value is 3600 seconds (1 hour)).

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
RPCSOURCE_CLEANUP_WAIT or RPCS_WAIT

Database Connection Wait (Min) attribute

Description
The number of minutes the Warehouse Proxy Agent will wait before retrying a connection to the database if the connection failed (this can be set using the variable KHD_CNX_WAIT and the default value is 10).

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
DATABASE_CONNECTION_WAIT or DB_CNXWAIT

Enable Database Connection Wait attribute

Description
If this is set to Y, then the Warehouse Proxy Agent will wait before retrying a connection to the database if the connection failed during the agent initialization (this can be set using the variable KHD_CNX_WAIT_ENABLE and the default value is Y).

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

- Yes (1)
- No (0)

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

Warehouse name
ENABLE_DATABASE_CONNECTION_WAIT or EN_DB_WAIT

Batch attribute

Description
This indicates if the batch option is used or not (this can be set using the variable KHD_BATCH_USE and the default value is Y).

Type Integer with enumerated values. The strings are displayed

in the Tivoli Enterprise Portal when one is defined for the value. The warehouse and queries return the values shown in parentheses. The following values are defined:

- Yes (1)
- No (0)

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

Warehouse name
BATCH or BATCH_USE

Always Disconnect Option attribute

Description
If the variable KHD_ALWAYS_DISCONNECT is set to Y, then the Warehouse proxy Agent will disconnect from the database after each transaction even if no error happened (this should only be used for debugging purposes).

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

- Yes (1)
- No (0)

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

Warehouse name
ALWAYS_DISCONNECT_OPTION or ALWYS_DSC

KBB SIG1 attribute

Description
This indicates which signals are handled.

Type String

Warehouse name
KBB_SIG1

Rate Wait Interval (Sec) attribute

Description
Time in seconds the Warehouse Proxy Agent is queried to calculate rate (this can be set using the variable KHD_RATE_WAIT and the default value is 30 seconds).

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
RATE_WAIT_INTERVAL or MW_RTWAIT

Registration Wait Interval (Min) attribute

Description
Time in minutes the Warehouse Proxy Agent is waiting before retrying to register itself (this can be set using the variable KHD_REGCHK_WAIT and the default value is 15 minutes).

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
REGISTRATION_WAIT_INTERVAL or REGCHKWAIT

Error Time (Min) attribute

Description
If an error is older than this number of minutes, then it will not be displayed (this can be set using the variable KHD_MOSWOS_ERROR_VALID_TIME and the default value is 1440 minutes (24 hours)).

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
ERROR_TIME or MW_ERRTIME

Max Error attribute

Description
The maximum number of errors kept in memory (this can be set using the variable KHD_MOSWOS_MAX_ERROR and the default value is 10).

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
MAX_ERROR or MW_MAXERR

Max Node attribute

Description
The maximum number of nodes kept in memory (this can be set using the variable KHD_MOSWOS_MAX_NODE and the default value is 10).

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
MAX_NODE or MW_MAXNODE

Database Compression attribute

Description
This indicates whether database compression should be used (this can be set using the variable KHD_DB_COMPRESSION and the default value is N).

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

- Yes (1)
- No (0)

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

Warehouse name
DATABASE_COMPRESSION or DB_COMP

Warehouse Compression Z Sources attribute

Description
This indicates whether historical data from Z sources will be compressed before upload (this can be set using the variable KHD_SERVER_Z_COMPRESSION_ENABLE and the default value is N).

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

- Yes (1)
- No (0)

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

Warehouse name
WAREHOUSE_COMPRESSION_Z_SOURCES or WH_Z_COMP

Warehouse Compression Distributed Sources attribute

Description
This indicates whether historical data from distributed sources will be compressed before upload (this can be set using the variable KHD_SERVER_DIST_COMPRESSION_ENABLE and the default value is Y).

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

- Yes (1)
- No (0)

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

Warehouse name
WAREHOUSE_COMPRESSION_DISTRIBUTED_SOURCES or WH_D_COMP

Table Partitioning attribute

Description
This indicates whether partitioning is or is not enabled and can be set using the variable KHD_PARTITION. The default value is N. Partitioning is not supported for MSSQL warehouse databases.

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

- Yes (1)
- No (0)

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

Warehouse name
TABLE_PARTITIONING or PARTENBL

Forward Partitions attribute

Description
Number of partitions in the future that should be created. It can be set using the variable KHD_PARTITIONS_UPWARD. The default value is 10. The minimum value is 1.

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal

when one is defined for the value. 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.

Warehouse name
FORWARD_PARTITIONS or PRTUPWRD

Default Table Container attribute

Description
This indicates the default table container which should be used when creating new tables. It can be set using the variable KHD_DEFAULT_TABLE_CONTAINER. This is not supported for MSSQL, nor DB2 Z/OS databases.

Type String.

Warehouse name
DEFAULT_TABLE_CONTAINER or TBLTBSP

Default Index Container attribute

Description
This indicates the default Index container which should be used when creating new tables. It can be set using the variable KHD_DEFAULT_INDEX_CONTAINER. This is not supported for MSSQL, nor DB2 Z/OS databases.

Type String.

Warehouse name
DEFAULT_INDEX_CONTAINER or IDXTBSP

DB Info attribute group

Database Information.

Historical group
This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions
The following list contains information about each attribute in the DB Info attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Warehouse name
NODE

Timestamp attribute

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

Type String

Warehouse name
TIMESTAMP

DB Type attribute

Description
The product name for the database.

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

- Unknown (0)
- DB2 (1)
- Microsoft SQL Server (2)
- Oracle (3)
- DB2 z/OS (4)

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

Warehouse name
DB_TYPE

DB Version attribute

Description
The database version.

Type String

Warehouse name
DB_VERSION or DB_VER

DB Name attribute

Description
The database name.

Type String

Warehouse name
DB_NAME or DB_NM

DB User attribute

Description
The user name used to connect to the database (this is the first part name of all table names).

Type String

Warehouse name
DB_USER

NLS Settings attribute

Description
The NLS settings for the client connection to the database (for DB2 this is the DB2CODEPAGE value, for Oracle this is the NLS_LANG value).

Type String

Warehouse name
NLS_SETTINGS or NLS_VAR

Driver Name attribute

Description
The ODBC or JDBC driver name used to connect to the database.

Type String

Warehouse name
DRIVER_NAME or DRV_NM

Driver Version attribute

Description
The ODBC or JDBC driver version used to connect to the database.

Type String

Warehouse name
DRIVER_VERSION or DRV_VER

ODBC Datasource Name attribute

Description
The ODBC data source name.

Type String

Warehouse name
ODBC_DATASOURCE_NAME or ODBC_DSN

URL attribute

Description
The JDBC URL used to connect to the database.

Type String

Warehouse name
URL

Class Path attribute

Description
This variable contains the jar files used by the Warehouse Proxy Agent.

Type String

Warehouse name
KHD_CLASSPATH or KHD_CLPTH

Java Arguments attribute

Description
This variable indicates all the arguments added to the JVM at start up.

Type String

Warehouse name
KHD_JAVA_ARGS or JAVA_ARGS

DB Connectivity attribute

Description
This indicates whether a database connection can be made to the warehouse database.

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

- Yes (1)
- No (0)
- Unknown (2)

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

Warehouse name
DB_CONNECTIVITY or DBCNX

Last Error Details attribute group

Detailed information about the recent N errors that happened since the Warehouse Proxy Agent started (N set by KHD_MOSWOS_MAX_ERROR) and that are more recent than X minutes (X set by KHD_MOSWOS_ERROR_VALID_TIME, specified in minutes).

Historical group
This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions
The following list contains information about each attribute in the Last Error Details attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Warehouse name
NODE

Timestamp attribute

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

Type String

Warehouse name
TIMESTAMP

Error Type attribute

Description
The type of error.

Type String

Warehouse name
ERROR_TYPE or ERRORTYPE

Error Severity attribute

Description
The severity of the error.

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

- Informational (1)
- Warning (2)
- Error (3)
- Critical (4)
- Fatal (5)

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

Warehouse name
ERROR_SEVERITY or ERRORSEV

Error File attribute

Description
The source file where the error happened.

Type String

Warehouse name
ERROR_FILE or ERRORFILE

Error Function attribute

Description
The function where the error happened.

Type String

Warehouse name
ERROR_FUNCTION or ERRORFUNC

Error Line attribute

Description
The line where this error happened.

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
ERROR_LINE or ERRORLINE

SQL Code attribute

Description
The database specific error code.

Type Integer (32-bit numeric property) with enumerated values.

The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
SQL_CODE or SQLCODE

SQL State attribute

Description
The SQLSTATE of the error.

Type String

Warehouse name
SQL_STATE or SQLSTATE

Error Reason Code attribute

Description
The reason code of the error.

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
ERROR_REASON_CODE or ERRORRC

Error Message attribute

Description
The message of the error.

Type String

Warehouse name
ERROR_MESSAGE or ERRORMSG

Error API Call attribute

Description
The API call of the error.

Type String

Warehouse name
ERROR_API_CALL or ERRORAPI

Rows Not Exported attribute

Description
The number of rows sent by the agent to the Warehouse Proxy Agent but not inserted in the database due to an error.

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
ROWS_NOT_EXPORTED or ROWSNE

Failed System attribute

Description
The node for which this error occurred.

Type String

Warehouse name
FAILED_SYSTEM or FAILEDSYS

Product Code attribute - This attribute is a key attribute.

Description
The application name for which this error occurred.

Type String

Warehouse name
PRODUCT_CODE or PRODCODE

Table Name attribute - This attribute is a key attribute.

Description
The attribute table name for which this error occurred.

Type String

Warehouse name
TABLE_NAME or TABLENAME

Attribute Group Name attribute

Description
The table name for which this error occurred.

Type String

Warehouse name
ATTRIBUTE_GROUP_NAME or ATTRIBNAME

Error Timestamp attribute

Description
The time this error occurred.

Type Timestamp

Warehouse name
ERROR_TIMESTAMP or ERRORTIME

Load Statistics attribute group

Load Statistics.

Historical group
This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions
The following list contains information about each attribute in the Load Statistics attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Warehouse name
NODE

Timestamp attribute

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

Type String

Warehouse name
TIMESTAMP

Node Count attribute

Description
The number of distinct nodes for which data has been inserted in the database.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
NODE_COUNT

Rows Sent attribute

Description
Total number of rows sent by the application agent(s) to the Warehouse Proxy Agent.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
ROWS_SENT

Rows Retrieved attribute

Description
Total number of rows fetched by Warehouse Proxy Agent before insertion in the database.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
ROWS_RETRIEVED or ROWS_RETR

Rows Inserted attribute

Description
Total number of rows inserted in the database.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
ROWS_INSERTED or ROWS_INS

Row Throughput (Per Min) attribute

Description
The number of rows inserted in the database per minute.

Type Real number (32-bit gauge) with 2 decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
ROW_THROUGHPUT or ROWS_RT

Failures attribute

Description
The number of failures.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
FAILURES or FAIL_COUNT

Failure Rate (Per Min) attribute

Description
The number of failures per minute.

Type Real number (32-bit gauge) with 2 decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
FAILURE_RATE or FAIL_RT

Disconnections attribute

Description
Total number of database disconnections.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
DISCONNECTIONS or DISCNX

Disconnection Rate (Per Min) attribute

Description
The number of database disconnections per minute.

Type Real number (32-bit gauge) with 2 decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
DISCONNECTION_RATE or DISC_RT

Managed System Count (Last Hour) attribute

Description
The number of distinct managed systems for which data has been inserted in the database in the past hour.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
MSN_COUNT_HOUR or NODE_CT_1

Managed System Count (Last 12 Hours) attribute

Description
The number of distinct managed systems for which data has been inserted in the database in the past 12 hours.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
MSN_COUNT_12_HOUR or NODE_CT_12

Managed System Count (Last 24 Hours) attribute

Description
The number of distinct managed systems for which data has been inserted in the database in the past 24 hours.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
MSN_COUNT_24_HOUR or NODE_CT_24

Managed System Count (Older than 24 Hours) attribute

Description
The number of distinct nodes for which data has been inserted in the database for more than the past 24 hours.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
MSN_COUNT_OLDER or NODE_CT_N

Node List attribute group

List of nodes uploading data.

Historical group
This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions
The following list contains information about each attribute in the Node List attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Warehouse name
NODE

Timestamp attribute

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

Type String

Warehouse name
TIMESTAMP

Node Name attribute - This attribute is a key attribute.

Description
The node for which data has been inserted in the database.

Type String

Warehouse name
NODE_NAME

Export Count attribute

Description
The number of exports (set of rows) for the node since the Warehouse Proxy Agent started.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
EXPORT_COUNT or EXP_CNT

Export V350 attribute

Description
The number of exports (set of rows) at version V350 for the node since the Warehouse Proxy Agent started.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
EXPORT_V101_COUNT or EXPCNTV101

Export V610 attribute

Description
The number of exports (set of rows) at version V610 for the node since the Warehouse Proxy Agent started.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
EXPORT_V610_COUNT or EXPCNTV610

Last Export Time attribute

Description
The time the last export occurred.

Type Timestamp

Warehouse name
LAST_EXPORT_TIME or LAST_EXPTM

Registration Address List attribute group

List of the agent registration addresses

Historical group
This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions
The following list contains information about each attribute in the Registration Address List attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Warehouse name
NODE

Timestamp attribute

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

Type String

Warehouse name
TIMESTAMP

Registration Address attribute - This attribute is a key attribute.

Description
The registration address which includes the Tivoli Enterprise Monitoring Server name, the protocol, the IP address and the port the Warehouse Proxy Agent is using to listen for requests.

Type String

Warehouse name
REGISTRATION_ADDRESS or REG_AD

Registration Status attribute

Description
Indicates if the Warehouse Proxy Agent registered successfully or not with this address.

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

- Success (1)
- Error (0)

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

Warehouse name
REGISTRATION_STATUS or REG_STATUS

Registration Time attribute - This attribute is a key attribute.

Description
Indicates the time when the Warehouse Proxy Agent registered this address.

Type Timestamp

Warehouse name
REGISTRATION_TIME or REG_TIME

RPCSource Statistics attribute group

Statistics about the RPCSource objects.

Historical group
This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions
The following list contains information about each attribute in the RPCSource Statistics attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Warehouse name
NODE

Timestamp attribute

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

Type String

Warehouse name
TIMESTAMP

Orphaned RPCSource attribute

Description
The number of RPCSource objects detected as orphaned and marked for deletion.

Type Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
ORPHANED_RPCSOURCE or ORPHRPCS

RPCSource Created attribute

Description
The number of RPCSource objects created.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
RPCSOURCE_CREATED or RPCSCRT

RPCSource Creation Rate (Per Min) attribute

Description
The number of RPCSource objects created per minute.

Type Real number (32-bit gauge) with 2 decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
RPCSOURCE_CREATION_RATE or RPCSINSRT

RPCSource Deleted attribute

Description
The number of RPCSource objects deleted.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
RPCSOURCE_DELETED or RPCSDEL

RPCSource Deletion Rate (Per Min) attribute

Description
The number of RPCSource objects deleted per minute.

Type Real number (32-bit gauge) with 2 decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
RPCSOURCE_DELETION_RATE or RPCSDELRT

Warehouse TEMS List attribute group

List of Tivoli Enterprise Monitoring Server instances served by this Warehouse Proxy instance.

Historical group
This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions
The following list contains information about each attribute in the Warehouse TEMS List attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Warehouse name
NODE

Timestamp attribute

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

Type String

Warehouse name
TIMESTAMP

TEMS Name attribute - This attribute is a key attribute.

Description
This Warehouse Proxy Agent will serve the agents connected to this Tivoli Enterprise Monitoring Server.

Type String

Warehouse name
TEMS_NAME

Work Queue attribute group

Statistics about the Warehouse Proxy Agent work queue.

Historical group
This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions
The following list contains information about each attribute in the Work Queue attribute group:

Node attribute - This attribute is a key attribute.

Description
The managed system name of the agent.

Type String

Warehouse name
NODE

Timestamp attribute

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

Type String

Warehouse name
TIMESTAMP

Maximum Queue Size attribute

Description
The maximum size of the work queue.

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
MAXIMUM_QUEUE_SIZE or QSIZE

Current Queue Size attribute

Description
The current number of exports in the queue (an export is a set of rows).

Type Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
CURRENT_QUEUE_SIZE or CURRENTQ

Export Queued attribute

Description
The number of exports inserted in the work queue.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
EXPORT_QUEUED or WORKQU

Work Queue Insertion Rate (Per Min) attribute

Description
The number of exports inserted in the work queue per minute.

Type Real number (32-bit gauge) with 2 decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
WORK_QUEUE_INSERTION_RATE or INSRATE

Export Unqueued attribute

Description
The number of exports removed from the work queue.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
EXPORT_UNQUEUED or WORKUNQ

Work Queue Removal Rate (Per Min) attribute

Description
The number of exports removed from the work queue per minute.

Type Real number (32-bit gauge) with 2 decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
WORK_QUEUE_REMOVAL_RATE or DELRATE

Export Rejected attribute

Description
The number of exports rejected because the queue was full.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
EXPORT_REJECTED or WORKREJ

Excess Work Queue Insertion attribute

Description
The number of export(s) inserted in the work queue after it exceeded the maximum size of the queue.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when

one is defined for the value. 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.

Warehouse name
EXCESS_WORK_QUEUE_INSERTION or EXCESSQ

Work Queue Suspensions attribute

Description
The number of times the work queue was suspended.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
WORK_QUEUE_SUSPENSIONS or SUSPENDS

Average Queue Time (Minutes) attribute

Description
The average time in minutes that requests remain in the queue.

Type Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
AVERAGE_QUEUE_TIME or AVGQTIME

Queue Timeout Consumed (Percent) attribute

Description
The percentage of the configured queue timeout that requests are remaining in the queue, on average.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
QUEUE_TIMEOUT_CONSUMED or QTIMEOUT

Work Queue Filled Percent attribute

Description
The percentage of the queue that is currently filled.

Type Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal when one is defined for the value. 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.

Warehouse name
WORK_QUEUE_FILLED_PERCENT or QFILLPCT

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 with historical data that is being collected. Required disk storage is an important factor when you are defining data collection rules and your strategy for historical data collection.

The Capacity planning for historical data table provides the following information required to calculate disk space for this monitoring agent:

Table Table name as it is displayed in the warehouse database, if the attribute group is configured to be written to the warehouse. The table name listed here corresponds to the table name in "Attribute groups for the monitoring agent" on page 15.

Attribute group
Name of the attribute group used to create the table in the warehouse database if it is short enough to fit in the table naming constraints of the database being used for the warehouse. The attribute group name listed here corresponds to the Warehouse table name in "Attribute groups for the monitoring agent" on page 15.

Bytes per row (agent)
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 row (warehouse)
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 records 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 row (warehouse)
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 rows of data that you plan to collect. An attribute group can have single or multiple rows 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 rows is two.

Table 1. 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)
KHDCONF	KHD_CONFIG	212	224	261
KHDDBINFO	KHD_DB_INFO	1312	1328	1365
KHDLASTERR	KHD_LAST_ERROR_DETAILS	1607	1623	1660
KHDLOADST	KHD_LOAD_STATISTICS	112	153	433
KHDNODELST	KHD_NODE_LIST	168	169	251
KHDRGADLST	KHD_REGISTRATION_ADDRESS_LIST	296	295	332
KHDRPCS	KHD_RPCSOURCE_STATISTICS	96	121	329
KHDTEMSLST	KHD_WAREHOUSE_TEMS_LIST	108	105	142
KHDWORKQ	KHD_WORK_QUEUE	112	141	394

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

Chapter 5. Situations reference

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 the Tivoli Enterprise Portal by using the Situation Editor or from the command-line interface using the tacmd commands for situations. You can manage private situations in the private configuration XML file.

About situations

The monitoring agents that you use to monitor your system environment include a set of predefined situations that you can use as-is. You can also 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 Warehouse Proxy Agent. You can change the conditions or values being monitored by a predefined situation to the conditions or values best suited to your enterprise.

You can display predefined situations and create your own situations using the Situation editor. The left panel 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 situation, the right panel opens with the following tabs:

Formula
: Formula describing the condition being tested.

Distribution
: List of managed systems (operating systems, subsystems, or applications) to which the situation can be distributed. All the Warehouse Proxy 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.

EIF
: Customize forwarding of the event to an Event Integration Facility receiver. (Available when the Tivoli Enterprise Monitoring Server has been configured to forward events.)

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

Additional information about situations

The *Tivoli Enterprise Portal 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 and information about each individual situation for this monitoring agent, see "Predefined situations" on page 48.

Predefined situations

The monitoring agent contains predefined situations, which are organized by Navigator item.

- Warehouse Proxy
  - Not applicable
- Configuration
  - KHD_DB_Connectivity
- Statistics
  - KHD_Queue_Time_Warning
  - KHD_Queue_Fill_Warning
  - KHD_Queue_Fill_Critical
  - KHD_Error_Critical
  - KHD_Error_Fatal

Situation descriptions

Each situation description provides information about the situation that you can use to monitor the condition of systems in your network.

The situation descriptions provide the following information:

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.

Distribution
Whether the situation is automatically distributed to instances of the agent or is available for manual distribution.

Run at startup
Whether the situation starts monitoring when the agent starts.

Sampling interval
Number of seconds that elapse 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 one means that 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.

Warehouse Proxy Navigator item

No predefined situations are included for this Navigator item.

Configuration Navigator item

The situation descriptions are organized by the Navigator item to which the situations are relevant.

KHD_DB_Connectivity situation

Description
No connectivity to warehouse database.

The situation will be evaluated for the table.

Formula
```
*IF *VALUE KHD_DB_INFO.DB_Connectivity *EQ No
```

See "Attributes in each attribute group" on page 16 for descriptions of the attributes in this formula.

Distribution
This situation is automatically distributed to instances of this agent.

Run at startup
Yes

Sampling interval
15 minutes

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

Error conditions
Critical

Clearing conditions
The situation clears when the condition becomes false.

Statistics Navigator item

The situation descriptions are organized by the Navigator item to which the situations are relevant.

KHD_Queue_Time_Warning situation

Description
Average work queue time is high.

The situation is evaluated for each distinct value of the ERRORTYPE attribute.

Formula
```
*IF *VALUE KHD_WORK_QUEUE.Queue_Timeout_Consumed *GT 70
```

See "Attributes in each attribute group" on page 16 for descriptions of the attributes in this formula.

Distribution
This situation is automatically distributed to instances of this agent.

Run at startup
Yes

Sampling interval
None. Data is analyzed when it becomes available.

Situation persistence
Not Applicable

Error conditions
Warning

Clearing conditions
The situation does not clear automatically.

KHD_Queue_Fill_Warning situation

Description
Work queue volume is high.

The situation is evaluated for each distinct value of the ERRORTYPE attribute.

Formula

```
*IF *VALUE KHD_WORK_QUEUE.Work_Queue_Filled_Percent *LE 95
*AND *VALUE KHD_WORK_QUEUE.Work_Queue_Filled_Percent *GT 70
```

See "Attributes in each attribute group" on page 16 for descriptions of the attributes in this formula.

Distribution
This situation is automatically distributed to instances of this agent.

Run at startup
Yes

Sampling interval
None. Data is analyzed when it becomes available.

Situation persistence
Not Applicable

Error conditions
Warning

Clearing conditions
The situation does not clear automatically.

KHD_Queue_Fill_Critical situation

Description
Work queue volume is critically high.

The situation is evaluated for each distinct value of the ERRORTYPE attribute.

Formula

```
*IF *VALUE KHD_WORK_QUEUE.Work_Queue_Filled_Percent *GT 95
```

See "Attributes in each attribute group" on page 16 for descriptions of the attributes in this formula.

Distribution
This situation is automatically distributed to instances of this agent.

Run at startup
Yes

Sampling interval
None. Data is analyzed when it becomes available.

Situation persistence
Not Applicable

Error conditions
Critical

Clearing conditions
The situation does not clear automatically.

KHD_Error_Critical situation

Description
Critical errors during the execution of the Warehouse Proxy.

The situation is evaluated for each distinct value of the ERRORTYPE attribute.

Formula
```
*IF *VALUE KHD_LAST_ERROR_DETAILS.Error_Severity *EQ Critical
```

See "Attributes in each attribute group" on page 16 for descriptions of the attributes in this formula.

Distribution
This situation is automatically distributed to instances of this agent.

Run at startup
Yes

Sampling interval
None. Data is analyzed when it becomes available.

Situation persistence
Not Applicable

Error conditions
Critical

Clearing conditions
The situation does not clear automatically.

KHD_Error_Fatal situation

Description
Fatal errors during the execution of the Warehouse Proxy.

The situation is evaluated for each distinct value of the ERRORTYPE attribute.

Formula
```
*IF *VALUE KHD_LAST_ERROR_DETAILS.Error_Severity *EQ Fatal
```

See "Attributes in each attribute group" on page 16 for descriptions of the attributes in this formula.

Distribution
This situation is automatically distributed to instances of this agent.

Run at startup
Yes

Sampling interval
None. Data is analyzed when it becomes available.

Situation persistence
Not Applicable

Error conditions
Fatal

Clearing conditions
The situation does not clear automatically.

Chapter 6. Troubleshooting

Problems can be related to IBM Tivoli Monitoring or the specific agent that you are using.

For general troubleshooting information, see the *IBM Tivoli Monitoring Troubleshooting Guide*. For other problem-solving options, see "Support information" on page 81.

You can resolve some problems by ensuring that your system matches the system requirements listed in the Prerequisites topic for the agent in the information center, or in the Requirements topic of the agent user's guide.

The following activities can help you find a solution to the problem you are having:

- "Gathering product information for IBM Software Support"
- "Using logging" on page 54
- "Consulting the lists of identified problems and workarounds" on page 54

Gathering product information for IBM Software Support

Before contacting IBM Software Support about a problem you are experiencing with this product, gather the information shown in Table 2.

Table 2. 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 "Principal trace log files" on page 55 for lists of all trace log files and their locations. For general information about the IBM Tivoli Monitoring environment, see the *Tivoli Enterprise Portal User's Guide*.
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. • Warehouse Proxy Agent
Screen captures	Screen captures of incorrect output, if any
(UNIX systems only) Core dump files	If the system stops on UNIX systems, collect the core dump file from the *install_dir*/bin directory, where *install_dir* is the directory where you installed the monitoring agent.

You can use the pdcollect tool to collect the most commonly used information from a system. This tool gathers log files, configuration information, version information, and other data. For more information about using this tool, see the "pdcollect tool" in the *IBM Tivoli Monitoring Troubleshooting Guide*.

For information about working with IBM Software Support, see IBM Support Portal Service Requests and PMRs (http://www.ibm.com/support/entry/portal/Open_service_request/Software/Software_support_(general)).

Using logging

Logging is the primary troubleshooting feature in the Warehouse Proxy agent. *Logging* refers to the text messages and trace data that is generated by the Warehouse Proxy 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" for more information.

Consulting the lists of identified problems and workarounds

Known problems have been organized into types such as those in the following list to make them easier to locate:

- Installation and configuration
- General usage and operation
- Display of monitoring data
- Take Action commands

Information about symptoms and detailed workarounds for these types of problems is located in "Problems and workarounds" on page 67.

For general troubleshooting information, see the *IBM Tivoli Monitoring Troubleshooting Guide*.

Trace logging

Trace logs are used to capture information about the operating environment when component software fails to operate as designed.

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 information to learn how to configure and use trace logging:

- "Principal trace log files" on page 55
- "Examples: Using trace logs" on page 59
- "Setting RAS trace parameters by using the GUI" on page 61

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

IBM Software Support personnel use 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

Log files have naming conventions.

Log file naming conventions

Table 3 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
Host name of the computer where the monitoring component is running.

productcode
Two-character product code. For Warehouse Proxy Agent, the product code is hd.

program
Name of the program being run.

HEXtimestamp
Hexadecimal time stamp representing the time at which the program started.

nn Rolling log suffix.

Principal trace log files

Trace log files are located on various systems.

Table 3 contains locations, file names, and descriptions of trace logs that can help determine the source of problems with agents.

Table 3. Trace log files for troubleshooting 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 • **Linux:** 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.

Table 3. Trace log files for troubleshooting agents (continued)

System where log is located	File name and path	Description
On the Tivoli Enterprise Monitoring Server	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.
On the Tivoli Enterprise Monitoring Server	The name of the RAS log file is as follows: • **Windows:** *install_dir*\logs\ *hostname*_ms_*timestamp-nn*.log • **UNIX:** *install_dir*/logs/ *hostname*_ms_*timestamp-nn*.log • **Linux:** *install_dir*/logs/ *hostname*_ms_*timestamp-nn*.log **Note:** File names for RAS1 logs include a hexadecimal time stamp. Also on UNIX systems, a log with a decimal time stamp is provided: *hostname_productcode_timestamp*.logand *hostname_productcode_timestamp*.pid *nnnnn* in the *install_dir*/logs path, where *nnnnn* is the process ID number.	Traces activity on the monitoring server.

Table 3. Trace log files for troubleshooting agents (continued)

System where log is located	File name and path	Description
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 • **Linux:** *install_dir* /logs/ *hostname*_cq_HEXtimestamp -nn.log **Note:** File names for RAS1 logs include a hexadecimal time stamp. Also on UNIX systems, a log with a decimal time stamp is provided: *hostname_productcode* *_timestamp*.log and *hostname_productcode* .pid*nnnnn* in the *install_dir*/logs path, where *nnnnn* is the process ID number.	Traces activity on the portal server.
On the Tivoli Enterprise Portal Server	The teps_odbc.log file is located in the following path: • **Windows:** *install_dir*\InstallITM • **UNIX:** *install_dir*/logs • **Linux:** *install_dir*/logs	When you enable historical reporting, this log file traces the status of the warehouse proxy agent.

Table 3. Trace log files for troubleshooting 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: • **Windows:** *hostname*_hd_*instance_name*_khdagent_HEXtimestamp-nn.log in the *install_dir*\tmaitm6\logs directory • **UNIX:** *hostname*_hd_*instance_name*_khdagent_HEXtimestamp-nn.log in the *install_dir*/logs directory • **Linux:** *hostname*_hd_*instance_name*_khdagent_HEXtimestamp-nn.log in the *install_dir*/logs directory These logs are in the following directories: • **Windows:** *install_dir*\tmaitm6\logs • **UNIX:** *install_dir*/logs • **Linux:** *install_dir*/logs On Linux systems, the following additional logs are provided: – *hostname*_hd_timestamp.log – *hostname*_hd_timestamp.pid*nnnnn* in the *install_dir*/logs path, where *nnnnn* is the process ID number	Traces activity of the monitoring agent.

Table 3. Trace log files for troubleshooting agents (continued)

System where log is located	File name and path	Description
On the computer that hosts the monitoring agent	The agent operations log files are as follows: *instance_hostname*HD.LG0 is the current log created when the agent was started. *instance_hostname*_HD.LG1 is the backup of the previous log. These logs are in the following directory depending on the operating system that you are using: • **Windows:** *install_dir*\tmaitm6\logs • **Linux:** *install_dir*/logs • **UNIX:** *install_dir*/logs	Shows whether the agent could 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 the .LG1 tag 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
Definitions of variables: • *timestamp* is a time stamp with a format that 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 hosts the monitoring system, the monitoring agent, or the portal. • *instance* refers to the name of the database instance that you are monitoring. • *instance_name* refers to the name of the agent instance. • *hostname* refers to the name of the computer on which the IBM Tivoli Monitoringcomponent runs. • *nn* represents the circular sequence in which logs are rotated. this value includes a range from 1 - 5, by default. The first is always retained because it includes configuration parameters. • *productcode* specifies the product code, for example, um for Universal Agent or nt for Windows systems.		

For more information about the complete set of trace logs that are maintained on the monitoring server, see the *IBM Tivoli Monitoring Installation and Setup Guide*.

Examples: Using trace logs

You can open trace logs in a text editor to learn some basic facts about your IBM Tivoli Monitoring environment.

IBM Software Support applies specialized knowledge to analyze trace logs to determine the source of problems. 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:HD is ON-LINE. . . .
(42C3079B.0000-6A4:kpxreqhb.cpp,644,"HeartbeatInserter")
Remote node SERVER5B:HD is OFF-LINE.
```

See the following key points about the preceding excerpts:

- The monitoring server appends the **HD** product code to the server name to form a unique name (SERVER5B:HD) for this instance of the Warehouse Proxy Agent. By using this unique name, you can 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 by using the GUI" on page 61 provide these entries.

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

1. In the Windows **Start** menu, click **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 click **Advanced** > **View Trace Log** in the menu. For example, if you want to view the trace log of the Warehouse Proxy Agent, right-click the name of 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.

RAS trace parameters

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

See "Overview of log file management" on page 55 to ensure that you understand log rolling and can reference the correct log files when you manage log file generation.

Setting RAS trace parameters by using the GUI

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

About this task

The Warehouse Proxy Agent uses RAS1 tracing and generates the logs described in Table 3 on page 55. The default RAS1 trace level is ERROR. The default RAS1 trace level is ERROR.

Procedure

1. Open the Manage Tivoli Enterprise Monitoring Services window.
2. Select **Advanced** > **Edit Trace Parms**. The Tivoli Enterprise Monitoring Server Trace Parameters window is displayed.
3. Select a new trace setting in the pull-down menu in the **Enter RAS1 Filters** field or type a valid string.
   - 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)

     Note: As this example shows, you can set multiple RAS tracing options in a single statement.
4. Modify the value for Maximum Log Size Per File (MB) to change the log file size (changes LIMIT value).
5. 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).
6. 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).
7. Optional: Click Y (Yes) in the **KDC_DEBUGd Setting** menu to log information that can help you diagnose communications and connectivity problems between the monitoring agent and the monitoring server. The **KDC_DEBUG** setting and the **Maximum error tracing** setting can generate a large amount of trace logging. Use these settings only temporarily, while you are troubleshooting problems. Otherwise, the logs can occupy excessive amounts of hard disk space.
8. Click **OK**. You see a message reporting a restart of the monitoring agent so that your changes take effect.

What to do next

Monitor the size of the `logs` directory. Default behavior can generate a total of 45 - 60 MB for each agent that is running on a computer. For example, each database instance that you monitor can generate 45 - 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 3 on page 55 that include a process ID number (PID).

Use collector trace logs as an additional source of troubleshooting information.

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

Manually setting RAS trace parameters

You can manually edit the RAS1 trace logging parameters.

About this task

The Warehouse Proxy agent uses RAS1 tracing and generates the logs described in Table 3 on page 55. The default RAS1 trace level is ERROR. The default RAS1 trace level is ERROR.

Procedure

1. Open the trace options file:
   - **Windows systems:**

     install_dir\tmaitm6\KHDENV
   - **UNIX systems:**

     install_dir /config/hd.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. The default value is 9.
   - **LIMIT**: The maximum size, in megabytes (MB) of a RAS1 log file. The 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. The default is 3.
     - **PRESERVE**: The number of files that are not to be reused in the rolling cycle of one program startup. The default value is 1.

     Note: 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.

What to do next

Monitor the size of the `logs` directory. Default behavior can generate a total of 45 - 60 MB for each agent that is running on a computer. For example, each database instance that you monitor can generate 45 - 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 3 on page 55 that include a process ID number (PID).

Use collector trace logs as an additional source of troubleshooting information.

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

Dynamic modification of trace settings

You can dynamically modify the trace settings for an IBM Tivoli Monitoring component, such as, Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, most monitoring agents, and other components. You can access these components, with the exception of a few monitoring agents, from the tracing utility.

Dynamic modification of the trace settings is the most efficient method, because you can do it without restarting the component. Settings take effect immediately. Modifications by this method are not persistent.

Note: When the component is restarted, the trace settings are read again from the `.env` file. Dynamically modifying these settings does not change the settings in the `.env` files. To modify these trace settings permanently, modify them in the `.env` files.

ras1

Run this command to modify the trace settings for a Tivoli Monitoring component.

The syntax is as follows:

```
ras1 set|list (UNIT|COMP: class_name ANY|ALL|Detail|ERROR|Flow|INPUT|Metrics|OUTPUT|
STATE)
{(UNIT|COMP: class_name ANY|ALL|Detail|ERROR|Flow|INPUT|Metrics|OUTPUT|STATE)}
```

You can specify more than one component class to which to apply the trace settings.

Command options

set
: Turns on or off tracing depending upon the value of its parameters. If the parameter is **ANY**, it turns it off. All other parameters turn on tracing based on the specified type or level.

list
: Displays the default level and type of tracing that is set by default.

Parameters

The parameters that determine the component classes to which to apply the trace settings are as follows:

COMP: *class_name*
: Modifies the trace setting for the name of the component class, as specified by *class_name* , for example, `COMP:KDH`. The output contains trace for the specified class.

UNIT: *class_name*
Modifies the trace setting for any unit that starts with the specified *class_name* value, for example, `UNIT: kra`. The output contains trace for any unit that begins with the specified filter pattern.

The parameters that determine the trace level and type are as follows:

ALL
Displays all trace levels, including every trace point defined for the component. This setting might result in a large amount of trace, so specify other parameters to exclude unwanted trace. You might require the **ALL** parameter to isolate a problem, which is the equivalent to setting `"Error Detail Flow State Input Output Metrics"`.

ANY
Turns off tracing.

Detail
Displays detailed information about each function.

When entered with the `list` option, the trace is tagged with `Det`.

ERROR
Logs internal error conditions.

When entered with the `list` option, the trace is tagged with `ER`. The output can also be tagged with `EVERYE+EVERYU+ER`.

Flow
Displays control flow data for each function entry and exit.

When entered with the `list` option, the trace is tagged with `Fl`.

INPUT
Displays input data for each function.

When entered with the `list` option, the trace is tagged with `IN`.

Metrics
Displays metrics on each function.

When entered with the `list` option, the trace is tagged with `ME`.

OUTPUT
Displays output data for each function.

When entered with the `list` option, the trace is tagged with `OUT`.

State
Displays the status for each function.

When entered with the `list` option, the trace is tagged with `St`.

Example

If you enter `ras1 set (COMP:KDH ALL) (COMP:ACF1 ALL) (COMP:KDE ALL)`, the trace utility turns on all levels of tracing for all the files and functions for which `KDH`, `ACF1`, and `KDE` are the classes.

```
kbbcre1.c, 400, May 29 2007, 12:54:43, 1.1, *
kbbcrn1.c, 400, May 29 2007, 12:54:42, 1.1, *
kdhb1de.c, 400, May 29 2007, 12:59:34, 1.1, KDH
kdh0med.c, 400, May 29 2007, 12:59:24, 1.1, KDH
kdhsrej.c, 400, May 29 2007, 13:00:06, 1.5, KDH
kdhb1fh.c, 400, May 29 2007, 12:59:33, 1.1, KDH
kdhb1oe.c, 400, May 29 2007, 12:59:38, 1.2, KDH
```

```
kdhs1ns.c, 400, May 29 2007, 13:00:08, 1.3, KDH
kbbacdl.c, 400, May 29 2007, 12:54:27, 1.2, ACF1
kbbaclc.c, 400, May 29 2007, 12:54:27, 1.4, ACF1
kbbac1i.c, 400, May 29 2007, 12:54:28, 1.11, ACF1
vkdhsfcn.c, 400, May 29 2007, 13:00:11, 1.1, KDH
kdhserq.c, 400, May 29 2007, 12:59:53, 1.1, KDH
kdhb1pr.c, 400, May 29 2007, 12:59:39, 1.1, KDH
kdhsgnh.c, 400, May 29 2007, 12:59:49, 1.1, KDH
kdh0uts.c, 400, May 29 2007, 12:59:23, 1.1, KDH
kdhsrsp.c, 400, May 29 2007, 13:00:13, 1.2, KDH
kdhs1rp.c, 400, May 29 2007, 13:00:12, 1.1, KDH
kdhscsv.c, 400, May 29 2007, 12:59:58, 1.9, KDH
kdebbac.c, 400, May 29 2007, 12:56:50, 1.10, KDE
...
```

Turning on tracing

To use the tracing utility, you must use a local logon credential for the computer. This tracing method uses the IBM Tivoli Monitoring Service Console. Access the Service Console by using a web browser.

About this task

When you start the Service Console, information is displayed about the components that are currently running on that computer. For example, these components are listed as follows:

- Tivoli Enterprise Portal Server: `cnp`
- Monitoring Agent for Windows OS: `nt`
- Tivoli Enterprise Monitoring Server: `ms`

After you log on, you can type a question mark (?) to display a list of the supported commands. Use the **ras1** command to modify trace settings. If you type this command in the field at the bottom of the window, the help for this command is displayed.

Procedure

1. Open a web browser and enter the URL to access the Service Console.

   `http://`*`hostname`*`:1920`

   where *hostname* is the IP address or host name of the computer on which the IBM Tivoli Monitoring component is running.
2. Click the hyperlink associated with the component for which you want to modify its trace settings.

   Note: In the previous view, if you want to modify tracing for the Tivoli Enterprise Monitoring Server, select **IBM Tivoli Monitoring Service Console** under **Service Point: system.*your host name*_ms**.
3. Enter a user ID and password to access the system. This ID is any valid user that has access to the system.
4. Enter the command to turn on the required level of trace for the specified component classes or units.

   ```
   ras1 set (UNIT|COMP: class_name ALL|Flow|ERROR|Detail|INPUT|Metrics|OUTPUT
   |STATE)
   {(UNIT|COMP: class_name ALL|Flow|ERROR|Detail|INPUT|Metrics|OUTPUT|STATE)}
   ```

   For example, to turn on the control flow trace for the KDE, the command is:

   ```
   ras1 (COMP:KDE Flow)
   ```

Turning off tracing

You can use the IBM Tivoli Monitoring Service Console to run the **ras1** command and dynamically turn off tracing.

Procedure

1. Open a web browser and enter the URL to access the Service Console.

   ```
   http://hostname:1920
   ```

   where *hostname* is the IP address or host name of the computer on which the IBM Tivoli Monitoring component is running.
2. Click the hyperlink associated with the component for which you want to modify its trace settings.
3. Enter a user ID and password to access the system. This ID is any valid user that has access to the system.
4. Enter the command to turn off the required level of trace for the specified component classes or units.

   ```
   ras1 set (UNIT|COMP: class_name ANY)
   {(UNIT|COMP: class_name ANY)}
   ```

   For example, to turn off tracing for the kbbcrcd class of the Windows OS agent, the command is:

   ```
   ras1 set (UNIT:kbbcrcd ANY)
   ```

Setting trace parameters for the Tivoli Enterprise Console server

In addition to the trace information captured by IBM Tivoli Monitoring, you can also collect additional trace information for the Tivoli Enterprise Console components that gather event server metrics.

About this task

To collect this information, modify the .tec_diag_config file on the Tivoli Enterprise Console event server. Use the steps in the following procedure to modify the event server trace parameters.

Procedure

1. Open the $BINDIR/TME/TEC/.tec_diag_config file in an ASCII editor.
2. Locate the entries that configure trace logging for the agent components on the event server. Two entries are included, one for tec_reception and one for tec_rule:

   ```
   # to debug Agent Utils
   tec_reception Agent_Utils  error   /tmp/tec_reception
   SP
   # to debug Agent Utils
   tec_rule Agent_Utils   error   /tmp/tec_rule
   ```
3. To gather additional trace information, modify these entries to specify a trace level of trace2:

   ```
   # to debug Agent Utils
   tec_reception Agent_Utils   trace2  /tmp/tec_reception
   SP
   # to debug Agent Utils
   tec_rule Agent_Utils       trace2  /tmp/tec_rule
   ```
4. In addition, modify the Highest_level entries for tec_rule and tec_reception:

```
tec_reception Highest_level  trace2
SP
tec_rule Highest_level trace2
```

Problems and workarounds

The known problems and workarounds are organized into types of problems that might occur with the Warehouse Proxy agent, for example installation and configuration problems and workspace problems.

Note: You can resolve some problems by ensuring that your system matches the system requirements listed in the Prerequisites topic for the agent in the IBM Tivoli Monitoring Information Center.

For general troubleshooting information, see the *IBM Tivoli Monitoring Troubleshooting Guide*.

Installation and configuration troubleshooting

Problems can occur during installation, configuration, and uninstallation of the agent.

The problems and solutions in Table 4 can occur during installation, configuration, and uninstallation of the agent.

Table 4. Problems and solutions for installation and configuration

Problem	Solution
(*UNIX only*) During a command-line installation, you choose to install a component that is currently installed, and you see the following warning: `WARNING - you are about to install the SAME version of "component_name"` where *component_name* is the name of the component that you are attempting to install. **Note:** This problem affects UNIX command-line installations. If you monitor only Windows environments, you see this problem if you choose to install a product component (for example, a monitoring server) on a UNIX system.	You must exit and restart the installation process. You cannot return to the list where you selected components to install. When you run the installer again, do not attempt to install any component that is currently installed.
Diagnosing problems with product browse settings (Windows systems only).	When you have problems with browse settings, complete 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.

Table 4. Problems and solutions for installation and configuration (continued)

Problem	Solution
The Warehouse Proxy Agent fails to connect to the database.	On a 64-bit system, use the Warehouse Proxy Agent 64-bit image. Create the ODBC data source name with the 64bit ODBC configuration application.
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 cannot 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 KHDCMA process. If CPU usage seems to be excessive, restart the monitoring agent. **Network cards:** The network card configurations can decrease the performance of a system. Each stream of packets that a network card receives (assuming that 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 offloaded and a data transfer between memory and the network card can continue without using CPU processing power. Bus-mastering cards are 32-bit and are based on PCI or EISA bus architectures.
The Warehouse Proxy Agent does not write CSV files in a mounted folder.	On Windows platforms, services do not have the same visibility to shared drives as those that are mounted by the user. This behavior is a known limitation of Windows. To remedy this behavior on Windows XP systems, run this **`at 10:10 /interactive cmd.exe`** command example. Then change `10:10` to a time at least two minutes in the future. After the command prompt opens, map the drive using the **`net use x: \\computer\share /persistent:yes`** command. The service can now access the shared drive. Note that the WPA messages indicate the error in the log that the drive was not found.

Table 5. General problems and solutions for uninstallation

Problem	Solution
On Windows systems, 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 the 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, and then click **Workspace** > **Managed System Status**. 3. Right-click the offline managed system, and select **Clear offline entry**. To uninstall the monitoring agent, use the procedure described in the *IBM Tivoli Monitoring Installation and Setup Guide*.
The software inventory tag for the agent on UNIX and Linux systems is not removed during uninstallation of the agent.	After uninstalling the agent, manually remove the file named *`full name of agent`*`.cmptag` from the `$CANDLEHOME/properties/version/` directory.

Table 5. General problems and solutions for uninstallation (continued)

Problem	Solution
When the agent is installed using group deployment, deploygroup was run multiple times. The group deployment starts and completes successfully, but there were multiple entries in the Deploy Status Summary workspace on the Tivoli Enterprise Portal. When the command tried to install multiple times, the additional installations were queued and then were in failed state though the agent was deployed successfully. **Note:** • When the bundle group contains a single bundle and the deploy group contains more than one member (managed system of the same type as AIX or Linux), the deployment is successful on both systems. • When the bundle group contains more than one bundle and the deploy group contains single or multiple members, the deployment will be executed on each group member (managed system) depending on the members present in the bundle group and deploy group. • The command creates a transaction for each XX bundle for each target system; the bundle matching the operating system for the deployment member is processed successfully; and remaining transactions were in a queued or failed state.	There is no solution at this time.

Unique names for monitoring components

IBM Tivoli Monitoring might not be able to generate a unique name for monitoring components due to the truncation of names that the product automatically generates.

Remote deployment troubleshooting

Problems can occur with remote deployment and removal of agent software using the Agent Remote Deploy process.

Table 6 contains problems and solutions related to remote deployment.

Table 6. Remote deployment problems and solutions

Problem	Solution
While you are using the remote deployment feature to install the Warehouse Proxy Agent, an empty command window is displayed on the target computer. This problem occurs when the target of remote deployment is a Windows computer. (For more information about the remote deployment feature, see the *IBM Tivoli Monitoring Installation and Setup Guide*.)	Do not close or modify this window. It is part of the installation process and is dismissed automatically.

Table 6. Remote deployment problems and solutions (continued)

Problem	Solution
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 troubleshooting

A problem can occur with the agent after it has been installed.

Table 7 contains problems and solutions that can occur with the agent after it has been installed.

Table 7. 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 by using the GUI" on page 61. The trace option settings that you can set on the `KBB_RAS1=` and `KDC_DEBUG=` lines potentially generate large amounts of data.
The Warehouse Proxy Agent fails.	If the Warehouse Proxy Agent fails, this might be because the port numbers are notthe same every time you restart the Warehouse Proxy Agent. See the *IBM Tivoli Monitoring Installation and Setup Guide* for instructions on how to set up a static port number for the Warehouse Proxy Agent.
The Warehouse Proxy Agent leaks memory when either the User ID or password is incorrect.	A memory leak can occur if the Warehouse Proxy Agent User ID or password is incorrect. This leak probably occurs in the ODBC layer.
The Warehouse Proxy agent workspaces and navigator items are not visible in the Tivoli Enterprise Portal.	The application support files must be installed for the Tivoli Enterprise Portal Server, browser Tivoli Enterprise Portal, and desktop Tivoli Enterprise Portal. This problem can occur in IBM Tivoli Monitoring upgrade environments where the Warehouse Proxy agent is upgraded from a version that did not have the self-monitoring capabilities and the support files were not selected in the upgrade.
When you press F1 or select **Help** > **Contents and Index**, a message in your Microsoft Internet Explorer browser 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 browser's trusted site list and then enable the javascript.

Table 7. Agent problems and solutions (continued)

Problem	Solution
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 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.
Online Help Search cannot find any agent online help.	To search the online help for this agent, use the IBM Eclipse help search function and not the search function in the web based help online help. To use the search function for the online help for this agent, ensure that you have selected the IBM Eclipse help server check box when you install the Tivoli Enterprise Portal Server. The 'Searching Agent Help' topic in the online help for this agent contains a link to the Eclipse help, where the search function is enabled. From the **Table of Contents** in the left-hand pane of the help, select **Searching Agent Help** to find the link to the Eclipse help in the right-hand pane.

Table 7. 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 are displayed in the portal.	IBM Tivoli Monitoringproducts use Remote Procedure Call (RPC) to define and control product behavior. RPC is the mechanism that a client process uses 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 protocol (or delivery mechanism) for RPCs that you want. 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 by 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 another type of monitoring server process. 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) if each Tivoli Enterprise Monitoring Server on that image reports to a different hub. By definition, one Tivoli Enterprise Monitoring Server hub is available per monitoring enterprise, so this architecture limit has been simplified to one Tivoli Enterprise Monitoring Server per system image. Continued on next row.

Table 7. Agent problems and solutions (continued)

Problem	Solution
Continued from previous row.	No more than 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 than 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 the EPHEMERAL IP.PIPE process. (This process is IP.PIPE configured with the 'EPHEMERAL:Y' keyword in the KDC_FAMILIES / KDE_TRANSPORT environment variable). The number of ephemeral IP.PIPE connections per system image has no limitation. 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 troubleshooting

Problems can occur with general workspaces and agent-specific workspaces.

Table 8 contains problems and solutions related to workspaces.

Table 8. Workspace problems and solutions

Problem	Solution
When you access the Warehouse Proxy Historical Summarized Performance Daily and Weekly Workspace data, you receive the following error: `KFWITM217E "$SHIFTPERIOD$" is not valid in the context where it is used. SQLSTATE=42703 ERR-206.`	This is a query that should only be executed through a link. If it is run in ADMIN_MODE without link context, the named variable does not run but fails.

Table 8. Workspace problems and solutions (continued)

Problem	Solution
Views in the "Warehouse Proxy historical summarized performance"view all fail with SQL errors and no data is displayed.	Historical collection for the load statistics attribute group must be configured and started, as well as hourly, daily, weekly, and monthly summarization, in order to populate the historical summarized performance workspaces and views. The summarization and pruning agent must be configured and started in order to populate the summary views.
The following message is displayed: `KFWIT083W Default link is disabled for the selected object; please verify link and link anchor definitions.`	You see this message because some links do not have default workspaces. Right-click the link to access a list of workspaces to select.
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 sufficient space is available to display all characters of the attribute name.
You start collection of historical data but the data cannot be seen.	Use the following 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. For information about managing this feature including how to set the interval at which data is collected, see "Managing historical data" in the *IBM Tivoli Monitoring Administrator's Guide*. By setting a more frequent interval for data collection, you reduce the load on the system incurred every time data is uploaded. • Use the Summarization and Pruning agent to collect specific amounts and types of historical data. Historical data is not displayed until the Summarization and Pruning monitoring agent begins collecting the data. By default, this agent begins collection at 2 a.m. daily. At that point, data is visible in the workspace view. For information about how to modify the default collection settings, see "Managing historical data" in the *IBM Tivoli Monitoring Administrator's Guide*.

Table 8. Workspace problems and solutions (continued)

Problem	Solution
Historical data collection is unavailable because of incorrect queries in the Tivoli Enterprise Portal.	The Sort By, Group By, and First/Last functions column 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. For information about the historical data collection function, See "Managing historical data" in the *IBM Tivoli Monitoring Administrator's Guide* or the Tivoli Enterprise Portal online help .
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. The maximum name length is 100 bytes.
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 `Kxx:KXX0000` instead of the correct names (such as Disk), where XX and xx represent the two-character agent code.	Ensure that application support has been added on the monitoring server, portal server, and portal client. For more information about installing application support, see "Installing and enabling application support" in the *IBM Tivoli Monitoring Installation and Setup Guide*.

Situation troubleshooting

Problems can occur with situations and situation configuration.

Table 9 contains problems and solutions for situations.

Table 9. 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 by using the GUI" on page 61. 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 45 describes the performance impact of specific attribute groups. If possible, decrease your use of the attribute groups that require greater system resources.

Table 9. Situation problems and solutions (continued)

Problem	Solution
A formula that uses mathematical operators appears to be incorrect. For example, if you were monitoring a Linux system, the 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. In the example, you can select the **% Memory Free** attribute and avoid the need for math operators.
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. Click **Situations** in the menu. The Situation Editor window is displayed. 3. Select the situation that you want to modify. 4. Use the **State** 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 the 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.	A timeout occurs 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 `K`*`pc`*`ENV` file for the agent (where *pc* is the two-letter product code): `CDP_NT_EVENT_LOG_CACHE_TIMEOUT=3600` This variable determines how long events from the NT Event Log are kept.
If the Expert Advice for a situation contains a hyperlink to an external website (for example, a Microsoft TechNet website) and you click the hyperlink, the website opens in an external window. However, the external window stops responding.	The external window responds after you close the Preview window and Situation Editor window.
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 not displayed, 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 required.

Table 9. Situation problems and solutions (continued)

Problem	Solution
The situation did not activate at startup.	Manually recycle the situation as follows: 1. Right-click the situation and select **Stop Situation**. 2. Right-click the situation and select **Start Situation**. **Note:** You can permanently avoid this problem by selecting the **Run at Startup** check box 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.
An Alert event did not occur even though the predicate was correctly specified.	Check the logs, reports, and workspaces.
A situation fires on an unexpected managed object.	Confirm that you 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.

Table 9. Situation problems and solutions (continued)

Problem	Solution
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 numeric values in the formula match your monitoring goal. b. (Optional) Select 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 numeric 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 numeric values to valid levels so that you do not generate excessive monitoring data based on your temporary settings. For additional information about situations that do not fire, see "Situations are not firing" in the *IBM Tivoli Monitoring Troubleshooting Guide*.

Table 9. Situation problems and solutions (continued)

Problem	Solution
Situation events are not displayed in the Events Console view of the workspace.	Associate the situation with a Navigator item. **Note:** The situation does not need to be displayed in the workspace. It is sufficient that the situation is associated with any Navigator item.
You do not have access to a situation.	**Note:** You must have administrator privileges to complete these steps. 1. Click **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**.
A managed system seems to be offline.	1. Select **Physical View** and click the Enterprise Level of the navigator tree. 2. Click **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 troubleshooting

Problems can occur with Take Action commands.

Table 10 contains problems and solutions that can occur with Take Action commands.

When each Take Action command runs, it generates a log file listed in Table 3 on page 55.

Table 10. 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 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 troubleshooting” on page 76. If the Take Action command fails, for general information about troubleshooting Take Action commands, see the *IBM Tivoli Monitoring Troubleshooting Guide*.

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

The following websites contain troubleshooting information:

- Go to the IBM Software Support website (http://www.ibm.com/support/entry/portal/software) and follow the instructions.
- Go to the Application Performance Management Wiki (http://www.ibm.com/developerworks/servicemanagement/apm/index.html). Feel free to contribute to this wiki.

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 the IBM Support Assistant website (http://www.ibm.com/software/support/isa).

Informational, warning, and error messages

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 topic to see what action you can take to correct the problem.
- Consult the message log for message ID, text, time, and date of the message, as well as other data you can use to diagnose the problem.

Message format

Warehouse Proxy 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:

KHD General Warehouse Proxy agent 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 the possible cause for 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 topic as symbols, such as "&1." Actual messages contain values for these variables.

Agent messages

The following messages apply to Warehouse Proxy Agent.

Appendix. IBM Tivoli Enterprise Console event mapping

Each event class corresponds to an attribute group in the Tivoli Enterprise Console.

A description of the event slots for each event class is provided. For more information about mapping attribute groups to event classes, see "Default mapping of situation events to Tivoli Enterprise Console events" in 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). 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 Tivoli Enterprise Console event synchronization to access the correct `Sentry.baroc` file, which is automatically included during base configuration of Tivoli Enterprise Console rules if you indicate that you want to use an existing rule base. For details, see the *IBM Tivoli Monitoring Installation and Setup Guide*.

Each of the event classes is a child of KHD_Base and is defined in the `khd.baroc` (version 6.3) file. The KHD_Base event class can be used for generic rules processing for any event from the Warehouse Proxy Agent.

For events generated by situations in the Config attribute group, Tivoli Enterprise Console events are sent using the ITM_KHD_CONFIG class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- start_time: STRING
- work_queue_size: INTEGER
- worker_threads: INTEGER
- connection_pool_size: INTEGER
- export_timeout: INTEGER
- rpcsource_cleanup_wait: INTEGER
- database_connection_wait: INTEGER
- enable_database_connection_wait: INTEGER
- enable_database_connection_wait_enum: STRING
- batch: INTEGER
- batch_enum: STRING
- always_disconnect_option: INTEGER
- always_disconnect_option_enum: STRING
- kbb_sig1: STRING
- rate_wait_interval: INTEGER
- registration_wait_interval: INTEGER
- error_time: INTEGER
- max_error: INTEGER

- max_node: INTEGER
- database_compression: INTEGER
- database_compression_enum: STRING
- warehouse_compression_z_sources: INTEGER
- warehouse_compression_z_sources_enum: STRING
- warehouse_compression_distributed_sources: INTEGER
- warehouse_compression_distributed_sources_enum: STRING
- warehouse_compression_distributed_sources: INTEGER
- warehouse_compression_distributed_sources_enum: STRING
- table_partitioning: INTEGER
- table_partitioning_enum: STRING
- forward_partitions: INTEGER
- default_table_container: INTEGER
- default_index_container: INTEGER

For events generated by situations in the DB Info attribute group, Tivoli Enterprise Console events are sent using the ITM_KHD_DB_INFO class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- db_type: INTEGER
- db_type_enum: STRING
- db_version: STRING
- db_name: STRING
- db_user: STRING
- nls_settings: STRING
- driver_name: STRING
- driver_version: STRING
- odbc_datasource_name: STRING
- url: STRING
- khd_classpath: STRING
- khd_java_args: STRING
- db_connectivity: INTEGER
- db_connectivity_enum: STRING

For events generated by situations in the Last Error Details attribute group, Tivoli Enterprise Console events are sent using the ITM_KHD_LAST_ERROR_DETAILS class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- error_type: STRING
- error_severity: INTEGER
- error_severity_enum: STRING
- error_file: STRING
- error_function: STRING
- error_line: INTEGER

- sql_code: INTEGER
- sql_state: STRING
- error_reason_code: INTEGER
- error_message: STRING
- error_api_call: STRING
- rows_not_exported: INTEGER
- failed_system: STRING
- product_code: STRING
- table_name: STRING
- attribute_group_name: STRING
- error_timestamp: STRING

For events generated by situations in the Load Statistics attribute group, Tivoli Enterprise Console events are sent using the ITM_KHD_LOAD_STATISTICS class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- node_count: INTEGER
- rows_sent: INTEGER
- rows_retrieved: INTEGER
- rows_inserted: INTEGER
- row_throughput: REAL
- failures: INTEGER
- failure_rate: REAL
- disconnections: INTEGER
- disconnection_rate: REAL
- msn_count_hour: INTEGER
- msn_count_12_hour: INTEGER
- msn_count_24_hour: INTEGER
- msn_count_older: INTEGER

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

- node: STRING
- timestamp: STRING
- node_name: STRING
- export_count: INTEGER
- export_v101_count: INTEGER
- export_v610_count: INTEGER
- last_export_time: STRING

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

- node: STRING

- timestamp: STRING
- registration_address: STRING
- registration_status: INTEGER
- registration_status_enum: STRING
- registration_time: STRING

For events generated by situations in the RPCSource Statistics attribute group, Tivoli Enterprise Console events are sent using the ITM_KHD_RPCSOURCE_STATISTICS class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- orphaned_rpcsource: INTEGER
- rpcsource_created: INTEGER
- rpcsource_creation_rate: REAL
- rpcsource_deleted: INTEGER
- rpcsource_deletion_rate: REAL

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

- node: STRING
- timestamp: STRING
- tems_name: STRING

For events generated by situations in the Work Queue attribute group, Tivoli Enterprise Console events are sent using the ITM_KHD_WORK_QUEUE class. This class contains the following slots:

- node: STRING
- timestamp: STRING
- maximum_queue_size: INTEGER
- current_queue_size: INTEGER
- export_queued: INTEGER
- work_queue_insertion_rate: REAL
- export_unqueued: INTEGER
- work_queue_removal_rate: REAL
- export_rejected: INTEGER
- excess_work_queue_insertion: INTEGER
- work_queue_suspensions: INTEGER
- average_queue_time: REAL
- queue_timeout_consumed: INTEGER
- work_queue_filled_percent: INTEGER

Documentation library

This appendix contains information about the publications related to IBM Tivoli Monitoring and to the commonly shared components of Tivoli Management Services.

These publications are listed in the following categories:

- IBM Tivoli Monitoring library
- Related publications

For information about accessing and using the publications, select **Using the publications** in the **Contents** pane of the IBM Tivoli Monitoring and OMEGAMON® XE Information Center at http://pic.dhe.ibm.com/infocenter/tivihelp/v61r1/index.jsp.

To find a list of new and changed publications, click **What's new** on the Welcome page of the IBM Tivoli Monitoring and OMEGAMON XE Information Center. To find publications from the previous version of a product, click **Previous versions** under the name of the product in the **Contents** pane.

IBM Tivoli Monitoring library

The following publications provide information about IBM Tivoli Monitoring and about the commonly shared components of Tivoli Management Services:

- *Quick Start Guide*

  Introduces the components of IBM Tivoli Monitoring.
- *Installation and Setup Guide*, SC22-5445

  Provides instructions for installing and configuring IBM Tivoli Monitoring components on Windows, Linux, and UNIX systems.
- *Program Directory for IBM Tivoli Management Services on z/OS*, GI11-4105

  Gives instructions for the SMP/E installation of the Tivoli Management Services components on z/OS.
- *High Availability Guide for Distributed Systems*, SC22-5455

  Gives instructions for several methods of ensuring the availability of the IBM Tivoli Monitoring components.
- *IBM Tivoli zEnterprise Monitoring Agent Installation and Configuration Guide*, SC14-7358

  Provides instructions for installing and configuring Tivoli zEnterprise monitoring agent components on Windows, Linux, and UNIX systems. Also includes migration and backup information, Enterprise Common Collector troubleshooting, Hardware Management Console configuration, and use of the command line interface or APIs to customize the collector. This guide complements the *Tivoli zEnterprise Monitoring Agent User's Guide*.
- *Administrator's Guide*, SC22-5446

  Describes the support tasks and functions required for the Tivoli Enterprise Portal Server and clients, including Tivoli Enterprise Portal user administration.
- *Command Reference*, SC22-5448

  Provides detailed syntax and parameter information, as well as examples, for the commands you can use in IBM Tivoli Monitoring.

- *Messages*, SC22-5450

  Lists and explains messages generated by all IBM Tivoli Monitoring components and by z/OS-based Tivoli Management Services components (such as Tivoli Enterprise Monitoring Server on z/OS and TMS:Engine).
- *Troubleshooting Guide*, GC22-5449

  Provides information to help you troubleshoot problems with the software.
- Tivoli Enterprise Portal online help

  Provides context-sensitive reference information about all features and customization options of the Tivoli Enterprise Portal. Also gives instructions for using and administering the Tivoli Enterprise Portal.
- *Tivoli Enterprise Portal User's Guide*, SC22-5447

  Complements the Tivoli Enterprise Portal online help. The guide provides hands-on lessons and detailed instructions for all Tivoli Enterprise Portal features.
- *Agent Builder User's Guide*, SC32-1921

  Explains how to use the Agent Builder for creating monitoring agents and their installation packages, and for adding functions to existing agents.
- *Performance Analyzer User's Guide*, SC27-4004

  Explains how to use the Performance Analyzer to understand resource consumption trends, identify problems, resolve problems more quickly, and predict and avoid future problems.
- *IBM Tivoli zEnterprise Monitoring Agent User's Guide*, SC14-7359

  Complements the Tivoli zEnterprise monitoring agent online help. The guide provides reference information about the interface, usage scenarios, agent troubleshooting information, and information about Tivoli Common Reporting reports. This guide complements the *Tivoli zEnterprise Monitoring Agent Installation and Configuration Guide*.

Documentation for the base agents

If you purchased IBM Tivoli Monitoring as a product, you received a set of base monitoring agents as part of the product. If you purchased a monitoring agent product (for example, an OMEGAMON XE product) that includes the commonly shared components of Tivoli Management Services, you did not receive the base agents.

The following publications provide information about using the base agents.

- Operating system agents:
  - *Windows OS Agent User's Guide*, SC22-5451
  - *UNIX OS Agent User's Guide*, SC22-5452
  - *Linux OS Agent User's Guide*, SC22-5453
  - *IBM i Agent User's Guide*, SC22-5454
- Agentless operating system monitors:
  - *Agentless Monitoring for Windows Operating Systems User's Guide*, SC23-9765
  - *Agentless Monitoring for AIX Operating Systems User's Guide*, SC23-9761
  - *Agentless Monitoring for HP-UX Operating Systems User's Guide*, SC23-9763
  - *Agentless Monitoring for Solaris Operating Systems User's Guide*, SC23-9764
  - *Agentless Monitoring for Linux Operating Systems User's Guide*, SC23-9762
- Warehouse agents:
  - *Warehouse Summarization and Pruning Agent User's Guide*, SC22-5457

- *Warehouse Proxy Agent User's Guide*, SC22-5456
- System P agents:
  - *AIX Premium Agent User's Guide*, SA23-2237
  - *CEC Base Agent User's Guide*, SC23-5239
  - *HMC Base Agent User's Guide*, SA23-2239
  - *VIOS Premium Agent User's Guide*, SA23-2238
- Other base agents:
  - *Tivoli Log File Agent User's Guide*, SC14-7484
  - *Systems Director base Agent User's Guide*, SC27-2872

Related publications

For information about related products and publications select **OMEGAMON XE shared publications** or other entries in the **Contents** pane of the IBM Tivoli Monitoring and OMEGAMON XE Information Center at http://pic.dhe.ibm.com/infocenter/tivihelp/v61r1/index.jsp .

Other sources of documentation

You can also obtain technical documentation about IBM Tivoli Monitoring and related products from the following sources:

- Service Management Connect (SMC)

  For introductory information about SMC, see IBM Service Management Connect (http://www.ibm.com/developerworks/servicemanagement).

  For information about Tivoli products, see the Application Performance Management community on SMC at IBM Service Management Connect > Application Performance Management (http://www.ibm.com/developerworks/servicemanagement/apm).

  Connect, learn, and share with Service Management professionals. Get access to developers and product support technical experts who provide their perspectives and expertise. Using SMC, you can:
  - Become involved with transparent development, an ongoing, open engagement between external users and developers of Tivoli products where you can access early designs, sprint demos, product roadmaps, and pre-release code.
  - Connect one-on-one with the experts to collaborate and network about Tivoli and Integrated Service Management.
  - Benefit from the expertise and experience of others using blogs.
  - Collaborate with the broader user community using wikis and forums.
- Tivoli wikis

  IBM Service Management Connect > Application Performance Management (http://www.ibm.com/developerworks/servicemanagement/apm) includes a list of relevant Tivoli wikis that offer best practices and scenarios for using Tivoli products, white papers contributed by IBM employees, and content created by customers and business partners.

  Two of these wikis are of particular relevance to IBM Tivoli Monitoring:
  - The IBM Tivoli Monitoring Wiki (https://www.ibm.com/developerworks/mydeveloperworks/wikis/home?lang=en#/wiki/Tivoli%20Monitoring/page/Home) provides information about IBM Tivoli Monitoring and related distributed products, including IBM Tivoli Composite Application Management products.

  - The Tivoli System z® Monitoring and Application Management Wiki provides information about the OMEGAMON XE products, NetView® for z/OS®, Tivoli Monitoring Agent for z/TPF, and other System z monitoring and application management products.
- IBM Integrated Service Management Library

  http://www.ibm.com/software/brandcatalog/ismlibrary/

  IBM Integrated Service Management Library is an online catalog that contains integration documentation and other downloadable product extensions.
- Redbooks®

  http://www.redbooks.ibm.com/

  IBM Redbooks and Redpapers include information about products from platform and solution perspectives.
- Technotes

  Technotes provide the latest information about known product limitations and workarounds. You can find Technotes through the IBM Software Support Web site at http://www.ibm.com/software/support/.

Support information

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

Online

The following sites contain troubleshooting information:

- Go to the IBM Support Portal (http://www.ibm.com/support/entry/portal/software) and follow the instructions.
- Go to IBM Service Management Connect > Application Performance Management (http://www.ibm.com/developerworks/servicemanagement/apm) and select the appropriate wiki.

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 IBM Support Assistant (http://www-01.ibm.com/software/support/isa).

Troubleshooting Guide

For more information about resolving problems, see the product's Troubleshooting Guide.

Using IBM Support Assistant

The IBM Support Assistant is a free, stand-alone application that you can install on any workstation. You can then enhance the application by installing product-specific plug-in modules for the IBM products you use.

The IBM Support Assistant saves you the time it takes to search the product, support, and educational resources. The IBM Support Assistant helps you gather support information when you need to open a problem management record (PMR), which you can then use to track the problem.

The product-specific plug-in modules provide you with the following resources:

- Support links
- Education links
- Ability to submit problem management reports

For more information, and to download the IBM Support Assistant, see http://www.ibm.com/software/support/isa. After you download and install the IBM Support Assistant, follow these steps to install the plug-in for your Tivoli product:

1. Start the IBM Support Assistant application.
2. Select **Updater** on the Welcome page.
3. Select **New Properties and Tools** or select the **New Plug-ins** tab (depending on the version of IBM Support Assistant installed).
4. Under **Tivoli**, select your product, and then click **Install**. Be sure to read the license and description.

If your product is not included on the list under **Tivoli**, no plug-in is available yet for the product.

5. Read the license and description, and click **I agree**.
6. Restart the IBM Support Assistant.

Obtaining fixes

A product fix might be available to resolve your problem. To determine which fixes are available for your Tivoli software product, follow these steps:

1. Go to the IBM Software Support website at http://www.ibm.com/software/support.
2. Under **Select a brand and/or product**, select **Tivoli**.

   If you click **Go**, the **Search within all of Tivoli support** section is displayed. If you don't click **Go**, you see the **Select a product** section.
3. Select your product and click **Go**.
4. Under **Download**, click the name of a fix to read its description and, optionally, to download it.

   If there is no **Download** heading for your product, supply a search term, error code, or APAR number in the field provided under **Search Support (this product)**, and click **Search**.

For more information about the types of fixes that are available, see the *IBM Software Support Handbook* at http://www14.software.ibm.com/webapp/set2/sas/f/handbook/home.html.

Receiving weekly support updates

To receive weekly e-mail notifications about fixes and other software support news, follow these steps:

1. Go to the IBM Software Support website at http://www.ibm.com/software/support.
2. Click **My support** in the far upper-right corner of the page under **Personalized support**.
3. If you have already registered for **My support**, sign in and skip to the next step. If you have not registered, click **register now**. Complete the registration form using your e-mail address as your IBM ID and click **Submit**.
4. The **Edit profile** tab is displayed.
5. In the first list under **Products**, select **Software**. In the second list, select a product category (for example, **Systems and Asset Management**). In the third list, select a product sub-category (for example, **Application Performance & Availability** or **Systems Performance**). A list of applicable products is displayed.
6. Select the products for which you want to receive updates.
7. Click **Add products**.
8. After selecting all products that are of interest to you, click **Subscribe to email** on the **Edit profile** tab.
9. In the **Documents** list, select **Software**.
10. Select **Please send these documents by weekly email**.
11. Update your e-mail address as needed.
12. Select the types of documents you want to receive.
13. Click **Update**.

If you experience problems with the **My support** feature, you can obtain help in one of the following ways:

Online

Send an e-mail message to erchelp@ca.ibm.com, describing your problem.

By phone

Call 1-800-IBM-4You (1-800-426-4968).

Contacting IBM Software Support

IBM Software Support provides assistance with product defects. The easiest way to obtain that assistance is to open a PMR or ETR directly from the IBM Support Assistant.

Before contacting IBM Software Support, your company must have an active IBM software maintenance contract, and you must be authorized to submit problems to IBM. The type of software maintenance contract that you need depends on the type of product you have:

- For IBM distributed software products (including, but not limited to, Tivoli, Lotus®, and Rational® products, as well as DB2® and WebSphere® products that run on Windows or UNIX operating systems), enroll in Passport Advantage® in one of the following ways:

  Online

  Go to the Passport Advantage website at http://www-306.ibm.com/software/howtobuy/passportadvantage/pao_customers.htm .

  By telephone

  For the telephone number to call in your country, go to the IBM Software Support website at http://techsupport.services.ibm.com/guides/contacts.html and click the name of your geographic region.
- For customers with Subscription and Support (S & S) contracts, go to the Software Service Request website at https://techsupport.services.ibm.com/ssr/login.
- For customers with Linux, iSeries®, pSeries, zSeries®, and other support agreements, go to the IBM Support Line website at http://www.ibm.com/services/us/index.wss/so/its/a1000030/dt006.
- For IBM eServer™ software products (including, but not limited to, DB2 and WebSphere products that run in zSeries, pSeries, and iSeries environments), you can purchase a software maintenance agreement by working directly with an IBM sales representative or an IBM Business Partner. For more information about support for eServer software products, go to the IBM Technical Support Advantage website at http://www.ibm.com/servers/eserver/techsupport.html.

If you are not sure what type of software maintenance contract you need, call 1-800-IBMSERV (1-800-426-7378) in the United States. From other countries, go to the contacts page of the *IBM Software Support Handbook* on the web at http://www14.software.ibm.com/webapp/set2/sas/f/handbook/home.html and click the name of your geographic region for telephone numbers of people who provide support for your location.

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