

Warehouse Proxy Agent
Version 6.2.3 Fix Pack 1

User's Guide



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Note

Before using this information and the product it supports, read the information in "Notices" on page 101.

This edition applies to version 6.2.3 Fix Pack 1 of Warehouse Proxy Agent (product number 5724-C04) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Contents

Figures	v	Predefined situations	52
Tables	vii	Situation descriptions	52
Chapter 1. Overview of the agent	1	Warehouse Proxy Navigator item	52
New in this release	1	Configuration Navigator item	52
Components of the IBM Tivoli Monitoring environment	2	Statistics Navigator item	53
Agent Management Services	3	Chapter 6. Take Action commands reference.	55
User interface options	3	Predefined Take Action commands	55
Data sources	4	Chapter 7. Policies reference	57
Chapter 2. Agent installation and configuration	5	Chapter 8. Troubleshooting	59
Compressing historical data	5	Trace logging	60
Disable data warehouse log tables	7	Overview of log file management	61
Language pack installation	7	Principal trace log files	61
Installing language packs on Windows systems	7	Examples: Using trace logs	65
Installing language packs on UNIX or Linux systems	8	RAS trace parameters	66
Silent installation of language packs for agents	9	Dynamic modification of trace settings	69
Agent-specific installation and configuration	10	Setting trace parameters for the Tivoli Enterprise Console server	72
Configuration values	10	Problems and workarounds	73
Remote installation and configuration	13	Installation and configuration troubleshooting	73
Chapter 3. Workspaces reference	15	Remote deployment troubleshooting	76
Predefined workspaces	15	Agent troubleshooting	77
Workspace descriptions	16	Workspace troubleshooting	80
Warehouse Proxy Navigator item	16	Situation troubleshooting	83
Configuration Navigator item	16	Take Action commands troubleshooting	86
Statistics Navigator item	17	Support information	87
Chapter 4. Attributes reference	19	Informational, warning, and error messages	87
Attribute groups for the monitoring agent	19	Agent messages	88
Attributes in each attribute group	20	Appendix A. IBM Tivoli Enterprise Console event mapping	89
Config attribute group	20	Appendix B. Documentation library	95
DB Info attribute group	27	Prerequisite publications	95
Last Error Details attribute group	30	Related publications	96
Load Statistics attribute group	34	Other sources of documentation	96
Node List attribute group	37	Accessibility	99
Performance Object Status attribute group	39	Notices	101
Registration Address List attribute group	42	Trademarks	103
RPCSource Statistics attribute group	43	Index	105
Warehouse TEMS List attribute group	45		
Work Queue attribute group	46		
Disk capacity planning for historical data	50		
Chapter 5. Situations reference	51		

Figures

Tables

1. Capacity planning for historical data logged by the Warehouse Proxy agent	50	6. Remote deployment problems and solutions	76
2. Information to gather before contacting IBM Software Support	59	7. Agent problems and solutions	77
3. Trace log files for troubleshooting agents	61	8. Workspace problems and solutions.	80
4. Problems and solutions for installation and configuration	73	9. Situation problems and solutions	83
5. General problems and solutions for uninstallation	75	10. Take Action commands problems and solutions	86

Chapter 1. Overview of the agent

The Warehouse Proxy Agent provides you with the capability to monitor Warehouse Proxy Agent. IBM® Tivoli® Monitoring is the base software for the Warehouse Proxy agent.

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 “Prerequisite publications” on page 95 for complete information about IBM Tivoli Monitoring and the Tivoli Enterprise Portal.

New in this release

For version 6.2.3 Fix Pack 1 of the Warehouse Proxy agent, the following enhancements have been made since version 6.2, including the fix packs:

- Additional supported operating systems as listed in the Prerequisites topic for the Warehouse Proxy agent in the IBM Tivoli Monitoring Information Center
- With IBM Tivoli Monitoring v6.2.3, the ability now exists to disable the creation of the data warehouse log tables so that fewer database resources are needed (default configuration for the Warehouse Proxy Agent). If you are upgrading from an existing installation, you can truncate the existing tables in the database to allow their storage space to be reclaimed.
- Warehouse Proxy Agent 64-bit image is now available for Windows 64-bit systems.
- The Configuration workspace has been updated to show the compression variables.
 - The Database Compression variable indicates whether the database compression against TDW has been used (KHD_DB_COMPRESSION set to N by default).

- The Warehouse Compression Z Sources variable indicates whether historical data from Z sources will be compressed before upload (KHD_SERVER_Z_COMPRESSION_ENABLE set to N by default).
- The Warehouse Compression Distributed Sources variable indicates whether historical data from distributed sources will be compressed before upload (KHD_SERVER_DIST_COMPRESSION_ENABLE set to Y by default).
- Updated khd.baroc file to support IBM Tivoli Enterprise Console event mapping changes
- Added support for the IBM Prerequisite Scanner, which is a stand-alone prerequisite checking tool that analyzes system environments before the installation or upgrade of a Tivoli product or IBM solution.

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*.

Compressing historical data

The historical data saved at the agent or at the monitoring server can be compressed before it is uploaded to the Warehouse Proxy Agent. The data is then uncompressed at the Warehouse Proxy Agent before it is inserted in the warehouse database, allowing for efficient usage of network bandwidth between the historical client and the Warehouse Proxy Server.

About this task

The following reductions can occur:

- A reduction in timeout errors due to a low bandwidth between clients and Warehouse Proxy Server. Timeout errors on the client side occur when it takes more than 15 minutes for an export of data to complete and be inserted in the warehouse database.
- A reduction in bandwidth usage. Uploading historical data to the warehouse can tie up a significant amount of bandwidth, and also impact other critical applications sharing the network link.
- A reduction in the elapsed time for the upload over slow links.

Use this functionality when a slow network is used or when the network is shared with other critical applications. However, compressing the data increases the CPU usage. CPU costs differently on a distributed source than on a z/OS® source. In a mixed environment, you can enable or disable the compression option, which is a server option, depending on the source operating system of the client. You can also overwrite a server compression option.

The Warehouse Proxy Agent configuration file (found in `hd.ini` or `khdev`) now contains 2 new variables that can be modified if necessary:

KHD_SERVER_DIST_COMPRESSION_ENABLE

If this variable is set to Y, then the Warehouse Proxy server allows distributed clients to send compressed data. This variable is set to Y by default.

KHD_SERVER_Z_COMPRESSION_ENABLE

If this variable is set to Y, then the Warehouse Proxy server allows z/OS clients to send compressed data. This variable is set to N by default.

The agent configuration file, if historical data is stored at the Tivoli Enterprise Monitoring Agent, or the monitoring server configuration file, if historical data is stored at the monitoring server, accepts a new warehouse variable:

KHD_CLIENT_COMPRESSION_ENABLE

If set to N, and even if the Warehouse Proxy Agent server has allowed the compression, the historical data is not compressed on this source. This variable does not exist by default.

The new Warehouse Proxy agent variables are visible in a view in the configuration workspace of the Warehouse Proxy Agent. They also exist on the configuration GUI of the Warehouse Proxy Agent.

You can see whether the compression is occurring by using a tracing level to see the data compressed at the client and uncompressed at the server: ERROR(UNIT: KHDX ALL) in the warehouse proxy agent. To check uncompression in the server log file, see whether the file contains the following text:

```
khdxmts.cpp,154,"KHD_SendBuff_from_xmit_rep") Uncompressing the data
```

To check that the client has overwritten the server variable to not compress the data, see whether the file contains the following text:

```
khdxmts.cpp,167,"KHD_SendBuff_from_xmit_rep") Client did not compress the data
```

If compression has failed, the following text is displayed in the Warehouse Proxy Server log file, khdxrpcs.cpp:

```
"Client compression failed, data was sent uncompressed"
```

If compression has failed, the following text is displayed in the client log file, khdxdacl.cpp:

```
"Warehouse client unable to compress the data, data sent uncompressed"
```

If uncompression has failed, the following text is displayed in the Warehouse Proxy Server log file, khdxrpcs.cpp:

```
"Uncompress error"
```

If uncompression has failed, the following text is displayed in the client log file, khdxdacl.cpp:

```
"Client compression flag set to Y and overwrite server compression flag set to N."
```

If uncompression has failed, the following text is displayed in the client log file, khdxdacl.cpp:

```
"Client compression flag set to N and overwrite server compression flag set to Y."
```

In mixed environments with a previous version of the client and newer version of the server, or new version of the client and a previous version of the server, the compression should not happen.

Complete the following steps to set up compression:

Procedure

1. Install or upgrade to the newest release.
2. Configure the Warehouse Proxy Agent, using the GUI. The GUI can display during install time, or can be launched by right-clicking the warehouse Proxy entry in the manage Tivoli Monitoring Services panel. The new server compression variables are part of the GUI and can be modified as needed.
3. Compression variables can also be reconfigured using the command line interface (`itmcmd config hd`).
4. Compression variables can also be reconfigured in the configuration file itself (`hd.ini` on UNIX systems and `khenv` on Windows systems).

Disable data warehouse log tables

With IBM Tivoli Monitoring v6.2.3, you can now 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 Agent. 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, you must edit the configuration files.

Procedure

- You can 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`.
- Similarly, for the Summarization and Pruning Agent, edit the Summarization and Pruning Agent configuration file (`sy.ini` on UNIX and Linux systems, `KSYENV` on Windows systems) and change the variable `KSY_WHLOG_ENABLE` to `Y`. The default value is `N`.

Language pack installation

The steps for installing language packs depend on which operating system and mode of installation you are using.

To install a language pack for the agent support files on the Tivoli Enterprise Monitoring Server, the Tivoli Enterprise Monitoring Agent, and the Tivoli Enterprise Portal Server, make sure that you installed the product in the English language. Then use the steps for the operating system or mode of installation you are using:

- “Installing language packs on Windows systems”
- “Installing language packs on UNIX or Linux systems” on page 8
- “Silent installation of language packs for agents” on page 9

Installing language packs on Windows systems

You can install the language packs on a Windows system.

Before you begin

First, make sure that you installed the product in the English language.

Procedure

1. On the language pack CD, double-click the `lpinstaller.bat` file to start the installation program.
2. Select the language of the installer and click **OK**.
3. In the Introduction panel, click **Next**
4. Click **Add/Update** and click **Next**.
5. Select the folder where the National Language Support package (NLSPackage) files are located. Typically, the NLSPackage files are located in the `nlspackage` folder where the installer executable file is located.
6. Select the language support for the agent of your choice and click **Next**. To make multiple selections, press **Ctrl** and select the language that you want.
7. Select the languages that you want to install and click **Next**.
8. Examine the installation summary page and click **Next** to begin installation.
9. After installation completes, click **Finish** to exit the installer.
10. Restart the Tivoli Enterprise Portal, Tivoli Enterprise Portal Server, and Eclipse Help Server if any of these components are installed.

Installing language packs on UNIX or Linux systems

You can install the language packs on a UNIX or Linux system.

Before you begin

First, make sure that you installed the product in the English language.

Procedure

1. Enter the following command to create a temporary directory on the computer. Make sure that the full path of the directory does not contain any spaces: `mkdir dir_name`
2. Mount the language pack CD to the temporary directory that you created.
3. Enter the following command to start the installation program: `cd dir_name lpinstaller.sh -c install_dir` where `install_dir` is where you installed IBM Tivoli Monitoring. Typically, the directory name is `/opt/IBM/ITM` for AIX® and Linux systems.
4. Select the language of the installer and click **OK**.
5. In the Introduction panel, click **Next**.
6. Click **Add/Update** and click **Next**.
7. Select the folder where the National Language Support package (NLSPackage) files are located. Typically, the NLSPackage files are located in the `nlspackage` folder where the installer executable file is located.
8. Select the language support for the agent of your choice and click **Next**. To make multiple selections, press **Ctrl** and select the language that you want.
9. Select the languages that you want to install and click **Next**.
10. Examine the installation summary page and click **Next** to begin installation.
11. After installation completes, click **Finish** to exit the installer.
12. Restart the Tivoli Enterprise Portal, Tivoli Enterprise Portal Server, and Eclipse Help Server if any of these components are installed.

Silent installation of language packs for agents

You can use the silent-mode installation method to install the language packs. In silent mode, the installation process obtains the installation settings from a predefined response file. It does not prompt you for any information.

Before you begin

First, make sure that you installed the product in the English language.

Procedure

1. Copy and paste the ITM_Agent_LP_silent.rsp response file template as shown in "Response file example."
2. Change the following parameter settings:

NLS_PACKAGE_FOLDER

Folder where the National Language Support package (NLSPackage) files are located. Typically, the NLSPackage files are located in the nlspackage folder, for example: NLS_PACKAGE_FOLDER = //tmp//LP//nlspackage.

PROD_SELECTION_PKG

Name of the language pack to install. Several product components can be included in one language package. You might want to install only some of the available components in a language pack.

BASE_AGENT_FOUND_PKG_LIST

Agent for which you are installing language support. This value is usually the same as *PROD_SELECTION_PKG*.

LANG_SELECTION_LIST

Language you want to install.

3. Enter the command to install the language pack with a response file (silent installation):

- For Windows systems:

```
lpinstaller.bat -f path_to_response_file
```

- For UNIX or Linux systems:

```
lpinstaller.sh -c candle_home -f path_to_response_file
```

where *candle_home* is the IBM Tivoli Monitoring base directory.

Response file example

```
# IBM Tivoli Monitoring Agent Language Pack Silent Installation Operation
#
#This is a sample response file for silent installation mode for the IBM Tivoli
#Monitoring Common Language Pack Installer.
#.
#This file uses the IBM Tivoli Monitoring Common Agent Language Pack with the
#install package as an example.
#Note:
#This response file is for the INSTALLATION of language packs only.
#This file does not support UNINSTALLATION of language packs in silent mode.
#-----
#-----
#To successfully complete a silent installation of the the example of Common Agent
#localization pack, complete the following steps:
#
#1.Copy ITM_Agent_LP_silent.rsp to the directory where lpinstaller.bat or
#lpinstaller.sh is located (IBM Tivoli Monitoring Agent Language Pack build
#location).
```

```

#
#2.Modify the response file so that it is customized correctly and completely for
#your site.
# Complete all steps listed below in the response file.
#
#3.After customizing the response file, invoke the silent installation using the
#following command:
#For Windows:
#   lpinstaller.bat -f <path_to_response_file>
#For UNIX and Linux:
#   lpinstaller.sh -c <andle_home> -f <path_to_response_file>
#Note:<andle_home> is the IBM Tivoli Monitoring base directory.
#-----
#-----
#Force silent install mode.
#-----
INSTALLER_UI=silent
#-----
#Run add and update actions.
#-----
CHOSEN_INSTALL_SET=ADDUPD_SET
#-----
#NLS Package Folder, where the NLS Packages exist.
#For Windows:
#   Use the backslash-backslash(\\) as a file separator (for example,
#C:\\zosgmv\\LCD7-3583-01\\nlspackage).
#For UNIX and Linux:
#   Use the slash-slash (//) as a file separator (for example,
#//installtivoli//lpsilenttest//nlspackage).
#-----
#NLS_PACKAGE_FOLDER=C:\\zosgmv\\LCD7-3583-01\\nlspackage
NLS_PACKAGE_FOLDER=//tmp//LP//nlspackage
#-----
#List the packages to process; both variables are required.
#Each variable requires that full paths are specified.
#Separate multiple entries with a semicolon (;).
#For Windows:
#       Use the backslash-backslash(\\) as a file separator.
#For Unix and Linux:
#       Use the slash-slash (//) as a file separator.
#-----
#PROD_SELECTION_PKG=C:\\zosgmv\\LCD7-3583-01\\nlspackage\\KIP_NLS.nlspkg
#BASE_AGENT_FOUND_PKG_LIST=C:\\zosgmv\\LCD7-3583-01\\nlspackage\\KIP_NLS.nlspkg
PROD_SELECTION_PKG=//tmp//LP//nlspackage//kex_nls.nlspkg;//tmp//LP//nlspackage//
koq_nls.nlspkg
BASE_AGENT_FOUND_PKG_LIST=//tmp//LP//nlspackage//kex_nls.nlspkg;//
tmp//LP//nlspackage//koq_nls.nlspkg
#-----
#List the languages to process.
#Separate multiple entries with semicolons.
#-----
LANG_SELECTION_LIST=pt_BR;fr;de;it;ja;ko;zh_CN;es;zh_TW

```

Agent-specific installation and configuration

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 type is one of the following values: "DB2", "Oracle", "Microsoft SQL Server".

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

The type is string.

This value is required.

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

JDBC URL (KHD_DB2_JDBCURL)

The Warehouse JDBC URL

The type is string.

This value is required.

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

The type is string.

This value is required.

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

JDBC URL (KHD_MSSQL_JDBCURL)

The Warehouse JDBC URL

The type is string.

This value is required.

Default value: For All UNIX and Linux Operating Systems:
jdbc:sqlserver://
server:port;datasenname=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.

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

JDBC Driver (KHD_ORACLE_JDBCDRIVER)

The Warehouse JDBC Driver

The type is string.

This value is required.

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

JDBC URL (KHD_ORACLE_JDBCURL)

The Warehouse JDBC URL

The type is string.

This value is required.

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

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 10.

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.

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
```

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 19.

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.

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 20.

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: Performance Object Status
 - Table name: KHDPOBJST
 - Warehouse table name: KHD_PERFORMANCE_OBJECT_STATUS or KHDPOBJST
- 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 ALWAYS_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`

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 FAILEDYS

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

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

Performance Object Status attribute group

The Performance Object Status attribute group contains information that reflects the status of other attribute groups so you can see the status of all of the performance objects that make up this application all at once. Each of these other performance attribute groups is represented by a row in this table (or other type of view). The status for an attribute group reflects the result of the last attempt to collect data for that attribute group, which allows you to see whether the agent is performing correctly. Unlike other attribute groups, the Performance Object Status attribute group does not reflect the state of the monitored application. This attribute group is most often used to determine why data is not available for one of the performance attribute groups.

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 Performance Object Status 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

Query Name attribute - This attribute is a key attribute.

Description

The name of the attribute group.

Type String

Warehouse name

QUERY_NAME or ATTRGRP

Object Name attribute

Description

The name of the performance object.

Type String

Warehouse name

OBJECT_NAME or OBJNAME

Object Type attribute

Description

The type of the performance object.

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:

- WMI (0)
- PERFMON (1)
- WMI ASSOCIATION GROUP (2)
- JMX (3)
- SNMP (4)
- SHELL COMMAND (5)
- JOINED GROUPS (6)
- CIMOM (7)
- CUSTOM (8)
- ROLLUP DATA (9)
- WMI REMOTE DATA (10)
- LOG FILE (11)
- JDBC (12)
- CONFIG DISCOVERY (13)
- NT EVENT LOG (14)
- FILTER (15)
- SNMP EVENT (16)
- PING (17)
- DIRECTOR DATA (18)
- DIRECTOR EVENT (19)
- SSH REMOTE SHELL COMMAND (20)

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

Warehouse name

OBJECT_TYPE or OBJTYPE

Object Status attribute**Description**

The status of the performance object.

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:

- ACTIVE (0)
- INACTIVE (1)

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

Warehouse name

OBJECT_STATUS or OBJSTTS

Error Code attribute

Description

The error code associated with the query.

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

- NO ERROR (0)
- GENERAL ERROR (1)
- OBJECT NOT FOUND (2)
- COUNTER NOT FOUND (3)
- NAMESPACE ERROR (4)
- OBJECT CURRENTLY UNAVAILABLE (5)
- COM LIBRARY INIT FAILURE (6)
- SECURITY INIT FAILURE (7)
- PROXY SECURITY FAILURE (9)
- NO INSTANCES RETURNED (10)
- ASSOCIATOR QUERY FAILED (11)
- REFERENCE QUERY FAILED (12)
- NO RESPONSE RECEIVED (13)
- CANNOT FIND JOINED QUERY (14)
- CANNOT FIND JOIN ATTRIBUTE IN QUERY 1 RESULTS (15)
- CANNOT FIND JOIN ATTRIBUTE IN QUERY 2 RESULTS (16)
- QUERY 1 NOT A SINGLETON (17)
- QUERY 2 NOT A SINGLETON (18)
- NO INSTANCES RETURNED IN QUERY 1 (19)
- NO INSTANCES RETURNED IN QUERY 2 (20)
- CANNOT FIND ROLLUP QUERY (21)
- CANNOT FIND ROLLUP ATTRIBUTE (22)
- FILE OFFLINE (23)
- NO HOSTNAME (24)
- MISSING LIBRARY (25)
- ATTRIBUTE COUNT MISMATCH (26)
- ATTRIBUTE NAME MISMATCH (27)
- COMMON DATA PROVIDER NOT STARTED (28)
- CALLBACK REGISTRATION ERROR (29)
- MDL LOAD ERROR (30)
- AUTHENTICATION FAILED (31)
- CANNOT RESOLVE HOST NAME (32)
- SUBNODE UNAVAILABLE (33)
- SUBNODE NOT FOUND IN CONFIG (34)
- ATTRIBUTE ERROR (35)
- CLASSPATH ERROR (36)
- CONNECTION FAILURE (37)
- FILTER SYNTAX ERROR (38)

- FILE NAME MISSING (39)
- SQL QUERY ERROR (40)
- SQL FILTER QUERY ERROR (41)
- SQL DB QUERY ERROR (42)
- SQL DB FILTER QUERY ERROR (43)
- PORT OPEN FAILED (44)
- ACCESS DENIED (45)
- TIMEOUT (46)
- NOT IMPLEMENTED (47)
- REQUESTED A BAD VALUE (48)
- RESPONSE TOO BIG (49)
- GENERAL RESPONSE ERROR (50)
- SCRIPT NONZERO RETURN (51)
- SCRIPT NOT FOUND (52)
- SCRIPT LAUNCH ERROR (53)
- CONF FILE DOES NOT EXIST (54)
- CONF FILE ACCESS DENIED (55)
- INVALID CONF FILE (56)
- EIF INITIALIZATION FAILED (57)
- CANNOT OPEN FORMAT FILE (58)
- FORMAT FILE SYNTAX ERROR (59)
- REMOTE HOST UNAVAILABLE (60)
- EVENT LOG DOES NOT EXIST (61)
- PING FILE DOES NOT EXIST (62)
- NO PING DEVICE FILES (63)
- PING DEVICE LIST FILE MISSING (64)
- SNMP MISSING PASSWORD (65)
- DISABLED (66)
- URLS FILE NOT FOUND (67)
- XML PARSE ERROR (68)

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

Warehouse name

ERROR_CODE or ERRCODE

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

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 19.

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 19.

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 the Warehouse Proxy agent

Table	Attribute group	Bytes per row (agent)	Database bytes per row (warehouse)	Aggregate bytes per row (warehouse)

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 52.

Predefined situations

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

- Warehouse Proxy
 - Not applicable
- Configuration
 - KHD_DB_Connectivity
- Statistics
 - 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 20 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_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 20 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 20 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. Take Action commands reference

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

About Take Action commands

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

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

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

Additional information about Take Action commands

For more information about working with Take Action commands, see "Take Action commands" in the *Tivoli Enterprise Portal User's Guide*.

Predefined Take Action commands

Not all agents have predefined Take Action commands. But you can create Take Action commands for any agent.

Chapter 7. Policies reference

Policies are used as an advanced automation technique for implementing more complex workflow strategies than you can create through simple automation. All agents do not provide predefined policies, but you can create policies for any agent.

About policies

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

Additional information about policies

This monitoring agent does not provide predefined policies. For more information about working with policies, see "Automation with policies" in the *Tivoli Enterprise Portal User's Guide*.

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

Predefined policies

The Warehouse Proxy Agent does not provide predefined policies.

Chapter 8. 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 87.

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 60
- “Consulting the lists of identified problems and workarounds” on page 60

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 61 for lists of all trace log files and their locations. For general information about the IBM Tivoli Monitoring environment, see the <i>Tivoli Enterprise Portal User’s Guide</i> .
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: <ul style="list-style-type: none">• 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 <i>install_dir/bin</i> directory, where <i>install_dir</i> 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_\(general\)](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 73.

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 61
- "Examples: Using trace logs" on page 65
- "Setting RAS trace parameters by using the GUI" on page 67

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	<ul style="list-style-type: none"> • Windows: The file in the <i>install_dir\Install\ITM</i> path • UNIX: The <i>install_dir/logs</i> path • Linux: The <i>install_dir/logs</i> 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: <i>install_dir</i> \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: <ul style="list-style-type: none"> • Windows: <i>install_dir</i>\logs\<i>hostname_ms_timestamp- nn</i>.log • UNIX: <i>install_dir</i>/logs/<i>hostname_ms_timestamp- nn</i>.log • Linux: <i>install_dir</i>/logs/<i>hostname_ms_timestamp- nn</i>.log <p>Note: File names for RAS1 logs include a hexadecimal time stamp.</p> <p>Also on UNIX systems, a log with a decimal time stamp is provided: <i>hostname_productcode_</i> <i>timestamp</i>.logand <i>hostname_productcode_</i> <i>timestamp</i>.pid <i>nnnn</i> in the <i>install_dir</i>/logs path, where <i>nnnn</i> is the process ID number.</p>	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	<p>The name of the RAS log file is as follows:</p> <ul style="list-style-type: none"> • Windows: <i>install_dir\logs\hostname_cq_HEXtimestamp-nn.log</i> • UNIX: <i>install_dir/logs/hostname_cq_HEXtimestamp-nn.log</i> • Linux: <i>install_dir/logs/hostname_cq_HEXtimestamp-nn.log</i> <p>Note: File names for RAS1 logs include a hexadecimal time stamp.</p> <p>Also on UNIX systems, a log with a decimal time stamp is provided: <i>hostname_productcode_timestamp.log</i> and <i>hostname_productcode.pidnnnn</i> in the <i>install_dir/logs</i> path, where <i>nnnn</i> is the process ID number.</p>	Traces activity on the portal server.
On the Tivoli Enterprise Portal Server	<p>The <i>teps_odbc.log</i> file is located in the following path:</p> <ul style="list-style-type: none"> • Windows: <i>install_dir\InstallITM</i> • UNIX: <i>install_dir/logs</i> • Linux: <i>install_dir/logs</i> 	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
<p>On the computer that hosts the monitoring agent</p>	<p>The RAS1 log files are as follows:</p> <ul style="list-style-type: none"> • Windows: <i>hostname_hd_instance_name_khdagent_HEXtimestamp-nn.log</i> in the <i>install_dir\tmaintm6\logs</i> directory • UNIX: <i>hostname_hd_instance_name_khdagent_HEXtimestamp-nn.log</i> in the <i>install_dir/logs</i> directory • Linux: <i>hostname_hd_instance_name_khdagent_HEXtimestamp-nn.log</i> in the <i>install_dir/logs</i> directory <p>These logs are in the following directories:</p> <ul style="list-style-type: none"> • Windows: <i>install_dir\tmaintm6\logs</i> • UNIX: <i>install_dir/logs</i> • Linux: <i>install_dir/logs</i> <p>On Linux systems, the following additional logs are provided:</p> <ul style="list-style-type: none"> - <i>hostname_hd_timestamp.log</i> - <i>hostname_hd_timestamp.pidnnnn</i> in the <i>install_dir/logs</i> path, where <i>nnnnn</i> is the process ID number 	<p>Traces activity of the monitoring agent.</p>

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	<p>The agent operations log files are as follows:</p> <p><i>instance_hostname</i>HD.LG0 is the current log created when the agent was started.</p> <p><i>instance_hostname</i>_HD.LG1 is the backup of the previous log.</p> <p>These logs are in the following directory depending on the operating system that you are using:</p> <ul style="list-style-type: none"> • Windows: <i>install_dir</i>\tmaitm6\logs • Linux: <i>install_dir</i>/logs • UNIX: <i>install_dir</i>/logs 	<p>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.</p> <p>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 <i>previous</i> monitoring session:</p> <ul style="list-style-type: none"> • Status of connectivity with the monitoring server • Situations that were running • The success or failure status of Take Action commands
<p>Definitions of variables:</p> <ul style="list-style-type: none"> • <i>timestamp</i> is a time stamp with a format that includes year (y), month (m), day (d), hour (h), and minute (m), as follows: yyyymmdd hhmm • <i>HEXtimestamp</i> is a hexadecimal representation of the time at which the process was started. • <i>install_dir</i> represents the directory path where you installed the IBM Tivoli Monitoring component. <i>install_dir</i> can represent a path on the computer that hosts the monitoring system, the monitoring agent, or the portal. • <i>instance</i> refers to the name of the database instance that you are monitoring. • <i>instance_name</i> refers to the name of the agent instance. • <i>hostname</i> refers to the name of the computer on which the IBM Tivoli Monitoring component runs. • <i>nn</i> 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. • <i>productcode</i> 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}kdc10cl.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 67 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 61 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 61. 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 Parm.** 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 61 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 61. 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 61 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
kbbacd1.c, 400, May 29 2007, 12:54:27, 1.2, ACF1
kbbacl.c.c, 400, May 29 2007, 12:54:27, 1.4, ACF1
kbbaccli.c, 400, May 29 2007, 12:54:28, 1.11, ACF1
vkdhscfn.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 *kbbcrd* class of the Windows OS agent, the command is:

```
ras1 set (UNIT:kbbcrd 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
<p>(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 "<i>component_name</i>" where <i>component_name</i> is the name of the component that you are attempting to install.</p> <p>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.</p>	<p>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.</p>
<p>Diagnosing problems with product browse settings (Windows systems only).</p>	<p>When you have problems with browse settings, complete the following steps:</p> <ol style="list-style-type: none"> 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. <p>If requested, you can forward this file to IBM Software Support for analysis.</p>

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.	<p>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:</p> <ul style="list-style-type: none"> • 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.	<p>Agent process: View the memory usage of the KHDCMA process. If CPU usage seems to be excessive, restart the monitoring agent.</p> <p>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.</p>
The Warehouse Proxy Agent does not write CSV files in a mounted folder.	<p>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.</p> <p>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.</p>

Table 5. General problems and solutions for uninstallation

Problem	Solution
<p>On Windows systems, uninstallation of IBM Tivoli Monitoring fails to uninstall the entire environment.</p>	<p>Be sure that you follow the general uninstallation process described in the <i>IBM Tivoli Monitoring Installation and Setup Guide</i>:</p> <ol style="list-style-type: none"> 1. Remove Tivoli Enterprise Monitoring Server Application support by completing the following steps: <ol style="list-style-type: none"> 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: <ul style="list-style-type: none"> • 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.
<p>The way to remove inactive managed systems (systems whose status is OFFLINE) from the Navigator tree in the portal is not obvious.</p>	<p>Use the following steps to remove, but not uninstall, an offline managed system from the Navigator tree:</p> <ol style="list-style-type: none"> 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. <p>To uninstall the monitoring agent, use the procedure described in the <i>IBM Tivoli Monitoring Installation and Setup Guide</i>.</p>
<p>The software inventory tag for the agent on UNIX and Linux systems is not removed during uninstallation of the agent.</p>	<p>After uninstalling the agent, manually remove the file named <i>full name of agent.cmptag</i> from the <code>\$CANDLEHOME/properties/version/</code> directory.</p>

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

Problem	Solution
<p>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.</p> <p>Note:</p> <ul style="list-style-type: none"> • 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. 	<p>There is no solution at this time.</p>

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
<p>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 <i>IBM Tivoli Monitoring Installation and Setup Guide</i>.)</p>	<p>Do not close or modify this window. It is part of the installation process and is dismissed automatically.</p>

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 67. 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 not the same every time you restart the Warehouse Proxy Agent. See the <i>IBM Tivoli Monitoring Installation and Setup Guide</i> 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
<p>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.</p>	<p>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.</p>
<p>Online Help Search cannot find any agent online help.</p>	<p>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.</p> <p>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.</p>

Table 7. Agent problems and solutions (continued)

Problem	Solution
<p>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.</p>	<p>IBM Tivoli Monitoring products 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.</p> <p>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).</p> <p>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'.)</p> <p>The physical port allocation method is defined as $(BASE_PORT + 4096 * N)$, where $N=0$ for a Tivoli Enterprise Monitoring Server process and $N=\{1, 2, \dots, 15\}$ for another type of monitoring server process. Two architectural limits result as a consequence of the physical port allocation method:</p> <ul style="list-style-type: none"> • 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. <p>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.</p> <p>Continued on next row.</p>

Table 7. Agent problems and solutions (continued)

Problem	Solution
Continued from previous row.	<p>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.</p> <p>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.)</p>

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
<p>When you access the Warehouse Proxy Historical Summarized Performance Daily and Weekly Workspace data, you receive the following error:</p> <p>KFWITM217E "\$SHIFTPERIOD\$" is not valid in the context where it is used. SQLSTATE=42703 ERR-206.</p>	<p>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.</p>

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 process application components are available, but the Availability status shows PROCESS_DATA_NOT_AVAILABLE.	<p>This problem occurs because the PerfProc performance object is disabled. When this condition exists, IBM Tivoli Monitoring cannot collect performance data for this process. Use the following steps to confirm that this problem exists and to resolve it:</p> <ol style="list-style-type: none"> 1. In the Windows Start menu, click Run. 2. Type perfmon.exe in the Open field of the Run window. The Performance window is displayed. 3. Click the plus sign (+) in the toolbar located above the right pane. The Add Counters window is displayed. 4. Look for Process in the Performance object menu. 5. Complete one of the following actions: <ul style="list-style-type: none"> • If you see Process in the menu, the PerfProc performance object is enabled and the problem is coming from a different source. You might need to contact IBM Software Support. • If you do not see Process in the menu, use the Microsoft utility from the Microsoft.com Operations website to enable the PerfProc performance object. <p>The Process performance object becomes visible in the Performance object menu of the Add Counters windows, and IBM Tivoli Monitoring is able to detect Availability data.</p> 6. Restart the monitoring agent.
The name of the attribute does not display in a bar chart or graph view.	When a chart or graph view that includes the attribute is scaled to a small size, a blank space is displayed instead of a truncated name. To see the name of the attribute, expand the view of the chart until sufficient space is available to display all characters of the attribute name.

Table 8. Workspace problems and solutions (continued)

Problem	Solution
<p>You start collection of historical data but the data cannot be seen.</p>	<p>Use the following managing options for historical data collection:</p> <ul style="list-style-type: none"> • 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 <i>IBM Tivoli Monitoring Administrator's Guide</i>. 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 <i>IBM Tivoli Monitoring Administrator's Guide</i>.
<p>Historical data collection is unavailable because of incorrect queries in the Tivoli Enterprise Portal.</p>	<p>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.</p> <p>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).</p> <p>To ensure support of historical data collection, do not use the Sort By, Group By, or First/Last functions in your queries.</p> <p>For information about the historical data collection function, See "Managing historical data" in the <i>IBM Tivoli Monitoring Administrator's Guide</i> or the Tivoli Enterprise Portal online help .</p>
<p>When you use a long process name in the situation, the process name is truncated.</p>	<p>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.</p>
<p>Regular (non-historical) monitoring data fails to be displayed.</p>	<p>Check the formation of the queries you use to gather data. For example, look for invalid SQL statements.</p>

Table 8. Workspace problems and solutions (continued)

Problem	Solution
Navigator items and workspace titles are labeled with internal names such as Kxx:XXX0000 instead of the correct names (such as Disk), where XX and xx represent the two-character agent code.	<p>Ensure that application support has been added on the monitoring server, portal server, and portal client.</p> <p>For more information about installing application support, see "Installing and enabling application support" in the <i>IBM Tivoli Monitoring Installation and Setup Guide</i>.</p>

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 67. 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 50 describes the performance impact of specific attribute groups. If possible, decrease your use of the attribute groups that require greater system resources.
<p>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</p> <pre>#'Linux_VM_Stats.Total_Memory' / 10</pre>	<p>This formula is incorrect because situation predicates support only logical operators. Your formulas cannot have mathematical operators.</p> <p>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.</p>
You want to change the appearance of situations when they are displayed in the navigation tree.	<ol style="list-style-type: none"> 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. <p>Note: The State setting is not related to severity settings in the Tivoli Enterprise Console.</p>

Table 9. Situation problems and solutions (continued)

Problem	Solution
<p>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.</p>	<p>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 <i>KpcENV</i> file for the agent (where <i>pc</i> is the two-letter product code): <code>CDP_NT_EVENT_LOG_CACHE_TIMEOUT=3600</code></p> <p>This variable determines how long events from the NT Event Log are kept.</p>
<p>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.</p>	<p>The external window responds after you close the Preview window and Situation Editor window.</p>
<p>The situation for a specific agent is not visible in the Tivoli Enterprise Portal.</p>	<p>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 <i>IBM Tivoli Monitoring Installation and Setup Guide</i>.</p>
<p>The monitoring interval is too long.</p>	<p>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.</p>
<p>The situation did not activate at startup.</p>	<p>Manually recycle the situation as follows:</p> <ol style="list-style-type: none"> 1. Right-click the situation and select Stop Situation. 2. Right-click the situation and select Start Situation. <p>Note: You can permanently avoid this problem by selecting the Run at Startup check box of the Situation Editor view for a specific situation.</p>
<p>The situation is not displayed.</p>	<p>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.</p>
<p>An Alert event did not occur even though the predicate was correctly specified.</p>	<p>Check the logs, reports, and workspaces.</p>
<p>A situation fires on an unexpected managed object.</p>	<p>Confirm that you distributed and started the situation on the correct managed system.</p>
<p>The product did not distribute the situation to a managed system.</p>	<p>Click the Distribution tab and check the distribution settings for the situation.</p>

Table 9. Situation problems and solutions (continued)

Problem	Solution
<p>The situation does not fire.</p>	<p>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.</p> <p>In the Formula tab, analyze predicates as follows:</p> <ol style="list-style-type: none"> 1. Click the fx icon in the upper-right corner of the Formula area. The Show formula window is displayed. <ol style="list-style-type: none"> a. Confirm the following details in the Formula area at the top of the window: <ul style="list-style-type: none"> • 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. <p>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.</p> <p>For additional information about situations that do not fire, see "Situations are not firing" in the <i>IBM Tivoli Monitoring Troubleshooting Guide</i>.</p>

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. <ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 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 61.

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 83. If the Take Action command fails, for general information about troubleshooting Take Action commands, see the <i>IBM Tivoli Monitoring Troubleshooting Guide</i> .

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 IBM Tivoli Distributed Monitoring and Application Management Wiki (<http://www.lotus.com/ldd/tivmonitorwiki.nsf>). 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 A. 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 6.2.3 Fix Pack 1) 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
- work_queue_size_enum: STRING
- worker_threads: INTEGER
- worker_threads_enum: STRING
- connection_pool_size: INTEGER
- connection_pool_size_enum: STRING
- export_timeout: INTEGER
- export_timeout_enum: STRING
- rpcsource_cleanup_wait: INTEGER
- rpcsource_cleanup_wait_enum: STRING
- database_connection_wait: INTEGER
- database_connection_wait_enum: STRING
- 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
- rate_wait_interval_enum: STRING
- registration_wait_interval: INTEGER
- registration_wait_interval_enum: STRING
- error_time: INTEGER
- error_time_enum: STRING
- max_error: INTEGER
- max_error_enum: STRING
- max_node: INTEGER
- max_node_enum: STRING
- 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

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
- error_line_enum: STRING
- sql_code: INTEGER
- sql_code_enum: STRING
- sql_state: STRING
- error_reason_code: INTEGER
- error_reason_code_enum: STRING
- error_message: STRING
- error_api_call: STRING
- rows_not_exported: INTEGER
- rows_not_exported_enum: STRING
- 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
- node_count_enum: STRING
- rows_sent: INTEGER
- rows_sent_enum: STRING
- rows_retrieved: INTEGER
- rows_retrieved_enum: STRING
- rows_inserted: INTEGER
- rows_inserted_enum: STRING
- row_throughput: REAL
- row_throughput_enum: STRING
- failures: INTEGER
- failures_enum: STRING
- failure_rate: REAL
- failure_rate_enum: STRING
- disconnections: INTEGER
- disconnections_enum: STRING
- disconnection_rate: REAL
- disconnection_rate_enum: STRING

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_count_enum: STRING
- export_v101_count: INTEGER
- export_v101_count_enum: STRING
- export_v610_count: INTEGER
- export_v610_count_enum: STRING
- last_export_time: STRING

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

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

For events generated by situations in the 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
- orphaned_rpcsource_enum: STRING
- rpcsource_created: INTEGER

- rpcsource_created_enum: STRING
- rpcsource_creation_rate: REAL
- rpcsource_creation_rate_enum: STRING
- rpcsource_deleted: INTEGER
- rpcsource_deleted_enum: STRING
- rpcsource_deletion_rate: REAL
- rpcsource_deletion_rate_enum: STRING

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
- maximum_queue_size_enum: STRING
- current_queue_size: INTEGER
- current_queue_size_enum: STRING
- export_queued: INTEGER
- export_queued_enum: STRING
- work_queue_insertion_rate: REAL
- work_queue_insertion_rate_enum: STRING
- export_unqueued: INTEGER
- export_unqueued_enum: STRING
- work_queue_removal_rate: REAL
- work_queue_removal_rate_enum: STRING
- export_rejected: INTEGER
- export_rejected_enum: STRING
- excess_work_queue_insertion: INTEGER
- excess_work_queue_insertion_enum: STRING
- work_queue_suspensions: INTEGER
- work_queue_suspensions_enum: STRING

Appendix B. Documentation library

A variety of publications are relevant to the use of the Warehouse Proxy Agent.

The *IBM Tivoli Monitoring, OMEGAMON XE, and Composite Application Manager products: Documentation Guide, SC23-8816*, contains information about accessing and using publications. You can find the Documentation Guide in the following information centers:

- IBM Tivoli Monitoring and OMEGAMON® XE (<http://publib.boulder.ibm.com/infocenter/tivihelp/v15r1/index.jsp>)
- IBM Tivoli Composite Application Manager (<http://publib.boulder.ibm.com/infocenter/tivihelp/v24r1/index.jsp>)

To open the Documentation Guide in the information center, select **Using the publications** in the **Contents** pane.

To find a list of new and changed publications, click **What's new in the information center** 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.

Warehouse Proxy Agent library

The documentation for this agent and other product components is located in the IBM Tivoli Monitoring Information Center (<http://publib.boulder.ibm.com/infocenter/tivihelp/...>).

One document is specific to the Warehouse Proxy Agent: Warehouse Proxy Agent User's Guide. This publication provides agent-specific information for configuring, using, and troubleshooting the Warehouse Proxy agent.

The *Offering Guide* also provides information about installing and configuring the component products in the offering.

The **Prerequisites** topic in the information center contains information about the prerequisites for each component.

Use the information in the user's guide for the agent with the *Tivoli Enterprise Portal User's Guide* to monitor Warehouse Proxy Agent resources.

Prerequisite publications

To use the information in this publication effectively, you must have some prerequisite knowledge.

See the following publications to gain the required prerequisite knowledge:

- *IBM Tivoli Monitoring Readme First*
- *Exploring IBM Tivoli Monitoring*
- *IBM Tivoli Monitoring Administrator's Guide*
- *IBM Tivoli Monitoring Agent Builder User's Guide*

- *IBM Tivoli Monitoring Command Reference*
- *Configuring IBM Tivoli Enterprise Monitoring Server on z/OS*
- *IBM Tivoli Monitoring Installation and Setup Guide*
- *IBM Tivoli Monitoring: Messages*
- *IBM Tivoli Monitoring, OMEGAMON XE, and Composite Application Manager products: Documentation Guide*
- *IBM Tivoli Monitoring Troubleshooting Guide*
- *IBM Tivoli Monitoring Universal Agent User's Guide*
- *IBM Tivoli Universal Agent API and Command Programming Reference Guide*
- *IBM Tivoli Monitoring: Upgrading from Tivoli Distributed Monitoring*
- *IBM Tivoli Monitoring: Upgrading from V5.1.2*
- *IBM Tivoli Monitoring: i5/OS® Agent User's Guide*
- *IBM Tivoli Monitoring: Linux OS Agent User's Guide*
- *IBM Tivoli Monitoring: UNIX OS Agent User's Guide*
- *IBM Tivoli Monitoring: UNIX Logs OS Agent User's*
- *IBM Tivoli Monitoring: Windows OS Agent User's Guide*
- *Tivoli Enterprise Portal User's Guide*

Related publications

The publications in related information centers provide useful information.

See the following information centers, which you can find by accessing Tivoli Documentation Central (<http://www.ibm.com/developerworks/wikis/display/tivolidoccentral/Home>):

- IBM Tivoli Monitoring
- IBM Tivoli Netcool/OMNIBus
- IBM Tivoli Application Dependency Discovery Manager
- IBM Tivoli Enterprise Console

Other sources of documentation

You can obtain additional technical documentation about monitoring products from other sources.

See the following sources of technical documentation about monitoring products:

- IBM Integrated Service Management Library (<http://www.ibm.com/software/brandcatalog/ismlibrary/>) is an online catalog that contains integration documentation as well as other downloadable product extensions.
- IBM Redbook publications (<http://www.redbooks.ibm.com/>) include Redbooks® publications, Redpapers, and Redbooks technotes that provide information about products from platform and solution perspectives.
- Technotes (<http://www.ibm.com/support/entry/portal/software>), which are found through the IBM Software Support website, provide the latest information about known product limitations and workarounds.
- Tivoli wikis

Tivoli Wiki Central (<http://www.ibm.com/developerworks/wikis/display/tivoli/Home>) is the home for interactive wikis that offer best practices and scenarios for using Tivoli products. The wikis contain 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:

- Tivoli Distributed Monitoring and Application Management Wiki (<http://www-10.lotus.com/ldd/tivmonitorwiki.nsf>) provides information about IBM Tivoli Monitoring and related distributed products, including IBM Tivoli Composite Application Manager products.
- Tivoli System z[®] Monitoring and Application Management Wiki (<http://www.ibm.com/developerworks/wikis/display/tivoliomegamon/Home>) provides information about the OMEGAMON XE products, Tivoli NetView[®] for z/OS, Tivoli Monitoring Agent for z/TPF, and other System z monitoring and application management products.

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Accessibility features help users with physical disabilities, such as restricted mobility or limited vision, to use software products successfully.

The major accessibility features in this product enable users in the following ways:

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

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

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

Navigating the interface using the keyboard

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

Magnifying what is displayed on the screen

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

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Index

A

- accessibility 99
- additional information
 - attributes 19
 - situations 51
 - Take Action commands 55
 - Workspaces 15
- agent
 - functions 1
 - problems and workarounds 77
- Agent Management Services 3
- Agent Registration workspace 16
- Always Disconnect Option attribute 24
- attribute group 20
- Attribute Group Name attribute 33
- attribute groups
 - Config 20
 - DB Info 27
 - Last Error Details 30
 - list of all 19
 - Load Statistics 34
 - Node List 37
 - overview 19
 - Performance Object Status 39
 - Registration Address List 42
 - RPCSource Statistics 43
 - Warehouse TEMS List 46
 - Work Queue 46
- attributes 20
 - additional information 19
 - Always Disconnect Option 24
 - Attribute Group Name 33
 - Batch 24
 - Class Path 29
 - Config 21
 - Connection Pool Size 22
 - Current Queue Size 47
 - Database Compression 26
 - Database Connection Wait (Min) 23
 - DB Connectivity 30
 - DB Info 27
 - DB Name 28
 - DB Type 28
 - DB User 28
 - DB Version 28
 - Disconnection Rate (Per Min) 37
 - Disconnections 36
 - Driver Name 29
 - Driver Version 29
 - Enable Database Connection Wait 23
 - Error API Call 32
 - Error Code 41
 - Error File 31
 - Error Function 31
 - Error Line 31
 - Error Message 32
 - Error Reason Code 32
 - Error Severity 31
 - Error Time (Min) 25
 - Error Timestamp 33
 - Error Type 30

- attributes (*continued*)
 - Excess Work Queue Insertion 49
 - Export Count 38
 - Export Queued 47
 - Export Rejected 49
 - Export Timeout (Sec) 22
 - Export Unqueued 48
 - Export V350 38
 - Export V610 38
 - Failed System 33
 - Failure Rate (Per Min) 36
 - Failures 36
 - Java Arguments 29
 - KBB SIG1 24
 - Last Error Details 30
 - Last Export Time 38
 - Load Statistics 34
 - Max Error 26
 - Max Node 26
 - Maximum Queue Size 47
 - NLS Settings 29
 - Node 21, 27, 30, 34, 37, 39, 42, 44, 46
 - Node Count 34
 - Node List 37
 - Node Name 37
 - Object Name 39
 - Object Status 40
 - Object Type 40
 - ODBC Datasource Name 29
 - Orphaned RPCSource 44
 - overview 19
 - Performance Object Status 39
 - Product Code 33
 - Query Name 39
 - Rate Wait Interval (Sec) 24
 - Registration Address 43
 - Registration Address List 42
 - Registration Status 43
 - Registration Time 43
 - Registration Wait Interval (Min) 25
 - Row Throughput (Per Min) 35
 - Rows Inserted 35
 - Rows Not Exported 33
 - Rows Retrieved 35
 - Rows Sent 34
 - RPCSource Cleanup Wait (Sec) 22
 - RPCSource Created 44
 - RPCSource Creation Rate (Per Min) 45
 - RPCSource Deleted 45
 - RPCSource Deletion Rate (Per Min) 45
 - RPCSource Statistics 44
 - SQL Code 32
 - SQL State 32
 - Start Time 21
 - Table Name 33
 - TEMS Name 46
 - Timestamp 21, 28, 30, 34, 37, 39, 43, 44, 46
 - URL 29

- attributes (*continued*)
 - Warehouse Compression Distributed Sources 27
 - Warehouse Compression Z Sources 27
 - Warehouse TEMS List 46
 - Work Queue 46
 - Work Queue Insertion Rate (Per Min) 48
 - Work Queue Removal Rate (Per Min) 48
 - Work Queue Size 21
 - Work Queue Suspensions 49
 - Worker Threads 21

B

- Batch attribute 24

C

- calculate historical data disk space 50
- capacity planning for historical data 50
- Class Path attribute 29
- commands
 - tacmd addSystem 13
 - Take Action 55
- components 2
 - IBM Tivoli Monitoring 2
- compress historical data 5
- Config attribute group 20
- configuration 10
 - agent 5
 - fields 11
 - problems and workarounds 73
 - remote 13
 - values 11
- Configuration
 - situations 52
 - workspaces
 - descriptions 16
- Configuration workspace 16
- configuring the monitoring agent 5
- Connection Pool Size attribute 22
- Current Queue Size attribute 47

D

- data collection 4
- data sources 4
- Database Compression attribute 26
- Database Connection Wait (Min) attribute 23
- DB Connectivity attribute 30
- DB Info attribute group 27
- DB Name attribute 28
- DB Type attribute 28
- DB User attribute 28
- DB Version attribute 28
- descriptions 52

- detailed 66
- developerWorks website 96
- Disconnection Rate (Per Min)
 - attribute 37
- Disconnections attribute 36
- disk capacity planning for historical data 50
- documentation
 - See publications
- Driver Name attribute 29
- Driver Version attribute 29

E

- Enable Database Connection Wait attribute 23
- enhancements 1
- Error API Call attribute 32
- Error Code attribute 41
- Error File attribute 31
- Error Function attribute 31
- Error Line attribute 31
- Error Message attribute 32
- Error Reason Code attribute 32
- Error Severity attribute 31
- Error Time (Min) attribute 25
- Error Timestamp attribute 33
- Error Type attribute 30
- event
 - mapping 89
- Excess Work Queue Insertion attribute 49
- Export Count attribute 38
- Export Queued attribute 47
- Export Rejected attribute 49
- Export Timeout (Sec) attribute 22
- Export Unqueued attribute 48
- Export V350 attribute 38
- Export V610 attribute 38

F

- Failed System attribute 33
- Failure Rate (Per Min) attribute 36
- Failures attribute 36

H

- historical data
 - calculate disk space 50
 - compress 5
 - disk capacity planning 50

I

- IBM Tivoli Monitoring 2
 - overview 1
- installation 10
 - agent 5
 - problems and workarounds 73
 - remote 13
- installing language packs 7
- installing the monitoring agent 5
- Integrated Service Management Library
 - documentation 96

- interface
 - user 3
- Internal Statistics workspace 17

J

- Java Arguments attribute 29

K

- KBB SIG1 attribute 24
- KHD_DB_Connectivity situation 53
- KHD_Error_Critical situation 53
- KHD_Error_Fatal situation 54

L

- language packs 7
 - installing 7
 - silent installation 7
- Last Error Details attribute group 30
- Last Export Time attribute 38
- list of messages 88
- Load Statistics attribute group 34

M

- Max Error attribute 26
- Max Node attribute 26
- Maximum Queue Size attribute 47
- messages
 - for Warehouse Proxy Agent 88
- monitoring components
 - unique names 76

N

- new in this release 1
- NLS Settings attribute 29
- Node attribute 21, 27, 30, 34, 37, 39, 42, 44, 46
- Node Count attribute 34
- Node List attribute group 37
- Node Name attribute 37

O

- Object Name attribute 39
- Object Status attribute 40
- Object Type attribute 40
- ODBC Datasource Name attribute 29
- Orphaned RPCSource attribute 44
- overview
 - IBM Tivoli Monitoring 1

P

- performance considerations 83
- Performance Object Status attribute
 - group 39
- policies 57
- prerequisite publications 95
- problems and workarounds 73
 - agent-specific 77

- problems and workarounds (*continued*)
 - agent-specific workspaces 80
 - configuration 73
 - install 73
 - remote deployment 76
 - situations 83
 - Take Action commands 86
 - workspaces 80
- Product Code attribute 33
- publications 95, 96
 - developerWorks website 96
 - IBM Tivoli Monitoring 95
 - Integrated Service Management Library 96
 - prerequisite 95
 - Redbooks 96
 - related 96
 - Technotes 96
 - wikis 96

Q

- queries, using attributes 19
- Query Name attribute 39

R

- ras1 69
- Rate Wait Interval (Sec) attribute 24
- Redbooks 96
- Registration Address attribute 43
- Registration Address List attribute
 - group 42
- Registration Status attribute 43
- Registration Time attribute 43
- Registration Wait Interval (Min) attribute 25
- remote
 - installation and configuration 13
- remote deployment
 - problems and workarounds 76
- requirements 5
- response file template 7
- Row Throughput (Per Min) attribute 35
- Rows Inserted attribute 35
- Rows Not Exported attribute 33
- Rows Retrieved attribute 35
- Rows Sent attribute 34
- RPCSource Cleanup Wait (Sec) attribute 22
- RPCSource Created attribute 44
- RPCSource Creation Rate (Per Min) attribute 45
- RPCSource Deleted attribute 45
- RPCSource Deletion Rate (Per Min) attribute 45
- RPCSource Statistics attribute group 43

S

- silent installation 7
- silent installation of language packs 7
- situations 52
 - additional information
 - predefined, defined 51
 - KHD_DB_Connectivity 53

- situations (*continued*)
 - KHD_Error_Critical 53
 - KHD_Error_Fatal 54
 - overview 51
 - predefined 52
 - problems and workarounds 83
 - Situation Editor 51
- situations, using attributes 19
- SQL Code attribute 32
- SQL State attribute 32
- Start Time attribute 21
- Statistics
 - situations 53
 - workspaces
 - descriptions 17
- Statistics workspace 17
- support
 - list of messages 88

T

- Table Name attribute 33
- tacmd addSystem command 13
- Take Action commands
 - additional information 55
 - overview 55
 - predefined 57
 - problems and workarounds 86
- Technotes 96
- TEMS Name attribute 46
- Timestamp attribute 21, 28, 30, 34, 37, 39, 43, 44, 46
- Tivoli Enterprise Console
 - event mapping 89
- trace
 - turn off 72
 - turn on 71
- trace settings 69
- tracing 66
- troubleshooting 59
 - agent-specific 77
 - agent-specific workspaces 80
 - installation 73
 - problems and workarounds 73
 - remote deployment 76
 - situations 83
 - Take Action commands 86
 - turn off trace 72
 - turn on trace 71
 - uninstallation 73
 - workspaces 80

U

- unique names for monitoring
 - components 76
- URL attribute 29
- user interface options 3

V

- views
 - Agent Registration workspace 16
 - Configuration workspace 16
 - Internal Statistics workspace 17
 - Statistics workspace 17

- views (*continued*)
 - Warehouse Proxy workspace 16

W

- Warehouse Compression Distributed Sources attribute 27
- Warehouse Compression Z Sources attribute 27
- Warehouse Proxy
 - situations 52
 - workspaces
 - descriptions 16
- Warehouse Proxy Agent
 - performance considerations 83
- Warehouse Proxy workspace 16
- Warehouse TEMS List attribute group 46
- wikis 96
- Work Queue attribute group 46
- Work Queue Insertion Rate (Per Min) attribute 48
- Work Queue Removal Rate (Per Min) attribute 48
- Work Queue Size attribute 21
- Work Queue Suspensions attribute 49
- workarounds 73
- Worker Threads attribute 21
- workspaces
 - Agent Registration 16
 - Configuration 16
 - descriptions 16
 - Internal Statistics 17
 - predefined 15
 - problems and workarounds 80
 - Statistics 17
 - Warehouse Proxy 16
- Workspaces
 - additional information 15
 - overview 15



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