IBM Tivoli Monitoring
Version 6.3 Fix Pack 2

Windows OS Agent Troubleshooting Guide

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Note
Before using this information and the product it supports, read the information in "Notices" on page 35.

This edition applies to version 6, release 3, fix pack 2 of IBM Tivoli Monitoring (product number 5724-C04) and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

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Chapter 1. Troubleshooting

Troubleshooting, or problem determination, is the process of determining why a certain product is malfunctioning.

Note: You can resolve some problems by ensuring that your system matches the system requirements listed in the *IBM Tivoli Monitoring Windows OS Agent Installation and Configuration Guide*.

See the following documents for general information about using the product:

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

Gathering product information for IBM Software Support

Before contacting IBM® Software Support about a problem you are experiencing with this product, gather the following information that relates to the problem:

Table 1. 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 Chapter 2, "Trace logging," on page 3 for lists of all trace log files and their locations. See the *IBM Tivoli Monitoring User's Guide* for general information about the IBM Tivoli Monitoring environment.
Operating system	Operating system version number and patch level. Use the systeminfo command to obtain information about the operating system.
Messages	Messages and other information displayed on the screen
Version numbers for IBM Tivoli Monitoring	Version number of the following members of the monitoring environment: • IBM Tivoli Monitoring. Also provide the patch level, if available. • IBM Tivoli Monitoring: Windows OS Agent Use the command *install_dir*\InstallITM\KinCinfo -i.
Screen captures	Screen captures of incorrect output, if any.

Built-in troubleshooting features

The primary troubleshooting feature in the IBM Tivoli Monitoring: Windows OS Agent is logging. *Logging* refers to the text messages and trace data generated by the IBM Tivoli Monitoring: Windows OS 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 Chapter 2, "Trace logging," on page 3 for more information.

Problem classification

The following types of problems might occur with the IBM Tivoli Monitoring: Windows OS Agent:

- Installation and configuration
- General usage and operation
- Display of monitoring data

Chapter 2. Trace logging

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

IBM Software Support uses the information captured by trace logging to trace a problem to its source or to determine why an error occurred. The default configuration for trace logging, such as whether trace logging is enabled or disabled and trace level, depends on the source of the trace logging. Trace logging is always enabled.

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

To learn how to configure and use trace logging, see the following topics:

- "Principal trace log files" on page 4
- "Examples: using trace logs" on page 5
- "Setting RAS trace parameters" on page 6

Overview of log file management

Table 2 on page 4 provides the names, locations, and descriptions of RAS1 log files. The log file names adhere to the following naming convention:

hostname_product_program_timestamp-nn.log

where:

- *hostname* is the host name of the machine on which the monitoring component is running.
- *product* is the two-character product code. For Monitoring Agent for Windows OS, the product code is nt.
- *program* is the name of the program being run.
- *timestamp* is an 8-character hexadecimal timestamp representing the time at which the program started.
- *nn* is a rolling log suffix. See "Examples of trace logging" for details of log rolling.

Examples of trace logging

For example, if a Microsoft Windows monitoring agent is running on computer "server01", the RAS log file for the Monitoring Agent for Windows OS might be named as follows:

```
server01_nt_kntcma_437fc59-01.log
```

For long-running programs, the *nn* suffix is used to maintain a short history of log files for that startup of the program. For example, the kntcma program might have a series of log files as follows:

```
server01_nt_kntcma_437fc59-01.log
server01_nt_kntcma_437fc59-02.log
server01_nt_kntcma_437fc59-03.log
```

As the program runs, the first log (*nn*=01) is preserved because it contains program startup information. The remaining logs "roll." In other words, when the set of numbered logs reach a maximum size, the remaining logs are overwritten in sequence.

Each time a program is started, a new timestamp is assigned to maintain a short program history. For example, if the Monitoring Agent for Windows OS is started twice, it might have log files as follows:

```
server01_nt_kntcma_437fc59-01.log
server01_nt_kntcma_437fc59-02.log
server01_nt_kntcma_437fc59-03.log

server01_nt_kntcma_537fc59-01.log
server01_nt_kntcma_537fc59-02.log
server01_nt_kntcma_537fc59-03.log
```

Each program that is started has its own log file. For example, the Monitoring Agent for Windows OS would have agent logs in this format:

```
server01_nt_kntcma_437fc59-01.log
```

Other logs, such as logs for collector processes and Take Action commands, have a similar syntax as in the following example:

```
server01_nt_kntpgm_447fc59-01.log
```

where **kntpgm** is the program name.

Note: When you communicate with IBM Software Support, you must capture and send the RAS1 log that matches any problem occurrence that you report.

Principal trace log files

Table 2 contains locations, file names, and descriptions of trace logs that can help determine the source of problems with agents.

Table 2. Trace log files for troubleshooting agents

System where log is located	File name and path	Description
On the computer that hosts the monitoring agent See Definitions of variables for descriptions of the variables in the file names in column two.	The RAS1 log files are named *hostname*_nt_*program_timestamp-nn*.log and are located in the *install_dir*\tmaitm6_x64\logs path if you have installed a 64-bit agent, or in the *install_dir*\tmaitm6\logs path if you have installed a 32-bit agent. **Note:** File names for RAS1 logs include a hexadecimal timestamp.	Traces activity of the monitoring agent. **Note:** Other logs, such as logs for Take Action commands (if available), have a similar syntax and are located in this directory path.
	The *.LG0 file is located in the *install_dir*\tmaitm6_x64\logs path if you have installed a 64-bit agent, or in the *install_dir*\tmaitm6\logs path if you have installed a 32-bit agent.	A new version of this file is generated every time the agent is restarted. IBM Tivoli Monitoring generates one backup copy of the *.LG0 file with the tag .LG1. View .LG0 to learn the following details regarding the current monitoring session: • Status of connectivity with the monitoring server. • Situations that were running. • The success or failure status of Take Action commands.

Table 2. Trace log files for troubleshooting agents (continued)

System where log is located	File name and path	Description
On the Tivoli Enterprise Monitoring Server See Definitions of variables for descriptions of the variables in the file names in column two.	**On UNIX:** The candle_installation.log file in the *install_dir*/logs path. **On Windows:** The file in the *install_dir*\InstallITM path.	Provides details about products that are installed. **Note:** Trace logging is enabled by default. A configuration step is not required to enable this tracing.
	The Warehouse_Configuration.log file is located in the following path on Windows: *install_dir*\InstallITM.	Provides details about the configuration of data warehousing for historical reporting.
	The RAS1 log file is named *hostname*_ms_*timestamp-nn*.log and is located in the following path: • **On Windows:** *install_dir*\logs • **On UNIX:** *install_dir*/logs **Note:** File names for RAS1 logs include a hexadecimal timestamp **Also on UNIX, a log with a decimal timestamp is provided:** *hostname*_ms_*timestamp*.log and *hostname*_ms_*timestamp*.pid*nnnnn* in the *install_dir*/*logs* path, where *nnnnn* is the process ID number.	Traces activity on the monitoring server.
On the Tivoli Enterprise Portal Server See Definitions of variables for descriptions of the variables in the file names in column two.	The RAS1 log file is named *hostname*_cq_*timestamp-nn*.log and is located in the following path: • **On Windows:** *install_dir*\logs **Note:** File names for RAS1 logs include a hexadecimal timestamp	Traces activity on the portal server.
	The TEPS_ODBC.log file is located in the following path on Windows: *install_dir*\InstallITM.	When you enable historical reporting, this log file traces the status of the warehouse proxy agent.
Definitions of variables for RAS1 logs: • *hostname* is the host name of the machine on which the agent is running. • *install_dir* represents the directory path where you installed the IBM Tivoli Monitoring component. *install_dir* can represent a path on the computer that hosts the monitoring server, the monitoring agent, or the portal server. • *product* is the two-character product code. For Monitoring Agent for Windows OS, the product code is nt. • *program* is the name of the program being run. • *timestamp* is an eight-character hexadecimal timestamp representing the time at which the program started. • *nn* is a rolling log suffix. See "Examples of trace logging" on page 3 for details of log rolling.		

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

Examples: using trace logs

Typically IBM Software Support applies specialized knowledge to analyze trace logs to determine the source of problems. However, you can open trace logs in a text editor such as **wordpad** to learn some basic facts about your IBM Tivoli Monitoring environment. You can use the **dir** command to list the log files in the *install_dir*/logs directories, sorted by time they were last updated.

Example one

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

```
(Thursday, August 11, 2005, 08:21:30-{94C}kdcl0cl.c,105,"KDCL0_ClientLookup") status=1c020006,
    "location server unavailable", ncs/KDC1_STC_SERVER_UNAVAILABLE
(Thursday, August 11, 2005, 08:21:35-{94C}kraarreg.cpp,1157,"LookupProxy") Unable to connect to
    broker at ip.pipe:: status=0, "success", ncs/KDC1_STC_OK
(Thursday, August 11, 2005, 08:21:35-{94C}kraarreg.cpp,1402,"FindProxyUsingLocalLookup") Unable
    to find running CMS on CT_CMSLIST <IP.PIPE:#server1a>
```

Example two

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

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

Key points regarding the preceding excerpt:

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

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

1. In the Windows **Start** menu, choose **Program Files > IBM Tivoli® Monitoring > Manage Tivoli Monitoring Service**. The Manage Tivoli Enterprise Monitoring Services window is displayed.
2. Right-click a component and select **Advanced > View Trace Log** in the pop-up menu. The program displays the Select Log File window that lists the RAS1 logs for the monitoring agent.
3. Select a log file from the list and click **OK**. You can also use this viewer to access remote logs.

Note: The viewer converts timestamps in the logs to a readable format.

Setting RAS trace parameters

Objective

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

Background Information

Monitoring Agent for Windows OS uses RAS1 tracing and generates the logs described in Table 2 on page 4. The default RAS1 trace level is ERROR.

RAS1 tracing has control parameters to manage to the size and number of RAS1 logs. Use the procedure described in this topic to set the parameters.

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.

Before you begin

See "Overview of log file management" on page 3 to ensure that you understand log rolling and can reference the correct log files when you managing log file generation.

After you finish

Monitor the size of the **logs** directory. Default behavior can generate a total of 45 to 60 MB for each agent that is running on a computer. For example, each database instance that you monitor could generate 45 to 60 MB of log data. See the "Procedure" topic 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 which are pruned automatically, other log types can grow indefinitely, for example, the logs in Table 2 on page 4 that include a process ID number (PID).

Consider using collector trace logs (described in Table 2 on page 4) as an additional source of troubleshooting information.

Procedure

Specify RAS1 trace options in the **KNTENV** file. You also need specify tracing options for kcawd in the environment file, **KCAENV**. You can manually edit the **KNTENV** configuration file to set trace logging:

1. Open the trace options file: *install_dir*\tmaitm6_x64\KNTENV if you have installed a 64-bit agent or *install_dir*\tmaitm6\KNTENV if you have installed a 32-bit agent.
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:knt ALL) (UNIT:kra ALL)
   ```
3. Edit the line that begins with **KBB_RAS1_LOG=** to manage the generation of log files:
   - Edit the following parameters to adjust the number of rolling log files and their size.
     - **MAXFILES**: the total number of files that are to be kept for all startups of a given program. Once this value is exceeded, the oldest log files are discarded. Default value is 9.
     - **LIMIT**: the maximum size, in megabytes (MB) of a RAS1 log file. Default value is 5.
   - IBM Software Support might guide you to modify the following parameters:
     - **COUNT**: the number of log files to keep in the rolling cycle of one program startup. Default value is 3.
     - **PRESERVE**: the number of files that are not to be reused in the rolling cycle of one program startup. Default value is 1.

   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.

(*Windows only*) **Alternate method to edit trace logging parameters:**

1. Open the Manage Tivoli Enterprise Monitoring Services window.
2. Right-click the icon of the monitoring agent whose logging you want to modify.

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

   The selections are as follows:

   - No error tracing. `KBB_RAS1=-none-`
   - General error tracing. `KBB_RAS1=ERROR`
   - Intensive error tracing. `KBB_RAS1=ERROR (UNIT:knt ALL) (UNIT:knz ALL) (UNIT:knl ALL)`
   - Maximum error tracing. `KBB_RAS1=ERROR (UNIT:knt ALL) (UNIT:kra ALL)`

     Note: As this example shows, you can set multiple RAS tracing options in a single statement.

     Note: For more detailed tracing, you can substitute DETAIL for ERROR in the above selections.
5. Modify the value for "Maximum Log Size Per File (MB)" to change the log file size (changes LIMIT value).
6. Modify the value for "Maximum Number of Log Files Per Session" to change the number of logs files per startup of a program (changes COUNT value).
7. Modify the value for "Maximum Number of Log Files Total" to change the number of logs files for all startups of a program (changes MAXFILES value).
8. (*Optional*) Click Y (Yes) in the **KDC_DEBUG Setting** menu to log information that can help you diagnose communications and connectivity problems between the monitoring agent and the monitoring server.

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

Chapter 3. Problems and workarounds

See the *IBM Tivoli Monitoring Troubleshooting Guide* for general troubleshooting information. This publication provides agent-specific troubleshooting information.

The following topics provide symptoms and workarounds for problems that might occur with Monitoring Agent for Windows OS:

Installation and configuration troubleshooting

Table 3 shows solutions for installation and configuration problems.

Table 4 on page 11 shows solutions for uninstallation problems.

Table 3. Problems and solutions for installation and configuration

Problem	Solution
Unable to install the monitoring agent on a Windows 2008 64-bit Enterprise Edition system.	Confirm if you are at the supported level. Increase the tracing on the Windows OS agent. Set maximum tracing on the agent. For instructions, see "Setting RAS trace parameters" on page 6.
A problem can arise when you install and configure a new monitoring agent to a computer where other agents are running as described in this example: • Agents are running on computer and communicating with a Tivoli Enterprise Monitoring Server, called **TEMS1**. • You install a new agent on the same computer and you want this agent to communicate with a different monitoring server, called **TEMS2**. • When you configure the new agent to communicate with **TEMS2**, all the existing agents are re-configured to communicate with **TEMS2**.	You must reconfigure the previously existing agents to restore their communication connection with **TEMS1**. For example, you can right-click the row for a specific agent in the Manage Tivoli Enterprise Monitoring Services, and select **Reconfigure**. See the *IBM Tivoli Monitoring Installation and Setup Guide* for more information on reconfiguration.
Error Message - Could not open DNS registry key	This message is informational only. No action is required. The Windows agent reports the fact that it could not find a registry entry for the DNS Server Event Log. This means that the DNS Server is not installed.

Table 3. Problems and solutions for installation and configuration (continued)

Problem	Solution
The following problems occur in workspace views: • The Monitored Logs workspace shows a record count of zero (0). • The Event Logs workspace shows no records.	Windows security logging is not turned on by default. Normally, no data is collected in the security log unless the Windows administrator turns it on. The **Record Count = 0** data value that the monitoring agent returns in the Windows monitored logs report confirms that security logging is not turned on.
Diagnosing problems with product browse settings.	When you have problems with browse settings, perform the following steps: 1. Click on **Start > Programs > IBM Tivoli Monitoring > Manage Tivoli Enterprise Monitoring Services**. The Manage Tivoli Enterprise Monitoring Services is displayed. 2. Right-click the Windows agent and select **Browse Settings**. A text window is displayed. 3. Click **Save As** and save the information in the text file. If requested, you can forward this file to IBM Software Support for analysis.
A message similar to "Unable to find running CMS on CT_CMSLIST" in the log file is displayed.	If a message similar to "Unable to find running CMS on CT_CMSLIST" is displayed in the Log file, the agent is not able to connect to the monitoring server. Confirm the following points: • Do multiple network interface cards (NICs) exist on the system? • If multiple NICs exist on the system, find out which one is configured for the monitoring server. Ensure that you specify the correct host name and port settings for communication in the IBM Tivoli Monitoring environment.
The system is experiencing high CPU usage after you install or configure Monitoring Agent for Windows OS.	**Agent process:** View the memory usage of the KNTCMA process. If CPU usage seems to be excessive, recycle the monitoring agent. **Network Cards:** The network card configurations can decrease the performance of a system. Each of the stream of packets that a network card receives (assuming it is a broadcast or destined for the under-performing system) must generate a CPU interrupt and transfer the data through the I/O bus. If the network card in question is a bus-mastering card, work can be off-loaded and a data transfer between memory and the network card can continue without using CPU processing power. Bus-mastering cards are generally 32-bit and are based on PCI or EISA bus architectures.
You successfully migrate an OMEGAMON® monitoring agent to IBM Tivoli Monitoring, Version 6.2.0 or later. However, when you configure historical data collection, you see an error message that includes, `Attribute name may be invalid, or attribute file not installed for warehouse agent`.	Install the agent's application support files on the Tivoli Enterprise Monitoring Server, using the following steps: 1. Open the Manage Tivoli Enterprise Monitoring Services window. 2. Right-click the name of the monitoring server. 3. Select **Advanced > Add TEMS Application Support** in the pop-up menu. Add application support if any for any agent that is missing from the list. See in IBM Tivoli Monitoring Installation and Setup Guide for more information on adding application support. Ensure that the agent's application support files are pushed to the system that houses the Warehouse Proxy Agent. The Warehouse Proxy must be able to access the short attribute names for tables and columns. That way, if the longer versions of these names exceed the limits of the Warehouse database, the shorter names can be substituted.

Table 4. General problems and solutions for uninstallation

Problem	Solution
On Windows, uninstallation of IBM Tivoli Monitoring fails to uninstall the entire environment.	Be sure that you follow the general uninstallation process described in the *IBM Tivoli Monitoring Installation and Setup Guide*: 1. Uninstall monitoring agents first, as in the following examples: • Uninstall a single monitoring agent for a specific database. —OR— • Uninstall all instances of a monitoring product, such as IBM Tivoli Monitoring for Databases. 2. Uninstall IBM Tivoli Monitoring. See the *IBM Tivoli Monitoring Troubleshooting Guide* and the topic on installation problems for more information on how to remove the entire environment.
The way to remove inactive managed systems (systems whose status is OFFLINE) from the Enterprise navigation tree in the portal is not obvious.	When you want to remove a managed system from the navigation tree, complete the following steps: 1. Click **Enterprise** in the navigation tree. 2. Right-click **Workspace -> Managed System Status**. 3. Right-click the offline managed system and select **Clear offline entry**.

Unique names for monitoring components

You must decide how to name the monitoring agents. This name is intended to uniquely identify that monitoring agent. The agent's default name is composed of three qualifiers:

- Optional instance name
- Machine network host name
- Agent product node type

An agent name truncation problem can occur when the network domain name is included in the network host name portion of the agent name. For example, instead of just the host name myhost1 being used, the resulting host name might be myhost1.acme.north.prod.com. Inclusion of the network domain name causes the agent name in the example above to expand to SERVER1:myhost1.acme.north.prod.com:KXX. This resulting name is 39 characters long. It is truncated to 32 characters resulting in the name SERVER1:myhost1.acme.north.prod.

In general, create names that are short but meaningful within your environment. Use the following guidelines:

- Each name must be unique. One name cannot match another monitoring agent name exactly.
- Each name must begin with an alpha character.
- Do not use blanks or special characters, including $, #, and @.
- Each name must be between 2 and 32 characters in length.
- Monitoring agent naming is case-sensitive on all operating systems.

Create the names by completing the following steps:

1. Open the configuration file for the monitoring agent, which is located in *install_dir*\tmaitm6_x64\K*product_code*CMA.INI if you have installed a 64-bit agent or *install_dir*\tmaitm6\K*product_code*CMA.INI if you have installed a 32-bit agent. For example, the product code for the Monitoring Agent for Windows OS is NT and the file name is KNTCMA.INI.
2. Find the line the begins with **CTIRA_HOSTNAME=**.

3. Type a new name for host name that is a unique, shorter name for the host computer. The final concatenated name including the subsystem name, new host name, and NT, cannot be longer than 32 characters.

   Note: You must ensure that the resulting name is unique with respect to any existing monitoring component that was previously registered with the Tivoli Enterprise Monitoring Server.
4. Save the file.
5. Restart the agent.
6. If you do not find the files mentioned in Step 1, perform the workarounds listed in the next paragraph.

If you do not find the files mentioned in the preceding steps, perform the following workarounds:

1. Change **CTIRA_HOSTNAME** environment variable in the configuration file of the monitoring agent.
   - Find the KNTENV file in the same path mentioned in the preceding row.
2. If you cannot find the **CTIRA_HOSTNAME** environment variable, you must add it to the configuration file of the monitoring agent:
   - **On Windows:** Use the **Advanced > Edit Variables** option.
3. Some monitoring agents (for example, the monitoring agent for MQ Series) do not reference the **CTIRA_HOSTNAME** environment variable to generate component names. Check the documentation for the monitoring agent that you are using for information on name generation. If necessary, contact IBM Software Support.

Agent troubleshooting

Table 5 provides agent-specific troubleshooting information. See the *IBM Tivoli Monitoring Troubleshooting Guide* for general troubleshooting information.

Table 5. Agent problems and solutions

Problem	Solution

The monitoring agent stops with the following error:
`Unable to allocate 2147483642 bytes of memory.`
`Agent is terminating...`
	Delete the `TMAITM6\logs\khdexp.cfg` file then restart agent. Observe if your agent still terminates and sends the memory allocation error.
	
	If after deleting the `khdexp.cfg` file the agent still terminates with the same memory error, remove all the entries in `TMAITM6\logs` then restart the agent. You can move them to a temporary directory if you do not want to delete them. After removing all entries in `TMAITM6\logs` and restarting the agent, observe if your agent still sends the memory allocation error.

Table 5. Agent problems and solutions (continued)

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

Table 5. Agent problems and solutions (continued)

Problem	Solution

The agent goes off-line when collecting the network port attribute due to reverse DNS look-up time-out.	This agent can hang when querying network ports information and the DNS reverse lookup is disabled. Several errors similar to the following will be logged:
	`(4A7BDB8F.0000-1B90:knt67agt.cpp,243,"TakeSample") gethostbyaddr error <11004> for IP address error <11004> for IP address`
	`(4A7BDB94.0000-1B90:knt67agt.cpp,243,"TakeSample") gethostbyaddr error <11004> for IP address error <11004> for IP address`
	The agent appears to be off-line in the Tivoli Enterprise Portal, and does not report any data for any workspace. The environment variable REVERSE_LOOKUP_ACCEPTED_FAILURES that can be specified in the configuration file allows you to set the number of accepted failures in the reverse lookup. This action can reduce the hang time.

The process application components are available, but the Availability status shows PROCESS_DATA_NOT_ AVAILABLE.	This problem occurs because the PerfProc performance object is disabled. When this condition exists, IBM Tivoli Monitoring cannot collect performance data for this process. Do the following to confirm that this problem exists and resolve it: Choose Run in the Windows Start menu. Type perfmon.exe in the Open field of the Run window. The Performance window is displayed. Click the plus sign (+) in the tool bar located above the right pane. The Add Counters window is displayed. Look for Process in the Performance object pull-down menu. Perform one of the following actions: If you see Process in the pull-down menu, the PerfProc performance object is enabled and the problem is coming from a different source. You might need to contact IBM Software Support. If you do not see Process in the pull-down menu, use the Microsoft utility from the following Web site to enable the PerfProc performance object: `http://blogs.technet.com/mscom/archive/2008/12/18/the-mystery-of-the-missing-process-performance-counter-in-perfmon.aspx` The Process performance object becomes visible in the Performance object pull-down menu of the Add Counters windows, and IBM Tivoli Monitoring is able to detect Availability data. Restart the monitoring agent.
The CPU of the Monitoring Agent for Windows OS is high	The PerfProc service is typically the one responsible for high CPU. Others, like TCPIP, might also need to be disabled. Using the exctrlst.exe that you can download from the Microsoft site, you can disable the PerfProc and TCPIP services. Run the exctrlst.exe command to bring up the Extensible Counter List, where all of the counters are listed. You can deselect the Performance Counters Enabled box while highlighting PerfProc. Click **Refresh** to save the change. The same method can be used to disable the TCPIP counter. If these two services are stopped, Tivoli Enterprise Portal workspaces or situations based on Process and Network attribute groups will no longer function.
The Long Queue Name is not matched with the row data collected from perfmon.	To allow the Long Queue Name to be matched with the row data collected from perfmon (all the remaining attributes for each MSMQ Queue) the first 63 bytes (characters) of the Queue Name must be unique. This is the only way that the queue name can be matched with the additional metrics that come back from perfmon (the source for the remaining attributes of the queue instance).
When you edit the configuration for an existing monitoring agent, the values displayed are not correct.	The original configuration settings might include non-ASCII characters. These values were stored incorrectly and result in the incorrect display. Enter new values using only ASCII characters.
Attributes do not allow non-ASCII input in the situation editor.	None. Any attribute that does not include "(Unicode)" might support only ASCII characters. For example "Attribute (Unicode)" will support unicode but "Attribute" without "(Unicode)" might only support ASCII characters.

Table 5. Agent problems and solutions (continued)

Problem	Solution
The Windows Agent accesses the root\cimv2 WMI namespace to collect its WMI data. The Security (Access Permissions) for allowing the agent to access these namespaces need to have Enable, Execute Methods, and Provider Write permissions for the Everyone account.	1. Click **Start -> Run**. 2. Type Wmimgmt.msc and click **OK**. 3. Right-click **Wmi Control** and choose properties. 4. Ensure that it says **successfully connected** in the General tab and then choose the Security tab. 5. Select Root folder and then click **Security** at the bottom of the screen. 6. Highlight **Everyone** and then ensure that the 'Enable Account', 'Execute Methods', 'Provider Write' option is Allowed. If it is not, then choose this option. 7. Highlight **Local Service** and then ensure that the 'Provider Write' option is Allowed. If it is not, then choose this option. 8. Click **OK**. 9. Reboot the server once.
No performance data is displayed in workspace views, no data is available for situations, and no data is available for historical logging.	When the Windows operating system detects a problem in one of its extensible performance monitoring DLL files, it marks the DLL as "disabled." Any DLL that is disabled cannot provide performance data through the Windows Performance Monitor interfaces (Perfmon or Performance Monitor APIs). This prevents IBM Tivoli Monitoring agents from gathering data supplied by the disabled DLL. For more information, see Microsoft Support Knowledge Base article 248993 at the following Web address: http://support.microsoft.com/default.aspx?scid=kb;EN-US;248993 Follow the Resolution instructions provided in this article (248993) to re-enable any performance monitoring extension DLL files disabled by Windows. Then, restart the monitoring agent.
Log data accumulates too rapidly.	Check the RAS trace option settings, which are described in “Setting RAS trace parameters” on page 6. The trace options settings that you can set on the `KBB_RAS1=` and `KDC_DEBUG=` lines potentially generate large amounts of data.
The system runs out of memory while the agent is collecting data.	Ensure that you have installed the newest Service Packs for the Microsoft .NET Framework. Depending on the level of the Windows operating system that you are using, the required Service Pack is as follows: • .NET Framework 1.0 SP3 —OR— • .NET Framework 1.1 SP1
Attributes Date Time Last Modified and Date Time Created in the File Change attribute group seem to have their positions switched in the situation editor when specifying a time comparison between these attributes, using the Compare time to a + or - delta function.	This can occur when creating a new situation that uses the attributes of Date Time Last Modified and Date Time Created in the File Change attribute group. If you then select the function Compare time to a + or - delta, it does not show the time attribute that is currently selected. This is working as designed. 'Compare time to a + or - delta' is to compare the current selected time attribute with other available time attributes with a delta, not with the selected time attribute itself. When you select Date Time Last Modified and Date Time Created, the "Time Attribute for Comparison" shows the available time attributes and it seemed as if the attribute names were switched.

Tivoli Enterprise Portal troubleshooting

Table 6 lists problems that might occur with the Tivoli Enterprise Portal.

Table 6. Tivoli Enterprise Portal problems and solutions

Problem	Solution
Historical data collection is unavailable because of incorrect queries in the Tivoli Enterprise Portal.	The column, Sort By, Group By, and First/Last functions are not compatible with the historical data collection feature. Use of these advanced functions will make a query ineligible for historical data collection. Even if data collection has been started, you cannot use the time span feature if the query for the chart or table includes any column functions or advanced query options (Sort By, Group By, First / Last). To ensure support of historical data collection, do not use the Sort By, Group By, or First/Last functions in your queries. See the *IBM Tivoli Monitoring Administrator's Guide* the Tivoli Enterprise Portal online Help for information on the Historical Data Collection function.
When you use a long process name in the situation, the process name is truncated.	Truncation of process names in the portal display is the expected behavior. 64 bytes is the maximum name length.
Data is missing from the physical and logical disk views in the Tivoli Enterprise Portal.	Open a DOS Window, issue "diskperf -y" and then reboot the Windows system.

Troubleshooting for remote deployment

Table 7 lists problems that might occur with remote deployment and removal of agent software Agent Remote Deploy.

Table 7. Remote deployment problems and solutions

Problem	Solution
While you are using the remote deployment feature to install Monitoring Agent for Windows OS, an empty command window is displayed on the target computer. This problem occurs when the target of remote deployment is a Windows computer. (See the *IBM Tivoli Monitoring Installation and Setup Guide* for more information on the remote deployment feature.)	Do not close or modify this window. It is part of the installation process and will be dismissed automatically.
The removal of a monitoring agent fails when you use the remote removal process in the Tivoli Enterprise Portal desktop or browser.	This problem might happen 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.
The attempt to install an additional OS agent on the same machine fails.	On Windows, IBM Tivoli Monitoring does not support more than one OS agent installation on the same machine. You can not use different directories to install more than one OS agent on the same Windows machine.

Workspace troubleshooting

Table 8 shows problems that might occur with workspaces.

Table 8. Workspace problems and solutions

Problem	Solution
You see the following message: `KFWITM083W Default link is disabled for the selected object; please verify link and link anchor definitions.`	You see this message because some links do not have default workspaces. Right-click the link to access a list of workspaces to select.
The name of the attribute does not display in a bar chart or graph view.	When a chart or graph view that includes the attribute is scaled to a small size, a blank space is displayed instead of a truncated name. To see the name of the attribute, expand the view of the chart until there is sufficient space to display all characters of the attribute's name.
At the bottom of the views for the Historical Summarized Availability workspace, the Historical Summarized Capacity workspace, and the Historical Summarized Performance workspace, you see the following error: `KFWITM220E Request failed during execution`	Configure historical collection for these workspaces.
You start collection of historical data but the data cannot be seen.	Managing options for historical data collection: • Basic historical data collection populates the Warehouse with raw data. This type of data collection is turned off by default. See the *IBM Tivoli Monitoring Windows OS Agent Installation and Configuration Guide* for information on managing this feature including how to set the interval at which data is collected. By setting a more frequent interval for data collection you reduce the load on the system incurred every time data is uploaded. • You use the Summarization and Pruning monitoring agent to summarize available raw data and store the summarizations in the database. Be aware that summarized data is not displayed until the Summarization and Pruning monitoring agent begins collecting the data. By default, this agent begins collection at 2 AM daily. At that point, data is visible in the workspace view. See the IBM Tivoli Monitoring Administrator's Guide to learn how to modify the default collection settings.
Regular (non-historical) monitoring data fails to be displayed.	Check the formation of the queries you use to gather capture data. For example, look for invalid SQL statements.
The Event Log workspace does not show complete event logs.	To maintain good system response times, the Event Log agent limits collection of events to 500 for each query . You can use the following procedure to control which 500 events are retrieved from the event log: 1. Click the Historical icon (the clock symbol in the upper left of the workspace). 2. Select the time span. 3. Reduce the amount of data that you retrieve, or restrict the time span. For example, you might capture the last 24 hours or you might select **Custom** and choose a shorter time interval.

Table 8. Workspace problems and solutions (continued)

Problem	Solution
The following problems occur in workspace views: • The Monitored Logs workspace shows a record count of zero (0). • The Event Logs workspace shows no records.	Windows security logging is not turned on by default. Normally, no data is collected in the security log unless the Windows administrator turns it on. The **Record Count = 0** data value that the monitoring agent returns in the Windows monitored logs report confirms that security logging is not turned on.
There is no data for a service-type workspace.	Ensure that the service is running.
The Agents Management Services workspace provides the wrong IP loopback address in the IP Address column of the Agents' Runtime Status view.	Be aware that the IP loopback address in the Agents' Runtime Status view is for IPv4, instead of IPv6, even in IPv6 environments.

Tivoli Common Reporting troubleshooting

Table 9 lists general problems that might occur with Tivoli Common Reporting.

Table 9. Tivoli Common Reporting problems and solutions

Problem	Solution
Reports that are based on CCC Logs attributes, such as the Top Situations By Status report and the Situations History report, rely on raw data from the Status_History table in the Tivoli Data Warehouse. To ensure accurate and complete reports, you might need to confirm historical collection of CCC Logs data.	The Status_History table is populated by collecting historical data from the monitoring server for CCC Logs data after you select the Situation Status Log attribute group. Historical collection of CCC Logs data can be confirmed by ensuring that the UADVISOR situation for O4SRV_TSITSTSH appears in the TEMS messages file. On Windows, the `kdsmain.msg` file in the: `%CANDLE_HOME%\CMS\` path. On UNIX and Linux, the `<hostname>_ms_<Timestamp>.log` file in the *<InstallDirectory>*/logs/ path. Example entries in the TEMS messages log showing the O4SRV_TSITSTSH attribute gathered in a UADVISOR situation include: • KO46256 Situation definition UADVISOR_O4SRV_TSITSTSH created by *ENTERPRISE. • KO41047 Situation UADVISOR_O4SRV_TSITSTSH distribution HUB_TEMS1 added. • KO41046 Monitoring for enterprise situation UADVISOR_O4SRV_TSITSTSH started. After historical data is collected and exported and following the next warehousing interval of the TDW database, the Status_History table will be populated with data required to run the TCR reports using CCC Logs.

Situation troubleshooting

Table 10 lists problems that might occur with specific situations.

Table 10. Specific situation problems and solutions

Problem	Solution
There is a high CPU load while any of the following 3 situations are turned on: • NT_Server_Error • NT_Invalid_Login • NT_Event_Log_Full In this case, an event log is receiving a large number of events, and the processing of these events for the enabled situations causes a high CPU load due to reading the events from the log, substituting the event strings in the descriptions, and finally sending them to the Tivoli Enterprise Monitoring Server. The large number of events can contain many duplicate events. Also, the Windows agent process, kntcma.exe, may show high CPU usage during Windows event log processing if a large number of events are being received in any of the Windows Event Logs.	To resolve the high CPU usage, enable a duplicate event throttle that drops duplicate events found during each reading of the event log. Duplicate events are matched based on event ID, type, category, source, and user ID. The description field of the event is not matched, thus any information unique to the description is lost. Select **Advanced -> Edit Parms** and add the desired parameters and values to the Env file. Save the file. Select **Yes** to the recycle agent prompt. The following environment variables can be set in the `KNTENV` file to enable this duplicate event dropping throttle: Apply to all event logs: • NT_LOG_THROTTLE=*x* Apply the following environment variable to each log separately: • NT_{*Event Log Name*}_LOG_THROTTLE=*x* Where: • *x*=0, event drop throttle disabled • *x*=1, drop all duplicate events every read cycle of the event log • *x*>1, drop all duplicate events in groups of *x* every read cycle of the event log For example, if *x*=50 then duplicate events are drop in groups of 50. You must specify the exact name of the event log you want to monitor. The Windows Registry Editor lists the event log name as a key in either of two paths: • `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Eventlog` • `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\WINEVT\Channels` The name of the event log is the key listed under the Eventlog or Channels key. For example, the Application event log has the key: • `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Eventlog\Application` Applying the Event Log Name to the environment variable, NT_{*Event Log Name*}_LOG_THROTTLE, requires the conversion of any invalid characters within the Event Log Name to a dash (-). Invalid characters include a space ( ), asterisk (*), pound sign (#), vertical bar (|), back slash (\), forward slash (/), colon (:), quote ("), less than sumbol (<), greater than symbol (>), and question mark (?). For example, if the Event Log Name is Microsoft-Windows-TaskScheduler/Operational, then the environment variable to use in the `KNTENV` file would be NT_Microsoft-Windows-TaskScheduler-Operational_LOG_THROTTLE=*x* where *x* is defined above and the forward slash (/) was changed to a dash (-).

Table 10. Specific situation problems and solutions (continued)

Problem	Solution
How do I collapse duplicate records for Event Log Reports (Query View Results) and enable the Event _Log Duplicate_Record_Count attribute?	The Windows Event Log workspace has been updated to include a 'Duplicate Record Count' column. This column by default is always zero unless the duplicate event log record processing is enabled. This enablement can be done on any of the Windows Event Logs. Duplicate events are matched based on event id, type, category, source, and user ID. The description field of the event is not matched, thus any information unique to the description is lost. The following environment variables can be set in the `KNTENV` file to enable the 'Duplicate Record Count' column. Apply to all event logs: • NT_LOG_DUPLICATE=*x* Apply the following environment variable to each log separately: • NT_{*Event Log Name*}_LOG_DUPLICATE=*x* Where: • *x*=0, event report duplicate disabled • *x*=1, event report duplicate enabled You must specify the exact name of the event log that you want to monitor. If duplicate event log records are enabled, the following message displays in the log: "LogManager enabling event report duplicate record(*XXX*), EventLog: *YYY*" where *XXX* is the value specified for NT_LOG_DUPLICATE and *YYY* is the name of the specific event log on which this value applies. This message does not require a particular trace level. The Windows Registry Editor lists the event log name as a key in either of two paths: • `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Eventlog` • `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\WINEVT\Channels` The name of the event log is the key listed under the Eventlog or Channels key. For example, the Application event log has the key: • `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Eventlog\Application` Applying the Event Log Name to the environment variable, NT_{*Event Log Name*}_LOG_DUPLICATE, requires the conversion of any invalid characters within the Event Log Name to a dash (-). Invalid characters include a space ( ), asterisk (*), pound sign (#), vertical bar (|), back slash (\), forward slash (/), colon (:), quote ("), less than sumbol (<), greater than symbol (>), and question mark (?). For example, if the Event Log Name is Microsoft-Windows-TaskScheduler/Operational, then the environment variable to use in the `KNTENV` file would be NT_Microsoft-Windows-TaskScheduler-Operational_LOG_DUPLICATE=*x* where *x* is defined above and the forward slash (/) was changed to a dash (-).

Table 10. Specific situation problems and solutions (continued)

Problem	Solution
You want to change the appearance of situations when they are displayed in a Workspace view.	1. Right-click an item in the Navigation tree. 2. Select **Situations** in the pop-up menu. The Situation Editor window is displayed. 3. Select the situation that you want to modify. 4. Use the **Status** pull-down menu in the lower right of the window to set the status and appearance of the Situation when it triggers. **Note:** This status setting is not related to severity settings in IBM Tivoli Enterprise Console.
Situations are triggered in the Tivoli Enterprise Monitoring Server, but events for the situation are not sent to the Tivoli Enterprise Console® server. The Tivoli Enterprise Monitoring Server is properly configured for event forwarding, and events for many other situations are sent to the event server.	This condition can occur when a situation is only monitoring the status of other situations. The event forwarding function requires an attribute group reference in the situation in order to determine the correct event class to use in the event. When the situation only monitors other situations, no attribute groups are defined and the event class cannot be determined. Because the event class cannot be determined, no event is sent. This is a limitation of the Tivoli Enterprise Monitoring Server event forwarding function. Situations that only monitor other situations do not send events to the event server.
A situation that is referencing percent disk time returns values that are greater than 100 percent.	Windows Performance Monitoring (perfmon) generates these metrics, including percentage values that sometimes exceed 100. This behavior is determined by the operating system and cannot be changed.
Monitoring activity requires too much disk space.	Check the RAS trace logging settings that are described in "Setting RAS trace parameters" on page 6. For example, trace logs grow rapidly when you apply the **ALL** logging option. Historical logging can consume large amounts of disk space. Be moderate in your use of historical logging.
Monitoring activity requires too many system resources.	Table 11 on page 22 describes the performance impact of specific attribute groups. If possible, decrease your use of the attribute groups that require greater system resources.
A formula that uses mathematical operators is displayed to be incorrect. For example, if you were monitoring Linux, a formula that calculates when **Free Memory** falls under 10 percent of **Total Memory** does not work: `LT #'Linux_VM_Stats.Total_Memory' / 10`	This formula is incorrect because situation predicates support only logical operators. Your formulas cannot have mathematical operators. **Note:** The Situation Editor provides alternatives to math operators. Regarding the example, you can select **% Memory Free** attribute and avoid the need for math operators.
If you are running a Version 350 Monitoring Agent for Windows OS and you choose to alter the views to include a Version 610 UNICODE attribute, be aware that data for this attribute is not displayed and you see a blank column in this view.	To enable Unicode and other features, upgrade the monitoring agent to IBM Tivoli Monitoring, Version 6.2.0 or later.
You see the 'Unable to get attribute name' error in the Tivoli Enterprise Monitoring Server log after creating a situation.	Install the agent's application support files on the Tivoli Enterprise Monitoring Server, using the following steps: 1. Open the Manage Tivoli Enterprise Monitoring Services window. 2. Right-click the name of the monitoring server. 3. Select **Advanced > Add TEMS Application Support** in the pop-up menu. Add application support if any for any agent that is missing from the list. See in IBM Tivoli Monitoring Installation and Setup Guide for more information on adding application support.

Table 10. Specific situation problems and solutions (continued)

Problem	Solution
Events received at the Tivoli Enterprise Console server from IBM Tivoli Monitoring do not have values for all event attributes (slots) even though the values are visible in workspace views.	The problem is due to a limitation in the IBM Tivoli Monitoring interface code that generates Tivoli Enterprise Console events from situations. The situation results are provided in a chain of buffers of 3000 bytes each. The interface code currently extracts event information from only the first buffer. When situations or agent table data expands in to a second buffer, this additional data is not examined, and it is not included in events sent to the Tivoli Enterprise Console server.
Tivoli Enterprise Console events from IBM Tivoli Monitoring for IBM Tivoli Monitoring 5.x migrated situations receive parsing errors in the Tivoli Enterprise Console server.	Complete the following two steps: 1. Ensure that you have the IBM Tivoli Monitoring Event Sync installed on your Tivoli Enterprise Console server. 2. Obtain updated baroc files from IBM Tivoli Monitoring for the monitoring agent's events. Updated baroc files are on the Tivoli Enterprise Monitoring Server in the *CANDLEHOME*/CMS/TECLIB/itm5migr directory.
You are receiving Tivoli Business Systems Management events that cannot be associated due to application_oid and application_class not being set.	The problem is due to IBM Tivoli Monitoring sending Tivoli Enterprise Console events for IBM Tivoli Monitoring 5.x migrated situations. These events are not able to set the cited slot values. Replace the agent forwarding script on the Tivoli Enterprise Console server with the version of this file from the Tivoli Enterprise Monitoring Server in the *CANDLEHOME*/CMS/TECLIB/itm5migr directory.

Consider performance impact of each attribute group

Table 11 lists the impact on performance (high, medium, or low) of each attribute group. The multiple-instance attributes have been classified at the lowest level. That is, the performance overhead will increase if you do not specify compare values for one or more key values.

When you want to prevent impact on performance by any of the attribute groups listed in Table 11, you must avoid referencing that attribute group, as suggested in this list:

- Avoid over use of the attribute group.
- Use caution when selecting workspaces that reference the attribute group.
- Avoid over use of the situations that reference the attribute group by using the "Undistributed situations" option in the Situation Editor.
- Use caution when enabling historical reporting that references the attribute group.
- Avoid using the "Auto Refresh" refresh feature in a Workspace because this option causes a refresh of data for all attribute groups.

  Note: If pre-defined situations are running against the NT_Event_Log attribute group, and there is a high frequency of events, enhance the filtering criteria to prevent high CPU utilization.

See the *IBM Tivoli Monitoring User's Guide* for additional information on controlling attribute group usage.

Table 11. Performance Impact by attribute group

Attribute group	High	Medium	Low
Active Server Pages			✓
DHCP Server			✓
DNS Dynamic Update			✓
DNS Memory			✓
DNS Query			✓
DNS WINS			✓

Table 11. Performance Impact by attribute group (continued)

Attribute group	High	Medium	Low
DNS Zone Transfer			✓
FTP Server Statistics			✓
FTP Service			✓
HTTP Content Index			✓
HTTP Service			✓
ICMP Statistics			✓
IIS Statistics			✓
Indexing Service Filter			✓
Indexing Service			✓
IP Statistics			✓
Job Object Details			✓
Job Object		✓	
Mount Point		✓	
MSMQ Information Store			✓
MSMQ Queue			✓
MSMQ Service			✓
MSMQ Sessions			✓
Network Interface			✓
Network Segment			✓
NNTP Commands			✓
NNTP Server			✓
NT_BIOS Information	✓		
NT_Cache			✓
NT_Computer Information	✓		
NT_Device Dependencies		✓	
NT_Devices		✓	
NT_Event Log The performance impact of the NT_Event Log attribute group is high when you display reports in the workspace, due to the time it takes to perform the queries. The performance impact is low when a situation targets a single item in the Event Log attribute group.		✓	
NT_File Change		✓	
NT_File Trend		✓	
NT_IP Address		✓	
NT_Logical Disk			✓
NT_Memory			✓
NT_Monitored Logs			✓
NT_Network Port		✓	
NT_Objects		✓	

Table 11. Performance Impact by attribute group (continued)

Attribute group	High	Medium	Low
NT_Paging File			✓
NT_Physical Disk			✓
NT_Port	✓		
NT_Print Job			✓
NT_Printer			✓
NT_Processor		✓	
NT_Processor_Information		✓	
NT_Processor Summary		✓	
NT_Redirector	✓		
NT_Registry			✓
NT_Server			✓
NT_Server Work Queues			✓
NT_Service Dependencies		✓	
NT_Services		✓	
NT_System			✓
NT_Thread		✓	
Print Queue			✓
Process IO		✓	
RAS Port			✓
RAS Total			✓
SMTP Server			✓
TCP Statistics			✓
UDP Statistics			✓
VMWare Memory			✓
VMWare Performance			✓
Web Service			✓

Problems with configuration of situations

Table 12 lists problems that might occur with situations.

Table 12. Problems with configuring situations that you solve in the Situation Editor

Problem	Solution
Note: To display the Situation Editor, perform these steps: 1. Launch the Tivoli Enterprise Portal. 2. Click **Edit > Situation Editor**. 3. In the tree view, choose the agent whose situation you want to modify. 4. Choose the situation in the list. The Situation Editor view is displayed.	
The situation for a specific agent is not visible in the Tivoli Enterprise Portal.	Open the Situation Editor. Access the All managed servers view. If the situation is absent, confirm that application support for Monitoring Agent for Windows OS has been added to the monitoring server. If not, add application support to the server, as described in the *IBM Tivoli Monitoring Installation and Setup Guide.*

Table 12. Problems with configuring situations that you solve in the Situation Editor (continued)

Problem	Solution
The monitoring interval is too long.	Access the Situation Editor view for the situation that you want to modify. Check the **Sampling interval** area in the **Formula** tab. Adjust the time interval as needed.
The situation did not activate at startup.	Manually recycle the situation as follows: 1. Right-click the situation and choose **Stop Situation**. 2. Right-click the situation and choose **Start Situation**. **Note:** You can permanently avoid this problem by placing a check mark in the **Run at Startup** option of the Situation Editor view for a specific situation.
The situation is not displayed.	Click the **Action** tab and check whether the situation has an automated corrective action. This action can occur directly or through a policy. The situation might be resolving so quickly that you do not see the event or the update in the graphical user interface.
An Alert event has not occurred even though the predicate has been properly specified.	Check the logs, reports, and workspaces.
A situation fires on an unexpected managed object.	Confirm that you have distributed and started the situation on the correct managed system.
The product did not distribute the situation to a managed system.	Click the **Distribution** tab and check the distribution settings for the situation.
The situation does not fire. Incorrect predicates are present in the formula that defines the situation. For example, the managed object shows a state that normally triggers a monitoring event, but the situation is not true because the wrong attribute is specified in the formula.	In the **Formula** tab, analyze predicates as follows: 1. Click the *fx* icon in the upper-right corner of the Formula area. The Show formula window is displayed. a. Confirm the following details in the **Formula** area at the top of the window: • The attributes that you intend to monitor are specified in the formula. • The situations that you intend to monitor are specified in the formula. • The logical operators in the formula match your monitoring goal. • The numerical values in the formula match your monitoring goal. b. (*Optional*) Click the **Show detailed formula** check box in the lower left of the window to see the original names of attributes in the application or operating system that you are monitoring. c. Click **OK** to dismiss the Show formula window. 2. (*Optional*) In the Formula area of the **Formula** tab, temporarily assign numerical values that will immediately trigger a monitoring event. The triggering of the event confirms that other predicates in the formula are valid. **Note:** After you complete this test, you must restore the numerical values to valid levels so that you do not generate excessive monitoring data based on your temporary settings.

Table 13. Problems with configuration of situations that you solve in the Workspace area

Problem	Solution
Situation events are not displayed in the Events Console view of the workspace.	Associate the situation with a workspace. **Note:** The situation does not need to be displayed in the workspace. It is sufficient that the situation be associated with any workspace.

Table 13. Problems with configuration of situations that you solve in the Workspace area (continued)

Problem	Solution
You do not have access to a situation.	**Note:** You must have administrator privileges to perform these steps. 1. Select **Edit** > **Administer Users** to access the Administer Users window. 2. In the Users area, select the user whose privileges you want to modify. 3. In the Permissions tab, Applications tab, and Navigator Views tab, select the permissions or privileges that correspond to the user's role. 4. Click **OK**.
A managed system seems to be offline.	1. Select Physical View and highlight the Enterprise Level of the navigator tree. 2. Select **View** > **Workspace** > **Managed System Status** to see a list of managed systems and their status. 3. If a system is offline, check network connectivity and status of the specific system or application.

Table 14. Problems with configuration of situations that you solve in the Manage Tivoli Enterprise Monitoring Services window

Problem	Solution
After an attempt to restart the agents in the Tivoli Enterprise Portal, the agents are still not running.	For UNIX, NetWare, or Windows, log on to the applicable system and perform the appropriate queries.
The Tivoli Enterprise Monitoring Server is not running.	Check the system status and check the appropriate IBM Tivoli Monitoring logs.
The managed objects you created are firing on incorrect managed systems.	Check the managed system distribution on both the situation and the managed object settings sheets.

Documentation library

Various publications are relevant to the use of IBM Tivoli Monitoring and to the commonly shared components of Tivoli Management Services.

These publications are listed in the following categories:

- IBM Tivoli Monitoring library
- Related publications

Documentation is delivered in the IBM Tivoli Monitoring and OMEGAMON XE Information Center at http://pic.dhe.ibm.com/infocenter/tivihelp/v61r1/index.jsp and also in the **Files** section of the Application Performance Management community.

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

To find a list of new and changed publications, click the **New in this release** topic on the IBM Tivoli Monitoring welcome page. To find publications from the previous version of a product, click **Previous versions** under the name of the product in the **Contents** pane.

IBM Tivoli Monitoring library

The IBM Tivoli Monitoring library provides information about the commonly shared components of Tivoli Management Services.

- *Quick Start Guide*

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

  Provides instructions for installing and configuring IBM Tivoli Monitoring components on Windows, Linux, and UNIX systems.
- *Installation Roadmap* available on Service Management Connect

  Provides a roadmap that covers the installation of IBM Tivoli Monitoring.
- *High Availability Guide for Distributed Systems*, SC22-5455

  Gives instructions for several methods of ensuring the availability of the IBM Tivoli Monitoring components.
- *Program Directory for IBM Tivoli Management Services on z/OS*, GI11-4105

  Gives instructions for the SMP/E installation of the Tivoli Management Services components on z/OS®.
- *Administrator's Guide*, SC22-5446

  Describes the support tasks and functions required for the Tivoli Enterprise Portal Server and clients, including Tivoli Enterprise Portal user administration.
- *Command Reference* available on Service Management Connect

  Provides detailed syntax and parameter information, as well as examples, for the commands you can use in IBM Tivoli Monitoring.
- *Messages* available on Service Management Connect

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

Provides information to help you troubleshoot problems with the software.

- *Tivoli Enterprise Portal User's Guide* available on Service Management Connect

  Complements the Tivoli Enterprise Portal online help. The guide provides hands-on lessons and detailed instructions for all Tivoli Enterprise Portal features.

- Tivoli Enterprise Portal online help

  Provides context-sensitive reference information about all features and customization options of the Tivoli Enterprise Portal. Also gives instructions for using and administering the Tivoli Enterprise Portal.

Documentation for the base agents

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

The following publications provide information about using the base agents.

- Agentless operating system monitors
  - *Agentless Monitoring for Windows Operating Systems User's Guide*, SC23-9765
  - *Agentless Monitoring for AIX Operating Systems User's Guide*, SC23-9761
  - *Agentless Monitoring for HP-UX Operating Systems User's Guide*, SC23-9763
  - *Agentless Monitoring for Solaris Operating Systems User's Guide*, SC23-9764
  - *Agentless Monitoring for Linux Operating Systems User's Guide*, SC23-9762
- OS agent documentation is delivered in the following locations:

  Agent Installation and Configuration Guide
  Available in the Information Center:
  - *IBM i OS Agent Installation and Configuration Guide*, SC27-5653
  - *Linux OS Agent Installation and Configuration Guide*, SC27-5652
  - *UNIX OS Agent Installation and Configuration Guide*, SC27-5651
  - *Windows OS Agent Installation and Configuration Guide*, SC27-5650

  Agent Reference
  Available on Service Management Connect

  Agent Troubleshooting Guide
  Available on Service Management Connect

  Infrastructure Management Dashboards for Servers Reference
  Available on Service Management Connect
- Warehouse agent documentation is delivered in the following locations:

  Agent Installation and Configuration Guide
  Available in the Information Center:
  - *Warehouse Proxy Agent Installation and Configuration Guide*, SC27-5655
  - *Warehouse Summarization and Pruning Agent Installation and Configuration Guide*, SC27-5654

  Agent Reference
  Available on Service Management Connect

  Agent Troubleshooting Guide
  Available on Service Management Connect
- System P agents
  - *AIX Premium Agent User's Guide*, SA23-2237
  - *CEC Base Agent User's Guide*, SC23-5239

  - *HMC Base Agent User's Guide*, SA23-2239
  - *VIOS Premium Agent User's Guide*, SA23-2238
- Other base agents
  - *Agent Builder User's Guide*, SC32-1921
  - *Performance Analyzer User's Guide*, SC27-4004
  - *Systems Director base Agent User's Guide*, SC27-2872
  - *Tivoli Log File Agent User's Guide*, SC14-7484
  - *Tivoli zEnterprise Monitoring Agent User's Guide*, SC14-7359 and the *Tivoli zEnterprise Monitoring Agent Installation and Configuration Guide*, SC14-7358

Related publications

For information about related products and publications select **OMEGAMON XE shared publications** or other entries in the **Contents** pane of the IBM Tivoli Monitoring and OMEGAMON XE Information Center.

You can access the IBM Tivoli Monitoring and OMEGAMON XE Information Center at http://pic.dhe.ibm.com/infocenter/tivihelp/v61r1/index.jsp .

You can also access other information centers at IBM Tivoli Documentation Central (https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/Tivoli%20Documentation%20Central).

Tivoli Monitoring community on Service Management Connect

Connect, learn, and share with Service Management professionals: product support technical experts who provide their perspectives and expertise.

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

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

Use Service Management Connect in the following ways:

- Become involved with transparent development, an ongoing, open engagement between other users and IBM developers of Tivoli products. You can access early designs, sprint demonstrations, product roadmaps, and prerelease code.
- Connect one-on-one with the experts to collaborate and network about Tivoli and the (enter your community name here) community.
- Read blogs to benefit from the expertise and experience of others.
- Use wikis and forums to collaborate with the broader user community.

Other sources of documentation

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

- Tivoli wikis

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

Two of these wikis are of particular relevance to IBM Tivoli Monitoring:

- The IBM Tivoli Monitoring Wiki (https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/Tivoli%20Monitoring) provides information about IBM Tivoli Monitoring and related distributed products, including IBM Tivoli Composite Application Management products.
- The Tivoli System z® Monitoring and Application Management Wiki provides information about the OMEGAMON XE products, NetView® for z/OS, Tivoli Monitoring Agent for z/TPF, and other System z monitoring and application management products.

- IBM Integrated Service Management Library

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

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

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

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

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

Support information

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

Online

The following sites contain troubleshooting information:

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

IBM Support Assistant

The IBM Support Assistant (ISA) is a free local software serviceability workbench that helps you resolve questions and problems with IBM software products. The ISA provides quick access to support-related information and serviceability tools for problem determination. To install the ISA software, go to IBM Support Assistant (http://www-01.ibm.com/software/support/isa).

Troubleshooting Guide

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

Using IBM Support Assistant

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

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

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

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

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

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

   If your product is not included on the list under **Tivoli**, no plug-in is available yet for the product.
5. Read the license and description, and click **I agree**.
6. Restart the IBM Support Assistant.

Obtaining fixes

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

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

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

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

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

Receiving weekly support updates

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

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

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

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

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

Contacting IBM Software Support

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

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

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

  Online

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

  By telephone

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

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

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