IBM Tivoli Monitoring
Version 6.3 Fix Pack 2

Unix 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

Tables

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 Unix 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.
UNIX information	• Version number and patch level • Sample application data file (if monitoring a file)
Operating system	Operating system version number and patch level
Messages	Messages and other information displayed on the screen
Version numbers for IBM Tivoli Monitoring	Version number of the following members of the monitoring environment: • IBM Tivoli Monitoring. Also provide the patch level, if available. • IBM Tivoli Monitoring: UNIX OS Agent
Screen captures	Screen captures of incorrect output, if any.
(*UNIX only*) Core dump files	If the system stops on UNIX systems, collect core dump file from *install_dir*/bin directory, where *install_dir* is the directory path where you installed the monitoring agent.

Built-in troubleshooting features

The primary troubleshooting feature in the IBM Tivoli Monitoring: UNIX OS Agent is logging. *Logging* refers to the text messages and trace data generated by the IBM Tivoli Monitoring: UNIX 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 monitoring agent:

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

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. See the following topics to learn how to configure and use trace logging:

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

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

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.

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 **vi** to learn some basic facts about your IBM Tivoli Monitoring environment as described in "Examples: using trace logs" on page 5.

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 computer on which the monitoring component is running.
- *product* is the two-character product code. For Monitoring Agent for UNIX OS, the product code is ux.
- *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 UNIX monitoring agent is running on computer "server01", the RAS log file for the Monitoring Agent for UNIX OS might be named as follows:

```
server01_ux_kuxagent_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 kuxagent program might have a series of log files as follows:

```
server01_ux_kuxagent_437fc59-01.log
server01_ux_kuxagent_437fc59-02.log
server01_ux_kuxagent_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 UNIX OS is started twice, it might have log files as follows:

```
server01_ux_kuxagent_437fc59-01.log
server01_ux_kuxagent_437fc59-02.log
server01_ux_kuxagent_437fc59-03.log

server01_ux_kuxagent_537fc59-01.log
server01_ux_kuxagent_537fc59-02.log
server01_ux_kuxagent_537fc59-03.log
```

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

```
server01_ux_kuxagent_437fc59-01.log
```

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

```
server01_ux_ifstat_447fc59-01.log
```

where **ifstat** 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*_ux_*program_timestamp-nn*.log and are located in the *install_dir*/logs path. **Note:** File names for RAS1 logs include a hexadecimal timestamp. **Also on UNIX, a log with a decimal timestamp is provided:** *hostname*_ux_*timestamp*.log and *hostname*_ux_*timestamp*.pid*nnnnn* in the *install_dir*/*logs* path, where *nnnnn* is the process ID number.	Traces activity of the monitoring agent. **Note:** Other logs, such as logs for UNIX collector processes and 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*/logs path.	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` • **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*`_cq_`*timestamp*`.log` and *hostname*`_cq_`*timestamp*`.pid`*nnnnn* in the *install_dir/logs* path, where *nnnnn* is the process ID number.	Traces activity on the portal server.
	The `TEPS_ODBC.log` file is located in the following path 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 computer 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 UNIX OS, the product code is ux. • *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 **vi** to learn some basic facts

about your IBM Tivoli Monitoring environment. You can use the **ls -ltr** 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 SERVER5B:KUX is ON-LINE.
. . .
(42C3079B.0000-6A4:kpxreqhb.cpp,644,"HeartbeatInserter") Remote node SERVER5B:KUX is OFF-LINE.
```

Key points regarding the preceding excerpt:

- The monitoring server appends the **KUX** product code to the server name to form a unique name (SERVER5B:KUX) for this instance of Monitoring Agent for UNIX 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.

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 UNIX 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.

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.

Procedure

Specify RAS1 trace options in the *install_dir*/config/ux.ini file. You can manually edit the configuration file to set trace logging:

1. Open the trace options file: /*install_dir*/config/ux.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:
   ```
   export KBB_RAS1='ERROR (UNIT:kux 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.

Chapter 3. Problems and workarounds

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

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

Installation and configuration troubleshooting

This topic includes solutions for installation, configuration, and uninstallation problems.

Agent upgrade and restart using non-root

The monitoring agent can run using a non-root user ID on UNIX and Linux systems. This can be done by running the **itmcmd agent start** command while logged in as a non-root user, and this can be done remotely by deploying the agent using the **Run As** option on the GUI or using the **_UNIX_STARTUP_.Username** option on the **tacmd addSystem** command line. If the agent is running using a non-root user ID, and then the agent is upgraded, restarted remotely, restarted as a result of a system reboot, or the **itmcmd agent start** is run using the root user ID, then the monitoring agent subsequently runs as the root user. To confirm the user ID that the monitoring agent is using, run the following command:

```
itm_install/bin/cinfo -r
```

If the agent is using root, and that is not the desired user ID, then use the following steps to restart the agent:

1. Log in as root.
2. Run the **itmcmd agent stop** command.
3. Log in (or 'su') to the user ID that you want the agent to run as.
4. Run the **itmcmd agent start** command.

If the agent was running as root because of a system reboot, then edit the startup file using the following steps so that the appropriate user ID is used the next time the system is rebooted:

1. Look at *install_dir*/registry/AutoStart, and get *NUM*.
2. Edit the autostart for your operating system:

   The location of the startup file is platform dependent as follows:

   - AIX®: /etc/rc.itm*NUM*
   - HP-UX: /sbin/init.d/ITMAgents*NUM*
   - Linux: /etc/init.d/ITMAgents*NUM*

- Solaris: /etc/init.d/ITMAgents*NUM*

3. Add entries for your operating system using the following command:

```
/usr/bin/su - instancename
-c "install_dir/bin/itmcmd agent
-h install_dir
-o instancename
start product_code"
```

Where:

instancename
Name of the instance

install_dir
Name of the directory

product_code
2-character product code for the agent, for example, ux for the Monitoring Agent for UNIX OS

Examples:

- For AIX, add entries with the following format:

```
su - USER -c " /opt/IBM/ITM/bin/itmcmd agent
-o INSTANCE start ux"
```

Where:

USER Name of the user

INSTANCE
Name of the instance

- For Linux, HP_UX, and Solaris, add entries with the following format:

```
/bin/su - USER -c " /opt/IBM/ITM/bin/itmcmd agent
-o INSTANCE start ux >/dev/null 2>&1"
```

Where:

USER Name of the user

INSTANCE
Name of the instance

4. Repeat Steps 1 on page 9 through 3 for all occurrences of stop.
5. Save the file.

Table 3. Problems and solutions for installation and configuration

Problem	Solution
Installation fails on HPUX11. The log for the monitoring agent shows the message listed in the next row of this table.	You must install the **PHSS_30966** patch on the HPUX system. See the Web site listed in the next row of this table for details.

When a patch is missing on HPUX11, the following message is generated:
`/usr/lib/pa20_64/dld.sl: Unsatisfied code symbol 'dladdr' in load module \`
`'/opt/IBM/ITM/tmaitm6/hp116/lib/libkbb.sl'`
 	
The following Web site provides details about the required patch for HPUX11:
`http://www2.itrc.hp.com/service/patch/patchDetail.do?patchid=PHSS_30966&admit=-1335382922+112672773755 \`
`6+28353475`	

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

Problem	Solution
When you upgrade to IBM Tivoli Monitoring, you might need to apply fixpacks to Candle, Version 350, agents.	Fixpacks for Candle, Version 350, are delivered as each monitoring agent is upgraded to IBM Tivoli Monitoring. **Note:** The IBM Tivoli Monitoring download image or CD provides application fixpacks for the monitoring agents that are installed from that CD (for example, the agents for operating systems such as Windows, Linux, UNIX, and i5/OS™). The upgrade software for other agents is located on the download image or CDs for that specific monitoring agent, such as the agents for database applications. If you do not upgrade the monitoring agent to IBM Tivoli Monitoring, the agent continues to work. However, you must upgrade to have all the functionality that IBM Tivoli Monitoring offers.
Presentation files and customized OMEGAMON® screens for Candle monitoring agents need to be upgraded to a new Linux on z/Series system.	The upgrade from version 350 to IBM Tivoli Monitoring handles export of the presentation files and the customized OMEGAMON screens.
The product fails to do a monitoring activity that requires read, write, or execute permissions. For example, the product might fail to run a Take Action command or read a log.	The monitoring agent must have the permissions necessary to perform requested actions. For example, if the user ID you used to log onto the system to install the monitoring agent (locally or remotely) does not have the permission to perform a monitoring operation (such as running a command), the monitoring agent is not able perform the operation.
While installing the agent from a CD, the following message is displayed and you are not able to continue the installation: `install.sh warning: unarchive of "/cdrom/unix/cienv1.tar" may have failed`	This error is caused by low disk space. Although the `install.sh` script indicates that it is ready to install the agent software, the script considers the size of *all* tar files, not the size of all the files that are contained within the tar file.Run the **df -k** command to check whether the file systems have enough space to install agents.
The Monitoring Agent for UNIX OS repeatedly restarts.	You can collect data to analyze this problem as follows: 1. Access the *install_dir*`/config/ux.ini` file, which is described in "Setting RAS trace parameters" on page 6. 2. Add the following line: `KBB_SIG1=trace –dumpoff`
Agents in the monitoring environment use different communication protocols. For example, some agents have security enabled and others do not.	Configure both the monitoring server and the Warehouse proxy server to accept multiple protocols, as described in the *IBM Tivoli Monitoring Installation and Setup Guide*.
Creating a firewall partition file: The partition file enables an agent to connect to the monitoring server through a firewall.	**How it works:** When the agents start, they search `KDCPARTITION.TXT` for the following matches: • An entry that matches the partition name **OUTSIDE**. • An entry that also includes a valid external address. For more information, see the *IBM Tivoli Monitoring Installation and Setup Guide*.

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

Problem	Solution
The Monitoring Agent for UNIX OS is started and running but not displaying data in the Tivoli Enterprise Portal.	Check the following issues: 1. Check the Monitoring Agent for UNIX OS log files to see whether there are connection problems. 2. If there are no connection problems, check whether the agent has terminated. (Search for the word "terminated" in the log.) 3. If the agent is not terminated, confirm that you have added application support for the Monitoring Agent for UNIX in the Tivoli Enterprise Monitoring Server, as described in the *IBM Tivoli Monitoring Installation and Setup Guide*.
You successfully migrate an OMEGAMON monitoring agent to IBM Tivoli® Monitoring, Version 6.1.0. 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 the *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
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

If you have multiple instances of a monitoring agent, 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
- Computer 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.

The agent name truncation is only a problem if there is more than one monitoring agent on the same system. In this case, the agent name truncation can result in collisions between agent products attempting

to register using the same truncated name value. When truncated agent names collide on the same system, this can lead to Tivoli Enterprise Monitoring Server problems with corrupted EIB tables. The agent name collision in the Tivoli Enterprise Monitoring Server might cause a registered name to be associated with the wrong product.

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 the following path:
   - **On Windows:** *&install_dir;*\tmaitm6\K*product_code*CMA.INI. For example, the product code for the Monitoring Agent for Windows OS is NT and the file name is KNTCMA.INI.
   - **On UNIX and Linux:** *install_dir*/tmaitm6/*product_code*.ini and *product_code*.config. For example, the file names for the Monitoring Agent for UNIX OS is ux.ini and ux.config.
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 UX, 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 KUXENV file in the same path mentioned in the preceding row.
   - For z/OS® agents, find the **RKANPAR** library.
   - For i5/OS agents, find the **QAUTOTMP/KMSPARM** library in member **KBBENV**.
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.
   - **On UNIX and Linux:** Add the variable to the config/*product_code*.ini and to config/*product_code*.config files.
   - **On z/OS:** Add the variable to the **RKANPAR** library, member K*product_code*ENV.
   - **On i5/OS:** Add the variable to the **QAUTOTMP/KMSPARM** library in member **KBBENV**.
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
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
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.
The Monitoring Agent for UNIX OS starts and displays in the Tivoli Enterprise Portal, but itmcmd/CandleAgent indicates that the agent has failed to start and is not running.	Check the `config/ux.ini` file for any blank lines. Delete them and restart the agent.
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.
Changes made to the configuration of monitoring do not take effect.	Restart the monitoring agent so that your changes take effect.
You have installed the product manually, using an approach other than the one documented in the *IBM Tivoli Monitoring Installation and Setup Guide*. You need to confirm whether you have run the **SetPerm** command.	When you use the installation approach that is documented in the *IBM Tivoli Monitoring Installation and Setup Guide*, the **SetPerm** command is run automatically to set required permissions for the processes that IBM Tivoli Monitoring runs. When you do not use this approach the executables for the monitoring agent do not have the required privileges. Run the **SetPerm** command (which is located under *install_dir*/bin/ directory). The following example shows lists of agent binaries before and after they have the required privileges.

The monitoring agent support has the existing permissions:
`-rwxrwx---  1 itmuser  itmusers  32243 Sep 09 13:30 ifstat`
`-rwxrwx---  1 itmuser  itmusers  41045 Sep 09 13:30 kux_vmstat`
`-rwxrwx---  1 itmuser  itmusers  507562 Sep 09 13:30 kuxagent`
`-rwxrwx---  1 itmuser  itmusers  5772 Sep 09 13:30 kuxdstat`
`-rwxrwx---  1 itmuser  itmusers  42514 Sep 09 13:30 nfs_stat`
`-rwxr-sr-x  1 itmuser  system  128211 Sep 09 13:30 stat_daemon`
 	
The permissions for the Solaris2 monitoring agent are as follows:
`UID  r-s  r-x  r-x kuxagent  uid(0)  gid(3)`
 	
The user has the following permissions:
`real user  id(0)  effective user id(0)`
`real group  id(1)  effective group id(1)`
 	
If you have not run the **SetPerm** command, the following permissions are set:
`rwx rwx r-x uid(35008) gid(1111) kuxagent`
`rwx rwx r-x uid(35008) gid(1111) stat_daemon`
`rwx rwx r-x uid(35008) gid(1111) ifstat`
`rwx rwx r-x uid(35008) gid(1111) nfs_stat`
`rwx rwx r-x uid(35008) gid(1111) kuxagent`
 	
Note: If the log file has SUID, that means that you have run the **SetPerm** command.	

Table 5. Agent problems and solutions (continued)

Problem	Solution

Solaris agent is terminating unexpectedly.	Obtain the agent log file and verify whether it contains any of the following information in the log file:
	`bad_scan in server rpc`
	`bad_scan could be caused by nfsstate command output mismatch or NFS not active on this system***** nfs_stat terminating ****`
	`read 0 expected 248`
	`nsf-sd *** data collection terminated ***`
	
	If the log file has this type of information, see "Support information" on page 31.

The agent is installed and running normally. After rebooting the computer, where Tivoli Enterprise Monitoring Server was running, the agent is not online.	This problem can occur when the `root` user account is used to install and start the agent. Verify whether you have used the `root` user account to install the agent.To change the user account from `root` to some other user account, see the *IBM Tivoli Monitoring Unix OS Agent Installation and Configuration Guide*.
You want to have multiple instances of the same Monitoring Agent for UNIX OS running on the same system but talking to different Tivoli Enterprise Monitoring Server.	If you plan to install and run the Monitoring Agent for UNIX OS and Monitoring Agent for Linux OS agent on one computer, they can use the same network interface because they run as different processes. However, if you want to have two UNIX or two Linux agents on the same computer or want to run two instances of each agent, install two-network adapters. Each instance is configured for the host-specific address so they can be recognized in the configuration settings.
The Monitoring Agent for UNIX OS fails and the log file has the following message: `KUXDSTAT: Contact Customer Support disk performance table exceeded.`	This message is not related to the failure, so you can ignore it. If the agent is failing, search for a different cause. Further analyze the log to know whether the agent has terminated.
When you restart the system that hosts the Tivoli Enterprise Monitoring Server, the Monitoring Agent for UNIX OS does not start automatically. However, when you use CandleAgent start, the agent is starts and continues running.	If the agent does not connect to the Tivoli Enterprise Monitoring Server automatically, it means that you used the `root` user account to install and start the Monitoring Agent for UNIX OS. Most of the time, using the `root` account does not cause a problem, but the result is unpredictable. Check the IBM Tivoli Monitoring `root` account to install and start the agent. To change the user account from `root` to some other user account, see the *IBM Tivoli Monitoring Unix OS Agent Installation and Configuration Guide*.

Table 5. Agent problems and solutions (continued)

Problem	Solution
The Monitoring Agent for UNIX OS (specifically the kuxagent process) uses a large amount of system resources.	In most cases, the problem occurs during the backup. Any one of the following scenarios can cause this problem. **The agent is running during the backup** After backing up, the agent is started during system startup. **Multiple agents are running at the same time.** The computer that hosts the Tivoli Enterprise Monitoring Server was rebooted and the agent has been installed by the `root` user account. **The agent is running during the backup** During the backup, some of the service might be interrupted or not be available or locked for some amount of time. While the backup process is going on, the Monitoring Agent for UNIX OS, which is running parallel, might wait for resources to be freed by the backup process. When the backup is completed and you are viewing the agent, high CPU at this point is expected, because the agent is in an uncertain state (backup usually stops several kernel services that could cause this state). For this reason, it is advisable to stop all agents before the backup run, because there might be lost information, file, or API connections. Stop the agent before the backup process starts. **The agent is started during system boot up:** If you use scripts to stop and start the agent, do not start the agent from an **init** process script when you restart the system. The computer that hosts the Tivoli Enterprise Monitoring Server was rebooted and the agent has been installed by the `root` user account. Verify whether the Monitoring Agent for UNIX OS log file has the following information: `Unable to find running Tivoli Enterprise Monitoring Server on CMSLIST`
You have two monitoring agents with the same name due to truncation.	Each name must be between 2 and 32 characters in length. Each agent name must be unique on the Tivoli Enterprise Monitoring Server. If the host name plus domain name length is greater than 32 characters multiple agents will conflict resulting in odd behavior (such as the agents appearing and disappearing from the Tivoli Enterprise Portal). Setting a unique host name resolves this issue. See "Unique names for monitoring components" on page 12 for more information.
Unicode filenames not properly being displayed in the File Information Viewer.	Due to incompatibilities in reading information from different language code pages, any file that has non-ascii text will not be properly displayed in the File Information viewer.
Unicode process names not properly being displayed in Process workspace.	Due to incompatibilities in reading information from different language code pages, any process that has non-ascii text will not be properly displayed in the Process Workspace.
On AIX systems, the Process.Base_Command attribute returns different data than expected.	The data should represent the name of the actual program being run. This is a current limitation on this platform.
If starting the monitoring agent on a Solaris system, you find you cannot access the file system, and then you have the same problem with the OS agent.	Add the non-administrator user used by the agent in the group having access to that file system.

Table 5. Agent problems and solutions (continued)

Problem	Solution
Query produces no historical data	If you use wildcards within a query, the value does not act as a wildcard against historical data. It acts as a value to compare against the values in the historical table, but it does act as a wildcard against the realtime data. For example, if you use .*(LongDirName/sleep).* in the historical collection configuration and use .*(LongDirName/sleep).* in a query as well, you will see real time data and historical data. But, if you use .*(LongDirName/sleep).* in the historical collection configuration, and then use .*(LongDirName/sle).* in the query, then you will see real time data only and no historical data.
Data collection of the metrics available from the kpx data provider degrades the performance of the Monitoring Agent for UNIX OS (or these metrics are not relevant in your environment).	By default, when running on AIX 6.1 TL5 or later, the kuxagent main spawns a new process. This process, aixdp_daemon, gathers all the metrics available from the kpx data provider and passes them back to kuxagent. New attribute groups include AIX AMS, AIX Defined Users, AIX Devices, AIX LPAR, AIX WPAR CPU, AIX WPAR File System, AIX WPAR Information, AIX WPAR Network, and AIX WPAR Physical Memory. By setting the environment variable KUX_AIXDP=false in the `ux.ini` file, an administrator has the option to prevent the aixdp_daemon process from starting. Specify this option when new metrics are not relevant or if performance issues arise. The variable's default value is true (that is, data collection is enabled by default). You can use the ITM V6.3.0 remote agent configuration feature to change the value.
Data collection for the AIX Defined Users attribute group degrades the performance of the Monitoring Agent for UNIX OS.	By default, when running on AIX 6.1 TL5 or later, the data collection for the AIX Defined Users attribute group is disabled for performance reasons. You must set KUX_DEFINED_USERS=True in the `ux.ini` file to enable it. You can use the ITM V6.3.0 remote agent configuration feature to change the value.
Disk data collected by the UNIX OS agent does not match the data collected from the df (disk free) command output.	The df command provides the current total disk usage for all file systems accessible by the workstation. In contrast, disk data collected by the UNIX OS agent for the Space Used attributes includes the contribution from the reserved space, if any. As a result, these attributes might be reported as higher values than the df command's “Used" values which do not account for reserved space. In addition, disk data collected by the UNIX OS agent, expressed in percentages, is rounded up to the nearest integer. Percentages from the df command might not be rounded up to the nearest integer. Note that the ITM Size attribute does match the df command's “Total” output and equals the sum of Space Used and Space Available attributes.
When you run the UNIX OS agent in non-root mode with permission granted by the **setperm -a** command, the majority of AIX-specific (KPX) attributes do not populate.	Examples of data collection problems include the following: • Attribute group "AIX AMS" does not show any data. • Attribute group "AIX Defined Users" does not show any data. • Attribute group "UNIXCPU" returns 'not collected'. • Attribute groups "AIX WPAR" return 'not collected'. • Attribute "Volume Group Name (AIX)" of the "UNIXDISK" attribute group returns 'not collected'. • Attribute "Bandwidth Utilization Percent (AIX)" of the "UNIXNET" attribute group returns 'Not Available' for loopback and aggregate rows. The fix for this APAR is included in the following maintenance vehicle: | fix pack | 6.2.3-TIV-ITM-FP0002 | **Note:** Search the IBM technical support web site for maintenance.
Within a Solaris 11 environment, the IP addresses and MAC addresses of network interfaces do not display correctly.	UNIX OS Agent 6.2.2 Fix Pack 7 Interim Fix 2 introduced support for Solaris 11. However, the Agent does not correctly display the IP addresses and MAC addresses of network interfaces due to a different path for the devices in Solaris 11. This limitation is resolved at the 6.2.3 level by APARs IV45574 and IV45575.

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* and 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.

Troubleshooting for remote deployment

Table 7 lists problems that might occur with remote deployment.

Table 7. Remote deployment problems and solutions

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 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.
Remote deploy fails.	Ensure that the OS agent is running as root.
Problems deploying agents through remote deployment.	If the user cannot deploy an agent without receiving an error, the deployed agent might require root permissions. Ensure that the deploying agent (UNIX agent binary - kuxagent) has root permissions by either starting it as root or assigning SETUID root permissions to the deploying agent.

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.

Table 8. Workspace problems and solutions (continued)

Problem	Solution
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.
A link to 'Process Resource' leads to a superseded workspace.	Use the provided workspace as a template for creating a custom workspace using the "Resource (621)" query. Then you can directly access the new workspace and see all the available processes on the system. You can create links to the workspace and also create links from the workspace pointing to other workspaces.
At the bottom of each view, you see the following Historical workspace KFWITM220E error: **Request failed during execution**.	Ensure that you configure all groups that supply data to the view. In the Historical Configuration view, ensure that data collection is started for all groups that supply data to the view.
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 Unix 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 collect specific amounts and types of historical data. Be aware that historical data is not displayed until the Summarization and Pruning monitoring agent begins collecting the data. By default, this agent begins collection at 2 AM daily. At that point, data is visible in the workspace view. See the IBM Tivoli Monitoring Administrator's Guide to learn how to modify the default collection settings.
Inconsistent memory data shown in workspaces	For the Memory attribute group (displayed in the System Information workspace), the available real memory is obtained from the sysconf() system call and the swap space from the swapctl() system call, while in the Solaris Zones attribute group (displayed in the Solaris Zones workspace) both real memory and swap space usage come from the prstat command output. Differences are possible since prstat is not always reliable.
The CPU Share Pct definition shown in the workspace is inexact	The CPU shares are not equivalent to the percentage of CPU usage unless CPU demand is equal or greater to the available resources.
The meaning of Virtual Storage in the System Information workspace is not clear	By definition, Virtual Storage is obtained by summing up the Real Memory and the Paging Space, not considering the part of Paging Space that comes from reserved Real Memory for paging. In other words Virtual Storage = Real Memory + Paging Space - Real Memory for Paging.
On AIX 6.1 and AIX 7.1 systems, the AIX LPAR Information workspace displays “not collected” value for most of the attributes. Raising the trace level to (UNIT:aix ALL) level, the following line can be found in log files (one line for each attribute evaluated): `(510171C5.0005-1:aixdataprovider.c,1029, "get_values") SpmiGetValue: -1.40`	Upgrade to one of the following service packs (SP): • AIX 6.1 TL6 SP10 (perfagent.tools version 6.1.6.20) • AIX 6.1 TL7 SP6 (perfagent.tools version 6.1.7.17) • AIX 7.1 SP8 (perfagent.tools version 7.1.0.20) • AIX 7.1 TL1 SP6 (perfagent.tools version 7.1.1.17)

Situation troubleshooting

Table 9 lists problems that might occur with specific situations.

Table 9. Specific situation problems and solutions

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.
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.
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 UNIX 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.
The **Size** attribute in the **File Information** group of Monitoring Agent for UNIX OS provides file size metrics in bytes, and the resulting integers are so long that they are difficult to read.	Use the option to log size metrics in megabytes (MB). Future releases of this monitoring agent can provide the option to capture this metric in other units, such as KB.
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 the *IBM Tivoli Monitoring Installation and Setup Guide* for more information on adding application support.

Table 9. 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 into 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_name*_forward_tbsm_event_cb.sh 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.

Situations you created using the File Pattern attribute group always raise alerts, sometimes unexpectedly.	A situation created using the File Pattern attribute group is always TRUE unless you incorporate the Match Count attribute into the formula. The Match Count attribute indicates the number of matches for the specified pattern in the specified file.
	
	For example, this formula always raises an alert:
	`IF VALUE Unix_File_Pattern.File_Name EQ '/path/filename'`
	`AND VALUE Unix_File_Pattern.Match_Pattern EQ 'pattern'`
	
	To remedy the of unexpected alerts raised by this type of situation, redefine the example by incorporating the Match Count attribute.
	`IF VALUE Unx_File_Pattern.File_Name EQ '/path/filename'`
	`AND VALUE Unix_File_Pattern.Match_Pattern EQ 'pattern' AND`
	`VALUE Unix_File_Pattern.Match_Count GT 0`

If you patch a Solaris-based system with a cumulative fix pack for Solaris, the ITM agent adds the replaced files as FileSystems in the Warehouse.	To remedy this situation, create filters in the historical data collection that will skip rows with NAME=*SafeMode*.

Problems with configuration of situations

Table 10 lists problems that might occur with situations.

Table 10. 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.	

Table 10. Problems with configuring situations that you solve in the Situation Editor (continued)

Problem	Solution
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 UNIX 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.*
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 11. 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 11. 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 12. 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.

Take Action command troubleshooting

Table 13 lists general problems that might occur with Take Action commands. When each Take Action command runs it generates the log file listed in Table 2 on page 4.

Table 13. Take Action commands problems and solutions

Problem	Solution
Take Action commands might require several minutes to complete.	Allow several minutes. If you do not see a pop-up message advising you of completion, try to run the command manually. If you are unable to perform the Take Action command manually, see *IBM Tivoli Monitoring Troubleshooting Guide* for general information on troubleshooting the Take Action command.

Troubleshooting for UNIX

Table 14 lists problems that might occur on the system or application that you are monitoring.

Table 14. Paging and memory issues for a system administrator to consider

Problem	Solution
Paging space allotted needs to be increased.	A system needs to have about two times its total memory size. However, paging space depends on the programs that are running. If the site has many small programs that run to completion quickly, then only one times the total memory size might be required. If the site runs large programs that run for hours or days at a time, then more paging space is required.
Paging space allocation needs to be more accurate on a UNIX system.	You can test the allocation of paging space by creating a situation that monitors Active Virtual Memory. Active Virtual Memory closely matches how much paging space is being used. When the system uses all the paging space, the operating system terminates processes that ask for more. To create a situation that monitors active virtual memory: 1. Use the UNIX detail view to obtain the Total Virtual Memory, and to compute 90% and 95% of the Total Virtual Memory. 2. When the Active Virtual Memory is equal to 90%, of the Total Virtual Memory this is a Yellow light condition. When the Active Virtual Memory is equal to 95% of the Total Virtual Memory this is a Red light condition. In response to this test, the local system administrator can increase the percentages or lower them, as appropriate.
The Free Memory value seems too small.	The System Report, Free Memory column displays how much free memory is available at the current time. This number is normally small. However, you must take action if this number is zero and remains zero for a long period of time. On AIX systems a small number means that the operating system is doing an efficient job at managing the memory of the system. If this number is very large, the system is not busy and has more RAM than required.

Tivoli Common Reporting troubleshooting

Table 15 lists general problems that might occur with Tivoli Common Reporting. This chapter provides agent-specific troubleshooting information.

Table 15. 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.

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.
- *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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