IBM Tivoli Monitoring
Version 6.3 Fix Pack 2

Linux OS Agent Troubleshooting Guide

IBM

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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 Linux 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.
Linux 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: Linux OS Agent
Screen captures	Screen captures of incorrect output, if any.
Core dump files	If the system stops on UNIX or Linux 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: Linux OS Agent is logging. *Logging* refers to the text messages and trace data generated by the IBM Tivoli Monitoring: Linux 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: Linux OS Agent:

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

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

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".

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.

Log file management is described in the following table:

Table 2. Log file management on UNIX compared to log file management on Windows

Location of logs	Description
- On a Windows monitoring server - On a Windows computer where the monitoring agent is running - On a UNIX or Linux computer where the monitoring agent is running	On Windows, the log file is overwritten each time the component starts. There is no automated method to archive previous RAS1 log files. **Note:** To prevent the log files from consuming too much disk space, you can stop and start the component. This action automatically creates a new log file. Save a backup of log files if your company policy requires archiving of log files.

- On a UNIX or Linux monitoring server
- On a UNIX or Linux computer where the monitoring agent is running
	On UNIX or Linux systems, because of the use of the &Timestamp; variable in the log file names, multiple RAS1 logs are normally stored the `logs` subdirectory. The file name for a trace log is a copy of a related file that includes the process ID of the agent. The two files have the same timestamp as in these examples from a computer with a host name **f50pa2b**. The **1112097194** part of the name is the timestamp:
	
	`f50pa2b_lz_1112097194.log`
	`f50pa2b_lz_1112097194.pid60420`
	
	where *lz* is the unique, two-character code for Monitoring Agent for Linux OS.

Note: When you communicate with IBM Software Support, you must capture and send the RAS1 log that matches any problem occurrence that you report. Table 3 on page 4 can help you identify files that are relevant to your troubleshooting efforts.

Principal trace log files

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

Table 3. Trace log files for troubleshooting agents

System where log is located	File name and path	Description
On the computer that hosts the monitoring agent	The *hostname*_lz_*instance*.log file is located in the *install_dir*/logs path.	Traces activity of the monitoring agent.
	The *.LG0 file is located in the following subdirectory of the *install_dir* path: /logs.	Shows whether agent was able to connect to the monitoring server. Shows which situations are started and stopped, and shows other events while the agent is running. A new version of this file is generated every time the agent is restarted. IBM Tivoli Monitoring generates one backup copy of the *.LG0 file with the tag .LG1. View .LG1 to learn the following details regarding the *previous* monitoring session: • Status of connectivity with the monitoring server. • Situations that were running. • The success or failure status of Take Action commands.
	The *take_action_name*.log file (where *take_action_name* is the name of the Take Action command) is located in the /logs subdirectory of the *install_dir* path.	Traces activity each time a Take Action command runs. For example, when a hypothetical **start_command** Take Action command runs, IBM Tivoli Monitoring would generate a start_command.log file.
On the Tivoli Enterprise Monitoring Server	The candle_installation.log file in the *install_dir*/logs path.	Provides details about products that are installed. **Note:** Trace logging is enabled by default. A configuration step is not required to enable this tracing.
	The Warehouse_Configuration.log file is located in the following path on Windows: *install_dir*\InstallITM.	Provides details about the configuration of data warehousing for historical reporting.
	The name of the RAS log file is as follows: • **On Windows:** *install_dir*\logs\ *hostname*_ms_*timestamp*.log • **On UNIX or Linux:** *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.

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

System where log is located	File name and path	Description
On the Tivoli Enterprise Portal Server	The name of the RAS log file is as follows: • **On Windows:** *install_dir*\logs\ *hostname*_cq_*timestamp*.log • **On UNIX or Linux:** *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:
   timestamp is timestamp whose format includes year (y), month (m), day (d), hour (h), and minute (m), as follows:
   yyyymmdd hhmm
   install_dir represents the directory path where you installed the IBM Tivoli Monitoring component.
   install_dir can represent a path on the computer that host the monitoring system, the monitoring agent, or the portal.
   instance refers to the name of the database instance that you are monitoring.
   hostname refers to the name of the computer on which the IBM Tivoli Monitoring component runs.

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 to learn some basic facts about your IBM Tivoli Monitoring environment.

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

>   Key points regarding the preceding excerpt:
>   • The monitoring server appends the **LZ** product code to the server name to form a unique name (SERVER5B:LZ) for this instance of Monitoring Agent for Linux 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 Linux OS uses RAS1 tracing and generates the logs described in Table 3 on page 4. The default RAS1 trace level is ERROR.

Before you begin

When you are troubleshooting, follow these guidelines to ensure that you capture and analyze the correct log files: Because of the use of the &Timestamp; variable in the log file names on UNIX or Linux systems, there are typically multiple RAS1 logs in the `logs` subdirectory. When you forward log files to IBM Software Support, you must send the RAS1 log that matches the problem occurrence that the log files are reporting.

After you finish

On UNIX or Linux, periodically prune the trace logs in the `logs` subdirectory so that there is available disk space for new logging.

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/lz.ini` file. The basic format for setting tracing options is as follows:
```
KBB_RAS1=ERROR (UNIT:klz options)
```

Use one of the following methods to modify trace options:
- **Manually edit the configuration file to set trace logging**
  1. Open the trace options file: `/install_dir/config/lz.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:klz ALL) (UNIT:kra ALL)'
     ```
  3. 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 Linux OS:

- "Installation and configuration troubleshooting"
- "Agent troubleshooting" on page 13
- "Tivoli Enterprise Portal troubleshooting" on page 15
- "Troubleshooting for remote deployment" on page 15
- "Tivoli Common Reporting troubleshooting" on page 16
- "Situation troubleshooting" on page 16

Installation and configuration troubleshooting

Table 4 provides solutions for installation, configuration, and uninstallation problems.

Table 5 on page 10 provides solutions for uninstallation problems.

Table 4. Problems and solutions for installation and configuration

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.
install.sh fails with a JVMJ9VM011W error.	The SELINUX parameter in the /etc/sysconfig/selinux file must be set to "disable". Then, reboot the system.
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.

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

Problem	Solution

Installation of Monitoring Agent for Linux OS on the Linux S390 R2.6 64-bit operating system fails with a message similar to the following: LINUX MONITORING AGENT V610R*nnn* unable to install agent, where *nnn* is the release number.	Solve this problem as follows:
	1. Run the following command before running any installation or configuration command for the agent:
	  export JAVA_COMPILER=NONE
	2. Install the following two RPM (Red Hat Package Manager) files:
	  • **compat-libstdc++-295-2......s390x.rpm**
	  • **compat-libstdc++-33-3.......s390x.rpm** It requires the two s390x.rpm files, in addition to the s390.rpm files.
	You can obtain the required RPM files from the CD for Red Hat As 4.0 s390x.

During a command-line installation, you choose to install a component that is already installed, and you see the following warning: WARNING - you are about to install the SAME version of "*component*" where *component* is the name of the component that you are attempting to install. **Note:** This problem affects UNIX command-line installations. If you monitor only Windows environments, you would see this problem if you choose to install a product component (for example, a monitoring server) on UNIX.	You must exit and restart the installation process. You cannot return to the list where you selected components to install. When you run the installer again, do not attempt to install any component that is already installed.
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.
Cannot locate the **KDCB0_HOSTNAME** setting.	Go to *install_dir*/config and edit the corresponding **.ini** file. Set the **KDCB0_HOSTNAME** parameter followed by the IP address. If you use multiple network interface cards (NICs), give the Primary IP address of the network interface.
The Monitoring Agent for Linux OS repeatedly restarts.	You can collect data to analyze this problem as follows: 1. Access the *install_dir*/config/lz.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*.

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

Problem	Solution
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*.

You see the following error:
`Hub not registered with location`
`broker. Error-code 1195.`
	Confirm that the password within the Tivoli Enterprise Monitoring Server is correct.

The Monitoring Agent for Linux OS is started and running but not displaying data in the Tivoli Enterprise Portal.	Perform 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.
	4. Check the log files to see whether there are connection problems.
	5. If there are no connection problems, check whether the agent has terminated.
	6. If the agent is not terminated, confirm that you have added application support for the Monitoring Agent for Linux OS in the Tivoli Enterprise Monitoring Server as follows:
	  • Verify that the following entries are available in the *install_dir*`\candle_installation.log` file:*install_dir*`\Install\IBM Tivoli Monitoring `*timestamp*`.log`
	
	    `... Browser Client support for ITM Agent for Linux`
	    `... Desktop Client support for ITM Agent for Linux`
	
	    If the **candle_installation.log file** does not have the above entries for Monitoring Agent for Linux OS, add application support for this monitoring agent. See in IBM Tivoli Monitoring Installation and Setup Guide for more information on adding application support.
	  • Verify that the following files are available in the directory:
	    `install_dir\ATTRLIB\klz.atrinstall_dir`
	    `\CNPS\CMSATR\klz.atrinstall_dir`
	    `\SQLLIB\klz.sqlinstall_dir`
	    `\CNPS\SQLLIB\klz.sql`

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

Problem	Solution
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, by 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.
You receive the following error: `/data/itm/li6263/lz/bin/klzagent: error while loading shared libraries: libstdc++.so.5: cannot open shared object file: No such file or directory`	Ensure that the libstdc++.so.5 library is installed.

Table 5. 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**.

Agent upgrade and restart using non-root

The monitoring agent can run by 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 by using the **Run As** option on the GUI or by using the **_UNIX_STARTUP_.Username** option on the **tacmd addSystem** command line. If the agent is running by 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 by 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 by 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 by 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 by 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, lz for the Monitoring Agent for Linux OS

   Examples:

   - For AIX, add entries with the following format:

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

     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 lz >/dev/null 2>&1"
     ```

     Where:

     USER Name of the user

     INSTANCE
     > Name of the instance

4. Repeat Steps 1 through 3 for all occurrences of stop.

5. Save the file.

Unique names for monitoring components

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

IBM Tivoli Monitoring automatically creates a name for each monitoring component by concatenating the host name and product code separated by colons (*hostname*:LZ).

Note: When you monitor a multinode system, such as a database, IBM Tivoli Monitoring adds a subsystem name to the concatenated name, typically a database instance name.

The length of the name that IBM Tivoli Monitoring generates is limited to 32 characters. Truncation can result in multiple components having the same 32-character name. If this problem happens, shorten the *hostname* portion of the name as follows:

1. Open the configuration file for the monitoring agent, which is located in the following path: `install_dir`/config/lz.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 LZ, 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 cannot find the **CTIRA_HOSTNAME** environment variable, you must add it to the configuration file of the monitoring agent:

- **On UNIX and Linux:** Add the variable to the config/*product_code*.ini file.

Agent troubleshooting

Table 6 provides agent-specific troubleshooting information. For general troubleshooting information, see the *IBM Tivoli Monitoring Troubleshooting Guide*.

Table 6. 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 by using the 'PORT:' keyword on the KDC_FAMILIES / KDE_TRANSPORT environment variable and defaults to '1918'.) The physical port allocation method is defined as (BASE_PORT + 4096*N) where N=0 for a Tivoli Enterprise Monitoring Server process and N={1, 2, ..., 15} for 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 by 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 6. Agent problems and solutions (continued)

Problem	Solution
The Monitoring Agent for Linux OS running on a Linux system does not communicate with the Tivoli Enterprise Monitoring Server running on a Z/OS system.	The procedure for seeding the Tivoli Enterprise Monitoring Server running on a Z/OS system for an instance of the Monitoring Agent for Linux OS running on a Linux system can be found in *Configuring Tivoli Enterprise Monitoring Server on z/OS®*.
The agent's process, **klzagent** 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 Linux 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 log file has the following information: `Unable to find running Tivoli Enterprise Monitoring Server on CMSLIST`
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.
In the User workspace, data does not show up in the User Login Information (table view).	This problem arises when you install the agent on a 64-bit zLinux operating system, but run the agent in 32-bit mode. The workspace is unable to access user login data. Run the agent in 64-bit mode.
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 simply as a value to compare against the values in the historical table. However, the value 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. The value does not act as a wildcard against historical data.
The Xorg process does not display within the OSLC-rich hover.	A limitation of the Linux OS Agent, the Xorg process does not display within the OSLC-rich hover because the Linux OS Kernel allocates Xorg memory by using its own slab cache.

Table 6. Agent problems and solutions (continued)

Problem	Solution
While working with the Linux Machine Information attribute group, you are alerted by the following message: `sh: vmcp: command not found`	The Linux Machine Information attribute group requires the **vmcp module/command** for Linux on System z. This information is contained in the error log file *hostname_lz_timestamp*.log.

Tivoli Enterprise Portal troubleshooting

Table 7 lists problems that might occur with the Tivoli Enterprise Portal.

Table 7. 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* or 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.
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.

Troubleshooting for remote deployment

Table 8 lists problems that might occur with remote deployment and removal of agent software Agent Remote Deploy.

Table 8. 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.

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
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.

Table 10. Specific situation problems and solutions (continued)

Problem	Solution
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 appears to be incorrect. For example, if you were monitoring Linux, a formula that calculates when **Free Memory** falls under 10 percent of **Total Memory** does not work: LT #'Linux_VM_Stats.Total_Memory' / 10	This formula is incorrect because situation predicates support only logical operators. Your formulas cannot have mathematical operators. **Note:** The Situation Editor provides alternatives to math operators. Regarding the example, you can select **% Memory Free** attribute and avoid the need for math operators.
If you are running a Version 350 Monitoring Agent for Linux 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.
IBM Tivoli Monitoring is configured to provide data to the optional product IBM Tivoli Enterprise Console. However, a situation displays the severity UNKNOWN in IBM Tivoli Enterprise Console.	For a situation to have the correct severity in TEC for those situations which are not mapped, you need to ensure that one of the following is true: • Specify the severity in the SITINFO column of the O4SRV.TSITDESC table. For example use the values 'SEV=Critical' and 'SEV=Warning' for the SITINFO column in your kxx.sql file, which adds application support to the monitoring product. —OR— • Have the name of the situation ends with '_Warn' or '_Warning' for WARNING severity and '_Cri' or '_Critical' for Critical severity
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, by 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.
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.

Table 10. Specific situation problems and solutions (continued)

Problem	Solution
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 created using the File Pattern attribute group are always TRUE if the Match Count attribute is not used.	When creating situations using the File Pattern Attribute Group like the following one:
	
	`[*IF *VALUE Linux_File_Pattern.File_Name *EQ '/path/filename'`
	`*AND *VALUE Linux_File_Pattern.Match_Pattern *EQ 'pattern']`
	
	the situations are always TRUE.
	
	Redefine the situations in the following way:
	
	`[*IF *VALUE Linux_File_Pattern.File_Name *EQ '/path/filename'`
	`*AND *VALUE Linux_File_Pattern.Match_Pattern *EQ 'pattern' *AND`
	`*VALUE Linux_File_Pattern.Match_Count *GT 0]`
	
	The Match_Count attribute must always be used in order to monitor for a match pattern.

Problems with configuration of situations

Table 11 lists problems that might occur with situations.

Table 11. 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 Linux 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.

Problem	Solution
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 12. Problems with configuration of situations that you solve in the Workspace area

Problem	Solution
Situation events are not displayed in the Events Console view of the workspace.	Associate the situation with a workspace. **Note:** The situation does not need to be displayed in the workspace. It is sufficient that the situation be associated with any workspace.
You do not have access to a situation.	**Note:** You must have administrator privileges to perform these steps. 1. Select **Edit** > **Administer Users** to access the Administer Users window. 2. In the Users area, select the user whose privileges you want to modify. 3. In the Permissions tab, Applications tab, and Navigator Views tab, select the permissions or privileges that correspond to the user'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 13. 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.	Check the system status and check the appropriate IBM Tivoli Monitoring logs.
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.
- *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.

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