Tivoli®

IBM Tivoli Composite Application Manager for Application Diagnostics

Version 7.1.0.1

Troubleshooting Guide

GC27-2821-00

Tivoli® IBM Tivoli Composite Application Manager for Application Diagnostics
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Note

Before using this information and the product it supports, read the information in "Notices" on page 131.

Edition Notice

This 2010 edition applies to Version 7.1.0.1 of IBM Tivoli Composite Application Manager for Application Diagnostics and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

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About this guide

This guide provides troubleshooting information for installing, customizing, starting, and maintaining the 4 main components that make upIBM® Tivoli® Composite Application Manager for Application Diagnostics (ITCAM for Application Diagnostics). These components are:

- Agent for WebSphere® applications
- Agent for J2EE
- Agent for HTTP Servers
- Managing Server

The 3 agent components listed above are also components of ITCAM for Applications Version 6.2.3. However, if you are using ITCAM for Applications, the Managing Server (deep dive) functionality is not available. In this case, ignore all references to this functionality in this document.

Intended audience

This guide is for administrators or advanced users wanting to troubleshoot ITCAM for Application Diagnostics. The guide assumes that readers are familiar with maintaining operating systems, administering Web servers, maintaining databases, and general information technology procedures. Specifically, readers of this guide must have some knowledge of the following topics:

- Web application servers, such as IBM WebSphere
- IBM Tivoli Monitoring software
- Operating systems on which you intend to install product components
- Web servers, such as IBM HTTP Server and Apache HTTP Server
- WebSphere Application Server Community Edition
- Web application servers, such as WebLogic, NetWeaver, JBoss, Oracle, and Tomcat, and J2SE applications
- Internet protocols such as HTTP, HTTPS, TCP/IP, Secure Sockets Layer (SSL), and Transport Layer Security (TLS)
- Digital certificates for secure communication

Publications

This section lists publications in the product library and related documents. It also describes how to access Tivoli publications online and how to order Tivoli publications.

ITCAM for Application Diagnostics library

The following publications provide additional information about ITCAM for Application Diagnostics. They are included in the ITCAM for Application Diagnostics library available at http://publib.boulder.ibm.com/infocenter/tivihelp/v24r1/topic/com.ibm.itcamfad.doc_7101/ic-homepage.html.

- *IBM Tivoli Composite Application Manager for Application Diagnostics: Prerequisites*

  Provides the hardware and software requirements for installing ITCAM for Application Diagnostics components.

- *IBM Tivoli Composite Application Manager for Application Diagnostics: User's Guide*

  Provides the user overview, user scenarios, and Helps for every ITCAM for Application Diagnostics component.
- *IBM Tivoli Composite Application Manager for Application Diagnostics: Planning an Installation*

  Provides the user with a first reference point for a new ITCAM for Application Diagnostics installation or upgrade.
- ITCAM Agent for WebSphere Applications Installation and Configuration Guides:
  - *IBM Tivoli Composite Application Manager: Agent for WebSphere Applications Installation and Configuration Guide*
  - *IBM Tivoli Composite Application Manager: Agent for WebSphere Applications Installation and Configuration Guide for z/OS*
  - *IBM Tivoli Composite Application Manager: Agent for WebSphere Applications Data Collector Installation and Configuration Guide for IBM i*

  Provide installation instructions for setting up and configuring ITCAM Agent for WebSphere Applications on distributed, z/OS®, and IBM i systems.
- ITCAM Agent for J2EE Applications Installation and Configuration Guides:
  - *IBM Tivoli Composite Application Manager: Agent for J2EE Data Collector Installation and Configuration Guide*
  - *IBM Tivoli Composite Application Manager: Agent for J2EE Monitoring Agent Installation and Configuration Guide*

  Provide installation instructions for setting up and configuring ITCAM Agent for J2EE.
- *IBM Tivoli Composite Application Manager: Agent for HTTP Servers Installation and Configuration Guide*

  Provides installation instructions for setting up and configuring ITCAM Agent for HTTP Servers.
- *IBM Tivoli Composite Application Manager for Application Diagnostics Managing Server Installation Guide*

  Provides installation instructions for setting up and configuring ITCAM for Application Diagnostics Managing Server.
- *IBM Tivoli Composite Application Manager for Application Diagnostics: Troubleshooting Guide*

  Provides instructions on problem determination and troubleshooting for ITCAM for Application Diagnostics.
- *IBM Tivoli Composite Application Manager for Application Diagnostics: Messaging Guide*

  Provides information about system messages received when installing and using ITCAM for Application Diagnostics.

Related publications

The following documentation also provides useful information:

- WebSphere Application Server:

  Information about WebSphere Application Server is provided on the following Web site:

  http://www-306.ibm.com/software/webservers/appserv/was/library
- IBM DB2®:

  Information about IBM DB2 is provided on the following Web site:

http://www-306.ibm.com/software/data/sw-library/

- IBM Tivoli Enterprise Console®:

  Information about IBM Tivoli Enterprise Console is provided on the following Web site:

  http://submit.boulder.ibm.com/tividd/td/EnterpriseConsole3.9.html

- IBM Tivoli Data Warehouse:

  Information about IBM Tivoli Data Warehouse is provided on the following Web site:

  http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?toc=/com.ibm.tivoli.tdwi.doc/toc.xml

- IBM Tivoli Change and Configuration Management Database:

  Information about IBM Tivoli Change and Configuration Management Database is provided on the following Web site:

  http://publib.boulder.ibm.com/infocenter/tivihelp/v10r1/index.jsp?toc=/com.ibm.ccmdb.doc/ccmdb_ic.xml

- IBM Support Assistant:

  Information about IBM Support Assistant is provided on the following Web site:

  http://www-306.ibm.com/software/support/isa/index.html?rcss=rtlrre

Accessing terminology online

The *Tivoli Software Glossary* includes definitions for many of the technical terms related to Tivoli software. The *Tivoli Software Glossary* is available at the following Tivoli software library Web site:

http://publib.boulder.ibm.com/tividd/glossary/tivoliglossarymst.htm

The IBM Terminology Web site consolidates the terminology from IBM product libraries in one convenient location. You can access the Terminology Web site at the following Web address:

http://www.ibm.com/software/globalization/terminology

Accessing publications online

The documentation CD contains the publications that are in the ITCAM for Application Diagnostics library. The format of the publications is PDF, HTML, or both.

IBM posts publications for this and all other Tivoli products, as they become available and whenever they are updated, to the Tivoli software information center Web site. Access the Tivoli documentation center at the following Web address:

https://www.ibm.com/developerworks/wikis/display/tivolidoccentral/Home

Access the Tivoli Information Center for ITCAM for Application Diagnostics at the following Web address:

http://publib.boulder.ibm.com/infocenter/tivihelp/v24r1/topic/com.ibm.itcamfad.doc_7101/ic-homepage.html

Note: If you print PDF documents on other than letter-sized paper, set the option in the **File** → **Print** window that allows Adobe® Reader to print letter-sized pages on your local paper.

All IBM Tivoli product documentation can be accessed through the Tivoli Documentation Central Wiki page at http://www.ibm.com/developerworks/wikis/display/tivolidoccentral/Home.

Ordering publications

You can order many Tivoli publications online at the following Web site:

http://www.elink.ibmlink.ibm.com/public/applications/publications/cgibin/pbi.cgi

You can also order by telephone by calling one of these numbers:

- In the United States: 800-879-2755
- In Canada: 800-426-4968

In other countries, contact your software account representative to order Tivoli publications. To locate the telephone number of your local representative, perform the following steps:

1. Go to the following Web site:
   http://www.elink.ibmlink.ibm.com/public/applications/publications/cgibin/pbi.cgi
2. Select your country from the list and click **Go**.
3. Click **About this site** in the main panel to see an information page that includes the telephone number of your local representative.

Accessibility

Accessibility features help users with a physical disability, such as restricted mobility or limited vision, to use software products successfully. With this product, you can use assistive technologies to hear and navigate the interface. You can also use the keyboard instead of the mouse to operate all features of the graphical user interface.

For additional information, see Appendix A, “Accessibility,” on page 119.

Tivoli technical training

For Tivoli technical training information, refer to the following IBM Tivoli Education Web site:

http://www.ibm.com/software/tivoli/education/

Conventions used in this guide

This guide uses several conventions for special terms and actions, operating system-dependent commands and paths, and margin graphics.

Typeface conventions

This guide uses the following typeface conventions:

Bold

- Lowercase commands and mixed case commands that are otherwise difficult to distinguish from surrounding text

- Interface controls (check boxes, push buttons, radio buttons, spin buttons, fields, folders, icons, list boxes, items inside list boxes, multicolumn lists, containers, menu choices, menu names, tabs, property sheets), labels (such as **Tip:**, and **Operating system considerations**:)
- Keywords and parameters in text

Italic

- Citations (examples: titles of publications, diskettes, and CDs
- Words defined in text (example: a nonswitched line is called a *point-to-point line*)
- Emphasis of words and letters (words as words example: "Use the word *that* to introduce a restrictive clause."; letters as letters example: "The LUN address must start with the letter *L*.")
- New terms in text (except in a definition list): a *view* is a frame in a workspace that contains data.
- Variables and values you must provide: ... where *myname* represents....

Monospace

- Examples and code examples
- File names, programming keywords, and other elements that are difficult to distinguish from surrounding text
- Message text and prompts addressed to the user
- Text that the user must type
- Values for arguments or command options

Variables for directories

This guide refers to the following variables:

ITM_home

The top level directory for installation of IBM Tivoli Monitoring components.

ITCAM_home

The top level directory for installation of IBM Tivoli Composite Application Monitoring components.

DC_home **and** *MS_home*

The directory where the Data Collector or Managing Server are installed.

What's new in this publication

ITCAM Agent for WebSphere Applications

This publication contains information that applies to version 7.1.0.1 of IBM Tivoli Composite Application Manager for Application Diagnostics. You should have the following maintenance of the product installed:

- ITCAM Agent for WebSphere 7.1.0.1

ITCAM Agent for J2EE

This publication contains information that applies to the 6.2.0.4 version of the product:

- Data Collector Fix Pack 4
- J2EE Monitoring Agent Fix Pack 4

ITCAM Agent for HTTP Servers

- ITCAM Agent for HTTP Servers 7.1.0.1

You can use the auto-learning thresholds and benchmark performance for a new application (or changed environment) and to understand where thresholds should be established. In conjunction with this offering, best practices related to logical navigation views and correlation of situations for automation of problem identification can be found in the Open Process Automation Library (OPAL). For more information, see the following Web site: http://catalog.lotus.com/wps/portal/tcam

Chapter 1. Log files, tracing, and utilities

Log files contain useful information for analyzing and troubleshooting any issue that may occur in the system. You can also enable tracing in order to log additional details. It is suggested that you perform tracing and capture the log files before contacting IBM support for assistance.

ITCAM for Application Diagnostics includes several tools for generating and managing log files. It also provides an Environmental Checking Utility (ECU). You can use this utility to check that prerequisite packages are installed correctly prior to installation

Log files and tracing for the Tivoli Enterprise Monitoring Agent

The Tivoli Enterprise Monitoring Agent is a component of ITCAM Agent for WebSphere Applications, ITCAM Agent for J2EE, and ITCAM Agent for HTTP Servers.

Gather Script

The Gather Script is a script that collects system information such as CPU and memory data, network status, registry and environment variables. It also collects specific information on the product, such as configuration settings, log files and maintenance level. It compresses all the collected information into a single file. When you contact IBM support for assistance, the support engineer will ask you to upload the file for further analysis.

ITCAM Agent for WebSphere Applications

For ITCAM Agent for WebSphere Applications, the name of the Tivoli Enterprise Monitoring Agent gather script is:

- on Windows®, *ITM_home*\TMAITM6\kyncollect.cmd
- on Linux®, UNIX® systems, and z/OS, *ITM_home*/*ITM_BINARCH*/yn/bin/kyncollect.sh

The script takes no parameters.

The output file will be located in the following directory:

- on Windows, %TEMP%\KYN
- on Linux, UNIX systems, and z/OS, *ITM_home*/tmp/kyn

ITCAM Agent for J2EE

For ITCAM Agent for J2EE, the name of the Tivoli Enterprise Monitoring Agent gather script is:

- on Windows, *ITM_home*\TMAITM6\kyjcollect.cmd
- on Linux, UNIX systems, and z/OS, *ITM_home*/*ITM_BINARCH*/yn/bin/kyjcollect.sh

The script takes no parameters.

The output file will be located in the following directory:

- on Windows, %TEMP%\KYJ
- on Linux and UNIX systems, *ITM_home*/tmp/kyj

ITCAM Agent for HTTP Servers

For ITCAM Agent for HTTP Servers, the name of the Tivoli Enterprise Monitoring Agent gather script is:

- on Windows, *ITM_home*\TMAITM6\khtcollect.cmd
- on Linux, UNIX systems, and z/OS, *ITM_home*/*ITM_BINARCH*/ht/bin/khtcollect.sh

The script takes no parameters.

The output file will be located in the following directory:

- on Windows, %TEMP%\KHT
- on Linux and UNIX systems, *ITM_home*/tmp/kht

Tracing within the Tivoli Enterprise Monitoring Agent

For all the agents, tracing within the Tivoli Enterprise Monitoring Agent is controlled by setting the KBB_RAS1 environment variable, using the format KBB_RAS1=ERROR (UNIT:<unitname> <trace type>), as per the following examples:

- KBB_RAS1=ERROR (UNIT:kyn ALL) (UNIT:kwj all)

  Writes all error messages.

  Writes all trace messages for source files beginning with "kyn" or "kwj"

  Tip: Use "kyn" for ITCAM Agent for WebSphere Applications, "kyj" for ITCAM Agent for J2EE, and "kht" for ITCAM Agent for HTTP Servers.
- KBB_RAS1=ERROR (UNIT:kwj INPUT OUTPUT STATE)

  Writes all error messages.

  Writes INPUT, OUTPUT, and STATE trace messages for source files beginning with 'kwj'.
- KBB_RAS1=ERROR

  Writes trace messages for all errors.

Useful traces

Generally, requests for tracing and interpretation of traces must only be done by those who have intimate knowledge of the code.

- KBB_RAS1=UNIT:kwjira FLOW STATE

  Traces Monitoring Agent activity on the IBM Tivoli Monitoring framework API boundary.
- KBB_RAS1=ERROR (UNIT:KWJJ FLOW STATE)

  Traces the native Monitoring Agent interface flow with the Java™ sub-agent.

Where to specify tracing parameters

Set tracing parameters in the following locations, depending on the agent and the OS:

- For ITCAM Agent for WebSphere Applications:
  - On Windows: *ITM_home*\TMAITM6\KYNENV file
  - On Linux and UNIX systems: /*Install_home*/config/yn.ini file
  - On z/OS: KYNENV member of RKANPAR data set
- For ITCAM Agent for J2EE:

  - On Windows: *ITM_home*\TMAITM6\KYJENV file
  - On Linux and UNIX systems: /*ITM_home*/config/yj.ini file
- For ITCAM Agent for HTTP Servers:
  - On Windows: *ITM_home*\TMAITM6\KHTENV file
  - On Linux and UNIX systems: /*ITM_home*/config/ht.ini file

You can also set these parameters using the GUI. This GUI is also available in UNIX systems using the X Window System.

Note:

1. When troubleshooting the monitoring agent, enable tracing for the Data Collector code that communicates with the monitoring agent. See "Setting the logging and tracing levels" on page 7
2. When troubleshooting **Application Summary workspaces**, enable tracing for the ITCAM for Application Diagnostics support code in the Tivoli Enterprise Portal, as this code is used to create the green .yellow/red "lights" in the workspaces. See "Tracing and logging within the Tivoli Enterprise Portal (Summary Workspaces)" on page 16

Tivoli Enterprise Monitoring Agent log files

ITCAM Agent for WebSphere Applications

Location of the logs in Windows:

- *ITM_home*\logs*COMPUTER_NAME*_yn_*.log [contains Monitoring Agent native code trace messages]
- *ITM_home*\logs\kyn-TEMA-trace.log [contains Monitoring Agent java code trace messages]
- *ITM_home*\logs\kyn-TEMA-msg.log [contains Monitoring Agent log messages]
- *ITM_home*\logs\KYN.Primary.*.*JVM.log [contains Monitoring Agent JVM messages]
- *ITM_home*\TMAITM6\logs\itcamfwasras1.log [contains Monitoring Agent configuration messages]

Location of the log files in UNIX/Linux:

- *ITM_home*/logs/*COMPUTER_NAME*_yn_*.log
- *ITM_home*/logs/itm_config.log
- *ITM_home*/logs/itm_config.trc
- *ITM_home*/logs/KYN.Primary.*.*JVM.log

Location of the log files in z/OS:

- *ITM_home*/logs/*COMPUTER_NAME*_yn_*.log
- *ITM_home*/logs/kyn-TEMA-trace.log
- *ITM_home*/logs/kyn-TEMA-msg.log
- *ITM_home*/logs/KYN.Primary.*.*JVM.log

The location of the native code trace log files can be changed using the Manage Tivoli Monitoring Services utility (in the right click menu for the agent, select **Advanced > Edit Trace Parms...**); it can not be changed on z/OS. To set the location of other log files, use the following configuration files:

- Windows - *ITM_home*\TMAITM6\kynjlog.properties
- UNIX/Linux - *ITM_home*/*arch*/yn/config/kynjlog.properties

- z/OS - *ITM_home*/yn/config/kynjlog.properties

Attention: The configuration files for the logs must not be changed without the prior consent of IBM Tivoli Support Team.

ITCAM Agent for J2EE

Location of the logs in Windows:

- *ITM_home*\logs*COMPUTER_NAME*_yj_*.log [contains Monitoring Agent native code trace messages]
- *ITM_home*\logs\kyj-TEMA-trace.log [contains Monitoring Agent java code trace messages]
- *ITM_home*\logs\kyj-TEMA-msg.log [contains Monitoring Agent log messages]
- *ITM_home*\logs\KYJ.Primary.*.*JVM.log [contains Monitoring Agent JVM messages]

Location of the log files in UNIX/Linux:

- *ITM_home*/logs/*COMPUTER_NAME*_yj_*.log
- *ITM_home*/*arch*/logs/kyj-tema-trace.log
- *ITM_home*/*arch*/logs/kyj-tema-msg.log
- *ITM_home*/logs/KYJ.Primary.*.*JVM.log

The location of the native code trace log files can be changed using the Manage Tivoli Monitoring Services utility (in the right click menu for the agent, select **Advanced > Edit Trace Parms...**). To set the location of other log files, use the following configuration files:

- Windows - *ITM_home*\TMAITM6\kyjjlog.properties
- UNIX/Linux - *ITM_home*/*arch*/yj/config/kyjjlog.properties

Attention: The configuration files for the logs must not be changed without the prior consent of IBM Tivoli Support Team.

ITCAM Agent for HTTP Servers

Location of the logs in Windows:

- *ITM_home*\logs*COMPUTER_NAME*_ht_*.log [contains native code trace messages]
- *ITM_home*\logs\kht-TEMA-trace.log [contains java code trace messages]
- *ITM_home*\logs\kht-TEMA-msg.log [contains Agent log messages]
- *ITM_home*\logs\KHT.Primary.*.*JVM.log [contains Agent JVM messages]

Location of the log files in UNIX/Linux:

- *ITM_home*/logs/*COMPUTER_NAME*_ht_*.log
- *ITM_home*/*arch*/logs/kht-tema-trace.log
- *ITM_home*/*arch*/logs/kht-tema-msg.log
- *ITM_home*/logs/itm_config.log
- *ITM_home*/logs/itm_config.trc
- *ITM_home*/logs/KHT.Primary.*.*JVM.log

The location of the native code trace log files can be changed using the Manage Tivoli Monitoring Services utility (in the right click menu for the agent, select **Advanced > Edit Trace Parms...**). To set the location of other log files, use the following configuration files:

- Windows - *ITM_home*\TMAITM6\khtjlog.properties

- UNIX/Linux - *ITM_home*/*arch*/ht/config/khtjlog.properties

Attention: The configuration files for the logs must not be changed without the prior consent of IBM Tivoli Support Team.

Plug-in for IBM Support Assistant (ISA)

ITCAM for Application Diagnostics plug-in for IBM Support Assistant (ISA) is a plug-in available for download in ISA. It is a GUI-based utility for collecting log files and system information. You can submit a service request through ISA with the file generated by the plug-in. For instructions on obtaining and installing the ISA software, please refer to "Downloading ISA" on page 21 and "Installing ISA" on page 21.

Downloading the plug-in from IBM Support Assistant (ISA)

To download the ITCAM for Application Diagnostics plug-in for ISA, perform the following steps:

1. Launch IBM Support Assistant
2. Click **Updater** on the main page
3. You will see a list of installed plug-ins. Click **New Plug-ins**

   Note: If you are using ISA version 3.0.0.1, click **New Products and Tools**
4. You will see a list of plug-ins available for download. Click to expand **Tivoli** tree
5. Check the box next to **IBM Tivoli Composite Application Manager for Application Diagnostics 7.1**
6. Click **Install** button
7. Click **I agree** button to accept the license agreement
8. The download will start and the installation will also start after the download is complete. When the installation finishes, you will be asked for restarting the ISA, click OK button to restart it

Using the plug-in to collect log files and system information

To use the ITCAM for Application Diagnostics plug-in to collect log files and system information, perform the following steps:

1. Launch IBM Support Assistant
2. Click **Service** on the main page
3. Click **Collect Data** on the left panel
4. Expand **IBM Tivoli Composite Application Manager for Application Diagnostics 7.1**
5. Select **ITCAM Data Collector Problem**.
6. Click **Collect** button
7. You will be asked for the location of the data collector installation directory. Please input the path in the text box provided and click **OK** to continue
8. The process will start and will collect the system information and log files. It will display the location of the output file it generates when it finishes
9. You can submit a service request through ISA with the file is being generated by the plug-in

Log files and tracing for the Data Collector

The Data Collector is a component of ITCAM Agent for WebSphere Applications and ITCAM Agent for J2EE.

Important: ITCAM Agent for HTTP Servers does not include a Data Collector.

First Failure Data Capture

First Failure Data Capture (FFDC) uses an in-memory tracing tool that runs continuously. When an unexpected error occurs, FFDC dumps the trace information to a log file for use in analyzing the problem. FFDC collects information that is intended primarily for use by IBM software support technicians. It runs automatically, you do not need to perform any action to start or stop it. If you experience conditions requiring you to contact software support, your support representative can assist you in reading and analyzing the FFDC log. FFDC does not affect the performance of the product.

For information about receiving assistance from IBM Software Support, see "Contacting IBM Software Support" on page 124.

You can retrieve FFDC logs from the following default locations:

- For Managing Server, they are:

  Microsoft® Windows:

  `C:\Program Files\ibm\tivoli\common\CYN\FFDC`

  UNIX/Linux:

  `/var/ibm/tivoli/common/CYN/FFDC`

  OS/400®:

  `/QIBM/UserData/tivoli/common/CYN/FFDC`
- For ITCAM Agent for WebSphere Applications, they are:

  Microsoft Windows:

  ITM_home`\tmaitm6\wasdc\7.1.0.1\logs`

  UNIX/Linux:

  ITM_home`/`*component_name*`/yn/wasdc/7.1.0.1/logs`

  IBM i:

  `/QIBM/UserData/tivoli/common/CYN/FFDC`
- For ITCAM Agent for J2EE, they are:

  Microsoft Windows:

  `C:\Program Files\ibm\tivoli\common\CYN\FFDC`

  UNIX/Linux:

  ITM_home`/`*component_name*`/yn/wasdc/7.1.0.1/logs`

Gather Script

The Gather Script is a script that collects system information such as CPU and memory data, network status, registry and environment variables. It also collects specific information on the product such as configuration settings, log files and maintenance level. It compresses all the collected information into a single file. When contacting IBM support for assistance, you will be asked to upload the file for further analysis.

For information about receiving assistance from IBM Software Support, see "Contacting IBM Software Support" on page 124.

ITCAM Agent for WebSphere Applications

The Data Collector Gather Script for ITCAM Agent for WebSphere Applications is:

- Windows: *ITM_home*\TMAITM6\bin\cyn_collector.cmd
- Linux and UNIX systems: *ITM_home*/*arch*/yn/bin/cyn_collector.sh
- IBM i: *DC_home*/itcamdc/bin/cyn_os400_collector.sh

The syntax for running the Gather Script is:

cyn_collector_script_name [[-a] | [-s *server*]]

where:

-a makes the script collect information from all application servers on the host.

-s makes the script collect information from one application server; server is the name of the application server.

Important: The -s option is not available on IBM i.

You must specify either -a or -s server

The script will display the name of the resulting *.jar file.

ITCAM Agent for J2EE

The Data Collector Gather Script for ITCAM Agent for J2EE is:

- Windows: *DC_home*\itcamdc\bin\cyn_collector_J2.cmd
- Linux and UNIX systems: *DC_home*/itcamdc/bin/cyn_collector_J2.sh

Start the Gather Script without parameters. The name of the created file is

- Windows: *DC_home*\collect.jar
- Linux and UNIX systems: *DC_home*/collect.tar.gz

Setting the logging and tracing levels

To change the logging and tracing level for the Data Collector, you need to edit property files and then restart the Data Collector. Different files are used for native code and Java code. These settings apply to the Data Collector of both ITCAM Agent for WebSphere Applications and ITCAM Agent for J2EE.

There are four components in the ***native code*** of the Data Collector. They are Network Agent, Event Agent, Command Agent and Common code. To change the log levels for these components, modify the file *DC_home*/runtime/*ServerInstance*/cyn-cclog.properties. For example:

```
logger.dc.trace.listenerNames=handler.file.dc.trace
# dc command agent logger properties
logger.dc.ca.trace.level=INFO
# dc network agent logger properties
logger.dc.na.trace.level=DEBUG_MID
# dc event agent logger properties
logger.dc.ea.trace.level=DEBUG_MIN
# dc common code logger properties
logger.dc.cc.trace.level=INFO
```

Important: Restart the Data Collector after making changes to `cyn-cclog.properties`.
Attention: On IBM i, the file `cyn-cclog.properties` is in EBCDIC encoding; when saving changes, ensure the file is saved in this encoding.

You may specify tracing levels for the ***Java code*** in the Data Collector in the *DC_home*`/runtime/`*instance*`/cynlogging.properties` file. The following code snippet from that file indicates where to specify the tracing level for the primary data collector Java code:

```
#-------------------------------------------------
# Data Collector
#-------------------------------------------------
# MESSAGE LOGGER
CYN.msg.datacollector.level=INFO
CYN.msg.datacollector.logging=true
# TRACE LOGGER
CYN.trc.datacollector.level=INFO
```

Note: INFO means only errors and informational trace messages will be written.

You may also specify the tracing level for the Data Collector Java code that communicates with the Tivoli Enterprise Monitoring Agent. Make the following changes in the same file:

```
# MESSAGE LOGGER
CYN.msg.temadc.level=INFO
CYN.msg.temadc.logging=true

# TRACE LOGGER
CYN.trc.temadc.level=INFO
CYN.trc.temadc.logging=true
```

Tracing can be set at more granular levels by setting `CYN.trc.`*partially qualified class name*`.level=`*debug level* in the `cynlogging.properties` properties file. This property stipulates that for the class beginning with *partially qualified class name* tracing will be at the specified level. For example:

- `CYN.trc.com.ibm.tivoli.kyn.gccollector=DEBUG_MID`

  Traces "middle" level of debugging for classes beginning with "com.ibm.tivoli.kyn.gccollector"
- `CYN.trc.com.ibm.tivoli.kyn.requestmanager=DEBUG_MAX`

  Traces "maximum" level of debugging for classes beginning with "com.ibm.tivoli.kyn.requestmanager".

Note: The Data Collector must be restarted for changes to take effect.

Data Collector logs

The ITCAM Agent for WebSphere Applications Data Collector logs are, by default, located in the following directory:

Table 1. ITCAM Agent for WebSphere Applications Data Collector log path

Windows	*DC_home*`\logs\`*hostname.servername*`\`
Linux and UNIX systems	*DC_home*`/logs/`*hostname.servername*`/`
IBM i	`/QIBM/UserData/tivoli/common/CYN/logs`
z/OS	`config_home/runtime/` *appserver_version.node_name.server_name*`/logs/CYN/logs`

The ITCAM Agent for J2EE Data Collector logs are, by default, located in the following directory:

Table 2. ITCAM Agent for J2EE Data Collector log path

Windows	`C:\Program Files\ibm\tivoli\common\CYN\logs`
Linux and UNIX systems	`/var/ibm/tivoli/common/CYN/logs`

The log file names are:

- `msg-dc-native.log`
- `msg-dc-ParentLast.log`
- `trace-dc-bcm.log`
- `trace-dc-native.log`
- `trace-dc-ParentLast.log`

For both ITCAM Agent for WebSphere Applications and ITCAM Agent for J2EE, you can modify the log file location by modifying the `cynlogging.properties` and `cyn-cclog.properties` files. Their location is:

Table 3. Path to `cynlogging.properties` and `cyn-cclog.properties`

Windows	*DC_home*\runtime*server_instance*\
Linux and UNIX systems, and IBM i	*DC_home*/runtime/*server_instance*/
z/OS	config_home/runtime/*server_instance*/

Plug-in for IBM Support Assistant (ISA)

ITCAM for Application Diagnostics plug-in for IBM Support Assistant (ISA) is a plug-in available for download in ISA. It is a GUI-based utility for collecting log files and system information. You can submit a service request through ISA with the file generated by the plug-in. For the detailed information on how to download and use the plug-in, please refer to "Plug-in for IBM Support Assistant (ISA)" on page 5.

Log files and tracing for the Managing Server

The Managing Server is used for deep dive diagnostics. It communicates with ITCAM Agent for WebSphere Applications and ITCAM Agent for J2EE.

First Failure Data Capture

First Failure Data Capture (FFDC) uses an in-memory tracing tool that runs continuously. When an unexpected error occurs, FFDC dumps the trace information to a log file for use in analyzing the problem. FFDC collects information that is intended primarily for use by IBM software support technicians. It runs automatically, you do not need to perform any action to start or stop it. If you experience conditions requiring you to contact software support, your support representative can assist you in reading and analyzing the FFDC log. FFDC does not affect the performance of the product.

For information about receiving assistance from IBM Software Support, see "Contacting IBM Software Support" on page 124.

You can retrieve FFDC logs for the Managing Server from the following default locations:

Microsoft Windows:

```
C:\Program Files\ibm\tivoli\common\CYN\FFDC
```

UNIX/Linux:

```
/var/ibm/tivoli/common/CYN/FFDC
```

Gather Script

The Gather Script is a script that collects system information such as CPU and memory data, network status, registry and environment variables. It also collects specific information on the product such as configuration settings, log files and maintenance level. It compresses all the collected information into a single file. When contacting IBM support for assistance, you will be asked to upload the file for further analysis.

The Managing Server Gather Script is located in *MS_HOME*/bin/MS_Gather_Data.sh. It is invoked using the command:

```
./MS_Gather_Data.sh pmr-number [appserver_home where VE is installed] [SERVER_NAME]
```

, for example:

```
./MS_Gather_Data.sh 70023.900.000
```

On Windows, use the Microsoft Services for Unix shell to start this script.

The result of running the MS gather script is a zipped file, containing the following:

- Most contents of MS_HOME (bin, etc, logs and scripts)
- All logs in the /var directory
- Status of all components (text file for each component)
- Text file of OS information
- List of installed libraries
- server.xml for the specified server
- Netstat output

Changing the log level

The Managing Server supports changing the log level dynamically.

To change the log level of the Managing Server, use the following command in *MS_HOME*/bin :

```
./amctl.sh component [debugmin | debugmax | debugmid | traceoff |
                                        messageoff | error | warn | info]
```

where *component* is one of the following:

- kl1: First instance of the Kernel
- kl2: Second instance of the Kernel
- ps1: First instance of the Publish Server
- ps2: Second instance of the Publish Server
- aa1: First instance of Archive Agent
- aa2: Second instance of Archive Agent
- md: Message Dispatcher
- sam1: First instance of Structured Application Monitor (SAM) Global Publish Server

- pa: Polling Agent

On Windows, use the Microsoft Services for Unix shell to start this script.

Managing Server logs

The Managing Server logs are:

- *MS_home*/logs/am_stderr.log
- *MS_home*/logs/am_stdout.log
- *MS_home*/msg-*component*.log
- *MS_home*/trace-*component*.log
- *MS_home*/audit-ms.log

LogViewer

ITCAM for WebSphere supports a common XML format in which log messages and traces are logged. This viewer processes logs in that format so you can view and query their content.

The viewer can filter messages and traces by time, severity, thread ID, component, and other data, and convert the logged messages into ASCII or HTML for presentation. Visual cues are associated with error and warning messages.

In this section, the following terminology is used:

- A **log record** is a single coherent entry in the log file. The log record contains several fields (time, server, logText, etc.). A log should describe either user activities or the visible behavior of the program.
- A **trace record** is a single coherent entry in the trace file (similar to the log record). A trace record describes the internal activity of the application. Tracing is of interest to a programmer; trace records are not generally useful to the end user.
- A column header: Each log or trace record contains multiple fields, some more interesting than others. The term **column header** refers to these items.
- A **filter predicate** describes an expression that the LogViewer uses to determine if a particular record will be present in the output. Contrast with column header, which describes a field within the record.

Starting the LogViewer

You can start the viewer either by the wrapper script (recommended) or direct JVM invocation.

Using the wrapper script: In Windows, the wrapper script is located at *MS_HOME*\logviewer. You can start the LogViewer by running the following command:

```
viewer.bat [(-q Query_String) | (-f filename)]
       [-s (text | html)]
       [-h]
       <input1.xml> [<input2.xml> <input3.xml> ...]
```

where:

- **-q** specifies a query string, which defines what will be in the output and the format of that output. See "Specifying the query string" on page 13.
- **-f** specifies a file that contains the query string.

  Only one of -q or -f can be specified.

- **-s** specifies either text or html output (default is html). The html output is in UTF-8 encoding. Text output is in the default encoding of the console where the command is issued.
- **-h** displays the usage statement.
- All other arguments are interpreted as log XML input files. When multiple input files are given, the log and trace records are merged based on the timestamp.

In UNIX, the wrapper script is located at *MS_HOME*/logviewer. You can start the LogViewer by running the following command:

```
viewer.sh [(-q Query_String) | (-f filename)]
       [-s (text | html)]
       [-h]
       <input1.xml> [<input2.xml> <input3.xml> ...]
```

Direct JVM invocation: To start the LogViewer by direct JVM invocation, please set the CLASSPATH environment variable such that the following binary files are included:

- jlog.jar
- viewer.jar
- xmlparserAPIs.jar
- xercesImpl.jar
- regex4j.jar

Run the following command to start the LogViewer:

```
java -DVIEWER_HOME=
     [-DTRACE=DEBUG_MIN]
     [-DSHOWTITLE=TRUE]
     com.tivoli.log.viewer.Cli
     [(-q Query_String) | (-f filename)]
     [-s (text | html)]
     [-h]
     <input1.xml> [<input2.xml> <input3.xml> ...]
```

where:

- the **-DVIEWER_HOME** system property defines the location of the stylesheet (.css) files. These stylesheets will be embedded in the output HTML file.
- the **-DTRACE** system property defines the level of tracing. The default is DEBUG_MIN, but DEBUG_MID and DEBUG_MAX are also valid settings.
- the **-DSHOWTITLE** system property directs the HTML formatter to either include or omit the title. The default is to include the title. The title consists of a comma-separated list of input filenames.
- **-cp "viewer.jar:jlog.jar:xercesImpl.jar:xmlparserAPIs.jar:regex4j.jar"** indicates to the JVM which .jar files must be available so the viewer can function. If these .jar files are not in the current directory, provide the full pathname to each .jar file.

  Note: This example uses the UNIX colon separator ':'. In DOS, this would be a semicolon, ';'.
- **-q** specifies a query string, which defines what will be in the output and the format of that output. See “Specifying the query string” on page 13.
- **-f** specifies a file that contains the query string.

  Only one of -q or -f can be specified.

- **-s** specifies either text or html output (default is html). The html output is in UTF-8 encoding. Text output is in the default encoding of the console where the command is issued.
- **-h** displays the usage statement.
- All other arguments are interpreted as log XML input files. When multiple input files are given, the log and trace records are merged based on the timestamp.

Specifying the query string: The query string has the following format:

```
select column[,column] where Filter_Predicate
```

Following the reserved word "select" comes one or more column headers. These are the elements of the log or trace records that will appear n the output. A timestamp is always displayed in the output for each record.

After the reserved word "where" comes a filter predicate, which determines which records will be present in the output.

The default query string is:

```
select default where true
```

Table 4 lists the column names.

Table 4. Available column names for LogViewer queries

column header	datatype	content
all		select all columns
default		default columns are Time, Severity, MessageId, LogText, Server, ProductId, Component, and ProductInstance
Element	string	either Message or Trace
Time	string	localized time
Millis	long int	time in milliseconds
Server	string	server name or IP address
ServerFormat	string	for example, TCP/IP
Client	string	client name
ProductId	string	three letters
Component	string	
ProductInstance	string	
LogText	string	
SourceFile	string	name of the source file where the event was generated
SourceMethod	string	name of the method that generated the event
SourceLine	string	line number where the event was generated
CorrelationId	string	
Principal	string	
Process	string	
Thread	string	
Exception	string	
MessageId	string	

Table 4. Available column names for LogViewer queries (continued)

column header	datatype	content
TraceLevel	string	
Severity	string	
LogAttribs	string	

Note: The column headers are not case sensitive.

Specifying the filter predicate: A filter predicate can be either an expression or the reserved word "true", which is a complete filter expression that indicates filtering is disabled and that every log and trace record should be output.

Conditional operators used in the filter predicate:

- = (equal)
- > (greater than)
- < (less than)
- >= (greater than or equal to)
- <= (less than or equal to)
- <> (not equal to)
- MATCH. The MATCH pattern-matching operator is a very powerful operator that allows you to select log or trace records using regular-expression syntax. Strings with either special characters or spaces used in the regular expression must be enclosed in single quotes.

Boolean operators used in the filter predicate are OR and AND. Boolean operators conjoin two expressions. They must take the form:

```
(expression) OR (expression)
(expression) AND (expression)
```

The parentheses are required around each expression.

Error handling: The query string is verified for correctness, and processing halts if the query string is malformed. The column labels are validated. Each command-line argument is validated; if an invalid argument value is specified, processing halts. If one of the input log XML files is malformed, there will be no further attempt to read from that file; however, other input files will be processed.

Examples: Show the default fields of all message and trace records in html form:

```
viewer sample.xml > sample.html
```

Select for display all fields with a correlation ID of 12. The output is sent to stdout:

```
viewer -q"select all where CorrelationId = 12" -stext sample.xml
```

Display all fields with a timestamp less than 1007067881373 milliseconds (Timestamp is the only column name that takes a numeric argument instead of a string). Output is in text format, written to stdout:

```
viewer -q"select all where Millis < 1007067881373" -stext sample.xml
```

Display only the server and the product ID that meet the boolean expression. Since boolean operators are present, parentheses indicate the order of operator evaluation. Input is merged from three files: sample1.xml, sample2.xml, and sample3.xml:

```
java -DVIEWER_HOME="./" -DTRACE="DEBUG_MAX" com.tivoli.log.viewer.Cli
     -q"select server,ProductId where (messageid MATCH 'FRWEP00[10-45]')
           AND ((server = 'joe') OR (severity = 'ERROR'))"
     sample1.xml sample2.xml sample3.xml
```

Filter on the log attribute with the name FNG and the value 123:

```
viewer -q"select default where LogAttribs MATCH 'FNG=123'" sample.xml
```

Troubleshooting: Boolean operators require parentheses. The following example demonstrates the strictness of boolean evaluation:

```
viewer -q"select default where (server = 'joe') AND (element = 'trace')
       AND (messageID='FRWEP0001E')"
```

This results in the following error:

```
2002.04.10 14:52:19.755 com.tivoli.log.viewer.QueryTree labels Tivoli IVR 1
log viewer wintest2.dev.tivoli.com IP
IVR0019E unexpected character after query: AND
```

The solution is to ensure that each boolean expression has the form "(expression) OR (expression)" or "(expression) AND (expression)". So in this case, we could change the example to:

```
viewer -q"select default where ((server = 'joe') AND (element = 'trace'))
       AND (messageID = 'FRWEP0001E')"
```

Using quotes in the query string: The following example attempts to make a query using the MATCH operator, but the query string is not delimited by double quotes:

```
viewer.sh -qselect default where logText match ^get *.xml
```

This results in the following error:

```
2002.03.29 14:21:47.014 com.tivoli.log.viewer.QueryTree labels Tivoli IVR 1
log viewer aix102.dev.tivoli.com IP IVR0017E missing column label
```

When a query is incomplete, LogViewer issues an error to indicate which component of the query string was found to be missing. In this example it was expecting to find a column label, but the string terminated. Without double quotes around the query string, the shell provides each word of the query in a different argument, resulting in the string appearing as "select". We can correct the situation by adding double quotes around the query string like so:

```
viewer.sh -q"select default where logText match ^get" *.xml
```

Upon running this corrected query, we get the following error:

```
2002.03.29 14:18:53.423 (null) main Tivoli IVR 1
log viewer jrowlan2.dev.tivoli.com IP
IVR0021E Invalid character ^ found in query string.
```

The query syntax allows values to be enclosed in single quotes, which signal to the viewer that the string inside the single quote need not be parsed:

```
viewer.sh -q"select default where logText match '^get'" *.xml
```

Single quotes are also required if the term contains spaces. Directory names and file names occasionally contain spaces. Since the viewer accepts space-separated file names, this creates ambiguity. The following could be interpreted either as two separate files , "a" and "b/c", or as a single file, "c", in subdirectory "a b":

```
viewer a b/c
```

To resolve this, use quotes around any file name that contains spaces. For example:

```
viewer "a b/c"
```

identifies a file named "c" in subdirectory "a b", whereas

```
viewer a b/c
```

identifies two files, "a" and "c in subdirectory b".

Tracing and logging within the Tivoli Enterprise Portal (Summary Workspaces)

On the Tivoli Enterprise Portal server and client, ITCAM for Application Diagnostics installs custom code for the Summary Workspaces.

In case of unexpected behavior in these workspaces you may perform tracing both on the server (backend) and on the client (desktop or Web). The tracing results will be available in log files.

Tracing and logging within the Tivoli Enterprise Portal Server

To turn on tracing on the Tivoli Enterprise Portal Server, edit the following file:

- on Windows, *ITM_home*\cnps\kfwenv
- on UNIX systems or Linux, *ITM_home*/config/cq.ini

If there is a line starting with SET KBB_RAS1 = , append the following text to this line:

```
(UNIT:ITCAMWREvaluatorImpl INPUT ERROR DETAIL)(UNIT:SituationProcessor
INPUT ERROR DETAIL)(UNIT:TepsQueryHelper INPUT ERROR DETAIL)
```

If such a line does not exist in the file, add the following line to it:

```
SET KBB_RAS1 = ERROR (UNIT:ITCAMWREvaluatorImpl INPUT ERROR DETAIL)
(UNIT:SituationProcessor INPUT ERROR DETAIL)
(UNIT:TepsQueryHelper INPUT ERROR DETAIL)
```

After this, restart the Tivoli Enterprise Portal Server. Re-create the unexpected behavior, and get the following log file:

- on Windows, *ITM_home*\CNPSJ\profiles\ITMProfile\logs\ITMServer\SystemOut.log
- on UNIX systems or Linux, *ITM_home*/*ITM_BINARCH*/iw/profiles/ITMProfile/logs/ITMServer/SystemOut.log

Tracing and logging within the Tivoli Enterprise Portal desktop client on Windows

To turn on tracing on the Tivoli Enterprise Portal desktop client on Windows, edit the file *ITM_home*\cnp\cnp.bat . Change the following line:

```
set _CMD= %_JAVA_CMD% -Xms64m -Xmx256m -showversion -noverify =-classpath %CPATH%
 -Dkjr.trace.mode=LOCAL -Dkjr.trace.file=C:\IBM\ITM\CNP\LOGS\kcjras1.log -Dkjr.
trace.params=ERROR -DORBtcpNoDelay=true -Dibm.stream.nio=true -Dice.net.
maxPersistentConnections=16 -Dice.net.persistentConnectionTimeout=1 -Dcnp.http
.url.host=SVOINEA2 -Dvbroker.agent.enableLocator=false candle.fw.pres.CMWApplet
```

to:

```
set _CMD= %_JAVA_CMD% -Xms64m -Xmx256m -showversion -noverify -classpath %CPATH%
 -Dkjr.trace.mode=LOCAL -Dkjr.trace.file=C:\IBM\ITM\CNP\LOGS\kcjras1.log -Dkjr.
trace.params="ERROR (UNIT:WR DETAIL)" -DORBtcpNoDelay=true -Dibm.stream.nio
=true -Dice.net.maxPersistentConnections=16 -Dice.net.persistentConnectionTimeout
=1 -Dcnp.http.url.host=SVOINEA2 -Dvbroker.agent.enableLocator=false candle.fw.pres
.CMWApplet
```

Then restart the Portal client, re-create the unexpected behavior, and exit the Portal client.

Get the following log files: *ITM_home*\cnp\kcjras1*.log

Tracing and logging within the Tivoli Enterprise Portal desktop client on UNIX systems or Linux

To turn on tracing on the Tivoli Enterprise Portal desktop client on UNIX systems or Linux, edit the file *ITM_home*/*ITM_BINARCH*/cj/bin/cnp.sh . Change the following line:

```
${TEP_JAVA_HOME}/bin/java -Xms64m -Xmx256m -showversion -noverify
-classpath ${CPATH} -Dkjr.trace.mode=LOCAL
-Dkjr.trace.file=/opt/IBM/itm621/Home/logs/kcjras1.log
-Dkjr.trace.params=ERROR -Dibm.stream.nio=true
-DORBtcpNoDelay=true -Dcnp.http.url.host=
-Dkjr.browser.default=/usr/bin/mozilla -Dvbroker.agent.enableLocator=false
-Dhttp.proxyHost= -Dhttp.proxyPort= candle.fw.pres.CMWApplet
$1 $2 $3 $4 $5 $6 $7 $8 $9 $10 2>&1 1>> ${LOGFILENAME}.log
```

to:

```
${TEP_JAVA_HOME}/bin/java -Xms64m -Xmx256m -showversion -noverify
-classpath ${CPATH}
-Dkjr.trace.mode=LOCAL -Dkjr.trace.file=/opt/IBM/itm621/Home/logs/kcjras1.log
-Dkjr.trace.params="ERROR (UNIT:WR DETAIL)" -Dibm.stream.nio=true
-DORBtcpNoDelay=true -Dcnp.http.url.host= -Dkjr.browser.default=/usr/bin/mozilla
-Dvbroker.agent.enableLocator=false -Dhttp.proxyHost= -Dhttp.proxyPort=
candle.fw.pres.CMWApplet $1 $2 $3 $4 $5 $6 $7 $8 $9 $10 2>&1 1>>
${LOGFILENAME}.log
```

Then restart the Portal client, re-create the unexpected behavior, and exit the Portal client.

Get the following log files: *ITM_home*/logs/kcjras1*.log

Tracing and logging within the Tivoli Enterprise Portal Web client

To turn on tracing on the Tivoli Enterprise Portal Web client, edit the following file on the **Tivoli Enterprise Server** host:

- on Windows, *ITM_home*\CNB\applet.html
- on UNIX systems or Linux, *ITM_home*/*ITM_BINARCH*/cw/applet.html

Change the following line:

```
<PARAM NAME = "kjr.trace.params" VALUE="ERROR">
```

to

```
<PARAM NAME = "kjr.trace.params" VALUE="ERROR(UNIT:WR DETAIL)">
```

On a Windows system, launch a Web browser, re-create the unexpected behavior of the Tivoli Enterprise Portal, and exit the browser.

Then, get the following log files: `C:\Documents and Settings\username\Application Data\IBM\Java\Deployment\log\*.trace`

Environment Checking Utility

The Environment Checking Utility (ECU) is a stand-alone tool. You can use this utility to check the prerequisite packages before launching the ITCAM Agent for WebSphere Applications installer, ITCAM Agent for WebSphere Applications configuration, or Managing Server installer. The ECU generates a report to specify if the prerequisite packages have been installed correctly. The prerequisite packages are registered in a property file. The property file can be extended if new prerequisite packages or libraries are required.

To get the Environment Checking Utility, use IBM Passport Advantage (http://www.ibm.com/software/passportadvantage). Search for the *IBM Tivoli Composite Application Manager for Application Diagnostics V7.1: (ITCAMAD71) Managing Server Component*. The ECU is also shipped as a part of the ITCAM for Application Diagnostics installation media set.

Complete the following installation steps before launching the Environment Checking Utility:

1. Install the Runtime Environment for the Java platform version 1.4.2 or higher.
2. Set `JAVA_HOME` in the system environment variables.
   - For Windows, set `JAVA_HOME=JRE_PATH`
   - For Linux and UNIX systems, `JAVA_HOME=JRE_PATH; export JAVA_HOME`
3. Use one of the following commands to launch the ECU:
   - For Windows, `envcheck.bat`
   - For Linux and UNIX systems, `envcheck.sh`

   On UNIX systems, to ensure the ECU can gather all the necessary operating system information, log on as the root user.
4. Use the following command line to launch the ECU on Windows:

   ```
   envcheck.bat -reportPath Report_save_path [-check Configuration_file_name]
   [-logPath Log_path] [-tmpPath Tmp_path] [-showSteps] [-noWizard] [-help]
   ```

   On Linux and UNIX systems, use the following command line to launch the ECU:

   ```
   ./envcheck.sh -reportPath Report_save_path [-check Configuration_file_name]
   [-logPath Log_path] [-tmpPath Tmp_path] [-showSteps] [-noWizard] [-help]
   ```

   You can use the following parameters:

   a. `-reportPath Report_save_path`

      This parameter is required. The ECU generates a report of all the content checks. *Report_save_path* indicates the path name to save the report to.

   b. `-check Configuration_file_name`

      This parameter is optional. You can use this parameter to specify the configuration file for this release. There are two configuration files **`-check itcamfwas_dc`** and **`-check itcamfwas_ms`** in the ECU command line.

      - `itcamfwas_dc`: defines the environment check steps and parameters for the Data Collector
      - `itcamfwas_ms`: defines the environment check steps and parameters for the Managing Server

If you do not specify the `-check` parameter option in the command line at the beginning of ECU execution, the ECU will prompt you to select one of the configuration files.

c. `-logPath` *`Log_path`*

This parameter is optional. It indicates the log path name for the ECU. The default log directory is *`ECU_PATH`*`/logs`.

d. `-tmpPath` *`Tmp_path`*

This parameter is optional. It indicates the temporary directory for ECU. The default temporary directory is *`ECU_PATH`*`/tmp`.

e. `-showSteps`

This parameter is optional. If you have this parameter in the command line, the ECU will prompt you with steps generated by a navigation wizard.

f. `-noWizard`

This parameter is optional. If you have this parameter in the command line, the ECU will not prompt you for any wizard navigation inputs but the following options are available: **Back**, **Next** or **Cancel**.

g. `-help`

This parameter is optional. Display information on available options.

5. The ECU performs the following checks. You are prompted to enter any additional information if required.

a. OS Information check.

Checks operating system version, release, architecture, bit mode, and user information.

b. Prerequisite OS packages and libraries check.

On a UNIX platform, the ECU checks the prerequisite packages of ITCAM Agent for WebSphere Applications Data Collector and ITCAM Agent for J2EE Data Collector.

c. Processor and memory information check.

Checks the information processors and memory.

d. Database information check.

Checks installed DB2 information.

e. Ports check.

Checks the default ports of the Data Collector.

f. Select WebSphere Home.

Selects the WebSphere Application Server home directory to check.

g. WebSphere Information check.

Checks the selected WebSphere Application Server information.

h. Global Security Status check.

Checks the Global Security Status of selected WebSphere Application Server information.

i. Select Application Server Instance.

Selects the application server instances to check.

j. JVM parameters check.

Checks the JVM parameters of selected application server instances.

k. WebSphere Connection `wsadmin` check.

Checks the `wsadmin` connection of selected application server instances.

l. Generate Java Core.

Generates Java core of selected application server instances.

m. Open source J2EE frameworks check.

   Checks if open source J2EE frameworks are installed on the selected application server instances.

n. Third-party tools check.

   Checks if third-party tools are installed on the selected application server instances.

o. Other Tivoli products check.

   Checks if other Tivoli products are installed on the selected application server instances.

   The ECU generates a report of the content checks and saves it to the location specified by the `-reportPath parameters`.

Installing Memory Dump Diagnostic for Java with IBM Support Assistant

Memory Dump Diagnostic for Java (MDD for Java) either analyzes a single heap dump or analyzes and compares two heap dumps and searches for evidence of a memory leak. In order to download MDD for Java, you will need to first install IBM Support Assistant (ISA). ISA provides extra help with diagnosing problems and provides extra tools and components for troubleshooting as well as providing a place to write problems (PMRs).

You can either manually take a heap dump or schedule a heap dump using MDD for Java's Heap Dump Management feature.

The Heap Dump Management feature allows you to schedule or immediately initiate the collection of an IBM Heap Dump for a particular application server. Then this dump must be downloaded and post-processed outside ITCAM's user interface (Application Monitor) using MDD for Java. The other Memory Diagnosis tools provided by ITCAM, such as Memory Analysis, Heap Analysis and Memory Leak Diagnosis, provide analysis via the Application Monitor.

MDD for Java only analyzes heap dumps from IBM JDKs. For non-IBM JDKs use the ITCAM Memory Leak Diagnosis feature.

If you are using an OS/400 system, MDD for Java is only supported on PASE JDK.

Searching capabilities are not supported for ITCAM for Application Diagnostics in ISA.

Where to install ISA and MDD for Java

The following are two common configurations:

- Install ISA & MDD for Java on a standalone server that is not running an application server. After the IBM heap dump has been collected on the application server, it must be transfered to the MDD for Java computer for post-processing.

  This configuration is recommended for production environments where you do not want the post-processing of the dump to impact the performance of the application server.
- Install ISA and MDD for Java on each application server host machine, so that you can analyze the heap dump locally without having to transfer it.

This configuration may be suitable for a development or test environment where the overhead of analyzing the heap dump is not a concern.

The decision on where to install may also be influenced by the platforms supported by ISA.

Downloading ISA

To download ISA, perform the following procedure:

1. Go to the following URL:https://www14.software.ibm.com/webapp/iwm/web/preLogin.do?source=isa
2. If you do not have a universal IBM user ID, you will need to click **register now** and fill in the required information. Upon completion, you can return to this page and sign in to download ISA.
3. After signing in, select the radio button to download IBM Support Assistant Version 3.0.0.1.
4. Click **Continue**.
5. Select **View license**. After reading the license, click the **I agree** check box and then click **I confirm** to continue with the download.
6. Click **Download now** next to the correct platform. It is suggested you download to the server on which the Data Collector is installed.
7. Click **Save** to download ISA to your hard drive.

Installing ISA

Perform the following procedure to install ISA:

1. Go to the directory on your hard drive where you saved the ISA zip file.
2. Extract the files.
3. Double-click the setupwin32.exe file.
4. Follow the installation instructions to install ISA.
5. Open the ISA program.

Installing MDD for Java

Perform the following procedure to install MDD for Java:

1. Double-click Updater to open it.
2. Select the **New Products and Tools** tab.
3. Open the WebSphere directory by clicking the + sign.
4. Click the check box to select WebSphere Application Server. (The version you select does not matter.)
5. Click **Install**.
6. Select the feature under Features to Install and review the license.
7. Click **Yes** to accept the license.
8. Click **OK** to accept the following message that displays:

```
New product plug-ins or tool plug-ins were installed successfully.
Please make sure to restart IBM Support Assistant for these changes
to take effect.
```

9. Click **Install**.
10. Click **OK** to accept the following message that displays:

```
Reminder—You are installing a common component tool.
After installation, you may not see the common component tool in the
Tools component.
Common component tools only display in the Tools component
if a product is added that uses them.
```

This is why you need to install a version of WebSphere.

11. Select **Memory Dump Diagnostic for Java** under the **Features to Install** and review the license.
12. Click **Yes** to accept the license.
13. Click **OK** at the restart IBM Support Assistant message.
14. Close and restart ISA.

Chapter 2. Troubleshooting: ITCAM Agent for WebSphere Applications

The following troubleshooting tips and techniques apply to problems that occur during ITCAM Agent for WebSphere Applications installation, configuration and running.

Installation and configuration

The following troubleshooting tips and techniques apply to problems that occur during installation and configuration.

All platforms

This section describes the problems and troubleshooting that can apply to all platforms, which are probably not related to any unique platform.

Classpath for the portal client is missing

The problem: When installing and configuring Tivoli Enterprise Monitoring Agent for ITCAM for WebSphere, a jar file is missing in the classpath for the portal client, which is used to display the resources of an application server.

The solution: Assuming you have installed IBM Tivoli Monitoring in `/opt/IBM/ITM`, cd to `/opt/IBM/ITM/li6243/cj/bin`. Edit the file `cnp.sh`. Look for the classpath entry, and add the following to the end:

```
${KCJ_LIB}/kyn_resources.jar
```

This jar file is what substitutes the resource names in the Linux client.

Note: This problem only occurs on the portal client on Linux. When you install browser support or application support on a portal client running on Windows, this problem does not exist.

Data Collector cannot work with several deployment managers in WebSphere Application Server XD environment

The question: Can the Data Collector configurator work with 2 deployment managers?

The answer: Data Collector configurator doesn't work with 2 deployment managers. Such an installation is not supported - this is a restriction in an XD environment.

Data Collector configuration tips

The following content provide some tips on Data Collector configuration.

Configure the Data Collector when using hyphenated Managing Server host name or a lengthy FQDN

The problem: How to configure the Data Collector when using hyphenated Managing Server host name or a lengthy fully qualified domain name (FQDN).

The reason: If you are using a hyphenated Managing Server host name or a lengthy FQDN, the Data Collector Config may fail during configuration.

The solution: To resolve this problem, continue the configuration even if the configuration says it cannot reach the Managing Server. After the configuration is complete, simply edit the *app_server_name*.*node_name*.*server_name*.datacollector.properties file in the *DC_home*/runtime/*node_name* directory using the following method:

Change the hyphenated host name or FQDN in the kernel.codebase and kernel.rfs.address fields in this file to the IP address of the Managing Server and then restart the server. Also, if needed, make changes to wherever referred to the lengthy Managing Server FQDN in this file.

Non-root Data Collector configuration cannot lock system preferences

The problem: When using a non-root user to install and configure the Data Collector, system preferences cannot be locked. The following error is displayed in the console:

```
java.lang.SecurityException: Could not lock System prefs. Lock file access denied.
at java.util.prefs.FileSystemPreferences.
 checkLockFile0ErrorCode(FileSystemPreferences.java:937)
at java.util.prefs.FileSystemPreferences.lockFile(FileSystemPreferences.java:926)
at java.util.prefs.FileSystemPreferences.sync(FileSystemPreferences.java:732)
at java.util.prefs.FileSystemPreferences.flush(FileSystemPreferences.java:825)
at java.util.prefs.FileSystemPreferences.syncWorld(FileSystemPreferences.java:476)
at java.util.prefs.FileSystemPreferences.access$1200(FileSystemPreferences.java:51)
at java.util.prefs.FileSystemPreferences$4.run(FileSystemPreferences.java:437)
at java.util.TimerThread.mainLoop(Timer.java:447)
at java.util.TimerThread.run(Timer.java:397)
```

The reason: This problem is a limitation of JRE, please reference http://bugs.sun.com/bugdatabase/view_bug.do?bug_id=4438983 for more information.

Verifying the Data Collector Configuration

The question: How can I verify if the Data Collector was configured properly?

The answer: The best way to tell if the ITCAM for WebSphere Data Collector is configured properly is to check the following items.

- When using an ITCAM console (which is part of the Managing Server):
  - If the Data Collector shows up in the ITCAM console, it means that:
    1. the WebSphere definitions are added properly;
    2. the files in the *DC_home*/runtime directory were created with no permission problems;
    3. the network connectivity is good between the Managing Server and the Data Collector.
  - The Managing Server must be at an equal or greater fix pack level than the Data Collector. You can verify the fix pack level by comparing the following two files:
    - *MS_home*/etc/am-version.properties
    - *DC_home*/itcamdc/etc/version.properties
- When using a Tivoli Enterprise Portal Interface:
  - You can verify that the Data Collector is connected to the Tivoli Enterprise Monitoring Agent by verifying that the WebSphere Application Server icon and the tree that is displayed under it in the navigator are present and available.

– The Tivoli Enterprise Monitoring Agent and the Data Collector must be at the same level. You can verify it by comparing the Data Collector level in *DC_home*/itcamdc/etc/version.properties to the Tivoli Enterprise Monitoring Agent level which can be determined by running the following commands on the Tivoli Enterprise Monitoring Agent machine:
  - For UNIX: ***ITM_home*/bin/cinfo -i**
  - For Windows: ***ITM_home*/InstallITM/kincinfo -i**
– If Tivoli Enterprise Portal screens have bad labels in the navigation tree or if workspaces are not formatted properly for tables/graphs, you may have a problem with the wrong level of Application Support Files being installed on the Tivoli Enterprise Monitoring Server /Tivoli Enterprise Portal Server /Tivoli Enterprise Portal Desktop as compared to the Tivoli Enterprise Monitoring Agent. Use the preceding commands on the Tivoli Enterprise Monitoring Agent, Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal Desktop to confirm that all are in consistence. For ITCAM Agent for WebSphere, the two byte code is yn; for ITCAM Agent for HTTP Servers, the two byte code is ht.

Data Collector installation fails

The following content provide some solutions when Data Collector installation fails.

Data Collector installation/configuration fails

The problem: The directory *DC_home*/runtime is not created and the start-up script or other files on application server side are not modified for Data Collector support.

The solution: For a GUI installation, a message panel will pop up to show detailed error information. Check this message to find if the prerequisite conditions are not met.

For a silent installation, please check installation log files and find messages with log level ERROR or WARN.

Data Collector remote upgrade fails with BWMCR9502 error

The problem: When upgrading ITCAM for WebSphere 6.1 Data Collector to 7.1, remote upgrade fails with the following message returned:

```
BWMCR9502 error: Failed to unconfigure the server instance.
```

However, the local upgrade and unconfiguration finished successfully. This issue is prevalent in VM environments. It occurs when carrying out the following steps:

1. Remote upgrade WebSphere agent.
2. Start WebSphere agent.
3. Click Configure link on the Tivoli Enterprise Portal.
4. Configuration completes.
5. Error occurs.

The reason: The **wsadmin** command return code is 1 when unconfiguring the ITCAM for WebSphere 6.1 Data Collector, which causes the upgrade to fail.

The solution: First try to restart remote upgrade. If the problem persists after you try a restart, manually unconfigure the WebSphere Application Server in the Data

Collector configuration tool, and configure this WebSphere Application Server instance using the 7.1 configuration tool again.

The installation fails if you install the Data Collector from a directory whose name contains space

The problem: The installation fails if you install the Data Collector from a directory whose name contains space.

The solution: Unpack the installation files of the Data Collector in a directory whose name does not contain any space before the installation.

The installation of the Data Collector fails if you mount the installation CD as a non-root user

The problem: The installation of the Data Collector fails if you mount the installation CD as a non-root user.

The solution: Mount the installation CD of the Data Collector as a root user.

Unable to install ITCAM for Application Diagnostics on a server that has ITCAM for RTT registered to use the JVMPI interface

The problem: If you select a server that has ITCAM for Response Time Tracking (RTT) registered to use the JVMPI interface, the installation on that server is skipped.

The solution: You must temporarily disable the RTT probes with the *RTT_home*`/MA/app/instrument/60/bin/enableprobes.sh` command before installing ITCAM for Application Diagnostics, then use the enableprobes.sh command to re-enable the RTT probes. For usage and parameters for this command, see the *IBM Tivoli Composite Application Manager for Response Time Tracking Command Reference*.

Error message is displayed during Data Collector configuration

The following content provides information about the error messages you might receive during Data Collector configuration.

Database error message during Data Collector configuration

The problem: Sometimes during the Data Collector configuration the console may display the following error message:

```
There are 1 database connections that are in use that should have been closed:
Driver = org.hsqldb.jdbcDriver: URL= jdbc:hsqldb:/tmp/ismp001/1495215/idsb;
user = sa
java.lang.NullPointerException
```

The reason: This is a limitation of the InstallShield program and will not affect the Data Collector configuration process.

Failure configuring application server

The problem: In the Configuration Summary panel, you may encounter the following message:

```
Failure configuring application server
```

The reason: One of the reasons you see this message is that the application server has been configured already and another Data Collector instance is already monitoring the application server.

The solution: Contact IBM Support.

MissingResourceException occurs after Data Collector is connected to Managing Server in FFDC

The question: Why does the following error occur in the application server logs after the Data Collector is connected to the Managing Server in FFDC?

```
MissingResourceException: Can't find bundle for base name
com.ibm.ws.wswebcontainer.stats.webAppModuleStatsResourceBundle
```

The answer: The system is operating as designed. This problem is a WebSphere Application Server limitation. You can ignore this message.

Error message "JACL failed" displays when running UpdateInstaller

The problem: After deleting the WebSphere profile, the error message "JACL failed" displays when running the UpdateInstaller.

The cause: After deleting the WebSphere profile, its Data Collector installation log and runtime data is still in the system. As a result, UpdateInstaller still has the reference to the deleted WebSphere profile and encounters errors during JACL operation.

The solution: Before deleting the WebSphere profile, perform the following steps to remove the installation log, runtime data of the Data Collector, and its parameters from the WebSphere profile:

1. Run `config_dc.sh` (in UNIX) or `config_dc.bat` (in Windows) file in *ITCAM_home*`/bin` to unconfigure Data Collector.
2. Remove the WebSphere profile.
3. Run UpdateInstaller.

If you did not run the `config_dc.sh` file before deleting the WebSphere profile, perform the following steps:

1. Delete all of the configuration information relating to the deleted WebSphere profile under *ITCAM_home*`/runtime` and *ITCAM_home*`/_uninstall`.
2. Run UpdateInstaller.

Error messages occur in the log files after installing the JVMTI interim fix on Sun JDK 1.5.0

The problem: If you have Sun JDK 1.5.0 and have installed the JVMTI interim fix for the Data Collector, log error messages like the following one will occur when you restart the application server:

```
java.lang.StackOverflowError
at
sun.reflect.generics.reflectiveObjects.TypeVariableImpl.getBounds
 (TypeVariableImpl.java:114)
```

This indicates an unsuccessful configuration of the Data Collector.

The solution: Upgrade the JDK version to Sun JDK 1.5.0_6 or later.

Failure to access the Oracle Application Server Enterprise Manager after configuring the Data Collector

The problem: Fail to access the Oracle Application Server Enterprise Manager after configuring the Data Collector

The reason: The Data Collector checks and weaves each class that is loaded by the Oracle Application Server Enterprise Manager when you access to the Oracle Application Server Enterprise Manager after the configuration of the Data Collector.

The solution: Access the Oracle Application Server Enterprise Manager when the Data Collector finishes checking and weaving each class that is loaded by the Oracle Application Server Enterprise Manager.

Incomplete list of servers shown during the installation

The problem: Incomplete list of servers shown during the installation after selecting a node.

The solution: Click the **Back** button to go back to the previous panel, then click the **Next** button again without making any changes.

Manually changing the Tivoli Enterprise Monitoring Agent host name in ITCAM Agent for WebSphere Applications Data Collector

The problem: You want to manually change the host name or IP address for the Tivoli Enterprise Monitoring Agent connection in the Data Collector.

The symptom: Host name or IP address for Tivoli Enterprise Monitoring Agent for ITCAM Agent for WebSphere Applications changes and now the Data Collector is not communicating with the monitoring agent. No data is shown in Tivoli Enterprise Portal.

The solution: Perform the following steps:

1. Find the `/usr/lpp/itcam/WebSphere/runtime/server/server/kwjdc.properties` file
2. Edit the value of the following property to your new name:

   ```
   com.ibm.tivoli.kwj.agenthostname=
   ```
3. Save and restart the agent.

Only one log file can be found after multiple CICS DCs were installed on the same computer

The problem: Only one log file can be found after multiple CICS® DCs were installed on the same computer.

The solution: If you follow the documentation and are installing multiple CICS DCs on the same host system, the log files override each other. The problem is the logs are now placed in `/var/ibm/tivoli/common/CYN/logs/msg-cicsprobe-native.log`. Edit the following two files in the CICS Data Collector runtime directory:

- In *ITCAM_runtime*`/cics/`*CICS_APP_ID*`/etc/cyn-cclog.properties`, change the following line:

  ```
  handler.file.dc.msg.fileName=msg-cicsprobe-native.log
  ```

  to

  ```
  handler.file.dc.msg.fileName=msg-cicsprobe-<app_id>-native.log
  ```

- In *ITCAM_runtime*/cics/*CICS_APP_ID*/etc/cynlogging.properties, change the following line:

  CYN.handler.file.msg.fileName=msg-cicsprobe.log

  to

  CYN.handler.file.msg.fileName=msg-cics-<*app_id*>-probe.log

Required permissions for Data Collector configuration for WebSphere Application Server

The question: How can I create a non-administrator WebSphere Application Server user ID?

The answer: WebSphere Application Server has four administration roles: Monitor, Configurator, Operator and Administrator (with the privileges from least to most). The best way is to configure a user id as a WebSphere Application Server operator, because in this way a new V6.1 feature (dynamic PMI change) works fine. The Monitor role may be the second place, for the new feature (dynamic PMI change) does not work with Monitor and Configurator roles, even that Data Collector's data collection in PMI and JMX areas are fine.

The user ID is configured in *DC_home*/runtime/*platform.node.server*/*platform.node.server*.datacollector.properties, and can belong to one of the four roles - Monitor, Configurator, Operator, Administrator. The following is the comparison on the four roles.

Table 5. Comparison on administration roles of WebSphere Application Server

MS VE Page	Data Reported	Monitor	Configurator	Operator	Administrator
Availability-Servers	Sessions/ minute, Deployed .ear	OK	OK	OK	OK
Availability-Recent Activity Display	Live Sessions	OK	OK	OK	OK
Availability-System Resource					
----- Overview	Most PMI Data	OK	OK	OK	OK
----- JMX data	JMX and PMI Data	OK	OK	OK	OK
PD-Runtime Environment Check	HTTP Transport Configuration	OK	OK	OK	OK
Dynamic PMI Level Change	Change PMI Level per MOD Level	No	No	OK	OK

Special requirements for CICS installation

The problem: Running the CICS installation script has some special requirements.

The solution: The CICS installation script must locate in an directory structure like `.xxx.cics.CICS1/bin`. The following is an example:

```
CS000:/u/train01/itcam/cics/CICS1/bin #>./setupcics.sh
Enter ITCAM install directory name:[/u/train01/itcam]

Enter ITCAM runtime directory name:[/u/itcam]
/u/train01/itcam
Enter the CICS region name (APPLID) to monitor:[cics]
CICS23T2
Do you want to enable ITCAM for WebSphere support:[y or n]
y
Enter the IP address of the ITCAM Managing Server:[127.0.0.1]
9.48.138.202
Enter ITCAM Managing Server install directory:[/opt/itcam]
/opt/IBM/itcam/WebSphere/MS
Do you want to enable RTT Support:[y or n]
y
What is the RTT port number:[32323]
32323
Enter the name of the TMTP MA install directory:
/u/ssood/tmtp61/V6R1M0/MA
CICS23T2 configuration created in /u/train01/itcam/cics/CICS23T2
```

This will in turn create the `/u/train01/itcam/cics/CICS23T2.` with a correctly populated `datacollector.properties` and other files for the region.

The monitoring agent fails to start

***The problem*:** Tivoli Enterprise Monitoring Agent fails to start with error message "ERROR: required environment variable KWJ_PROD is not set" in the native monitoring agent log file after it is upgraded to a newer release or fix pack.

***The solution*:** To workaround the problem, perform the following steps:

1. From the management console, select **Manage Tivoli Services → Advanced → Unconfigure**.
2. And then select **Manage Tivoli Services → Advanced → Configure using defaults**.

Uninstalling the Data Collector

The following content provides information about uninstalling the Data Collector.

Generic JVM argument for Data Collector still exists after uninstallation

The problem: After Data Collector uninstallation, a Generic JVM arguments of the Data Collector, such as *-Djlog.qualDir=tivc06Node01.server7* still exists in the WebSphere Application Server administrative console.

The solution: The Data Collector can be successfully reinstalled later. Manually remove the arguments for a complete cleanup if desired.

Manually uninstalling the Data Collector

The problem: One of the following problems occurred:

- Problems occurred during the installation of the Data Collector and no configuration took place.
- Data Collector configuration started but failed.

Now you have to uninstall the Data Collector manually.

The solution: If problems occurred during the installation of the Data Collector and no configuration took place, remove the *DC_home* directory and all files and subdirectories under *DC_home*.

If Data Collector configuration started but failed, perform the following procedures:

1. Log onto the WebSphere Application Server administrative console.
2. Select **Server** → **Application Servers** and select the *Server_Name*.
3. Navigate to the JVM system properties page.

   For application server version 6: in the Configuration table, navigate to **Server Infrastructure** → **Java**and **Process Management** → **Process Definition** → **Additional Properties**: Java Virtual Machine.

   For application server version 5: navigate to Additional Properties: **Process Definition** → **Additional Properties**: Java Virtual Machine.
4. In the Generic JVM arguments field, remove the values that were added as a result of the Data Collector configuration. Make sure you do not remove the values that are not related to the Data Collector configuration.
5. For JVM custom properties, select and remove the values that were added as a result of the Data Collector configuration. Make sure you do not remove the values that are not related to the Data Collector configuration.
6. Navigate to the custom properties page.

   For application server version 6: in the Configuration table, navigate to **Process Definition** → **Custom Properties**.

   For application server version 5: navigate to Additional Properties: **Process Definition** → **Custom Properties**.
7. For custom properties, select and remove the values that were added as a result of the Data Collector configuration. Make sure you do not remove the values that are not related to the Data Collector configuration.
8. Navigate to the page for environment variables at the server level. For example, in the Navigation Pane, select **Environment** → **WebSphere Variables**, and navigate to the server level variables.
9. Select and remove the *ITCAM61_home* and *MS_AM_home* variables.
10. Save your changes. For ND deployment, you need to synchronize the changes with the node agent so that the changes at dmgr can be applied to individual server instances.
11. Remove the *DC_home* directory and all files and subdirectories under *DC_home*.

WebSphere Application Server 7.0 cannot start and returns an "Unable to create Java Virtual Machine" error

The problem: After eCAM 7.0 or ITCAM for WebSphere 6.1 is installed on WebSphere Application Server 7.0 IBM J9 PASE 64bit, WebSphere Application Server cannot start and returns an "Unable to create Java Virtual Machine" error in the logs.

The symptom: "Unable to create Java Virtual Machine" error.

The cause: Installing and upgrading of eCAM 7.0 and ITCAM for WebSphere 6.1 is not supported on WebSphere Application Server 7.0 IBM J9 PASE 64bit.

The solution: You must install ITCAM for Application Diagnostics 7.1 directly on WebSphere Application Server 7.0 IBM J9 PASE 64bit.

Distributed platforms

This section describes the problems and troubleshooting that only apply to distributed platforms, including Windows, Linux and UNIX systems.

Cannot start WebSphere administrative console after installing Data Collector on Windows

The problem: After installing the Data Collector and then starting the WebSphere administrative console, it cannot load its console page.

The reason: Your WebSphere server's default templates have changed.

The solution: Ensure the WebSphere instance is correct and not corrupted.

Data Collector installation fails on Linux platforms because of inadequate permissions

The problem: The configuration fails if you used a non-root user that did not have permissions to write to the temporary directory. You must perform the following procedure to correct this issue and perform a subsequent successful configuration of the Data Collector.

The solution:

1. Undo your initial (failed) configuration of the Data Collector by using the Configuration Tool (`config_dc.sh` script) to unconfigure it. See the installation and customization guide for details.
2. Take one of the following actions:
   - Give the non-root user ID read and write access to the `/tmp` and `/var/tmp` (HP-UX and Solaris only) directories:
     a. Log on as root and give the non-root user ID read and write access to `/tmp`.
     b. If your operating system is HP-UX or Solaris, give the non-root user ID read and write access to `/var/tmp`.
     c. Remove all files and directories under `/tmp` and `/var/tmp`.
   - If you have concerns about removing all files under `/tmp` and `/var/tmp`, specify a different temporary directory:
     a. Modify the *DC_home*`/config_dc/config_dc.sh` file. Add the following parameters to the file:

        ```
        -Dtemp.dir=tmp_dir
        -Djava.io.tmpdir=tmp_dir
        ```

        where *tmp_dir* is the directory you want the Configuration Tool to write to. The user for the installation must have read, write, and execute privileges to this directory.
3. Run the Configuration Tool (`config_dc.sh` script) to configure the Data Collector. See the installation and customization guide for details.

ECU check fails to return the correct value

The question: After running the ECU tool, the tool returns a value of Windows Server 2003, even though the operating system in question is Windows Server 2003 R2.

The answer: This is because ECU pulls the *os.version* and *os.name* properties from JVM system properties and depends on these properties for accuracy.

Error messages are displayed on the console when installing or configuring the agent for WebSphere Applications or J2EE as a non-root user on the AIX system

The problem: Error messages are displayed on the console when you run ITCAM agent for WebSphere Applications or J2EE installation or configuration as a non-root user on the AIX® system.

The reason: The problem was caused by lacking of the required access to create the System Preference control files.

The solution: You can use either of the following way to solve this problem:

- Run ITCAM WebSphere Application Server/J2EE Installation or Configuration as a root user.
- Navigate to the `/usr/java14/.private142/jre/.java/.systemPrefs` directory and assign the write permission to the non-root user, create this directory if it does not exist.

Failure to open external links in ITCAM launchpad on the UNIX System

The problem: Failure to open external links in ITCAM launchpad and the following error message is displayed in the console of the launchpad on the UNIX system:

```
"/usr/dt/bin/dtksh" not found
```

The solution: You must use Mozilla browser at least once before clicking the external links in ITCAM launchpad. Type command **mozilla** in the console and accept the license agreement which is displayed, then run the launchpad again.

Insufficient temporary disk space when installing on HP-UX

The problem: You may get the following error message when starting the Data Collector installation on HP-UX:

```
Error writing file = There may not be enough temporary disk space.
Try using -is:tempdir to use a temporary directory on a partition with
more disk space.
```

There has been an error writing to file `DC_installation.log`, because there may not be enough temporary disk space in temporary directory: `/var/tmp`. (The minimum required is 50 MB.)

The solution: Before starting the server, make sure that there is no `.pid` file under the `/tmp` directory that was created by other users during previous operations. As another option, permission to execute these scripts can be restricted to one user by changing the ownership and mode of these files with **chown** and **chmod** commands. To use a temporary directory with more disk space, try the following command:

```
setup_DC_hp11.bin -is:tempdir temp_dir
```

where *temp_dir* is a directory with at least 50 MB free space.

OS agent does not start after Tivoli Enterprise Monitoring Agent local installation or upgrade

***The problem*:** Previously installed OS agent does not start after Tivoli Enterprise Monitoring Agent local installation or upgrade.

***The solution*:** To workaround the problem, take either of the following actions:

1. Start OS agent manually after installation or upgrade finish. You can do this with Tivoli Service Manager that appears after installation or upgrade.
2. Use remote deploy for installing or upgrading Tivoli Enterprise Monitoring Agent on destination host.

Customized situations are not available after a version update

***The problem*:** After an update of the Tivoli Monitoring application support version, situations customized by the user are lost.

***The cause*:** This is expected Tivoli Monitoring behaviour when, during the application support version update, ALL is selected.

IBM i systems

This section describes the problems and troubleshooting that only apply to IBM i systems.

Error occurs when installing the Data Collector on iSeries systems

The problem: When you install the ITCAM for Application Diagnostics Data Collector for WebSphere Applications on the iSeries® systems, the following error message is displayed in the installation console:

```
Exception on getTopology : java.lang.Exception: getTopology
 error[getTopology error]
```

The solution: Run `wsadmin.sh` script in the *AppServer_home*`/profiles/`*profile_name*`/bin` directory manually in the Qshell on the iSeries systems, respond "yes" to the prompt that is displayed and then install the Data Collector again. If this solution still cannot solve this problem, please contact the IBM Support Assistant.

Fail to get WebSphere version information during the silent installation of the Data Collector on the i5/OS system

The problem: Fail to get WebSphere version information during the silent installation of the Data Collector on the i5/OS® (OS/400) system.

The solution: For WebSphere 6.0 or later version you must check the dcInputs.txt file which is used in the silent installation and make sure that you specify the WAS_BASEDIR variable in this file correctly. For example,

- For WebSphere 6.0 base: `/QIBM/ProdData/WebSphere/AppServer/V6/Base`
- For WebSphere 6.0 ND: `/QIBM/ProdData/WebSphere/AppServer/V6/ND`
- For WebSphere 6.1 base: `/QIBM/ProdData/WebSphere/AppServer/V61/Base`
- For WebSphere 6.1 ND: `/QIBM/ProdData/WebSphere/AppServer/V61/ND`
- For WebSphere 7.0 ND: `/QIBM/ProdData/WebSphere/AppServer/V7/ND`

Uninstall eCAM 7.0 on i5/OS silently

The question: How does one uninstall eCAM 7.0 on i5/OS (now known as IBM i) silently?

The answer: Perform the following procedure to uninstall eCAM 7.0 on i5/OS:

Remove the files and service program:

CAUTION:
Because all the instances of ITCAM for Application Diagnostics for WebSphere on IBM i5/OS share the same service program, do not remove the service program unless the ITCAM for Application Diagnostics for WebSphere being removed is the last and only one on this system.

1. On the IBM i5/OS server, remove the ITCAM for Application Diagnostics for WebSphere installation path in the IFS. Open QSH session and run:

   ```
   rm -rf DC_home
   rm -rf /QIBM/UserData/tivoli/common
   ```

2. On the IBM i5/OS server, remove the service program. Run the following commands:

   ```
   DLTLIB QTIVCCGTS
   DLTLIB QTIVTMTP
   DLTSRVPGM am_sun_16
   DLTSRVPGM SJITI
   ```

z/OS systems

This section describes the problems and troubleshooting that only apply to z/OS systems.

ConnectorNotAvailableException found in Data Collector logs on z/OS system

The problem: After installing and configuring the Data Collector successfully on z/OS, the following messages were found in the `trace_dc_ParentLast.log` file:

```
<Exception><![CDATA[com.ibm.websphere.management.exception.AdminException:
com.ibm.websphere.management.exception.ConnectorNotAvailableException
at com.ibm.ws.management.AdminServiceImpl.getDeploymentManagerAdminClient
(AdminServiceImpl.java:1536)
at com.cyanea.ws6.JMXDelegate$12.act(JMXDelegate.java:1649)
at com.cyanea.was.JMXDelegateBase$CynPrivilegedException.run
(JMXDelegateBase.java:559)
at com.ibm.ws.security.auth.ContextManagerImpl.runAs
(ContextManagerImpl.java:4097)
at com.ibm.ws.security.auth.ContextManagerImpl.runAsSystem
(ContextManagerImpl.java:4194)
at com.ibm.ws.security.core.SecurityContext.runAsSystem
(SecurityContext.java:245)
at com.cyanea.was.JMXDelegateBase$CynAction.perform
(JMXDelegateBase.java:400)
at com.cyanea.ws6.JMXDelegate.initializeAdminClient
(JMXDelegate.java:1624)
at com.cyanea.ws6.JMXDelegate.connectToDmgr
(JMXDelegate.java:3151)
at com.cyanea.ws6.JMXDelegate.checkAdminClient
(JMXDelegate.java:3120)
at com.cyanea.ws6.monitoring.MonitoringAdapter.getPerfSummary
(MonitoringAdapter.java:900)
```

The cause: This situation occurs when the Server, Node, or Deploy Manager has problems in connecting or running.

The solution: Restart the Server, Node, and Deploy Manager.

Running ITCAM Agent for WebSphere Applications

The following are troubleshooting tips and techniques for problems that occur when running ITCAM Agent for WebSphere Applications.

All platforms

This section describes the problems and troubleshooting that can apply to all platforms, which are probably not related to any unique platform.

Cannot call the IBM Tivoli Monitoring Client after reconfiguring Data Collector

The problem: After reconfiguring Data Collector, the information relating to the IBM Tivoli Monitoring Client is no longer the same as that in *DC_home*/runtime/*server_instance*.

The reason: When you reconfigure the Data Collector it records the information relating to IBM Tivoli Monitoring Client that was set when you configured the Data Collector for the first time. If the information relating to the monitoring agent and TTAS in *DC_home*/runtime/*server_instance* is modified manually after the first configuration then the information displayed when you reconfigure the Data Collector will be different from that in the *DC_home*/runtime/*server_instance*.

The solution: Manually change the information relating to IBM Tivoli Monitoring Client in *DC_home*/runtime/*server_instance* to match your installation.

Changing server alias fails

The problem: You have used the monitoring agent configuration utility (or use IBM Configuration Assistance Tool on z/OS) to change a server alias, but the old alias is still shown in the Tivoli Enterprise Portal..

The solution: Perform the following steps:

1. Stop the Data Collector that monitors the application server.
2. In the Tivoli Enterprise Portal, issue the Remove_Subnode Take Action command for the affected node (old alias). The node will be grayed out in the Tivoli Enterprise Portal. You can use the **Clear Offline Entries...** action in the portal to remove it.
3. Change the server alias in the Tivoli Enterprise Monitoring Agent monitoring this application server. On z/OS, use IBM Configuration Assistance Tool. On the other operating systems, use the configuration utility. For the detailed information, see *ITCAM Agent for WebSphere Applications Installation and Configuration Guides*.
4. Restart the Monitoring Agent.
5. Start the Data Collector.

Disable and enable the Data Collector without losing the configuration settings

The problem: You may want to temporarily disable the Data Collectors without losing the configuration settings.

The solution: You can use the following scripts to do this. The scripts *enabledc.py* and *disabledc.py* programmatically enable and disable selected ITCAM Data Collectors for a given node of the WebSphere Application Server Base or Network Deployment environment. The Scripts are invoked as follows:

- For BASE environment :

1. Stop the server.
2. Disable Data Collector:

```
WAS_home/bin/wsadmin.sh -conntype NONE -lang jython -f DC_home/config_dc/disabledc.py
 [-ms] <node> [server1] [server2] ... [server n]
```

3. Enable Data Collector:

   ```
   WAS_home/bin/wsadmin.sh -conntype NONE -lang jython -f DC_home/config_dc/enabledc.py
   [-tema] <node> [server1] [server2] ... [server n]
   ```

- For Network Deployment environment :
  1. Start the Deployment Manager.
  2. Disable Data Collector:

     ```
     WAS_home/bin/wsadmin.sh -conntype SOAP -host <dmgr_host_name> -port
     <dmgr_port_number> -lang jython -f DC_home/config_dc/disabledc.py
     [-ms] [-restart] <node> [server1] [server2] ... [server n]
     ```

  3. Enable Data Collector:

     ```
     WAS_home/bin/wsadmin.sh -conntype SOAP -host <dmgr_host_name> -port
     <dmgr_port_number> -lang jython -f DC_home/config_dc/enabledc.py
     [-tema] [-restart] <node> [server1] [server2] ... [server n]
     ```

  4. Specify optional argument -restart to restart the modified servers, -restart is only applicable to Network Deployment.

  Note: For Windows, use *wsadmin.bat* instead of *wsadmin.sh* If the argument `-tema` is specified with the *enabledc* script, it will only enable data collection for the ITCAM Tivoli Enterprise Monitoring Agent; data collection for the ITCAM Managing Server will still be disabled. If the servers list is not specified, the scripts will search for all servers in the node. The *disabledc* script will store backup data inside the server JVM System Properties. The WebSphere Server instance must be restarted for the data collection changes to take effect.

Enabling Method Profiling

The problem: Customers running at monitoring level 2 (MOD L2) that select the check box for Method Profiling, might get the following message:

```
"To make sure your system is instrumented to capture all level 3 data, update the
toolkit_custom.properties file within the data collector's custom
folder for the monitored application server. Be sure to recycle the application
server to ensure proper results. For CICS and IMS, please ignore this warning."
```

The cause: Method Profiling, an optional feature at monitoring level 2, is dependent on monitoring level 3 method entry and exit instrumentation. The purpose of Method Profiling is to summarize those level 3 method entry and exit requests, to give you summarized method level data.

The solution: To enable Method Profiling with default settings, you must update the *toolkit_custom.properties* file for each application server that will be monitored using this feature. In particular, you must uncomment the *am.camtoolkit.gpe.customxml.L3* property and set *com.ibm.tivoli.itcam.toolkit.ai.methodentryexittrace=true*.

For an introduction to ITCAM for Application Diagnostics technique for instrumenting application classes, go to the ITCAM for Application Diagnostics Infocenter.

Errors displayed in the Data Collector logs

The following content provides information about errors displayed in the Data Collector logs.

Failed to deserialize marshalled object

The problem: When using proxy servers, you see this error in the Data Collector logs:

```
INFO: CYND5109I Failed to deserialize marshalled object
```

The solution: Append the proxy jarfiles (listed in the *IBM Tivoli Composite Application Manager for WebSphere Applications Installation Guide*) to both the class path and the JVM arguments (property java.rmi.server.codebase).

Cannot determine implemented interfaces

The problem: If JDBC type 2 native connection with RRS is used during WebSphere startup, an error message will be shown in the log:

```
error:can't determine implemented interfaces of missing type
com.ibm.db2.jcc.SQLJConnection
```

The solution: This is working as designed and the messages can be ignored.

Error getting ITLM Application Tookit

The problem: An error message "Error getting ITLM Application Tookit" is displayed in the IBM Tivoli Composite Application Manager for WebSphere trace-dc-ParentLast.log file after running the IBM Tivoli Composite Application Manager for WebSphere for some time.

The solution: Update the IBM JDK SR8 to IBM JDK SR8a.

Error KCIIN0205E occurs when stopping Tivoli Enterprise Monitoring Agent

The problem: When stopping the Tivoli Enterprise Monitoring Agent , the following message is returned:

```
KCIIN0205E Unable to stop agent or process...
```

There are also many exceptions in the logs. But if you try to stop the Tivoli Enterprise Monitoring Agent for the second time, it will stop successfully.

The cause: This is an IBM Tivoli Monitoring limitation. ITCAM for Application Diagnostics 7.1 on AIX requires IBM Tivoli Monitoring JRE SR10.

The solution: Update IBM Tivoli Monitoring JRE to SR10 by taking the following steps:

1. Install new IBM JDK to `/usr/java5`;
2. Remove *ITM_home*`/JRE/aix523`;
3. Create a system link from `/usr/java5/jre` to *ITM_home*`/JRE/aix523`.

Errors occur during or after upgrading

The following errors may occur after an upgrade from a previous version of ITCAM for APplication Diagnostics or ITCAM for WebSphere.

Error KDY0005E occurs when remote upgrading Tivoli Enterprise Monitoring Agent to ITCAM for Application Diagnostics: ***The problem:*** When remote upgrading Tivoli Enterprise Monitoring Agent to ITCAM for Application Diagnostics 7.1 on a non-Windows platform, the upgrade failed with the following message shown:

- For WebSphere Agent:

  ```
  KDY0005E: The agent bundle YN is missing the prerequisite YN which was not be
  installed on host_short_name.An error occurred during an attempt
  to install the specified prerequisite.
  ```

- For HTTP Servers Agent:

```
KDY0005E: The agent bundle HT is missing the prerequisite HT which was not be
installed on host_short_name.An error occurred during an attempt
to install the specified prerequisite.
```

Diagnosing the problem: Check the host name value of Tivoli Enterprise Monitoring Agent:

1. Log on to Tivoli Enterprise Portal;
2. Right-click on **Enterprise** and select **Workspace** → **Managed System Status**.
3. Right-click on **Managed System Status** and select **Properties**. Enable the **Host Address** option in the ensuing dialog box. Then press **OK** to close the dialog box.
4. Check the host name in **Managed System Status**. If the host name you see is not in short format (for example, `tivsun10.cn.ibm.com`), it cannot be recognized by IBM Tivoli Monitoring, which may cause problem when remote upgrading.

The solution: To remote upgrade Tivoli Enterprise Monitoring Agent successfully, performing the following steps:

1. Add property

   `CTIRA_SYSTEM_NAME=`*`host_short_name`*

   (for the previous example, the value of *host_short_name* should be `tivsun10`) in the following files under *ITM_home*`/config` directory:
   - For WebSphere Agent, the files are `yn.ini` and `yn.config`;
   - For HTTP Servers Agent, the files are `ht.ini` and `ht.config`.
2. Restart Tivoli Enterprise Monitoring Agent.
3. Check the host name in Tivoli Enterprise Portal again.
4. If the host name is in correct format, run remote upgrade.

Monitoring overhead rises after upgrade from ITCAM for WebSphere version 6.1 Fix Pack 4 or lower:

The problem: After Tivoli Enterprise Monitoring Agent is upgraded from ITCAM for WebSphere version 6.1 Fix Pack 4 or lower, the performance overhead rises significantly.

The solution: This happens because the Tivoli Enterprise Monitoring Agent automatically starts the baselining process for all applications. In the baselining process, statistical information on request response times is collected; ITCAM uses it to automatically determine response time thresholds for Application Health monitoring.

During the baselining process, Level 2 monitoring is enabled for the application, irrespective of the configured defaults and any Take Actions. This means that the monitoring overhead will also rise to values typical for Level 2 monitoring. The Tivoli Enterprise Portal may show the request monitoring level as Level 1 or Disabled, but the monitoring is still performed at Level 2.

By default, the baselining process runs for seven days. After this time, monitoring returns to the level set by the configured defaults and the Start_Request_Monitoring, Stop_Request_Monitoring and Set_Application_Monitoring Take Actions. Accordingly, the overhead will also return to expected levels.

If the increased overhead is not acceptable, you may use the Tivoli Enterprise Portal to issue the Stop_Baselining Take Action for any affected application. The baselining process will be stopped and the overhead will return to a normal level. However, if you do this, the automatic response time thresholds may not be set properly, so the Application Health "lights" may not reflect the true state of the application.

For more details on automatic threshold setting and the baselining process, see the Online Help available in the Tivoli Enterprise Portal.

Export all the defined Situations into one handy file

The problem: How to export all the defined Situations into one handy file?

The solution: If you need to export all your Situations to send to Support, use this command:

```
cd $ITM_home/
./tacmd viewSit --situation <sit-name> --export <sit-name>.sit
```

where <sit-name> should be replaced with the particular situation name.

This will create a file with a "sit" extension. Simply tar up the "sit" files into one zip file if you have more than one exported Situation and send this file to the Support team for analysis.

Failed to update UpdateAutoRun.sh

The problem: You cannot update the *ITM_home*/logs/UpdateAutoRun.sh script.

The reason: When you perform the installation without "root" permissions you cannot update the *ITM_home*/logs/UpdateAutoRun.sh script.

The solution: Make sure that you have "root" permissions before launching the installation. For more details, see the log file: *ITM_home*/logs/UpdateAutoRun.log.

Inconsistent JVM heap size value reported in Server Activity Display and System Resources

The problem: Inconsistent JVM heap size value is reported in the Server Activity Display and the System Resources pages.

The reason: This works as designed. The value reported in the Server Activity Display page is PMI data. It is the amount of memory that is in use in JVM which is calculated by total memory minus free memory in JVM. On the other hand, the value reported in the System Resources page is JMX data.

ITCAM can not be started or configured when the path name of IBM Tivoli Monitoring contains special symbols

The problem: ITCAM can not be started or configured when the path name of IBM Tivoli Monitoring 6.2.2 contains special symbols (for example, % and $).

The cause: This problem is caused by an IBM Tivoli Monitoring limitation. IBM Tivoli Monitoring 6.2.2 can not be started when the path name contains invalid symbols.

The solution: The path name of IBM Tivoli Monitoring 6.2.2 should only contains "0-9", "a-z", "A-Z" and the underscore character ("_").

Managing Server and Data Collectors require a restart after IP address change

The problem: The Managing Server and Data Collectors require a restart after a DHCP IP address change. The kernel stops serving the RMI (remote method invocation) codebase correctly to the other components; the Data Collectors don't try to reconnect to the Publishing Server, even after the Publishing Server has been restarted. Both still reference the old IP address, and they show up as unavailable in the Application Monitor. Nothing crashes , but the kernel RMI socket stops serving the classes correctly.

The first exception on the Managing Server is an IOException Socket Closed event, followed by many socket exceptions.

The solution: Use dynamic DNS, and have the kernel host and RMI codebase parameters set on the Data Collector using the dynamic DNS name for this Managing Server rather than the IP address; see the *IBM Tivoli Composite Application Manager for WebSphere Installation and Customization Guide*.

Method report does not contain the expected trace although MOD-L3 and proper filter definition are specified

The problem: Despite using a monitoring level of MOD-L3 and having a proper filter definition specified in the *method_entry_exit.xml* file, the method report does not contain the expected trace.

The cause: If you are missing methods in a trace, and have checked that there are no dropped records, then the most likely cause is the incorrect use of exclude overrides.

The solution: Carry out the following steps:

1. **Optional step**. Create a new configuration with the appropriate exclude list if you need to trace the WebSphere Application Server system classes. Otherwise you can use the standard J2EE configuration (default).
2. Switch to MOD-L3.
3. Close WebSphere Application Server (stop Data Collector).
4. Create *method_entry_exit_customer-name.xml*, copying your filter definition.
5. Point to this file in *toolkit_custom.properties* in the *<DC>/runtime/<server>/custom* directory (with the *collect method entry exit* parameter set to *true*)

   Note: Do not update *toolkit.custom.properties* in the *<DC>/itcamdc/etc* directory. User modifications must always be made to the *<DC>/runtime/<server>/custom* directory.
6. Even if it is not necessary to delete the toolkit and classinfo files from the *<DC>/runtime/<server>* directory, you can remove them anyway, as they are system-generated files:

   <nodename>.<was-name>.toolkit.properties.xml

   <nodename>.<was-name>.toolkit.xml

   <nodename>.<was-name>.classinfo.txt
7. Start WebSphere Application Server (start Data Collector).
8. Run a customer application.
9. Collect L3 trace.
10. **Optional step**. Switch to L2 and collect some "Misbehaving Transaction" traps.

Check in PAR Reports or Trap History Reports for the expected data.

Monitor GC when the GC log path is changed after installed ITCAM for Application Diagnostics

The question: How can I still monitor the Garbage Collector (GC) when the GC log path is changed after installing ITCAM for Application Diagnostics?

The cause: When the GC log path has been changed, the Data Collector may not find the GC log path for collecting information.

The solution: To solve this problem, take the following steps:

1. Navigate to the *DC_home*/runtime/*appserver_version.node_name.server_name* directory.
2. Open the kwjdc.properties file.
3. Find the TEMAGCCollector.gclog.path={*GC_Log_Path*} property
4. Change the value of *GC_Log_Path* to the correct GC log path.

No Heap Dump available on Solaris JDK1.5

The problem: No heap dump available on Solaris JDK 1.5.

The solution: perform the following steps:

1. Add "internal.doheapdump=true" in *DC_home*/runtime/*.*.*/ *.datacollector.properties.
2. Make sure JDK version is above 1.5.0_01

Data Collector uses JVMTI instead of JVMPI to get HEAPDUMP information. From version 1.5.0_01, SUN JDK 1.5 on Solaris supports HEAPDUMP in JVMTI.

NullPointerExceptions

The following content provides information about NullPointerExceptions.

NullPointerException after running for some time

The problem: The following error message "java.lang.NullPointerException" is displayed in the WebSphere SystemOut.log file after running the IBM Tivoli Composite Application Manager for WebSphere for some time:

```
    java.lang.NullPointerException
    at java.util.Hashtable$1.contains(Hashtable.java:404)
    at java.util.AbstractCollection.containsAll(AbstractCollection.java:300)
    at java.util.Collections$SynchronizedCollection.containsAll
(Collections.java:1603)
    at com.ibm.tivoli.itcam.tema.mbeanserver.JMX12.propertiesMatch
(JMX12.java:97)
    at com.ibm.tivoli.itcam.tema.mbeanserver.JMX12.apply(JMX12.java:42)
    at com.ibm.tivoli.itcam.tema.appmon.serverinfo.build.
ObjectNameFilter.isNotificationEnabled(ObjectNameFilter.java:47)
```

The solution: Update the IBM JDK SR8 to IBM JDK SR8a.

NullPointerExceptions from Oracle on the Data Collector in trace-dc-bcm.log

The problem: The WebSphere application server using an Oracle database running with the ITCAM Data Collector for fix pack 4 will experience NullPointerException from Oracle in the trace-dc-bcm.log. This is the type of exception that displays.

```
<Exception><![CDATA[java.lang.NullPointerException at oracle.jdbc.driver.
OracleStatementWrapper.equals
(OracleStatementWrapper.java:89)
```

The solution: Set *com.ibm.tivoli.itcam.toolkit.ai.createRememberedObjectField=true* in the WebSphere application server JVM custom properties to avoid the exception.

Out of Memory errors occur when using L3 and hotspot JVM

The problem: If out of memory errors occur while you are using L3 and hotspot JVM, do the following instructions.

The cause: The default NewSize and MaxNewSize might be too small for some Applications if the Application is allocating large numbers of short living objects.

The solution: Some recommended tuning for an application that allocates many short living objects is as the following content:

```
-XX:+DisableExplicitGC -XX:NewSize=128m -XX:MaxNewSize=256m -Xconcurrentio
```

Note: NewSize and MaxNewSize must be changed based on the Maximum and Minimum heap settings of the JVM.

Restoring the previous WebSphere Application Server configuration after Data Collector installation and configuration

The problem: You want to restore the previous WebSphere Application Server configuration because the Data Collector configuration has failed with any of the following reasons:

- After the configuration, the application server fails to restart.
- During a GUI configuration, the summary panel for the Configuration Tool indicates the configuration has failed.
- During a silent configuration, the command line indicates a message that the configuration has failed.
- After the configuration, there are messages in the Tivoli common log file that indicates configuration has failed.

The solution: For instruction on restoring the previous WebSphere Application Server configuration, refer to *Appendix D. What to do if Data Collector configuration fails* in *WebSphereDistributed Data Collector Installation and Customization Guide.*

Significant CPU consumption and high latency observed if a thread dump is requested

The problem: Significant CPU consumption by both the Data Collector and the Managing Server is observed if a thread dump is requested, and high latency is received in generating traps if thread dumps are requested when the trap is requested.

The solution: In a production environment, generating a thread dump is not encouraged as a trap action, due to the latency it will impose on trap actions and the high CPU time it will consume on the Data Collector and the Managing Server.

Note: Performing a thread dump may also mean that you cannot access the application when you refresh the thread dump page.

Some features are not working

You might have met the situation that some feature are not working. The following content provides solutions to this situation.

ITCAM "Cancel Thread" feature does not work

The problem: Clicked "Cancel Thread" on the thread (Web Container thread in this case) and found it still shows with all the thread list that is not cancelled.

The cause: "Cancel Thread" feature of ITCAM may not always able to immediately terminate Java threads running native code. This is a limitation of JVM.

Note: In any event, the cancelling of live threads is a dangerous practice, and should be used with care and discretion.

The solution: If the "Cancel Thread" feature of ITCAM is used to terminate a Java thread running native code, that thread will continue to run until either of the following events occur:

- the native code calls one of the JNI functions that could raise synchronous exceptions;
- the native code uses ExceptionOccurred() to explicitly check for synchronous and asynchronous exceptions.

If neither of these events occurs, the thread will continue to run until it returns from native code back to Java code and only then it will be terminated.

If the thread does not return from native code back to Java code (for example as a result of a hang or loop in the native code), restarting JVM may be needed to reclaim the thread.

Service Integration Bus (SIB) monitoring not working

The problem: In WebSphere, Performance Monitoring Infrastructure (PMI) for SIB is not configured and therefore no SIB data is collected.

The reason: SIB PMI data settings cannot be saved in the WebSphere configuration.

The solution: Adjust SIB PMI settings as runtime parameters by following these steps:

1. If the *DC_home*/runtime /<app_server_version>.<node_name>.<server_name>/custom /datacollector_custom.properties file does not yet exist, create one.
2. In the datacollector_custom.properties file, add the following lines:

   ```
   am.was6custompmi.settings.1=SIB Service=*
   am.was6custompmi.settings.2=SIB Service=*
   am.was6custompmi.settings.3=SIB Service=*
   ```

   These lines set custom PMI settings for L1, L2 and L3 monitoring levels.
3. Restart the application server.

Stack trace cannot be returned for RMI EJB invocations

The problem: If your application remotely invokes an EJB, no stack trace is returned.

The reason: This lack of information results from a JVM limitation and is thus unavoidable.

Tivoli Enterprise Monitoring Agent fails to work

You might have met the situation that Tivoli Enterprise Monitoring Agent fails to work. The following content provides some solutions to this situation.

Tivoli Enterprise Monitoring Agent stops because of lack of memory

The problem: The Tivoli Enterprise Monitoring Agent reports the following errors:

- java.lang.OutOfMemoryError: JVMCI015:OutOfMemoryError, cannot create anymore threads due to memory or resource constraints
- java.lang.OutOfMemoryError: JVMST017: Cannot allocate memory in initializeMarkAndAllocBits(markbits1)

The reason: These error messages indicate that the Tivoli Enterprise Monitoring Agent is experiencing a high load and lack of available memory.

The workaround: To resolve this problem, take one of the following actions:

- Disable the memory limit by issuing the **ulimit -d unlimited** command and the **ulimit -m unlimited** command before the Tivoli Enterprise Monitoring Agent starts.
- Increase the Java heap size for the Tivoli Enterprise Monitoring Agent by setting the -Xmx256m parameter for the Java Options in the Tivoli Enterprise Monitoring Agent Java properties file.

Note: Refer to http://www.ibm.com/developerworks/java/jdk/diagnosis for more information about Java troubleshooting tips.

Tivoli Enterprise Monitoring Agent fails to start or recycle the WebSphere Application server

The problem: The Tivoli Enterprise Monitoring Agent fails to start or recycle the WebSphere Application server when running a memory-intensive Java application in a 32-bit Java virtual machine (JVM). The error message JVMST018 shown below will appear in the native_stderr.log file.

```
# ./java -version -Xms128M -Xmx2048M
[ **Out of memory, aborting** ]
[  ]
[ *** panic: JVMST018: Cannot allocate memory for
initializeMarkAndAllocBits(allocbits1) ]
```

The reason: This problem occurs because the maximum Java heap size for the WebSphere Application server is set to a value that is too large.

The workaround: Lower the maximum heap size.

Tivoli Enterprise Monitoring Agent failed to work after re-configuration

The problem: After re-configuring, Tivoli Enterprise Monitoring Agent failed to work.

The cause: The configurator tool picked up the Java Runtime Environment (JRE) 1.6 that was set as the default system JRE in the JAVA_HOME environment variable. Tivoli Enterprise Monitoring Agent requires JRE 1.4.x, by default located in `C:\Program Files\IBM\Java142`.

The solution: Set your JAVA_HOME system environment variable to point to the JRE that was installed by IBM Tivoli Monitoring (on Tivoli Enterprise Portal Server) or the JRE installed by the base product driver then re-configure the monitoring agent.

The Data Collector workload on the PS/AA is not balanced

The question: Why is the Data Collector workload not balanced between the restarted PS/AA and the new PS/AA that the Data Collector is being connected to?

The answer: Data collectors are balanced under either of the following conditions:

- The Data Collector connects to the less loaded PS/AA when the old PS/AA that the Data Collector is connected to reaches its memory limit (`HEAP_MAX_SIZE_PS` parameter in the *`MS_home`*`/bin/setenv.sh` file for PS and `HEAP_MAX_SIZE_ARCHIVE_AGENT` parameter in the *`MS_home`*`/bin/setenv.sh` file for AA) and closes the Data Collector socket.
- When a new Data Collector is started, it gets the less loaded PS/AA.

The platform CPU has a negative value

The problem: The platform CPU is a negative value on the Server Activity Display page when the Data Collector is not started by an administrator user on the Windows 2003 64-bit system.

The solution: You can either start the Data Collector as an administrator user or add the non-administrator user to the "Performance Monitor Users" user group before starting the Data Collector.

The memory requirements increase

The following content provides some solutions to the increase of memory requirements.

Enabling Lock Analysis increases both application startup time and memory requirements

The problem: Activating the Lock Analysis feature modestly increases the time necessary to start ITCAM for Application Diagnostics; it also increases the memory requirements of both the WebSphere application server and the ITCAM for Application Diagnostics Data Collector.

The reason: This increased consumption of system resources is caused by the Lock Analysis feature's requirement to implement bytecode instrumentation in your application's Java classes.

Switching from L1 to L2 increases the memory consumption

The problem: Switching a Data Collector from monitoring level L1 to L2 online (without restarting the WebSphere application server) causes the Data Collector's memory requirements to grow.

The solution: Memory consumption is subject to various Data Collector configuration parameters and the total number of events generated by J2EE applications. A Data Collector has a memory monitor that tracks of the native memory it is using. The memory monitor checks the total allocated memory at regular intervals (once for every internal.probe.publishing.frequency setting) to ensure that the Data Collector does not consume more memory than specified in the internal.memory.limit property.

But since this memory check is done only at certain intervals (rather than each allocation), it is possible that the Data Collector might consume more than the specified memory if its load is high (thus causing the Data Collector to allocate lots

of memory between memory checks). In such scenarios, you must tune the internal.probe.publishing.frequency and internal.memory.limit parameters according to your environment. The general recommendation is to reduce the values of these properties if you notice that Data Collector is consuming excessive memory.

Turning on or turning off the Data Collector connections

The following content provides information about turning on or turning off the Data Collector connections.

Data Collector cannot be connected to the Managing Server in a computer outside the DNS

The problem: The Data Collector fails to connect the Managing Server when the Data Collector is on a computer outside the DNS.

The cause: The xml parser tries to resolve URLs in the WebSphere variables.xml and cannot because the xml parser being invoked by the WebSphere config code is a non-local resolver.

The solution: ITCAM agent for WebSphere does not support installation of the Data Collector on computers that are not in the DNS.

Enabling communications with Tivoli Enterprise Monitoring Agent if not done during initial installation

The problem: You chose not to enable communications with Tivoli Enterprise Monitoring Agent during the initial installation of the Data Collector, but you now want to enable it.

The solution: Perform the following procedure:

1. In the *DC_home*/runtime/*app_server_version*.*node_name*.*server_name*/*app_server_version*.*node_name*.*server_name*.kwjdc.properties file, make the following modifications:
   a. Uncomment the following line and enter the port number to be used by the Tivoli Enterprise Monitoring Agent:
      ```
      com.ibm.tivoli.kwj.agentport=
      ```
   b. Uncomment the following line and enter the IP address of the Tivoli Enterprise Monitoring Agent:
      ```
      com.ibm.tivoli.kwj.agenthostname=
      ```
2. Restart the Data Collector by restarting the application server associated with it.

Turn off correlation between the CICS Data Collector and the WebSphere Application Server Data Collector

The question: How to turn off correlation between the CICS Data Collector and the WebSphere Application Server Data Collector?

The answer: Perform the following steps:

1. Make a backup of the *DC_home*/etc/bcm.properties file.
2. Update the *DC_home*/etc/bcm.properties file for the Distributed WebSphere Application Server Data Collector to remove the reference to the *_request_ctg.xml files. This will turn off CTG correlation which is turned on by default in the Distributed WebSphere Application Server code.

3. Delete the generated `bcm.properties` file from the *DC_home*`/etc` directory (one for each Application Server).
4. Restart the Distributed WebSphere Application Server Application Server.

Warning CJL0047W during unconfiguration of the Data Collector

The problem: The Data Collector unconfiguration program writes this warning to the console:

```
CJL0047W Configuration properties have already been set for the logging object
Relation. in the current log manager. The previous configuration will
remain in effect.
```

The reason: Ignore this warning as it is a limitation in JLog.

WebSphere Proxy Server crashes

The problem: WebSphere Proxy Server crashed after about 17 hours run with IBM Tivoli Composite Application Manager for WebSphere and many errors messages "java.net.SocketException: Too many open files" are displayed in the WebSphere SystemOut.log file.

The solution: Set the parameter "open files" of operating system to a large number.

Distributed platforms

This section describes the problems and troubleshooting that only apply to distributed platforms, including Windows, Linux and UNIX systems.

HP uninstallation cannot delete some toolkit files

The problem: Having used the InstallShield wizard to successfully uninstall ITCAM for Application Diagnostics Data Collector, when you click **Finish** to exit the wizard the following warnings are generated:

```
Could not delete file/opt/IBM/DCFP4/toolkit/lib/hpux10/libam_hp_15.sl
Could not delete file/opt/IBM/DCFP4/toolkit/lib/hpux10/libcclog.sl
Could not delete file/opt/IBM/DCFP4/toolkit/lib/hpux10/libmsg23.sl
Could not delete file/opt/IBM/DCFP4/toolkit/lib/hpux10/libcffdc.sl
Some Files could not be removed during the uninstallation (toolkit_lib_hpix10_lib).
Refer to the uninstall log for additional information.
```

The reason: This error may occur during an uninstallation of the WebSphere data collector on a HP operating system if you do not unconfigure the data collector. If you receive these warning messages, this means that some of the files could not be removed during the uninstallation process because the server is running. Please refer to the install shield log records for further information.

Tivoli Enterprise Monitoring Agent on Windows Vista fails to start without administrator rights

The problem: The Tivoli Enterprise Monitoring Agent on the Windows Vista system fails to start when you don't run it with administrator rights.

The reason: Inadequate user rights.

The workaround: Grant administrator rights by carrying out the following steps:

1. Right-click the **Manage Tivoli Monitoring Services**.
2. Click **Properties** -> **Compatibility** -> **Run this program as an administrator**.

Tivoli Enterprise Monitoring Agent cannot be started on SuSE Linux Enterprise Server 9

The problem: After installing and configuring the Tivoli Enterprise Monitoring Agent on SuSE Linux Enterprise Server (SLES) 9, you run the **./itmcmd agent start yn** command. The agent does not start.

The reason: The default gcc version is 3.3 in SLES 9. The Tivoli Enterprise Monitoring Agent agent requires gcc 3.4 to run.

The workaround: Install gcc3.4 manually. For SLES 9 on AMD64/EM64T, you must install the compat-libstdc++-lsb-4.0.2_20050901-0.4.x86_64.rpm library. This library is available in the SLES 9 for AMD64 and Intel® EM64T Service Pack 3.

IBM i systems

This section describes the problems and troubleshooting that only apply to IBM i systems.

WebSphere Application Server fails to start on IBM i 6.1

The following content provides solutions when WebSphere Application Server fails to start on IBM i 6.1.

WebSphere Application Server fails to start and error messages are displayed in log file

The problem: WebSphere Application Server fails to start on IBM i 6.1

The symptom: You may find the following error messages in the Data Collector installation log file:

```
INFO Executing:UPDSRVPGM SRVPGM(QGPL/AM) MODULE(*NONE)
INFO ID: CPF5CA6
INFO Text: Program or Service Program not at correct level for update request.
INFO Severity: 40
INFO ID: CPF5CE2
INFO Text: Unexpected error occurred during program or service program update.
INFO Severity: 40
```

The solution: You can choose either of the following methods to solve this problem:

- Remove and reinstall the Data Collector after changing the IBM i 6.1 system value QFRCCVNRST to 2.
- Run the following commands on IBM i 6.1 system:

```
DLTSRVPGM SRVPGM(QGPL/AM)
RSTOBJ OBJ(AM) SAVLIB(QGPL) DEV(*SAVF) OBJTYPE(*SRVPGM) SAVF(QGPL/AMV5R416)
FRCOBJCVN(*YES) RSTLIB(QGPL)
UPDSRVPGM SRVPGM(QGPL/AM) MODULE(*NONE)
DLTSRVPGM SRVPGM(QGPL/AM_SUN_16)
MOV OBJ('/QSYS.LIB/QGPL.LIB/AM.SRVPGM')
TOOBJ('/QSYS.LIB/QGPL.LIB/AM_SUN_16.SRVPGM')
STROBJCVN OPTION(*CHECK) LIB(qgpl),  it said SJITI.SRVPGM need convertion.
STROBJCVN OPTION(*CONVERT) LIB(QGPL)
STROBJCVN OPTION(*CHECK) LIB(QTIVTMTP), it said JVMPI.SRVPGM need convertion.
STROBJCVN OPTION(*CONVERT) LIB(QTIVTMTP)
STROBJCVN OPTION(*CHECK) LIB(QTIVCCGTS)
```

WebSphere Application Server fails to start on IBM i 6.1 when you do not have the authority to use API from QSYS/QPMLPMGT

The problem: WebSphere Application Server fails to start on iSeries 6.1 when you do not have the required authority to use API from QSYS/QPMLPMGT.

The reason: Inadequate authority.

The solution: Run the following command:

```
GRTOBJAUT OBJ(QSYS/QPMLPMGT) OBJTYPE(*SRVPGM) USER(*public) AUT(*use)
```

z/OS systems

This section describes the problems and troubleshooting that only apply to z/OS systems.

Installing, configuring, and running ITCAM for WebSphere on z/OS with Global Security turned on

The problem: Installing, configuring, and running ITCAM for WebSphere on z/OS with Global Security turned on might require additional steps, depending on your security configuration.

The solution: If WebSphere Global Security has been turned on, perform the following steps before running the `setupwas.sh` script:

1. Make sure the user ID you use to log on to UNIX System Services (z/OS UNIX System Services) and run the `setupwas.sh` script has read-write access to the WebSphere Application Server configuration root files. This user ID must also have permission to run the WebSphere Scripting Client script (`wsadmin.sh`).
2. Make sure the user ID you use to run `setupwas.sh` is a member of the same UNIX group as the servant user ID. Because this user ID will create the ITCAM for WebSphere runtime directories for the server, the servant user ID must also have read-write access to these directories.
3. Make sure the user ID you use to run `setupwas.sh` fulfills the requirements for Secure Sockets Layer (SSL) security.

Background Information for Step 3

When Global Security is enabled, SSL security is always used by the administrative subsystem to secure administrative commands, the WebSphere Application Server administrative console, and communications between WebSphere Application Server processes (which includes the `wsadmin.sh` scripting facility). SSL support always provides a mechanism by which the server proves its identity.

In addition, SSL support on WebSphere Application Server for z/OS allows the following ways for a client to prove its identity:

- Basic authentication (also known as SSL Type 1 authentication), in which a client proves its identity to the server by passing a user identity and password known by the target server
- Client certificate support, in which both the server and client supply digital certificates to prove their identities to each other

For the client to authenticate the server, the server (actually, the controller user ID) must possess a signed certificate created by a certificate authority. The server passes the signed certificate to prove its identity to the client. The client must possess the CA certificate from the same certificate authority that issued the

certificate of the server. The WebSphere Application Server customization dialogs generate jobs that, among other things, define the user IDs for the various WebSphere Application Server regions (Deployment Manager, Node Agent, Server Controller, and Servant tasks). These jobs also specify user IDs that can be used to log on to the WebSphere Application Server administrative console. The RACF® customization jobs create key rings for each of these user IDs and connects certificates to them. You can use one of these user IDs to perform the ITCAM for WebSphere Data Collector setup if it also has the necessary permissions to access the WebSphere Application Server configuration files mentioned in Step 1.

Procedure for Step 3

If you do not already have a user ID with the necessary permissions and certificates, you can define one. Perform the following procedure:

1. Find the following information:
   - The user ID and group of the WebSphere Application Server servant started task.
   - The name of the CA certificate that was used to sign the server certificate of the controller user ID. (If configuring a server in a Network Deployment, find the name of the CA certificate that was used to sign the Deployment Manager server certificate).

   If you do not know the group ID of the servant ID, issue the TSO RACF command LISTUSER (LU) for servant task owner. This shows that the group default group name for the ID is WSCFG1.
2. Define a user ID that you use exclusively for running the ITCAM for WebSphere setup configuration using the TSO RACF command ADDUSER (AU). The TSO segment for this user profile is required if you intend to run the ITCAM for WebSphere setup from TSO OMVS or with a batch job. This same user ID will be used for the ITCAM for WebSphere JMX client (See Step 7 for information about how to manually define the user ID and password for the ITCAM for WebSphere JMX client).
3. Create a keyring for this user ID, and have the cell signing CA certificate placed on it, as follows:

   ```
   RACDCERT ID(ITCAMWS) CONNECT -
   (RING(WASKeyring) LABEL('WebSphereCA') CERTAUTH)
   ```

   Access to keyrings and certificates is protected by RACF by a set of profiles in the FACILITY class. Although the keyring is associated with the user ID, the user must have READ authority to the `IRR.DIGTCERT.LISTRING` profile in order to access its keyring. The user must also have 'READ' access to the `IRR.DIGTCERT.LIST` profile to be able to access its certificate.
4. If you selected Use SAF EJBROLE profiles to enforce J2EE roles during security domain setup in the WebSphere Application Server Customization Dialogs, make sure the user ID you use to run `setupwas.sh` has READ access to the EJBROLE administrator profile. The following administrative roles were defined by the customization jobs:

   ```
   RDEFINE EJBROLE (optionalSecurityDomainName.)administrator UACC(NONE)
   RDEFINE EJBROLE (optionalSecurityDomainName.)monitor UACC(NONE)
   RDEFINE EJBROLE (optionalSecurityDomainName.)configurator UACC(NONE)
   RDEFINE EJBROLE (optionalSecurityDomainName.)operator UACC(NONE)
   ```

   Ideally, your user ID will be a member of the servant ID group, which is already granted permission to these profiles.

5. For any RACF classes whose profiles have been added or modified, refresh the RACF cache. An authorized RACF administrator must issue the following command:

   ```
   SETROPTS RACLIST(classname) GENERIC(classname) REFRESH
   ```

6. Use the WebSphere Scripting Client directly to see if the user ID is set up correctly. From a z/OS UNIX System Services session, change to the bin directory of WebSphere Application Server and issue the following command:

   ```
   ./wsadmin.sh –user itcamws –password itcamws
   ```

   You will see the following messages if the user ID is set up correctly. This example is from a Network Deployment environment:

   ```
   WASX7209I: Connected to process "dmgr" on node PLEX1Manager using SOAP
    connector;
   The type of process is: DeploymentManagerWASX7029I:
   ```

   For help, enter:

   ```
   "$Help help"
   <wsadmin>
   ```

   Enter **quit** to terminate the WebSphere Scripting Client.

7. If needed, change the user ID and password used by the ITCAM for WebSphere JMX client. The `setupwas.sh` script configures the ITCAM for WebSphere Data Collector JMX client security using the user ID and password that you supply in the `setupwas.sh` script parameters `–user` and `–password`. If you want to change the user ID and password used by the JMX client, perform the following procedure:

   a. Before running the `amcrypto.sh` script, set the JAVA_home and DATACOLLECTOR_home environment variables. For example,

      ```
      JAVA_home=/usr/lpp/java/J1.4
      export JAVA_home
      DATACOLLECTOR_home=/usr/lpp/itcam/WebSphere/DC
      export DATACOLLECTOR_home
      ```

      The value for DATACOLLECTOR_home is the directory where the Data Collector is installed.

   b. Run the `amcrypto.sh` script from the ITCAM for WebSphere bin directory (The default is `/usr/lpp/itcam/WebSphere/DC/bin`.) to encrypt the password, as follows:

      ```
      amcrypto.sh -encrypt itcampw
      ```

      Your encrypted value is: 127-32-236-237-43-36-114-16

   c. Set properties for your user ID and encrypted password in the *DATACOLLECTOR_home*`/runtime/`*appserver_version.node_name.server_name* */appserver_version.node_name.server_name*`.datacollector.properties` file, as follows:

      ```
      appserver.userid=your_userid
      appserver.password=your_encrypted_password
      ```

KYNM001E KYNALSRD: SERVICE=IXGCONN(CONNECT) FOR LOGSTREAM

The problem: The following messages show up at startup in `RKLVLOG` for Tivoli Enterprise Monitoring Agent for ITCAM Agent for WebSphere Applications on z/OS:

```
KYNM001E KYNALSRD: SERVICE=IXGBRWSE(END) FOR LOGSTREAM=WAS.ERROR.LOG
FAILED WITH RC=8, REASON=0000082D, DEBUG1=, DEBUG2=
KYNM001E KYNALSRD: SERVICE=IXGCONN(CONNECT) FOR LOGSTREAM=WAS.ERROR.LOG
FAILED WITH RC=4, REASON=00000407, DEBUG1=, DEBUG2=
(0000-C8376623:kynlogscr.cpp,204,"KynWasLogScrapper::getEntries") ERROR:
kynalsrd(G) failed (rc 8, status 84D0000)
```

The cause: Tivoli Enterprise Monitoring Agent for ITCAM Agent for WebSphere Applications on z/OS expects the WebSphere log stream to be defined and set with the name in the WebSphere variables. Check the SYSOUT file for the z/OS WebSphere task for this setting:

```
ras_log_logstreamName: Not Set
```

or

```
ras_log_logstreamName: WAS610.ERROR.LOG
```

If the value is "Not Set", the preceding messages is displayed.

The solution: Create the WebSphere log stream and assign the variable.

z/OS: Problem with amupdate.sh script after making changes in the cynlogging.properties file

The problem: After making changes in the cynlogging.properties file in the runtime directory,cynlogging.properties file doesn't move back to the runtime directory when you run the amupdate.sh script.

The solution: Install the UK33975 PTF and rerun the amupdate.sh script.

z/OS: Diagnosing ITCAM Data Collector configuration problems with global security

The problem: Installing ITCAM for Application Diagnostics on z/OS with Global Security enabled may result in errors during the configuration of the application server.

The solution: The ITCAM Data Collector configuration process uses the WebSphere Application Server administration scripting client, wsadmin.sh to configure the WebSphere Java Virtual Machine properties and services. The scripting client connects to an admin server or the Deployment Manager (in Network Deployment) using a SOAP connection. When Global Security is enabled, the administration service requires an authenticated user ID and password to be supplied in order to execute the configuration script. In addition, since SOAP transport is HTTP, the underlying TCP/IP connection is established using Secure Sockets Layer (SSL). This protocol uses a private-public key authentication mechanism, which on z/OS uses RACF to store the SSL certificates.

If configuration problems are encountered using the setupwas.sh script, try using the wsadmin.sh script directly. The setup script requires a SUPERUSR connected ID, but also have access to the SSL digital certificates. Refer to the WebSphere Security Handbook for further information.

To configure zWebSphere in security enabled environment:

1. Go to WAS_INSTALL_ROOT/AppServer/bin
2. Try SOAP connection:

   ```
   wsadmin.sh -user username -password pass
   ```

3. If the connection to the server instance succeeds, go to ITCAM Data Collector install_root/WebSphere/DC/bin:

```
setupwas.sh -user $username -password $pass
```

4. If the connection to the server instance fails, try wasadmin.sh -user username -password pass -conntype RMI -port yourRMIport (default 2809).
5. Go to ITCAM DC install_root/WebSphere/DC/bin

```
setupwas.sh -user $username -password $pass -conntype RMI -port yourRMIport
```

6. If you do not succeed in step 4, resolve the WebSphere problem before configuring the data collector.

Note: If you install on WebSphere V6R1, your install ID uid=0 need to be connected to Admin keyRing. Refer to your WebSphere configure prefix.DATA(BBOWBRAK).

z/OS: Configuration user can not read FFDC and other log files

The problem: The user who configures the Data Collector on z/OS is unable to read FFDC (First Failure Data Capture) and other ITCAM related log files.

The solution: The user who configures the Data Collector (for example, WSADMIN:WSCFG1) is different from the user under which the WebSphere Application Server servant address space is running (for example, ASSR1:OMVS). This address space creates log files with read/write access for the user and group, but no access for other users (`u=rw,g=rw,o=X`).

To allow the WSADMIN user to read the log files, either add the WSADMIN user to the OMVS group, or configure RACF (or another z/OS security facility) to run the WebSphere Application Server servant address space under a user that is a member of the WSCFG1 group. If other user/group names are used, modify the actions accordingly.

Do not change the log file permissions to allow all users to read the files, as they may contain sensitive information.

z/OS Data Collector: Request metrics and method trace data do not appear

The problem: When class preloading is enabled, request metrics and method trace data do not appear.

The solution: If class preloading is enabled for WebSphere on z/OS, then you must delete the .preload file for the WebSphere Application Server process when you change instrumentation in the bcm.properties or userbcm.xmlfilename files. When the process next starts up, a new class preload file is generated for your application classes based on the latest instrumentation.

To check whether class preloading is enabled verify whether `-Dibm.websphere.preload.classes=true` for Generic JVM arguments on the Java Virtual Machine page.

z/OS Data Collector: Protocol Timeout

The problem: You have a transaction that is hung or too slow.

The solution: You need to do this to avoid an abend:

1. Log in to the WebSphere Application Server Administration Console.
2. Navigate as follows:
   a. Select the **Server** → **Application Servers** option and select the server you want to configure for use with ITCAM for Application Diagnostics.

b. Navigate to **Process Definition → Control → Additional Properties**.
c. Select **Environment Entries**.
d. Add the following properties, as name/value pairs. Select **OK** after each add operation:

Table 6. Add properties to Data Collector Environment Entries

Name	*Suggested Minimum Value*
protocol_http_timeout_input	3600
protocol_http_timeout_output	3600
protocol_http_timeout_output_recovery	SESSION
protocol_http_timeout_persistentSession	3600

3. In the **Messages** dialog box, select **Save**.
4. In the **Save to Master Configuration** dialog box,
   - If you are under ND environment, be sure the check box **Synchronize changes with Nodes** is selected and then select **Save**.
   - If you are NOT under ND environment, simply select **Save**.
5. You can verify your configuration data in */WAS_directory/server/*was.env.

Chapter 3. Troubleshooting: ITCAM Agent for J2EE

The following are troubleshooting tips and techniques for problems that occur during installation, configuration and running of ITCAM Agent for J2EE.

Installation and configuration

The following are troubleshooting tips and techniques for problems that occur during installation and configuration.

Data Collector

The following are troubleshooting tips and techniques for problems that occur during installation and configuration of the Data Collector.

Cannot connect to JBoss server when configuring the Data Collector for JBoss 4.2.0 or higher

The problem: When configuring the Data Collector for JBoss 4.2.0 or higher, the following error message is displayed after entering the JBoss Server and Java home details:

```
Cannot connect to the JBoss server.
Make sure that the JBoss is running or check whether the Server Host/Port specified
are correct. Please be sure of that JNP service is not only bound on localhost
and JNP service should be able to be connect via domain name like
testdomain.com:1099
```

The reason: Before JBoss version 4.2.0, JBoss always bound to any address, for example, 0.0.0.0. For security reasons, when using JBoss 4.2.0 or later, you need to explicitly state the address.

The solution: If you want to use 0.0.0.0 as your JBoss address, start the JBoss server by passing the following parameters to the startup script:

For UNIX, use:

```
./run.sh -b 0.0.0.0
```

For Windows, use:

```
run.bat -b 0.0.0.0
```

Note: You are advised to secure your JBoss instance when using the server in production.

Data Collector configuration fails

The following content provides solutions when the Data Collector configuration fails.

Net Weaver Data Collector cannot be configured

The problem: Net Weaver Data Collector configuration fails when the Data Collector is installed in an English locale but configured in a Turkish locale.

The solution: Re-install the Data Collector in a Turkish locale.

WebLogic 9 Data Collector configurator cannot create Startup/Shutdown class

The problem: The Data Collector configurator cannot create the Startup/Shutdown class. The admin server returns an error like:

```
weblogic.management.provider.EditFailedException: [Management:141201]
Unable to modify the configuration using the compatibility MBean server
as other changes are pending.
Activate the pending changes before modifying the configuration with the
compatibility MBean server.
```

The solution: The WebLogic 9 configuration is locked by the admin console, try to release the configuration lock from admin console and try again. Restart the WebLogic server after you try this.

WebLogic Data Collector cannot be configured with Weblogic 9 and JRocket

The problem: When configuring WebLogic Data Collector with Weblogic 9 and JRocket, the configuration process fails.

The cause: This problem is caused by the WebLogic 9 admin console. Data Collector configurator is unable to add, update, or remove the MBean while the meta repository is locked by the admin console.

The solution: Unlock the WebLogic 9 application server by clicking **Release Configuration** in the Change Center panel of the admin console before configuring the Data Collector. If there are pending changes, save your changes and then click **Activate Changes** in the Change Center panel.

WebLogic Server rejects Data Collector configuration - JNDI connection

The problem: The WebLogic Server rejects the Data Collector configuration JNDI connection and reports **Certificate chain receieved from <ip> was incomplete** on the console. But from the admin console, the SSL attribute **Two Way Client Cert Behavior** has been set to **Client Certs Not Requested**.

The solution: Change the attribute **Two Way Client Cert Behavior** to **Client Certs Request But Not Enforced** and save it. Then change the attribute value to **Client Certs Not Requested**.

Data Collector installation fails

The following content provides solutions when the Data Collector installation fails.

Data Collector installation fails when the system has a wrong mount

The problem: The Data Collector installation fails when the system has a wrong mount.

The solution: InstallShield uses the UNIX *df* command to check disk space on the target computer. User corrects the wrong mount indicated by the df command and restarts the installation process.

Data Collector installation or configuration fails

The problem: The directory *DC_home*/runtime is not created and the start-up script or other files on application server side are not modified for Data Collector support.

The solution: For a GUI installation, a message panel will pop up to show detailed error information. Check this message to find if the prerequisite conditions are not met.

For a silent installation, please check installation log files and find messages with log level ERROR or WARN.

Net Weaver Data Collector installation or configuration fails

The problem: The Data Collector for Net Weaver installation fails or fails to start after installation.

The reason: Verify that you have the correct configuration for Net Weaver, the following text outlines the names, details, and locations for Net Weaver configuration files:

- File: jvm_config.xml
  - Details: Follow Net Weaver rules to define the JVM settings of Data Collector for Net Weaver into Database.
  - Location: *NetWeaver Server Home*/j2ee/configtool
- File: default_jvm_config.xml
  - Details: Follow Net Weaver rules to reserve the default JVM settings of Net Weaver Application Server before configuring Data Collector or unconfiguring Data Collector from Net Weaver Application Server.
  - Location: *NetWeaver Server Home*/j2ee/configtool
- File: BatchConfig.bat/BatchConfig.sh
  - Details: Use these scripts to import the JVM settings of Data Collector for Net Weaver into the database.
  - Location: *NetWeaver Server Home*/j2ee/configtool
- File: sap.com~tivoli.sda
  - Details: Tivoli service component to be deployed into Net Weaver server
  - Location: *NetWeaver Central Instance Home*/SDM/program
- File: config.bat/config.sh/unconfig.bat/unconfig.sh
  - Details: These scripts call Batchconfig.bat/BatchConfig.sh and deploy the Tivoli service component into the Net Weaver Application Server. They also config/unconfig all Data Collector settings for the Net Weaver server
  - Location: *NetWeaver Central Instance Home*/SDM/program
- File: Tivoli Service Directory
  - Details: This directory contains jar files packed in the Tivoli service component.
  - Location: *NetWeaver Central Instance Home*/j2ee/cluster/server[N]/bin/services/tivoli
- File: config.log
  - Details: The logs produced when configuring/unconfiguring the Data Collector for Net Weaver.
  - Location: *CYN_LOGS*/config.log

The solution: If the `std_server[N]` log, reports Xrun library *am_xx_xx.dll* or *am_xx_xx.so* cannot be found:

- On Windows: Check if the dll path (*DC_home*`/toolkit/lib/`*platform*) is added into the Windows System Path.
- On UNIX/Linux: Check if the OS path of the Data Collector is appended with `DIR_OS_LIBS` in Net Weaver `START_`*INSTANCE_NAME_HOST_NAME* script.

Oracle Data Collector Installation/configuration fails

The problem: After installing the Data Collector, the Oracle instance cannot startup.

The solution: If the instance log reports that *Xrun library am_xx_xx.dll* or *am_xx_xx.so* cannot be found, make sure that your Oracle instance is recycled properly.

If the Oracle instance is on Windows 2000 and the instance log file reports maximum command length exceeded, check your Java options in your *opmn.xml* and remove some unnecessary parameters. Another solution to exceeding maximum command length is to install your Data Collector with a shorter file system path like */opt/oracleDC* or *C:\DC*.

Data Collector for WebLogic server instance cannot be unconfigured

The following content provides solutions when the Data Collector for WebLogic server instance cannot be unconfigured.

Data Collector for WebLogic server instance cannot be unconfigured after the listening port of the WebLogic domain administration server is changed

The problem: WebLogic server instance cannot be unconfigured after the listening port of the WebLogic domain administration server is changed. During the unconfiguration process, the following message is reported:

```
Cannot connect to weblogic server, please make sure the server is running,
and check host/port parameters.
If connecting to weblogic over SSL, please check SSL client CA trust keystore file,
and client certification files/types/password also.
```

The solution: Perform the following steps to unconfigure the Data Collector manually:

1. From the administration console of the WebLogic domain administration server, remove the WebLogic server instance from the target server list of Startup Class **AM Startup**. If the server list of Startup Class **AM Startup** is empty, it can be removed as well.
2. From the administration console of the WebLogic domain administration server, remove the WebLogic server instance from the target server list of Shutdown Class **AM Shutdown**. If the server list of Shutdown Class **AM Shutdown** is empty, it can be removed as well.
3. Stop the WebLogic server instance.
4. Remove ITCAM Data Collector JVM arguments from the WebLogic server instance startup script.
   - If the WebLogic server instance is started by a script file or is run as a Windows Service:
     a. Open the startup script file.

b. Search and locate the lines with the keywords "**DC for Weblogic support--begin**"and "**DC for Weblogic support--end**" and delete all the content between the above two lines from the file.

- If the WebLogic server instance is started from the NodeManager:
  a. Open WebLogic administration console in a browser. Navigate to the server instance's **Configuration** panel.
  b. Click the table **Remote Start** (WebLogic 8) or **Server Start** (WebLogic 9 or 10)
  c. For WebLogic 8, remove the following arguments from Arguments:

```
-Xbootclasspath/p:DC_home/toolkit/...
-DCCLOG_COMMON_DIR=...
-Xrunam_sun(ibm/bea)_14:...
-Dcom.ibm.tivoli.jiti.injector.IProbeInjectorManager=...
-Dcom.ibm.tivoli.jiti.injector.ProbeInjectorManagerChain.
  primaryInjectorFile=...
```

  d. For WebLogic 9 or 10, remove the following arguments from Arguments:

```
-Xbootclasspath/p:DC_home/toolkit/...
-DCCLOG_COMMON_DIR=...
-agentlib:am_sun(ibm/bea)_15=...
```

5. If the WebLogic server instance is installed as a Windows Service, it is required to re-install the Windows service. To do so, run the script `uninstallService.cmd` first and then the script `installService.cmd` in the WebLogic domain directory
6. Remove the instance directory from the Data Collector home directory. The path is *DC_home*`/runtime/wls`*Server_Version.Domain_Name.Computer_Name.Instance_Name*
7. Remove the configuration properties file for the WebLogic server instance
   a. Go to the directory *DC_home*`/installer/_uninst/configured/wls`.
   b. For each properties file starting with the name config, for example, `config636300264.properties`, search for the keyword `RUNTIME_DIR=`*DC_home*`/runtime/wls`*Server_Version.Domain_Name.Computer_Name.Instance_Name*.
   c. If the keyword is found, delete the file. Note there should be only one file to be deleted
8. The unconfiguration process is completed. You can start the WebLogic server instance now

Data Collector for WebLogic server instance cannot be unconfigured after the password of the WebLogic domain administrator is changed

The problem: Data Collector for WebLogic server instance cannot be unconfigured by the Configuration Tool after the password of the WebLogic domain administrator is changed.

The reason: The Configuration Tool is using the old password to connect to the WebLogic domain administration server, as the password is stored locally in a configuration file by the Configuration Tool.

The solution: Use the password updater program to update the stored password.

To launch the password updater program in GUI mode:

1. From *DC_home*`/itcamdc/bin` directory, run the script `password_updater.sh` (or `password_updater.cmd` on Windows).

2. On the panel, select the WebLogic instance in which the user name and password need to be updated.
3. Enter the new user name and password.
4. Click the **Update** button to finish the process.

To launch the password updater program in silent mode:

- From *DC_home*/itcamdc/bin directory, run the script password_updater.sh (or password_updater.cmd on Windows).

  Syntax:

  ```
  password_updater.sh (or password_updater.cmd on Windows)
  -instance=instance_name -username=user_name
  -password=password
  ```

  where:

  instance_name is the name of the WebLogic server instance in the format of wls*server_version.domain_name.computer_name.instance_name*. For example, wls8.fp3test.tiv119.myserver.

  user_name is the new JMX user name

  password is the new JMX password

Failed to create the default Data Collector log path

The problem: After running the *setup_DC_win32.exe file*, the installation program displays an incorrect Data Collector log path, *C\:\Program Files (x86)\ibm\tivoli\common*, in the log path window. The installation program cannot write to this path.

The reason: The problem is caused by this entry in the *C:\Program Files (x86)\ibm\tivoli\common\cfg\log.properties* file:

```
tivoli_common_dir=C\:\\Program Files (x86)\\ibm\\tivoli\\common
```

The installation program obtains the default log path from this entry and then tries write to this path.

The solution: After removing the *C:\Program Files (x86)\ibm\tivoli\common\cfg\log.properties* file, the installation program will display the correct default log path in the log path window and it will create the new *log.properties* file in the *C:\Program Files (x86)\ibm\tivoli\common\cfg* directory with the following entry:

```
tivoli_common_dir=C:/Program Files (x86)/ibm/tivoli/common
```

For more information, see *Installing the Data Collector by InstallShield Wizard* in the *ITCAM for J2EE Data Collector Installation and Configuration* guide.

Messages displayed during a silent installation

The following content provides information about the messages displayed during a silent installation.

No message is displayed where they might be considered necessary

The problem: No error or informational message is displayed in the following circumstances:

- During a silent installation, if the IBM JDK or JRE is not found or does not have the correct permission, the installation process fails without any error messages.

- In silent installation on UNIX or Linux systems, no information is displayed in the Java console.
- When installing the Data Collector using an invalid option file (that is, the file does not exist), the installation stops without displaying an error message. No error message is displayed in the `trace_install.log` or `log.txt` file.

The cause: It is part of the design of the InstallShield and the purpose of silent installation mode that there is no output on the console and no user interaction during the installation. Specifying an options file that does not exist causes a failure prior to the installer initialization, so there is no opportunity for the installer to write the error to a log file.

The solution: You can attach **-is:log** ***log file*** to your command line, where *log file* is the directory and the file name for the log file. For example: `./setup_DC_lin.bin -silent -options ./silent/DC61_netweaver.opt -is:log log.txt`

Warning messages are displayed when using silent installation for the Data Collector on AIX

The problem: When using silent installation for the Data Collector on AIX, the following messages are displayed:

```
-cp:p operand is empty
-cp:a operand is empty
Installer JAR archive is not embedded.
Build time Java arguments are not specified.
Run time Java arguments are not specified.

Warning: internal error parsing Java arguments. Launcher command may be
missing Java Arguments. LOADP not set
```

The solution: This is a result of the routine check by the installation program. Ignore this warning message. It does not affect the installation and configuration process.

Non-root user configuration problems

The following content provides information about non-root user configuration problems.

Error messages are displayed on the console when installing or configuring ITCAM agent for WebSphere Applications or J2EE as a non-root user on the AIX system

The problem: Error messages are displayed on the console when you run ITCAM agent for WebSphere Applications or J2EE installation or configuration as a non-root user on the AIX system.

The reason: The problem was caused by lacking of the required access to create the System Preference control files.

The solution: You can use either of the following way to solve this problem:

- Run ITCAM WebSphere Application Server/J2EE Installation or Configuration as a root user.
- Navigate to the `/usr/java14/.private142/jre/.java/.systemPrefs` directory and assign the write permission to the non-root user, create this directory if it does not exist.

Non-root Data Collector configuration cannot lock system preferences

The problem: When using a non-root user to install and configure the Data Collector, system preferences cannot be locked. The following error is displayed in the console:

```
java.lang.SecurityException: Could not lock System prefs. Lock file access denied.
at java.util.prefs.FileSystemPreferences.
 checkLockFile0ErrorCode(FileSystemPreferences.java:937)
at java.util.prefs.FileSystemPreferences.lockFile(FileSystemPreferences.java:926)
at java.util.prefs.FileSystemPreferences.sync(FileSystemPreferences.java:732)
at java.util.prefs.FileSystemPreferences.flush(FileSystemPreferences.java:825)
at java.util.prefs.FileSystemPreferences.syncWorld(FileSystemPreferences.java:476)
at java.util.prefs.FileSystemPreferences.access$1200(FileSystemPreferences.java:51)
at java.util.prefs.FileSystemPreferences$4.run(FileSystemPreferences.java:437)
at java.util.TimerThread.mainLoop(Timer.java:447)
at java.util.TimerThread.run(Timer.java:397)
```

The reason: This is a limitation of JRE, please reference http://bugs.sun.com/bugdatabase/view_bug.do?bug_id=4438983

What to do if you tried to install and configure the Data Collector using a non-root user that did not have permissions to write to the temporary directory

The problem: The configuration will fail if you used a non-root user that did not have permissions to write to the temporary directory. You must perform the following procedure to correct this issue and perform a subsequent successful configuration of the Data Collector.

The solution:

1. Undo your initial (failed) configuration of the Data Collector by using the Configuration Tool (config_dc.sh script) to unconfigure it. See the installation and customization guide for details.
2. Perform one of the following:
   - Give the non-root user ID read and write access to the /tmp and /var/tmp directories:
     a. Log on as root and give the non-root user ID read and write access to /tmp.
     b. If your operating system is HP or Solaris, give the non-root user ID read and write access to /var/tmp also.
     c. Remove all files and directories under /tmp and (HP or Solaris only) /var/tmp.
   - If you have concerns about removing all files under /tmp and (HP or Solaris only) /var/tmp, specify a different temporary directory:
     a. Modify the *DC_home*/config_dc/config_dc.sh file. Add the following parameters to the file:

        ```
        -Dtemp.dir=<tmp_dir>
        -Djava.io.tmpdir=<tmp_dir>
        ```

        where <tmp_dir> is the directory you want the Configuration Tool to write to. The user for the installation should have read, write, and execute privileges to this directory.
3. Run the Configuration Tool (config_dc.sh script) to configure the Data Collector. See the installation and customization guide for details.

Restarting the application server after installing Data Collector for WebSphere Application Server Community Edition 1.1.0.2 on Windows platform generates error messages

The problem: After installing Data Collector for WebSphere Application Server Community Edition 1.1.0.2 on Windows platform, restarting the application server generates following error messages and Java core dump files are created in <*WASCE_HOME*>/bin directory

Module 21/22 geronimo/collector-tool-agent-tomcat/1.1.1/car[JarFileClassLoader@c 6b83c] abort trouble in:

public class org.apache.geronimo.collectortool.servlet.CollectorServlet extends javax.servlet.http.HttpServlet implements javax.servlet.Servlet:

The solution: This problem is due to Sun JVM bug 5097856. Please update Sun JDK 1.5 with update 1 or above. For further information, refer to http://bugs.sun.com/bugdatabase/view_bug.do?bug_id=5097856

The monitoring agent

The following are troubleshooting tips and techniques for problems that occur during installation and configuration of the Tivoli Enterprise Monitoring Agent.

Tivoli Enterprise Monitoring Agent fails to start with error message "ERROR: required environment variable KWJ_PROD is not set"

The problem: Tivoli Enterprise Monitoring Agent fails to start with error message `ERROR: required environment variable KWJ_PROD is not set` in the native Tivoli Enterprise Monitoring Agent log file after it is upgraded to a newer release or fix pack.

The solution: To solve the problem, perform these steps:

1. From the management console, select **Manage Tivoli Services** → **Advanced** → **Unconfigure**.
2. Select **Manage Tivoli Services** → **Advanced** → **Configure using defaults**.

Running ITCAM Agent for J2EE

The following are troubleshooting tips and techniques for problems that occur when running the ITCAM Agent for J2EE.

Data Collector

The following are troubleshooting tips and techniques for problems that occur when running the Data Collector.

Error messages occur in the log files after installing the JVMTI interim fix on Sun JDK 1.5.0

The problem: If you have Sun JDK 1.5.0 and have installed the JVMTI interim fix for the Data Collector, log error messages like the following one will occur when you restart the application server:

```
java.lang.StackOverflowError
at
sun.reflect.generics.reflectiveObjects.TypeVariableImpl.getBounds
 (TypeVariableImpl.java:114)
```

This indicates an unsuccessful configuration of the Data Collector.

The solution: Upgrade the JDK version to Sun JDK 1.5.0_6 or later.

Attempts to start WebLogic Portal Server 10 using Sun JDK 1.5 or HP JDK 1.5 produce out-of-memory error messages

The problem: When attempting to start WebLogic Portal Server 10 using Sun JDK 1.5 or HP JDK 1.5, it fails and produces error messages similar to the following:

```
java.lang.OutOfMemoryError: PermGen space
```

The solution: If your WebLogic Portal Server 10 is using Sun JDK 1.5 or HP JDK 1.5, set the JVM parameter *MaxPermSize* to *-XX:MaxPermSize=512M* or above.

CICS Transaction Gateway (CTG) Common Client Interface (CCI) Transactions not correlated

The problem: When applications on distributed systems (that is all systems except z/OS and IBM i) use the Common Client Interface (CCI) for CICS Transaction Gateway (CTG), transactions cannot be correlated between ITCAM Agent for WebSphere Applications or J2EE Data Collector and ITCAM for Transactions Data Collector.

The cause: This problem happens because the CCI adapter does not honor the *outboundDataLen* setting.

The solution: Do not enable correlation when tracing CCI CICS transactions. Transactions using CCI can be eliminated from correlation using the *ctg.filters* file. See the installation guide for further details.

Custom Mbean does not function when the category name is in lowercase

The problem: Custom Mbean does not function when the category name is in lower case.

The solution: For a custom Mbean to function, a category name must be in uppercase letters, with no blank spaces, numbers or special symbols in the name.

Data Collector fails to start

The following content provides solutions when the Data Collector fails to start.

Data Collector fails to start on WebLogic 8 cluster

The problem: After the Data Collector is successfully installed and configured on the WebLogic 8 cluster, both WebLogic and the Data Collector cannot be restarted.

The solution: This happens when WebLogic server instance is started by different JDKs. For example, the first time it might be started with BEA JDK and the second time SUN JDK. Because the Data Collector configuration is JDK specific, reconfigure the Data Collector to collect the correct JDK vendor information after you change the JDK.

Tomcat Data Collector does not start after installation and configuration

The problem: After the Tomcat Data Collector is installed and configured, the Data Collector does not start.

The solution: The problem is the result of the limited page size of AIX. Sometimes after a Data Collector is installed on AIX, the Data Collector issues an Out of

Memory (OOM) error and stops. In this case, determine whether the AIX page size is large enough. If it is not, set the AIX system environment with the following shell command:

```
export LDR_CNTRL=MAXDATA=0x30000000
```

Note: The value of 0x30000000 is provided as an example only. You must determine the correct value to set based on your environment.

Before you install the Tomcat Data Collector, determine whether the IBM 64-bit JDK 1.4 has data size limitations that might cause an Out of Memory error while a large application is processed. If it has data size limitations, run the following command:

```
ulimit -d unlimited
```

WebSphere Community Edition Data Collector startup fails

The problem: After installing the Data Collector, WebSphere Community Edition cannot startup.

The solution: Search in *<SERVER_HOME>/var/log/geronimo.out* (on Linux) or console printout (on Windows) and see if there is a *Port already in use: <port>* exception. This exception means that another program (for example another WebSphere Community Edition instance) has occupied that port.

Either shutdown the other program to release the port or modify *<SERVER_HOME>/var/config/config.xml* and set another port number.

When the *shutdown.sh* command finishes executing on Linux, there is a delay (approximately 15 seconds) before the process is fully shut down. Use the command *ps ef | grep java* to make sure the process is fully shut down before restarting the server.

DB2-related applications cannot be deployed on Oracle 9 after the Data Collector is configured

The problem: When the Data Collector is installed and configured on an instance, the DB2-related applications cannot be deployed on Oracle 9.

The solution: This problem is the result of the ClassLoader structure. Put the DB2 JDBC driver in a different location from the JRE's ext directory to avoid this problem.

J2SE Data Collector has JAVA Null Exception Errors

The problem: The following error displays when you configure the Data Collector. The command line in Windows displays the following error:

```
"setLogPath:C:\PROGRA~1 java.lang.NullPointerException at null.null(Unknown
Source)"
```

The reason: This is a caused by the Install shield GUI not being able to handle keyboard shortcuts.

The solution: This will not affect the installation or configuration of the product.

J2SE Data Collector custom request fails

The problem: J2SE Data Collector custom request fails to capture any requests on the Managing Server side.

The solution: There may be no default edge request type in the J2SE Data Collector. To enable custom requests, edit the *custom_request.xml* and *toolkit_custom.properties* files, to allow J2SE to capture custom functions and show them on the VE side by specific request name.

JBoss Data Collector throws java.lang.NoClassDefFoundError exception during server start

The problem: During server start, JBoss Data Collectors throws the following exception:

```
java.lang.NoClassDefFoundError: javax/resource/cci/Connection
```

The reason: JBoss application server provides JCA service implementation such as *javax/resource/cci/Connection*. There is a conflict when both the J2EE application and JBoss application server includes the same JCA service implementation.

The solution:Since JCA service implementation is already provided by JBoss application server, the solution is to remove the conflicting class in the J2EE application.

Net Weaver: Cannot get request data from CTG/IMS/MQI library

The problem: Cannot get requests from CTG/IMS/MQI if CTG/IMS/MQI is a library.

The solution: Make sure there are bidirectional references between the Tivoli service component and the CTG/IMS/MQI library component. To do this, check if there is a reference (which defines the reference from those components to the Tivoli service) in the CTG/IMS/MQI Library component, and add a reference (which defines the reference from the Tivoli service to the CTG/IMS/MQI Library) in the Tivoli service component.

For example, for CTG jars deployed as a CTGLIB library into NetWeaver App Server, perform the following steps:

1. Start the J2EE Engine Visual Administrator and connect it to the J2EE Engine.
2. Click **Server -> Services -> Configuration Adapter Service.**
3. Click the **Runtime -> Display Configuration** tab
4. Choose the **Edit mode** option.
5. Select **cluster_data -> server/dispatcher -> cfg -> ext/interfaces/services -> <component_name>-provider.xml.** In the dialog box that appears, add the following component reference into the configuration of the relevant component:

   ```
   <reference type="service" strength="weak">
   tivoli
   </reference>
   ```
6. Select **cluster_data -> server/dispatcher -> cfg -> ext/interfaces/services -> <component_name>-provider.xml**. In the dialog box that appears, add the following component reference into the configuration of the relevant component:

   ```
   <reference type="library" strength="weak">
   CTGLIB
   </reference>
   ```
7. Click **OK** to save your changes.
8. Restart the corresponding cluster element.

No Heap Dump available on Solaris JDK1.5

The problem: No heap dump available on Solaris JDK 1.5.

The solution: perform the following steps:

1. Add "internal.doheapdump=true" in *DC_home*/runtime/*.*.*/ *.datacollector.properties.
2. Make sure JDK version is above 1.5.0_01

Data Collector uses JVMTI instead of JVMPI to get HEAPDUMP information. From version 1.5.0_01, SUN JDK 1.5 on Solaris supports HEAPDUMP in JVMTI.

Port number of the request URL in the Request/Session Object Link is incorrect on an Oracle Data Collector

The problem: When invoking some requests on an Oracle AS , the port number of the Request URL displayed on the Request/Session Object page is sometimes not consistent with the actual request URL.

The reason: For Oracle Application Servers, the Data Collector displays the recommended port of Oracle HTTP Server in the Request URL. If you do not have Oracle installed with WebCache, the port number of the Request URL that is displayed will be the recommended port of the Oracle HTTP server. Refer to Oracle HTTP Server Administrator Guide and Oracle Knowledge Base (Note: 256923.1) for more information.

Server fails to start

The following content provides solutions when the server fails to start.

Server fails to start after configuring the Data Collector for Oracle

The problem: On Windows Server 2003 R2 Enterprise x64 Edition Service Pack 2, after configuring the Data Collector for Oracle, the server instance fails to start with the following message in the log file:

"Error occurred during initialization of VM Could not reserve enough space for object heap"

The reason: Windows Server 2003 R2 Enterprise x64 Edition Service Pack 2 fails to reserve sufficient object heap for 32-bit JVM process when it tries to load a dynamic-link library before startup.

The solution: Change the maximum JVM heap size to a smaller value. For Oracle application server, this value is specified in opmn.xml by "-mx" or "-Xms" parameter.

WebLogic Portal 8 cannot start server from Windows service

The problem: For WebLogic Portal 8, starting the server as a Windows Service in production mode: cannot start the server from Windows Service after configuring the Data Collector.

The solution: Find the cache files (on the directory *{wldomain}\{wlinstance}\ .wlnotdelete\extract*) and remove the following directories:

- *{wlinstance}_console_console {wlinstance} _uddi_uddi*
- *{wlinstance}_uddiexplorer_uddiexplorer*
- *{wlinstance}_wl_management_internal1_wl_management_internal1*

- *{wlinstance}_wl_management_internal2_wl_management_internal2*

JBoss fails to start

The problem: JBoss fails to start after running the **Start_Application_Server** command.

The reason: The JBoss *run.bat* script uses pipe (|) Windows shell commands to *grep* (*findstr*) on the Java -version output. This is probably linked to how Windows Shell (and the pipe command in particular) operates when executed on behalf of Windows services.

The solution: Comment out pipe commands in *run.bat*. However, if a Sun JDK is being used, than commenting out problem commands will cause JBoss to start without the -server option. So the -server option must be added manually, as per the following procedure:

1. Remove or comment out the following line in the *run.bat* file.
   ```
   %JAVA%" -version 2>&1 | findstr /I hotspot > nul
   ```
2. Add the following line to the *run.bat* file:
   ```
   set JAVA_OPTS=%JAVA_OPTS% -server
   ```

The Data Collector on Sun IAS 6.5 cannot read garbage collection events when using the custom JVM launcher

The problem: The Data Collector on Sun IAS 6.5 cannot read garbage collection (GC) events when using the custom JVM launcher. To enable reading of GC, you must modify the startup script.

The reason: Sun IAS 6.5 uses the custom JVM launcher's .kjs files. The custom launcher ignores the JVM verbose gc argument (-verbosegc). Thus the Data Collector cannot read GC log events from the standard output redirect file.

The solution: Manually change the startup script file in the *<AppServer_home>/bin/kjs* directory. Remove the # from the line for the standard Java launcher as follows:

```
$JAVA_HOME/bin/java ${JAVA_ARGS} com.kivasoft.engine.Engine $opts
```

WebLogic does not function after the Data Collector is installed

The problem: After installing the Data Collector, WebLogic does not function and displays the error message `Too many open files`.

The solution: Increase the value of *rlim_fd_cur* and *rlim_fd_max* in file /etc/system based on your specific system configuration. For example, set both of the values to 4096:

```
# set hard limit on file descriptors
set rlim_fd_max = 4096
# set soft limit on file descriptors
set rlim_fd_cur = 4096
```

The monitoring agent

This chapter provides information about problems you might encounter when running the monitoring agent (Tivoli Enterprise Monitoring Agent), along with either the reasons for the restrictions or suggested procedures for working around them.

Tivoli Enterprise Monitoring Agent on Windows Vista fails to start without administrator rights

The problem: Tivoli Enterprise Monitoring Agent on the Windows Vista system fails to start when you do not run it with administrator rights.

The cause: Inadequate user rights.

The solution: Grant administrator rights by carrying out the following steps:

1. Right-click the **Manage Tivoli Monitoring Services**.
2. Click **Properties** → **Compatibility** → **Run this program as an administrator**.

Tivoli Enterprise Monitoring Agent fails to start or recycle the server

The problem: The Tivoli Enterprise Monitoring Agent fails to start or recycle the server when running a memory-intensive Java application in a 32-bit Java virtual machine (JVM). The error message JVMST018 shown below will appear in the native_stderr.log file.

```
# ./java -version -Xms128M -Xmx2048M
[ **Out of memory, aborting** ]
[  ]
[ *** panic: JVMST018: Cannot allocate memory for
initializeMarkAndAllocBits(allocbits1) ]
```

The cause: This problem occurs because the maximum Java heap size for the J2EE Application server is set to a value that is too large.

The solution: Lower the maximum heap size.

Tivoli Enterprise Monitoring Agent stops because of lack of memory

The problem: The Tivoli Enterprise Monitoring Agent reports the following errors:

- java.lang.OutOfMemoryError: JVMCI015:OutOfMemoryError, cannot create anymore threads due to memory or resource constraints
- java.lang.OutOfMemoryError: JVMST017: Cannot allocate memory in initializeMarkAndAllocBits(markbits1)

The reason: These error messages indicate that the Tivoli Enterprise Monitoring Agent is experiencing a high load and lack of available memory.

The workaround: To resolve this problem, do one of the following:

- Disable the memory limit by issuing the **ulimit -d unlimited** command and the **ulimit -m unlimited** command before the Tivoli Enterprise Monitoring Agent starts.
- Increase the Java heap size for the Tivoli Enterprise Monitoring Agent by setting the -Xmx256m parameter for the Java Options in the Tivoli Enterprise Monitoring Agent Java properties file.

Note: Refer to http://www.ibm.com/developerworks/java/jdk/diagnosis for more information about Java troubleshooting tips.

Chapter 4. Troubleshooting: ITCAM Agent for HTTP Servers

This chapter provides information about problems you might encounter when running the ITCAM Agent for HTTP Servers, along with either the reasons for the restrictions or suggested procedures for working around them.

Note:

ITCAM Agent for HTTP Servers is known as ITCAM agent for Web Servers in the former versions.

Tivoli Enterprise Monitoring Agent fails to start or recycle the server

The problem: The Tivoli Enterprise Monitoring Agent fails to start or recycle the server when running a memory-intensive Java application in a 32-bit Java virtual machine (JVM). The error message JVMST018 shown below will appear in the native_stderr.log file.

```
# ./java -version -Xms128M -Xmx2048M
[ **Out of memory, aborting** ]
[  ]
[ *** panic: JVMST018: Cannot allocate memory for
initializeMarkAndAllocBits(allocbits1) ]
```

The cause: This problem occurs because the maximum Java heap size for the J2EE Application server is set to a value that is too large.

The solution: Lower the maximum heap size.

Tivoli Enterprise Monitoring Agent on Windows Vista fails to start without administrator rights

The problem: Tivoli Enterprise Monitoring Agent on the Windows Vista system fails to start when you do not run it with administrator rights.

The cause: Inadequate user rights.

The solution: Grant administrator rights by carrying out the following steps:

1. Right-click the **Manage Tivoli Monitoring Services**.
2. Click **Properties** → **Compatibility** → **Run this program as an administrator**.

Tivoli Enterprise Monitoring Agent stops because of lack of memory

The problem: The Tivoli Enterprise Monitoring Agent reports the following errors:

- java.lang.OutOfMemoryError: JVMCI015:OutOfMemoryError, cannot create anymore threads due to memory or resource constraints
- java.lang.OutOfMemoryError: JVMST017: Cannot allocate memory in initializeMarkAndAllocBits(markbits1)

The reason: These error messages indicate that the Tivoli Enterprise Monitoring Agent is experiencing a high load and lack of available memory.

The workaround: To resolve this problem, do one of the following:

- Disable the memory limit by issuing the **ulimit -d unlimited** command and the **ulimit -m unlimited** command before the Tivoli Enterprise Monitoring Agent starts.
- Increase the Java heap size for the Tivoli Enterprise Monitoring Agent by setting the -Xmx256m parameter for the Java Options in the Tivoli Enterprise Monitoring Agent Java properties file.

Note: Refer to http://www.ibm.com/developerworks/java/jdk/diagnosis for more information about Java troubleshooting tips.

Web Servers Summary view does not display the new server name

The problem: Web Servers Summary view does not display the new server name after the server name has been changed.

The solution: Restart Tivoli Enterprise Monitoring Agent after changing the server name. The new name will then be shown in the Web Servers Summary view.

Chapter 5. Troubleshooting: Tivoli Enterprise Portal

This chapter provides information about possible problems during installing, running or configuring the user interface (Tivoli Enterprise Portal) for the agents. Some problems listed are universal and not related to specific agents.

Agent node cannot be found after reconfiguration

The problem: After unconfiguring the ITCAM Agent for WebSphere Applications with "No TEMS" option-selected, restart WebSphere Application Server and configure the agent again. However, the WebSphere Agent node cannot be found in Tivoli Enterprise Portal.

The cause: This problem is caused by wrong protocols. The default protocol of the agent is IP.PIPE. But if you unconfigure the agent with "No TEMS" option selected and then reconfigure the agent, the default protocol changes to TCP/IP.

The solution: Set the protocol to IP.PIPE when reconfiguring the agent.

Application Server subnode not available

The problem: Tivoli Enterprise Monitoring Agent to Data Collector connection fails and the application Server subnode is not available in Tivoli Enterprise Portal.

The solution: Check connection between the Tivoli Enterprise Monitoring Agent and the Data Collector:

1. Check that the physical socket connection between the Tivoli Enterprise Monitoring Agent and the Data Collector exists. You can use the net stat utility to check. For example, using the command **bash-2.05b# netstat -a | grep 63335**, the following table shows that the Tivoli Enterprise Monitoring Agent has established a connection with one application server:

Table 7. Tivoli Enterprise Monitoring Agent Connections

localhost.41576	localhost.63335	49152	0 49152	0 ESTABLISHED
localhost.63335	localhost.41576	49152	0 49152	0 ESTABLISHED
*.63335	*.*	0	0 49152	0 LISTEN

2. If socket connection is not established, check that the Data Collector is configured correctly. The *DC_home*/runtime/*platform.node.server*/*platform.node.server*.kwjdc.properties properties file should have two properties uncommented and set as follows:

```
com.ibm.tivoli.kwj.agentport=63335
com.ibm.tivoli.kwj.agenthostname=127.0.0.1
```

3. If the Tivoli Enterprise Monitoring Agent listen port is not bound, check the Tivoli Enterprise Monitoring Agent configuration in GUI or command-line mode.

Automatic threshold and history problems after upgrading

The problem: After an upgrade to ITCAM for Application Diagnostics, the following problems might happen:

- Enable_Auto_Threshold Take Action fails. It might return code 3.
- Automatic request time threshold values are not set correctly.
- Automatic request time threshold values and application baselining data are lost.
- Automatic baselining for some applications does not start.
- History may not be visible.

The solution: On the Tivoli Enterprise Monitoring Agent host, delete the following files after an upgrade to ITCAM for Application Diagnostics:

- For ITCAM Agent for WebSphere Applications, when upgrading from ITCAM for WebSphere or ITCAM for Web Resources:
  - On Windows, *ITM_home*\TMAITM6*hostname*_appmon_yn.ctx and *ITM_home*\TMAITM6*hostname*_yn*_baseline.ctx.
  - On Linux and UNIX systems, *ITM_home*/config/*hostname*_appmon_yn.ctx and *ITM_home*/config/*hostname*_yn*_baseline.ctx.
- For ITCAM Agent for J2EE, when upgrading from ITCAM for J2EE version 6.1.0.4 (6.1 Fix Pack 4) or earlier or from ITCAM for Web Resources version 6.2.0.4 (6.2 Fix Pack 4) or earlier :
  - On Windows, *ITM_home*\TMAITM6*hostname*_appmon_yn.ctx and *ITM_home*\TMAITM6*hostname*_yj*_baseline.ctx.
  - On Linux and UNIX systems, *ITM_home*/config/*hostname*_appmon_yn.ctx and *ITM_home*/config/*hostname*_yj*_baseline.ctx.

After you delete the files, a baselining process to collect the data is started automatically for all applications.

You do not need to delete the files for ITCAM Agent for HTTP Servers.

Cannot see the hover help in summary workspace

The problem: In Tivoli Enterprise Portal, when you multiselect two or more icons in a summary workspace the hover (flyover) help is not displayed.

The cause: In the **WebSphere Agent - Primary node** → **Workspace** → **WebSphere Agent Summary** → **View** → **Application Servers Status**, if you click an individual icon in a summary workspace, for example, Applications or Resources, you will see hover help information relating to the icon. If you click more than one icon simultaneously and then click one icon, or click the white space around an icon, the hover help information is not displayed. This problem applies to the following icon views in summary workspaces:

- Applications
- Resources
- WebSphere Agent Summary Status
- Application Server Summary

The solution: To resolve the problem, click another workspace and then enter the summary workspace from the **WebSphere Agent - Primary node** again and click icons once at a time.

Dashboard table filter cannot handle informational situations

The problem: There is no way to distinguish nodes where an informational situation has been fired in the dashboard table view in Tivoli Enterprise Portal. Although an informational situation has been opened for a node, it is still green coded and its status is 'Harmless'. As a result, you will not be able to find nodes with informational situations and separate them from other nodes in the dashboard.

The reason: It works as designed. Not all statuses can be handled by the informational filter in the dashboard, although their values are shown and can be selected in the filter.

Historical view problems

The following content provides information about historical view problems in Tivoli Enterprise Portal.

Historical views in the Application Server workspace show no historical data

The problem: The ITCAM for Application Diagnostics agent historical views within the Application Server workspace are not displayed if the Tivoli Enterprise Monitoring Agent host and the Tivoli Enterprise Portal server host are out of sync. There are two possible reasons for this problem:

- Two history collection samples might not yet have been collected for display.
- The date and time on the computers that run the Tivoli Enterprise Monitoring Agent, the Tivoli Enterprise Monitoring Server, and the Tivoli Enterprise Portal server were not synchronized.

The solution:

- If the history collection samples have not been collected, wait for at least three collection intervals for data to be reported by the Tivoli Enterprise Monitoring Agent. The default collection interval is 30 minutes.
- Make sure that the date and time on the computers that run the Tivoli Enterprise Monitoring Agent, the Tivoli Enterprise Monitoring Server, and the Tivoli Enterprise Portal server are synchronized.

Some historical data is not automatically collected

The problem: After Tivoli Enterprise Monitoring Agent has been successfully installed, some workspaces do not automatically report historical data. Also, alert icons are displayed on the screen.

The workaround: The following procedures might resolve the problem:

1. Click the **History Collection Configuration** button in the Tivoli Enterprise Portal.
2. In the **Select a product** scroll-down list, select **ITCAM for Application Diagnostics** as the product.
3. In the **Select Attribute Groups** scroll-down list, select the attribute groups for which you want to view historical data. Click the **Show Default Groups** button at the bottom of the page
4. Select the corresponding check boxes in the **Configuration Controls** panel, and click the **Configure Groups** button.

5. Click **Show Default Groups** again.
6. Click **Start Collection**.

There might be a delay before historical data is displayed in Tivoli Enterprise Portal. This delay might be as much as twice as long as the historical collection interval time.

History is not visible after upgrading

The problem: After upgrading to ITCAM for Application Diagnostics, history is not visible in the Tivoli Enterprise Portal.

The solution: On the Tivoli Enterprise Monitoring Agent host, after an upgrade to ITCAM for Application Diagnostics, you need to delete the following files:

- Windows, *ITM_home*\TMAITM6*hostname*_yn*.ctx
- Linux and UNIX systems, *ITM_home*/config/*hostname*_yn*.ctx

Issues arising out of Attribute name changes

The problem: In the **KYNREQUEST** table, the following four attribute names were changed:

Table 8. Attribute name changes in **KYNREQUEST** *table*

Attribute names present	Equivalent names for old versions
Request health	Request Delay Type
Client Tier Health	Client Tier Delay Type
Application Tier Health	Application Tier Delay Type
Backend Tier Health	Backend Tier Delay Type

This may cause issues when upgrading from old versions to ITCAM for Application Diagnostics. Areas of particular concern are:

1. Customized workspaces or situations that depend on the attributes listed.
2. Historical and Tivoli Data Warehouse (TDW) data.

The reason: This name has been changed in ITCAM for Application Diagnostics.

The solution: The solution depends on the symptom:

- For problems with customized workspaces or situations that depend on the attributes listed, you must re-work workspace or situation definitions to use up-to-date attribute names.
- For problems with Historical and TDW data, you must reset/restart historical data collection/TDW (for example, both short and long term) for the specified KYNREQUEST table, refer to the IBM Tivoli Monitoring manuals for further details.

ITCAM Agent for WebSphere Applications shows disconnected in workspace server summary

The problem: ITCAM Agent for WebSphere Applications workspace "WebSphere Agent" and workspace view "Application Servers Summary" shows status of disconnected for a server subnode name. In the "WebSphere Agent" workspace you will see a status of disconnected for a server subnode name but the WebSphere Application Server JVM will actually be running.

The cause: An un-configuration for the ITCAM Data Collector as a WebSphere Application Server was performed and then the Data Collector was re-configured for WebSphere Application Server Portal Server. A restart of the JVM is needed between these two activities.

The solution: Delete the *hostname*`yn.ctx` file in the *ITM_home* directory.

ITLM agent not installed

The problem: When starting the WebSphere agent, in the **WebSphere Agent-Primary → WebSphere Agent Events** window on the portal, an information notice appears, stating:

```
KYNA0040I ITLM License status:ITLM_AGENT_NOT_INSTALLED
```

The reason: ITLM agent is IBM Tivoli License Manager, this message is returned when ITLM is either not installed or available.

The workaround: This is an information message and should not affect the operation of the WebSphere agent. However, if you wish to prevent recurrence this message, you must install the ITLM.

Manually removing the Tivoli Enterprise Portal Server database and TEPS2 ODBC driver

The question: How to remove Tivoli Enterprise Portal Server database and TEPS2 ODBC driver in a Windows environment?

The answer: To force removal of the Tivoli Enterprise Portal Server database and the TEPS2 ODBC driver in a Windows environment, perform the following steps:

1. Invoke the **Add or Remove Programs** function in **Control Panel** to uninstall all IBM Tivoli Monitoring components, including the Tivoli Enterprise Monitoring Agent.
2. Click **Start → Programs → IBM DB2 → General Administration Tools → Control Center**.
3. Expand **Systems → *hostname* → instances → DB2 → Databases**.
4. Right-click **Tivoli Enterprise Portal Server**, and select **Drop** from the pop-up menu.
5. Click **Settings → Control Panel → Administrative Tools → Datasources (ODBC)**.
6. Click the **System DSN** tab.
7. Select the TEPS2 data source, and click **Remove**.
8. Reboot your node.

Not reporting data problems

The following content provides information about not reporting data problems in Tivoli Enterprise Portal.

Datasources workspace is blank

The question: Why does the Datasources workspace in Tivoli Enterprise Portal for Tivoli Enterprise Monitoring Agent for ITCAM for WebSphere Applications contain no data?

The answer: Check the following points:

1. Tivoli Enterprise Monitoring Agent and Data Collector code level must be a supported combination, as per fix packs readme files.
2. Datasources must be defined in the WebSphere;
3. Tivoli Enterprise Monitoring Agent Monitoring Level must be set to L2;
4. JDBC collection must be enabled for instrumentation. That is, in *DC_home*/runtime/*svr*/custom/toolkit_custom.properties, make sure that com.ibm.tivoli.itcam.toolkit.ai.enablejdbc=true. If this setting does not exist in your toolkit_custom.properties, it is set to true by default;
5. Sampling rate on the Tivoli Enterprise Monitoring Agent side needs to be high enough. For Request Data to be displayed in workspaces, enough user transactions have to be monitored and collected by the Request Aggregator in the Data collector. The Request Collection Sampling Rate (%) setting determines how many requests have to be sampled. If the user load is low and this percentage is set to 2% (the default value), then it is likely that the time duration between transactions getting monitored is large. Hence, these workspaces might not display data for a long time. If you suspect that the Request Collection Sampling Rate is the cause, you can set it to 100% and see if the workspace is populated with data;
6. The application must use Datasources via J2EE Connectors. Consult the application developer to determine if your application uses J2EE connectors to attach to the DB, or its own code. Even if data sources are defined in WebSphere Application Server, the application still might not be using them if the application attaches using its own code. If the application is using WebSphere Application Server data sources and you see SQL activity on the Resource Analysis Tivoli Enterprise Portal workspace, then you can see something on the datasource workspace.

EJB Modules workspace and JCA Connection Pools workspace show no data

The question: Why is there no data on EJB Modules workspace and JCA Connection Pools workspace on Tivoli Enterprise Portal?

The answer: This problem is a limitation of JBoss 5.1. The **JCA connection Pools**, **EJB Modules**, and **Servlets/JSPs → Web Application** tables do not report any data because some MBeans are missing in JBoss 5.1.

Empty workspaces with message KFWITM217E

The question: Some workspaces in Tivoli Enterprise Portal related to ITCAM Agent for WebSphere Applications Monitoring Agent are empty and show error message KFWITM217E.

The answer: KFWITM217E is a generic message and you need to check the return code (rc) to understand the actual root cause of the message. Where do you look up this return code? Usually it is reported as appended text to the error message in the same workspace or on its bottom status area.

For example:

```
KFWITM217E Request error: SQL1_OpenRequest failed rc=3000
```

The root cause will likely be an incorrect Historical Data Collection configuration for those historical views showing the problem.

Check if the historical data collection is started on Tivoli Enterprise Portal for the Attribute Groups used in the view that is showing the error.

Note: EJB Containers → Container transactions and **EJB Containers → Container objects Pools** in Tivoli Enterprise Portal do not enable historical data collection by default.

For **rc=3001** it probably means that Historical Data Collection is properly configured and started already but there are no still data available to be shown in the view.

Please make sure there is activity for those data sources and wait for a time at least equal or greater than the Collection Interval specified.

Garbage Collector analysis not reporting data

The problem: The GC analysis workspace depends on the GC log collection feature, which is (optionally) enabled during GC configuration. If GC log collection is not enabled, then only few metrics (PID and Java heap sizes) will be reported from this workspace.

The solution: By default, GC analysis is configured with a 60 second, fixed collection interval; take this into account when navigating into a linked workspace (Allocation Failures, GC Cycles, etc.). Allocation Failures/GC Cycle workspaces are supported for IBM JVM only. For JVM 1.3, ensure that the GC log file location is defined in the *<DC_home>/runtime/<platform.node.server>/<platform.node.server>.kwjdc.properties* properties file, as follows:

```
# Set this for JDK 1.3 where GC log file name can't be
# specified on the command line
TEMAGCCollector.gclog.path=C:/PROGRA~1/ibm/tivoli/common/CYN/logs/gc.log
```

Log Analysis table shows no data on IBM i 5.4

The question: Why does the Log Analysis table show no data after installing ITCAM Agent for WebSphere Applications on IBM i 5.4?

The answer: It is a limitation. Log Analysis table is not available because Tivoli Enterprise Monitoring Agent is not supported on IBM i systems.

No data returned for Lock Analysis

The problem: In the Web User Interface of ITCAM for WebSphere Applications, select **Problem Determination → Server Activity Display → Lock contentions**, and the following error message is received:

```
CYNVE0850E: There are no classes instrumented for lock analysis.
```

The solution: Check the following points:

- Data Collector must be running at L2 or L3 monitoring level;
- Lock analysis must be enabled, specifically the file *DC_home*/runtime/*app_server_version*.*node_name*.*server_name*/custom/toolkit_custom.properties must contain the following lines:

  ```
  am.camtoolkit.gpe.customxml.lock=/opt/IBM/itcam/WebSphere/DC/itcamdc/etc/lock_
  analysis.xml com.ibm.tivoli.itcam.toolkit.ai.enablelockanalysis=true
  ```

  and file *DC_home*/itcamdc/etc/lock_analysis.xml must exist.
- If the code level is Fix Pack 4 or higher, you must make sure that the *DC_home*/runtime/*app_server_version*.*node_name*.*server_name*/custom/*datacollector.properties file contains the following lines, which have been introduced together with Lock Analysis Enhancements:

  ```
  The following properties define how much data Lock Analysis will collect at
  various MOD levels.

  internal.lockanalysis.collect.LN.lock.events = true | false
  indicates whether or not lock acquisition and release events
  will be collected at MOD level 'N' (1, 2, or 3).

  internal.lockanalysis.collect.LN.contend.events = true | false | justone
  indicates whether or not lock contention events
  will be collected at MOD level 'N' (1, 2, or 3). If this
  property is set to a value of 'justone', it indicates that only
  one pair of contention events is created for a request that encounters
  contention acquiring a lock. If this property is set to a value of
  of 'true', then multiple pairs of contention records may be created,
  if there are multiple threads that acquire the lock prior to the request.

  internal.lockanalysis.collect.LN.contention.inflight.reports = true | false
  indicates whether or not the inflight lock contention report is
  supported from the System Activity Display at MOD level 'N'
  (1, 2, or 3).
  ```

  The default settings are as follows:

  ```
  internal.lockanalysis.collect.L1.lock.events=false
  internal.lockanalysis.collect.L1.contend.events=false
  internal.lockanalysis.collect.L1.contention.inflight.reports=false

  internal.lockanalysis.collect.L2.lock.events=true
  internal.lockanalysis.collect.L2.contend.events=true
  internal.lockanalysis.collect.L2.contention.inflight.reports=true

  internal.lockanalysis.collect.L3.lock.events=true
  internal.lockanalysis.collect.L3.contend.events=true
  internal.lockanalysis.collect.L3.contention.inflight.reports=true
  ```

Resource metrics not reported

The problem: Resource analysis metrics are not reported

The reason:

- PMI workspaces report data in on-demand collection mode with a 30 second sample age - unlike request and GC workspaces which have fixed intervals.
- For WebSphere, make sure that PMI is enabled in application server configuration.
- Some workspaces are available for specific WebSphere Application Servers versions only:

- Enhanced PMI (Alarm Manager, DCS Stack, Platform Messaging, and so on.) are available for WebSphere Application Server 6.0 or higher.
- Workload Management workspaces are not available for WebSphere Application Server Base releases.

Request metrics not reported

The problem: Request analysis metrics are not reported.

The solution: Check your Tivoli Enterprise Monitoring Agent configuration for the request monitoring enabled and sampling rate value. By default, the sampling rate is 2, which means that only 2% percent of all requests (randomly selected) are measured.

Selected Request or Datasource/JMS Summary workspaces not reporting data

The problem: Selected Request or Datasource/JMS Summary workspaces do not report data.

The solution: By default, request monitoring is configured for fixed interval collection (60 second expiration interval), take this into account when navigating through workspaces. If you still have this problem, check the request monitoring level in your Tivoli Enterprise Monitoring Agent configuration. By default it is set to Level 1, which means that only edge request times are measured, increase this to Level 2 in order to display data in these workspaces.

Statistics in the Selected Application Summary not always present

The problem: In the "Selected Application Trend at L1" view and "Selected Application Trend at L2/L3" view, the statistics in the Selected Application Summary table are not always present.

The solution: It works as designed. The statistics are only displayed in this table when you are accessing the application.

Problems on Situations in Tivoli Enterprise Portal

The following content provides solutions to the problems of Situations in Tivoli Enterprise Portal.

Identifying default Situations that come with ITCAM Agent for WebSphere Applications Monitoring Agent

The problem: How can I see what the default Situations are with the ITCAM Agent for WebSphere Applications Monitoring Agent?

The solution: Perform the following steps to identify what default Situations come with the product:

1. Log in to the Tivoli Enterprise Portal Server console and view the agents on the left panel.
2. Highlight the **WebSphere Agent - Primary** on your Tivoli Enterprise Portal Server console and click the **Situation** icon. This brings up a new window with a list of default Situations.

3.

Some Situations cannot be triggered automatically

The problem: For ITCAM for Application Diagnostics 7.1, some Situations (for example, WASReqSQLQueryTimePercentHigh) cannot be triggered automatically when the condition is satisfied.

The cause: Some Situations are not started automatically by default.

The solution: Perform the following steps:

1. Log on to the Tivoli Enterprise Portal and open the agent.
2. Right-click on the WebSphere Application Server instance node.
3. Select **Manage Situations**.
4. Find the Situation in question and right-click **Status** to select **Start**.

The time that a situation is issued is different from the time of the event

The problem: The time when situations are issued in Tivoli Enterprise Monitoring Server is different from the actual time that the events occurred in the Tivoli Enterprise Monitoring Agent. This problem occurs when the time of the Tivoli Enterprise Monitoring Agent and the time of Tivoli Enterprise Monitoring Server are not synchronous.

The workaround: Synchronize your Tivoli Enterprise Monitoring Agent time and Tivoli Enterprise Monitoring Server time.

Wrong attribute groups associated with Situations in ITCAM Agent for WebSphere Applications

The problem: When using IBM Tivoli Monitoring 6.2.1 with ITCAM Agent for WebSphere Applications, the wrong attribute groups are associated with Situations.

The cause: This problem is a Tivoli Enterprise Portal limitation. It affects all situation definitions that use UTF-8 string data type attribute for display-item, and causes the wrong attribute group to be displayed for default Situations in the Situation Editor.

The solution: You must re-create the Situation from the beginning when this type of modification is necessary.

Request failed during execution (KFWITM220E)

The problem: WebContainer Pool Usage, ORB Pool Usage, Web Container Pool%, ORB Pool % at Max in the PoolAnalysis workspace displays the following error:

```
KFWITM220E Request failed during execution.
```

The cause: These errors are related to Performance Monitoring Infrastructure (PMI) level (basic) being enabled for ITCAM Agent for WebSphere Applications. The PMI resource data is not available in historical views and causes these errors to occur. Whenever the PMI collection level is set so that threadPoolModule.percentMaxed metric is not collected the user will see these errors in ITCAM Pool Analysis workspace.

The solution: Change PMI from Basic to ALL, then restart the WebSphere Application Server. To change the PMI level you will need to access the admin console and change it there. For additional information on PMI levels refer to the following link:

http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1/index.jsp?topic=/com.ibm.websphere.nd.doc/info/ae/ae/rprf_dataorg.html.

Resource IDs displayed instead of English language strings

The problem: Resource IDs are displayed instead of English language strings in Tivoli Enterprise Portal when using a Tivoli Enterprise Portal Server on Linux.

The solution: Perform the following procedure:

1. On the machine for the Tivoli Enterprise Portal Server, find and open the cnp.sh file.
2. Add one of the following values to the CLASSPATH variable:

   For the WebSphere monitoring agent: *$<KCJ_LIB>/kyn_resources.jar*

   For the J2EE monitoring agent: *$<KCJ_LIB>/kyj_resources.jar*

   For the Web Servers monitoring: *$<KCJ_LIB>/kht_resources.jar*
3. Save your changes to the *cnp.sh* file, here *ITM_home/Platform_code/cj/bin*, for example */opt/IBM/ITM/li6263/cj/bin* for RHEL.
4. Stop and start the Tivoli Enterprise Portal Server.

Time span icons are missing

The problem: Time span icons are missing in some views on the Tivoli Enterprise Portal. For example, when the Container Transactions history is not enabled, you may find that there are no time span icons in the Container Transactions - Rates view.

The solution: Enable the history function to make time span icons available.

Tivoli Enterprise Portal browser client fails with error "CMWApplet notinited"

The problem: When opening the Tivoli Enterprise Portal browser client, the load fails with error "`Applet: CMWApplet notinited`".

The workaround: The following actions might resolve the problem:

1. Uninstall the IBM Java 1.4.2 plug-in by invoking the installer from the Java installation path, such as `\IBM\ITM\cnb\java\ibm-java2.exe`.
2. Reinstall the Java 1.4.2 plug-in from the Java installation path, such as `\IBM\ITM\cnb\java\ibm-java2.exe`.
3. Clear the Internet Explorer offline files and cookies: Access Internet Explorer's Internet Options, and on the General page take the following actions:
   - Delete cookies
   - Delete offline files
   - Clear history
4. Access Internet Explorer's Internet Options, and on the Advanced page, clear the **Use Java 2 v1.4.2 for *applet*** option.

5. From the Java plug-in's Control Panel, Advanced page, select the Java Runtime Environment. Change the value from **Use Java Plug-in Default** to **JRE 1.4.2 in `C:\Program Files\IBM\Java142\jre`**.

If this procedure does not resolve the problem, use the Tivoli Enterprise Portal desktop client instead or contact IBM support.

The Failed Login Rate Metric displays 0 on Sun Web site

The problem: The Failed Login Rate Metric displays 0 on Sun Web site.

The solution: Configure the Sun Web Server by doing the following steps:

1. Create `C:\Sun\WebServer6.1\docs\secure`.
2. In the admin console click **Manage** after you select a server.
3. Click **Restrict Access** on the left panel of the **Preferences** page, and click **OK** in the window that follows.
4. In **A. Pick a resource** of the **Access Control List Management**, click **Browse**, and then select **Secure** directory.
5. Click the **Edit access control**, select **Access control is on** checkbox..
6. Ensure that the **Action** field value is **Deny** and the **Users** field value is **anyone**.
7. Click **Submit**.
8. Click **Apply** on the right top corner of the admin console.
9. Click **Apply changes**.

The Tivoli Enterprise Monitoring Agent JMX connection socket binding is reported incorrectly

The problem: In some circumstances, the status of the Tivoli Enterprise Monitoring Agent JMX connection socket binding is reported incorrectly.

The reason: By default, the Tivoli Enterprise Monitoring Agent listens to the incoming Data Collector connections on port 63335, which you can customize during configuration. If the Tivoli Enterprise Monitoring Agent fails to receive incoming connections from the Data Collector, check whether the Tivoli Enterprise Monitoring Agent socket interface was properly configured and initialized. The possible reason is that another application is listening to the same port as the Tivoli Enterprise Monitoring Agent does. This can lead to lose connection requests from the Data Collector.

The solution: In order to resolve this problem, perform the following steps:

1. Check the Tivoli Enterprise Monitoring Agent message log or the Agent Event workspace in Tivoli Enterprise Portal for the status of socket server initialization. The Tivoli Enterprise Monitoring Agent issues message KYNA0009 or KWJ0027A when socket interface initialization is successful.

   Note: On the Windows platform, message KWJ0027A might not be issued when another application is listening on the same port. Use system utilities (such as Netstat) to determine whether a socket conflict has occurred.
2. Re-configure your Tivoli Enterprise Monitoring Agent listening port. For information about how to re-configure ITCAM for Application Diagnostics Agent listening port, refer to *ITCAM Agent for WebSphere Applications Installation and Configuration Guides* or *IBM Tivoli Composite Application Manager: Agent for J2EE Monitoring Agent Installation and Configuration Guide*.

The Oracle application server displays incorrect port number in the Request Name column

The problem: In the Request Name column, the Tivoli Enterprise Monitoring Agent displays the request URLs with port numbers. You might find that the port number in the Request Name column is different from the port number you entered in the Web explorer.

The reason: This problem occurs when the Oracle application server does not have Web Cache installed.

The workaround: To resolve this problem, do one of the following:

- Install the Oracle Web Cache.
- Ignore the incorrect port number, because it is essentially the same as the port number used internally by the Oracle application server.

The version of the HTTP Server is wrong on Tivoli Enterprise Portal

The question: Why is the version of the HTTP server wrong in the Server Summary table on Tivoli Enterprise Portal?

The answer: The HTTP server version displayed in the Server Summary table is obtained from Apache 'apachectl -V' output. Apache web server reports its version as 'UNIX' on both Linux and UNIX systems, and 'Win32' on Windows systems.

Tomcat JDBC Connection Pools is always 0 on REC

The problem: When configuring DataSources with administration Web application provided by Tomcat, you cannot get the related MBean from the MBeanServer. On the Runtime Environment Check page and the Runtime Environment Comparison page, the value of JDBC Connection Pools is always 0. However the value should not be 0. This problem occurs on Tomcat server 5.0 only.

The workaround: This problem does not occur in Tomcat 5.5.

New Take actions and Situations appear in workspaces for older Tivoli Enterprise Monitoring Agent versions

The problem: New situations and take actions, such as Configure, ConfigCancel, and ConfigPing show up in workspaces for the 6.1/6.2 Fix Pack 5 (and earlier) Tivoli Enterprise Monitoring Agent. However, these take actions are only supported in ITCAM for Application Diagnostics 7.1 and later.

This is an issue for systems running ITCAM for WebSphere 6.1 Fix Pack 5 or earlier, ITCAM for J2EE 6.1 Fix Pack 5 or earlier or ITCAM for Web Resources 6.2 Fix Pack 5 or earlier in conjunction with ITCAM for Application Diagnostics 7.1. The issue is only evident on Tivoli Enterprise Monitoring Agent in the 6.1/6.2 Fix Pack 5 (or earlier) versions.

The reason: The Tivoli Enterprise Portal client does not rely on situation affinity to determine the valid targets for distribution.

The solution: This is a known issue and is actually necessary functionality for some users. You can ignore these Situations and Take Actions if you are running version 6.1/6.2 Fix Pack 5 or earlier in conjunction with version 7.1.

Chapter 6. Troubleshooting: Managing Server

Installation and configuration

The following are troubleshooting tips and techniques for problems that occur during installation and configuration of the Managing Server.

Configuring many WebSphere Application Servers takes a long time

The problem: Configuration of many WebSphere Application Servers takes a long time (for example, 50 servers may take 8 hours).

The reason: This is a limitation of wsadmin. This problem is especially prevalent on AIX.

Core dump error occurs when accessing the Visualization Engine on an Oracle database

The problem: Core dump error occurs when you perform the following actions:

- Run the **klctl.sh dbtest** command.
- Run the **am-start.sh** command.
- Access the Visualization Engine.

The solution: For Oracle OCI driver you must specify *LD_LIBRARY_PATH* and *ORACLE_HOME* system environment variables explicitly before launching the Managing Server and WebSphere Application Server which the Visualization Engine is installed on.

Create application traps in Managing Server Visualization Engine to see ITCAM agents data in RPT version 7 and 8

The problem: Problem Analysis tools in IBM Rational® Performance Tester (RPT) can process and analyze transaction data from ITCAM agents for WebSphere Applications and J2EE through a web service. ITCAM agents for WebSphere Applications and J2EE support RPT version 7.x and 8.x. To see ITCAM agents data in RPT, you can create application traps with method trace data action in Managing Server Visualization Engine (MSVE).

The solution: To configure the Managing Server to work with RPT, complete the following steps:

1. For information about RPT and how to install it, see the following Web site: http://publib.boulder.ibm.com/infocenter/rpthelp/v8r0m0/index.jsp
2. If you have installed the Managing Server with an existing IBM WebSphere Application Server 6.1, enable IBM WebSphere Global Security manually by completing the following steps:
   a. Log on to the IBM WebSphere Application Server administrative console.
   b. Open **Security → Secure administration, applications, and infrastructure → Application security**.
   c. Select **Enable Application Security**.
   d. Click **Apply**.

e. Save your changes.

   For embedded installations of IBM WebSphere Application Server and for all existing IBM WebSphere Application Servers except version 6.1, IBM WebSphere Global Security is automatically enabled during Managing Server installation.

3. Enable method signature tracing.

In RPT, complete the following steps to import transaction data from the Managing Server to RPT:

1. Start IBM Rational Performance Tester - Full Eclipse, from the File menu select **Import**.
2. In the Import window, select **Response Time Breakdown Data** and click **Next**.
3. In the Monitoring Server Host field, enter the VE user name and password.
4. In Web Service Port, select Use port and enter the VE port number, click **Next**.
5. In the Constraints panel, specify the period of time for which you wish to import data, click **Next**.
6. In the Trap window, select a trap to see method trace data.

Display problems during Managing Server installation

The following content provides some solutions to the display problems during Managing Server installation.

Background color of some Java Swing components is white while installing Managing Server

The problem: When installing the Managing Server on Linux/UNIX, the background color of some Java Swing components is white.

The cause: The Managing Server installer is based on Java Runtime Environment 1.5, which may have issues when used in GNOME settings.

The solution: Use KDE instead of GNOME when installing the Managing Server on Linux/UNIX.

Managing Server Installation panel overlaps the pop-up dialogs

The problem: When installing the Managing Server, the installation panel overlaps the pop-up dialogs (for example, the "Cancel Install" dialog) if the installation panel gets focus.

The cause: Managing Server installer is based on Java 1.5. This problem is a limitation of Java 1.5.

The solution: Move the installation panel aside to view the pop-up dialogs.

Progress bar displays as stuck during embedded installations of DB2 and WebSphere Application Server

The problem: The progress bar displays as stuck at a certain position for a long time during the embedded installations of DB2 and WebSphere Application Server.

The reason: This issue is expected. Allow the installation to continue.

Error CYNK0069E: MON_HEAP_SZ occurred while querying or updating records in tables

The problem: The following error message is returned in trace-aal.log and trace-kl1.log when Managing Server is supporting many data collectors:

```
CYNK0069E Database exception com.ibm.db2.jcc.b.SqlException: DB2 SQL error:
SQLCODE: -973, SQLSTATE: 57011,
SQLERRMC: MON_HEAP_SZ occurred while querying or updating records in tables.
```

The solution: Increase the MON_HEAP_SZ to 3072

```
su - [database instance user ID]
db2 update dbm cfg using MON_HEAP_SZ 3072
db2stop
dbstart
```

Failed to start am_start.sh after Managing Server installation on Windows Server 2003 SP1

The problem: After installing the Managing Server on Windows Server 2003 SP1, am_start.sh cannot be run and returns the following error:

```
Memory fault (core dumped)
```

The cause: The "Memory fault (core dumped)" message here means that the SFU fix is not installed. You must install a UNIX shell environment (SFU/SUA) to support Managing Server scripts on Windows platforms.

The solution: Install SFU/SUA according to the instructions on the following Web site: http://publib.boulder.ibm.com/tividd/td/ITCAMMS/prereq61/en_US/HTML/6.1_preinstall_other.htm

Failure to log on to the Managing Server

The following content provides some solutions to the problems you may encounter when logging on to the Managing Server.

Failure to log on to the Managing Server after it is installed on eWAS

The problem: Failure to log on to Managing Server after it is installed on eWAS.

The reason: The Managing Server cannot get the password when it is installed to the components of Tivoli Monitoring.

The solution: Perform the following steps:

1. Before installing Managing Server, you are required to set a new password.
   - For Windows: Open the Tivoli Enterprise Portal Server and select **Actions → Advanced → TEPS/e Administration → TEPS/e Administration Password**.
   - For UNIX or Linux: Enter the **pdateTEPSEPass.sh** *username password* command from the script directory.
2. Restart Tivoli Enterprise Portal Server.

Error CYNVE0002E occurs when logging on to the Managing Server

The problem: During installation of the Managing Server, if you have entered an incorrect DB2 instance port number, you cannot log on to the Managing Server user interface successfully, and the following error message is returned:

```
CYNVE0002E     A system error has occurred.
```

The solution: Perform the following steps:

1. Determine the correct port number. Take one of the following actions:

Table 9. Determine correct port number on different systems

Windows	1. Navigate to **Start** → **All Programs** → **IBM DB2** → **General Administration Tools** → **Control Center**. 2. In the left pane, right-click one of the available instances for the local system. 3. Select **Setup Communications**. 4. Click **Properties** to the right of the TCP/IP choice. The port number is listed on the window.
UNIX	1. Open the `/etc/services` file. **Note:** You must have permissions to open the file, which in many cases means that you have to be `root`. 2. Look for the DB2 instance port number towards the bottom of the file. The relevant line of text is like the following line: `DB2_db2inst1  6000/tcp` In this example, *db2inst1* is the name of the DB2 instance and *6000* is the port number for it.

2. If indeed the port number was entered incorrectly during installation, perform the following steps:
   a. Change the DB2 port number in JDBC_DRIVER_URL in *MS_home*`/bin/setenv.sh` to the correct port number.
   b. In the WebSphere Application Server administration console, change the DB2 port number entered in the JDBC setup for the Application Monitor JDBC resource to the correct port number.

FFDC returns a failure during Managing Server installation

The problem: First-Failure Data Capture (FFDC) returns a failure during Managing Server installation, with the following message:

```
Database directory cannot be found on the indicated file system"
or "Unable to get a PooledConnection from the DataSource
```

The reason: The Managing Server installer creates database tables after creating the WebSphere Application Server JDBC. After creating the WebSphere Application Server JDBC, it tries to create the Data Pool. The error message is then returned. This message indicates that the system database directory or local database directory could not be found. A database has not been created or it was not cataloged correctly.

The solution: It is most likely that your system is functioning as designed. Verify that the database was in fact created with the correct path specification. The

Catalog Database command has a path parameter which specifies the directory where the database resides. You can find that the database was in fact created. If so, no action is required. If not, contact IBM support for assistance.

Java not found error occurred during installations from CD

The following content provides some solutions to the Java not found errors during installations from CD.

Installation from CD using LaunchPad: Java not found error message

The problem: Attempting to use the LaunchPad program from CD-ROM installation fails with a `/java: not found` error.

The solution: Change directories to the cdrom/ directory and try the installation again.

Solaris installation from CD: Java not found error message

The problem: You receive a java not found error during installation on Solaris.

The solution: While mounting CDs on Solaris using volume manager, if the path to the CD-ROM device contains a sharp character (#), such as `/cdrom/WMSwin#1`, installation might fail with a java not found error. Unmount the CD-ROM (or eject the CD), remove the entry with the sharp in /vol/dsk, and remount the CD-ROM (reinsert the CD).

Managing Server and embedded installations fail

The problem: Installation of the Managing Server, embedded DB2, or embedded WebSphere Application Server fails.

The solution: See the log files for error information.

Managing Server fails to get WebSphere profile information when upgrading

The problem: When upgrading the Managing Server 6.1 to ITCAM for Application Diagnostic 7.1, the upgrade fails because the installer cannot find WebSphere Application Server profile information.

The cause: When the Managing Server is installed not using the normal methods, the **app.install.path** property in the *MS_home*`/etc/ve.properties` is unset by default, which causes a problem when upgrading.

The solution: To solve this problem, take the following steps:

1. Navigate to the *MS_home*`/etc` directory
2. Open the `ve.properties` file
3. Find the `app.install.path=@{`*App_Install_Path*`}` property
4. Set the value of *App_Install_Path* to the path where the Visualization Engine is installed. For example:

```
app.install.path=c:/IBM/WAS61/profiles/AppSrv01/
  installedApps/MSNode01Cell/ITCAM_Application.ear
```

Managing Server installer hangs at 75% completed

The problem: Managing Server installation hangs at 75% completed during "Installing the Visualization Engine... Restarting WebSphere Application Server...."

The reason: This is a WebSphere Application Server limitation. WebSphere Global Security (GS) is not enabled.

The solution: Enable WebSphere GS manually, then you can install the Managing Server.

Managing Server is started successfully but the connection has problem

The following content provides some solutions when Managing Server is started successfully but the connection has problem.

Managing Server is started successfully but Kernel is shown to be unreachable

The problem: After installing ITCAM for Application Diagnostics 7.1 or upgrading from ITCAM for WebSphere Application Server 6.1 and running am-start.sh, Managing Server is started successfully, but the Enterprise view shows no data. When viewing the diagnostic page, a message shows kernel can't be contacted. There is also a "No such file or directory" message during running am-start.sh.

The cause: This problem is caused by Winzip or zip utility of Windows. When extracting Managing Server installation image using Winzip or zip utility of Windows, the CR/LF(^M) was added automatically to all text files in Managing Server image.

The solution: For Managing Server installation on Windows, you must use WinRAR or utility 7-Zip to extract Managing Server image. Do not use Winzip.

Managing Server is installed successfully but the database cannot be connected

The problem: The installation of ITCAM for WebSphere Managing Server runs successfully, but the database cannot be connected.

Diagnosing the problem: You must still test the database connection even if the installation appears to succeed. The installation program creates a data source. The following procedure tests if the installation was successful.

Note: In the case of an Oracle database, you have to perform the following steps in addition:

1. In the WebSphere Application Server administrative console, expand the tree **Security → JAAS Configuration → J2C Authentication Data**.
2. Click the **WSAM J2C Authentication** data entry.
3. Click **Apply**.

To test the database connection:

1. In the WebSphere Application Server administrative console, expand the tree **Resources → JDBC Providers**.
2. Select the name of the JDBC provider.

3. At the bottom of the page, select **Data Sources**.
4. Place a checkmark in the box next to the correct data source.
5. Click **Test Connection** to verify that ITCAM for WebSphere can connect successfully to the Octigate database.

The solution: If the database is connected successfully, a message will display at the top of the screen.

If the test fails, try verifying the following actions:

- Try to connect to the Octigate database manually using the DB2/Oracle command-line processor.
- Verify the user name, password, and database name. If using Oracle, make sure the URL has the following format:

  `jdbc:oracle:thin:@`*`db_host`*`:`*`port`*`:`*`SID`*

  For example:

  `jdbc:oracle:thin:@perfdb-sun-so1.ibm.com:1521:octigate`
- Verify that the user which is used to start the WebSphere Application Server console has a DB2 or Oracle profile as part of its profile.

Note: If the Managing Server uses an Oracle database and you see SQL syntax errors, check the `ve.properties` file to make sure that `com.cyanea.octigate.database.ORACLE_8I` is set to **Y**, and then restart the Application Monitor. For example:

```
com.cyanea.octigate.database.ORACLE_8I=Y
```

Restoring the WebSphere Application Server configuration

The problem: The installation of the Managing Server fails, and the WebSphere Application Server cannot be restarted.

The solution: Restore the configuration of WebSphere Application Server to its prior values by take the following steps:

Run the script (**UNIX**) `restoreConfig.sh` or (**Windows**) `restoreConfig.bat` located in the *`WAS_home`*`/bin` directory. Pass the backup configuration file *`MS_home`*`/backup/WebSphereConfig_backup_`*`time`* as an argument, where *time* is the time when the backup was taken.

This will restore the original WebSphere Application Server configuration.

Here is an example:

```
WAS_home/bin/restoreConfig.sh  MS_home/backup/WebSphereConfig_backup_1127160879969
-nostop
```

Note: No backup is done for a remote network deployment environment.

RHEL5 requires xlibp files from Fedora Core v6 for Managing Server to install

The problem: RHEL5 requires `xlibp` files to be updated before using Managing Server, otherwise the following Java errors are seen:

```
The java class could not be loaded. java.lang.UnSatisfiedLinkError:
/opt/install/ms/ITCAMMSxlin/java/jre/bin/libawt.so: libXp.so.6: cannot
open shared object file: No such file or directory:
```

The cause: This problem is caused due to the missing `xlibp` Fedora core 6 updates files on the RHEL 50 OS.

The solution: Do the following steps:

1. Go to this Web site and download it: http://rpmfind.net/linux/rpm2html/search.php?query=libxp&submit=Search+...&system=&arch=
2. Install the missing `xlibp` files using the Fedora Core 9/10 updates.
3. If you are installing on a Linux Intel-based architecture, narrow your search to "i386" (do a "name -a" on your Linux box to see the version/kernel info first).
4. Most likely, `libXp-1.0.0.-11.fc.9.i386.rpm` (as of this writing) is needed.
5. Do these commands to install and then verify it is installed.
6. To install the package, run this command:

   ```
   rpm -i libXp-1.0.0.-11.fc.9.i386.rpm (or your own package name)
   ```

7. To verify its installed, use this command:

   ```
   rpm -q libXp-1.0.0-11.fc.9.i386 (without the "rpm" extension)
   ```

8. Then start the Managing Server using the `launchpad.sh` script.

   Note: No restart of the OS is required because this problem is on Linux, not Windows.

Security issue when installing Managing Server in WebSphere Application Server Network Deployment

The Problem: When installing the Managing Server in WebSphere Application Server Network Deployment, a security issue arises resulting in the dialog requesting the username and password appearing repeatedly.

The Reason: In WebSphere, when you enable security in the DMGR console, if the Node agent is not synchronized with the DMGR, the server's security is not enabled. This can occur if automatic configuration synchronization is disabled, or if the synchronization interval value is large, and a configuration change has been made to the cell repository that needs to be replicated to that node.

The Solution: Synchronize the node's configuration by following these steps:

1. On the Node Agents page, ensure that the node agent for the node is running.
2. Select the check box for the node you want to synchronize
3. Select Synchronize or Full Resynchronize.

Problems on the installation and connection of Managing Server databases

The following examples are some problems with the Managing Server databases you might encounter.

DB2 connection fails when installing Managing Server on Solaris

The problem: When using a DB2 type 2 JDBC driver while installing Managing Server on Solaris, the following error is returned:

```
CYNCR9705E Can not find DB2 type 2 jdbc driver library in the system library path.
```

The solution: Ensure that the database is running and accessible on the network. Confirm that the information you entered for the database is correct before you continue the installation. It may be caused by environment errors on the operation

system or database. For example, when using a DB2 type 2 JDBC driver, the driver library path must be specified in the system library path.

Before running the Managing Server installation, you are required to source the DB2 environment by using the **source db2profile** command. You must also do this before starting WebSphere and Managing Server.

If the error still occurs, review the installation trace log file, `trace-install.log`, for more information. This log file is located in the common logging directory.

Error running db2install.sh script

The problem: After running the `db2install.sh` script, the following errors were returned:

```
./db2install.sh db2inst1 cyanea /tmp/wsam31/Installer-MS/scripts/db2
ksh: db2:  not found.
ksh: db2:  not found.
```

Does this mean the script failed?

The reason: The script may have completed successfully, but the error messages mean that the user did not have the correct information in the ".profile" file.

The solution: There needs to be a reference that sources the db2profile.

Fail to install DB2 with the Managing Server

The problem: During an installation of DB2 with the Managing Server, you may specify an invalid DB2 installation image (for example, DB2 Workgroup Server Edition). This may cause the installation of DB2 with the Managing Server to fail.

The solution: Ensure that you are using the DB2 installation images that were shipped with ITCAM for WebSphere. These images are provided in the CD-ROM packet or as a download as part of the ITCAM for WebSphere eAssembly.

Remote DB2 installation failed because of different DB2 instance owners on the client and the server

The problem: When installing ITCAM for WebSphere Managing Server, the installer cannot find the database with db2inst1 specified as the DB2 instance user. After db2inst3 is specified as the remote user, the installer shows that the user does not exist.

The cause: When installing ITCAM for WebSphere in an environment with a remote DB2 database there are issues when your DB2 instance user (db2inst1 by default) is different on the DB2 client and server. DB2 handles this fine. But when you connect to a database using the DB2 client you supply the remote instance user name and password. The problem is with the installer. It expects the remote user name and password AND it checks to see whether there is a local user of that same name. If your instance user name is not the same, you must at least create a dummy user on the Managing Server (DB2 client) with the same name as the instance user on the DB2 server.

The following section describes an example of this issue:

- DB2 Server - Had multiple DB2 instances, and the customer created a new one called db2inst3 where the ITCAM databases were created using the provided scripts on the install CDs;
- ITCAM Managing Server - Had the DB2 client installed with the defaults including creating the instance user db2inst1, and could connect to the remote databases with no problems using the **db2** command shell.

The solution: To complete the installation, you are required to create a dummy user on the Managing Server (DB2 client) with the same name as the instance user on the DB2 server. In this specific example, create a local user db2inst3 to solve the problem.

Set up an alternate SID name on an Oracle Database

The question: How do I set up an alternate SID name on an Oracle Database?

The answer: Do the following steps:

1. Oracle Configuration
   - Install the Managing Server per standard procedures, skipping the creation of the Managing Server database. This procedure is standard when using a remote database instance.
   - Create the ITCAMx (i/q/p) database on the wanted Oracle server using the `dbca` utility or existing Oracle scripts.
   - Extract the contents of the `oracle-remote-scripts.tar` file copied from the Managing Server to a temporary directory on the Oracle server.
   - Generate the wanted schema user and assign it 100-200 MB table space. The configuration script will grant unlimited table space to the user.
   - Execute the following commands to grant roles to the schema user.

     ```
     GRANT RESOURCE TO ITCAMIWAS;
     GRANT CREATE PROCEDURE TO ITCAMIWAS;
     ALTER USER ITCAMIWAS DEFAULT ROLE ALL;
     ```

   - Execute the following command from the oracle directory in the path of the extracted tar file. The following parameters are used in the following command:

     ```
     itcamiwas - Oracle schema owner
     CAM - Oracle tablespace name
     admin - local Managing Server OS account, used as default administrator

     sh bin/oracleinstall.sh itcamiwas password CAM itcamiwas password admin
     ```

   - Verify that there are no unusual errors in the log files created in the `~/oracle/logs` directory, `oracle_createschema_installation.out` and `oracle_prepare_installation.out`.
   - Verify the Oracle client connection from the Managing Server to database using an SQL plus connection using the schema owner credentials. The Managing Server owner account must have all the proper Oracle configurations in its profile file, as shown in the following example. The ORACLE_OWNER and ORACLE_SID variables can be changed to match the current environment.

     ```
     Oracle 10g
     ORACLE_BASE=/home/oracle/oracle; export ORACLE_BASE
     ORACLE_HOME=$ORACLE_BASE/product/10.2.0/db_2; export ORACLE_HOME
     ORACLE_TERM=xterm; export ORACLE_TERM
     PATH=$ORACLE_HOME/bin:$PATH; export PATH
     ORACLE_OWNER=oracle; export ORACLE_OWNER
     ORACLE_SID=itcamx; export ORACLE_SID
     ```

```
LD_LIBRARY_PATH=$ORACLE_HOME/lib; export LD_LIBRARY_PATH
CLASSPATH=$ORACLE_HOME/JRE:$ORACLE_HOME/jlib:$ORACLE_HOME/rdbms/jlib
CLASSPATH=$CLASSPATH:$ORACLE_HOME/network/jlib; export CLASSPATH

TMP=/tmp; export TMP
TMPDIR=$TMP; export TMPDIR
```

2. Managing Server Configuration

   Managing Server configuration must be changed to accommodate the new database name. Changes are applied to the shell script that sets the Managing Server operating environment and the data source used by the WebSphere Enterprise Application that provides the Visualization Engine.

   - Log in as the Managing Server owner.
   - Back up the `setenv.sh` file in the ~/*MS_home*/`bin` directory.
   - Open the `setenv.sh` script and change the line listed to include the proper host name, Oracle SID, and listener port.

     ```
     JDBC_DRIVER_URL=jdbc:oracle:thin:@rh4as20gb.test.org:1521:itcami
     ```

   - Test the database connectivity by using the command ***MS_home*/bin/amctl.sh kl1 dbtest**. This command checks the database credentials and client driver configuration then check for the presence of a table created by the Oracle configuration scripts. An example output from this command is shown.

     ```
     [amuser@rh4as20gb bin]$ ./amctl.sh kl1 dbtest
     /opt/IBM/itcam/WebSphere/MS/bin/klctl.sh dbtest kl1.properties
     Testing DB Connection with kernel properties...
     using the following properties to test database connection...
     JDBC DRIVER NAME =oracle.jdbc.driver.OracleDriver
     DB URL =jdbc:oracle:thin:@rh4as20gb.test.org:1521:itcami
     DB USER =itcamiwas
     DB PASSWORD =XXXX
     Trying to establish connection to database
     Succesfully established connection

     Testing by executiong two sql calls
     ......................

     Trying to get first prepared statement from connection
     Successfully got prepared statement from connection
     Trying to execute prepared statement on connection
     Successfully executed prepared statement on connection
     Trying to close prepared statement
     Successfully closed prepared statement

     Trying to get second prepared statement from connection
     Successfully got prepared statement from connection
     Trying to execute prepared statement on connection
     Successfully executed prepared statement on connection
     Trying to close prepared statement
     Successfully closed prepared statement

     Trying to close database connection
     Successfully closed connection

     Test complete
     [amuser@rh4as20gb bin]$
     ```

   - Start the Managing Server processes using the command ***MS_home*/bin/am-start.sh**

3. WebSphere Application Server Configuration

   - Start the WebSphere Application Server configured for the Managing Server Visualization Engine and login to the Admin Console.

- Open **Resources** → **JDBC Providers** → **ITCAM-JDBCDriver** → **Data Sources** → **ITCAMDataSource**and change the URL at the bottom of the page to reflect the wanted host name, SID, and listener port.
- Click **Apply**.
- Select the "J2EE Connector Architecture (J2C) authentication data entries" link and then the *Node...Cell*/server1 entry.
- Change the user ID and password values to match those changed in the setenv.sh file. Click Apply, then the Save link at the top of the Window. Click Save again.
- Restart the Application Server, login to the Admin Console and test the data source connection to the new database. If this passes, login to the Visualization Engine using the default admin account.

Verifying that the database tables successfully populated the Octigate database

The problem: You need to verify that the database tables successfully populated the octigate database.

The solution:

In UNIX:

1. Switch to the user that logs into the Application Monitor.

   ```
   su - admin_user
   ```

2. Issue the following DB2 commands:

   ```
   db2 connect to octigate
   db2 list tables
   db2 terminate
   ```

In Windows:

1. From Windows Start menu, select **Start** → **All Programs** → **IBM DB2** → **Command Line Tools** → **Command Window**.
2. Issue the following DB2 commands:

   ```
   db2 connect to octigate user [username] using [password]
   db2 list tables
   db2 terminate
   ```

The DB2 list tables produces 65 tables. If there are no results, then the tables were not created.

Setting up the cygwin X server to install the Managing Server remotely

The problem: How to set up the cygwin X server to install the Managing Server remotely?

The solution: To install the Managing Server using a GUI on a remote Linux for System z® server, you have to use the Visualization Engine. You are required to use a standard X Server on the remote client first. If you are using a Windows client, you can download and install the cygwin X Server package from the Internet.

1. Once you have installed the cygwin server package, select **Start** → **Run** → **Programs** → **cygwin-X** → **X-Win Server**.

2. Start the X Server here. You can see an **X** icon on the bottom right of the Windows task bar, which indicates the X Server is running.
3. After the X Server runs, start the putty client and connect to the remote Linux for System z. If you are using X, you have to set the "X11" settings in the putty client, so that the X Server is connected to the Linux for System z server successfully. You can then use the standard `launchpad.sh` command-line shell script and start the GUI.

Note: Do not set the DISPLAY variable when you start the putty client and log in to the server. Set this variable automatically.

Windows: Scripts Execution Authentication

The problem: By default, the installer grants the right of executing Managing Server control scripts to all the members of the group Administrators on Windows platforms. It allows any of them to start and stop the Managing Server by double-clicking the shortcuts on Desktop or by running the scripts in a KShell console. However, if two or more users run the scripts in an improper order, the lock file may fail.

The solution: Before starting the server, it is required to make sure that there are no pid files under the /tmp directory that was created by other users during previous operations. As another option, the right of executing these scripts can be restricted to one user by changing the ownership and mode of these files with chown and chmod commands.

Note: For the Application Monitor component running on WebSphere Application Server, it is recommended that the same Windows account is used to operate the Managing Server.

Running the Managing Server

The following are troubleshooting tips and techniques for problems that occur during running the Managing Server.

Application Monitor shows Data Collectors as unavailable even though they are running

The problem: This can happen when either the Data Collector or Managing Server is heavily loaded such that a heartbeat is missed between the Data Collector and the Managing Server.

The solution: Increase the heartbeat of the Managing Server from the default 15 seconds to 30 or 45 depending on the load. The heartbeat is set in both kl1.properties or kl2.properties under the property contract.duration.

Authoritative server does not list in the sorted order in the comparison table after setting up a Runtime Environment Comparison

The problem: The authoritative server does not list in the sorted order in the comparison table after setting up a Runtime Environment Comparison.

The solution: The sort function applies to all the comparison servers but not the authoritative server which remains always top of the comparison table.

Change the Managing Server that a Data Collector is connected to

The question: How to change the Managing Server which a Data Collector is connected to?

The answer: Perform the following steps:

1. Log in to the WebSphere Application Server administrative console.
2. Modify the *MS_AM_home* variable to reflect the path of the new Managing Server and save your changes.

   Note: If the Managing Server is on UNIX, the path that you enter needs to start with two forward-slashes (//). For example, `//opt/IBM/itcam/WebSphere/MS`.
3. Stop the instance of WebSphere Application Server or WebSphere Portal Server that will be used by the Data Collector.
4. In the *DC_home*`/etc` directory, edit the `datacollector.properties` file. Change all the IP references in that file to the new IP address.
5. In the *DC_home*`/etc` directory, there will be about 4 system generated files for your server. Delete those system generated files. These will have the following format: `nodename.servername.datacollector.properties`.
6. Tar the files in the *DC_home*`/logs` directory into a tar file.
7. Start the instance of WebSphere Application Server or WebSphere Portal Server that will be used by the Data Collector.

Changes to make on WebSphere Application Server administration console for the Visualization Engine to work correctly

The problem: I have set up global security on my WebSphere Application Server now. What changes do I have to make on the administration console for the Visualization Engine to work correctly?

The cause: When you log in to the Visualization Engine, the ITCAM software uses the authentication method defined in the WebSphere Application Server administration console.

The solution: Take the following steps:

1. Open the WebSphere Application Server administration console.
2. Check the **Enable Application Security** field. If you do not enable application security, you are not able to log in to the Visualization Engine.
3. Check that the top three fields in the right panel are selected.

Problems and tips on the databases of Managing server

The following examples are some problems with the Managing Server databases you might encounter.

Correcting DB2 high CPU usage on Linux

The problem: The db2fm process (DB2 Fault WebSphere Business Monitor) exhibits high CPU usage on Red hat systems, even after changes to the `/etc/inittab` file to change the startup process from respawn to once.

The cause: This problem is present with the base DB2 8.2 included in the supplied prerequisites CD for ITCAM Agent for WebSphere Applications on Linux. The ultimate fix for the problem is applying DB2 Fix Pack 9 or higher. This patch is applied to all Red hat VMWare images in order to stabilize the system performance. The following procedure lists the procedure to install Fix Pack 12 on Red hat Linux.

1. Download the appropriate version of the patch, based on whether you are running Red hat 3 (2.4 kernel) or Red hat 4 (2.6 kernel). This example uses the 32 bit 2.4 kernel download file, `FP12_MI00154.tar`.
2. Comment out (add a # sign at the beginning) the following line at the end of the `/etc/inittab` file.

   ```
   fmc:2345:respawn:/opt/IBM/db2/V8.1/bin/db2fmcd #DB2 Fault Monitor Coordinator
   ```
3. Save the file and reboot the Red hat image, which will effectively disable the DB2 auto start. Check for any DB2 processes with the command **ps -ef | grep db2**.
4. Copy the `FP12_MI00154.tar` file to the Red hat VMWare image using ftp, sftp, scp, or a Samba share and extract the tar file with the command **tar xvf FP12_MI00154.tar**
5. Run the command **./installFixPak** to update all the Red hat software packages for DB2.
6. Confirm the DB2 instance name created when you installed the database, typically db2inst1.
7. Run the command **/opt/IBM/db2/V8.1/instance/db2iupdt db2inst1** to update the current instance. Repeat this command for any other installed instances.
8. Run the command **/opt/IBM/db2/V8.1/instance/dasupdt** to the DB2 Administrative Server.
9. Uncomment the last line in the `/etc/inittab` file, save the file, and reboot once again.

Note: These steps are excerpted from the `release.txt` file included with the patch, in the doc directory. Please refer to this document for any details.

Maintaining an Oracle Database

The question: How do I know which segments have plenty of free space under the high-water mark and would benefit from a reorganization?

The answer: You can use the Oracle Enterprise Manager interface provided in Oracle Database 10g to target a specific tablespace to identify potential candidates.

However, if the database has several hundred tablespoonsful, it cannot be possibly done every day, and not every tablespace would have segments that need reorganization. In Oracle Database 10g Release 2, the supplied package DBMS_SPACE provides an automatic tool that proactively scans the segments and reports any potential candidates for reorganization. The built-in function ASA_RECOMMENDATIONS shows the segments. This is a function in the pipeline. You can use it as follows:

1. Select * from table (`dbms_space.asa_recommendations()`);
2. Runstats in DB2 replacement. **Automatic table level statistics gathering** is on by default.

In 10g, statistics are collected automatically if the initialization parameter STATISTIC_LEVEL is set to TYPICAL or ALL. (The default value is TYPICAL, so

automatic statistics gathering is enabled out of the box.) Oracle Database 10g has a predefined Scheduler job named GATHER_STATS_JOB, which is activated with the appropriate value of the STATISTIC_LEVEL parameter. The collection of statistics is fairly resource-intensive. To ensure it doesn't affect regular operation of the database, there is a special resource consumer group named AUTO_TASK_CONSUMER_GROUP predefined for automatically executed tasks such as gathering of statistics. This consumer group makes sure that the priority of these statistics collection jobs is below that of the default consumer group, and hence that the risk of automatic tasks taking over the machine is reduced or eliminated.

The question: How do I set the parameter STATISTIC_LEVEL to TYPICAL without making the statistics collection automatic?

The answer: Disable the Scheduler job by issuing the following:

```
BEGIN
DBMS_SCHEDULER.DISABLE('GATHER_STATS_JOB');
END;
```

To make sure it is indeed set:

1. Select * from `DBA_SCHEDULER_JOBS WHERE JOB_NAME = 'GATHER_STATS_JOB';` the enabled value will have a true column
2. Check the last date when your tables were analyzed: select * from `DBA_TA_STATISTICS WHERE OWNER='AMUSER' AND TABLE_NAME NOT LIKE '%$%' ORDER BY TABLE_NAME;`

Script for manually trimming data of the Octigate database

The question: The data trim process may take much time to complete (up to 24 hours or more, in specific cases). What can be done as an alternative cleaning mechanism, without losing all the historical data?

The answer: The SQL scripts provided here are to be used exclusively when the normal data trim process does not respond well because of the large amount of data on certain few days (millions of requests per day). The standard data trim job is still recommended as a rule.

This script can be run either through cron job or manually, and the following three tables are handled for data trim:

- REQUEST
- METHOD
- IMSEVENTS

It creates a temporary table using a statement as the following sentence, retaining *n* days of data.

For Oracle database with n=1,

```
create table request_tmp as select * from request where END_TIME > (sysdate - 1);
```

For DB2 with n=3,

```
insert into request_tmp select * from request where END_TIME >
  (current_timestamp - 3 days);
```

The main table REQUEST is then truncated and all entries from the preceding temporary table are inserted back into the REQUEST table. The temporary table is

dropped. The commits are intermediate since the log resource could be a bottleneck to the number of rows that can be held in pending state. The script can be customized as needed.

- To run the script for DB2:

  ```
  db2 connect to octigate user db_user_id using password
  db2 -tvf datatrim_external_db2.sql > result.txt
  ```

- To run the script for Oracle database:

  ```
  sqlplus OCT_DBUSER/DB_PASSWD@SQL_LOCATION/ datatrim_external.sql
  ```

Trimming a Large Octigate Database

The question: Is there anything I can do to quickly reduce the size of the Octigate database if I have not been running the datatrim script and the database has grown to an excessively large size?

The answer: Ideally, you should set up your ITCAM database (Octigate) pruning and optimization when you create the Managing Server. For details on optimizing the database, see the appendix on maintaining the monitoring environment in *ITCAM for Application Diagnostics: Managing Server Installation and Customization Guide*.

In the case of an extremely large Octigate database that has not been trimmed by the datatrim script on a regular basis, you may want to consider dropping and rebuilding the following 4 tables.

```
request
method
serverstats
gc_data
```

These 4 tables are usually the big ones. Recreating them will not harm ITCAM in any way other than the fact that the data will be lost.

- DB2: To recreate the tables in DB2, drop and then create the tables similar to the way they are dropped and created in the *MS_home*/etc/am-db2.sql script.
- Oracle: To reduce the size of the tables in Oracle, use the **TRUNCATE** command.

In addition, another technote has been provided that includes AS-IS scripts to help remove large amounts of data. See this link to see how it's done: http://www-01.ibm.com/support/docview.wss?&uid=swg21383986

Customers running at monitoring level 2 (MOD L2) cannot obtain Method Profiling data

The problem: Customers running at monitoring level 2 (MOD L2) that select the check box for Method Profiling, might get the following message:

"To make sure that your system is instrumented to capture all level 3 data, update the toolkit_custom.properties file within the data collector's custom folder for the monitored application server. Be sure to recycle the application server to ensure proper results. For CICS and IMS™, please ignore this warning."

The reason: Method Profiling, an optional feature at monitoring level 2, is dependent on monitoring level 3 method entry and exit instrumentation. The purpose of Method Profiling is to summarize those Level 3 method entry and exit

requests, to give you summarized method level data without the overhead of sending all Level 3 requests to the Managing Server for analysis.

The solution: For an introduction to ITCAM for WebSphere's technique for instrumenting application classes, see the following section of the Data Collector installation and customization guide: "Controlling instrumentation of application classes for memory leak, lock, and Level 3 method analysis"

To enable Method Profiling with default settings, you must update the toolkit_custom.properties file for each application server to be monitored using this feature. In particular, you must uncomment the am.camtoolkit.gpe.customxml.L3 property and set com.ibm.tivoli.itcam.toolkit.ai.methodentryexittrace=true. Refer to the section "Enabling Byte Code Instrumentation features with default settings" in "Data Collector Installation and Customization Guide".

It is recommended that you customize Method Profiling to instrument a subset of your application classes. Refer to the section "Customizing Level 3 method entry and exit analysis" in "Data Collector Installation and Customization Guide".

CYNP0016W: There is a missing method trace for the end of the request

The problem: The following error message occurs:

```
CYNP0016W: There is a missing method trace for the end of the request.
```

The cause: The Publish Server maintains the request stack corresponding to the request on the application server in the same order as they are invoked. If the Publish Server gets the end of the request without the start, this warning message is thrown.

The solution: Take the following steps:

1. Log on to the Visualization Engine;
2. Navigate to **Administration → Managing Server → System Properties**;
3. Tune the Managing Server by increasing **Max Method Records** from 10000 (default) to 100000 (100K), 500000 (500K) or 1000000 (1M) in steps if the error persists in the logs.

Data is not correctly shown

The following content provides some solutions when data is not correctly shown.

Database Connection Pool information is not showing up

The problem: Database Connection Pool information is not present on the Managing Server.

The solution: Perform the following:

1. Verify that the JDBC Connection Pools PMI setting is enabled in WebSphere Application Server for the Data Collector.
   - beanModule=X
   - cacheModule=H
   - connectionPoolModule=X
   - j2cModule=H
   - jvmRuntimeModule=H

- orbPerfModule=H
- servletSessionsModule=H
- systemModule=H
- threadPoolModule=H
- transactionModule=H
- webAppModule=H
- webServicesModule=H
- wlmModule=H
- wsgwModule=H

2. For z/OS, verify that com.ibm.websphere.management.enableConfigMbean is set to 'true' in WebSphere Application Server for the Data Collector.
3. Once the above mentioned items are set, stop and start the AppServer on the Data Collector. It is important to remember that the **System Resources → DB Connection Pools**displays data only after a request is running in the monitored WebSphere Application Server and accesses the Datasource. Before that happens, the display for the Datasource will continue to show 'Data Not Available'.

To force DB Connection Pool data:

1. Run a request in the server where the 'Data Not Available' message is. Set the monitor on demand level to L2 and 100% sampling to collect a trace on the request. Ensure that the L2 trace shows that traffic is flowing to the JDBC dataSource successfully in that server before proceeding.
2. After 1) is confirmed, then check the **System Resources → DB Connection Pools** display for the common DataSource in the server and look for processing statistics to appear then.

If the value is showing up as 0 (zero), there is a fix if the Data Collector is on z/OS (APAR PK17518). A 0 value has not been an issue that has been identified on the other Operating Systems at this time so there are no APARs for those platforms.

No data received on custom MBean

The problem: After configuring a custom MBean, on the VE side, the user can see the custom category but when they click the category it returns a NO DATA AVAILABLE error message.

The solution: Check your custom MBean configuration file, make sure all category names are in uppercase and contain only letters, no blanks and no other characters.

No GC data is available in the Recent Active Display and Memory Diagnosis page of the Managing Server Virtual Engine

The problem: No GC data is available in the Recent Active Display and Memory Diagnosis page of the Managing Server Virtual Engine.

The reason: Verbose GC is not enabled and the path to the WebSphere `native_stderr.log` file is not specified in the `TEMAGCCollector.gclog.path` property.

The solution: You can solve this problem according to the following steps:

1. Enable verbose GC for WebSphere Application Server in the Admin Console or adding -verbose:gc to JVM arguments in the server.xml file.

2. Append the next property in the *DC_home*/runtime/*RUNTIME*/*SERVER*.kwjdc.properties file:

   ```
   TEMAGCCollector.gclog.path = <PATH_TO_WebShere native_stderr.log>
   ```

3. Restart WebSphere Application Server.

No Tivoli Enterprise Portal event reported on Alerts and Events page

The problem: An event is reported on Tivoli Enterprise Portal but not on the **Alerts and Events** page.

The solution: Follow these steps to set the Tivoli Enterprise Monitoring Server information:

1. Edit *MS_home*/etc/dal/dal.properties and enter the Tivoli Enterprise Monitoring Server host information:

   ```
   dal.tema.hostName=[TEP hostname or IP address]
   dal.tema.port=[TEP port number]
   dal.tema.useHttps=[true or false]
   ```

2. Edit *MS_home*/etc/dal/TEMAQuerySchema.xml and enter the Tivoli Enterprise Monitoring Server login information:

   ```
   <parameter name="userid" value="sysadmin"></parameter>
   <parameter name="password" value="password"></parameter>
   <parameter name="passwordEncrypted" value="false"></parameter>
   ```

3. Restart Managing Server.

Note: A Managing Server can retrieve data from one Tivoli Enterprise Monitoring Server only and you cannot configure a Managing Server to retrieve event data from multiple Tivoli Enterprise Monitoring Server. Therefore, it is recommended that all Data Collectors under the same Managing Server are connected to the same Tivoli Enterprise Monitoring Server.

System Data not available in WebSphere Application Server ND and cluster configurations

The problem: System level statistics are not available at the server level in an ND or cluster environment. The following fields are not available ("N/A") on the JVM/System Detail report:

- Percent CPU Usage
- Free Memory (MB)
- Avg. CPU Usage

The reason: They are collected from the Node Agent. This is due to the design of ND, which typically places one Node Agent on each system in place. The Node Agent is responsible for information gathering and reporting when there are multiple servers on a single system.

Error CYNVE0181E: One or more data collectors were unable to be configured

The problem: When trying to configure 250 or a large number of data collects on the Unconfigured Data Collector Overview page in a single operation, you may get the error message "CYNVE0181E: One or more data collectors were unable to be configured". This can occur in a managing server with DB2 or Oracle as the database server.

The reason: Database connections run out during the configuration time and the default setting of maximum number of connections in DB2 or Oracle is not sufficient enough to handle all the database activities involved.

The solution: 50 or fewer number of data collectors is recommended when trying to configure them in a single operation.

Inapplicable features when customizing an user-defined role

The problem: On Role Configuration page, some features are not available for customizing an user-defined role. This implies those features can be accessed by all users.

The reason: This is working as designed.

Inconsistent timestamp shown in Heap Dump Management with time set in Data Collector

The problem: The timestamp from Data Collector is converted to Greenwich Mean Time (GMT) first. It is then based on the Managing Server time zone when it is displayed on Heap Dump Management page.

The reason: This is working as designed.

ITCAM Agent for WebSphere Applications/J2EE Database optimization

The problem: There are some general performance issues in ITCAM Agent for WebSphere Applications/J2EE reports, especially with Lock Contention reports or your SQL reports for "Response Time (ms)" not working.

The solution: The following are some solutions to boost performance and solve your problems with reports not being rendered.

- `db2 "CREATE BUFFERPOOL itcamBP SIZE 1000 PAGESIZE 32K"`

  "itcamBP" is the name of the buffer pool and "32K" is the page space size.

  To see available bufferpools, run **db2** select * from `syscat.bufferpools`.
- `db2 "CREATE TEMPORARY TABLESPACE itcamTEMP PAGESIZE 32K MANAGED BY SYSTEM USING ('/opt/IBM/temp/db2inst1/itcamts.10') BUFFERPOOL itcamBP"`

  `/opt/IBM/temp/db2inst1/itcamts.10` is the file that will be used. DB2 MUST be able to read/write to the directory/file and it must have adequate space on the file-system. "itcamTEMP" is the TEMPORARY tablespace name while "itcamBP" is defined above. "...TEMPORARY TABLESPACE..." is important.

  To see available tablespace: **db2 list tablespaces**
- Stop and start DB2:
  1. Log in as the DB2 admin
  2. Run db2stop
  3. Run db2start

  Note: This will require a Managing Server/WebSphere Application Server restart too after creating the bufferpool and temporary tablespace.
- Follow the Managing Server installation guide for DB2 maintenance:

```
$AM_home/bin/run-stat-cmds.sh or...
db2 "RUNSTATS ON TABLE db2inst1.request WITH DISTRIBUTION AND DETAILED
  INDEXES ALL"
db2 "RUNSTATS ON TABLE db2inst1.method WITH DISTRIBUTION AND DETAILED
  INDEXES ALL"
```

db2inst1 is the schema user ID.

Running these commands may take a few minutes, and should be done daily.

In addition, you may use the *AM_home*/bin/datatrim.sh script. See the *IBM Tivoli Composite Application Manager for Application Diagnostics Managing Server Installation Guide* for further details and DB2 maintenance.

Launch in context to portal fails

The problem: Error page is displayed after pressing the Monitoring Console button on the Resources tab in Problem Centre.

The Solution: Follow these steps to set the launch in context information:

1. Edit *MS_home*/etc/ve.properties and enter the portal information:

```
tep.hostname=[TEP hostname or IP address]
tep.port=[TEP port number]
tep.baseurl=[TEP base URL]
tep.userid=[TEP user ID]
```

2. Restart Managing Server.

Load-balancing Archive Agents across multiple Publishing Servers

The problem: When starting multiple Archive Agents, their starting time may vary. The Publishing Server will establish all queues with the first started Archive Agent. If that Archive Agent is overloaded, it may crash.

The solution: A new feature was implemented in the Publishing Server that resets the queues to better balance the load across all queues. This feature is disabled by default; to enable it, set this property in ps1.properties and ps2.properties:

```
# Allows to load balance PS->AA connections more uniformly by resetting the
# connections at regular intervals.
aa.loadbalancing.enable=false
```

Also, you can set the time intervals for queue reset using the following properties:

```
# Start time in minutes when to reset the AA connections for the first time
aa.loadbalancing.start=10
# Delay time in minutes to wait between two different AA connection resets.
aa.loadbalancing.delay=90
```

Managing Server and Data Collectors require a restart after IP address change

The problem: The Managing Server and Data Collectors require a restart after a DHCP IP address change. The kernel stops serving the RMI (remote method invocation) codebase correctly to the other components; the Data Collectors don't try to reconnect to the Publishing Server, even after the Publishing Server has been restarted. Both still reference the old IP address, and they show up as unavailable in the Application Monitor. Nothing crashes , but the kernel RMI socket stops serving the classes correctly.

The first exception on the Managing Server is an IOException Socket Closed event, followed by many socket exceptions.

The solution: Use dynamic DNS, and have the kernel host and RMI codebase parameters set on the Data Collector using the dynamic DNS name for this

Managing Server rather than the IP address; see the *IBM Tivoli Composite Application Manager for WebSphere Installation and Customization Guide*.

Messages with severity "INFO" level are still logged after the log level is set to "ERROR"

The problem: After issuing the following command to change the log level of managing server components, you may find messages with severity "INFO" level are still logged in the log files:

```
MS_home/bin/amctl.sh kl1 error
MS_home/bin/amctl.sh ps1 error
MS_home/bin/amctl.sh ps2 error
MS_home/bin/amctl.sh aa1 error
```

The solution: There is a shared module in the managing server components. The messages with severity "INFO" level are generated by the shared module. To set the log level of the module, please follow these steps:

1. Edit *MS_home*/etc/cynlogging.properties file.
2. Replace "INFO" as "ERROR" in these lines:

   ```
   # MESSAGE LOGGER
   CYN.msg.common.level=INFO
   CYN.msg.common.logging=true

   CYN.trc.common.level=INFO
   CYN.trc.common.logging=true
   ```

3. Restart the managing server components.

New traps and PAR reports from the ITCAM 6.1 Managing Server Fix Pack 2 still exist but do not work after uninstallation

The problem: If you create and save traps and PAR reports that were newly added in ITCAM 6.1 Managing Server FP2, when you uninstall the fix pack, these new traps and reports will not be deleted by the uninstaller.

These saved traps and PAR reports will still be listed, but the traps will not be triggered, and if you click **Saved PAR reports**, errors will display.

The solution: Manually delete the saved trap or PAR report by clicking the button next to it.

OutOfMemory exceptions

The following content provides some solutions to the OutOfMemory exceptions.

Kernel crashes with OutOfMemory exceptions during startup

The problem: Kernel processes for numerous Data Collectors dump the heap with OutOfMemory exceptions.

The solution: Increase the kernel process's heap size to at least 512MB.

Publishing Server crashes with OutOfMemory exceptions

The problem: When running a large number of Data Collectors, the Publishing Server crashes with OutOfMemory exceptions.

The solution: Either increase the heap size of the Publishing Server process in setenv.sh (HEAP_MAX_SIZE_PS=512) to 1024 or add another Publishing Server process to the Managing Server.

Port 9090 Conflicts error on AIX

The problem: When you start your Managing Server, the following error is returned:

```
Error: Failed to Start Transport on host , port 9090. The most likely cause is
that the port is already in use. Please ensure that no other applications are
using this port and restart the server.
com.ibm.ws.webcontainer.exception.TransportException: Failed to start transport
http: java.net.BindException: Address already in use.
```

The cause: There is a port number conflict between the WebSphere Application Server administrative console and WebSM service on AIX. Both use port 9090. WebSM is a tool that is useful to administrators who manage many AIX computers. The WebSphere Application Server administrative console is used to administer WebSphere Application Server. The port 9090 conflict on AIX is a known WebSphere Application Server issue. Ensure that no other applications are using this port.

The solution: Before starting the server, it is required to make sure that there are no pid files under the /tmp directory that was created by other users during previous operations. As another option, the right of executing these scripts can be restricted to one user by changing the ownership and mode of these files with chown and chmod commands.

Note: For the Application Monitor component running on WebSphere Application Server, it is recommended that the same Windows account is used to operate the Managing Server.
To modify the port number that is used by WebSphere Application Server administrative console, perform the following steps:

1. Disable WebSM Service by issuing the following command:
   ```
   # /usr/websm/bin/wsmserver -disable
   ```
   Note: Failure to complete this step before installing WebSphere Portal Server results in an incomplete deployment of portlets.
2. Install WebSphere Application Server and WebSphere Portal Server (including fix packs and interim fixes).
3. Modify the WebSphere Application Server administrative console port number 9090 in the following files to the desired port for the administrative console. Refer to WebSphere Application Server documentation for more information.
   - was_root/config/cells/cell_name/nodes /node_name/servers/server1/ server.xml
   - was_root/config/cells/cell_name/virtualhosts.xml
4. Restart WebSphere Application Server and WebSphere Portal Servers.
5. Enable WebSM Service by issuing the following command:
   ```
   # /usr/websm/bin/wsmserver -enable
   ```

Problems and tips on language issues

The following content are some problems and tips on language issues.

Chinese characters are corrupted in a trap e-mail

The problem: When using the Chinese version of Managing Server for WebLogic, Chinese characters are corrupted in a trap e-mail.

The solution: Ensure the locale is set to **zh_CN.GB18030** for these users:

- The user who invokes `am-start.sh` to start ITCAM for WebSphere.
- The user who starts the WebLogic Application Monitor server.

Limitation for creating trap names and group names in Japanese

The problem: Trap names and group names can only include letters, numbers, and white spaces. Certain Japanese characters will not be allowed.

The solution: Input only letters, numbers, and white spaces for trap names and group names.

Viewing the product with non-supported language

If you are using Internet Explorer configured with a non-supported language to view the Managing Server's user interface (Visualization Engine), the display language will be based on the locale of the Managing Server. If the Manager Server's locale is also not supported, English will be shown by default.

Note: This does not apply to the Tivoli Enterprise Monitoring Agent.

Problems with Server Active Display page

The following content provides solutions to some problems on Server Active Display page.

Server Activity Display in Method/Trace component shows CPU time greater than elapsed time

The problem: When viewing a Method/Trace for a request captured on L3, some methods will display a CPU time greater than the elapsed time.

The reason: Due to the difference in the resolutions of the clocks in the operating system for CPU and wall clock, you will sometimes see greater CPU times than wall clock times. This happens especially when the response time of a request is very small.

Solaris and AIX: Cannot view requests on Server Active Display page

The problem: Due to system limitations on Solaris and AIX, requests with considerable methods may lead to overflowstack exceptions when the Data Collector deals with them. The Data Collector cannot capture such requests and send them to the Managing Server due to problems with the application.

The solution: In order to view requests on the Server Active Display page, you need to modify the WebSphere Application Server Generic JVM arguments. Perform the following steps:

1. Check where the application fails from the stack trace reported in the JVM error logs.

2. Try to fix the application.
3. Otherwise, perform the following workaround:
   a. Login to the WebSphere Application Server administrative console.
   b. Navigate as follows:
      1) Select the Servers > Application Servers and select the <ServerName>.
      2) Navigate to the Additional Properties: Process Definition > Servant > Additional Properties: Java Virtual machine.
      3) In the Generic JVM arguments field, append the following parameter:
         `-Xss2m`

         Note: This may cause a minor performance decrease in the WebSphere Application Server.

Problems with method trace

The following content provides solutions to some problems with method trace.

Method trace captured for Lock traps may contain negative depth

The problem: Method trace captured for Lock traps may contain negative depth. When we drill-down into the method trace in Trap Action History for Lock traps, the method trace may show -1 for the depth.

The reason: For Lock-based traps, method trace is captured before the transaction is over so the request stacks of those transactions is incomplete. This makes calculating the depth for partial events (a start without an end event) impossible.

Method trace unavailable or partially available

The problem: When using MOD L3, method trace data is either not found or was partially captured in Trap Action History, Server Activity Display, or Performance Analysis Report pages. This is due to having large number of method records associated with each monitored request. By default, the limit is 10000 method records. If the limit is exceeded, the method records will be discarded and will not be stored in the database.

The solution: Increase the Maximum Method Records value in System Properties by clicking **Administration → Managing Server → System Properties**.

Request throughput spikes when Managing Server is restarted

The problem: When many heavily loaded Data Collectors are communicating with the Managing Server and then the Managing Server is restarted, the Enterprise Overview shows a spike in the request throughput.

The reason: This may happen if many heavily loaded Data Collectors are communicating with the Managing Server. A Data Collector automatically detects the status of Publishing Server and drops events when the Publishing Server is disconnected. But some events may remain in the queue. So when the Managing Server restarts, these events may show up as a spike in throughput.

SAD Client Requests Time uses managing server local time

The problem: If the managing server and the data collector are installed in different time zones, the Client Requests time in SAD will be shown according to the managing server local time.

The reason: This is working as designed.

Server Availability graph does not correctly account for offline servers

The problem: The % Available graph within the Server Availability report does not take offline servers into account. The first graph always reports 100% availability, but when you drill into it, several of the servers are offline and are reporting 0% availability in the detail graph.

The reason: ITCAM for WebSphere is application-centric, not server-centric; thus it takes an application-centric view of availability. When requesting a Server Availability report on All Servers, all servers in the group must host the same application and be clustered or load-balanced. Otherwise, the report will not make sense.

If any server is available, the application is considered available. Conversely, the application is considered unavailable only when all servers in the group are unavailable. Therefore, if any server is 100% available during the time period being monitored, the availability of the group will be 100%.

Example #1: Four servers in a group are clustered, and during the time period requested, three of them are always unavailable while one of them is always available. The availability will be reported as 100%, since users always had access to the application (through the one server that was always available).

Example #2: Four servers in a group are clustered, and during the time period requested, all servers are available for 75% of the time. Then all become unavailable for 25% of the time. The availability will be reported as 75% since 25% of the time the application was totally unavailable.

Server name displayed as a double value when exporting report to CSV file

The problem: When exporting a report to CSV file and opening it with Excel, the server name is displayed as a double value instead of a string value.

The solution: Parsing of a number format is handled by Microsoft Excel. To display a correct value for the server name, configure the field type when exporting or open the CSV file with a text editor.

Significant CPU consumption and high latency observed if a thread dump is requested

The problem: Significant CPU consumption by both the Data Collector and the Managing Server is observed if a thread dump is requested, and high latency is received in generating traps if thread dumps are requested when the trap is requested.

The solution: In a production environment, generating a thread dump is not encouraged as a trap action, due to the latency it will impose on trap actions and the high CPU time it will consume on the Data Collector and the Managing Server.

Note: Performing a thread dump may also mean that you cannot access the application when you refresh the thread dump page.

Some pages are displayed inappropriately in MSVE

The problem: After installing and enabling Firebug, some pages cannot be displayed appropriately in the Managing Server Visualization Engine.

The reason: Firebug is not supported in ITCAM for Applications Diagnostics.

The solution: You are required to disable the Fire bug by clicking **Disable** in the Console menu of the Firefox browser.

The Server Unavailable trap can be triggered only once when the server is not available

The problem: If you have two traps, one with the condition >1 and a second one with the condition >2, the Publish Server will only trigger the first trap (with the condition >1) when the server becomes unavailable the first time. The Publish Server will not trigger the trap with the condition >2 even if the server goes down more than once.

The solution: To prevent this, do not create more than one Server Unavailable trap per server. The trap condition must be set to >1.

Unable to load kernel classes from a user other than *root*

The problem: When the Managing Server is started using a userid other than *root* (such as *cyanea*), you experience errors such as "Unable to load classes from Kernel ...".

The solution: Give the userid write permission to the /var/tmp directory.

Web Session Browser feature not supported at monitoring level 1

The problem: The Web Session Browser feature is not supported at monitoring level 1. A message will display, "DATA NOT AVAILABLE. Web Session Browser feature is not supported at MOD Level 1. Please set your data collector monitoring level to 2 or above to activate it." This message will only be displayed in English.

The solution: Set the monitoring level to monitoring level 2 or above to utilize the Web Session Browser feature.

CYNVE0471E: No Data Available message displayed when trying to generate a report

Put your short description here; used for first paragraph and abstract.

The problem: When attempting to generate a report, the user gets the message CYNVE0471E: No Data Available.

The Managing Server uses a DB2 database.

The solution: From the IBM DB2 command prompt, enter the following commands:

```
db2 connect to octigate
db2 CREATE BUFFERPOOL BP32K IMMEDIATE SIZE 1000 PAGESIZE 32 K
db2 CREATE SYSTEM TEMPORARY TABLESPACE OCTTMP32 PAGESIZE 32 K
MANAGED BY SYSTEM USING
('/home/db2inst1/db2inst1/NODE0000/SQL00001/OCTTMP32.0')
BUFFERPOOL BP32K
db2 disconnect octigate
db2 terminate
```

Appendix A. Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully. These are the major accessibility features you can use with *IBM Tivoli Composite Application Manager* when accessing it on the *IBM Personal Communications* terminal emulator:

- You can operate all features using the keyboard instead of the mouse.
- You can read text through interaction with assistive technology.
- You can use system settings for font, size, and color for all user interface controls.
- You can magnify what is displayed on your screen.

For more information about viewing PDFs from Adobe, go to the following web site: http://www.adobe.com/enterprise/accessibility/main.html

Appendix B. Support information

This section describes the following options for obtaining support for IBM products.

Searching knowledge bases

If you have a problem with your IBM software, you want it resolved quickly. Begin by searching the available knowledge bases to determine whether the resolution to your problem is already documented.

Finding Release Notes®

You can find Release Note information online by viewing IBM Technotes. Technotes are short documents that cover a single topic. You can search the Technote collection for common problems and solutions, as well as known limitations and workarounds. Technotes are continuously updated to provide current product information.

You can search for Technotes and subscribe to have future Technotes e-mailed to you, as described below. Alternatively, you can watch demonstrations of these procedures at the following Web site: http://www-306.ibm.com/software/support/sitetours.html

Finding Technotes

Perform the following actions to access Technotes for this product:

1. Launch the IBM Software Support Web site: http://www.ibm.com/software/support
2. Follow the instructions on the screen to search for the Technotes related to the issue encountered.

Subscribing to new Technotes

You can subscribe to an RSS feed of the product support page or subscribe to receive e-mail notification about product tips and newly published fixes through My support. To subscribe to an RSS news feed of the product support page, click the orange RSS button under the **Stay up to date** pane.

My Support is a personalized portal that enables you to:

- Specify the products for which you want to receive notifications
- Create a personalized page that provides product information for the products you use
- Choose from flashes, downloads, and Technotes
- Receive an e-mail update in your inbox

Perform the following actions to subscribe to My Support e-mails:

1. Launch an IBM support Web site, such as the following site: http://www.ibm.com/support/us/
2. Click **My support** in the upper-right corner of the page.
3. If you have not yet registered, click **register** in the upper-right corner of the support page to create your user ID and password.
4. Sign in to My support.

5. On the My support page, click **Add products**.
6. Make the following selections from the lists to add this product to your personal page:
   a. Software
   b. Systems Management
   c. Application Performance & Availability
7. Click **Add products**.
8. Click **Subscribe to email**.
9. Set your preferences to specify the information you want in your e-mails.
10. Click **Update**.
11. Click **Submit**.

Tivoli Support Technical Exchange

You can become a participant in the new Tivoli Support Technical Exchange, where you can expand your technical understanding of your current Tivoli products in a convenient format hosted by Tivoli support engineers. This program provides support discussions about product information, troubleshooting tips, common issues, problem solving resources, and other topics. As Exchange leaders, Tivoli engineers provide subject matter expert direction and value. Participating in the Exchange helps you manage your Tivoli products with increased effectiveness.

What do you do to participate? Review the schedule of Exchange sessions. Find a topic of interest and select register. Provide your name, phone number, company name, number of attendees, the Exchange Topic, and IBM Customer number. You will be invited to attend a one to two hour conference call where the information is presented. The new Tivoli Support Technical Exchange can help with the following areas:

- Increased product knowledge
- Ways to avoid common pitfalls
- Support recommendations
- Proactive customer support
- Helpful hints and tips
- Knowledge transfer
- Expansion of your knowledge base

For more information or to suggest a future Exchange session, contact Support Technical Exchange (xchange@us.ibm.com). To learn more, visit the following Web site: http://www-306.ibm.com/software/sysmgmt/products/support/supp_tech_exch.html

Search the information center on your local system or network

IBM provides extensive documentation that can be installed on your local computer or on an intranet server. You can use the search function of this information center to query conceptual information, instructions for completing tasks, reference information, and support documents.

Search the Internet

If you cannot find an answer to your question in the information center, search the Internet for the latest, most complete information that might help you resolve your problem. To search multiple Internet resources for your product, expand the

product folder in the navigation frame to the left and select **Web search**. From this topic, you can search a variety of resources including:

- IBM technotes
- IBM downloads
- IBM Redbooks®
- IBM DeveloperWorks
- Forums and newsgroups
- Google

Obtaining fixes

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

1. Go to the IBM Software Support Web site at http://www.ibm.com/software/support
2. Click **Drivers** in the **Related support** section.
3. In the **Products of IBM** section, select one software category from the **Category** list.
4. Select one product from the **Sub-category** list.
5. Use the **Search within results** field if you want to refine your search.
6. Click **Search**.
7. From the list of downloads returned by your search, click the name of a fix to read the description of the fix and to optionally download the fix.

For more information about the types of fixes that are available, see the *IBM Software Support Handbook* at http://techsupport.services.ibm.com/guides/handbook.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 Web site at http://www.ibm.com/software/support
2. Click **My support** in the upper right corner of the page.
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. Click **Edit profile**.
5. In the **Products** list, select **Software**. A second list is displayed.
6. In the second list, select a product segment, for example, **Application servers**. A third list is displayed.
7. In the third list, select a product subset, for example, **Distributed Application & Web Servers**. A list of applicable products is displayed.
8. Select the products for which you want to receive updates, for example, **IBM HTTP Server** and **WebSphere Application Server**.
9. Click **Add products**.
10. After selecting all products that are of interest to you, click **Subscribe to e-mail** on the **Edit profile** tab.
11. Select **Please send these documents by weekly e-mail**.

12. Update your e-mail address as needed.
13. In the **Documents** list, select **Software**.
14. Select the types of documents that you want to receive information about.
15. 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.

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 Web site: http://www.ibm.com/software/passportadvantage Then click **How to Enroll** .
  - **By phone**: For the phone number to call in your country, go to the IBM Software Support Web site (http://techsupport.services.ibm.com/guides/contacts.html).
- 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 Web page (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 or, from other countries, go to the contacts page of the IBM Software Support Handbook on the Web (http://techsupport.services.ibm.com/guides/contacts.html) and click the name of your geographic region for phone numbers of people who provide support for your location.

Follow these steps when contacting IBM Software Support:

1. Determine the business impact of your problem.
2. Describe your problem and gather background information.
3. Submit your problem to IBM Software Support.

Determine the business impact of your problem

When you report a problem to IBM, you are asked to supply a severity level. Therefore, you need to understand and assess the business impact of the problem you are reporting. Use the following criteria:

Table 10. Severity Level

Severity 1	**Critical** business impact: You are unable to use the program, resulting in a critical impact on operations. This condition requires an immediate solution.
Severity 2	**Significant** business impact: The program is usable but is severely limited.
Severity 3	**Some** business impact: The program is usable with less significant features (not critical to operations) unavailable.
Severity 4	**Minimal** business impact: The problem causes little impact on operations, or a reasonable circumvention to the problem has been implemented.

Describe your problem and gather background information

When explaining a problem to IBM, be as specific as possible. Include all relevant background information so that IBM Software Support specialists can help you solve the problem efficiently. To save time, know the answers to these questions:

- What software versions were you running when the problem occurred?
- Do you have logs, traces, and messages that are related to the problem symptoms? IBM Software Support is likely to ask for this information.
- Can the problem be re-created? If so, what steps led to the failure?
- Have any changes been made to the system? (For example, hardware, operating system, networking software, and so on.)
- Are you currently using a workaround for this problem? If so, please be prepared to explain it when you report the problem.

Submit your problem to IBM Software Support

You can submit your problem by going to the "Submit and track problems" page on the IBM Software Support site (http://www.ibm.com/software/support/probsub.html). Enter your information into the appropriate problem submission tool.

If the problem you submit is for a software defect or for missing or inaccurate documentation, IBM Software Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Software Support provides a workaround for you to implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the IBM product support Web pages daily, so that other users who experience the same problem can benefit from the same resolutions.

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