

IBM Tivoli Composite Application Manager Agent for DB2
Version 7.1

Installation and Configuration Guide



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Note

Before using this information and the product it supports, read the information in “Notices” on page 31.

This edition applies to version 7.1 of IBM Tivoli Composite Application Manager Agent for DB2 (product number 5724-I45) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. Overview of the DB2 agent

The IBM® Tivoli® Composite Application Manager Agent for DB2® (product code UD) provides you with the capability to monitor DB2 databases, and to perform basic actions with DB2 databases.

IBM Tivoli Monitoring is the base software for the DB2 agent.

IBM Tivoli Monitoring

IBM Tivoli Monitoring is the base software for the DB2 agent. IBM Tivoli Monitoring provides a way to monitor the availability and performance of all the systems in your enterprise from one or several designated workstations. It also provides useful historical data that you can use to track trends and to troubleshoot system problems.

You can use IBM Tivoli Monitoring to do the following things:

- Monitor for alerts on the systems that you are managing by using predefined situations or custom situations.
- Establish your own performance thresholds.
- Trace the causes leading to an alert.
- Gather comprehensive data about system conditions.
- Use policies to perform actions, schedule work, and automate manual tasks.

The Tivoli Enterprise Portal is the interface for IBM Tivoli Monitoring products. By providing a consolidated view of your environment, the Tivoli Enterprise Portal can be used to monitor and resolve performance issues throughout the enterprise.

See the IBM Tivoli Monitoring publications listed in “Prerequisite publications” on page 29 for complete information about IBM Tivoli Monitoring and the Tivoli Enterprise Portal.

Features of the DB2 agent

The DB2 agent offers a central point of management for your DB2 environment. The DB2 agent provides a comprehensive means for gathering exactly the information that is required to detect problems early and to prevent them. Information is standardized across the system. You can monitor a multitude of servers from a single Tivoli Enterprise Portal, each server is monitored by a DB2 agent. Using the DB2 agent, you can collect and analyze specific information, including information about the following items:

- Applications with the highest percentage of failed SQL statements, sort overflows, lock timeouts and deadlocks, and the lowest buffer pool hit ratio.
- Buffer pool hit ratio by buffer pool, buffer pool hit ratio by database, average read and write times, asynchronous and synchronous I/O activity, extended store and non-buffer pool I/O activity.
- Databases with the highest percentage of failed SQL statements, the lowest buffer pool hit ratio, and the highest number of connections, lock timeouts, and deadlocks.
- Database High Availability and Disaster Recovery (HADR) configuration and runtime information.
- Applications currently waiting for locks and other details about lock resources.
- Server key events, the number of server connections, the databases with the lowest buffer pool hit ratio, and applications with the highest percentage of failed SQL statements.
- Usage and page size of table spaces.
- Resources of the system where the DB2 Server is running, including CPU usage, memory usage, and network information.

- Log information, such as the amount of active log space, the percentage of used secondary log, and the amount of space that is used by archive logs.
- Diagnostic messages from the db2diag.log file of the DB2 database, including information about administration notification log, event log, and diagnostic log.
- Customized SQL statement definitions, last execution statuses, and results.

New in this release

For version 7.1 of the DB2 agent, the following enhancements were made since version 6.2.2, including the fix packs:

- New attribute groups
 - DB2 HADR (KUD_DB2_HADR)
 - DB2 Customized SQL Definition (KUD_Customized_SQL_Definition)
 - DB2 Customized SQL Status (KUD_Customized_SQL_Status)
 - DB2 Customized SQL Detail (KUD_Customized_SQL_Detail)
 - DB2 Agent Event (KUD_Agent_Event)
 - DB2 Tablespace Auto-resize (KUD_Tablespace_Auto_Resize)
- New predefined situations
 - UDB_HADR_Con_Status_Congest
 - UDB_HADR_Con_Status_Disconnect
 - UDB_HADR_Primary_Status_Warn
 - UDB_HADR_Primary_Status_Warn_2
 - UDB_HADR_Primary_Down
 - UDB_HADR_Standby_Down
 - UDB_HADR_Stopped_Warn
 - UDB_Customized_SQL_Failed
 - UDB_Agent_Insufficient_Auth
 - UDB_Agent_DM_Down
 - UDB_Agent_DB_Standby
 - UDB_TS_Utilization_Crit
 - UDB_TS_Utilization_Warn
- Support for High Availability and Disaster Recovery (HADR) monitoring:
 - The database HADR workspace was added to the database node. In this workspace, you can view the HADR configuration information and the HADR status.
- Support for customized SQL monitoring:
 - The Customized SQLs navigator node was added to DB2 agent node.
 - Two workspaces, Customized SQLs and Customized SQL Result are under the new Customized SQLs navigator node. Use these workspaces to view customized SQL definitions, the latest execution status, and customized SQL execution results.
- Support for predefined agent events monitoring:
 - The Agent Event workspace that features predefined events was added. This workspace helps to determine problems with the monitored database.
- Support for monitoring the automatic resizing of table spaces:
 - Two situations were added that monitor the resizing of DMS table spaces.

DB2 agent components

After you install the DB2 agent (product code "kud" or "ud") as directed in the *IBM Tivoli Monitoring Installation and Setup Guide*, you have an environment that contains the client, server, and monitoring agent implementation for IBM Tivoli Monitoring that contains the following components:

Tivoli Enterprise Portal client

The portal has a user interface based on Java™ for viewing and monitoring your enterprise.

Tivoli Enterprise Portal Server

The portal server is placed between the client and the Tivoli Enterprise Monitoring Server and enables retrieval, manipulation, and analysis of data from the monitoring agents. The Tivoli Enterprise Portal Server is the central repository for all user data.

Tivoli Enterprise Monitoring Server

The monitoring server acts as a collection and control point for alerts received from the monitoring agents, and collects their performance and availability data. The Tivoli Enterprise Monitoring Server is also a repository for historical data.

Tivoli Enterprise Monitoring Agent, DB2 agent

This monitoring agent collects data and distributes the data to the Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, Tivoli Enterprise Portal, Tivoli Data Warehouse, and Tivoli Integrated Portal.

IBM Tivoli Netcool/OMNIBus

Tivoli Netcool/OMNIBus is an optional component and the recommended event management component. The Netcool/OMNIBus software is a service level management (SLM) system that delivers real-time, centralized monitoring of complex networks and IT domain events. Event information is tracked in a high-performance, in-memory database and presented to specific users through individually configurable filters and views. The software includes automation functions that you can use to perform intelligent processing on managed events. You can use this software to forward events for Tivoli Monitoring situations to Tivoli Netcool/OMNIBus.

IBM Tivoli Enterprise Console

The Tivoli Enterprise Console® is an optional component that acts as a central collection point for events from various sources, including events from other Tivoli software applications, Tivoli partner applications, custom applications, network management platforms, and relational database systems. You can view these events through the Tivoli Enterprise Portal (by using the event viewer), and you can forward events from Tivoli Monitoring situations to the Tivoli Enterprise Console component. If you do not already use Tivoli Enterprise Console and need an event management component, you can choose to use IBM Tivoli Netcool/OMNIBus.

IBM Tivoli Common Reporting

Tivoli Common Reporting is a separately installable feature available to users of Tivoli software that provides a consistent approach to generating and customizing reports. Some individual products provide reports that are designed for use with Tivoli Common Reporting and have a consistent look and feel.

IBM Tivoli Application Dependency Discovery Manager (TADDM)

TADDM delivers automated discovery and configuration tracking capabilities to build application maps that provide real-time visibility into application complexity.

IBM Tivoli Business Service Manager

The Tivoli Business Service Manager component delivers real-time information to help you respond to alerts effectively based on business requirements. Optionally, you can use this component to meet service-level agreements (SLAs). Use the Tivoli Business Service Manager tools to help build a service model that you can integrate with Tivoli Netcool/OMNIBus alerts or optionally integrate with data from an SQL data source. Optional components provide access to data from other IBM Tivoli applications such as Tivoli Monitoring and TADDM.

Agent Management Services

The Tivoli Composite Application Manager Agent for DB2 can be managed by the Agent Management Services of IBM Tivoli Monitoring. These services are available in the IBM Tivoli Monitoring OS Monitoring Agent for Windows, Linux, and UNIX systems. The services keep the Tivoli Composite Application Manager Agent for DB2 available, and provide information about the status of the agent to the Tivoli Enterprise Portal. For information about Agent Management Services, see http://publib.boulder.ibm.com/infocenter/tivihelp/v15r1/index.jsp?topic=/com.ibm.itm.doc_6.2.2/itm_agentmgmtsvcs_intro.htm.

User interface options

Installation of the base software and other integrated applications provides the following interfaces that you can use to work with your resources and data:

Tivoli Enterprise Portal user interface

You can run the Tivoli Enterprise Portal as a desktop application or a browser application. The client interface is a graphical user interface (GUI) based on Java on a Windows or Linux workstation. The browser application is automatically installed with the Tivoli Enterprise Portal Server. The desktop application is installed by using the Tivoli Monitoring installation media or with a Java Web Start application. To start the Tivoli Enterprise Portal browser client in your Internet browser, enter the URL for a specific Tivoli Enterprise Portal browser client installed on your web server.

Command-line interface

You can use Tivoli Monitoring commands to manage the Tivoli Monitoring components and their configuration. You can also run commands at the Tivoli Enterprise Console event server or the Tivoli Netcool/OMNIbus ObjectServer to configure event synchronization for enterprise situations.

Manage Tivoli Enterprise Monitoring Services window

You can use the window for the Manage Tivoli Enterprise Monitoring Services utility to configure the agent and start Tivoli services not designated to start automatically.

IBM Tivoli Netcool/OMNIbus event list

You can use the Netcool/OMNIbus event list to monitor and manage events. An event is created when the Netcool/OMNIbus ObjectServer receives an event, alert, message, or data item. Each event is made up of columns (or fields) of information that are displayed in a row in the ObjectServer alerts.status table. The Tivoli Netcool/OMNIbus web GUI is also a web-based application that processes network events from one or more data sources and presents the event data in various graphical formats.

IBM Tivoli Enterprise Console

You can use the Tivoli Enterprise Console to help ensure the optimal availability of an IT service for an organization. The Tivoli Enterprise Console is an event management application that integrates system, network, database, and application management. If you do not already use Tivoli Enterprise Console and need an event management component, you can choose to use Tivoli Netcool/OMNIbus.

IBM Tivoli Common Reporting

Use the Tivoli Common Reporting web user interface for specifying report parameters and other report properties, generating formatted reports, scheduling reports, and viewing reports. This user interface is based on the Dashboard Application Services Hub for Tivoli Common Reporting 3.1 and on Tivoli Integrated Portal for earlier versions.

IBM Tivoli Application Dependency Discovery Manager

The Discovery Management Console is the TADDM client user interface for managing discoveries.

IBM Tivoli Business Service Manager

The Tivoli Business Service Manager console provides a graphical user interface that you can use to logically link services and business requirements within the service model. The service model provides an operator with a second-by-second view of how an enterprise is performing at any moment in time or how the enterprise performed over a time period.

Chapter 2. Agent installation and configuration

Agent installation and configuration requires the use of the *IBM Tivoli Monitoring Installation and Setup Guide* and agent-specific installation and configuration information.

To install and configure the DB2 agent, use the *Installing monitoring agents* procedures in the *IBM Tivoli Monitoring Installation and Setup Guide* along with the agent-specific installation and configuration information.

With the self-describing agent capability, new or updated IBM Tivoli Monitoring agents using IBM Tivoli Monitoring V6.2.3 or later can become operational after installation without having to perform additional product support installation steps. To take advantage of this capability, see “Enabling self-describing agent capability at the hub monitoring server” in the *IBM Tivoli Monitoring Installation and Setup Guide*. Also, see “Self-describing monitoring agents” in the *IBM Tivoli Monitoring Administrator’s Guide*.

Requirements

Before installing and configuring the agent, make sure your environment meets the requirements for the IBM Tivoli Composite Application Manager Agent for DB2.

For information about requirements, see the Prerequisites topic for the agent in the ITCAM for Applications Information Center (http://publib.boulder.ibm.com/infocenter/tivihelp/v24r1/topic/com.ibm.itcama.doc_7.2.1/welcome_apps721.html).

For the most up-to-date information about system requirements, see the Software product compatibility reports (<http://publib.boulder.ibm.com/infocenter/prodguid/v1r0/clarity/index.html>). Search for the ITCAM for Applications product.

Language pack installation

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

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

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

Installing language packs on Windows systems

You can install the language packs on a Windows system.

Before you begin

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

Procedure

1. On the language pack CD, double-click the `lpinstaller.bat` file to start the installation program.
2. Select the language of the installer and click **OK**.

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

Installing language packs on UNIX or Linux systems

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

Before you begin

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

Procedure

1. Enter the `mkdir` command to create a temporary directory on the computer, for example, `mkdir dir_name`. Make sure that the full path of the directory does not contain any spaces.
2. Mount the language pack CD to the temporary directory that you created.
3. Enter the following command to start the installation program:
`cd dir_name lpinstaller.sh -c install_dir`

Where: *install_dir* is where you installed IBM Tivoli Monitoring. Typically, the directory name is `/opt/IBM/ITM` for UNIX and Linux systems.

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

Silent installation of language packs on Windows, UNIX, or Linux systems

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

Before you begin

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

Procedure

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

NLS_PACKAGE_FOLDER

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

PROD_SELECTION_PKG

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

BASE_AGENT_FOUND_PKG_LIST

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

LANG_SELECTION_LIST

Language you want to install.

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

- For Windows systems:
lpinstaller.bat -f *path_to_response_file*
- For UNIX or Linux systems:
lpinstaller.sh -c *candle_home* -f *path_to_response_file*

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

Response file example

```
# IBM Tivoli Monitoring Agent Language Pack Silent Installation Operation
#
#This is a sample response file for silent installation mode for the IBM Tivoli
#Monitoring Common Language Pack Installer.
#.
#This file uses the IBM Tivoli Monitoring Common Agent Language Pack with the
#install package as an example.
#Note:
#This response file is for the INSTALLATION of language packs only.
#This file does not support UNINSTALLATION of language packs in silent mode.
#-----
#-----
#To successfully complete a silent installation of the the example of Common Agent
#localization pack, complete the following steps:
#
#1.Copy ITM_Agent_LP_silent.rsp to the directory where lpinstaller.bat or
#lpinstaller.sh is located (IBM Tivoli Monitoring Agent Language Pack build
#location).
#
#2.Modify the response file so that it is customized correctly and completely for
#your site.
# Complete all of the following steps in the response file.
#
#3.After customizing the response file, invoke the silent installation using the
#following command:
#For Windows:
# lpinstaller.bat -f <path_to_response_file>
```

```

#For UNIX and Linux:
#    lpinstaller.sh -c <candle_home> -f <path_to_response_file>
#Note:<candle_home> is the IBM Tivoli Monitoring base directory.
#-----

#-----
#Force silent install mode.
#-----
INSTALLER_UI=silent

#-----
#Run add and update actions.
#-----
CHOSEN_INSTALL_SET=ADDUPD_SET

#-----
#NLS Package Folder, where the NLS Packages exist.
#For Windows:
#    Use the backslash-backslash(\\) as a file separator (for example,
#C:\\zosgm\\LCD7-3583-01\\nlspackage).
#For UNIX and Linux:
#    Use the slash-slash (//) as a file separator (for example,
#//installtivoli//lpilenttest//nlspackage).
#-----
#NLS_PACKAGE_FOLDER=C:\\zosgm\\LCD7-3583-01\\nlspackage
NLS_PACKAGE_FOLDER=//tmp//LP//nlspackage

#-----
#List the packages to process; both variables are required.
#Each variable requires that full paths are specified.
#Separate multiple entries with a semicolon (;).
#For Windows:
#    Use the backslash-backslash(\\) as a file separator.
#For Unix and Linux:
#    Use the slash-slash (//) as a file separator.
#-----
#PROD_SELECTION_PKG=C:\\zosgm\\LCD7-3583-01\\nlspackage\\KIP_NLS.nlspkg
#BASE_AGENT_FOUND_PKG_LIST=C:\\zosgm\\LCD7-3583-01\\nlspackage\\KIP_NLS.nlspkg
PROD_SELECTION_PKG=//tmp//LP//nlspackage//kex_nls.nlspkg;//tmp//LP//nlspackage//
koq_nls.nlspkg
BASE_AGENT_FOUND_PKG_LIST=//tmp//LP//nlspackage//kex_nls.nlspkg;//
tmp//LP//nlspackage//koq_nls.nlspkg

#-----
#List the languages to process.
#Separate multiple entries with semicolons.
#-----
LANG_SELECTION_LIST=pt_BR;fr;de;it;ja;ko;zh_CN;es;zh_TW

```

Upgrades for the DB2 agent

If you upgraded DB2 agent Version 6.2 to DB2 agent Version 7.1, the node name that is displayed in the Tivoli Enterprise Portal for the DB2 agent has the following format: *Instance:Hostname:UD*. Where *Instance* is the name of the agent instance, and *Hostname* is the name of the system where the agent is running.

If you upgraded DB2 agent Version 6.1 to DB2 agent Version 7.1, the node name that is displayed in the Tivoli Enterprise Portal for the DB2 agent has the following format: *Instance:Hostname*, instead of *Instance:Hostname:UD*.

If you upgrade the DB2 database software, you must restart the DB2 agent to continue to use the agent to monitor databases.

If you intend to upgrade DB2 from a version 9 installation to a version 10 installation, you must first stop the DB2 agent, then do the upgrade and then restart the agent.

Prerequisite Checking

By using tools in Tivoli Monitoring, you can perform prerequisite checking for DB2 agents before you install. The two mechanisms available are a manually executed, stand-alone prerequisite scanner and a remote prerequisite scanner facility that extends the capabilities of the IBM Tivoli Monitoring remote deployment component. The prerequisite checking tools check the operating system version, memory, disk, and DB2 version of the target server where the DB2 agent is to be installed, and delivers a pass or fail status according to the checking results. For information about how to use this tool see “Prerequisite Checking for IBM Tivoli Monitoring agents” in the *IBM Tivoli Monitoring Installation and Setup Guide*.

Note:

- The product code for the DB2 agent is KUD. Specify KUD as the product code when you run the commands that are described in the information about how to use the checking tool.
- On Windows systems, the DB2 version check script calls the **db2level** command to retrieve the DB2 version. Make sure that this command is available, otherwise the tool fails.
- On UNIX and Linux systems, the DB2 version check script calls the **db2level** command to detect the DB2 version. If the command is not found, then the script checks the default DB2 user home folder to find the DB2 version. If multiple DB2 users for different DB2 installations exist in the default home directory, for example */home/*, the first one is used and the DB2 version of the installation is returned.

Agent-specific installation and configuration

In addition to the installation and configuration information in the *IBM Tivoli Monitoring Installation and Setup Guide*, use this agent-specific installation and configuration information to install the DB2 agent.

Basic installation and configuration

You can install and configure the DB2 agent locally or remotely by using a GUI or the command line.

Local

If you are installing and configuring locally, use the steps in the *IBM Tivoli Monitoring Installation and Setup Guide*, “Installing monitoring agents”. Also, use the agent-specific configuration information.

Using Manage Tivoli Enterprise Monitoring Services: About this task

To configure a DB2 agent instance after installation, do one of the following procedures:

- Windows systems:
 1. Click **Start > Programs > IBM Tivoli Monitoring > Manage Tivoli Monitoring Services**.
 2. (Optional) If you need to change the communication settings, right-click the **ITCAM Agent for DB2** item with the **Task/SubSystem** column value of **Template**, and click **Advanced>Configure Advanced**.
 3. Right-click the **ITCAM Agent for DB2** item with the **Task/SubSystem** column value of **Template**, and click **Configure Using Defaults**.
 4. Enter the real name of the DB2 instance that you want to monitor, and click **OK**. The DB2 instance must be of type (ese) which is the default type for DB2 Enterprise Server Edition and DB2 Advanced Enterprise Server Edition. The DB2 instance name must also conform to the following guidelines:
 - Each name must begin with an alpha character.
 - Do not use blanks or special characters (“\$#@”).
 - The name must be short enough to fit within the total managed system name, which must be between 2 and 32 characters in length.
 - DB2 agent naming is case sensitive on all operating systems.

5. Specify the DB2 properties settings. For the descriptions of the fields, see Table 1.

Table 1. DB2 Properties field description

Field Name	Description
The db2diag log file path	The directory of the DB2 diagnostics log file. If the db2diag log file is in the default directory, you can leave this field blank; if the file is not in the default directory, enter the path of the directory. The default directory is C:\Documents and Settings\All Users\Application Data\IBM\DB2\DB2INSTANCE on Windows systems, and /home/DB2owner_home_dir/sql1ib/db2dump on UNIX and Linux systems. This field is only required if the DB2 instance to be monitored is a local instance. If the DB2 instance is a remote instance, the value in this field is ignored.
MSGID filter in regular expression	This is an optional field. Fill MSGIDs in this field to monitor only the messages that you are interested in. The MSGID is a combination of the message type, message number, and severity level. You can also use a regular expression. For example, ADM1\d*1E ADM222\d2W.
Enable monitoring partitions on a remote host	Choose Yes to enable the DB2 agent instance to monitor partitions in a remote host.
Enable monitoring of all databases	Choose Yes to enable the DB2 agent instance to monitor all databases including the inactive databases and non-connection databases in the DB2 instance named in the DB2 instance name field.
Customized SQL definition file name	This attribute is the full file path name of the customized SQL definition file. The SQL statements defined in this file and related information is displayed in the Customized SQLs workspace. The default file name is CANDLEHOME/config/kudcussql.properties on UNIX or Linux systems, CANDLEHOME\TMAITM6\kudcussql.properties on Windows systems, and CANDLEHOME\TMAITM6_x64\kudcussql.properties on Windows 64-bit systems.

6. Click **OK** to complete the configuration.

To create multiple instances of the DB2 agent, repeat step 3 to step 6. For each DB2 agent instance, a KUDENV_Instance file and a hostname_ud_Instance.cfg file are created, where Instance is the name of the DB2 agent instance.

- UNIX and Linux systems:

1. To open the Manage Tivoli Enterprise Monitoring Services window, navigate to the ITMinstall_dir/bin directory, where ITMinstall_dir is the installation directory of IBM Tivoli Monitoring, and run the following command:
./itmcmd manage
2. Select **IBM Tivoli Composite Application Manager Agent for DB2**, and right-click it.
3. Click **Configure**.
4. In the Manage Application Instances window, click **Add Instances**.
5. Enter the real name of the DB2 instance that you want to monitor, and click **OK**. The DB2 instance must be of type (ese) which is the default type for DB2 Enterprise Server Edition and DB2 Advanced Enterprise Server Edition. The DB2 instance name must also conform to the following guidelines:
 - Each name must begin with an alpha character.
 - Do not use blanks or special characters ("\$#@").

- The name must be short enough to fit within the total managed system name, which must be between 2 and 32 characters in length.
 - DB2 agent naming is case sensitive on all operating systems.
6. Specify the DB2 properties settings. For the descriptions of the fields, see Table 1 on page 12.
 7. Click **OK**.
 8. Configure the connection between the agent and the Tivoli Enterprise Monitoring Server.
 9. Click **Save** to complete the configuration.
- To create multiple instances of the DB2 agent, repeat step 2 to step 9. For each DB2 agent instance, a *hostname_ud_Instance.cfg* file is created, where *Instance* is the name of the DB2 agent instance.

Using the itmcmd command:

About this task

To configure the DB2 agent on UNIX or Linux systems from the command line, use the **itmcmd config** command. See the *IBM Tivoli Monitoring Command Reference* for complete information about this command.

Procedure

1. Navigate to the *ITMinstall_dir/bin* directory, and run the following command:

```
./itmcmd config -A ud
```

where *ITMinstall_dir* is the installation directory of IBM Tivoli Monitoring.

2. Type in the name of the DB2 instance that you want to monitor, and press Enter.
3. Press Enter when you are asked whether you want to edit IBM Tivoli Composite Application Manager Agent for DB2 settings. The default value is Yes.
4. Press Enter when you are asked whether you want to edit DB2 properties settings. The default value is Yes.
5. Specify the db2diag log file path:
 - If the db2diag log file is in the default directory, press enter.
 - If the file is in a directory other than the default one, type the path of the directory, and press Enter.

The default directory is C:\Documents and Settings\All Users\Application Data\IBM\DB2*DB2INSTANCENAME* on Windows systems, and /home/*DB2owner_home_dir*/sql/lib/db2dump on UNIX and Linux systems.

6. (Optional) For the MSGID filter, type the msgid and press Enter to monitor only the messages that you are interested in. The msgid is a combination of the message type, message number, and severity level. You can also use a regular expression. For example, ADM1\d*1E|ADM222\d2W.
7. Specify whether to enable monitoring partitions in a remote host, and press Enter. The default value is YES.
8. Specify whether to enable monitoring of all databases, and press Enter. The default value is YES.
9. Specify the absolute name of the customized sql statement definitions file.
 - If the customized sql statement definition file is in the default directory press Enter.
 - If the file is in a directory other than the default one, type the absolute name of the file, and then press Enter.

The default file name is CANDLEHOME/config/kudcussql.properties on UNIX or Linux systems, CANDLEHOME\TMAITM6\kudcussql.properties on Windows systems, and CANDLEHOME\TMAITM6_x64\kudcussql.properties on Windows 64-bit systems.

10. Press Enter when you are asked whether the agent connects to a Tivoli Enterprise Monitoring Server.
11. Configure the connection between the agent and the Tivoli Enterprise Monitoring Server:

- a. Type the host name of the Tivoli Enterprise Monitoring Server, and press Enter.
- b. Choose the network protocol that the Tivoli Enterprise Monitoring Server uses to communicate with the agent, you have four choices: IP, SNA, IP.PIPE, or IP.SPIPE. The default value is IP.PIPE
- c. Depending on the type of protocol you specified, provide required information when prompted:
- d. Choose whether you want to configure the connection to a secondary Tivoli Enterprise Monitoring Server. The default value is No.
- e. Press Enter to accept the default value for the optional primary network name. The default value is none.

Results

You can create multiple DB2 agent instances. For each agent instance, a *hostname_ud_Instance.cfg* file is created. For each agent instance on Windows systems, a *KUDENV_Instance* file is also created.

Silent installation: If you are performing a silent installation using a response file, see the *IBM Tivoli Monitoring Installation and Setup Guide*, "Performing a silent installation of IBM Tivoli Monitoring."

Remote

IBM Tivoli Monitoring deploys monitoring agents from a central location, which is the monitoring server. You can also use the remote agent deployment function to configure deployed agents and install maintenance on your agents.

Before you can deploy any agents from a monitoring server, you must populate the agent depot with bundles. For information about populating your agent depot, see the *IBM Tivoli Monitoring Installation and Setup Guide*.

Important: You can create multiple DB2 agent instances. For each agent instance, a *hostname_ud_Instance.cfg* file is created. For each agent instance on Windows systems, a *KUDENV_Instance* file is also created.

Using the Tivoli Enterprise Portal: For detailed information about deploying non-OS agents, see the steps in "Deploying non-OS agents" in the *IBM Tivoli Monitoring Installation and Setup Guide*.

Important: After you add the agent bundle to the Tivoli Enterprise Monitoring Server, if the IBM Tivoli Composite Application Manager Agent for DB2 is still not listed in the Select a Monitoring Agent window, deploy the agent through the command line.

In the New Managed System Configuration window, enter configuration information for the monitoring agent. See Table 2 on page 15 for the descriptions of the fields.

Using the tacmd command line: On UNIX or Linux systems, each time that the DB2 agent is started, it starts as the DB2 user ID specified during DB2 agent instance configuration. To start the DB2 agent with the specified user ID, the OS monitoring agent requires root authority to change to the specified user before starting the monitoring agent.

To deploy this monitoring agent remotely by using the command line, use the procedure, "Deploying through the command line," in the *IBM Tivoli Monitoring Installation and Setup Guide*. Also, use the agent-specific configuration information in Table 2 on page 15 for the *tacmd addSystem* command. The *IBM Tivoli Monitoring Command Reference* has complete information about the *tacmd addSystem* command.

Use the **-t** or **--type** TYPE parameter to specify that you are configuring a DB2 agent. The product code for DB2 agent is UD.

Specify the agent properties with the **-p** or **-property** option.

The following example is for Windows systems:

```
tacmd addSystem -t ud -n Primary:hostname:NT -p INSTANCE="DB2"
```

The following example is for UNIX and Linux systems:

```
tacmd addSystem -t ud -n hostname:KUX -p INSTANCE="db2inst1" _UNIX_STARTUP_.Username="db2inst1"
```

Table 2. Names and descriptions of configuration settings for each interface

Tivoli Enterprise Portal		tacmd command line	Description	Example
On the DB2 Properties tab	DB2 Instance Name	INSTANCE= <i>InstanceName</i>	The name of the DB2 instance that is to be monitored. See the instance naming guidelines on page Table 1 on page 12.	If the DB2 instance being monitored is a named instance with the instance name of db2server and the hostname is popcorn, enter db2server in this field.
	The db2diag log file path	DBSETTINGS.KUD_DIAGLOG_PATH= <i>logpath</i>	The file path of the DB2 diagnostics log file. If the db2diag log file is in the default directory, you can leave this field blank; if the file is not in the default directory, enter the path of the directory.	The default directory is: Windows Install_Driver:\Documents and Settings\All Users\Application Data\IBM\DB2\DB2COPYNAME\DB2INSTANCENAME on Windows systems. For example, C:\Documents and Settings\All Users\Application Data\IBM\DB2\DB2COPY1\DB2. DB2InstanceOwner_Home_directory/sql1lib/db2dump on UNIX and Linux systems. For example, /home/db2inst2/sql1lib/db2dump
	MSGID filter in regular expression	DBSETTINGS.KUD_DIAGLOG_MSGID_FILTER= <i>MSGID</i>	This is an optional field. Fill MSGIDs in this field to monitor only the messages that you are interested in. The MSGID is a combination of the message type, message number, and severity level. You can also use a regular expression.	ADM1\d*1E ADM222\d2W
	Enable monitoring partitions in a remote host	DBSETTINGS.KUD_MONITOR_REMOTE_PARTITIONS= Yes (No)	Choose Yes to enable the DB2 agent instance to monitor partitions in a remote host.	The valid values are Yes and No.
	Enable monitoring of all databases	DBSETTINGS.KUD_MONITOR_ALL_DATABASES= Yes (No)	Choose Yes to enable the DB2 agent instance to monitor all databases including the inactive databases and non-connection databases in the DB2 instance that is named in the DB2 instance name field.	The valid values are Yes and No

Table 2. Names and descriptions of configuration settings for each interface (continued)

Tivoli Enterprise Portal		tacmd command line	Description	Example
	Customized sql statement definition file name	DBSETTINGS. KUD_DB2_SQL_PATH=sql_file_path	The absolute file name of the customized sql statement definitions file.	The default file name is: CANDLEHOME/config/kudcussql.properties on UNIX or Linux systems, CANDLEHOME\TMAITM6\kudcussql.properties on Windows systems, and CANDLEHOME\TMAITM6_x64\kudcussql.properties on Windows 64-bit systems.
On the Agent tab	Use this account If selecting this option complete the following fields as described: • Username: the ID under which the agent instance is to run • Password: the password associated with the given ID	For UNIX and Linux systems: _UNIX_STARTUP_Username=user For Windows systems: _WIN32_STARTUP_Username and _WIN32_STARTUP_Password	See “Running the agent as a non-Administrator user” on page 17. For UNIX and Linux systems, when entering information under Run As, be sure to enter the name of the DB2 instance owner in the Username field. For Windows systems, accept the default, LocalSystem account, or specify the DB2 instance owner. On Windows systems, the ID and passwords must have Windows Administrator authority for the system on which the DB2 agent is to run.	If the DB2 instance being monitored is a named instance, and you want to run as the database instance owner, enter db2inst1 in this field.

Reconfiguration

If you are required to reconfigure the DB2 agent, ensure that the steps for installing the monitoring agent in the *IBM Tivoli Monitoring Installation and Setup Guide* were completed.

Local

About this task

If you are reconfiguring an instance locally, use the Manage Tivoli Enterprise Monitoring Services window. See Table 2 on page 15 for the configuration settings.

- Windows systems:
 1. To open the Manage Tivoli Enterprise Monitoring Services window, click **Start > Programs> IBM Tivoli Monitoring> Manage Tivoli Monitoring Services**.
 2. Right-click the DB2 agent instance that you want to re-configure, and do one of the following steps:
 - To change the communication settings or the DB2 properties setting, click **Reconfigure**, and change the settings as you need.
 - To change the user ID under which the agent instance is running, click **Change Startup**, and change the settings as you need. To run the agent instance under a user ID other than the local

system account, you can select **Use this account**, and fill in the user ID and password. The user ID that you use must meet the requirement in “User ID permissions required to run the DB2 agent” on page 18.

3. Click **OK** to save your changes.
- UNIX and Linux systems:
 1. To open the Manage Tivoli Enterprise Monitoring Services window, navigate to the *ITMinstall_dir/bin* directory, where *ITMinstall_dir* is the installation directory of IBM Tivoli Monitoring, and run the following command:

```
./itmcmd manage
```
 2. Select **IBM Tivoli Composite Application Manager Agent for DB2**, and right-click it.
 3. Click **Configure**.
 4. In the Manage Application Instances window, select the DB2 agent instance that you want to re-configure, and click **OK**.
 5. Change the settings as you need, and click **OK** to save your changes.
 6. (Optional) To remove an existing DB2 agent instance, do the following steps:
 - a. In the Manage Application Instances window, select the instance that you want to remove, and click **Remove Instance**.
 - b. In the Remove Instance window, click **YES**.
 - c. Click **OK**.

Remote About this task

If you are reconfiguring remotely, use one of the following interfaces:

- tacmd command line

Use the `configureSystem` command. See the *IBM Tivoli Monitoring Command Reference* for complete information about this command.

The following example shows the use of `configureSystem` command:

```
tacmd configuresystem -m db2inst1:hostname:UD
-p INSTANCE="db2inst1"
DBSETTINGS.KUD_DIAGLOG_PATH="/home/db2inst1/sqlllib/db2dump"
DBSETTINGS.KUD_DIAGLOG_MSGID_FILTER="ADM\d*w"
DBSETTINGS.KUD_DB2_SQL_PATH="/opt/IBM/ITM/config/kudcussql.properties"
```

When re-configuring, enter the information for the property that you are changing. See Table 2 on page 15 for the configuration settings.

- Tivoli Enterprise Portal
 1. Open the Tivoli Enterprise Portal.
 2. Navigate to the system where the agent that you want to configure is installed.
 3. Select the agent.
 4. Right-click the agent; then click **Configuration**.
 5. Modify the parameters as you need to. Refer to Table 2 on page 15 for the configuration settings.
 6. Click **OK** to save the changes.

Running the agent as a non-Administrator user

By default, the user ID that is used to run the DB2 agent is set to **LocalSystem**. You can also use a different user ID to run the DB2 agent; however, this user ID must adhere to the user ID requirements described in “User ID permissions required to run the DB2 agent” on page 18.

User ID permissions required to run the DB2 agent

The DB2 agent can run under any user ID. Each DB2 agent acquires its permissions from the user ID under which the DB2 agent is running.

The ID used to run the DB2 agent must have DB2 SYSADM authority. SYSADM authority is required in order for the agent to turn on all monitor switches. For information about how to change the user ID under which the DB2 agent is run, see “Configuring the run-as user ID for the DB2 agent.”

Configuring the run-as user ID for the DB2 agent

The DB2 agent is configured to run under an incorrect user ID, and you want to configure the DB2 agent to run under another user ID. This situation can occur if you installed the DB2 agent while running as a root or Administrator ID. Perform each of the following steps as it applies to your environment:

- Local
Use the Manage Tivoli Monitoring Services to change the user ID. For detailed instructions, see the reconfiguration steps in “Local” on page 16.
- Remote
 - Change the user ID and password in the Run as section on the Tivoli Enterprise Portal GUI tab for the agent.
 - From the remote deploy command line, this Run-As user ID can be specified by using the **thetacmd** command-line parameter in Table 2 on page 15.

Remember: On UNIX and Linux systems, when an agent instance is installed with the root user ID and started with the DB2 instance owner, and you have to stop the agent remotely from the Tivoli Enterprise Portal, you must change the Run-As user ID of the agent instance to the same DB2 instance owner before you stop the agent instance. Otherwise, the agent instance runs with the root user ID when you restart the instance.

- Restart
By default the agent is started with the root user account in the autostart script. See “Upgrading and restarting the agent by using non-root” on page 27 for information about updating the autostart script to start the agent with the SYSADM user ID.

For the list of user ID permissions that are required by the DB2 agent, see “User ID permissions required to run the DB2 agent.” For information about how to ensure that each instance of the DB2 agent is started and running under the correct user ID, see “Permissions for starting and stopping the DB2 agent on UNIX and Linux systems.”

Permissions for starting and stopping the DB2 agent on UNIX and Linux systems

On UNIX systems, the Monitoring Agent for UNIX OS requires root permission to start, stop, or restart the DB2 agent remotely.

- Starting the agent:
To change the user account from root to a non-administrator user account, use the **CHMOD** command to grant the privileges for specific directories in the installation path for IBM Tivoli Monitoring to the non-administrator user account. For example, if you use the root user account to install the DB2 agent and attempt to run the agent as the DB2 instance owner, you receive an error similar to the following example:

```
db2inst3@aix7%> ./bin/itmcmd Agent -o db2inst3 start ud
CandleAgent : installer level 400 / 100.
find: 0652-023 Cannot open file /home/ITM/images.
find: 0652-023 Cannot open file /home/ITM/images.
find: 0652-023 Cannot open file /home/ITM/images.
find: 0652-023 Cannot open file /home/ITM/images.
CandleAgent : running aix523 jre.
Starting agent...
Agent Started...
db2inst3@aix7%>
```

In this example, the error is only for the images directory. The DB2 agent runs correctly, regardless of the error message. To avoid getting the Cannot open file... message, run the `chmod -R 755 directory` command, where *directory* is the directory that is specified in the error.

- Stopping the agent:

When the DB2 agent is running under a non-root user ID on a UNIX or Linux system, you must log in with the same user ID to stop the agent. Use the following command to obtain the non-root user ID:

```
install_dir/bin/cinfo -r
```

Defining customized SQL statements

The customized SQL feature is designed to provide you with the ability to define your own SQL-based monitoring parameters for the DB2 agent.

The customized SQL feature supports only SELECT statements. You can define SQL statements in the `kudcussql.properties` file, which is in the following directory:

- Windows 32-bit systems: *Installation_Dir/TMAITM6*
- Windows 64-bit systems: *Installation_Dir/TMAITM6_x64*
- UNIX and Linux systems: *Installation_Dir/config*

Where *Installation_Dir* is the installation directory of the DB2 agent.

The following guidelines apply when you define SQL statements:

- Only ASCII characters are supported in the `kudcussql.properties` file.
- Each valid entry starts with `[SELECTSQL]`, and the entry ends when reaching another left-bracket character (I) at the far left of a line.
- In each `SELECTSQL` entry, you can define the `SQL_ID` and the `SQL_TEXT`.
 - `SQL_ID`: Each customized SQL entry must have a valid `SQL_ID` variable defined.
The `SQL_ID` variable is case-sensitive, and can consist of only uppercase letters (A-Z), lowercase letters (a-z), the underscore character (_), and the hyphen character (-). If multiple `SELECTSQL` entries exist with the same `SQL_ID`, only the first entry is executed.
 - `SQL_TEXT`: Each customized SQL entry must have an `SQL_TEXT` variable.
For the `SQL_TEXT` variable, only SELECT statements are supported. INSERT, UPDATE, or DELETE statements are not supported. The `SQL_TEXT` variable supports multiple lines and DB2 valid comment characters, `--`.
- The following table contains information about the supported DB2 database data type and data type mapping rules:

Table 3. Supported DB2 database data types

Customized SQL IBM Tivoli Monitoring data type	DB2 database data type	Mapping rule
S,256	SQL_CHAR	If length exceeds 256, it is truncated
S,256	SQL_VARCHAR	If length exceeds 256, it is truncated
S,256	SQL_WCHAR	If length exceeds 256, it is truncated
S,256	SQL_WVARCHAR	If length exceeds 256, it is truncated
S,256	SQL_WLONGVARCHAR	If length exceeds 256, it is truncated
I,8 (BIGINT)	SQL_NUMERIC	To be rounded of to the nearest integer. For example, 3.4 becomes 3.
I,8 (BIGINT)	SQL_DECIMAL	To be rounded of to the nearest integer. For example, 3.4 becomes 3.
I,8 (BIGINT)	SQL_INTEGER	

Table 3. Supported DB2 database data types (continued)

Customized SQL IBM Tivoli Monitoring data type	DB2 database data type	Mapping rule
I,8 (BIGINT)	SQL_SMALLINT	
I,8 (BIGINT)	SQL_FLOAT	To be rounded of to the nearest integer. For example, 3.4 becomes 3.
I,8 (BIGINT)	SQL_REAL	To be rounded of to the nearest integer. For example, 3.4 becomes 3.
I,8 (BIGINT)	SQL_DOUBLE	To be rounded of to the nearest integer. For example, 3.4 becomes 3.
I,8 (BIGINT)	SQL_DECFLOAT	To be rounded of to the nearest integer. For example, 3.4 becomes 3.
I,8 (BIGINT)	SQL_BIGINT	
T,16	SQL_DATETIME	All dates and times to be converted to YYYY-MM-DD HH:mm:SS, for example 2011-08-10 12:12:12.
T,16	SQL_TYPE_DATE	All dates and times to be converted to YYYY-MM-DD 00:00:00.
T,16	SQL_TYPE_TIME	The time is to be set to HH:mm:SS, and the date is to be set to the current date.
T,16	SQL_TYPE_TIMESTAMP	All dates and times to be converted to YYYY-MM-DD HH:mm:SS, for example 2011-08-10 12:12:12.

Setting environment variables

About this task

Perform one of the following procedures to set the environment variables for the DB2 agent:

- On Window systems, UNIX and Linux systems, open the configuration file, set the environment variables, and restart the agent instance for the changes to take effect. See Table 4 on page 21 for the description of the variables. On Windows systems, the file path of the configuration file is *install_dir\TMAITM6\KUDENV_InstanceName*; On UNIX and Linux systems, the file path of the configuration file is *install_dir/config/ud.ini*. Where *install_dir* is the installation directory of the DB2 agent, and *InstanceName* is the name of the agent instance.
- On Windows systems, you can use the Manage Tivoli Monitoring Services to set environment variables:
 - To open the Manage Tivoli Enterprise Monitoring Services window, click **Start > Programs > IBM Tivoli Monitoring > Manage Tivoli Monitoring Services**.
 - Right-click the agent instance that you want to configure, and click **Advanced > Edit Variables**.
 - In the Override Local Variable Settings window, click **Add**.
 - Specify the names and values of the variables that you want to set, refer to Table 4 on page 21 for the description of the variables.
 - Click **OK** to close the Add Environment Setting Override window.
 - Click **OK**.
 - Restart the agent instance for the changes to take effect.

Table 4. Environment variable description

Variable	Description
KUD_MONITOR_ALL_DATABASES	Setting this parameter to YES enables the DB2 agent to monitoring all existing database instances including inactive ones.
KUD_MON_SWITCH_OVERRIDE	Add KUD_MON_SWITCH_OVERRIDE=YES in the configure file, and the DB2 agent does not set the existing OFF switch settings of DB2 instances to ON when the DB2 agent is restarted. This keeps the current switch settings of DB2 database instances unchanged.
KUD_DIAGLOG_CACHE	The maximum number of the message records or log records that are displayed in the Tivoli Enterprise Portal workspaces. The records are cached by agent using rotating mode. The oldest record is replaced by the new coming record. The default value is 20.
KUD_DIAGLOG_TAILCOUNT	The maximum number of message records or event records that are returned by Agent Builder/Factory Log Monitoring parsing when the DB2 agent starts up. This parameter limits the agent to process a large log file. Only the latest messages and events are monitored. The default value is 1000.
KUD_DBHISTORY_MAXROW	The maximum number of rows of archive log related history record from the SYSIBMADM.DB_HISTORY table that are displayed in the Tivoli Enterprise Portal workspace. The default value is 500.

Starting and stopping the DB2 agent

You can start or stop the DB2 agent for a database instance.

The DB2 agent does not require advanced configuration. However, the DB2 agent must run under a user ID that adheres to the requirements described in “Running the agent as a non-Administrator user” on page 17. When you start or stop this DB2 agent locally on UNIX and Linux systems, you must be logged in as this required user ID.

You can run multiple copies of the DB2 agent by specifying different database instance names. Only one process can be started for each database instance.

You can start and stop this monitoring agent using the Manage Tivoli Enterprise Monitoring Services utility, the Tivoli Enterprise Portal, or the itmcmd or tacmd command lines. Table 5 shows which interfaces you can use with Windows, UNIX and Linux systems locally and remotely.

Table 5. Interfaces for starting and stopping the DB2 agent

Operating system	Local	Remote
Windows	• Manage Tivoli Enterprise Monitoring Services • tacmd startAgent • tacmd stopAgent • tacmd restartAgent	• Tivoli Enterprise Portal • tacmd startAgent • tacmd stopAgent • tacmd restartAgent
UNIX and Linux	• Manage Tivoli Enterprise Monitoring Services • itmcmd agent	• Tivoli Enterprise Portal • tacmd startAgent • tacmd stopAgent • tacmd restartAgent

Manage Tivoli Enterprise Monitoring Services

To use Manage Tivoli Enterprise Monitoring Services to start the DB2 agent, use the ID under which the agent runs.

When you start or stop the DB2 agent on UNIX and Linux systems by using the Manage Tivoli Enterprise Monitoring Services, you are prompted for the name of the database instance to start or stop.

Enter only ASCII characters in the fields for the Manage Tivoli Enterprise Monitoring Services window.

Tivoli Enterprise Portal

See “Working with monitoring agents”, “Starting and stopping a monitoring agent” in the *IBM Tivoli Monitoring Administrator's Guide* for information about using the Tivoli Enterprise Portal to start or stop the DB2 agent.

itmcmd command line

Important: For information about how upgrading affects stopping the DB2 agent, see “Using the itmcmd and tacmd commands to stop the DB2 agent when upgrading to V7.1 from V6.1 (UNIX and Linux)” on page 23.

When you use the itmcmd agent commands to start or stop this monitoring agent, include the following command option:

- o Specifies the database instance to start or stop. The database instance name must match the name that is used for starting the database.

If you start the DB2 agent without specifying the -o option, you receive the following error message: This agent requires the -o option...

For example:

```
./itmcmd agent -o db2inst1 start ud
```

For information about using the itmcmd commands, see the *IBM Tivoli Monitoring Command Reference*.

tacmd command line

Important: For information about how upgrading affects stopping the DB2 agent, see “Using the itmcmd and tacmd commands to stop the DB2 agent when upgrading to V7.1 from V6.1 (UNIX and Linux)” on page 23.

In the following examples, the tacmd command is used to start, stop, or restart the DB2 agent:

- Local on Windows systems
 - tacmd startAgent -t ud
 - tacmd stopAgent -t ud
 - tacmd restartAgent -t ud
- Remote on Windows systems
 - tacmd stopagent -t ud -n Primary:hostname:NT
 - tacmd startagent -t ud -n Primary:hostname:NT
 - tacmd restartagent -t ud -n Primary:hostname:NT
- Remote on UNIX and Linux systems
 - tacmd stopagent -t ud -n hostname:LZ
 - tacmd startagent -t ud -n hostname:LZ

– `tacmd restartagent -t ud -n hostname:LZ`

For more information about using the `tacmd` commands, see the *IBM Tivoli Monitoring Command Reference*.

Using the `itmcmd` and `tacmd` commands to stop the DB2 agent when upgrading to V7.1 from V6.1 (UNIX and Linux)

About this task

After you update to IBM Tivoli Monitoring V7.1 on UNIX or Linux operating systems, you can no longer stop the DB2 agent by using the `tacmd` or `itmcmd` commands that call the following command:

```
CandleAgent -o instance stop ud
```

If your system is still running the IBM Tivoli Monitoring V6.1 code, you can avoid being in this position by stopping the DB2 agent before upgrading to version 6.2.

If you already upgraded to IBM Tivoli Monitoring V6.2.2, you can install version 7.1 of the DB2 agent by using a local installation or a remote installation, but you must first manually stop the DB2 agent process. To manually stop this DB2 agent, perform the following steps:

Procedure

1. Use the following command to obtain a list of the Process IDs (PIDs) for the DB2 agent processes that are running: `./cinfo -r`
2. In the output, look for lines containing `ud`.
3. Run the following command to stop the processes that are running: `kill -9 PID`
4. Update the status of the DB2 agent by running the following command for each instance of the DB2 agent: `itmcmd agent -o instance stop ud`.

Setting up the DB2 agent in a Microsoft Cluster Server environment

About this task

To use this monitoring agent in a Microsoft Cluster Server environment requires special configuration.

The *IBM Tivoli Monitoring Installation and Setup Guide* contains an overview of clustering. The information provided here is specifically for installing and setting up the DB2 agent in a Microsoft Cluster Server environment.

Requirements

In addition to installing and setting up the DB2 agent, you must complete more steps for the cluster environment.

Procedure

1. Set `CTIRA_HOSTNAME` to a common value for all monitoring agents (usually the cluster name)
2. Set `CTIRA_HIST_DIR` to a common disk location if history is stored at the DB2 agents (if history for the DB2 agent is configured to be stored at the DB2 agent).
3. Add monitoring agent resources to a cluster group.

Results

On Windows systems, IBM Tivoli Monitoring requires that monitoring agents are installed in the same directory path as the OS agent. Therefore, each node in a cluster must have installed all monitoring agents (on the nodes system disk) that are required to support the cluster applications that can run on that cluster node.

Editing environment variables

About this task

Install the DB2 agent on each node in the cluster where the DB2 software is installed. Use the same installation path on all nodes in the cluster. After the installation, edit the following variables:

- The CTIRA_HOSTNAME variable for the DB2 agent: a common value for all monitoring agents (usually the cluster name)
- The CTIRA_HIST_DIR variable for the DB2 agent: a common disk location if history is stored at the DB2 agents
- The KFW_TOPOLOGY_CLUSTER_LIST variable for the Tivoli Enterprise Portal

To edit the variables, do the following steps:

Procedure

1. To open the Manage Tivoli Enterprise Monitoring Services window, click **Start > Programs > IBM Tivoli Monitoring > Manage Tivoli Monitoring Services**.
2. If the DB2 agent instances are not stopped already, stop each instance.
3. Do the following steps for each agent instance:
 - a. Right-click the agent instance, and click **Advanced > Edit Variables**.
 - b. In the DB2 agent: Override Local Variable Settings window, click **Add**.
 - c. Select CTIRA_HOSTNAME for the **Variable** field, edit the value, and click **OK**.

Important: The directory path that you specify for CTIRA_HIST_DIR must exist if the logging is done on the DB2 agent to ensure that all directories in the path are created. If you specify a non-existent path for CTIRA_HIST_DIR, historical data collection fails.

- d. In the DB2 agent: Override Local Variable Settings window, click **Add**.
- e. Select CTIRA_HOSTNAME for the **Variable** field, edit the value, and click **OK**.

Remember: Leave .TYPE=REG_EXPAND_SZ in the CTIRA_HOSTNAME variable when changing it so the registry is updated correctly.

- f. In the DB2 agent: Override Local Variable Settings window, click **OK**.
 - g. Restart the DB2 agent instance.
4. Stop the Tivoli Enterprise Portal Server.
 5. Right-click the Tivoli Enterprise Portal Server agent, and click **Advanced > Edit Variables**.
 6. Click **Add**.
 7. Select KFW_TOPOLOGY_CLUSTER_LIST for the **Variable** field.
 8. In the **Value** field, change the value to AFF_UNIVERSAL_DATABASE.
 9. Restart the Tivoli Enterprise Portal Server.

Adding DB2 agent resources to a cluster group

To ensure that the correct monitoring agent is monitoring the correct server instance, the cluster group that represents the monitored server must have the DB2 agent services added.

About this task

To add the DB2 agent services is accomplished, identify the services and parameters that are required to run the DB2 agent.

Procedure

1. Click **Start > Administrative Tools > Services**.
2. In the list of Service names, click **DB2 Agent– InstanceName**.

3. Right-click **Properties**.
4. Make a note of the Service name: `kudcma_ InstanceName`
5. From the Cluster Administrator, add a resource to the group to represent the DB2 agent services.
6. Click **Start > Administrative Tools > Cluster Administrator**.
7. Expand **Groups**.
8. Click the group for the Instance that is being configured > **DB2 Group 0**.
9. Right-click, and then click **New > Resource**.
10. Fill in the following fields:

Name	<code>kudcma_InstanceName</code>
Description	DB2 agent
Resource Type	Generic Service
Group	DB2 Group 0
11. Click **Next**.
12. Select all **Available Nodes**.
13. Click **Add**, and then click **Next**.
14. Do not add any dependencies, and then click **Next**.
15. Specify `kudcma_ InstanceName` for the **Service name** field, and keep the **Start Parameters** field blank.
16. Click **Next**; then click **Finish**.
17. Select the newly created resource, right-click, and click **Properties**.
18. Select **Advance**, and clear the **Affect the group** check box. This step prevents a failover in case the DB2 agent fails.
19. Click **OK**.
20. To bring the DB2 agent online, select `kudcma_ InstanceName`, right-click, and click **Bring Online**.
21. Repeat the steps for a second DB2 agent on the second server instance.

Verifying that the DB2 agent works in a cluster

About this task

To verify that the DB2 agent is working correctly, open the Tivoli Enterprise Portal and verify that the correct virtual server instances are being monitored for the correct node. From the Cluster Administrator, select the group that represents the instance that is being monitored, and move it by using the steps in the Procedure.

Procedure

1. Click **Start > Administrative Tools > Cluster Manager**.
2. Expand **Groups** and select the correct group: **DB2 Group 0**.
3. Right-click, and then click **Move Group**.
All resource states that are shown for this group cycle through Offline, Online Pending, and Online. After Online, the Owner shows the second Node.
4. Return to the Tivoli Enterprise Portal, and verify that the data for the DB2 instance is being collected from the second node.

Setting up the DB2 agent in a High Availability Cluster Multi-Processing (HACMP) environment

About this task

Before you install the DB2 agent, install the Monitoring Agent for UNIX OS to all nodes in the IBM HACMP™ cluster. For the DB2 agent to run on each node in the cluster, some components of the infrastructure must be installed on each node. Installing the Monitoring Agent for UNIX OS is the easiest way to install the required infrastructure components. With the infrastructure available on all nodes, the DB2 agent can be installed to the shared disk and started on any node in the cluster.

On UNIX systems, monitoring agents can be installed in different directory trees. However, to perform the remote operations, install the DB2 agent in the same directory tree as the Monitoring Agent for UNIX OS.

Make sure that DB2 database is installed in the HACMP cluster and has an instance successfully failing over with the shared disk. Identify the node on which the DB2 instance is active, and make sure that the node has access to the DB2 shared disk. Do the following steps:

Procedure

1. Mount the installation medium that you choose on that system.
2. Run `install.sh`, and change the default installation location from `/opt/IBM/ITM` to a location on the shared disk (for example, `/ha_disk1/ITM`).
3. Follow the installation steps.
4. After installation, open the `install_dir/config/ud.ini` file.
5. Set the value of the `CTIRA_HOSTNAME` variable to the cluster name (`CTIRA_HOSTNAME=clusterName`).
6. Make sure the value of the `CTIRA_NODETYPE` variable is set to `UD` (`CTIRA_NODETYPE=UD`).

Important: Updating the `CTIRA_NODETYPE` variable for the DB2 agent on a UNIX system changes the managed system name. If you change the variable value, any custom situations or policies used by the DB2 agent must be recreated.

Results

All instances of the DB2 agent are displayed in the Navigator view in the Tivoli Enterprise Portal under UNIX Systems with the clusterName specified in `CTIRA_HOSTNAME`.

To integrate the DB2 agent startup and shutdown into HACMP, add the commands that are required to start and stop the DB2 agent to the DB2 HACMP Application Server startup and shutdown scripts. In the startup script, start the DB2 instance before you start the DB2 agent. In the shutdown script, stop the DB2 agent before you stop the DB2 instance.

The following example contains a start script where the shared disk name is `hadisk1`:

```
# Start a DB2 admin server
su - dasusr1 -c '/hadisk1/dasusr1/das/bin/db2admin start'
# Start the DB2 instance, and finally ITM
/usr/bin/rc.db2pe db2inst1 start
# Start the ITM Monitoring Agent for DB2
su - db2inst1 -c '/hadisk1/ITM/bin/itmcmd agent -o db2inst1 start ud'
```

The following example contains a stop script where the shared disk name is `hadisk1`:

```
# Stop the ITM Monitoring Agent for DB2
su - db2inst1 -c '/hadisk1/ITM/bin/itmcmd agent -o db2inst1 stop ud'
# Stop the DB2 instance
```

```
/usr/bin/rc.db2pe db2inst1 stop
# Stop the DB2 admin server
su - dasusr1 -c '/hadisk1/dasusr1/das/bin/db2admin stop'
```

Setting up the Tivoli Enterprise Portal Server for the DB2 agent

About this task

By default, the instances of the DB2 agent are displayed in the Tivoli Enterprise Portal Navigator view based on the host system host name. To display the DB2 agent with a particular cluster name instead of a particular node host name, set up the Tivoli Enterprise Portal Server.

Remember: Altering the portal variable can cause existing instances of the DB2 agent to be displayed in the wrong location in the portal. For each DB2 agent for UNIX installation, ensure that the following entry is in the config/ud.ini file: CTIRA_NODETYPE=UD. With CTIRA_NODETYPE unset, the DB2 agent defaults to being displayed by the instance name instead of the host name. Updating the CTIRA_NODETYPE variable for the DB2 agent on a UNIX system changes the managed system name. If you change the variable value, any custom situations or policies that are used by the DB2 agent on a UNIX system must be re-created.

Procedure

1. To open the Manage Tivoli Enterprise Monitoring Service window, go to the *ITMinstall_dir/bin* directory, where *ITMinstall_dir* is the installation directory of IBM Tivoli Monitoring, and run the following command: `./itmcmd manage`.
2. Stop the Tivoli Enterprise Portal Server, if the server is running.
3. Right-click the Tivoli Enterprise Portal Server, and click **Advanced > Edit Variables**.
4. Click **Add**.
5. In the Add Environment Setting Override window, type KFW_TOPOLOGY_CLUSTER_LIST in the **Variable** field, and set the value to AFF_UNIVERSAL_DATABASE.
6. Start the Tivoli Enterprise Portal Server for the changes to take effect.

Upgrading and restarting the agent by using non-root

About this task

The DB2 agent can run by using a non-root user ID on UNIX and Linux systems. You can run the agent as a non-root user by running the **itmcmd agent start** command while you are logged in as a non-root user. Also, you can run the agent as a non-root user remotely by using the Run As option on the GUI or by using the `_UNIX_STARTUP_.Username` option on the **tacmd addSystem** command line when you deploy the agent. If the agent is running by using a non-root user ID, and then the agent is upgraded, restarted remotely, restarted as a result of a system reboot, or the **itmcmd agent start** command is run by using the root user ID, the DB2 agent subsequently runs as the root user. To confirm the user ID that the DB2 agent is using, run the following command:

```
install_dir/bin/cinfo -r
```

If the agent is using root, and that ID is not the user ID you want to use, complete the following steps to restart the agent:

Procedure

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

Results

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

1. Look at *install_dir/registry/AutoStart*, and get *NUM*.

2. Edit the autostart for your operating system:

The location of the startup file is dependent on the operating system as follows.

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

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

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

Where:

user User ID for starting the process

instancename

Name of the database instance

install_dir

Name of the directory

product_code

Two-character product code for the agent, for example, ud for the DB2 agent

Examples:

- For AIX, add entries with the following format:

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

Where:

USER Name of the user

INSTANCE

Name of the database instance

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

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

Where:

USER Name of the user

INSTANCE

Name of the database instance

4. Repeat Steps 1 through 3 for each instance of the DB2 agent that was stopped.

5. Save the file.

Appendix. ITCAM for Applications documentation library

Various publications are relevant to the use of ITCAM for Applications.

For information about how to access and use the publications, see *Using the publications* (http://pic.dhe.ibm.com/infocenter/tivihelp/v61r1/topic/com.ibm.itm.doc_6.3/common/using_publications.htm).

To find publications from the previous version of a product, click **Previous versions** under the name of the product in the **Contents** pane.

Documentation for this product is in the ITCAM for Applications Information Center (http://publib.boulder.ibm.com/infocenter/tivihelp/v24r1/topic/com.ibm.itcama.doc_7.2.1/welcome_apps721.html):

- Quick Start Guide
- Offering Guide
- Download instructions
- Links to Prerequisites
- Installation and Configuration Guide for each agent
- Link to Reference information for each agent
- Link to Troubleshooting Guide for each agent

Prerequisite publications

To use the information about the agents effectively, you must have some prerequisite knowledge.

See the following information at the IBM Tivoli Monitoring Information Center (<http://pic.dhe.ibm.com/infocenter/tivihelp/v61r1/index.jsp>) to gain prerequisite knowledge:

- *IBM Tivoli Monitoring Administrator's Guide*
- *IBM Tivoli Monitoring Installation and Setup Guide*
- *IBM Tivoli Monitoring High Availability Guide for Distributed Systems*
- IBM Tivoli Monitoring: Installation and Configuration Guides for the following agents: Operating System agents and Warehouse agents
- IBM Tivoli Monitoring: User's Guides for the following agents: Agentless OS monitors, Log file agent, System p[®] agents, Systems Director base agent
- *IBM Tivoli Monitoring Agent Builder User's Guide*
- *IBM Tivoli Monitoring Command Reference*
- *IBM Tivoli Monitoring: Messages*
- *IBM Tivoli Monitoring Troubleshooting Guide*
- IBM Tivoli Monitoring: References for the following agents: Operating System agents and Warehouse agents
- IBM Tivoli Monitoring: Troubleshooting Guides for the following agents: Operating System agents and Warehouse agents
- *Tivoli Enterprise Portal User's Guide*

Related publications

The publications in related information centers provide useful information.

See the following information centers, which you can find by accessing Tivoli Documentation Central (<https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/Tivoli%20Documentation%20Central>):

- Tivoli Monitoring
- Tivoli Application Dependency Discovery Manager
- Tivoli Business Service Manager
- Tivoli Common Reporting
- Tivoli Enterprise Console
- Tivoli Netcool/OMNIBus

Tivoli Monitoring Community on Service Management Connect

Service Management Connect (SMC) is a repository of technical information that is organized by communities.

Access Service Management Connect at <https://www.ibm.com/developerworks/servicemanagement>.

For information about Tivoli products, see the Application Performance Management community (<http://www.ibm.com/developerworks/servicemanagement/apm/index.html>).

Connect, learn, and share with Service Management professionals. Get access to developers and product support technical experts who provide their perspectives and expertise. You can use SMC for these purposes:

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

Other sources of documentation

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

See the following sources of technical documentation about monitoring products:

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

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