IBM Tivoli Composite Application Manager Agents for WebSphere Messaging

Version 7.3

Installation and Setup Guide

SC14-7520-01

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Note
Before using this information and the product it supports, read the information in "Notices" on page 153.

This edition applies to version 7.3 of IBM Tivoli Composite Application Manager Agents for WebSphere Messaging (product number 5725-I45) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Part 1. Preparing for installation

This part introduces the ITCAM agent for WebSphere® MQ, ITCAM configuration agent for WebSphere MQ, and ITCAM agent for WebSphere Message Broker and describes tasks that you must perform before installing these agents. It also provides a roadmap that directs you to different chapters of the book depending on the operating system on which you install these agents.

Chapter 1. Introduction

This chapter gives a brief description of the ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, ITCAM agent for WebSphere Message Broker, and their relationship with IBM® Tivoli® Monitoring.

ITCAM agent for WebSphere MQ

You can use the ITCAM agent for WebSphere MQ to collect and analyze data that is specific to WebSphere MQ for all your remote and local queue managers from a single vantage point. You can then track trends in the data that is collected and troubleshoot system problems using the product provided workspaces.

The information provided by ITCAM agent for WebSphere MQ can be used to perform the following tasks:

- Monitor the performance of each system that is managed by WebSphere MQ, solve problems by identifying bottlenecks, and fine-tune the system for better performance
- Select the most effective threshold values for monitored attributes and trigger a warning situation when the attributes exceed the threshold value
- View status information related to a particular resource when a change in state is detected

In IBM Tivoli Monitoring version 6.2.3 or later infrastructure, the ITCAM agent for WebSphere MQ is a self-describing agent. After the self-describing capability is enabled at the monitoring server or at the agent for the ITCAM agent for WebSphere MQ, you no longer have to install the application support before you install the agent. For instructions about how to enable or disable the self-describing capability, see "Self-describing agents" on page 9.

ITCAM configuration agent for WebSphere MQ

Building a network for your WebSphere MQ messaging middleware can be a slow and difficult task. As your network grows and queue managers span dozens of systems running on a variety of operating systems, it becomes even more difficult to determine where and how to configure new queue managers and their resources.

By using ITCAM configuration agent for WebSphere MQ, you can simplify the tasks of defining your configuration of WebSphere MQ. You can use ITCAM configuration agent for WebSphere MQ to do the following tasks:

- Manage your WebSphere MQ network, including local or remote nodes, from a single point of control
- See how your WebSphere MQ queue managers and resources are related by viewing a hierarchical representation of your entire network
- Manipulate WebSphere MQ objects across one or more networks of queue managers from a single workstation
- Base configurations on prototype models so you can implement global updates with the click of a mouse
- Save time and resources by performing many difficult development tasks automatically

- Group related WebSphere MQ resources together in ways that reflect the business-oriented relationships between them and the logical structure of your enterprise

ITCAM agent for WebSphere Message Broker

ITCAM agent for WebSphere Message Broker helps ensure the reliability and performance of your broker environment by detecting and correcting broker and message flow problems before they have an impact on service speed and availability. ITCAM agent for WebSphere Message Broker also reduces the amount of time it takes to deploy broker applications by helping you to debug message flows and providing statistics that you can use to tune your environment.

You can use ITCAM agent for WebSphere Message Broker to perform the following tasks:

- Monitor the status of your IBM broker product and its components
- View information and performance statistics for broker topologies at broker, execution group, message flow, node, terminal, and thread level in both tabular and chart form
- Issue IBM broker product commands using the ITCAM agent for WebSphere Message Broker interface to directly manage your environment, or create automatic responses to WebSphere Message Broker events
- Receive alerts when performance thresholds are exceeded or when message flow events occur
- Retain data samples in history files and save them to a historical database for reporting and analysis purposes

ITCAM agent for WebSphere Message Brokers collect data from WebSphere Message Brokers. The data is presented in charts and tables that you can examine to monitor the performance of your WebSphere Business Integration systems. The agents also evaluate the data to determine when specified values meet criteria that you have defined and trigger alerts or programmed actions in response.

In addition, ITCAM agent for WebSphere Message Broker provides a CandleMonitor node. When inserted into a message flow, the CandleMonitor node collects message flow and subflow performance statistics and provides a mechanism for generating user-defined events. For the following workspaces to contain data, the broker must have at least one deployed CandleMonitor node.

In IBM Tivoli Monitoring version 6.2.3 or later infrastructure, the ITCAM agent for WebSphere Message Broker is a self-describing agent. After the self-describing capability is enabled at the monitoring server or at the agent for the ITCAM agent for WebSphere Message Broker, you no longer need to install the application support before you install the agent. For instructions about how to enable or disable the self-describing capability, see “Self-describing agents” on page 9.

IBM Tivoli Monitoring

IBM Tivoli Monitoring manages system and network applications on various platforms and traces the availability and performance of all parts of your enterprise. IBM Tivoli Monitoring provides ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, and ITCAM agent for WebSphere Message Broker with the following facilities:

- Visualize real-time monitoring data from your environment
- Monitor resources in your environment for certain conditions

- Establish performance thresholds and raise alerts when thresholds are exceeded or values are matched
- Trace the causes leading up to an alert
- Create and send commands to systems in your managed enterprise with the Take Action function
- Use integrating reporting to create comprehensive reports about system conditions
- Monitor conditions of particular interest by defining custom queries using the attributes from an installed agent or from an ODBC-compliant data source
- Agent deployment and configuration
- Tivoli Data Warehouse with summarization and pruning capabilities.

IBM Tivoli Monitoring provides the agents with a common agent-server-client architecture:

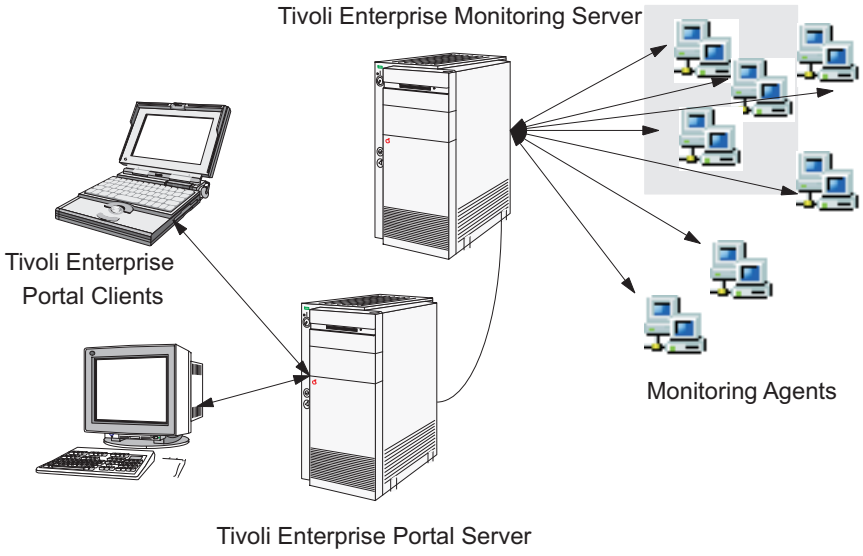

Figure 1. Agent–Server–Client architecture

Tivoli Enterprise Monitoring Server

The Tivoli Enterprise Monitoring Server gathers data from the Tivoli Enterprise Monitoring agents and acts as a collection and control point for alerts received from the agents. Tivoli Enterprise Monitoring Server sends the data it receives from the agents to Tivoli Enterprise Portal clients, where it is displayed in tabular or graphic views in a set of predefined or customized workspaces. Tivoli Enterprise Monitoring Server also accepts requests for information or action from Tivoli Enterprise Portal clients and distributes them to the agents for execution.

Tivoli Enterprise Portal

The Tivoli Enterprise Portal is the Java-based interface to the data monitoring and management resources of IBM Tivoli Monitoring. Depending on how it is installed, Tivoli Enterprise Portal can be used as either a desktop or browser-based client.

Tivoli Enterprise Portal has its own server, Tivoli Enterprise Portal Server. Tivoli Enterprise Portal Server performs common Tivoli Enterprise Portal functions and serves to lighten the Tivoli Enterprise Portal client.

Tivoli Enterprise Monitoring agents

Tivoli Enterprise Monitoring agents collect system or application data from monitored, or *managed* systems. The ITCAM agent for WebSphere Message Broker agents, for example, monitor WebSphere Message Brokers and their message flows. The data are passed to the Tivoli Enterprise Monitoring Server, and displayed in the Tivoli Enterprise Portal client.

Tivoli Enterprise Monitoring agents can also compare the current values of monitored properties against a set of defined conditions, and trigger alerts or actions when conditions warrant. They can accept and execute requested actions that are relayed to them from Tivoli Enterprise Portal clients by the Tivoli Enterprise Monitoring Server.

Chapter 2. Preparing for installation

This chapter explains a series of steps that must be performed before installing the ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, or ITCAM agent for WebSphere Message Broker. The information in this chapter applies to users who are upgrading from a previous version of agent and users who are installing the software for the first time, unless stated otherwise.

General guidelines for preparing the environment

Before you start to install an agent, there are some checkpoints or guidelines to help you to ensure that your environment is suitable for installation.

Perform the following steps to prepare your environment for the installation:

1. Ensure that all IBM Tivoli Monitoring components required by the agent have been installed.

   Before installing an agent, the following IBM Tivoli Monitoring components must be installed and running correctly:

   - Tivoli Enterprise Monitoring Server
   - Tivoli Enterprise Portal Server
   - Tivoli Enterprise Portal desktop client
   - The Warehouse Proxy (This component is optional and only required if you intend to use historical reporting or save historical data to a database for reference purposes.)

   Important: If your system is running a version of IBM Tivoli Monitoring prior to minimum required version of IBM Tivoli Monitoring, you must first upgrade it to minimum required version of IBM Tivoli Monitoring or later versions. For upgrading instructions, see the *IBM Tivoli Monitoring Installation and Setup Guide*.

2. Decide whether you want to enable the self-describing capability for the ITCAM agent for WebSphere MQ or the ITCAM agent for WebSphere Message Broker. The self-describing feature is available for IBM Tivoli Monitoring 6.2.3 or later infrastructure. With the self-describing capability, you no longer have to install application support on the IBM Tivoli Monitoring infrastructure before you install a monitoring agent. For instructions about how to enable or disable the self-describing capability, see "Self-describing agents" on page 9.

   Remember:

   - The self-describing capability is available only for ITCAM agent for WebSphere MQ or the ITCAM agent for WebSphere Message Broker running on Windows, Linux, and UNIX systems.
   - The self-describing capability is not available for ITCAM configuration agent for WebSphere MQ. You must install the application support of ITCAM configuration agent for WebSphere MQ on the IBM Tivoli Monitoring components (monitoring server, portal server, and portal desktop client) before you install the agent.
   - If you want to remotely deploy an agent from Tivoli Enterprise Portal, the self-describing capability is not supported in this mode.

3. Identify where the systems or applications are running. In general, you can install and configure an agent on every operating system where the queue manager or message broker you want to monitor is running.
4. Identify the communications protocols that are available in your environment.

   Use TCP/IP (IP.UDP on Windows systems and IP on UNIX and Linux systems), IP.PIPE, or SNA for communication between the monitoring agent and the IBM Tivoli Monitoring components.
5. Ensure that the operating system of the computer on which you plan to install an agent is listed in Appendix E, "Supported operating systems," on page 143. If the operating system you are using is not listed in this section, you might still be able to use remote monitoring and configuration functions of ITCAM agent for WebSphere MQ and ITCAM configuration agent for WebSphere MQ to monitor and configure WebSphere MQ components remotely. For more information see the following documentation:
   - ITCAM agent for WebSphere MQ: Monitoring events on non-supported systems in the *IBM Tivoli Composite Application Manager Agent for WebSphere MQ User's Guide*.
   - ITCAM configuration agent for WebSphere MQ: Configuring a remote queue manager in the *IBM Tivoli Composite Application Manager Configuration Agent for WebSphere MQ User's Guide*.
6. If your environment is protected by a firewall, read the section regarding firewalls in the *IBM Tivoli Monitoring Installation and Setup Guide*.
7. If you plan to use the agent remote deployment function, ensure that the IBM Tivoli Monitoring OS agent is running on the target operating system where you plan to deploy an agent before installing an agent. For information about how to deploy agent remotely, see Chapter 12, "Deploying monitoring across your environment from a central location," on page 103.

Requirements

Before installing and configuring the agent, make sure that your environment meets the requirement for the ITCAM Agents for WebSphere Messaging.

You can generate compatibility reports for the product that you are interested in by using the Software Product Compatibility Reports (SPCR) tool (http://publib.boulder.ibm.com/infocenter/prodguid/v1r0/clarity/index.html). Search for the Tivoli Composite Application Manager for Applications product.

Prerequisites checking

The integrated Prerequisite Scanner verifies whether all the prerequisites that are required for the agent installation are met. The Prerequisite Scanner creates a summary report after a successful prerequisite scan.

For the ITCAM Agents for WebSphere Messaging, the Prerequisite Scanner verifies the following requirements:

- Memory
- Disk space
- Operating systems

You can run Prerequisite Scanner on both first-time and upgrade installations. For more information about the prerequisite checker, see "Prerequisite Scanner for Tivoli Monitoring components" in the *IBM Tivoli Monitoring: Installation and Setup Guide*.

Required information for Tivoli Enterprise Monitoring Server

During the installation, you are required to enter some information about monitoring server. Use the worksheet in this section to gather the information before you start the installation.

Table 1. Worksheet of required information for installation

Information to be collected	Details
Name of the Tivoli Enterprise Monitoring Server that the agents will connect to	
Host name of the computer on which the Tivoli Enterprise Monitoring Server that the agents will connect to is running	
IP address of the computer on which the Tivoli Enterprise Monitoring Server that the agents will connect to is running	
Encryption key for the hub Tivoli Enterprise Monitoring Server	
Agent product code or codes	
Communications protocol details of the Tivoli Enterprise Monitoring Server that the agents will connect to	
Root user password (UNIX or Linux system)	

Self-describing agents

IBM Tivoli Monitoring V6.2.3 or later infrastructure provides the self-describing capability, which can automatically install agent application support on IBM Tivoli Monitoring servers. ITCAM agent for WebSphere MQ and ITCAM agent for WebSphere Message Broker are self-describing agents. Before you install a self-describing agent, decide whether you want to turn on the self-describing capability.

The *self-describing* agent, which includes all the required application support files, pushes any updates to the application support files to the IBM Tivoli Monitoring components (monitoring server and portal servers) after startup. With the self-describing capability, you no longer have to manually install the application support for each agent on IBM Tivoli Monitoring infrastructure as you must do for earlier versions. After a self-describing agent is installed and started, the application support for the agent is automatically installed and activated in the IBM Tivoli Monitoring infrastructure without the need to recycle the servers.

In IBM Tivoli Monitoring V6.2.3 and V6.2.3 fix pack 1, when the self-describing agent capability is turned on, any available products and versions are automatically installed. This default self-describing agent behavior has been changed since IBM Tivoli Monitoring 6.3. In IBM Tivoli Monitoring 6.3 or later infrastructure, the hub monitoring server blocks all self-describing agent installation until you issue one of the new **tacmd** commands. This changed

self-describing agent behavior and new **tacmd** commands provide more control over what products and versions are installed on your monitoring server and portal server by the automatic self-describing agent process.

By default, the self-describing agent environment variable is set to `Y` to enable the self-describing agent capability at all components, except for the hub monitoring server. The environment variable KMS_SDA is disabled (`KMS_SDA=N`) by default only on the hub monitoring server. All components that connect to the hub monitoring server adjust their self-describing agent function to disabled if the hub monitoring server has the self-describing agent function disabled, or if the hub monitoring server is older and does not support self-describing agents. This allows control of all self-describing agent enablement from a single point - the hub monitoring server. A best practice is to use the KMS_SDA variable only at the hub monitoring server to control self-describing agent enablement, but it can be controlled at each component:

- Tivoli Enterprise Monitoring Server uses the KMS_SDA environment variable.
- Tivoli Enterprise Portal Server uses the TEPS_SDA environment variable.
- Self-describing agents use the TEMA_SDA environment variable.

You can also use **tacmd** commands to enable or disable the state of the self-describing agent function at the hub monitoring server, without having to recycle any hub monitoring servers. This control is only applied when the hub Tivoli Enterprise Monitoring Server is configured for self-describing agent capability with the environment variable KMS_SDA=Y.

The following table describes the administration commands for managing your self-describing agent installations. For details about these commands, see *IBM Tivoli Monitoring Command Reference*.

Table 2. The tacmd commands to manage your self-describing agent installations

Command	Description
tacmd addsdainstalloptions	Specify the products and versions that can be installed by the self-describing agent facility.
tacmd editsdainstalloptions	Modify an existing product version configuration, or change the default self-describing agent installation behavior.
tacmd listsdainstalloptions	Display the existing self-describing agent installation configurations from the hub monitoring server.
tacmd deletesdainstalloptions	Remove a specific version configuration, or remove all versions for a product.

Remember:

- The self-describing capability is available only for the ITCAM agent for WebSphere MQ and ITCAM agent for WebSphere Message Broker.
- Although Tivoli Management Services servers (hub monitoring server, portal server, and any remote monitoring server) can automatically install the application support files and refresh their facilities without recycling, application support is not automatically applied to the Tivoli Enterprise Portal clients. An indicator is displayed on these clients to tell the user that they must recycle their client to apply new or modified application support.

  If you are using the Tivoli Enterprise Portal desktop client, you must use the monitoring agent installation image to install the Tivoli Enterprise Portal application support on each of the desktop clients. If you are using the Tivoli Enterprise Portal browser client or Java™ Web Start client and you have the

required user permissions to view the updated application, after the indicator is displayed, you can choose to close and restart these clients to see the new updates.

- You can edit the monitoring server and agent environment variables at any time that you want to enable or disable the self-describing capability. After you change the variable values, you must restart the monitoring server to which the monitoring agent connects for your changes to take effect.
- If you want to remotely deploy the agent from Tivoli Enterprise Portal, the self-describing capability is not supported. Make sure that the self-describing capability is disabled at the monitoring server (`KMS_SDA=N`) before you remotely deploy the agent from the portal.
- If the hub monitoring server is running on a z/OS® system, the self-describing behavior of IBM Tivoli Monitoring 6.2.3 is retained during the upgrade from IBM Tivoli Monitoring V6.2.3 to V6.3.

Important: The self-describing capability for the ITCAM agent for WebSphere MQ and ITCAM agent for WebSphere Message Broker requires 32-bit shared libraries that are provided by IBM Tivoli Monitoring. If you install the ITCAM agent for WebSphere MQ or ITCAM agent for WebSphere Message Broker version 7.3 on a system where no IBM Tivoli Monitoring components are installed, you must upgrade the shared libraries to the minimum required version of IBM Tivoli Monitoring. If you installed any IBM Tivoli Monitoring components on the system where you install a monitoring agent, make sure that the 32-bit shared libraries are upgraded to the minimum required version of IBM Tivoli Monitoring.

To upgrade the shared libraries, install the Tivoli Enterprise Services User Interface Extensions component that is included with IBM Tivoli Monitoring on the system where you installed the agent. Remember to choose 32-bit User Interface Extensions for all 64-bit operating systems. When you install 32-bit User Interface Extensions on a 64-bit operating system, use the silent installation method because 32-bit User Interface Extensions is not displayed on the installation GUI for you to select.

Tip: After the agent installation is complete, you can use one of the following commands to view the build and installation information for a specific component, where *pc* is the product code to identify each agent (see Appendix B, "Product codes," on page 135).

- UNIX or Linux system: `cinfo -t` *pc*
- Windows system: `kincinfo -t` *pc*

For example, when you issue the `cinfo -t mq` command on a Linux system, the output of this command shows the build and prerequisite information of ITCAM agent for WebSphere MQ.

For more information about how to enable the self-describing capability, see *IBM Tivoli Monitoring: Installation and Setup Guide* and the *IBM Tivoli Management Services on z/OS: Configuring the Tivoli Enterprise Monitoring Server on z/OS, SC27-2313*.

Upgrading from a previous installation

If you are upgrading the agent from a previous version, read *IBM Tivoli Composite Application Manager Agents for WebSphere Messaging: Upgrade and Migration Guide* for instructions about how to upgrade from a previous version to version 7.3.

Preinstallation tasks on Windows systems

Several preinstallation tasks must be performed before you proceed with the installation of any agents on a Windows system.

Complete the following steps to prepare the Windows system for agent installation.

1. Ensure that your Windows user ID has Administrator authority.

   Your Windows user ID must be a member of the Administrators user group for you to be able to install the agent. If you do not have administrator access, contact your system administrator.
2. Stop the Lotus Notes® server.

   If a Lotus Notes server is running on the operating system on which you are installing the agent, stop the Lotus Notes server before proceeding with the installation. Individual Lotus Notes applications can continue to run.
3. Check the `hosts` file.

   The ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, or ITCAM agent for WebSphere Message Broker do not require a DNS server. If your Windows system is running without a DNS, make sure that the `hosts` file of the local server is up to date.

UNIX system considerations

Before you install an agent on a UNIX system, there are some requirements about path name and Network Interface Card (NIC) that you must be aware of.

- Use fully qualified path names.

  Because there are many different versions of UNIX systems and possible user environments, it is good form to use fully qualified path names, without pattern-matching characters, when you specify a directory during the installation process. IBM scripts use the Korn shell, and when a new process or shell is invoked, use of symbolic links, environment variables, or aliases can cause unexpected results.
- Specify which NIC to use when specifying the name of the Tivoli Enterprise Monitoring Server and host name during the installation in either of the following situations:
  - The computer on which Tivoli Enterprise Monitoring Server is installed has more than one NIC.
  - The host name of the system does not match the interface name, even when only one NIC exists.

  For the agents to be able to connect to the Tivoli Enterprise Monitoring Server, specify an additional variable when configuring the Tivoli Enterprise Monitoring Server or the agents. This variable is listed under the Optional Primary Network Name in the configuration windows or during the command-line installation.

Preinstallation tasks on i5/OS systems

Perform the following tasks before you install the ITCAM agent for WebSphere MQ or the ITCAM configuration agent for WebSphere MQ on an i5/OS™ system.

Verifying TCP/IP configuration

This step ensures that your Internet Protocol network services are configured to return the fully qualified host name of the Tivoli Enterprise Monitoring Server and the agents, for example, #HostName.ibm.com.

This configuration task is necessary to minimize the risk of inconsistent values that are returned for the host name.

If your site uses SNA for network communications, you do not have to complete this step; skip to "Deleting old versions of agents."

1. If your site uses DNS, verify that it is configured to return the fully qualified host name of the Tivoli Enterprise Monitoring Server and the agents (for example: #hostName.ibm.com).
2. Confirm that you have configured TCP/IP with the correct parameters, as follows:
   a. From an i5/OS console, enter the following command:
      `CFGTCP`
   b. Select **Work with TCP/IP host tables entries**
   c. Confirm that the first entry in the Host Name column is the fully qualified host name associated with the IP address of the i5/OS system where you want to install the Tivoli Enterprise Monitoring Server or agent (for example: #hostName.ibm.com). If it is not, change it now to the fully qualified host name.
   d. Return to the Configure TCP/IP menu and select **Change TCP/IP domain information**.
   e. Confirm that a host name and domain name are provided and that they match the entry you just confirmed in the TCP/IP Host Table.
   f. Confirm that the first entry for **Host name search priority** is `*LOCAL`.

Deleting old versions of agents

If you are currently running any agents and want to replace them with the version supplied at this release, you must first delete previous versions of agents.

This step deletes from your system any versions of agents before the version supplied with this release. This step is necessary due to architectural changes in the new agents. If you are a new customer and are not running any agents, skip to "Preparing your WebSphere MQ environment" on page 14.

1. Verify that the earlier version of the agent is not running.
   a. To stop an agent, from an i5/OS console, issue one of the following commands and select END:
      - ITCAM agent for WebSphere MQ:
        `WRKOMAMQ`
      - ITCAM configuration agent for WebSphere MQ:
        `GO OMAMC`
   b. To verify the agent is stopped, issue one of the following commands. If no active jobs are displayed, it means that the agent is stopped.
      - ITCAM agent for WebSphere MQ:
        `WRKACTJOB  SBS(KMQLIB)`
      - ITCAM configuration agent for WebSphere MQ:
        `WRKACTJOB  SBS(KMCLIB)`
2. Delete the agent. From an i5/OS console, enter the following command:
   `DLTLICPGM LICPGM(0K`*`pp`*`450)`

   where *pp* is the agent code:
   - MQ for the ITCAM agent for WebSphere MQ.

- MC for the ITCAM configuration agent for WebSphere MQ.

Preparing your WebSphere MQ environment

This step ensures that your site has a correctly configured WebSphere MQ environment before proceeding with the installation of the ITCAM agent for WebSphere MQ and the ITCAM configuration agent for WebSphere MQ.

Verify that you are in compliance with the following prerequisites:

- The instructions in this guide assume that WebSphere MQ default objects, such as SYSTEM.DEFAULT.MODEL.QUEUE, exist. If they do not currently exist in your environment, you must create them before attempting to start the agent.
- If you want to monitor WebSphere MQ events, ensure that the following WebSphere MQ parameters are enabled (refer to your WebSphere MQ documentation if necessary):
  - INHIBTEV
  - LOCALEV
  - PERFMEV
  - REMOTEEV
  - STRSTPEV

Checking the authority level of the user ID

This step ensures that the user that will install and configure the ITCAM agent for WebSphere MQ and the ITCAM configuration agent for WebSphere MQ has the proper authority.

There are two internal user profiles, KMQ and KMC. By default, these internal user profiles have all the required authorities.

Remember: Only the minimum authority requirements are described in this section.

- To install an agent, verify that the following requirement is fulfilled:
  - The user has the Security Officer (*SECOFR) authority on the i5/OS system where the installation will take place.
- To configure, start, or stop the ITCAM configuration agent for WebSphere MQ, verify the following requirements are fulfilled:
  - The user has the Job Control (*JOBCTL) authority to the user.
  - The user has the *USE authority for the KMC user profile.
  - The user has the *ALL authority for the KMCLIB and KMCTMP libraries.
  - The KMC user profile has the Job Control (*JOBCTL) authority.
  - The KMC user profile has the *ALL authority for the KMCLIB and KMCTMP libraries.
- To configure, start, or stop the ITCAM agent for WebSphere MQ, verify that the following requirements are fulfilled:
  - The user has the Job Control (*JOBCTL) authority to the user.
  - The user has the *USE authority for the KMQ user profile.
  - The user has the *ALL authority for the KMQLIB and KMQTMP libraries.
  - The KMQ user profile has the Job Control (*JOBCTL) authority.
  - The KMQ user profile has the *ALL authority for the KMQLIB and KMQTMP libraries.

– If the user wants to issue the Take Action command on Tivoli Enterprise Portal, the KMQ user profile must have the *SPLCTL, *AUDIT, *SAVSYS, and *SERVICE authorities.

Tip: The same user ID must be used when you install the ITCAM agent for WebSphere MQ and the ITCAM configuration agent for WebSphere MQ as that you used to install WebSphere MQ. Otherwise, there might be potential errors existing. For example, the error log file of WebSphere MQ cannot be read.

Compiling information about your i5/OS systems

This step provides information that is needed before or during the installation and configuration of ITCAM agent for WebSphere MQ and ITCAM configuration agent for WebSphere MQ. Review each of the following sections and complete the steps to obtain the information.

Verifying that the IBM OMEGAMON/400 agent is not installed

The ITCAM agent for WebSphere MQ and the ITCAM configuration agent for WebSphere MQ cannot be installed on the same system with the IBM OMEGAMON/400 agent. Before you install the agent, you must check for the existence of the OMEGAMON/400 agent and delete it if it is present.

Complete the following steps to delete the OMEGAMON/400 agent:

1. Access an i5/OS console and enter the following command:
   ```
   GO LICPGM
   ```
2. At the Work with Licensed Programs, enter 12 (Delete licensed programs).
3. Check in the Licensed Program column for the **57xxES1** entry (the OMEGAMON/400 agent).
4. If the entry exists, enter 4 in the Option column next to it to delete.

Verifying which version of i5/OS operating system you are running

Before you install an agent on the i5/OS system, you must know the version of the operating system.

Complete the following steps to check the version of your i5/OS system:

1. Access an i5/OS console and enter the following command:
   ```
   DSPSFWRSC
   ```
2. Press F11 to display software resources.
3. In the Resource ID column, look for 57xx999.
4. Check the corresponding Release column for the version number; for example, V5R3M0.

Verifying that the TCP/IP Utilities is installed, if necessary

To use TCP/IP protocols for the installation, make sure that the TCP/IP Utilities is installed.

Complete the following steps to check for the existence of TCP/IP Utilities:

1. Access an i5/OS console, and enter the following command:
   ```
   GO LICPGM
   ```
2. At the Work with Licensed Programs enter 10 (Display installed licensed programs).

3. Look for the following entry: `*COMPATIBLE TCP/IP Connectivity Utilities for i5/OS system`.
4. If the TCP/IP Utilities is not installed, you must install it. It is supplied as part of the operating system.

Verifying the primary language of your i5/OS systems

During installation you are required to know whether the primary language of your i5/OS operating system is English.

To determine the primary language, complete the following steps:

1. Access an i5/OS console and enter the following command:
   `GO LICPGM`
2. Enter `20` (Display installed secondary languages).
   The Display Installed Secondary Languages dialog window is displayed.
3. Note the primary language and description displayed in the upper left corner. An English system is primary language **2924**, description **English**.
4. Press Enter to continue.

Agent configuration across a firewall

This section provides an overview of IBM implementation of firewall support. It explains basic concepts and gives sample scenarios of various configurations.

This section does not include specific steps for configuring an agent across a firewall; those steps can be found either in the installation chapters of this guide or in the other platform-specific installation guides, depending upon which operating systems you are configuring on.

Basic implementation

The ITCAM agent for WebSphere MQ, the ITCAM configuration agent for WebSphere MQ, and the ITCAM agent for WebSphere Message Broker support most common firewall configurations, including configurations that use address translation (application proxy firewall is a notable exception).

To enable this support, IBM uses the IP.PIPE socket address family, a TCP-based protocol that opens a single port on the firewall for communication by the agent. If your target agent environment includes a firewall between any components, you must specify IP.PIPE as your communication protocol during configuration. No other special configuration is required unless your firewall also uses address translation.

Implementation with address translation

Address translation is an enhanced security feature of some firewall configurations. With this feature, components that must be reached across the firewall have two unique, but corresponding addresses: the external address (valid for components outside the firewall) and the internal address (valid for components inside the firewall).

In IBM Tivoli Monitoring infrastructure, the component that typically must be reached for connection is the Tivoli Enterprise Monitoring Server. However, the Warehouse Proxy, which runs on a Windows system as a server-type application, must also be accessible to clients and would also require an external and internal address. A component on either side of the firewall only knows about the address that is valid for its side (its *partition*).

To accommodate sites with address translation, IBM uses a partition-naming strategy. This strategy requires two steps:

- The creation of a text file called a partition file as part of the configuration of a hub or remote Tivoli Enterprise Monitoring Server (or Warehouse Proxy). The partition file contains an entry that defines that component address in the other partition.
- The specification of a partition name (any alphanumeric string up to 32 characters), as part of the configuration of any agent, a hub or remote Tivoli Enterprise Monitoring Server, or Warehouse Proxy. A partition name must be specified for each component regardless of which side of the firewall it is in.

Sample scenarios

Sample scenarios are provided to help you understand IBM implementation of firewall support.

Assuming that your site has one firewall, there are two partitions: one outside the firewall and one inside the firewall. In the sample scenarios in this section, OUTSIDE and INSIDE are used as partition names. (If your site's configuration includes more than one firewall, contact IBM Software Support for assistance in configuring an agent.)

Remember: Whatever the operating system, the command-line examples in the following scenarios adhere to the UNIX and Windows systems text formatting conventions for literals and variables.

Scenario 1: hub Tivoli Enterprise Monitoring Server INSIDE, agents OUTSIDE

As part of the configuration of the hub Tivoli Enterprise Monitoring Server, INSIDE is specified as the name of the partition that is inside the firewall. A partition file named `parthub.txt` contains the following entry:

```
OUTSIDE ip.pipe:hub's_external_address
```

where *OUTSIDE* is the partition name outside the firewall and *hub's_external_address* is the address of the hub monitoring server that is valid for the agents.

As part of the configuration of each agent, OUTSIDE is specified as the name of the partition that it is outside the firewall.

When an agent starts, the `parthub.txt` file is searched for an entry that matches the *OUTSIDE* partition name and sees the monitoring server address that is valid for the agents (the external address).

Scenario 2: hub and remote Tivoli Enterprise Monitoring Servers INSIDE, agents OUTSIDE

Remember: In Scenarios 2 and 3, that all agents are assumed report to the remote Tivoli Enterprise Monitoring Server.

As part of the configuration of the hub monitoring server, INSIDE is specified as the name of the partition that is inside the firewall. No partition file is needed because the only component that reports to the remote monitoring server is also inside the firewall.

As part of the configuration of the remote monitoring server, INSIDE is specified as the name of the partition that is inside the firewall. A partition file named `partremote.txt` must also be created at the remote Tivoli Enterprise Monitoring Server. It contains the following entries:

OUTSIDE `ip.pipe:`*remote's_external_address*

When configuring the agents (all which are outside the firewall, reporting to the remote Tivoli Enterprise Monitoring Server), OUTSIDE is specified as the name of the partition that is outside the firewall. When the agents start, the `partremote.txt` file is searched for an entry that matches the *OUTSIDE* partition name and sees the remote monitoring server address that is valid for them (the external address).

Scenario 3: hub Tivoli Enterprise Monitoring Server INSIDE, remote Tivoli Enterprise Monitoring Server and agents OUTSIDE

As part of the configuration of the hub Tivoli Enterprise Monitoring Server, INSIDE is specified as the name of the partition that is inside the firewall. A partition file named `parthub.txt` is created, containing the following entry:

OUTSIDE `ip.pipe:`*hub's_external_address*

OUTSIDE is the partition name outside the firewall and *hub's_external_address* is the address of the hub Tivoli Enterprise Monitoring Server that is valid for the remote monitoring server.

As part of the configuration of both the agents and the remote monitoring server, OUTSIDE is specified as the name of the partition that is inside the firewall.

A partition file named `partremote.txt` also must be created at the remote Tivoli Enterprise Monitoring Server. It contains the following entry:

INSIDE `ip.pipe:`*remote's_internal_address*

If the hub Tivoli Enterprise Monitoring Server needs to communicate with the remote monitoring server (for example, to issue a report request from an agent that is connected to the remote monitoring server), the `partremote.txt` file is searched for an entry that matches the *INSIDE* partition name and sees the remote monitoring server address that is valid for it (the internal address).

Chapter 3. Installation roadmap

Depending on the operating system on which you are installing ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, and ITCAM agent for WebSphere Message Broker, focus on different chapters.

Roadmap for Windows systems

A roadmap is provided to guide you through all the required tasks before you can start using an agent on a Windows system.

Complete the steps that are listed in Table 3 to install ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, or ITCAM agent for WebSphere Message Broker on Windows systems.

Table 3. Installation roadmap on Windows systems

Step	Description and information provided
1	Perform all the required tasks on your Windows systems and gather all the required information as instructed in Chapter 2, "Preparing for installation," on page 7. Make sure that your environment is ready for the installation.
2	Install the agent on Windows systems. See Chapter 4, "Installing an agent on Windows systems," on page 25.
3	(Self-describing capability disabled or unavailable) Install the agent application support on the Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal desktop client. See Chapter 7, "Installing application support," on page 45. **Remember:** The self-describing capability is available only for the ITCAM agent for WebSphere MQ and ITCAM agent for WebSphere Message Broker. For ITCAM configuration agent for WebSphere MQ, you must always manually install agent application support on monitoring servers, portal servers, and portal desktop client.
4	(Self-describing agent only): If you are using Tivoli Enterprise Portal desktop client, manually install the agent application support on the Tivoli Enterprise Portal desktop client. See "Installing application support on the Tivoli Enterprise Portal desktop client" on page 62.
5	(Self-describing agent only): If no IBM Tivoli Monitoring component of version 6.3 or later is installed on the system where you installed the agent, you must install Tivoli Enterprise Services User Interface Extensions that is provided by IBM Tivoli Monitoring 6.3 or later on the system where you installed the agent. Otherwise, the shared libraries on the system are not upgraded to version 6.3 or later, and the self-describing capability is disabled. **Remember:** Choose to install 32-bit User Interface Extensions for all 64-bit operating systems.
6	(*Optional*): If you want the agent information displayed in Tivoli Enterprise Portal to be displayed in a language other than English, install the language packs. For instructions about how to install language packs, see Chapter 8, "Installing the language packs," on page 67.
7	Configure the agent that you installed on the Windows systems. See Chapter 9, "Configuring an agent on Windows systems," on page 71.

Roadmap for UNIX or Linux systems

A roadmap is provided to guide you through all the required tasks before you can start using an agent on a UNIX or Linux system.

Complete the steps that are listed in Table 4 to install ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, or ITCAM agent for WebSphere Message Broker on UNIX or Linux systems.

Table 4. Installation roadmap on UNIX and Linux systems

Step	Description and information provided
1	Perform all the required tasks on your UNIX or Linux systems and gather all the required information as instructed in Chapter 2, "Preparing for installation," on page 7. Make sure that your environment is ready for the installation.
2	Install the agent on UNIX or Linux systems. See Chapter 5, "Installing an agent on UNIX or Linux systems," on page 31.
3	(Self-describing capability disabled or unavailable) Install the agent application support on the Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal desktop client. See Chapter 7, "Installing application support," on page 45. **Remember:** The self-describing capability is available only for the ITCAM agent for WebSphere MQ and ITCAM agent for WebSphere Message Broker. For ITCAM configuration agent for WebSphere MQ, you must always manually install agent application support on monitoring servers, portal servers, and portal desktop client.
4	(Self-describing agent only): If you are using Tivoli Enterprise Portal desktop client, manually install the agent application support on the Tivoli Enterprise Portal desktop client. See "Installing application support on the Tivoli Enterprise Portal desktop client" on page 62.
5	(Self-describing agent only): If no IBM Tivoli Monitoring component of version 6.3 or later is installed on the system where you installed the agent, you must install Tivoli Enterprise Services User Interface Extensions that is provided by IBM Tivoli Monitoring 6.3 or later on the system where you installed the agent. Otherwise, the shared libraries on the system are not upgraded to version 6.3 or later, and the self-describing capability is disabled. **Remember:** Choose to install 32-bit User Interface Extensions for all 64-bit operating systems.
6	(*Optional*): If you want the agent information displayed in Tivoli Enterprise Portal to be displayed in a language other than English, install the language packs. For instructions about how to install language packs, see Chapter 8, "Installing the language packs," on page 67.
7	Configure the agent that you installed on the UNIX or Linux systems. See Chapter 10, "Configuring an agent on UNIX and Linux systems," on page 83.

Roadmap for i5/OS systems

A roadmap is provided to guide you through all the required tasks before you can start using an agent on an i5/OS system.

Remember: Only the ITCAM agent for WebSphere MQ and the ITCAM configuration agent for WebSphere MQ are currently supported on i5/OS systems.

Complete the steps that are listed in Table 5 on page 21 to install ITCAM agent for WebSphere MQ or ITCAM configuration agent for WebSphere MQ on i5/OS systems.

Table 5. Installation roadmap on i5/OS systems

Step	Description and information provided
1	Perform all the required tasks on your i5/OS systems and gather all the required information as instructed in "Preinstallation tasks on i5/OS systems" on page 12. Make sure that your environment is ready for the installation.
2	Install the agent on i5/OS systems. See Chapter 6, "Installing an agent on i5/OS systems," on page 39.
3	Install agent application support on the Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal desktop client. See Chapter 7, "Installing application support," on page 45.
4	(*Optional*): If you want the agent information displayed in Tivoli Enterprise Portal to be displayed in a language other than English, install the language packs. For instructions about how to install language packs, see Chapter 8, "Installing the language packs," on page 67.
5	Configure the agent that you installed on the i5/OS systems. See Chapter 11, "Configuring an agent on i5/OS systems," on page 93.

Part 2. Installing an agent

This part contains instructions about how to install ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, or ITCAM agent for WebSphere Message Broker on Windows, Linux, UNIX, and i5/OS systems.

Chapter 4. Installing an agent on Windows systems

This chapter contains step-by-step instructions for installing ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, or ITCAM agent for WebSphere Message Broker on a Windows operating system.

The following procedure is for users installing agents on a system with no previous version of the agent installed. If a previous version is already installed on the system, see *IBM Tivoli Composite Application Manager Agents for WebSphere Messaging: Upgrade and Migration Guide* for information about how to migrate or upgrade to version 7.3 before proceeding.

There are two methods of installing an agent on Windows systems. Installation can be performed interactively using the installation program wizard to guide you through the process, or you can perform a silent installation where all installation parameters are specified in a response file before the installation begins. For detailed instructions about how to use either of these methods, see the following sections:

- "Installation program wizard installation"
- "Silent installation" on page 28

Installation program wizard installation

Use the following steps to install an agent with the installation program wizard.

Remember: To use the integrated Prerequisite Scanner, you must use a local installation image or map to a network drive. Otherwise, the Prerequisite Scanner reports cannot be obtained. However, you can still proceed with the installation without prerequisite checking.

1. Log on to the Windows system using a user ID with Administrator authority.
2. Close any running applications.
3. Launch the installation wizard by double-clicking the `setup.exe` file on the product DVD image. If the `setup.exe` file fails to run, you do not have enough disk space to extract the setup files. Clear some disk space before starting the installation process again.

   Important: If you are running Windows 2003 system and have security set to check the software publisher of applications, you might receive an error stating that the `setup.exe` file is from an unknown publisher. Click **Run** to disregard this error message and continue with the installation process. The installation program wizard window displays a message welcoming you to the setup process.
4. In the Welcome window, click **Next**. The Prerequisites window is displayed.
5. Read the instructions on the Prerequisites window and click **Next**. The Software License Agreement window is displayed.
6. To accept the software license, select **I accept the terms in the license agreement** and click **Next**. The Choose Destination Location window is displayed.
7. Select the folder where you want to install the agent and click **Next**.

8. If you are asked to provide an encryption key in the User Data Encryption Key window, enter a 32-character key or accept the default. The encryption key is used to secure password transmission and other sensitive data across your IBM Tivoli Monitoring environment. Click **Next** and then click **OK** to confirm the encryption key.
9. In the Select Features window, select the agents that you want to install from the list by selecting the check box next to the agent name. After you have selected all the agents that you want to install, click **Next** to continue. When you select one or more agents, **Tivoli Enterprise Monitoring Agent Framework** is selected automatically.
   - Select **WebSphere MQ Configuration Agent** for ITCAM configuration agent for WebSphere MQ.
   - Select **WebSphere MQ Monitoring Agent** for ITCAM agent for WebSphere MQ.
   - Select **WebSphere Message Broker Monitoring Agent** for ITCAM agent for WebSphere Message Broker.

   Tip: To run the prerequisite checking, select the **Verify prerequisites** check box. The prerequisite scanner reports will be displayed after you click **Next** on this window. If a component has not passed the prerequisite scan, a message is displayed saying `Not all prerequisites for components have been met. Do you want to continue with the installation?`. You can click **Yes** to continue the installation or **No** to exit installation.

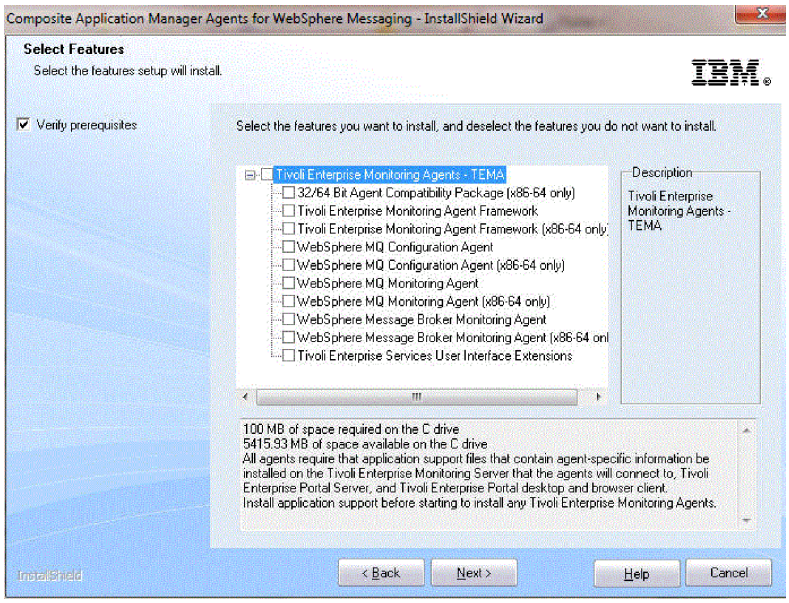

Figure 2. The installation program wizard window for feature selection during the installation of the monitoring agents

10. If a monitoring server has been installed on the same system, the Agent Deployment window is displayed. For this local agent installation, ensure that no agents are selected and click **Next**.
11. In the Select Program Folder window, select a program folder and click **Next**. The Start Copying Files window, summarizing the components that you have selected to install, is displayed.

12. In the Start Copying Files window, review the installation summary details. Click **Next** to start the installation. A message is displayed stating that you will not be able to cancel the installation or upgrade after this point.
13. Click **Yes** to continue. The file-copying process might take several minutes. After the process is complete, the Setup Type window is displayed.
14. Select **Configure Tivoli Enterprise Portal** and **Configure agents default connection to Tivoli Enterprise Monitoring Server** and click **Next**. The **Configure Tivoli Enterprise Portal** option is displayed only when Tivoli Enterprise Portal is installed on the same system.

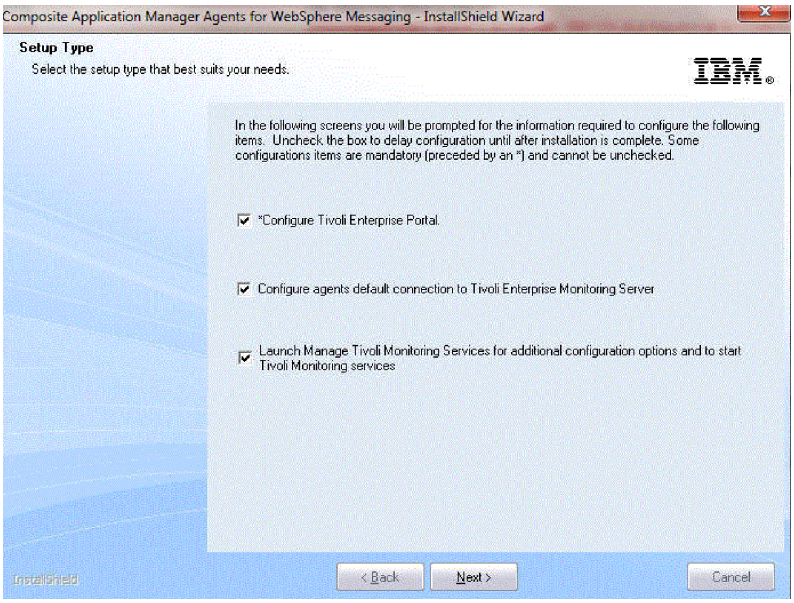

Figure 3. The installation program wizard window for setup type selection during the installation of the monitoring agents

15. In the TEPS Hostname window, type the host name of the server where the Tivoli Enterprise Portal Server is installed and click **Next**.
16. In the Configuration Defaults for Connecting to a TEMS window, do the following things:
    a. If the agent must cross a firewall to access the Tivoli Enterprise Monitoring Server, select **Connection must pass through firewall**.
    b. If the firewall shielding the Tivoli Enterprise Monitoring Server uses address translation, select **Address Translation Used**.
    c. Select one or more protocols to be used when connecting to the Tivoli Enterprise Monitoring Server and click **Next**. You can select up to three protocols. The protocol specified in the **Protocol 1** field is used by default. If connection to the Tivoli Enterprise Monitoring Server using this protocol fails, the protocol specified in the **Protocol 2** field is used, and if connection still fails, the protocol specified in the **Protocol 3** field is used. Available protocols are IP.PIPE, IP.SPIPE, SNA, and IP.UDP.
    d. Refer to the fields in Table 7 on page 37 to define the communications between the agents and the Tivoli Enterprise Monitoring Server.
17. When the InstallShield Wizard Complete window is displayed, specify whether you want to display the readme file and click **Finish** to exit the installation program wizard. Installation is now complete.

Installing the agent is now completed. Go back to Chapter 3, "Installation roadmap," on page 19 to continue with other installation tasks.

Silent installation

Use the silent installation feature to install an agent using installation parameters specified in a response file, instead of entering parameters interactively during the installation process. This feature is particularly useful if you want to install an agent on a large number of computers with similar configurations, because the administrator is required to specify installation parameters only once, in the response file, instead of entering them repeatedly for every operating system on which installation is performed.

To perform silent installation, complete the steps in the following procedures:

1. "Creating the response file"
2. "Installing an agent" on page 29
3. "Configuring the default connection of the agents to Tivoli Enterprise Monitoring Server" on page 30

Creating the response file

Perform the following steps to create a response file specifying installation parameters for your environment.

1. Copy the `silent.txt` file from the product DVD to a temporary directory (for example, `C:\temp`).
2. Edit the `silent.txt` file as follows. Note that the following rules apply to this file:
   - Comment lines begin with a semicolon (;).
   - Each line of this file must be either a comment or a meaningful statement that starts in column one.
   - Parameter lines are indicated by PARAMETER=value. Do not use a space before the parameter; you can use a space before or after an equal sign (=).
   - Do not use any of the following characters in any parameter value:
     - Dollar sign ($)
     - Equals sign (=)
     - Pipe sign (|)

   Modify the following parameters as appropriate for your environment:

   a. Uncomment the line containing the **`License Agreement`** parameter. By doing this step, you agree to the terms of the license agreement.

      Remember: You must agree to the license agreement and uncomment this parameter to be able to proceed with the installation procedure.

   b. Uncomment the line containing the **`Install Directory`** parameter and specify the directory in which you want to install the agent. To simplify the management of Tivoli Monitoring products on Windows systems, install Tivoli Monitoring products to the same directory in your environment. If you install to different directories, you cannot use the remote features provided by several product configuration dialog windows.

      Important: If you are installing an agent on a system where IBM Tivoli Monitoring is already installed, the agent is installed to the installation directory of IBM Tivoli Monitoring, regardless of this parameter.

c. If you do not want the agent program group to be given the default name specified by the **Install Folder** parameter, uncomment the parameter and enter a new name.

d. Uncomment the **EncryptionKey** parameter and enter a key with which to encrypt your local passwords and user IDs. The encryption key must be 32 characters in length. If the key specified by this parameter is less than 32 characters, it is padded with nine s's.

e. In the **[FEATURES]** section, uncomment the parameters representing the features that you want to install. The names of features are displayed directly after the equal sign (=) of the parameter, with the component that the feature belongs to displayed in brackets. The component code is displayed before the equals sign.

   Remember: If you want to install one or more agents on this system, make sure that you uncomment the following line in addition to the lines that represent the agents that you want to install:

   ```
   KGLWICMA=Tivoli Enterprise Monitoring Agent Framework
   ```

   For example, uncomment the following lines if you want to install the ITCAM agent for WebSphere MQ:

   ```
   KGLWICMA=Tivoli Enterprise Monitoring Agent Framework
   KMQWICMA=ITCAM agent for WebSphere MQ
   ```

   Uncomment the following line if you want to install the ITCAM agent for WebSphere MQ application support on the Tivoli Enterprise Monitoring Server:

   ```
   KMQWICMS=ITCAM agent for WebSphere MQ Support (TEMS)
   ```

   Uncomment the following line if you want to install the ITCAM agent for WebSphere MQ application support on the Tivoli Enterprise Portal Server:

   ```
   KMQWICNS=ITCAM agent for WebSphere MQ Support (TEPS)
   ```

   Uncomment the following line if you want to install the ITCAM agent for WebSphere MQ application support on the Tivoli Enterprise Portal client:

   ```
   KMQWIXEW=ITCAM agent for WebSphere MQ Support (TEP Workstation)
   ```

f. In the **[DEPLOY FEATURES]** section, uncomment the parameters representing the agents that you want to be configured for remote deployment later. For example, uncomment the following line if you want the ITCAM agent for WebSphere MQ to be configured for remote deployment later:

   ```
   KMQWICMA=ITCAM agent for WebSphere MQ
   ```

3. Save the file and close the editor.

   Remember: Do not use a long file name if you want to rename the response file. Make sure that the length of the response file name is no longer than eight and its file extension is no longer than three. Use of a long file name might result in a failed installation.

Installing an agent

Use the following steps to install an agent with a silent installation on a Windows system.

1. Open a DOS command prompt.
2. Navigate to the directory that contains the product installation files (where the `setup.exe` file is).

3. Run the following command. You must specify the parameters in the following order:

   ```
   start /wait setup /z"/sfresponse_file_name" /s /f2"installation_log_file_name"
   ```

   where:

   response_file_name
   Specifies the full path of the response file containing the parameters of the installation (by default this file is named `silent.txt`). This parameter cannot be omitted.

   /s Specifies that it is a silent installation. This causes no responses to be displayed during installation on the installed target workstation.

   installation_log_file_name
   The full path of the file to which log information is written during the installation process. This file is created during installation, and any existing file with the same name is overwritten. If this parameter is not specified, the `Setup.log` file in the same directory as `setup.iss` is used to write log information.

   For example, if the response file is located in the `C:\temp\SILENT.TXT` directory and you want the installation program log to be written to the `C:\temp\silent_setup.log` file, enter the following command to start the silent installation:

   ```
   start /wait setup /z"/sfC:\temp\SILENT.TXT"
   /s /f2"C:\temp\silent_setup.log"
   ```

Configuring the default connection of the agents to Tivoli Enterprise Monitoring Server

Complete the following steps to configure the default connection between an agent on a Windows system and the monitoring server.

1. Open the Manage Tivoli Enterprise Monitoring Services window by clicking **Start** > **Programs** > **IBM Tivoli Monitoring** > **Manage Tivoli Monitoring Services**.
2. Click **Actions** on the menu bar, and then click **Set Defaults for All Agents** from the Actions menu.
3. In the Configuration Defaults for Connecting to a TEMS window:
   - If the agent must cross a firewall to access the Tivoli Enterprise Monitoring Server, select **Connection must pass through firewall**.
   - Identify the type of protocol that the agent uses to communicate with the monitoring server.
   - Refer to the fields in Table 7 on page 37 to define the communications between the agents and the monitoring server.

Installation of the agents is now complete. Go back to Chapter 3, “Installation roadmap,” on page 19 and continue with other installation tasks.

Chapter 5. Installing an agent on UNIX or Linux systems

This section contains step-by-step instructions for installing an agent on UNIX or Linux systems. You have two installation options, the command line installation and the silent installation.

Remember: If a previous version of an agent exists in your environment, see the *IBM Tivoli Composite Application Manager Agents for WebSphere Messaging: Upgrade and Migration Guide* before proceeding.

Use one of the following two options to install an agent on UNIX or Linux systems:

- "Installing from the command line"
- "Performing a silent installation" on page 33

Installing from the command line

Use the following steps to install an agent from the command line on a UNIX or Linux system.

Important: If you are upgrading an ITCAM configuration agent for WebSphere MQ from a previous version, the existing `mc.cfg` and `mc.ini` configuration files are overwritten. If you want to keep your existing configuration files, create a backup before proceeding.

1. Log on to the system where you want to install an agent.

   Remember: If you used a non-root user ID to install an IBM Tivoli Monitoring component on this computer and you want to install the agent in the directory where the IBM Tivoli Monitoring component is installed, you must use the same user ID to install the agent.
2. Run the following command to create a temporary directory on the computer on which you plan to install an agent. Make sure that the full path of the directory does not contain any spaces:

   ```
   mkdir dir_name
   ```
3. Mount the product installation image for UNIX or Linux systems to the temporary directory that you created.
4. Run the following commands:

   ```
   cd dir_name
   ./install.sh
   ```

   where *dir_name* is the temporary directory that you created.
5. When prompted for the IBM Tivoli Monitoring directory, press Enter to accept the default (`/opt/IBM/ITM`) or type the full path to the installation directory and press Enter.
6. If a message is displayed stating that the directory already exists and asking whether to use it, type 1 and press Enter.
7. If a message containing a list of running processes and warning you that running products will be restarted during installation is displayed, to continue with installation, type 1 and press Enter.

8. The following prompt is displayed. Type 1 to start the installation and press Enter.

```
Select one of the following:
 1) Install products to the local host.
 2) Install products to depot for remote deployment (requires TEMS).
 3) Install TEMS support for remote seeding.
 4) Exit install.
Please enter a valid number:
```

   The first part of the software license agreement is displayed.

9. Press Enter to view latter parts of the agreement. After you have finished viewing the agreement, enter 1 to accept it or 2 to reject it and press Enter. You must accept the agreement to continue with the installation process.
10. When you are prompted for the encryption key, enter a 32-character key, or press Enter to use the default. The encryption key is used to secure password transmission and other sensitive data across your IBM Tivoli Monitoring environment. The default is `IBMTivoliMonitoringEncryptionKey`.
11. The following prompt is displayed. Type 1 to select IBM Tivoli Monitoring components and press Enter.

```
Product packages are available for this operating system and component support
   categories:

 1) IBM Tivoli Monitoring components for this operating system
 2) Tivoli Enterprise Portal Browser Client support
 3) Tivoli Enterprise Portal Desktop Client support
 4) Tivoli Enterprise Portal Server support
 5) Tivoli Enterprise Monitoring Server support
 6) Other operating systems

Type the number or type "q" to quit selection
```

12. To confirm your selection, type 1 and press Enter. A numbered list of available components is displayed as follows:

```
1) Tivoli Enterprise Services User Interface Extensions V06.30.02.00
2) WebSphere MQ Configuration Agent V07.30.00.00
3) WebSphere MQ Monitoring Agent V07.30.00.00
4) Websphere Message Broker Monitoring Agent V07.30.00.00
5) all of the above
```

13. Type the number that corresponds to the agent that you want to install on this computer and press Enter. If you want to install more than one component, use a comma (,) or a space to separate the numbers for each component.
    - Select WebSphere MQ Configuration Agent if you want to install the ITCAM configuration agent for WebSphere MQ.
    - Select WebSphere MQ Monitoring Agent if you want to install the ITCAM agent for WebSphere MQ.
    - Select WebSphere Message Broker Monitoring Agent if you want to install the ITCAM agent for WebSphere Message Broker.
14. A list of the components to be installed is displayed. To confirm your selection, type 1 and press Enter.
15. To run the integrated Prerequisite Scanner, press Enter at the following prompt.

```
Do you want to check prerequisites for the above components?
   [ 1=Yes, 2=No ; default is "1" ]
```

16. After a few minutes, the Prerequisite Scanner report is displayed. After you have examined the result you can type 1 to continue with the installation or 2 to cancel the installation.

17. After all the selected components are installed, you are asked whether you want to install additional products or product support packages. Type 2 and press Enter.
18. When you are asked whether you want to secure this IBM Tivoli Monitoring installation. Type your choice and press Enter.

You have finished installing the agents. The next step is to "Configuring to connect an agent to the Tivoli Enterprise Monitoring Server" on page 36.

Remember:

- If you want to run the agent with another user ID that is different from the one that you used to install the agent, you must follow the steps in "Changing the file permissions for agents" on page 119 before you can start the agent.
- If you installed the ITCAM agent for WebSphere Message Broker as a root user, you cannot run the agent as the root user. The user ID that is used to run the agent must belong to the **mqm** and **mqbrkrs** user groups. You must also change the agent file permissions to ensure that this user ID can run the agent successfully. For instructions, see "Changing the file permissions for agents" on page 119.

Performing a silent installation

Silent installation uses a response file to define what components you want to install. You can edit the parameters in this response file to control the installation options.

A sample response file is shipped with the product. The file name is `silent_install.txt`. Before editing any of the response files, note the following syntax rules:

- Comment lines begin with a pound sign (#).
- Blank lines are ignored.
- Parameter lines are PARAMETER=value. Do not use a space before the parameter; you can use a space before or after an equal sign (=).
- Do not use any of the following characters in any parameter value:
  - Dollar sign ($)
  - Equal sign (=)
  - Pipe sign (|)

The `silent_install.txt` file defines the installation parameters of the ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, and ITCAM agent for WebSphere Message Broker.

Important: If you are upgrading an ITCAM configuration agent for WebSphere MQ, the existing `mc.cfg` and `mc.ini` configuration files are overwritten. If you want to keep your existing configuration files, create a backup before proceeding.

Perform the following steps to run a silent installation:

1. Log on to the system where you want to install an agent.

   Remember: If you used a non-root user ID to install an IBM Tivoli Monitoring component on this computer and you want to install the agent in the directory where the IBM Tivoli Monitoring component is installed, you must use the same user ID to install the agent.

2. Run the following command to create a temporary directory on the computer on which you plan to install an agent. Make sure that the full path of the directory does not contain any spaces:

   `mkdir dir_name`

3. Mount the product installation DVD for UNIX or Linux systems to the temporary directory that you created.
4. Run the following command:

   `cd dir_name`

   Where *dir_name* is the directory where the installation DVD is mounted.
5. Edit the `silent_install.txt` file to set the parameters described in Table 6 to appropriate values for your environment and save the changes.

Table 6. Parameters in a response file

Parameter	Description
INSTALL_ENCRYPTION_KEY	The data encryption key used to encrypt data sent between systems. This key must be the same as the key that is entered during the installation of IBM Tivoli Monitoring.
INSTALL_FOR_PLATFORM	Use this parameter to install different agents and application support for different components silently. Specify the **INSTALL_FOR_PLATFORM** parameter as follows, depending on which component you want to install: • To install an agent: `INSTALL_FOR_PLATFORM=architecture code`, where *architecture code* is the code for the platform on which you are installing the agent. For example, aix513 or sol283. For a complete list of architecture codes, see Appendix D, "Architecture codes," on page 139. • To install application support for Tivoli Enterprise Monitoring Server: `INSTALL_FOR_PLATFORM=tms`. • To install application support for Tivoli Enterprise Portal Server: `INSTALL_FOR_PLATFORM=tps`. • To install application support for Tivoli Enterprise Portal desktop client: `INSTALL_FOR_PLATFORM=tpd` (This applies to Linux systems only because desktop client is not supported on UNIX systems.) • To install application support for Tivoli Enterprise Portal browser client: `INSTALL_FOR_PLATFORM=tpw`.

Table 6. Parameters in a response file (continued)

Parameter	Description

INSTALL_PRODUCT	The product code of the component that you want to install. You can specify `all` to install ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, and ITCAM agent for WebSphere Message Broker at the same time. To install multiple agents but not all, repeat this parameter for each agent that you want to install. For example, if you want to install two agents whose product codes are pc1 and pc2, use:
	`INSTALL_PRODUCT=pc1`
	`INSTALL_PRODUCT=pc2`

SEED_TEMS_SUPPORTS	Use this parameter to activate the application support for Tivoli Enterprise Monitoring Server. If Tivoli Enterprise Monitoring Server is installed and during this installation installing application support for Tivoli Enterprise Portal Server is selected (`INSTALL_FOR_PLATFORM=tms`), the application support for the server is activated when the value of this parameter is set as `true` or the parameter is not defined.
MS_CMS_NAME	If you are installing a monitoring server, use this parameter to specify the name for the monitoring server, such as HUB_hostname. Do not specify an IP address or fully qualified host name.
DEFAULT_DISTRIBUTION_LIST	Use this parameter specify which agent support packages have the default distribution list added. The following values are supported. The default is `NEW`. **NEW** For new agent support packages, the default distribution list is added. **ALL** For all agent support packages, the default distribution list is added. Not every situation has a default distribution list setting when installing application support for first time or reinstalling application support. **NONE** The default distribution list is not added for any of the agent support packages.
SKIP_SDA_CHECK	Use this parameter to overwrite the agent application support that was seeded in self-describing mode. By default, this parameter is set to `NO` and a self-describing mode seeding status check is performed. If this parameter is set to `YES`, the seeding process at the end of the installation does not check the self-describing mode seeding status.

Remember: The **INSTALL_FOR_PLATFORM** parameter can be specified only once in the response file. If it is specified many times in the response file, only the last value is valid.

6. Run the following command to start silent installation:

   ```
   ./install.sh -q -h install_dir -p silent_response_file_path
   ```

   where

   - *install_dir* is the installation directory of IBM Tivoli Monitoring. The default location is `/opt/IBM/ITM`.
   - *silent_response_file_path* is the path of the response file that you use to specify the installation parameters.

     Important: You must specify the full path of the response file, not only the file name.

You have finished installing the agents. The next step is to "Configuring to connect an agent to the Tivoli Enterprise Monitoring Server."

Remember:

- If you want to run the agent with another user ID that is different from the one that you used to install the agent, you must follow the steps in "Changing the file permissions for agents" on page 119 before you can start the agent.
- If you installed the ITCAM agent for WebSphere Message Broker as a root user, you cannot run the agent as the root user. The user ID that is used to run the agent must belong to the **mqm** and **mqbrkrs** user groups. You must also change the agent file permissions to ensure that this user ID can run the agent successfully. For instructions, see "Changing the file permissions for agents" on page 119.

Configuring to connect an agent to the Tivoli Enterprise Monitoring Server

Use the following procedure to connect an agent on a UNIX or Linux system to the Tivoli Enterprise Monitoring Server.

1. Log on to the computer where the agent is installed.
2. Go to the *install_dir*`/bin` directory, where *install_dir* is the installation directory of IBM Tivoli Monitoring. The default is `/opt/IBM/ITM`.
3. Run one of the following commands from the directory depending on which agent you want to configure:
   - ITCAM configuration agent for WebSphere MQ

     ```
     ./itmcmd config -A mc
     ```
   - ITCAM agent for WebSphere Message Broker

     ```
     ./itmcmd config -A qi
     ```
   - ITCAM agent for WebSphere MQ

     ```
     ./itmcmd config -A mq
     ```
4. Press Enter when you are asked if the agent connects to a Tivoli Enterprise Monitoring Server.
5. Type the name of the host system on which the Tivoli Enterprise Monitoring Server that you want the agent to connect to is installed and press Enter.
6. Type the protocol that you want to use to communicate with the Tivoli Enterprise Monitoring Server. You have four choices: IP, SNA, IP.PIPE, or IP.SPIPE and press Enter.
7. If you want to set up a backup protocol, enter that protocol and press Enter. If you do not want to use a backup protocol, press Enter without specifying a protocol.

8. Depending on the type of protocol you specified, provide the following information when prompted.

Table 7. Communication protocol settings

Field	Description
IP settings	
Port number	The listening port number of the Tivoli Enterprise Monitoring Server. The default value is 1918.
IP.PIPE settings	
Port number	The listening port number of the Tivoli Enterprise Monitoring Server. The default value is 1918.
KDC Partition	The KDC partition. The default value is null.
IP.SPIPE settings	
Port number	The listening port number of the Tivoli Enterprise Monitoring Server. The default value is 3660.
SNA settings	
Network Name	The SNA network identifier of your location.
LU Name	The LU name of the Tivoli Enterprise Monitoring Server. This LU name corresponds to the Local LU Alias in your SNA communications software.
Log Mode	The name of the LU6.2 LOGMODE. The default value is CANCTDCS.

9. When asked if you want to configure a secondary Tivoli Enterprise Monitoring Server, type `2` and press Enter.
10. When asked to enter an optional primary network name, type `0` and press Enter.
11. Restart the agent by running the following command from the *install_dir*`/bin` directory:
    - ITCAM configuration agent for WebSphere MQ
      ```
      ./itmcmd agent start mc
      ```
    - ITCAM agent for WebSphere Message Broker
      ```
      ./itmcmd agent start qi
      ```
    - ITCAM agent for WebSphere MQ
      ```
      ./itmcmd agent -o QM_name start mq
      ```

      where *QM_name* is the name of monitored queue manager.

You have now completed configuring the agent to connect to a Tivoli Enterprise Monitoring Server. Go back to Chapter 3, “Installation roadmap,” on page 19 and continue with other installation tasks.

Chapter 6. Installing an agent on i5/OS systems

Only the ITCAM agent for WebSphere MQ and ITCAM configuration agent for WebSphere MQ are currently supported on i5/OS systems. This chapter contains instructions for installing these two agents.

Before you begin, verify that your site is in compliance with the agent hardware and software prerequisites.

Important: Be sure that QMQMADM authority is given to the KMQ user profile as the default setting.

The installation procedure loads the software for the ITCAM agent for WebSphere MQ and the ITCAM configuration agent for WebSphere MQ from the product DVD and uses the Restore Licensed Program RSTLICPGM command to complete its installation.

Use one of the following two procedures, whichever is most convenient for you. These procedures assume that you have completed the steps in Chapter 2, "Preparing for installation," on page 7.

- "Installing from a PC DVD-ROM"
- "Installing from an i5/OS system DVD-ROM (command line)" on page 41

Remember: The same user ID must be used when you install the ITCAM agent for WebSphere MQ and the ITCAM configuration agent for WebSphere MQ as that you used to install WebSphere MQ. Otherwise, there might be potential errors existing. For example, the attribute file cannot be read.

Installing from a PC DVD-ROM

Complete the following steps to install ITCAM configuration agent for WebSphere MQ or ITCAM agent for WebSphere MQ from a PC DVD-ROM on an i5/OS system.

1. Access an i5/OS console.
2. Check that the system value QALWOBJRST is set to *ALL.
   a. Enter the following command:
      ```
      WRKSYSVAL QALWOBJRST
      ```
   b. Select 5 (Display), and verify that the value is set to *ALL. If it is set to any other value, record the following value:
      ```
      QALWOBJRST _____
      ```
3. Press Enter to continue.
4. If QALWOBJRST is set to *ALL, continue with step 5; otherwise, do the following steps:
   a. In the Work with System Values window, enter 2 to change the values.
   b. In the Change System Value window, change the existing values to *ALL.
   c. Press Enter to save your change.
   d. Press F3 to return.
5. At the i5/OS console, create an i5/OS library for installation:
   ```
   CRTLIB KMQ_TMPLIB TEXT('MQ INSTALL LIBRARY')
   ```

6. Create two save files in the KMQ_TMPLIB library:

```
CRTSAVF KMQ_TMPLIB/MQ730CMA TEXT('KMQ INSTALL PRODUCT')
CRTSAVF KMQ_TMPLIB/MC730CMA TEXT('KMC INSTALL PRODUCT')
```

7. Insert the product DVD into the DVD-ROM drive.
8. From a DOS prompt, start an FTP session:

   FTP *machinename*

   where *machinename* is the name of the target i5/OS system.
9. When prompted, enter your i5/OS system user ID and password.
10. Change the FTP type to binary:

    BINARY
11. Transfer the software for the ITCAM agent for WebSphere MQ and the ITCAM configuration agent for WebSphere MQ from the DVD-ROM to the i5/OS system:

```
PUT e:\i5OS\MQ730CMA KMQ_TMPLIB/MQ730CMA
PUT e:\i5OS\MC730CMA KMQ_TMPLIB/MC730CMA
```

    where *e* is your PC DVD-ROM drive.
12. End your FTP session:

    QUIT
13. Install the software for the ITCAM agent for WebSphere MQ and the ITCAM configuration agent for WebSphere MQ.
14. If you are installing an agent on a system that is English upper and lower case (language ID 2924), do one of the following steps; if not, skip to 15
    - If you want to install the ITCAM agent for WebSphere MQ, enter the following command:

      RSTLICPGM LICPGM(0KMQ450) DEV(*SAVF) SAVF(KMQ_TMPLIB/MQ730CMA)

      and proceed to step 16 on page 41.
    - If you want to install the ITCAM configuration agent for WebSphere MQ, enter the following command:

      RSTLICPGM LICPGM(0KMC450) DEV(*SAVF) SAVF(KMQ_TMPLIB/MC730CMA)

      and proceed to step 16 on page 41.
15. If you are installing on a non-language ID 2924 system, do one of the following steps:
    - If you want to install the ITCAM agent for WebSphere MQ, enter the following commands:

```
RSTLICPGM LICPGM(0KMQ450) DEV(*SAVF) RSTOBJ(*PGM) LNG(2924)
   - SAVF(KMQ_TMPLIB/MQ730CMA)

RSTLICPGM LICPGM(0KMQ450) DEV(*SAVF) RSTOBJ(*LNG) LNG(2924)
   - SAVF(KMQ_TMPLIB/MQ730CMA) LNGLIB(KMQLNG)
```

      These commands create or re-create a library named KMQLIB containing all the file transfer utilities components and definitions required to run the software for the ITCAM agent for WebSphere MQ.
    - If you want to install the ITCAM configuration agent for WebSphere MQ, do the following steps:

      a. Check the existence of the KMCLNG library. If the library exists, delete it using the following command:

         DLTLIB KMCLNG

      b. Enter the following commands:

```
RSTLICPGM LICPGM(0KMC450) DEV(*SAVF) RSTOBJ(*PGM) LNG(2924)
   - SAVF(KMQ_TMPLIB/MC730CMA)

RSTLICPGM LICPGM(0KMC450) DEV(*SAVF) RSTOBJ(*LNG) LNG(2924)
   - SAVF(KMQ_TMPLIB/MC730CMA) LNGLIB(KMCLNG)
```

These commands create or re-create a library named KMCLIB containing all the file transfer utilities components and definitions required to run the software for ITCAM configuration agent for WebSphere MQ.

16. If you intend to install another agent, leave the QALWOBJRST value set to *ALL until you are finished; otherwise, change it back to the value you recorded earlier.
17. If you want to install the agent on another i5/OS system, use FTP or another file transfer program to copy the save file to it.
18. Delete the installation library, which is no longer needed:

    ```
    DLTLIB KMQ_TMPLIB
    ```

    Installation of the software for the ITCAM agent for WebSphere MQ and the ITCAM configuration agent for WebSphere MQ is complete.
19. If you are installing the ITCAM agent for WebSphere MQ, perform the following procedure:
    a. From an i5/OS console, enter this command:

       ```
       QSH
       ```

    b. Run the following command:

       ```
       mkdir /home/kmq
       ```

Agent installation is now complete. Go back to Chapter 3, "Installation roadmap," on page 19 and continue with other installation tasks.

Installing from an i5/OS system DVD-ROM (command line)

Use the following procedure to install agents from an i5/OS system DVD-ROM.

1. Access an i5/OS console.
2. Check that the system value QALWOBJRST is set to *ALL.
3. Enter this command:

   ```
   WRKSYSVAL QALWOBJRST
   ```

4. Select 5 (Display), and verify that the value is set to *ALL. If it is set to any other value, record the following value:

   ```
   QALWOBJRST _____
   ```

5. Press Enter to continue.
6. If QALWOBJRST was set to *ALL, continue with the next step; otherwise, do the following steps:
   a. In the Work with System Values window, enter 2 to change the values.
   b. In the Change System Value window, change the existing values to *ALL.
   c. Press Enter to save your change.
   d. Press F3 to return.
7. Create an i5/OS library for installation:

   ```
   CRTLIB KMQ_TMPLIB TEXT('MQ INSTALL LIBRARY')
   ```

8. Insert the product DVD into the DVD-ROM drive and enter the following line:

   ```
   WRKLNK QOPT
   ```

   The Work with Object Links screen displays the qopt object link.

9. Select 5 (Next Level) at the qopt object link to select the next object link, the volume ID (*volid*) of the DVD-ROM.

   Record this value for use during installation:

   VOL ID _____

10. Continue to select 5 for each link level until the following path is displayed:

    ```
    /QOPT/volid/i5OS
    ```

    where *volid* is the volume ID of the DVD-ROM.

11. Look for the `MC730CMA.SAV` and `MQ730CMA.SAV` files.

12. Enter the following commands:

    ```
    CPYFRMSTMF FROMSTMF('/QOPT/volid/i5OS/MC730CMA.SAV')
     - TOMBR('/qsys.lib/kmq_TMPLib.lib/MC730CMA.file')

    CPYFRMSTMF FROMSTMF('/QOPT/volid/i5OS/MQ730CMA.SAV')
     - TOMBR('/qsys.lib/kmq_TMPLib.lib/MQ730CMA.file')
    ```

13. Install the software for the ITCAM agent for WebSphere MQ and the ITCAM configuration agent for WebSphere MQ.

14. If you are installing an agent on a system that is English upper and lower case (language ID 2924), do one of the following steps; if not, skip to 15

    - If you want to install ITCAM agent for WebSphere MQ, enter the following command:

      ```
      RSTLICPGM LICPGM(0KMQ450) DEV(*SAVF) SAVF(KMQ_TMPLIB/MQ730CMA)
      ```

      and proceed to step 16 on page 43.

    - If you want to install the ITCAM configuration agent for WebSphere MQ, enter the following command:

      ```
      RSTLICPGM LICPGM(0KMC450) DEV(*SAVF) SAVF(KMQ_TMPLIB/MC730CMA)
      ```

      and proceed to step 16 on page 43.

15. If you are installing on a non-language ID 2924 system, do one of the following procedures:

    - If you want to install the ITCAM agent for WebSphere MQ, enter the following commands:

      ```
      RSTLICPGM LICPGM(0KMQ450) DEV(*SAVF) RSTOBJ(*PGM) LNG(2924)
        - SAVF(KMQ_TMPLIB/MQ730CMA)

      RSTLICPGM LICPGM(0KMQ450) DEV(*SAVF) RSTOBJ(*LNG) LNG(2924)
        - SAVF(KMQ_TMPLIB/MQ730CMA) LNGLIB(KMQLNG)
      ```

      These commands create or re-create a library named KMQLIB containing all the file transfer utilities components and definitions required to run the software for the ITCAM agent for WebSphere MQ.

    - If you want to install the ITCAM configuration agent for WebSphere MQ, do the following steps:

    a. Check the existence of the KMCLNG library. If the library exists, delete it using the following command:

       ```
       DLTLIB KMCLNG
       ```

    b. Enter the following commands:

       ```
       RSTLICPGM LICPGM(0KMC450) DEV(*SAVF) RSTOBJ(*PGM) LNG(2924)
          - SAVF(KMQ_TMPLIB/MC730CMA)

       RSTLICPGM LICPGM(0KMC450) DEV(*SAVF) RSTOBJ(*LNG) LNG(2924)
          - SAVF(KMQ_TMPLIB/MC730CMA) LNGLIB(KMCLNG)
       ```

       These commands create or re-create a library named KMCLIB containing all the file transfer utilities components and definitions required to run the software for the ITCAM configuration agent for WebSphere MQ.

16. If you intend to install another agent, leave the QALWOBJRST value set to *ALL until you are finished; otherwise, change it back to the values you recorded earlier.
17. Delete the installation objects that are no longer needed
    a. Enter this command:
       ```
       DLTLIB KMQ_TMPLIB
       ```
    b. Press F3 to return to the console.

    Installation of the software for the ITCAM agent for WebSphere MQ and the ITCAM configuration agent for WebSphere MQ is complete.
18. If you are installing the ITCAM agent for WebSphere MQ, perform the following procedure:
    a. From an i5/OS console, enter this command:
       ```
       QSH
       ```
    b. Run the following command:
       ```
       mkdir /home/kmq
       ```

Agent installation is now complete. Go back to Chapter 3, "Installation roadmap," on page 19 and continue with other installation tasks.

Chapter 7. Installing application support

Application support files contain agent-specific information, which is required on the Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, and Tivoli Enterprise Portal desktop client that the agent connects to. Unless the self-describing capability is available and enabled for the agent, you must manually install the application support files on the IBM Tivoli Monitoring components (monitoring server, portal server, and the portal desktop client) before you install the agent.

Follow the instructions in the following sections to install application support:

- "Installing application support on the Tivoli Enterprise Monitoring Server"
- "Installing application support on the Tivoli Enterprise Portal Server" on page 54
- "Installing application support on the Tivoli Enterprise Portal desktop client" on page 62

Remember: The self-describing capability is not available to the ITCAM configuration agent for WebSphere MQ. You must manually install the application support for the ITCAM configuration agent for WebSphere MQ.

For information about how to enable or disable the self-describing capability for the ITCAM agent for WebSphere MQ and ITCAM agent for WebSphere Message Broker, see "Self-describing agents" on page 9.

Installing application support on the Tivoli Enterprise Monitoring Server

Depending on the operating system on which the Tivoli Enterprise Monitoring Server is installed, follow the instructions in the following sections to install application support on each Tivoli Enterprise Monitoring Server in your environment.

- "Installing application support on a Tivoli Enterprise Monitoring Server on a Windows system"
- "Installing application support on a UNIX or Linux Tivoli Enterprise Monitoring Server" on page 49
- "Installing application support on a Tivoli Enterprise Monitoring Server on a z/OS system" on page 51

Installing application support on a Tivoli Enterprise Monitoring Server on a Windows system

Use the following steps to install required application support on a Tivoli Enterprise Monitoring Server running on a Windows system.

Remember: To use the integrated Prerequisite Scanner, you must use a local installation image or map to a network drive. Otherwise, the Prerequisite Scanner reports cannot be obtained. However, you can still proceed with the installation without prerequisite checking.

The monitoring server is stopped during the process.

1. Log on to the Windows system using a user ID with Administrator authority.

2. Close any running applications.
3. Launch the installation wizard by double-clicking the `setup.exe` file on the product DVD image. If the `setup.exe` file fails to run, you do not have enough disk space to extract the setup files. Clear some disk space before starting the installation process again.

   Important: If you are running Windows 2003 system and have security set to check the software publisher of applications, you might receive an error stating that the `setup.exe` file is from an unknown publisher. Click **Run** to disregard this error message and continue with the installation process. The installation program wizard window displays a message welcoming you to the setup process.
4. In the Welcome window, click **Next**. The Prerequisites window is displayed.
5. Read the instructions on the Prerequisites window and click **Next**. The Software License Agreement window is displayed.
6. To accept the software license, select **I accept the terms in the license agreement** and click **Next**. The Choose Destination Location window is displayed.
7. Select the folder where you want to install the agent and click **Next**.
8. Select the agent support that you want to add to the Tivoli Enterprise Monitoring Server and click **Next**.
   - Select **WebSphere MQ Configuration Agent** for ITCAM configuration agent for WebSphere MQ.
   - Select **WebSphere MQ Monitoring Agent** for ITCAM agent for WebSphere MQ.
   - Select **WebSphere Message Broker Monitoring Agent** for ITCAM agent for WebSphere Message Broker.

   Tips:
   - If you have other components installed on the same computer, such as Tivoli Enterprise Portal desktop client, you can also select these components to install the component-specific application support.
   - To run the prerequisite checking, select the **Verify prerequisites** check box. The prerequisite scanner reports will be displayed after you click **Next** on this window. If a component has not passed the prerequisite scan, a message is displayed saying `Not all prerequisites for components have been met. Do you want to continue with the installation?`. You can click **Yes** to continue the installation or **No** to exit installation.

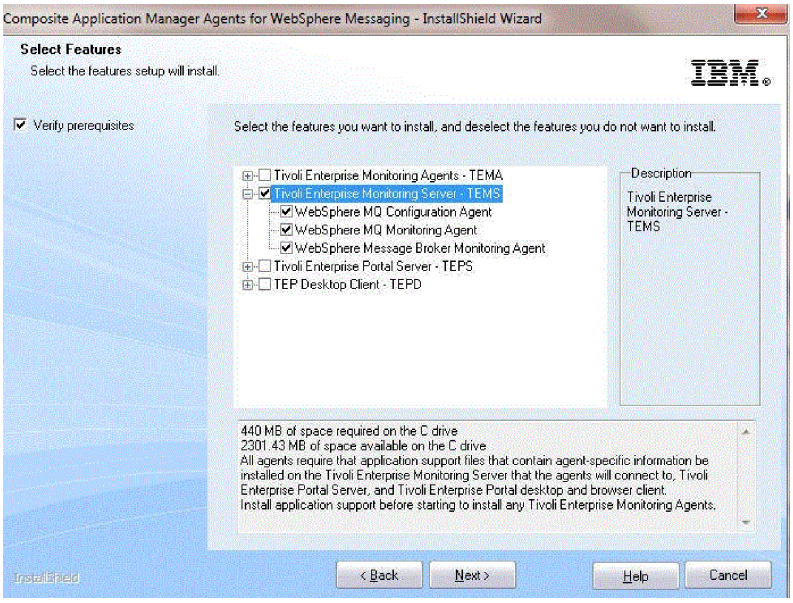

Figure 4. The installation program wizard window for feature selection during the installation of application support on a Tivoli Enterprise Monitoring Server

9. The Agent Deployment window is displayed. Select the agents that you want to configure for remote deployment and click **Next** to continue. An agent can only be deployed on a remote host if it has been configured for remote deployment during installation.

   Tip: If you do not want to use the remote deployment function, click **Next** directly.
10. In the Select Program Folder window, select a program folder and click **Next**. The Start Copying Files window, summarizing the components that you have selected to install, is displayed.
11. In the Start Copying Files window, review the installation summary details. Click **Next** to start the installation. A message is displayed stating that you will not be able to cancel the installation or upgrade after this point.
12. Click **Yes** to continue. The file-copying process might take several minutes. After the process is complete, the Setup Type window is displayed.
13. Select **Install application support files for a Local/Remote Tivoli Enterprise Monitoring Server** and click **Next**.

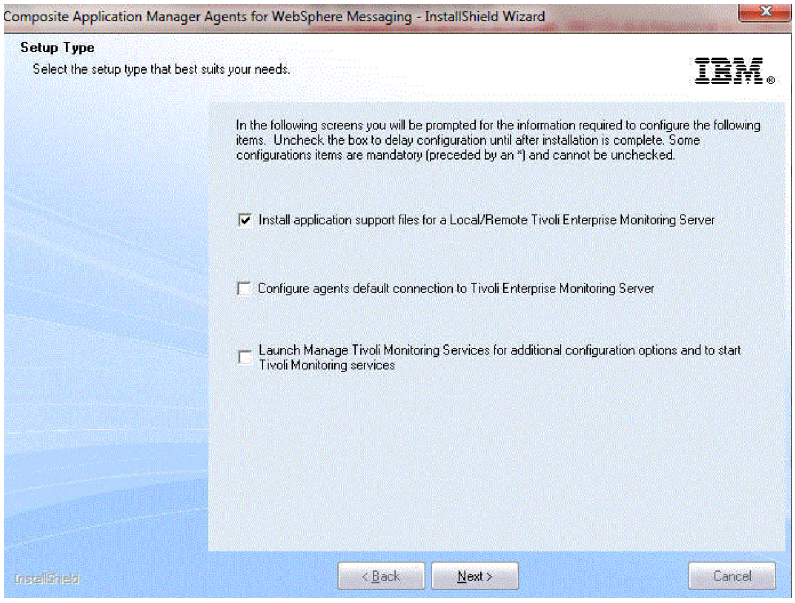

Figure 5. The installation program wizard window for setup type selection during the installation of the application support on a Tivoli Enterprise Monitoring Server

14. If DB2® is installed on the system on which the Tivoli Enterprise Monitoring Server is installed, the WMQ Configurator Data Source Parameters window is displayed. Perform the following steps to configure the database used by the agent:
    a. Click the **Data Source Parameters** tab, and enter the database configuration parameters as shown in Table 8.

Table 8. Database configuration parameters

Option	Description
Database Type	Select whether to use the product-provided internal database or an external DB2 database, accessed using ODBC. The other options listed in this table are only applicable to DB2 so if you select the internal database they cannot be modified. **Exception:** DB2 database is not supported by the monitoring server on a 64-bit Windows system. You must use internal database as the configuration database for a 64-bit Windows system.
Data source name	Enter the name of the DB2 data source.
Database Administrator ID	Enter the ID and password of the DB2 database administrator.
WebSphere MQ Configurator Database User ID	Enter the ID and password of the WebSphere MQ Configurator database.

    b. Click the **LDAP Parameters** tab and make sure that the **Security Disabled** check box is not selected.
    c. Click **OK** to accept the settings that you just entered.

d. If a message is displayed stating that configuration was completed successfully, click **OK**, otherwise, if configuration failed, you are given the option to return to the configuration window and enter the database settings again.

15. In the Add application support to the TEMS window, specify the location of the Tivoli Enterprise Monitoring Server on which you want to add application support. Select **On this computer** and click **OK**.
16. In the Select the application support to add to the TEMS window, select which components for which you want to add application support by clicking the component name directly. Press Ctrl while you click to make multiple selection. By default, all available application support is selected.
    - Select **WebSphere MQ Monitoring Agent** for ITCAM agent for WebSphere MQ.
    - Select **TEMS Configurator** for ITCAM configuration agent for WebSphere MQ.
    - Select **WebSphere Message Broker Monitoring Agent** for ITCAM agent for WebSphere Message Broker.
17. In the **Default distribution list settings** section, choose how you want to add or update the situation distribution definition to include the default managed system groups, and click **OK**.
18. After the installation is complete, click **Finish** to close the installation wizard.

You have now finished installing application support to the monitoring server.

If you have other monitoring servers in your environment, install application support on them as well. After all monitoring servers have been installed with application support, go to "Installing application support on the Tivoli Enterprise Portal Server" on page 54 to continue with the installation process.

Installing application support on a UNIX or Linux Tivoli Enterprise Monitoring Server

Use the following steps to install application support on a UNIX or Linux Tivoli Enterprise Monitoring Server.

1. Log on to the computer where the Tivoli Enterprise Monitoring Server is installed.
2. Stop the monitoring server by running the following commands:

   ```
   cd install_dir/bin
   ./itmcmd server stop tems_name
   ```

   where *install_dir* is the directory where IBM Tivoli Monitoring is installed (The default is `/opt/IBM/ITM`) and *tems_name* is the name of the monitoring server.

   Tip: If you do not know the name of the Tivoli Enterprise Monitoring Server, view the contents of the *install_dir*`/tables` directory. The monitoring server name is listed here.
3. Run the following command to create a temporary directory on the computer where the monitoring server is installed. Make sure that the full path of the directory does not contain any spaces:

   ```
   mkdir dir_name
   ```
4. Mount the product installation DVD for UNIX or Linux systems to the temporary directory you created.
5. Run the following commands:

```
cd dir_name
./install.sh
```

where *dir_name* is the temporary directory that you created.

6. When prompted for the IBM Tivoli Monitoring directory, press Enter to accept the default (/opt/IBM/ITM) or type the full path of the IBM Tivoli Monitoring directory and press Enter.
7. If a message is displayed stating that the directory already exists and asking whether to use it, type 1 and press Enter.
8. The following prompt is displayed. Type 1 and press Enter.

```
Select one of the following:
 1) Install products to the local host.
 2) Install products to depot for remote deployment (requires TEMS).
 3) Install TEMS support for remote seeding.
 4) Exit install.
Please enter a valid number:
```

9. The first part of the software license agreement is displayed. Press Enter to view latter parts of the agreement. After you have finished viewing the agreement, type 1 to accept it or 2 to reject it and press Enter.

   Remember: You must accept the agreement to continue with the installation process.

10. A numbered list of installation components is displayed. Type 5 to select Tivoli Enterprise Monitoring Server support and press Enter.

```
Product packages are available for this operating system and component support
   categories:

 1) IBM Tivoli Monitoring components for this operating system
 2) Tivoli Enterprise Portal Browser Client support
 3) Tivoli Enterprise Portal Desktop Client support
 4) Tivoli Enterprise Portal Server support
 5) Tivoli Enterprise Monitoring Server support
 6) Other operating systems

Type the number or type "q" to quit selection
```

11. To confirm the selection, type 1 and press Enter.
12. A list of the components for which you can install application support is displayed. Type the number that corresponds to the component for which you want to install application support on this computer. If you want to install more than one component, use a comma (,) or a space to separate the numbers for each component. And press Enter.
    - Select WebSphere MQ Configuration Agent for ITCAM configuration agent for WebSphere MQ.
    - Select WebSphere MQ Monitoring Agent for ITCAM agent for WebSphere MQ.
    - Select WebSphere Message Broker Monitoring Agent for ITCAM agent for WebSphere Message Broker.
13. To confirm that your selection is correct, type 1 and press Enter.
14. To run the integrated Prerequisite Scanner, press Enter at the following prompt.

```
Do you want to check prerequisites for the above components?
   [ 1=Yes, 2=No ; default is "1" ]
```

15. After a few minutes, the Prerequisite Scanner report is displayed. After you have examined the result you can type 1 to continue with the installation or 2 to cancel the installation.

16. After all the selected components are installed, you are asked whether you want to install additional products or produce support packages. To exit the installation program, type 2 and press Enter. After the installation is complete, a list of the product support that are installed is displayed.
17. When you are asked whether you want to seed product support on the Tivoli Enterprise Monitoring Server, type 1 and press Enter.
18. A list of the product support packages that you can seed on the Tivoli Enterprise Monitoring Server is displayed. Select how you want to add or update the situation distribution definition to include the default managed system groups, and press Enter.

You have now finished installing application support to a UNIX or Linux monitoring server.

If you have other UNIX or Linux monitoring servers in your environment, repeat this process to install application support on them as well. After that, go to "Installing application support on the Tivoli Enterprise Portal Server" on page 54 to continue with the installation process.

Installing application support on a Tivoli Enterprise Monitoring Server on a z/OS system

If your Tivoli Enterprise Monitoring Server is running on a z/OS system, you must install application support remotely from a Windows, UNIX, or Linux system that hosts either a Tivoli Enterprise Portal Server or a Tivoli Enterprise Monitoring Server.

Before you install the application support, make sure that you have registered the agents to the Tivoli Enterprise Monitoring Server. For more information about registering the monitoring agents with the Tivoli Enterprise Monitoring Server, see the *IBM Tivoli OMEGAMON XE for Messaging for z/OS: Configuration Guide*.

The Tivoli Enterprise Monitoring Server running on the z/OS system must be started when you add application support to it.

Using Windows systems

If the Tivoli Enterprise Portal Server is running on a Windows system, use the Manage Tivoli Enterprise Monitoring Services window to install application support on the Tivoli Enterprise Monitoring Server on the z/OS system.

1. On the system where the Tivoli Enterprise Portal Server is installed, open the Manage Tivoli Enterprise Monitoring Services window by clicking **Start** > **Programs** > **IBM Tivoli Monitoring** > **Manage Tivoli Monitoring Services**.
2. In the Manage Tivoli Enterprise Monitoring Services window, right-click the name of the Tivoli Enterprise Portal Server and then click **Advanced** > **Add TEMS application support**. The Add Application Support to the TEMS window is displayed.
3. Select **On a different computer** and click **OK**. A reminder that the Tivoli Enterprise Monitoring Server running on the z/OS system must be started is displayed.
4. If the Tivoli Enterprise Monitoring Server is not started, start it and then click **OK** to continue. The Non-resident TEMS Connection window is displayed.
5. Enter the name of the Tivoli Enterprise Monitoring Server and select the communications protocol.

The Tivoli Enterprise Monitoring Server name must be the same as the CMS_NODEID parameter in the KDSENV member in `&rhilev.&rtename.RKANPARU` on the z/OS system where the Tivoli Enterprise Monitoring Server is installed.

Remember: The communications protocol that you select must be the protocol that your Tivoli Enterprise Monitoring Server is configured to use.

6. Enter the following information and click **OK** to proceed:
   - **`Hostname or IP Address`**: The fully qualified host name or IP address of the system on which your Tivoli Enterprise Monitoring Server is running.
   - **`Port # and/or Port Pools`**: The port number that the Tivoli Enterprise Portal Server uses to communicate with the Tivoli Enterprise Monitoring Server on the z/OS system. The default is 1918.
   - **`Entry Options`**: Select **Convert to upper case** (Tivoli Enterprise Monitoring Server requires all information to be in upper case).
7. In the Select the Application Support to Add to the TEMS window, select the agents for which you want to install application support and then click **OK**. Available options are as follows:
   - ITCAM configuration agent for WebSphere MQ: Configuration Management Support (kcf.sql)
   - ITCAM agent for WebSphere MQ: ITCAM agent for WebSphere MQ Support (kmq.sql)
   - ITCAM agent for WebSphere Message Broker: ITCAM agent for WebSphere Message Broker Support (kqi.sql)

   Remember: Alternative versions of these files with file names ending in `_upg` can also be selected. For example, `kqi_upg.sql`. If you are upgrading from an earlier version of the agent, select the `_upg` versions of application support files. If you are not upgrading from an earlier version, select the standard versions of the files.
8. Recycle the Tivoli Enterprise Monitoring Server. Changes to application support do not take effect until the Tivoli Enterprise Monitoring Server is restarted.

You have now finished installing application support to the Tivoli Enterprise Monitoring Server.

If you have other monitoring servers in your environment, install application support on them as well. After all the monitoring servers have been installed with application support files, go to "Installing application support on the Tivoli Enterprise Portal Server" on page 54 to continue with the installation process.

Using UNIX or Linux systems

Perform the following steps to add application support files from a Linux or UNIX computer to a Tivoli Enterprise Monitoring Server on a z/OS system.

As a prerequisite, you must install a Tivoli Enterprise Monitoring Server, a Tivoli Enterprise Portal Server, or a monitoring agent on the local Linux or UNIX computer. This step is necessary to make the Manage Tivoli Monitoring Services available on the local computer. Gather the following information about the Tivoli Enterprise Monitoring Server on the remote z/OS system:

- The host name or IP address.
- The protocol and port number that was specified when the Tivoli Enterprise Monitoring Server on the remote z/OS system was configured.

Important: The Tivoli Enterprise Monitoring Server on the remote z/OS system must be configured to use the IP.UDP, IP.PIPE, or IP.SPIPE communications protocol. The following procedure does not support a Tivoli Enterprise Monitoring server that was configured to use SNA.

1. Enable the GUI interface. Your Linux or UNIX system must have a GUI interface. Otherwise, perform the following steps to enable it:
   a. Enable X11.
   b. Make sure that you have access to a native X-term monitor or an X Window System emulator.
   c. If using an X Window System emulator, enable X11 access to the X Window System server (command example: xhost +).
   d. If using an X Window System emulator, set the display environment variable to point to the X Window System server:

      ```
      export DISPLAY=pc_ip_address:0
      ```
2. Ensure that the Tivoli Enterprise Monitoring Server on the z/OS system is running.
3. To start Manage Tivoli Monitoring Services, go to the *install_dir*/bin directory, where *install_dir* is the installation directory of IBM Tivoli Monitoring (the default installation directory of IBM Tivoli Monitoring is /opt/IBM/ITM/) and run the following command:

   ```
   ./itmcmd manage &
   ```

   A GUI window opens for Manage Tivoli Monitoring Services.
4. Select **Actions** > **Install product support**.
5. On the Add Application Support to the TEMS window, select **On a different computer** and click **OK**.
6. When you are prompted to ensure that the Tivoli Enterprise Monitoring Server is configured and running, click **OK**.
7. On the Non-Resident TEMS Connection window, provide the name of the Tivoli Enterprise Monitoring Server on the remote z/OS system.
8. Select the communications protocol to use for sending the application support files to the Tivoli Enterprise Monitoring Server and click **OK**.
9. On the next window, supply any values required by the selected communication protocol and click **OK**.
10. On the Install Product Support window, select the monitoring agents for which you want to add application support to the Tivoli Enterprise Monitoring Server, and click **Install**.
11. In Manage Tivoli Monitoring Services, look for this message:

    ```
    Remote seeding complete!
    ```
12. Stop and restart the Tivoli Enterprise Monitoring Server on the remote z/OS system.

You have now finished installing application support to the Tivoli Enterprise Monitoring Server.

If you have other monitoring servers in your environment, install application support on them as well. After all the monitoring servers are installed with application support files, go to “Installing application support on the Tivoli Enterprise Portal Server” on page 54 to continue with the installation process.

Installing application support on the Tivoli Enterprise Portal Server

Depending on the operating system on which Tivoli Enterprise Portal Server is installed, follow the instructions in the following sections to install application support on your Tivoli Enterprise Portal Server.

- "Installing application support on a Tivoli Enterprise Portal Server on a Windows system"
- "Installing application support on a UNIX or Linux Tivoli Enterprise Portal Server" on page 55

Installing application support on a Tivoli Enterprise Portal Server on a Windows system

Perform the following steps to install application support on a Tivoli Enterprise Portal Server on Windows system.

Remember: To use the integrated Prerequisite Scanner, you must use a local installation image or map to a network drive. Otherwise, the Prerequisite Scanner reports cannot be obtained. However, you can still proceed with the installation without prerequisite checking.

1. Log on to the Windows system using a user ID with Administrator authority.
2. Close any running applications.
3. Click **Start** > **Programs** > **IBM Tivoli Monitoring** > **Manage Tivoli Monitoring Services** to open the Manage Tivoli Enterprise Monitoring Services window.
4. Stop the portal server by right-clicking it and clicking **Stop**.
5. Insert the product DVD-ROM for Windows into your DVD-ROM drive.
6. In the `/WINDOWS` subdirectory on the installation media, double-click the `setup.exe` file to start the installation program.
7. In the Welcome window, click **Next**. The Prerequisites window is displayed.
8. Read the instructions on the Prerequisites window and click **Next**. The Software License Agreement window is displayed.
9. To accept the software license, select **I accept the terms in the license agreement** and click **Next**. The Choose Destination Location window is displayed.
10. Select the folder where you want to install the agent and click **Next**.
11. Select the agent support that you want to add to the portal server and click **Next**.
    - Select **WebSphere MQ Monitoring Agent** for ITCAM agent for WebSphere MQ.
    - Select **WebSphere MQ Configuration Agent** for ITCAM configuration agent for WebSphere MQ.
    - Select **WebSphere Message Broker Monitoring Agent** for ITCAM agent for WebSphere Message Broker.

    Tips:
    - If you have other components installed on the same computer, such as Tivoli Enterprise Portal desktop client, you can also select these components to install the component-specific application support.
    - To run the prerequisite checking, select the **Verify prerequisites** check box. The prerequisite scanner reports will be displayed after you click **Next** on this window. If a component has not passed the prerequisite scan, a

message is displayed saying `Not all prerequisites for components have been met. Do you want to continue with the installation?`. You can click **Yes** to continue the installation or **No** to exit installation.

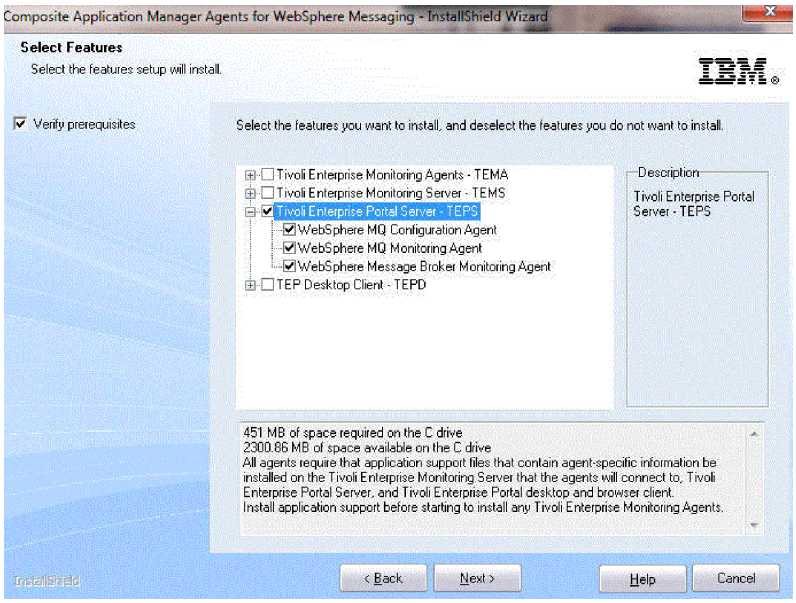

Figure 6. The installation program wizard window for feature selection during the installation of application support on a Tivoli Enterprise Portal Server

12. In the Agent Deployment window, ensure that no agents are selected and click **Next**. The Start Copying Files window is displayed.
13. In the Start Copying Files window, review the installation summary details. Click **Next** to start the installation. A message is displayed stating that you will not be able to cancel the installation or upgrade after this point.
14. Click **Yes** to continue. The file-copying process might take several minutes. After the process is complete, the Setup Type window is displayed.
15. Select **Configure Tivoli Enterprise Portal** and click **Next**.
16. In the TEPS Hostname window, type the host name of the system where the Tivoli Enterprise Portal Server is located and click **Next**.
17. Click **Finish** to complete the installation.
18. Restart the Tivoli Enterprise Portal Server by right-clicking it in the Manage Tivoli Enterprise Monitoring Services window and clicking **Start**.

Installation of application support on the Tivoli Enterprise Portal Server is now complete.

If you have other portal servers on Windows systems, repeat this procedure to install application support on them as well. Go to "Installing application support on the Tivoli Enterprise Portal desktop client" on page 62 to continue with the installation process.

Installing application support on a UNIX or Linux Tivoli Enterprise Portal Server

Use the following steps to install application support on a Tivoli Enterprise Portal Server on a UNIX or Linux system.

1. Log on to the computer where the Tivoli Enterprise Portal Server is installed.
2. Use the following commands to stop the portal server if it is running:

   ```
   cd install_dir/bin
   ./itmcmd agent stop cq
   ```

   where *install_dir* is the installation directory of IBM Tivoli Monitoring.
3. Run the following command to create a temporary directory on the computer where the portal server is installed. Make sure that the full path of the directory does not contain any spaces:

   ```
   mkdir dir_name
   ```
4. Mount the product installation DVD for UNIX or Linux systems to the temporary directory you created.
5. Run the following commands:

   ```
   cd dir_name
   ./install.sh
   ```

   where *dir_name* is the temporary directory that you created.
6. When prompted for the IBM Tivoli Monitoring directory, press Enter to accept the default (`/opt/IBM/ITM`) or type the full path to the IBM Tivoli Monitoring directory and press Enter. If a message is displayed stating that the directory already exists and asking whether to use it, type 1 and press Enter.
7. The following prompt is displayed. Type 1 to start the installation and press Enter.

   ```
   Select one of the following:
    1) Install products to the local host.
    2) Install products to depot for remote deployment (requires TEMS).
    3) Install TEMS support for remote seeding.
    4) Exit install.
   Please enter a valid number:
   ```

   The first part of the software license agreement is displayed.
8. Press Enter to view latter parts of the agreement. After you have finished viewing the agreement, enter 1 to accept it or 2 to reject it and press Enter. You must accept the agreement to continue with the installation process.
9. A numbered list of installation components is displayed. Type 4 to select Tivoli Enterprise Portal Server support and press Enter.

   ```
   Product packages are available for this operating system and component support
      categories:

    1) IBM Tivoli Monitoring components for this operating system
    2) Tivoli Enterprise Portal Browser Client support
    3) Tivoli Enterprise Portal Desktop Client support
    4) Tivoli Enterprise Portal Server support
    5) Tivoli Enterprise Monitoring Server support
    6) Other operating systems

   Type the number or type "q" to quit selection
   ```
10. To confirm your selection, type 1 and press Enter.
11. A list of the agents for which you can install application support is displayed. Type the number that corresponds to the agent for which you want to install application support on this Tivoli Enterprise Portal Server. If you want to install more than one component, use a comma (,) or space to separate the numbers for each component. And press Enter.
    - Select WebSphere MQ Configuration Agent for ITCAM configuration agent for WebSphere MQ.

- Select WebSphere MQ Monitoring Agent for ITCAM agent for WebSphere MQ.
- Select WebSphere Message Broker Monitoring Agent for ITCAM agent for WebSphere Message Broker.

12. Type 1 and press Enter to confirm the installation.
13. To run the integrated Prerequisite Scanner, press Enter at the following prompt.

    ```
    Do you want to check prerequisites for the above components?
       [ 1=Yes, 2=No ; default is "1" ]
    ```

14. After a few minutes, the Prerequisite Scanner report is displayed. After you have examined the result you can type 1 to continue with the installation or 2 to cancel the installation.
15. After all the components are installed, you are asked whether you want to install additional products or product support packages. Type 2 and press Enter to exit the installation program.

Application support for the Tivoli Enterprise Portal Server is installed.

If you have other portal servers on Linux or UNIX systems in your environment, repeat this process to install application support on them as well. The next step is "Configuring the Tivoli Enterprise Portal Server on a UNIX or Linux system."

Configuring the Tivoli Enterprise Portal Server on a UNIX or Linux system

You have two options to configure the Tivoli Enterprise Portal Server on a UNIX or Linux system, using the GUI or the command line.

Choose one of the following options to configure the portal server:

- "Configuring the Tivoli Enterprise Portal Server on a UNIX or Linux system with GUI"
- "Configuring the Tivoli Enterprise Portal Server with the command line" on page 61

Configuring the Tivoli Enterprise Portal Server on a UNIX or Linux system with GUI

Perform the following steps to configure the connection between the Tivoli Enterprise Portal Server and other IBM Tivoli Monitoring components on a UNIX or Linux system with GUI.

This configuration procedure includes steps for configuring the connection between the Tivoli Enterprise Portal Server and the following components:

- The hub Tivoli Enterprise Monitoring Server
- The Tivoli Enterprise Portal Server database
- The Tivoli Data Warehouse database

Important: If you have not set up the Tivoli Data Warehouse, complete this procedure but accept the defaults at the prompts for configuring the connection to the data warehouse. You can reconfigure the connection after you set up the warehouse.

1. Log on to the computer where the Tivoli Enterprise Portal Server is installed.

2. Navigate to the *install_dir*/bin directory, where *install_dir* is the installation directory of IBM Tivoli Monitoring. The default is /opt/IBM/ITM.
3. Open the Manage Tivoli Enterprise Monitoring Services window by running the following command:

   ```
   ./itmcmd manage
   ```

   The Manage Tivoli Enterprise Monitoring Services window is displayed.
4. Click **Tivoli Enterprise Portal Server**, right-click, and click **Configure**, as shown in Figure 7.

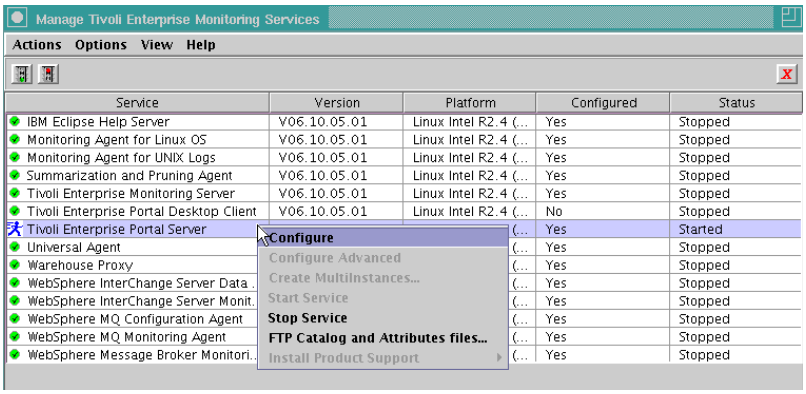

Figure 7. Configuring the Tivoli Enterprise Portal Server

5. In the Common Event Console Configuration window, click **OK**. The Configure Tivoli Enterprise Portal Server window is displayed, as shown in Figure 8.

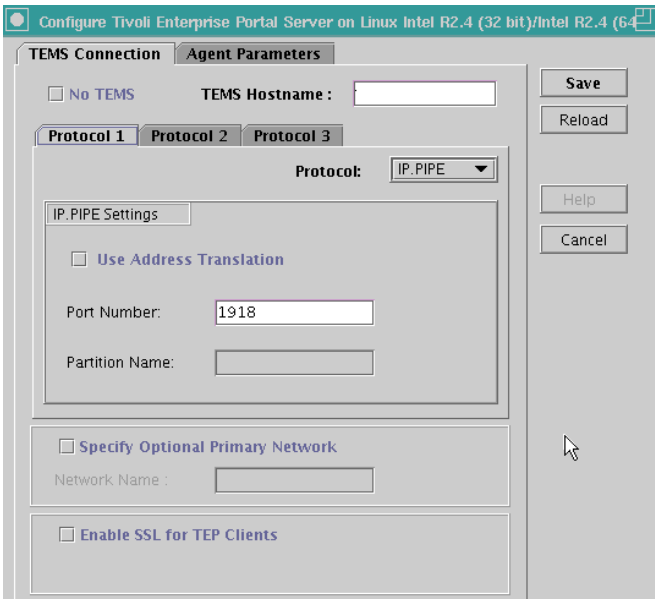

Figure 8. Configuring Tivoli Enterprise Monitoring Server connections

6. On the **TEMS Connection** tab, perform the following steps:
   a. In the **TEMS Hostname** field, enter the host name of the hub Tivoli Enterprise Monitoring Server.
   b. In the **Protocol 1** tab, select the protocol that you want to use to communicate with the hub monitoring server. You have four choices:

TCP/IP, SNA, IP.PIPE, and IP.SPIPE. Depending on the protocol that you select, provide the following information.

Table 9. Tivoli Enterprise Monitoring Server protocols and values on UNIX and Linux systems

Protocol	Value	Definition
TCP/IP	IP port number	The port number of the Tivoli Enterprise Monitoring Server. The default is 1918.
SNA	Net name	The SNA network identifier for your location.
	LU name	The LU name of the Tivoli Enterprise Monitoring Server. This LU name corresponds to the Local LU Alias in your SNA communications software.
	Log mode	The name of the LU6.2 LOGMODE. The default value is `CANCTDCS`.
IP.PIPE	IP.PIPE port number	The port number for the Tivoli Enterprise Monitoring Server. The default is 1918.
	KDC Partition	The KDC partition. The default value is null.
IP.SPIPE	IP.SPIPE port number	The port number for the Tivoli Enterprise Monitoring Server. The default is 3660.

c. If you want to set up a backup protocol, select the protocol in the **Protocol 2** tab. See Table 9 for information about how to fill in the fields. You can specify a second backup protocol in the **Protocol 3** tab.

7. The **Agent Parameters** tab is displayed, as shown in Figure 9 on page 60

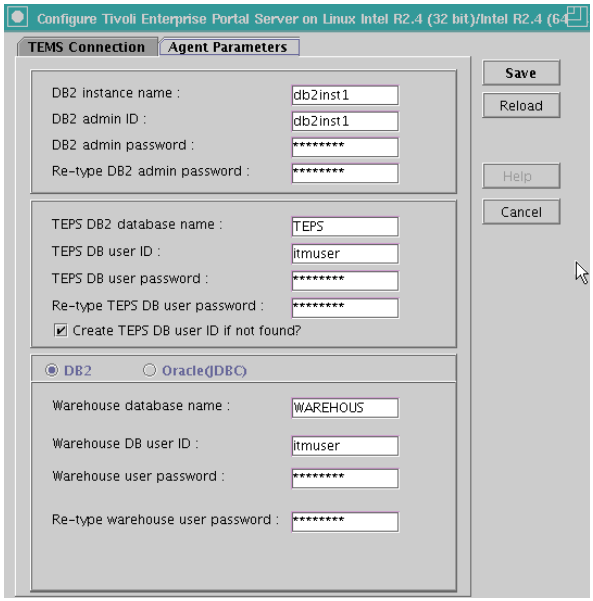

Figure 9. Configuring agent parameters

Perform the following steps:

a. Enter the DB2 instance name. The default value is `db2inst1`.
b. Enter the DB2 administrator ID. The default is `db2inst1`.
c. Enter the password for the DB2 administrator ID.
d. Confirm the password for the DB2 administrator ID by typing it again.
e. Enter the name of the DB2 database for the Tivoli Enterprise Portal Server. The default is `TEPS`.
f. Enter the name of the database user ID that the Tivoli Enterprise Portal Server uses to access the database. The default is `itmuser`.
g. Enter the password for the database user.
h. Confirm the password for the database user by entering it again.
i. Select **Create Tivoli Enterprise Portal Server DB user ID if not found**.
j. Select **DB2** if you are using DB2 to warehouse data. Select **Oracle(JDBC)** if you are using Oracle to warehouse data.
k. Enter the name of the database that the Tivoli Data Warehouse uses. The default is `WAREHOUS`.
l. Enter the name of the database user that the Tivoli Data Warehouse uses. The default is `itmuser`.
m. Enter the password for the Warehouse user ID.
n. Confirm the password for the Warehouse user by typing it again.
o. Click **Save** to save your changes.

8. In the Manage Tivoli Enterprise Monitoring Services window, stop the Tivoli Enterprise Portal Server, if it is started, by right-clicking **Tivoli Enterprise Portal Server** and clicking **Stop Service**.
9. In the Manage Tivoli Enterprise Monitoring Services window, restart the Tivoli Enterprise Portal Server by right-clicking **Tivoli Enterprise Portal Server** and clicking **Start Service**.

You have now finished adding application support for the agents on the Tivoli Enterprise Portal Server.

If you have other Linux or UNIX portal servers in your environment, repeat this procedure to add application support for the agents to them as well. After that, go to "Installing application support on the Tivoli Enterprise Portal desktop client" on page 62 to continue with the installation process.

Configuring the Tivoli Enterprise Portal Server with the command line

Perform the following steps to configure the connection between the Tivoli Enterprise Portal Server and other IBM Tivoli Monitoring components on a UNIX or Linux system with the command line.

This following configuration procedure includes steps for configuring the connection between the Tivoli Enterprise Portal Server and the following components:

- The hub Tivoli Enterprise Monitoring Server
- The Tivoli Enterprise Portal Server database
- The Tivoli Data Warehouse database

Important: If you have not set up the Tivoli Data Warehouse, complete this procedure but accept the defaults at the prompts for configuring the connection to the data warehouse. You can reconfigure the connection after you set up the warehouse.

1. Log on to the computer where the Tivoli Enterprise Portal Server is installed.
2. Navigate to the *install_dir*/bin directory, where *install_dir* is the installation directory of IBM Tivoli Monitoring. The default is /opt/IBM/ITM.
3. Run the following command:
   ```
   ./itmcmd config -A cq
   ```
4. When asked if you want to edit common event console for IBM Tivoli Monitoring settings, type 2 and press Enter.
5. Enter 1 when you are asked if the agent connects to a Tivoli Enterprise Monitoring Server.
6. Enter the host name of the hub Tivoli Enterprise Monitoring Server and press Enter.
7. Enter the protocol that you want to use to communicate with your hub monitoring server and press Enter. You have four choices: IP, SNA, IP.PIPE, or IP.SPIPE.
8. If you want to set up a backup protocol, enter the name of the protocol and press Enter. If you do not want to use a backup protocol type 0 and press Enter.
9. Depending on the protocols you specified, provide the information in Table 9 on page 59 when prompted.
10. Press Enter to accept the default value (none) for the Optional Primary Network Name.
11. Press Enter to accept the default setting for SSL between the portal server and clients (N). By default, SSL is disabled. To enable SSL, type 1 and press Enter.
12. Enter the DB2 instance name. The default value is db2inst1. Press Enter.
13. Enter the DB2 administrator ID. The default is db2inst1. Press Enter.
14. Enter the password for the DB2 administrator ID and press Enter.
15. Confirm the password for the DB2 administrator ID by typing it again. Press Enter.

16. Enter the name of the database used by the Tivoli Enterprise Portal Server. The default is `TEPS`. Press Enter.
17. Enter the name of the database user that the portal server uses to access the database. The default is `itmuser`. Press Enter.
18. Enter the password for the database user and press Enter.
19. Confirm the password for the database user by typing it again. Press Enter.
20. You are asked if it is OK to create the Tivoli Enterprise Portal Server login user if it does not exist. Type 1 to confirm and press Enter.
21. You are asked whether you are using DB2 or Oracle (JDBC) for data warehousing. Enter the number corresponding to the database you want to use and press Enter.
22. Type the name of the database that the Tivoli Data Warehouse uses. The default is `WAREHOUS`. If you selected the DB2 database, this database must be cataloged locally if the warehouse database is on a remote computer. Press Enter.
23. Type the name of the database user ID that the Tivoli Data Warehouse uses. The default is `itmuser`. Press Enter.
24. Type the password for the Warehouse user ID and press Enter.
25. Confirm the password for the Warehouse user by typing it again. Press Enter.
26. If you selected the Oracle database in step 21, enter the following information when prompted:
    a. JDBC driver class path
    b. JDBC driver name
    c. JDBC driver URL
    d. User-defined attributes
27. You are asked whether you want to validate user with LDAP. Press Enter to accept the default value for the LDAP security.

You have now completed adding application support to the Linux or UNIX Tivoli Enterprise Portal Server.

If you have other Linux or UNIX portal servers in your environment, repeat this procedure to add application support to them as well. After that, go to "Installing application support on the Tivoli Enterprise Portal desktop client" to continue with the installation process.

Installing application support on the Tivoli Enterprise Portal desktop client

Depending on the operating system on which Tivoli Enterprise Portal desktop client is installed, follow the instructions in the following sections to install application support on each computer where you are running the Tivoli Enterprise Portal desktop client.

- "Installing application support on a Tivoli Enterprise Portal desktop client on Windows systems" on page 63
- "Installing application support on a Tivoli Enterprise Portal desktop client on a Linux system" on page 64

Installing application support on a Tivoli Enterprise Portal desktop client on Windows systems

Use the following steps to install application support on a Tivoli Enterprise Portal desktop client on a Windows system.

Stop the Tivoli Enterprise Portal desktop client before performing this procedure.

Remember: To use the integrated Prerequisite Scanner, you must use a local installation image or map to a network drive. Otherwise, the Prerequisite Scanner reports cannot be obtained. However, you can still proceed with the installation without prerequisite checking.

1. Log on to the Windows system using a user ID with Administrator authority.
2. Close any running applications.
3. Launch the installation wizard by double-clicking the `setup.exe` file on the product DVD image. If the `setup.exe` file fails to run, you do not have enough disk space to extract the setup files. Clear some disk space before starting the installation process again.

   Important: If you are running Windows 2003 system and have security set to check the software publisher of applications, you might receive an error stating that the `setup.exe` file is from an unknown publisher. Click **Run** to disregard this error message and continue with the installation process. The installation program wizard window displays a message welcoming you to the setup process.
4. In the Welcome window, click **Next**. The Prerequisites window is displayed.
5. Read the instructions on the Prerequisites window and click **Next**. The Software License Agreement window is displayed.
6. To accept the software license, select **I accept the terms in the license agreement** and click **Next**. The Choose Destination Location window is displayed.
7. Select the folder where you want to install the agent and click **Next**.
8. Select the agent support that you want to add to the Tivoli Enterprise Portal desktop client and click **Next**.
   - Select **WebSphere MQ Monitoring Agent** for ITCAM agent for WebSphere MQ.
   - Select **WebSphere MQ Configuration Agent** for ITCAM configuration agent for WebSphere MQ.
   - Select **WebSphere Message Broker Monitoring Agent** for ITCAM agent for WebSphere Message Broker.

   Tips:
   - If you have other components installed on the same computer, such as Tivoli Enterprise Portal Server, you can also select these components to install the component-specific application support.
   - To run the prerequisite checking, select the **Verify prerequisites** check box. The prerequisite scanner reports will be displayed after you click **Next** on this window. If a component has not passed the prerequisite scan, a message is displayed saying `Not all prerequisites for components have been met. Do you want to continue with the installation?`. You can click **Yes** to continue the installation or **No** to exit installation.
9. The Agent Deployment window is displayed. Make sure that no agent is selected. Click **Next**.

10. In the Start Copying Files window, review the installation summary details. Click **Next** to start the installation. A message is displayed stating that you will not be able to cancel the installation or upgrade after this point.
11. Click **Yes** to continue. The file-copying process might take several minutes. After the process is complete, the Setup Type window is displayed.
12. Select **Configure Tivoli Enterprise Portal** and click **Next**.
13. The TEPS Hostname window is displayed. Type the host name of the system where the Tivoli Enterprise Portal Server is and click **Next**. The host name must be the name of the portal server that this portal client connects to.
14. Click **Finish** to complete the installation wizard.

Installing application support on the Tivoli Enterprise Portal desktop client is complete.

Go back to the Chapter 3, "Installation roadmap," on page 19 to continue with other installation tasks.

Installing application support on a Tivoli Enterprise Portal desktop client on a Linux system

Perform the following steps to install application support on a Tivoli Enterprise Portal desktop client on a Linux system.

1. Log on to the computer where the Tivoli Enterprise Portal desktop client is installed.
2. If the portal desktop client is running, run the following commands to stop it:

   ```
   cd install_dir/bin
   ./itmcmd agent stop cj
   ```

   where *install_dir* is the IBM Tivoli Monitoring installation directory. By default, it is `/opt/IBM/ITM`.
3. Run the following command to create a temporary directory on the computer where the Tivoli Enterprise Portal desktop client is installed. Make sure that the full path of the directory does not contain any spaces:

   ```
   mkdir dir_name
   ```
4. Mount the product installation DVD for Linux systems to the temporary directory you just created.
5. Run the following commands:

   ```
   cd dir_name
   ./install.sh
   ```

   where *dir_name* is the temporary directory you created.
6. When prompted for the IBM Tivoli Monitoring home directory, press Enter to accept the default (`/opt/IBM/ITM`) or type the full path to the installation directory and press Enter. If a message is displayed stating that the directory exists and asking whether to use it, enter 1 and press Enter.
7. The following prompt is displayed. Type 1 to start the installation and press Enter.

   ```
   Select one of the following:
    1) Install products to the local host.
    2) Install products to depot for remote deployment (requires TEMS).
    3) Install TEMS support for remote seeding.
    4) Exit install.
   Please enter a valid number:
   ```

   The first part of the software license agreement is displayed.

8. Press Enter to view latter parts of the agreement. After you have finished viewing the agreement, enter 1 to accept it or 2 to reject it and press Enter. You must accept the agreement to continue with the installation process.
9. A numbered list of installation components is displayed. Type 3 to select Tivoli Enterprise Portal Desktop Client support and press Enter.

```
Product packages are available for this operating system and component support
   categories:

 1) IBM Tivoli Monitoring components for this operating system
 2) Tivoli Enterprise Portal Browser Client support
 3) Tivoli Enterprise Portal Desktop Client support
 4) Tivoli Enterprise Portal Server support
 5) Tivoli Enterprise Monitoring Server support
 6) Other operating systems

Type the number or type "q" to quit selection
```

10. To confirm the selection, type 1 and press Enter.
11. A list of the agents for which you can install application support is displayed. Type the number that corresponds to the agent for which you want to install application support on this computer. If you want to install more than one component, use a comma (,) or space to separate the numbers for each component. And press Enter.
    - Select WebSphere MQ Configuration Agent for ITCAM configuration agent for WebSphere MQ.
    - Select WebSphere MQ Monitoring Agent for ITCAM agent for WebSphere MQ.
    - Select WebSphere Message Broker Monitoring Agent for ITCAM agent for WebSphere Message Broker.
12. To confirm that your selection is correct, type 1 and press Enter.
13. To run the integrated Prerequisite Scanner, press Enter at the following prompt.

```
Do you want to check prerequisites for the above components?
   [ 1=Yes, 2=No ; default is "1" ]
```

14. After a few minutes, the Prerequisite Scanner report is displayed. After you have examined the result you can type 1 to continue with the installation or 2 to cancel the installation.
15. After all the components are installed, you are asked whether you want to install additional products or product support packages. Type 2 and press Enter.

You have now installed application support on the Tivoli Enterprise Portal desktop client on a Linux system.

If you have other Linux desktop clients in your environment, repeat this procedure to install application support on them as well. After that, go to "Configuring the Tivoli Enterprise Portal desktop client on a Linux system" to configure the Tivoli Enterprise Portal desktop client.

Configuring the Tivoli Enterprise Portal desktop client on a Linux system

Perform the following steps to configure the Tivoli Enterprise Portal desktop client on a Linux system.

1. Go to the *install_dir*/bin directory, where *install_dir* is the installation directory of IBM Tivoli Monitoring. The default is /opt/IBM/ITM.

2. Run the following command:
   ```
   ./itmcmd config -A cj
   ```
3. Press Enter to accept the default instance name when prompted, or enter an instance name and press Enter.
4. Type the host name of the Tivoli Enterprise Portal Server and press Enter.
5. Type the path of your Web browser when prompted and press Enter.
6. Press Enter when you are asked if you want to use HTTP Proxy support. The default value is no.

You have now configured the Tivoli Enterprise Portal desktop client.

Go back to the Chapter 3, “Installation roadmap,” on page 19 to continue with the installation process.

Chapter 8. Installing the language packs

By default, the English language is enabled for the agent after installation. If you want to use it in another supported language, you must install the translated language pack on the computers where the Tivoli Enterprise Portal and Tivoli Enterprise Portal Server are installed.

The language pack are provided in the following languages on the product language pack DVD:

- French
- German
- Italian
- Japanese
- Korean
- Portuguese (Brazilian)
- Simplified Chinese
- Spanish
- Traditional Chinese

Installing language packs on Windows systems

Perform the following steps to install the language pack on the Windows systems where the Tivoli Enterprise Portal and Tivoli Enterprise Portal Server are installed.

Before you can install a language pack, you must install an agent in English.

1. Double-click the `lpinstaller.exe` file in the language pack DVD to start the installation program.
2. Select the installation program language that you prefer and click **OK**.
3. Click **Next** on the Introduction panel.
4. Click **Add/Update** and then click **Next**.
5. Select the directory where the globalization package (NLSPackgae) files are stored.

   Tip: The NLSPackage files are typically in the same directory as the installation executable file.
6. Select the language support of the agent and click **Next**.

   Tip: You can use the Ctrl key for multiple selection.
7. Select the language (or languages) for which you want to install and click **Next** to examine the installation summary.
8. Click **Next** to start the installation of the language pack.
9. When the installation completes, click **Finish** to exit the installation program.
10. If you are installing the language pack on the computer where the Tivoli Enterprise Portal is installed, restart the portal; if you are installing the language pack on the computer where the Tivoli Enterprise Portal Server is installed, restart the portal server.

The language packs are now installed.

Go back to the Chapter 3, “Installation roadmap,” on page 19 to continue with the installation process.

Installing language packs on UNIX or Linux systems

Perform the following steps to install the language pack on the UNIX or Linux systems where the Tivoli Enterprise Portal and Tivoli Enterprise Portal Server are installed.

Before you can install a language pack, you must first install an agent in English.

1. Run the following command to create a temporary directory on the computer. Make sure that the full path of the directory does not contain any spaces:

   ```
   mkdir dir_name
   ```

2. Mount the language pack DVD to the temporary directory that you created.
3. Run the following command to start the installation program:

   ```
   cd dir_name
   lpinstaller.bin
   ```

   where *dir_name* is the directory that you created.
4. Select the installation program language that you prefer and click **OK**.
5. Click **Next** on the Introduction panel.
6. Click **Add/Update** and then click **Next**.
7. Select the directory where the globalization package (NLSPackgae) files are located.

   Tip: The NLSPackage files are typically located in the same directory as the installation executable file.
8. Select the language support of the agent and click **Next**.

   Tip: You can use the Ctrl key for multiple selection.
9. Select the language (or languages) for which you want to install and click **Next** to examine the installation summary.
10. Click **Next** to start the installation of the language pack.
11. When the installation completes, click **Finish** to exit the installation process.
12. If you are installing the language pack on the computer where the Tivoli Enterprise Portal is installed, restart the portal; if you are installing the language pack on the computer where the Tivoli Enterprise Portal Server is installed, restart the portal server.

The language packs are now installed.

Go back to the Chapter 3, “Installation roadmap,” on page 19 to continue with the installation process.

Part 3. Configuring an agent

This part contains instructions for configuring ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, and ITCAM agent for WebSphere Message Broker on Windows, Linux, UNIX, and i5/OS systems. It also explains how to start or stop an agent on Windows, Linux, UNIX, and i5/OS systems.

Chapter 9. Configuring an agent on Windows systems

This section contains instructions for configuring the ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, and ITCAM agent for WebSphere Message Broker.

Before you configure an agent, make sure that all installation steps have been completed for the agent. Do not attempt to start these agents before you complete the configuration steps in this chapter.

Configuring ITCAM agent for WebSphere Message Broker

This section contains instructions for configuring the ITCAM agent for WebSphere Message Broker before you start the agent.

Complete the following steps to configure the ITCAM agent for WebSphere Message Broker:

- If you choose not the use the default account (**Localsystem**) to run the agent, authorize the user ID by adding the user ID to the **mqm**, **mqbrkrs**, and **Administrators** groups. See "Authorizing user IDs" for instructions.
- (WebSphere MQ 7.1 or later) Add the WebSphere MQ library path to the PATH system environment variable. See "Specifying the library path of WebSphere MQ 7.1 or 7.5" on page 72.
- If you have not configured the ITCAM agent for WebSphere Message Broker during installation, configure the agent now. See "Configuring ITCAM agent for WebSphere Message Broker" on page 72.

Authorizing user IDs

By default, the user ID of each monitoring agent is set to **LocalSystem** in the Manage Tivoli Enterprise Monitoring Services window. Before you start the ITCAM agent for WebSphere Message Broker agent, you must authorize the user ID of the agent. The user ID can be the same one that is used for starting the broker, or you can create a new one.

Remember: If you want the agent to monitor a multi-instance broker, do not use the system account to run the monitoring agent. Complete the following task to change the startup setting of the monitoring agent.

Tip: The simplest way to make sure that the user ID of the agent is fully authorized to use all the features of the ITCAM agent for WebSphere Message Broker is to use the service user ID of the broker (the one that is used to start the broker) for starting, running, and stopping the agent.

If you want to run the monitoring agent under a user ID rather than under the system account, perform the following the steps:

1. Log on to the Windows system as a system administrator.
2. Create a user ID for the agent, if necessary. The user ID of the agent must conform to the following requirements:
   - Have authority to subscribe to broker event publications.

- Belong to the **mqm** (this group must be the primary group), **mqbrkrs**, and **Administrators** groups. The exact procedure for adding the user ID to a group depends on the version of the Windows operating system.

3. Select **Start** > **Programs** > **IBM Tivoli Monitoring** > **Manage Tivoli Monitoring Services** to open the Manage Tivoli Enterprise Monitoring Services window.
4. In the Manage Tivoli Enterprise Monitoring Services window, right-click **WebSphere Message Broker Monitoring Agent** and click **Change Startup**.
5. In the **Log on As** section, select **This account**, enter the user ID and its password, and then click **OK**.

   Depending on the ACL entries of your site, you might be required to authorize the agent to receive broker event publications in the Message Brokers Toolkit. You are not required to do it if your site uses the IBM defaults. However, if ACL entries in the Topics tab of the Message Brokers Toolkit have been modified such that Subscribe access to topics beginning with **$SYS/Broker** is restricted, this step is required.

   An ACL entry for topics beginning with **$SYS/Broker** must be added to set Subscribe access to **Allow** for the user ID of the agent. The principal for the ACL entry must give the user ID of the agent, or it can give a group that the user ID of the agent belongs to, such as **mqbrkrs**. The ACL entry must be deployed to all brokers that are monitored by the ITCAM agent for WebSphere Message Broker. This change allows the agent to receive the broker event publications. If the agent is restricted from receiving these publications, much data in the workspaces of ITCAM agent for WebSphere Message Broker will be missing or inaccurate. (Specifically, the Broker Events workspace displays no data.)

Specifying the library path of WebSphere MQ 7.1 or 7.5

If the version of WebSphere MQ that is used by WebSphere Message Broker is 7.1 or 7.5 (including all releases and modifications), you must specify the library path of WebSphere MQ for the ITCAM agent for WebSphere Message Broker.

Important: The library path of WebSphere MQ must be set in the system environment. Otherwise, the agent cannot start and the error of loading shared libraries might be recorded in the agent log.

To specify the library path, add the WebSphere MQ library path to the beginning of the PATH system environment variable and restart the system. For example, if the installation path of WebSphere MQ 7.5 is `C:\IBM\WMQ75`, add `C:\IBM\WMQ75\bin` to the beginning of the PATH environment variable of your Windows system.

Configuring ITCAM agent for WebSphere Message Broker

If you have configured the ITCAM agent for WebSphere Message Broker during installation, you do not have to reconfigure it for a second time. Otherwise, you must configure the agent now.

Perform the following steps to configure the ITCAM agent for WebSphere Message Broker:

1. Click **Start** > **Programs** > **IBM Tivoli Monitoring** > **Manage Tivoli Monitoring Services** to open the Manage Tivoli Enterprise Monitoring Services window.
2. In the Manage Tivoli Enterprise Monitoring Services window, right-click the agent instance, click **Reconfigure**. In the Agent Advanced Configuration

window, click **OK**. If this is the first time that you configure the instance, right-click the instance and click **Configure Using Defaults**.

3. When you are asked whether to update the configuration file of the agent instance prior to configuring the agent, click **Yes**.
4. A message is displayed stating that configuration will wait for you to close your default text editor before continuing. Click **OK**.
5. When the `kqi.xml` file is opened in your default text editor, edit the parameters as required, save the file in UTF-8 coding, and close the file.

   For information about the configuration parameters, see the *IBM Tivoli Composite Application Manager Agent for WebSphere Message Broker User's Guide*.
6. A message is displayed stating that the configuration file edit session is complete. Click **Yes** to configure the agent. You are returned to the Manage Tivoli Enterprise Monitoring Services window.

This procedure completes initial configuration, and the agent is ready to start. For information about how to start the agents on Windows systems, see Chapter 13, "Starting or stopping an agent on Windows systems," on page 117.

Configuring ITCAM configuration agent for WebSphere MQ

This section contains instructions for setting up ITCAM configuration agent for WebSphere MQ before you start the agent.

Complete the following steps to configure the ITCAM configuration agent for WebSphere MQ:

- If you choose not the use the default account (**Localsystem**) to run the agent, add the user ID to the **mqm** group. See "Authorizing user IDs" for instructions.
- If the user ID that you use to start, run, and stop the agent (the default is **Localsystem**) is not a member of the Administrators group, set permissions for the user ID to ensure that the agent can be started and stopped successfully. See "Setting permissions for non-administrator user IDs" on page 74.
- Set up the configuration database, which is stored at the hub monitoring server. See "Setting up the configuration database on Windows systems" on page 75.
- (WebSphere MQ 7.1 or later) Specify the installation path and library path of WebSphere MQ. See "Specifying WebSphere MQ installation path (WebSphere MQ 7.1 or later)" on page 76.
- Optional: If you have not configured the agent during installation, configure it now. See "Configuring ITCAM configuration agent for WebSphere MQ" on page 77.

Authorizing user IDs

By default, the user ID of each monitoring agent is set to **LocalSystem** in the Manage Tivoli Enterprise Monitoring Services window. If you want to run the monitoring agent using a user ID other than the system account, you must first authorize the user ID.

Perform the following steps to authorize the user ID that is not the system account to run the agent:

1. Log on to the Windows system as a system administrator.
2. Add the user ID that is to be used for running the agent to the **mqm** group. The exact procedure depends on the version of the Windows operating system.

Remember: The user ID that runs the agent must be part of the **mqm** group unless WebSphere MQ is at release level 7.0.1 or later and the user ID has been authorized in object authority manager (OAM) specially for all of its functionality. For information about how to optionally use OAM to authorize the user ID, See Appendix "Granting WebSphere MQ OAM authorities to a user ID" in ITCAM Configuration Agent for WebSphere MQ User's Guide.

3. Click **Start** > **Programs** > **IBM Tivoli Monitoring** > **Manage Tivoli Monitoring Services** to open the Manage Tivoli Enterprise Monitoring Services window.
4. In the Manage Tivoli Enterprise Monitoring Services window, right-click **WebSphere MQ Configuration Agent** and click **Change Startup**.
5. In the **Log on As** section, change from the system account to the user ID and password for the user account.

If the user ID of the ITCAM configuration agent for WebSphere MQ is not a member of the Administrator group, set permissions for the user ID to start and stop the agent. For instructions about how to set permissions, see "Setting permissions for non-administrator user IDs."

Setting permissions for non-administrator user IDs

If the user ID that you use to start, run, and stop the ITCAM configuration agent for WebSphere MQ (the default is **Localsystem**) is not a member of the Administrators group, you must set permissions for the user ID to ensure that the agent can be started and stopped successfully.

Use the Registry Editor to set permissions for a user ID.

1. Log on to the Windows system as a system administrator.
2. Click **Start** > **Run**, and then type `regedit.exe` to open the Registry Editor.
3. In the Registry Editor, locate the following key:
   `HKEY_LOCAL_MACHINE\SOFTWARE\Candle`
4. Right-click the key and click **Permissions**.
5. Click **Add** to add the user ID for ITCAM configuration agent for WebSphere MQ into the Group or user names list if it is not already in the list.
6. Click the user ID.
7. In the Permissions for the *user-ID* list, where *user-ID* is the user ID of ITCAM configuration agent for WebSphere MQ, select **Full Control** in the Allow column and click **OK**.
8. Locate the following key in the Registry Editor:
   `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Perflib`
9. Right-click the key and click **Permissions**.
10. Click **Add** to add the user ID for ITCAM configuration agent for WebSphere MQ into the Group or user names list if it is not already in the list.
11. Click the user ID.
12. In the Permissions for the *user-ID* list, where *user-ID* is the user ID of ITCAM configuration agent for WebSphere MQ, select **Read** in the Allow column and click **OK**.
13. Close the Registry Editor.
14. Locate the *`install_dir`* directory, where *install_dir* is the directory where IBM Tivoli Monitoring is installed. The default is `C:\IBM\ITM`.
15. Right-click the directory and click **Properties**.

16. On the Security tab, add the user ID for ITCAM configuration agent for WebSphere MQ agent into the Group or user names list if it is not already in the list.
17. Click the user ID.
18. In the Permissions for the *user-ID* list, select **Full control** in the Allow column, where *user-ID* is the user ID of ITCAM configuration agent for WebSphere MQ.
19. Click **OK**.

Setting up the configuration database on Windows systems

When you install the ITCAM configuration agent for WebSphere MQ, it provides a single repository called the configuration database for all your WebSphere MQ configuration data. The configuration database is stored at the hub Tivoli Enterprise Monitoring Server. If you have set up the configuration database during installation, you can skip this section.

ITCAM configuration agent for WebSphere MQ supports two types of database:

- The product-provided internal database, which is installed automatically during Tivoli Enterprise Monitoring Server installation. Under most circumstances, using internal database provides better performance than using DB2 Universal Database™.
- The DB2 Universal Database, which can be installed on Windows, UNIX, and Linux systems from the DB2 UDB ESE V9.1 CD. If the hub Tivoli Enterprise Monitoring Server is installed on a z/OS system and you want to use a DB2 Universal Database as the configuration database, DB2 version 8.1 or later is required. If DB2 is not already installed on the z/OS system that hosts the hub Tivoli Enterprise Monitoring Server, you can purchase and install it separately. Alternatively, you can use the product-provided internal database.

  Exception: DB2 database is not supported by the monitoring server on a 64-bit Windows system. You must use internal database as the configuration database for a 64-bit Windows system.

The DB2 Universal Database (UDB) is included in the DB2 UDB ESE V9.1 for Windows installation CD. See your DB2 documentation for installation instructions.

Remember: If you want to use the DB2 Universal Database, you must have already installed DB2 Universal Database Workgroup Server Edition 8.1 or later on the computer that hosts the hub monitoring server.

Perform the following steps to set up the configuration database:

1. Open the WebSphere MQ Configuration Data Source Parameters window by double-clicking the `KCFDatasource.exe` file in the *`install_dir`*`\CMS` directory, where *install_dir* is the installation directory of IBM Tivoli Monitoring.
2. Select the database type as either **Internal** or **ODBC (DB2UDB)**.
3. If you selected the **ODBC (DB2UDB)** database, complete the fields in the displayed window as follows:
   a. In the **`Admin User ID`** and **`Admin Password`** fields, enter the user ID and password of a user with DB2 administrator authority.
   b. In the **`Database User ID`** and **`Database Password`** fields, either accept the default user ID and password (by default both the user ID and password are WMQCFG) or type the user ID (maximum 8 characters) and password that you want to use for accessing the configuration database.

The data source name for the configuration database is RKCFAPLT. Do not change it.

4. Click **OK** to save your settings and close the window.

The configuration database is now set up.

Specifying WebSphere MQ installation path (WebSphere MQ 7.1 or later)

In certain circumstances, you must specify the WebSphere MQ installation path by using two parameters in the `kmcenv` file before the agent can work properly.

If any of the following cases applies to your Windows environment, complete the steps to specify the installation path of WebSphere MQ:

- Only one copy of WebSphere MQ 7.1 or later is installed and it is installed to a single directory.
- Different copies of WebSphere MQ are installed to different directories.

1. If you have installed different versions of WebSphere MQ on the same system (including WebSphere MQ 7.1 or later), specify the library path of the latest WebSphere MQ version.

   To specify the library path, add the library path of the latest WebSphere MQ version to the beginning of the **PATH** system environment variable and restart the system. For example, if both WebSphere MQ 7.1 and 7.5 are installed, and the installation path of WebSphere MQ 7.5 is `C:\IBM\WMQ75`, add `C:\IBM\WMQ75\bin` to the beginning of the **PATH** variable.

   Remember: If the agent that you installed is 64-bit, specify the `bin64` library path of the WebSphere MQ, for example, `C:\IBM\WMQ71\bin64`.

   WebSphere Message Broker considerations: If WebSphere Message Broker is also installed on the same system, check whether the latest version of WebSphere MQ is supported by WebSphere Message Broker before you make the change. If the specified WebSphere MQ version is not supported, the broker might not be able to find the appropriate queue manager after the **PATH** value change.

2. Specify different installation directories of WebSphere MQ with the following two parameters in the `kmcenv` file:
   - **KMC_CURRENT_WMQ_INSTALLPATH**:

     Specify the installation path of WebSphere MQ that is to be managed by the current agent instance.
   - **KMC_LATEST_WMQ_INSTALLPATH**:

     Specify the installation path of the latest version of WebSphere MQ that is installed on the same system. If you have more than one copy of the latest version installed on the same system, specify any of their directories in this parameter.

   Tip: You can do this step from the Manage Tivoli Enterprise Monitoring Services window. In this window, right-click the instance of ITCAM configuration agent for WebSphere MQ and click **Advanced** > **Edit ENV File**. The `kmcenv` file is open for you to edit.

   Remember:

- When you edit the kmcenv file, make the changes before the asterisk lines. Changes after the asterisk lines will be lost after the agent is reconfigured from the Manage Tivoli Enterprise Monitoring Services window.
- Both the two parameters are required in an agent configuration file, no matter which WebSphere MQ is managed by the current agent instance. For example, if the agent instance is to manage WebSphere MQ 7.0.1, you are also required to specify the **KMC_LATEST_WMQ_INSTALLPATH** parameter in the agent configuration file. If the agent instance is to manage WebSphere MQ 7.5, which is the latest version on the system, you must specify the installation paths of WebSphere MQ 7.5 twice in the agent configuration file (one for **KMC_CURRENT_WMQ_INSTALLPATH** and the other for **KMC_LATEST_WMQ_INSTALLPATH**).
- If only WebSphere MQ 7.1 or later is installed and it is installed to a single directory, specify the same installation path for the two parameters.
- On Windows systems, those parameter values must be embraced by double quotation marks, for example, KMC_CURRENT_WMQ_INSTALLPATH="C:\IBM\WMQ71", KMC_LATEST_WMQ_INSTALLPATH="C:\IBM\WMQ75".

Important: If and *only* if you have different versions of WebSphere MQ installed on the same system, use different agent instances for different versions of WebSphere MQ separately. One agent instance discovers and configures only one single version of WebSphere MQ. If you use multiple agent instances for only one version of WebSphere MQ, multiple records of the same queue manager in the configuration database might cause configuration conflict.

Tip: To distinguish multiple agent instances, set **KMC_CLUSTERNAME** parameter in the configuration file.

Configuring ITCAM configuration agent for WebSphere MQ

If you have configured the ITCAM configuration agent for WebSphere MQ during installation, you do not have to reconfigure it for a second time and can start using the agent. Otherwise, you must configure the agent now.

Perform the following procedure to configure the ITCAM configuration agent for WebSphere MQ:

1. Click **Start** > **Programs** > **IBM Tivoli Monitoring** > **Manage Tivoli Monitoring Services** to open the Manage Tivoli Enterprise Monitoring Services window.
2. From the Manage Tivoli Enterprise Monitoring Services window, right-click **WebSphere MQ Configuration Agent** and click **Configure using defaults**.
3. To accept existing communications settings, click **OK** on the two configuration windows that appear; or make any required changes on these windows, and then click **OK**.
4. You are prompted to edit the kmcenv_*instance* parameter file, where *instance* is the agent instance name of the ITCAM configuration agent for WebSphere MQ (The parameter file of the primary agent is named kmcenv).
   - If you want to accept the default parameters and use the agent to configure all queue managers on your system, do not edit the parameter file. Click **No**.
   - If you want to configure the agent to run in a clustering environment, perform the following procedure:
     a. Click **Yes**.
     b. Edit the parameters as required, then save and close the file.

For information about how to configure the agent to run in a clustering environment, see the *IBM Tivoli Composite Application Manager Configuration Agent for WebSphere MQ User's Guide*.

c. Click **Yes** to configure the agent.

You are returned to the Manage Tivoli Enterprise Monitoring Services window.

This procedure completes initial configuration, and the agent is ready to start. For information about how to start the agent on Windows systems, see Chapter 13, "Starting or stopping an agent on Windows systems," on page 117.

Configuring ITCAM agent for WebSphere MQ

This section contains instructions for setting up ITCAM agent for WebSphere MQ before you start the agent.

Complete the following steps configure the ITCAM agent for WebSphere MQ:

- If WebSphere MQ default objects such as SYSTEM.DEFAULT.MODEL.QUEUE do not exist in your environment, create them before starting the agent. For information about how to create these default objects, see your WebSphere MQ documentation.
- If you choose not the use the default account (**Localsystem**) to run the agent, add the user ID to the **mqm** group. See "Authorizing user IDs" for instructions.
- If the user ID that you use to start, run, and stop the agent (the default is **Localsystem**) is not a member of the Administrators group, set permissions for the user ID to ensure that the agent can be started and stopped successfully. See "Setting permissions for non-administrator user IDs" on page 79.
- (WebSphere MQ 7.1 or later): Add the library path of WebSphere MQ to the PATH local variable of the agent. See "Specifying WebSphere MQ library path (WebSphere MQ 7.1 or later)" on page 80.
- If the latest version of WebSphere MQ is not primary installation or WebSphere MQ is not installed in the default directory, specify the WebSphere MQ installation path in the `kmqenv` file. See "Specifying WebSphere MQ installation path (WebSphere MQ 7.1 or later)" on page 80.
- Optional: If you have not configured the agent during installation, configure it now. See "Configuring the ITCAM agent for WebSphere MQ" on page 81.

WebSphere MQ default objects

Before the ITCAM agent for WebSphere MQ is started, WebSphere MQ default objects such as SYSTEM.DEFAULT.MODEL.QUEUE must exist. If they do not exist in your environment, create them before starting the agent.

For information about how to create these default objects, see your WebSphere MQ documentation.

Authorizing user IDs

By default, the user ID of each monitoring agent is set to **LocalSystem** in the Manage Tivoli Enterprise Monitoring Services window. If you want to run the monitoring agent using a user ID other than the system account, you must first authorize the user ID.

Perform the following steps to authorize the user ID to run the agent:

1. Log on to the Windows system as a system administrator.

2. Add the user ID that is to be used for running the agent to the **mqm** group. The exact procedure depends on the version of the Windows operating system.

   Remember: The user ID that runs the agent must be part of the **mqm** group unless WebSphere MQ is at release level 7.0.1 or later and the user ID has been authorized in object authority manager (OAM) specially for all of its functionality. For information about how to optionally use OAM to authorize the user ID, See Appendix "Granting OAM authorities to a user ID" in IBM Tivoli Composite Application Manager Agent for WebSphere MQ User's Guide.
3. Click **Start** > **Programs** > **IBM Tivoli Monitoring** > **Manage Tivoli Monitoring Services** to open the Manage Tivoli Enterprise Monitoring Services window.
4. In the Manage Tivoli Enterprise Monitoring Services window, right-click **WebSphere MQ Monitoring Agent** and click **Change Startup**.
5. In the **Log on As** section, change from the system account to the user ID and password for the user account.

If the user ID of the ITCAM agent for WebSphere MQ is not a member of the Administrator group, set permissions for the user ID to start and stop the agent. For instructions about how to set permissions, see “Setting permissions for non-administrator user IDs.”

Setting permissions for non-administrator user IDs

If the user ID that you use to start, run, and stop the ITCAM agent for WebSphere MQ (the default is **Localsystem**) is not a member of the Administrators group, perform the following steps to set permissions for the user ID to ensure that the agent can be started and stopped successfully.

Use the Registry Editor to set permissions for a user ID.

1. Log on to the Windows system as a system administrator.
2. Click **Start** > **Run**, and then type `regedit.exe` to open the Registry Editor.
3. In the Registry Editor, locate the following key:
   `HKEY_LOCAL_MACHINE\SOFTWARE\Candle`
4. Right-click the key and click **Permissions**.
5. Click **Add** to add the user ID for ITCAM agent for WebSphere MQ into the Group or user names list if it is not already in the list.
6. Click the user ID.
7. In the Permissions for the *user-ID* list, where *user-ID* is the user ID of ITCAM agent for WebSphere MQ, select **Full Control** in the Allow column and click **OK**.
8. Locate the following key in the Registry Editor:
   `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Perflib`
9. Right-click the key and click **Permissions**.
10. Click **Add** to add the user ID for ITCAM agent for WebSphere MQ into the Group or user names list if it is not already in the list.
11. Click the user ID.
12. In the Permissions for the *user-ID* list, where *user-ID* is the user ID of ITCAM agent for WebSphere MQ, select **Read** in the Allow column and click **OK**.
13. Close the Registry Editor.
14. Locate the *`install_dir`* directory, where *install_dir* is the directory where IBM Tivoli Monitoring is installed. The default is `C:\IBM\ITM`.
15. Right-click the directory and click **Properties**.

16. On the Security tab, add the user ID for ITCAM agent for WebSphere MQ agent into the Group or user names list if it is not already in the list.
17. Click the user ID.
18. In the Permissions for the *user-ID* list, select **Full control** in the Allow column, where *user-ID* is the user ID of ITCAM agent for WebSphere MQ.
19. Click **OK**.

Specifying WebSphere MQ library path (WebSphere MQ 7.1 or later)

If you are using WebSphere MQ 7.1 or later, you must specify the library path of WebSphere MQ for the agent to monitor version 7.1 or later queue managers.

To specify the WebSphere MQ library path, add the library path to the PATH local variable of the ITCAM agent for WebSphere MQ. If you have multiple versions of WebSphere MQ installed, specify the library path of the latest version. For example, when both WebSphere MQ 7.1 and 7.5 are installed, add the library path of WebSphere MQ 7.5 to the PATH variable.

1. Click **Start** > **Programs** > **IBM Tivoli Monitoring** > **Manage Tivoli Monitoring Services**. The Manage Tivoli Enterprise Monitoring Services windows opens.
2. Right-click **WebSphere MQ Monitoring Agent** and click **Advanced** > **Edit Variables**.
3. In the WebSphere MQ Monitoring Agent: Override Local Variable Settings window, add the WebSphere MQ library path to the PATH variable.
   - If the PATH variable does not exist, click **Add**. In the Add Environment Setting Override window, add a variable named PATH and set the value to the WebSphere MQ library path, for example, `C:\IBM\WMQ71\bin`.
   - If the PATH variable exists, select it and click **Edit**. In the Edit Environment Setting Override window, add the WebSphere MQ library path to the PATH value. Separate each value with a semicolon (;).

   Remember: If the agent that you installed is 64-bit, specify the `bin64` library path of the WebSphere MQ, for example, `C:\IBM\WMQ71\bin64`.
4. Click **OK** to close this window and save the changes.

Specifying WebSphere MQ installation path (WebSphere MQ 7.1 or later)

When you are using WebSphere MQ 7.1 or later, the **KMQ_LATEST_WMQ_INSTALLPATH** parameter must be specified in the `kmqenv` file in certain circumstances.

If any of the following cases applies to your Windows environment, complete the following steps to specify the installation path of WebSphere MQ:

- More than one copy of WebSphere MQ is installed, and the latest version of WebSphere MQ on the system is not a primary installation.
- Only one copy of WebSphere MQ 7.1 or later is installed, and it is not installed in the default installation directory.

1. Open the `kmqenv` file. By default, this file is in the *install_dir*`/TMAITM6` directory or in the *install_dir*`/TMAITM6_x64` directory, where *install_dir* is the agent installation directory.
2. Add the **KMQ_LATEST_WMQ_INSTALLPATH** parameter to the `kmqenv` file and set its value to the installation path of latest version of WebSphere MQ that is

installed on the system. If you have more than one copy of the latest version of WebSphere MQ installed on the same system, specify any of their installation directories in this parameter.

3. Save and close the `kmqenv` file.
4. Recycle the agent for the change to take effect.

Configuring the ITCAM agent for WebSphere MQ

If you have configured the ITCAM agent for WebSphere MQ during installation, you do not have to reconfigure it for a second time, otherwise, you must configure the agent now.

Perform the following steps to configure the ITCAM agent for WebSphere MQ:

1. Click **Start** > **Programs** > **IBM Tivoli Monitoring** > **Manage Tivoli Monitoring Services** to open the Manage Tivoli Enterprise Monitoring Services window.
2. From the Manage Tivoli Enterprise Monitoring Services panel, right-click **WebSphere MQ Monitoring Agent** and click **Configure using defaults**.
3. To accept existing communications settings, click **OK** on the two configuration windows that appear; or make any required changes on these windows, and then click **OK**.
4. You are prompted to edit the configuration file of the agent (The primary agent configuration file is named `mq.cfg`).
   - If your site has a specified default queue manager and you want the agent to monitor the default queue manager, do not change the configuration file. Click **No**. The agent is configured using defaults. If necessary, you can customize this file later.
   - If your site does not have a default queue manager specified, or if you want to configure this agent to monitor a queue manager other than the default queue manager, do the following steps:
     a. Click **Yes**. A Notepad session opens.
     b. Supply the queue manager name in the **MANAGER NAME()** and **MGRNAME()** parameters.
     c. Save and close the Notepad session.
     d. Click **Yes** at the next prompt to continue.

You are returned to the Manage Tivoli Enterprise Monitoring Services window. This procedure completes initial configuration, and the agent is ready to start. Go to Chapter 13, “Starting or stopping an agent on Windows systems,” on page 117 for information about how to start the agent on Windows systems.

Chapter 10. Configuring an agent on UNIX and Linux systems

This section provides instructions for configuring ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, and ITCAM agent for WebSphere Message Broker on UNIX and Linux computers.

Before you configure an agent, make sure that all installation steps have been completed for the agent. Do not attempt to start the agents before completing the tasks in this section.

Configuring ITCAM agent for WebSphere Message Broker

This section contains instructions for configuring ITCAM agent for WebSphere Message Broker before you can start to use the agent.

Complete the following steps to configure ITCAM agent for WebSphere Message Broker:

- If you installed the ITCAM agent for WebSphere Message Broker as a root user, you cannot run the agent as the root user. The user ID that is used to run the agent must belong to the **mqm** and **mqbrkrs** user groups. You must also change the agent file permissions to ensure that this user ID can run the agent successfully. For instructions, see "Changing the file permissions for agents" on page 119.
- If you choose not to use the broker's user ID to start the agent, authorize the agent to receive broker data. See "Authorizing the agent to receive broker data."
- (WebSphere MQ 7.1 or later) Specify the library path of WebSphere MQ for the agent. See "Specifying the library path of WebSphere MQ 7.1 or later" on page 84.

Authorizing the agent to receive broker data

If you choose to use the broker's user ID (the user ID that is used to start the broker) to start the agent, you can skip this step because the broker's ID is fully authorized to start, run, and stop the ITCAM agent for WebSphere Message Broker. This step is required if you choose to use a different user ID.

When you authorize the agent to receive broker data, keep the following things in mind:

- Do not start the agent with a user ID that has higher authority than the broker's user ID.
- Do not start the agent with a user ID that has root authority unless the broker's user ID has root authority.

Perform the following steps to authorize the agent to receive broker data if you choose not to use the broker's user ID to start the agent:

1. Create a user ID that belongs to the **mqm** (the primary group) and **mqbrkrs** groups.
2. Make sure that the user ID has the right to create and update the files in the following directories:
   - *install_dir*/logs
   - *install_dir*/config

- *install_dir*/*arch*/qi/hist

where *install_dir* is the installation directory of IBM Tivoli Monitoring and *arch* is the architecture code for your operating system. (See Appendix D, "Architecture codes," on page 139 for a complete list of architecture codes)

Specifying the library path of WebSphere MQ 7.1 or later

If the version of WebSphere MQ that is used by WebSphere Message Broker is 7.1 or later, you must specify the library path of WebSphere MQ for the ITCAM agent for WebSphere Message Broker.

Important: The library path of WebSphere MQ must be set in the qi.ini file. Otherwise, the agent cannot start and the error of loading shared libraries might be recorded in the agent log.

To specify the library path of WebSphere MQ 7.1 or later, perform the following steps:

1. Add the WebSphere MQ library path to the following variables in the qi.ini file:
   - Linux/Solaris/HP-UX (without WebSphere MQ 7.0.1):

     Add $*WMQINSTALL*/lib: to the beginning of the **LD_LIBRARY_PATH** value.
   - Linux/Solaris/HP-UX (with WebSphere MQ 7.0.1 installed):

     Add $*WMQINSTALL*/lib/compat: to the beginning of the **LD_LIBRARY_PATH** value.
   - AIX®:

     Add $*WMQINSTALL*/lib: to the beginning of the **LIBPATH** value.

   where *WMQINSTALL* is the installation path of WebSphere MQ 7.1 or later.
2. Restart the agent instance for the changes to take effect.

Configuring ITCAM configuration agent for WebSphere MQ

This section contains instructions for configuring ITCAM configuration agent for WebSphere MQ before you can start to use the agent.

Complete the following steps to configure ITCAM configuration agent for WebSphere MQ:

- Add the user ID that is to run the agent to the **mqm** group. For instructions, see "Authorizing user IDs for the agent" on page 85. This step is required unless WebSphere MQ is at release level 7.0.1 or later and the user ID has been authorized in object authority manager (OAM) specially for all of its functionality.
- Optional: If you want to use a DB2 Universal Database as the configuration database, create a database and grant permissions to the user ID that is used to run the hub monitoring server. See "Authorizing the user ID for DB2 database" on page 88.
- Set up the configuration database, which is stored at the hub monitoring server. See "Setting up the configuration database" on page 85.
- (WebSphere MQ 7.1 or later): Specify the library path of WebSphere MQ in the mc.ini file. See "Specifying WebSphere MQ library path (WebSphere MQ 7.1 or later)" on page 88.
- Optional: For multiple installation or non primary installation of WebSphere MQ, specify the WebSphere MQ installation path with two parameters in the

`mc.cfg` agent configuration file. See "Specifying WebSphere MQ installation path for multiple installations or non-primary installation" on page 89.

- If the WebSphere MQ configuration file, `mqs.ini`, is stored in the directory rather than the default directory (`/var/mqm`), you must specify the file location in the `mc.ini` agent configuration file. See "Specifying the mqs.ini file location" on page 89.

Authorizing user IDs for the agent

The user ID that is used to run the ITCAM configuration agent for WebSphere MQ must belong to the **mqm** group.

Do the following steps to authorize the user ID that is used to run the agent:

1. Log on to the system as root.
2. Add the user ID that is to be used for running the agent to the **mqm** group. The exact procedure depends on the version of the UNIX or Linux operating system.

   Remember: The user ID that runs the agent must be part of the **mqm** group unless WebSphere MQ is at release level 7.0.1 or later and the user ID has been authorized in OAM specially for all of its functionality. For information about how to optionally use OAM to authorize the user ID, See the appendix about granting WebSphere MQ OAM authorities to a user ID in *ITCAM Configuration Agent for WebSphere MQ User's Guide*.

Setting up the configuration database

In a highly distributed environment, WebSphere MQ can run on several operating systems. The ITCAM configuration agent for WebSphere MQ provides a single repository called the configuration database for all your WebSphere MQ configuration data. The configuration database is stored at the hub Tivoli Enterprise Monitoring Server. You must set up the configuration database before you can start the configuration agent.

ITCAM configuration agent for WebSphere MQ supports two types of database:

- The product-provided internal database, which is installed automatically during Tivoli Enterprise Monitoring Server installation. Under most circumstances, using the internal database provides better performance than using the DB2 Universal Database.
- The DB2 Universal Database, which can be installed on a Windows, UNIX and Linux system that hosts the hub monitoring server from the DB2 UDB ESE V9.1 CD. If the hub monitoring server is installed on a z/OS system and you want to use a DB2 Universal Database as the configuration database, DB2 version 8.1 or later is required. If DB2 is not already installed on the z/OS system that hosts the hub monitoring server, you can purchase and install it separately. Alternatively, use the product-provided internal database.

  Exception: DB2 database is not supported by the monitoring server on a Linux x86_64 system. You must use internal database as the configuration database for a Linux x86_64 system.

If you want to use a DB2 Universal Database as the configuration database, before setting up the configuration database, the DB2 instance owner must have created a database and granted permissions to the user ID that are used to run the hub monitoring server. If this procedure has not yet been done, see "Authorizing the user ID for DB2 database" on page 88 for instructions.

To set up the configuration database, perform the following steps:

1. Go to the *install_dir*/bin directory, where *install_dir* is the installation directory of IBM Tivoli Monitoring. The default is /opt/IBM/ITM.
2. Run the following command to stop the Tivoli Enterprise Monitoring Server, where *tems_name* is the name of the monitoring server:

   ```
   ./itmcmd server stop tems_name
   ```

3. Run the following command to configure the monitoring server:

   ```
   ./itmcmd config -S -t tems_name
   ```

   Tip: For more information about the **itmcmd config** command, see the *IBM Tivoli Monitoring: Installation and Setup Guide*.
4. Press Enter to indicate that this server is a hub Tivoli Enterprise Monitoring Server (indicated by the *LOCAL default).

   Important: Only install the configuration database on the hub monitoring server, do not try to install it on a remote monitoring server.
5. Accept the defaults or enter the correct values for your environment at each prompt until you see the following prompt. Specify which type of database you want to use by entering the appropriate number and pressing Enter.

   ```
   User database [1=Internal, 2=DB2] (Default is: 2):
   ```

6. If you are using the DB2 Universal Database, perform the following steps:
   a. You are prompted to enter the following information about the DB2 instance that you want to use:

      ```
      DB2 Instance(Default is: none):
      ```

      where none might be replaced by a default DB2 instance.

      Important: If none is displayed here as the default DB2 instance, you must manually enter the name of the DB2 instance that you want to use and press Enter, because none is not a valid DB2 instance name. Press Enter to accept the default if a valid DB2 instance name is displayed as the default value instead of none.
   b. Use the KCFDataSourceU database configuration tool to write the encrypted database password to the system files and confirm that the database connection is enabled. Run the following commands:
      - AIX:

        ```
        export KEYFILE_DIR=install_dir/keyfiles
        export ICCRTE_DIR=install_dir/aix526/gs
        export KBBENV_HOME=install_dir/tables/tems_name
        export LIBPATH=$LIBPATH:install_dir/arch/ue/lib
        . /DB2_Instance_Home/sqllib/db2profile
        install_dir/arch/ms/bin/KCFDataSourceU -d database-name
           -u user-id -p password –t (Y|N) -c (Y|N)
        ```

      - Solaris and Linux:

        ```
        export KEYFILE_DIR=install_dir/keyfiles
        export ICCRTE_DIR=install_dir/arch/ms/lib/gskit
        export KBBENV_HOME=install_dir/tables/tems_name
        export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:install_dir/arch/ue/lib:install_
           dir/arch/gs/lib
        . /DB2_Instance_Home/sqllib/db2profile
        install_dir/arch/ms/bin/KCFDataSourceU -d database-name
           -u user-id -p password –t (Y|N) -c (Y|N)
        ```

      where:

      - *install_dir* is the installation directory of IBM Tivoli Monitoring

- *arch* is the architecture code of your operating system (See Appendix D, "Architecture codes," on page 139 for details)
- *database-name* is the configuration database name
- *tems_name* is the name of the Tivoli Enterprise Monitoring Server
- *DB2_Instance_Home* is the name of the DB2 instance
- *user-id* is the user ID that is used to access the database
- *password* is the password of the user ID that is used to access the database
- The `–t` option specifies if the user ID and password are checked when connecting to the database. `Y` indicates yes and `N` indicates no.
- The `-c` option specifies if the password is encrypted. `Y` indicates yes and `N` indicates no.

Remember: The data source name of the configuration database is **RKCFAPLT**. You cannot change it.

7. Accept the default or enter the correct values for your environment at each prompt until the configuration program exits.
8. Open the `ms.ini` file and Tivoli Enterprise Monitoring Server configuration file (*hostname*_ms_*tems_ID*, where *hostname* is the name of the Tivoli Enterprise Monitoring Server host and *tems_ID* is the Tivoli Enterprise Monitoring Server ID) in the *install_dir*`/config` directory, where *install_dir* is the installation directory of IBM Tivoli Monitoring.
9. Edit the following environment variables to ensure that `$DB2HOME$/lib` appears before `$CANDLEHOME$/$BINARCH$/$PRODUCTCODE$/lib` in the string of parameters following each variable name:
   - LD_LIBRARY_PATH
   - LIBPATH
   - SHLIB_PATH
10. If you are using a 64-bit version of DB2 and cannot create a 32-bit database instance for the configuration database, perform the following steps:
    a. Ensure that `$DB2HOME$/lib32` is included in the string of parameters following the environment variables that are listed in the `ms.ini` file in the *install_dir*`/config` directory, where *install_dir* is the installation directory of IBM Tivoli Monitoring:
       - LD_LIBRARY_PATH
       - LIBPATH
       - SHLIB_PATH
    b. If you are using the Linux operating system, skip this step and continue with the next step; otherwise, navigate to the *install_dir*`\`*arch*`\ms\lib\` directory (where *install_dir* is the installation directory of IBM Tivoli Monitoring and *arch* is the architecture code of your operating system) and do one of the following procedures, depending on the operating system that you are using:
       - AIX: create a copy of `libkcfdummydb2.a` and name it `libdb2.a`
       - HP-UX: create a copy of `libkcfdummydb2.sl` and name it `libdb2.sl`
       - Solaris: create a copy of `libkcfdummydb2.so`, name it `libdb2.so`, create a second copy of `libkcfdummydb2.so`, and name it `libdb2.so.1`
11. Run the following command to start the Tivoli Enterprise Monitoring Server again:

    ```
    ./itmcmd server start tems_name
    ```

Authorizing the user ID for DB2 database

If you want to use a DB2 Universal Database as the configuration database, before setting up the configuration database, the DB2 instance owner must have created a database and granted permissions to the user ID that is used to run the hub monitoring server.

To create the user ID and grant permissions, perform the following steps:

1. Log on to DB2 with the user ID of the DB2 instance owner. If you logged on using another user ID, you can run the following command to change to the user ID of the DB2 instance owner:

   ```
   su db2_user_ID
   ```

   where *db2_user_ID* is the user ID of the DB2 instance owner.
2. Start the DB2 command line processor by running the following command:

   ```
   db2
   ```
3. Run the following commands to create the database and grant permissions to the user ID that is used to run the hub Tivoli Enterprise Monitoring Server:

   Important: If you are using a 64-bit version of DB2 version 8, you must create a 32-bit database instance for the configuration database. 64-bit database instances are supported from DB2 version 9 onwards. See your DB2 documentation for more information.

   ```
   CREATE DATABASE RKCFAPLT
   CONNECT TO RKCFAPLT
   GRANT CONNECT ON DATABASE TO USER tems_user_ID
   GRANT CREATETAB ON DATABASE TO USER tems_user_ID
   ```

   where *tems_user_ID* is the user ID that is used to run the hub monitoring server.

Specifying WebSphere MQ library path (WebSphere MQ 7.1 or later)

If you are using WebSphere MQ 7.1 or later, you must specify the library path of WebSphere MQ for the agent to configure version 7.1 or later queue managers.

To specify the WebSphere MQ library path, perform the following steps.

1. Add the WebSphere MQ library path to the following variables in the `mc.ini` file. If you have multiple versions of WebSphere MQ installed, add the library path of the latest version to the parameter.
   - Linux/Solaris/HP-UX (without WebSphere MQ 7.0.1):

     Add `$WMQINSTALL/lib:` to the beginning of the **LD_LIBRARY_PATH** value.
   - Linux/Solaris/HP-UX (with WebSphere MQ 7.0.1 installed):

     Add `$WMQINSTALL/lib/compat:` to the beginning of the **LD_LIBRARY_PATH** value.
   - AIX:

     Add `$WMQINSTALL/lib:` to the beginning of the **LIBPATH** value.

   where *WMQINSTALL* is the installation path of WebSphere MQ 7.1 or later.
2. Restart the agent instance for the changes to take effect.

Specifying WebSphere MQ installation path for multiple installations or non-primary installation

In certain circumstances, you must specify the WebSphere MQ installation path by using two parameters in the agent configuration file before the agent can work properly.

If any of the following cases applies to your UNIX or Linux environment, complete the steps to specify the installation path of WebSphere MQ:

- Different versions of WebSphere MQ are installed on the system.
- More than one copy of the same version of WebSphere MQ is installed to different directories.
- Only one copy of WebSphere MQ 7.1 is installed but it is not a primary installation.

1. If you have WebSphere MQ 7.1 installed, specify the library path of WebSphere MQ 7.1. For instructions, see "Specifying WebSphere MQ library path (WebSphere MQ 7.1 or later)" on page 88.
2. Specify different installation directories of WebSphere MQ with the following two parameters in the `mc.cfg` agent configuration file:
   - **KMC_CURRENT_WMQ_INSTALLPATH**:

     Specify the installation path of WebSphere MQ that is to be managed by the current agent instance. The specified path must be the parent path of the `bin` directory, for example, `/opt/mqm`.
   - **KMC_LATEST_WMQ_INSTALLPATH**:

     Specify the installation path of the latest version of WebSphere MQ that is installed on the same system. The specified path must be the parent path of the `bin` directory, for example, `/opt/mqm75`. If you have more than one copy of the latest version installed on the same system, specify any of their directories for this parameter.

   Remember: Both the two parameters are required in an agent configuration file, no matter which WebSphere MQ is managed by the current agent instance. For example, if the agent instance is to manage WebSphere MQ 7.0.1, you are also required to specify the **KMC_LATEST_WMQ_INSTALLPATH** parameter in the agent configuration file. If the agent instance is to manage WebSphere MQ 7.1 and 7.1 is the latest version, you must specify the installation paths of WebSphere MQ 7.1 twice in the agent configuration file (one for **KMC_CURRENT_WMQ_INSTALLPATH** and the other for **KMC_LATEST_WMQ_INSTALLPATH**).

Important: If and *only* if you have different versions of WebSphere MQ installed on the same system, use different agent instances for different versions of WebSphere MQ separately. One agent instance discovers and configures only one single version of WebSphere MQ. If you use multiple agent instances for only one version of WebSphere MQ, multiple records of the same queue manager in the configuration database might cause configuration conflict.

Tip: To distinguish multiple agent instances, set **KMC_CLUSTERNAME** parameter in the configuration file.

Specifying the mqs.ini file location

If the WebSphere MQ configuration file, `mqs.ini`, is stored in the directory rather than the default directory (`/var/mqm`), you must specify the file location in the `mc.ini` agent configuration file.

The WebSphere MQ configuration file, mqs.ini, contains information relevant to all the queue managers on a WebSphere MQ installation. It is created automatically during the installation of WebSphere MQ. By default, the mqs.ini file for WebSphere MQ for UNIX systems is in the /var/mqm directory. You can change this file location with WebSphere MQ.

If the mqs.ini file is not stored in its default location, perform the following steps to specify the file location in the mc.ini agent configuration file.

1. Navigate to the *ITM_HOME*/config directory, where *ITM_HOME* is the directory where IBM Tivoli Monitoring is installed.
2. Open the mc.ini file.
3. Set the location of the mqs.ini file for the **AMQ_MQS_INI_LOCATION** variable like the following example:

   ```
   AMQ_MQS_INI_LOCATION=/user1/mqs.ini
   ```
4. Save and close the mc.ini file.

Configuring ITCAM agent for WebSphere MQ

This section contains instructions for configuring ITCAM agent for WebSphere MQ before you can start to use the agent.

Complete the following steps to make sure that your UNIX or Linux system meets the agent requirements:

- The user ID that is used to run the agent must belong to the **mqm** group. See "Authorizing user IDs for the agent" for instructions.
- WebSphere MQ default objects such as the default queue manager and SYSTEM.DEFAULT.MODEL.QUEUE exists on your system.
- The WebSphere MQ configuration file, mqs.ini, is stored in the default directory (/var/mqm). You can change this file location with WebSphere MQ version 7.0.1. If you store the mqs.ini file in the directory rather than the default directory, do the following steps:
  1. Navigate to the *ITM_HOME*/config directory, where *ITM_HOME* is the directory where IBM Tivoli Monitoring is installed.
  2. Open the mq.ini file.
  3. Set the location of the mqs.ini file for the **AMQ_MQS_INI_LOCATION** variable like the following example:

     ```
     AMQ_MQS_INI_LOCATION=/user1/mqs.ini
     ```
  4. Save and close the mq.ini file.
- (WebSphere MQ 7.1 or later): Specify the library path of WebSphere MQ. See "Specifying WebSphere MQ installation path (WebSphere MQ 7.1 or later)" on page 91.
- Optional: (WebSphere MQ 7.1 or later): If WebSphere MQ is not installed in the default location or the latest version of WebSphere MQ is not a primary installation, specify the installation path of WebSphere MQ in the mq.ini file. See "Specifying WebSphere MQ library path (WebSphere MQ 7.1 or later)" on page 91.

Authorizing user IDs for the agent

The user ID that is used to run the agent must belong to the **mqm** group.

Do the following steps to authorize the user ID that is used to run the agent:

1. Log on to the UNIX or Linux system using the root ID.

2. Add to the **mqm** group the user ID to be used for running the agent. The exact procedure depends on the version of the UNIX or Linux operating system.

   Remember: The user ID that runs the agent must be part of the **mqm** group unless WebSphere MQ is at release level 7.0.1 or later and the user ID has been authorized in object authority manager (OAM) specially for all of its functionality. For information about how to optionally use OAM to authorize the user ID, See Appendix "Granting WebSphere MQ OAM authorities to a user ID" in IBM Tivoli Composite Application Manager Agent for WebSphere MQ User's Guide.

Specifying WebSphere MQ library path (WebSphere MQ 7.1 or later)

If you are using WebSphere MQ 7.1 or later, you must specify the library path of WebSphere MQ for ITCAM agent for WebSphere MQ to monitor version 7.1 or later queue managers.

To specify the WebSphere MQ library path, perform the following steps:

1. Add the WebSphere MQ library path to the following variables in the `mq.ini` file. If you have multiple versions of WebSphere MQ installed, add the library path of the latest version to the parameter.
   - Linux/Solaris/HP-UX (without WebSphere MQ 7.0.1):

     Add `$WMQINSTALL/lib:` to the beginning of the **LD_LIBRARY_PATH** value.
   - Linux/Solaris/HP-UX (with WebSphere MQ 7.0.1 installed):

     Add `$WMQINSTALL/lib/compat:` to the beginning of the **LD_LIBRARY_PATH** value.
   - AIX:

     Add `$WMQINSTALL/lib:` to the beginning of the **LIBPATH** value.

   where *WMQINSTALL* is the installation path of WebSphere MQ 7.1 or later.
2. Restart the agent instance for the changes to take effect.

Specifying WebSphere MQ installation path (WebSphere MQ 7.1 or later)

When you are using WebSphere MQ 7.1 or later, the **KMQ_LATEST_WMQ_INSTALLPATH** parameter must be specified in the `mq.ini` file in certain circumstances.

If any of the following cases applies to your UNIX or Linux environment, complete the following steps to specify the installation path of WebSphere MQ:

- More than one copy of WebSphere MQ is installed on the system, and the latest version of WebSphere MQ is not a primary installation.
- Only one copy of WebSphere MQ 7.1 or later is installed, and it is not installed in the default installation directory.

1. Open the `mq.ini` file in the *install_dir*`/config` directory, where *install_dir* is the agent installation directory.
2. Add the **KMQ_LATEST_WMQ_INSTALLPATH** parameter to the `mq.ini` file and set its value to the installation path of latest version of WebSphere MQ that is installed on the system. If you have more than one copy of the latest version of WebSphere MQ installed on the same system, specify any of their directories in this parameter.

Remember: The specified path must be the parent path of the `bin` directory, for example, `/opt/mqm75`.

3. Save and close the `mq.ini` file.
4. Recycle the agent for the change to take effect.

Chapter 11. Configuring an agent on i5/OS systems

This chapter contains step-by-step instructions for verifying installation and configuration of ITCAM agent for WebSphere MQ and ITCAM configuration agent for WebSphere MQ on i5/OS systems.

Configuring ITCAM configuration agent for WebSphere MQ

Complete the following steps to configure the ITCAM configuration agent for WebSphere MQ on an i5/OS system:

1. Establish the necessary network connections between the ITCAM configuration agent for WebSphere MQ and the monitoring server to which the agent reports. See "Establishing the network connection to Tivoli Enterprise Monitoring Server" for instructions.
2. Verify the installation and configuration by starting and optionally stopping the agent. See "Verifying installation and configuration" on page 95.

Establishing the network connection to Tivoli Enterprise Monitoring Server

This step establishes the necessary network connections between the ITCAM configuration agent for WebSphere MQ and the Tivoli Enterprise Monitoring Server to which it reports.

If your site is using a firewall through which components of any IBM Tivoli package communicate, be sure to read "Agent configuration across a firewall" on page 16 before you begin this step.

Complete the following steps to establish the network connection. Online Help is available by pressing F1.

1. From an i5/OS console, enter this command:

   ```
   GO OMAMC
   ```

2. Enter `4` to select OMEGAMON Configuration Agent for WebSphere MQ.

   The Configure Configuration Agent (CFGOMAMC) window is displayed.

3. Enter your site's values for the displayed parameters using the guidelines in Table 10.

Table 10. Parameters for the Configure Configuration Agent (CFGOMAMC) window

Parameter	Description
TEMS SNA location	The SNA location of the Tivoli Enterprise Monitoring Server that this agent reports to. If you do not use SNA, enter `*NONE`. If the correct SNA location was previously defined, enter `*SAME` to retrieve it. If you want to define a new SNA location (which can be the Control Point Name or the remote location name) enter its name (for example: S10B6322).
TEMS TCP/IP address	The TCP/IP address. If you do not use TCP/IP, enter `*NONE`. If the correct TCP/IP address was previously defined, enter `*SAME` to retrieve it. If you want to define a different TCP/IP address, enter it (for example: 129.0.132.45).

Table 10. Parameters for the Configure Configuration Agent (CFGOMAMC) window (continued)

Parameter	Description
TEMS IP.PIPE Address	If the ITCAM configuration agent for WebSphere MQ must connect to the Tivoli Enterprise Monitoring Server through a firewall, you must use IP.PIPE. Specify the IP.PIPE address. If you do not use IP.PIPE, enter *NONE.
Secondary TEMS SNA location	The SNA location of a secondary Tivoli Enterprise Monitoring Server that this agent reports to if it cannot communicate with the primary monitoring server at startup.
Secondary TEMS IP address	The TCP/IP address of the system where a secondary Tivoli Enterprise Monitoring Server is. The agent reports to this monitoring server if it cannot communicate with the primary monitoring server at startup.
Secondary TEMS IP.PIPE Address	The IP.PIPE address of the system where a secondary Tivoli Enterprise Monitoring Server is. The agent reports to this monitoring server if it cannot communicate with the primary monitoring server at startup.
Partition Name	(Required only by sites with firewalls that use address translation.) The name of the partition that this instance of the ITCAM configuration agent for WebSphere MQ is in (up to 32 alphanumeric characters).
Firewall in use	If the ITCAM configuration agent for WebSphere MQ must connect to the Tivoli Enterprise Monitoring Server through a firewall, enter *YES. If not, retain the default of *NO.
TEMS TCP/IP port address	The listening port of the Tivoli Enterprise Monitoring Server that this agent reports to (typically 1918). If your site uses SNA or IP.PIPE, ignore this field. If the correct port address was previously defined, enter *SAME.to retrieve it. If you want to specify a different monitoring server port address, enter it (up to six numeric characters).
TEMS SNA port address	The listening port of the Tivoli Enterprise Monitoring Server that this agent reports to (typically 1918). If your site uses TCP/IP or IP.PIPE, ignore this field. If the correct port address was previously defined, enter *SAME to retrieve it. If you want to specify a different monitoring server port address, enter it (up to six numeric characters).
TEMS IP.PIPE port address	The listening port of the Tivoli Enterprise Monitoring Server that this agent reports to (typically 1918). If your site uses TCP/IP or SNA, ignore this field. If you want to specify a different monitoring server port address, enter it (up to six numeric characters).
Action user profile	The user authority under which user action must be administered. Retain the default value of QAUTOMON to grant user system operator authority.
SNA transaction program	This prompt is displayed only if you entered a value (or *SAME) for Tivoli Enterprise Monitoring Server SNA location. The name of the SNA transaction program. Retaining the default value of KDTMSNAP is recommended.
Library	This prompt is displayed only if you entered a value (or *SAME) for SNA location. The name of the SNA transaction program library. Retaining the default value of KMSCMS is recommended.

Table 10. Parameters for the Configure Configuration Agent (CFGOMAMC) window (continued)

Parameter	Description
Transaction program (backup)	This prompt is displayed only if you entered a value (or *SAME) for Secondary Tivoli Enterprise Monitoring Server SNA location. The name of the SNA transaction program. Retaining the default value of KDTMSNAP is recommended.
Library	This prompt is displayed only if you entered a value (or *SAME) for Secondary Tivoli Enterprise Monitoring Server SNA location. The name of the SNA transaction program library. Retaining the default value of KMSCMS is recommended. This parameter is for the backup transaction program.

If you are reconfiguring the agent, the changes will take effect the next time the agent is started.

Verifying installation and configuration

This step starts (and optionally stops) the ITCAM configuration agent for WebSphere MQ, verifying that it has been installed and configured correctly.

Starting the agent

Complete the following steps to start the agent:

1. Verify that the Tivoli Enterprise Monitoring Server that the agent connects to is started.
2. From an i5/OS console, enter this command:

   ```
   GO OMAMC
   ```

3. Verify that the WebSphere MQ command server is started. If not, enter the following command to start it:

   ```
   STRMQMCSVR MQMNAME(QMgr_Name)
   ```

   where *QMgr_Name* is the name of the queue manager.
4. Enter 2 to select Start OMEGAMON Configuration Agent for WebSphere MQ.
5. Verify that the following messages are displayed:

   ```
   Tivoli Enterprise Management Agent startup in progress
   Tivoli Enterprise Monitoring Server located
   ```

   Remember: It might be several minutes before the **Online** status is displayed in the Tivoli Enterprise Portal Managed System Status workspace (log on to Tivoli Enterprise Portal, right-click the **Enterprise** icon and, from the menu, select **Workspace** > **Managed System Status**).
6. Repeat these steps on each system where you want to start the ITCAM configuration agent for WebSphere MQ.

Stopping the agent (optional)

To stop the ITCAM configuration agent for WebSphere MQ, use the following procedure:

1. From an i5/OS console, enter the following command:

   ```
   GO OMAMC
   ```

2. Enter 3 to select End OMEGAMON Configuration Agent for WebSphere MQ.
3. Press F4 to see options for ending the agent, and specify one of the following options:
   - *IMMED to shut down immediately

- *CNTRLD for a controlled shutdown. With a controlled shutdown, specify the following options:
  - Delay time, in seconds. Shutdown is delayed for the time interval that you specify, allowing the agent to complete operations.
  - Allow abnormal end if needed (YES, NO). If you enter `YES`, any jobs that have not ended normally after 10 minutes will shut down abnormally.

4. Look for a message that states that Tivoli Enterprise Management Agent ended.

Configuring ITCAM agent for WebSphere MQ

Complete the following steps to configure the ITCAM agent for WebSphere MQ:

1. Establish the necessary network connections between ITCAM agent for WebSphere MQ and the Tivoli Enterprise Monitoring Server to which the agent reports. See "Establishing the network connection to Tivoli Enterprise Monitoring Server" for instructions.
2. Verify the installation and configuration by starting and optionally stopping the agent. See "Verifying installation and configuration" on page 98.

Establishing the network connection to Tivoli Enterprise Monitoring Server

This step establishes the necessary network connections between the ITCAM agent for WebSphere MQ and the Tivoli Enterprise Monitoring Server to which it reports.

If your site is using a firewall through which components of any IBM Tivoli package communicate, be sure to read "Agent configuration across a firewall" on page 16 before you begin this step.

Complete the following steps to establish the network connection. Online Help is available by pressing F1.

1. From an i5/OS console, enter this command:

   ```
   WRKOMAMQ
   ```

   The Add OMEGAMON Agent for WebSphere MQ window is displayed.

   (If this is not the first access, a different window is displayed; press F6 to display the Add OMEGAMON Agent for WebSphere MQ window.)
2. Enter the name of the Queue Manager that this agent will monitor, along with a text description, and press Enter

   The Configure TEMA (CFGOMAMQ) window is displayed.
3. Enter your site's values for the displayed parameters using the guidelines in Table 11.

Table 11. Parameters for the Configure TEMA (CFGOMAMQ) window

Parameter	Description
TEMS SNA location	The SNA location of the Tivoli Enterprise Monitoring Server that this agent reports to. If you do not use SNA, enter `*NONE`. If the correct SNA location was previously defined, enter `*SAME` to retrieve it. If you want to define a new SNA location (which can be the Control Point Name or the remote location name) enter its name (for example: S10B6322).
TEMS TCP/IP address	The TCP/IP address. If you do not use TCP/IP, enter `*NONE`. If the correct TCP/IP address was previously defined, enter `*SAME` to retrieve it. If you want to define a different TCP/IP address, enter it (for example: 129.0.132.45).

Table 11. Parameters for the Configure TEMA (CFGOMAMQ) window (continued)

Parameter	Description
TEMS IP.PIPE Address	If the ITCAM agent for WebSphere MQ must connect to the Tivoli Enterprise Monitoring Server through a firewall, you must use IP.PIPE. Specify the IP.PIPE address. If you do not use IP.PIPE, enter *NONE.
Secondary TEMS SNA location	The SNA location of a secondary Tivoli Enterprise Monitoring Server that this agent reports to if it cannot communicate with the primary monitoring server at startup.
Secondary TEMS IP address	The TCP/IP address of the system where a secondary Tivoli Enterprise Monitoring Server is. The agent reports to this monitoring server if it cannot communicate with the primary monitoring server at startup.
Secondary TEMS IP.PIPE Address	The IP.PIPE address of the system where a secondary Tivoli Enterprise Monitoring Server is. The agent reports to this monitoring server if it cannot communicate with the primary monitoring server at startup.
Partition Name	(Required only by sites with firewalls that use address translation.) The name of the partition that this instance of ITCAM agent for WebSphere MQ is in (up to 32 alphanumeric characters).
Firewall in use	If the ITCAM agent for WebSphere MQ must connect to the Tivoli Enterprise Monitoring Server through a firewall, enter *YES. If not, retain the default of *NO.
TEMS TCP/IP port address	The listening port of the Tivoli Enterprise Monitoring Server that this agent reports to (typically 1918). If your site uses SNA or IP.PIPE, ignore this field. If the correct port address was previously defined, enter *SAME to retrieve it. If you want to specify a different monitoring server port address, enter it (up to six numeric characters).
TEMS SNA port address	The listening port of the Tivoli Enterprise Monitoring Server that this agent reports to (typically 1918). If your site uses TCP/IP or IP.PIPE, ignore this field. If the correct port address was previously defined, enter *SAME to retrieve it. If you want to specify a different monitoring server port address, enter it (up to six numeric characters).
TEMS IP.PIPE port address	The listening port of the Tivoli Enterprise Monitoring Server that this agent reports to (typically 1918). If your site uses TCP/IP or SNA, ignore this field. If you want to specify a different monitoring server port address, enter it (up to six numeric characters).
Action user profile	The user authority under which user action must be administered. Retain the default value of QAUTOMON to grant user system operator authority.
SNA transaction program	This prompt is displayed only if you entered a value (or *SAME) for Tivoli Enterprise Monitoring Server SNA location. The name of the SNA transaction program. Retaining the default value of KDTMSNAP is recommended.
Library	This prompt is displayed only if you entered a value (or *SAME) for SNA location. The name of the SNA transaction program library. Retaining the default value of KMSCMS is recommended.
Transaction program (backup)	This prompt is displayed only if you entered a value (or *SAME) for Secondary Tivoli Enterprise Monitoring Server SNA location. The name of the SNA transaction program. Retaining the default value of KDTMSNAP is recommended.

Table 11. Parameters for the Configure TEMA (CFGOMAMQ) window (continued)

Parameter	Description
Library	This prompt is displayed only if you entered a value (or *SAME) for Secondary Tivoli Enterprise Monitoring Server SNA location. The name of the SNA transaction program library. Retaining the default value of KMSCMS is recommended. This parameter is for the backup transaction program.

4. Read the Options choices and Function Key choices available for each window to determine which keys to press to save and exit the window.

   If you are reconfiguring the agent, the changes will take effect the next time the agent is started.
5. If you are configuring multiple instances of ITCAM agent for WebSphere MQ, repeat these steps. The first instance added is automatically assigned suffix 00001, the second instance added is automatically assigned suffix 00002, and so on.

Configuration of the ITCAM agent for WebSphere MQ is complete.

Remember:

- For monitoring the WebSphere MQ version 6, the account that is used to log on to the Tivoli Enterprise Portal must be created on i5/OS systems.
- Appropriate authority such as BROWSE must be assigned to the dead letter queue object. For example, if you want the SYSADMIN account to have right to browse DLQ messages, assign the SYSADMIN account with the BROWSE authority. To check whether you have authority to access the DLQ object, enter following command from an i5/OS console:

  ```
  QSYS/DSPMQMAUT OBJ(DLQ_Name) OBJTYPE(*Q) USER(SYSADMIN) MQMNAME(QM_Name)
  ```

  where *DLQ_Name* is the DLQ name; *SYSADMIN* is your account used to log on to the Tivoli Enterprise Portal; *QM_Name* is the queue manager name.

Verifying installation and configuration

This step starts (and optionally stops) the ITCAM agent for WebSphere MQ, verifying that it has been installed and configured correctly.

Starting the agent

Complete the following steps to start an agent:

1. Verify that the Tivoli Enterprise Monitoring Server that the agent connects to is started.
2. From an i5/OS console, enter this command:

   ```
   WRKOMAMQ
   ```

   The Work with Tivoli Monitoring Agent for WebSphere MQ window is displayed.
3. Enter 14 in the Option column next to the agent that you want to start.

   The Status column indicates when the agent is started.
4. Enter 5 in the Option column next to the agent to display its log. Verify that the following message is displayed (Scroll up to the top of the log to see it):

   ```
   Tivoli Enterprise Monitoring Server located
   ```

Remember: It might be several minutes before the online status is shown in the Tivoli Enterprise Portal Managed System Status workspace (log on to Tivoli Enterprise Portal, right-click the **Enterprise** icon and, from the menu, click **Workspace** > **Managed System Status**).

5. Repeat these steps on each system where you want to start the ITCAM agent for WebSphere MQ.

Stopping the agent (optional)

Complete the following steps to stop an agent:

1. From an i5/OS console, enter the following command:

   ```
   WRKOMAMQ
   ```

   The Work with Tivoli Monitoring Agent for WebSphere MQ window is displayed.

2. Enter 15 in the Option column next to the agent that you want to stop (end).

   The End Tivoli Enterprise Management Agent window is displayed. Suggested default values are supplied in the window.

3. Specify the values and press Enter to proceed. Here are options for ending the agent:
   - *CNTRLD for a controlled shutdown. With a controlled shutdown, also specify the following options:
     - Delay time, in seconds. Shutdown is delayed for the time interval that you specify, allowing the agent to complete operations.
     - Allow abnormal end if needed (YES, NO). If you enter YES, any jobs that have not ended normally after 10 minutes will shut down abnormally.

   The Work with Tivoli Monitoring Agent for WebSphere MQ window is displayed. The Status column indicates the agent is **Ending ...**. And then, eventually, **Not Started**.

4. Enter 5 in the Option column next to the agent to display its log.
5. Look for a message that states that KMQ*nnnnn* job completed normally.

Verification of the installation and configuration of the ITCAM agent for WebSphere MQ is complete.

Part 4. Deploying monitoring across your environment from a central location

This part explains how to deploy monitoring agents from a central location such as the Tivoli Enterprise Monitoring Server.

Chapter 12. Deploying monitoring across your environment from a central location

You can deploy an agent remotely from a central location such as the Tivoli Enterprise Monitoring Server. Your environment must meet several requirements for the remote deployment.

Before you can remotely deploy an agent, identify the operating system where you want to deploy the agents and ensure that the following requirements are filled in your monitoring environment:

- An OS agent is installed or deployed on the computer where you want to remotely deploy the agents. For example, if you want to deploy the agents on the computer where the Windows operating system is running, you must have the monitoring agent for Windows OS installed on that computer. For information about how to install the OS agent, see the *IBM Tivoli Monitoring Installation and Setup Guide*.
- The agent depot is populated on the Tivoli Enterprise Monitoring Server from which you deploy agents and maintenance packages across your environment. For example, if you want to deploy the ITCAM configuration agent for WebSphere MQ, you must have the agent depot for ITCAM configuration agent for WebSphere MQ populated on the Tivoli Enterprise Monitoring Server. For detailed information about how to populate the agent depot, see "Populating your agent depot."

Tip: If your monitoring environment includes multiple Tivoli Enterprise Monitoring Servers (a hub monitoring server and multiple remote monitoring servers), you can put your agent depot in a central location, such as a shared file system, and access the depot from all the monitoring servers. For information about how to use one agent depot for all the Tivoli Enterprise Monitoring Servers in your monitoring environment, see "Sharing an agent depot across your environment" on page 107.

Populating your agent depot

The agent depot is an installation directory on the Tivoli Enterprise Monitoring Server from which you deploy agents and maintenance packages across your environment. Before you can deploy any agents from a monitoring server, you must first populate the agent depot with bundles. A bundle is the agent installation image and any prerequisites.

When you add a bundle to the agent depot, you must add the bundle that supports the operating system to which you want to deploy the bundle. Because different files are provided for each operating system type (for example, Windows systems, AIX and Solaris systems, HP-UX systems, and Linux systems), you must add the bundle from the operating system-specific files. For example, if you want to deploy an ITCAM agent for WebSphere MQ to a computer running HP-UX system, add the HP-UX specific agent bundle to the depot. If your depot directory is on the Windows system and you want to deploy an ITCAM agent for WebSphere MQ to the HP-UX system, load the HP-UX bundle from the installation DVD for HP-UX systems.

You can have an agent depot on each monitoring server in your environment or share an agent depot, as described in "Sharing an agent depot across your environment" on page 107. If you choose to have an agent depot for each monitoring server, you can customize the agent depot based on the types of agents that you want to deploy and manage from that monitoring server. For example, if you have a Tivoli Enterprise Monitoring Server that is dedicated to monitoring the ITCAM agent for WebSphere MQ in your environment, populate the agent depot with bundles for ITCAM agent for WebSphere MQ.

Restriction: Agent depots cannot be populated on the Tivoli Enterprise Monitoring Server that is running on z/OS or i5/OS systems.

You can use the following two ways to populate the agent depot:

- If you are populating your agent depot with bundles for the same operating system as the Tivoli Enterprise Monitoring Server, you can use the installation image to populate your agent depot. For example, you can use an installation image to add the bundle for a Windows agent to a monitoring server that is running on the Windows system, but you cannot use the Linux installation image to add the bundle for a Linux agent to a monitoring server that is running on a Windows system. For instructions about how to use the installation image to populate the agent depot, see "Populating the agent depot from the installation image."
- If you want to add agent bundles for an operating system that is different from the one on which the Tivoli Enterprise Monitoring Server is running, use the **tacmd addBundles** command. For instructions about how to use the **tacmd addBundles** command to populate the agent depot, see "Populating the agent depot with the tacmd addBundles command" on page 106.

By default, the agent depot is located in the *install_dir*/CMS/depot directory on Windows systems and in the *install_dir*/tables/*tems_name*/depot directory on UNIX systems, where *install_dir* is the installation directory for IBM Tivoli Monitoring, and *tems_name* is the name of the Tivoli Enterprise Monitoring Server. The **tacmd addBundles** command puts the agent bundle in that location unless another location is defined in the monitoring server configuration file for the **DEPOTHOME** variable. You can also change this location before populating the agent depot, see "(Optional) Changing the agent depot location" on page 107 for instructions.

Populating the agent depot from the installation image

To populate an agent depot with bundles for the same operating system as the monitoring server, use the installation image to populate the agent depot.

Use the following instructions to populate your agent depot from the installation image on the computer where the Tivoli Enterprise Monitoring Server is running:

- "Windows systems: Populating the agent depot during installation"
- "UNIX and Linux systems: Populating the agent depot during installation" on page 105

Windows systems: Populating the agent depot during installation

Do the following steps to populate the agent depot from the Windows installation image:

1. Double-click the setup.exe file in the \WINDOWS subdirectory of the installation image. In the installation program wizard window, a message is displayed that welcomes you to the setup process.

2. Click **Next** in the Welcome window. The Install Prerequisites window is displayed.
3. In the **Choose installation drive for both** field in the Install Prerequisites window, enter the drive on which to install the software, and then click **Next** to proceed with the installation process. The license agreement information is displayed.
4. In the Software License Agreement window, if you accept the terms of the license agreement, click **Accept** to continue; otherwise click **Decline** to terminate the installation process. You muse accept the terms of the license agreement to install the product. After you accept the terms of the license agreement, the Select Features window is displayed.
5. Click **Next** in the Select Features window. The Agent Deployment window is displayed.
6. In the Agent Deployment window, select the agents whose bundles you want to add to the depot and click **Next**. The Start Copying Files window is displayed, summarizing the components that you have selected to install.
7. Review the installation summary in the Start Copying Files window, and then click **Next**. A message is displayed stating that you will not be able to cancel the installation or upgrade after this point.
8. Click **Yes** to continue. The file-copying process might take several minutes. After the bundles of the agents are added to the agent depot, the Setup Type window is displayed.
9. Clear the selected configuration items except the mandatory item (preceded by an asterisk), and then click **Next**.
10. Provide the required configuration information in the following screens.
11. When the installation is complete, click **Finish** to complete the installation.

UNIX and Linux systems: Populating the agent depot during installation

Do the following steps to populate the agent depot from the UNIX or Linux installation image:

1. Run the following command to create a temporary directory on the computer. Make sure that the full path of the directory does not contain any spaces:

   ```
   mkdir dir_name
   ```

2. Mount the installation CD for UNIX or Linux systems to the temporary directory you created.
3. Run the following commands:

   ```
   cd dir_name
   ./install.sh
   ```

   where *dir_name* is the temporary directory you created.
4. When you are prompted for the installation directory, specify the name of the IBM Tivoli Monitoring installation directory.
   - Press Enter to accept the default (`/opt/IBM/ITM`)
   - If you want to use a different installation directory, type the full path to that directory and press Enter.
5. Confirm the `TEMS` installation directory. Type `1` to use the directory or type `2` to specify another directory, and then press Enter.
6. The following prompt is displayed:

   ```
   Select one of the following:
    1) Install products to the local host.
    2) Install products to depot for remote deployment (requires TEMS).
   ```

```
 3) Install TEMS support for remote seeding.
 4) Exit install.

Please enter a valid number:
```

Type 2, and then press Enter to start installation. The user license agreement is displayed.

7. Press Enter to read through the agreement.
8. Type 1 to accept the agreement or 2 to reject it, and then press Enter. You must accept the agreement to continue with the installation process.
9. Type the number that corresponds to the agent or agents whose bundles you want to add to the agent depot and press Enter.

   Tip: If you want to add more than one agent, use the comma or the space to separate the numbers. To select all available agents, type `all`. You can select multiple agents with consecutive corresponding numbers by typing the first and last numbers for the agents, separated by a hyphen (-). For example, to add all the agents between 8 and 12, type `8-12`.
10. After specifying all the agents whose bundles you want to add to the agent depot, type `E` and press Enter.

Populating the agent depot with the tacmd addBundles command

To add agent bundles for an operating system that is different from the one on which the monitoring server is running, use the **tacmd addBundles** command.

To populate the agent depot by using the **tacmd addBundles** command, run the following command:

```
tacmd addBundles [-i IMAGE_PATH]
                 [-t PRODUCT_CODE]
                 [-p OPERATING_SYSTEM]
                 [-v VERSION]
                 [-n]
                 [-f]
```

Remember: Before you issue the **tacmd addBundles** command, you must log on to the Tivoli Enterprise Monitoring Server where you want to populate the agent depot with the **tacmd login** command. The following command logs on to the monitoring server of which the host name is *L3D8296* with the *administrator* user ID, the *mypassword* password, and a login expiration time of 1440 minutes.

```
tacmd login -s L3D8296 -u administrator -p mypassword -t 1440
```

For further information about the **tacmd CLI** commands, including parameter descriptions, see the *IBM Tivoli Monitoring Installation and Setup Guide* and the *IBM Tivoli Monitoring Command Reference*.

The following example copies every agent bundle, including its prerequisites into the agent depot on a UNIX system from the installation media (CD image) located in the `/mnt/cdrom/` directory:

```
tacmd addbundles -i /mnt/cdrom/unix
```

The following example copies all agent bundles for the ITCAM agent for WebSphere MQ into the agent depot on a UNIX system from the installation media (CD image) located in the `/mnt/cdrom/` directory:

```
tacmd addbundles -i /mnt/cdrom/unix -t mq
```

The following example copies all agent bundles for the ITCAM agent for WebSphere MQ into the agent depot on a Windows system from the installation media (CD image) located in the D:\WINDOWS\Deploy directory:

```
tacmd addbundles -i D:\WINDOWS\Deploy -t mq
```

The following example copies the agent bundle for the ITCAM agent for WebSphere MQ that runs on the AIX V5.1.3 operating system into the agent depot on a UNIX system from the installation media (CD image) located in the /mnt/cdrom/ directory:

```
tacmd addbundles -i /mnt/cdrom/unix -t mq -p aix513
```

(Optional) Changing the agent depot location

The **tacmd addBundles** command puts the agent bundle in depot directory within the installation directory unless another location is specified. To change the default agent depot location, define the **DEPOTHOME** variable in the monitoring server configuration file before you populate the agent depot.

Perform the following steps before you run the **tacmd addBundles** command:

1. Open the KBBENV monitoring server configuration file located in the *install_dir*\CMS directory on Windows systems or in the *install_dir*/tables/*tems_name* directory on UNIX and Linux systems.
2. Locate the **DEPOTHOME** variable. If it does not exist, add it to the file.
3. Type the path to the directory that you want to use for the agent depot.
4. Save and close the file.
5. (UNIX and Linux systems only): Add the same variable and location to the kbbenv.ini file located in *install_dir*/config directory.

   Remember: If you do not add the variable to the kbbenv.ini file, it is deleted from the KBBENV file the next time the monitoring server is reconfigured.

Sharing an agent depot across your environment

If your monitoring environment includes multiple Tivoli Enterprise Monitoring Servers (a hub monitoring server and remote monitoring servers), you can put your agent depot in a central location, such as a shared file system, and access the depot from all the monitoring servers.

After populating your agent depot with either of the methods described in "Populating your agent depot" on page 103, perform the following steps to share the agent depot:

1. Open the KBBENV monitoring server configuration file located in the *install_dir*/CMS directory on Windows systems or in the *install_dir*/tables/*tems_name* directory on UNIX and Linux systems.
2. Locate the **DEPOTHOME** variable. If it does not exist, add it to the file.
3. Type the path to the directory that you want to use for the agent depot. If you are using a Windows monitoring server connecting to a depot on another Windows system, specify the UNC path (such as \\server\share) instead of a mapped drive letter.
4. Save and close the file.
5. (UNIX and Linux systems only): Add the same variable and location to the kbbenv.ini file located in *install_dir*/config/ directory.

Remember: If you do not add the variable to the `kbbenv.ini` file, it is deleted from the `KBBENV` file the next time the Tivoli Enterprise Monitoring Server is reconfigured.

If you are using a Windows monitoring server connecting to a depot on another Windows system computer, you must set the service ID for the Windows monitoring server to **Administrator**. Perform the following steps to change the service ID:

1. From the Control Panel, double-click **Administrative Tools**.
2. Double-click **Services**.
3. Right-click **Tivoli Enterprise Monitoring Svcs** and select **Properties** from the menu.
4. On the **Log On** tab, select **This Account**.
5. Type `Administrator` in the **This Account** field.
6. Type the password for the administrator in the **Password** field. Confirm the password by typing it again in the **Confirm password** field.
7. Click **Enable**.

Remember: If the Administrator user does not have logon as a service right, you are prompted to add it.

Deploying agents

You can deploy agents through the Tivoli Enterprise Portal or from the command line.

Before you attempt to deploy the agents on a system, you must have already installed or deployed an OS agent on that system, and the OS agent must be running when you deploy the agents.

Remember: Self-describing capability is not supported when you remotely deploy an agent from Tivoli Enterprise Portal. If you want to remotely deploy the agent from the portal, make sure that the self-describing capability is disabled at the monitoring server (**KMS_SDA=N**). Otherwise, the following error messaging is displayed:

```
An agent configuration schema was not found
```

Deploying through Tivoli Enterprise Portal

Before you attempt to deploy the agents on a system, you must have already installed or deployed an OS agent on that system, and the OS agent must be running when you deploy the agents.

Perform the following steps to deploy an agent through the Tivoli Enterprise Portal:

Remember: Self-describing capability is not supported when you remotely deploy an agent from Tivoli Enterprise Portal. If you want to remotely deploy the agent from the portal, make sure that the self-describing capability is disabled at the monitoring server (**KMS_SDA=N**). Otherwise, the following error messaging is displayed:

```
An agent configuration schema was not found
```

1. Log on to the Tivoli Enterprise Portal.
2. In the Navigator view, navigate to the computer where you want to deploy the agent.
3. Right-click the computer and click **Add Managed System**. The Select a Monitoring Agent window is displayed. The agent, for which you have added bundles into the agent depot is listed in the window.

   Tip: You can use the **Deploy Depot Package List** workspace to get the information about the agent depot that has been populated on the system. To access this workspace, right click the **Enterprise** node in the Navigator view, and then select **Workspace** > **Deploy Depot Package List**.
4. Select the agent that you want to deploy and click **OK**.
5. Complete the configuration fields required for the agent. If you do not specify the parameter values, the default values will be used when the agent is deployed.
6. Click **Finish**. A message stating that the new managed system configuration operation has been successfully queued is displayed.
7. Click **OK** to close the message. The agent is being deployed, and the deployment process might take a certain period of time.

After the agent has been deployed, it connects to the monitoring server and is then displayed in the Tivoli Enterprise Portal.

On Windows systems, if you configure the ITCAM agent for WebSphere Message Broker or the ITCAM agent for WebSphere MQ to monitor objects other than the default ones during the remote deployment, after the remote deployment is completed, a primary agent instance is also started up and displayed in the portal automatically. If you do not want the primary instance to run, stop it manually.

Tip: During the agent deployment process, you can use the following workspaces to view the deployment status. To access the workspaces, right-click the **Enterprise** node in the Navigator view, and then click the corresponding workspace from the Workspace menu.

- Deployment Status Summary
- Deployment Status Summary by Transaction

Important:

- If you deployed the ITCAM agent for WebSphere MQ and you are using WebSphere MQ 7.1 or later, you must manually set the WebSphere MQ library path on the target system after remote deployment. For instructions, see the following sections:
  - Windows systems: “Specifying WebSphere MQ library path (WebSphere MQ 7.1 or later)” on page 80
  - UNIX and Linux systems: “Specifying WebSphere MQ library path (WebSphere MQ 7.1 or later)” on page 91
- If you deployed the ITCAM agent for WebSphere Message Broker and you are using WebSphere MQ 7.1 or later in the environment, you must manually set the WebSphere MQ library path on the target system after remote deployment. For instructions, see the following sections:

- Windows system: "Specifying the library path of WebSphere MQ 7.1 or 7.5" on page 72
- UNIX and Linux systems: "Specifying the library path of WebSphere MQ 7.1 or later" on page 84

Deploying through the command line

Before you attempt to deploy the agents on a system, you must have already installed or deployed an OS agent on that system, and the OS agent must be running when you deploy the agents.

To deploy an agent from the command line, run the following command:

```
tacmd addSystem -t pc
                [-n MANAGED_OS]
                [-p SECTION.NAME=VALUE]
```

where:

-t Specifies the type (product code) of agent to add to the monitoring system. See Appendix B, "Product codes," on page 135 for a listing of agent product codes.

-n Identifies the node, or the directory on the monitoring system where the OS agent is installed, to which you want to add the agent. A node is identified by the managed operating system that it contains. The name of a node includes the computer where the OS agent is installed and the product code for the OS agent. For example, stone.ibm.com:LZ is the name of the node on computer stone.ibm.com, which has a Linux OS agent installed.

-p Specifies *section.name=value* pairs that identify agent configuration properties and their values, where *section* specifies the name of the section containing the key value pair, *name* specifies the name of the configuration property, and *value* specifies the property value. You can specify the instance name of the system to be configured via the instance property for a system that can have multiple instances.

Remember: To set multiple configuration sections for the agent, use *section*:*key.name=value* pairs, where *key* is a key value that is used to distinguish different sections. Note that do not include the period (.) in the key value.

The following tables list all the multiple configuration sections that you can specify for the ITCAM agent for WebSphere MQ and the ITCAM agent for WebSphere Message Broker.

Table 12. Repeatable configuration sections of ITCAM agent for WebSphere MQ

Section name	Key value
GROUP	The name of the group Example: `GROUP:MYGROUP.RETAINHIST=2400`
QACCESS	The name of QACCESS section Example: `QACCESS:A1.QUEUENAME=*`
QUEUE	The specific or generic queue name Example: `QUEUE:*.QDEFTYPE=ALL`

Table 12. Repeatable configuration sections of ITCAM agent for WebSphere MQ (continued)

Section name	Key value
CHANNEL	The specific or generic name of the channel that is to be monitored Example: `CHANNEL:SYSTEM*.STATUS=ADD`
EVENTQIN	The name of the queue manager that owns the specified event queues Example: `EVENTQIN:MQM3.PERFMQ=PERFORMANCE.EVENTS.IN`
EVENTQOUT	The name of the queue manager that owns the specified output queues Example: `EVENTQOUT:MQM1.QMGRQ=QMGR.EVENTS.OUT`

Table 13. Repeatable configuration sections of ITCAM agent for WebSphere Message Broker

Section name	Key value
MonitorBroker	The name of the broker that is to be monitored Example: `MonitorBroker:M60ABRK.collectNodeData=YES`
ConnectQueueManager	The name of the queue manager that the agent connects to Example: `ConnectQueueManager:QMA.replyQueueName=KQI.AGENT.REPLY.QUEUE`

Important: When you remotely deploy an ITCAM agent for WebSphere MQ by using the command line, you must specify the **INSTANCE** and **STARTMON.SAMPINT** parameter after the `-p` option, otherwise the agent might not work properly. The **INSTANCE** parameter specifies the name of the queue manager that you want to monitor. The **STARTMON.SAMPINT** parameter specifies the interval at which you want the ITCAM agent for WebSphere MQ to sample the queue manager for performance data.

Examples

- The following example deploys the ITCAM agent for WebSphere MQ to monitor the BKQM01 queue manager. Meanwhile, it specifies multiple sections of agent configuration properties using the *section.name=value* pairs of the `-p` option. The `_UNIX_STARTUP_.Username=mqm` line configures the Run-as settings and specifies the user name that is used to run the agent on the UNIX system. You can use this option only if the OS agent running on the UNIX system is started as the root user or another user with privileges to su. You cannot change the Run-as setting if the OS agent runs as a non-root user.

```
tacmd addSystem -t mq -n tivg14:LZ -p INSTANCE=BKQM01
MANAGER.ACTIVE=YES
MANAGER.REMOTE=NO
MANAGER.COMMAND=YES
QACCESS:A1.QUEUENAME=APPL.*
QACCESS:A1.MSGAUTHUSERS=*
QACCESS:A1.MSGACCOUNT=MQAGENT
QACCESS:A1.MSGACCESS=DATA
QACCESS:A1.MGRNAME=BKQM01
QACCESS:A1.STATUS=ADD
QACCESS:A2.QUEUENAME=*
QACCESS:A2.MSGAUTHUSERS=beam,slayj,clarkf,emmel
QACCESS:A2.MSGACCOUNT=MQAGENT
QACCESS:A2.MSGACCESS=DELETE
QACCESS:A2.MGRNAME=BKQM01
```

```
QACCESS:A2.STATUS=ADD
QACCESS:A3.QUEUENAME=TEST
QACCESS:A3.MSGAUTHUSERS=rkf,emmel
QACCESS:A3.MSGACCOUNT=MQAGENT
QACCESS:A3.MSGACCESS=NONE
QACCESS:A3.MGRNAME=BKQM01
QACCESS:A3.STATUS=DELETE
MANAGER.ERRLOGCYCLE=10
MANAGER.ERRLOGMAX=100
MANAGER.EVENTS=REMOVE
MANAGER.HLQ=KMQ
MANAGER.ACCOUNTINGINFO=REMOVE
MANAGER.STATISTICSINFO=REMOVE
MANAGER.MSGACCESS=USEQACCESS
MANAGER.RETAINHIST=1440
MANAGER.STATUS=ADD
QUEUE:*.MGRNAME=BKQM01
QUEUE:*.QDEFTYPE=ALL
QUEUE:*.STATISTICS=YES
EVENTLOG.SIZE=10
EVENTLOG.ARCHIVEFILE=/dev/null
STARTMON.SAMPINT=300
STARTMON.HISTORY=YES
STARTMON.SVRCONN=YES
AGENT.NAME=BKQM01
_UNIX_STARTUP_.Username=mqm
```

After the deployment is complete, the resulting agent configuration file is as follows. The **COMMENT** parameter is used to distinguish different SET QACCESS statements that result from different sets of QACCESS settings during remote deployment.

```
SET MANAGER NAME(BKQM01) -
    ACTIVE(YES) -
    REMOTE(NO) -
    COMMAND(YES) -
  ERRLOGCYCLE(10) -
    ERRLOGMAX(100) -
    EVENTS(REMOVE) -
    HLQ(KMQ) -
    ACCOUNTINGINFO(REMOVE) -
    STATISTICSINFO(REMOVE) -
    MSGACCESS(USEQACCESS) -
    RETAINHIST(1440) -
    STATUS(ADD)
SET QACCESS NAME(TEST) -
    MSGAUTHUSERS(rkf,emmel) -
    MSGACCOUNT(MQAGENT) -
    MSGACCESS(NONE) -
    MGRNAME(BKQM01) -
    STATUS(DELETE) -
    COMMENT(A3)
SET QACCESS NAME(*) -
    MSGAUTHUSERS(beam,slayj,clarkf,emmel) -
    MSGACCOUNT(MQAGENT) -
    MSGACCESS(DELETE) -
    MGRNAME(BKQM01) -
    STATUS(ADD)-
    COMMENT(A2)
SET QACCESS NAME(APPL.*) -
    MSGAUTHUSERS(*) -
    MSGACCOUNT(MQAGENT) -
    MSGACCESS(DATA) -
    MGRNAME(BKQM01) -
    STATUS(ADD) -
    COMMENT(A1)
SET QUEUE NAME(*) -
    MGRNAME(BKQM01) -
```

```
    QDEFTYPE(ALL) -
    STATISTICS(YES)
SET EVENTLOG -
    SIZE(10) -
    ARCHIVEFILE(/dev/null)
PERFORM STARTMON SAMPINT(300) -
    HISTORY(YES) -
    SVRCONN(YES)
SET AGENT NAME(BKQM01)
```

- The following example deploys the ITCAM agent for WebSphere Message Broker to monitor the M70BBRK broker.

```
tacmd addSystem -t qi -n tivp001:LZ -p INSTANCE=4d8p
MonitorBroker:M70BBRK.collectNodeData=YES
ConnectQueueManager:M70B.replyQueueName=KQI.AGENT.REPLY.QUEUE
KqiAgent.defaultRetainBrokerEvents=10
KqiAgent.defaultRetainFlowEvents=10
KqiAgent.retainProductEvents=10
KqiAgent.discoveryInterval=300
KqiAgent.defaultStatisticInterval=60
KqiAgent.defaultFlowEventInterval=15
KqiAgent.defaultHistoricalAccountingType=All
KqiAgent.defaultRetainRecentSnapshotSamples=15
KqiAgent.defaultRetainRecentArchiveSamples=5
KqiAgent.defaultRetainRecentPubSubSamples=15
KqiAgent.holdTimeForQuery=180
KqiAgent.defaultTakeActionAuthUsers=*
KqiAgent.defaultRefreshInterval=300
```

  After the deployment is complete, the resulting agent configuration file is as follows:

```
<KqiAgent version="730"
                 agentId="4d8p"
                 defaultRetainBrokerEvents="10"
                 defaultRetainFlowEvents="10"
                 retainProductEvents="10"
                 discoveryInterval="300"
                 defaultStatisticInterval="60"
                 defaultFlowEventInterval="15"
                 defaultHistoricalAccountingType="All"
                 defaultRetainRecentSnapshotSamples="15"
                 defaultRetainRecentArchiveSamples="5"
                 defaultRetainRecentPubSubSamples="15"
                 defaultRetainRecentResourceSamples="15"
                 holdTimeForQuery="180"
                 defaultTakeActionAuthUsers="*"
                 defaultRefreshInterval="300"                    >
               </MonitorBroker>
        <MonitorBroker name="M70BBRK"
                    collectNodeData="YES"  >
        </MonitorBroker>
        <ConnectQueueManager name="M70B"
                    replyQueueName="KQI.AGENT.REPLY.QUEUE">
        </ConnectQueueManager>
</KqiAgent>
```

Tips:

- If you do not know the name of the managed system that you want to deploy the agent to, you can use the **tacmd listSystems** command to display a list of all the known managed systems. The following example shows the command that is used to list the systems that a ITCAM agent for WebSphere MQ (product code mq) is running on:

```
tacmd listSystems -t mq
```

- Each agent has its own unique configuration properties that you must provide in the **tacmd addSystem** command (using the `-p` option). See the agent user's guide for the agent that you are deploying for a list of available configuration properties. You can view the configuration parameters by running the **tacmd describeSystemType** command. The following example shows the options that are available to use with the **tacmd addSystem** command for the ITCAM agent for WebSphere Message Broker (product code qi) to be deployed to a Windows system (platform WINNT):

  ```
  tacmd describeSystemType -t qi -p WINNT
  ```

- In addition to the agent-specific configuration properties, you can also configure the Run-as settings, specifying the user ID under which an agent runs. For further information about the **tacmd CLI** commands, including parameter descriptions, see *IBM Tivoli Monitoring Command Reference*.

On Windows systems, if you configure the ITCAM agent for WebSphere Message Broker or the ITCAM agent for WebSphere MQ to monitor objects other than the default ones during the remote deployment, after the remote deployment is complete, a primary agent instance is also started up and displayed in the Tivoli Enterprise Portal automatically. If you do not want the primary instance to run, stop it manually.

Important:

- If you deployed the ITCAM agent for WebSphere MQ and you are using WebSphere MQ 7.1 or later, you must manually set the WebSphere MQ library path on the target system after remote deployment. For instructions, see the following sections:
  - Windows systems: "Specifying WebSphere MQ library path (WebSphere MQ 7.1 or later)" on page 80
  - UNIX and Linux systems: "Specifying WebSphere MQ library path (WebSphere MQ 7.1 or later)" on page 91
- If you deployed the ITCAM agent for WebSphere Message Broker and you are using WebSphere MQ 7.1 or later in the environment, you must manually set the WebSphere MQ library path on the target system after remote deployment. For instructions, see the following sections:
  - Windows system: "Specifying the library path of WebSphere MQ 7.1 or 7.5" on page 72
  - UNIX and Linux systems: "Specifying the library path of WebSphere MQ 7.1 or later" on page 84

Remember:

- If you deployed the ITCAM agent for WebSphere Message Broker to a UNIX or Linux system and want to use the CandleMonitor node, you must create the required links manually. For information about how to install the CandleMonitor node, see the *IBM Tivoli Composite Application Manager Agent for WebSphere Message Broker User's Guide*
- If you deployed the ITCAM agent for WebSphere MQ, and you want to use it to monitor a multi-instance queue manager or to monitor a queue manager that is not in the default directory, you must set the value of the **AMQ_MQS_INI_LOCATION** variable to the location of the `mqs.ini` file in the `mq.ini` file that is on the computer where the agent is deployed. The `mq.ini` file is located in the *ITM_HOME*`/config` directory, where *ITM_HOME* is the directory where the ITCAM agent for WebSphere MQ is installed.

Part 5. Starting or stopping an agent

This part explains how to start or stop ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, and ITCAM agent for WebSphere Message Broker on Windows, Linux, UNIX, and i5/OS systems.

Chapter 13. Starting or stopping an agent on Windows systems

ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, and ITCAM agent for WebSphere Message Broker run as Windows services. Use the Manage Tivoli Enterprise Monitoring Services window to start the agents installed on this system. Some agents start automatically if they are configured for autostart; however, you might have to start other services manually.

Important: If the user ID that is used for ITCAM agent for WebSphere MQ is not a member of the Administrator group, you must set permissions for the user ID to start and stop the agent. For instructions about how to set permissions, see "Setting permissions for non-administrator user IDs" on page 79

Starting the agents

To start the components, log on to the Windows system as a system administrator.

1. Click **Start** > **Programs** > **IBM Tivoli Monitoring** > **Manage Tivoli Monitoring Services** to open the Manage Tivoli Enterprise Monitoring Services window.
2. Right-click the agent that you want to start, and click **Start**.

   Remember: For the agent to work properly, make sure that the monitoring server and portal server are running.
3. Wait for the **Status** column to show `Started`.

You have now started the components.

Stopping the agents

To stop the components, log on to Windows system as a System Administrator.

1. Open the Manage Tivoli Enterprise Monitoring Services window by clicking **Start** > **Programs** > **IBM Tivoli Monitoring** > **Manage Tivoli Monitoring Services**.
2. In the Manage Tivoli Enterprise Monitoring Services window, right-click the agent that you want to stop, and click **Stop**.
3. Wait for the **Status** column to show `Stopped`.

Chapter 14. Starting or stopping an agent on UNIX and Linux systems

This section contains instructions about how to start or stop the agents and how to change the file permissions for agents so that you can use non-root user IDs to run the agents on a UNIX or Linux system.

Changing the file permissions for agents

If you installed the ITCAM agent for WebSphere Message Broker as a root user, you cannot run the agent as the root user. The user ID that is used to run the agent must belong to the **mqm** and **mqbrkrs** user groups. You must also change the agent file permissions to ensure that this user ID can run the agent successfully.

To grant required permissions to the user ID that is used to run an agent on a UNIX or Linux system, perform the following steps:

1. Log on as root to the system that the agents are installed on, or become the root user by running the **su** command.
2. Create a new group (for example, itmusers) to own all the files in the IBM Tivoli Monitoring installation directory (The default is `/opt/IBM/ITM`).
   - Linux, Solaris, and HP-UX systems

     ```
     groupadd itmusers
     ```
   - AIX systems

     ```
     mkgroup itmusers
     ```
3. Add the user ID that you want to use to run the agent to the itmusers group. To do this, edit the `/etc/group` file and ensure that the user is in the list of users for the itmusers group. For example, if you want to use the test1 user ID to run the agent, ensure that the following line is in the `/etc/group` file:

   ```
   itmusers:x:504:test1
   ```
4. Run the following command from the *ITM_install*`/bin` directory, where *ITM_install* is the IBM Tivoli Monitoring installation directory:

   ```
   secureMain -g itmusers lock
   ```
5. Run the **su** command to switch to the user ID that you want to use to run the agent or log on using that user ID.

Now you can use the user ID that you added to the itmusers group to start, run, and stop agents.

Starting an agent from the Manage Tivoli Enterprise Monitoring Services

Perform the following steps to start an agent from the Manage Tivoli Enterprise Monitoring Services window:

1. Go to the *install_dir*`/bin` directory, where *install_dir* is the installation directory of IBM Tivoli Monitoring.
2. Enter the following command:

   ```
   ./itmcmd manage
   ```

   The Manage Tivoli Enterprise Monitoring Services window is displayed.

3. If you want to start an agent instance of the ITCAM agent for WebSphere MQ, perform the following steps:
   a. Click **WebSphere MQ Monitoring Agent**, right-click, and click **Start Service**.
   b. If you want to start the primary agent instance, select **Primary Instance** and click **Start**. If you want to start a non-primary agent instance, click **Specify Instance**, click the instance in the **Select Instances** list and then click **Start** (You can start multiple non-primary agent instances at one time by clicking all the instances you want to start).
4. If you want to start an agent instance of the ITCAM agent for WebSphere Message Broker, perform the following steps:
   a. Click **WebSphere Message Broker Monitoring Agent**, right-click, and click **Start Service**.
   b. If you want to start the primary agent instance that monitors all brokers on the system, select **Monitor all Brokers** and click **Start**. If you want to start a non-primary agent instance that monitors a subset of brokers on the system, click **Specify one or more Brokers**, enter the broker name in the **Broker** field and the agent ID in the **Agent ID** field, and then click **Start**.
5. If you want to start the ITCAM configuration agent for WebSphere MQ, click **WebSphere MQ Configuration Agent**, right-click, and click **Start**.

You can also start an agent from the command line. See "Starting an agent from the command line" for information about how to start an agent from the command line.

Stopping an agent from the Manage Tivoli Enterprise Monitoring Services

Perform the following steps to stop an agent from the Manage Tivoli Enterprise Monitoring Services window:

1. Go to the *install_dir*/bin directory, where *install_dir* is the installation directory of IBM Tivoli Monitoring.
2. Enter the following command:

   ```
   ./itmcmd manage
   ```

   The Manage Tivoli Enterprise Monitoring Services window is displayed.
3. Click the agent that you want to stop, right-click, and then click **Stop Service**.
4. If the agent that you want to stop is the primary agent instance, select **Primary Instance** and click **Stop**.
5. If the agent that you want to stop is not the primary agent instance, select **Specify Instance**, click the agent instance that you want to stop in the **Select Instances** list, and then click **Stop**.

You can also stop an agent from the command line. See "Stopping an agent from the command line" on page 121 for information about how to start or stop an agent from the command line.

Starting an agent from the command line

Use the **itmcmd agent** command to start an agent.

Perform the following steps to start an agent from the command line. For additional information about the **itmcmd agent** command, see *IBM Tivoli Monitoring Installation and Setup Guide* and *IBM Tivoli Monitoring Command Reference*.

1. Go to the *install_dir*/bin directory, where *install_dir* is the installation directory of IBM Tivoli Monitoring.
2. If you want to start the primary agent instance, enter the following command:
   - ITCAM configuration agent for WebSphere MQ
     ```
     ./itmcmd agent start mc
     ```
   - ITCAM agent for WebSphere Message Broker
     ```
     ./itmcmd agent start qi
     ```
   - ITCAM agent for WebSphere MQ
     ```
     ./itmcmd agent -o QM_name start mq
     ```

     where *QM_name* is the name of queue manager that is monitored by ITCAM agent for WebSphere MQ.
3. If you want to start a non-primary agent instance, enter the following command:
   - ITCAM configuration agent for WebSphere MQ
     ```
     ./itmcmd agent -o agent_ID start mc
     ```
   - ITCAM agent for WebSphere Message Broker
     ```
     ./itmcmd agent -o agent_ID start qi
     ```
   - ITCAM agent for WebSphere MQ
     ```
     ./itmcmd agent -o QM_name start mq
     ```

     Tip: You can start multiple instances of ITCAM agent for WebSphere MQ with one command by specifying multiple names to the `-o` option. Separate each name by using a comma without space, for example, `./itmcmd agent -o QM1,QM2,QM3 start mq`.

   where *agent_ID* is the ID of the agent instance, *QM_name* is the name of queue manager that is monitored by ITCAM agent for WebSphere MQ. You can enter the following command in the *install_dir*/bin directory to find out the ID of agent instances:
   ```
   ./cinfo
   ```

Stopping an agent from the command line

Use the **itmcmd agent** command to stop an agent.

Perform the following steps to stop an agent from the command line. For additional information about the **itmcmd agent** command, see *IBM Tivoli Monitoring Installation and Setup Guide* and *IBM Tivoli Monitoring Command Reference*.

1. Go to the *install_dir*/bin directory, where *install_dir* is the installation directory of IBM Tivoli Monitoring.
2. If you want to stop a primary agent instance, enter the following command:
   - ITCAM configuration agent for WebSphere MQ
     ```
     ./itmcmd agent stop mc
     ```
   - ITCAM agent for WebSphere Message Broker
     ```
     ./itmcmd agent stop qi
     ```
   - ITCAM agent for WebSphere MQ
     ```
     ./itmcmd agent -o QM_name stop mq
     ```

where *QM_name* is the name of queue manager that is monitored by ITCAM agent for WebSphere MQ.

3. If you want to stop a non-primary agent instance, enter the following command:
   - ITCAM configuration agent for WebSphere MQ

     `./itmcmd agent -o agent_ID stop mc`
   - ITCAM agent for WebSphere Message Broker

     `./itmcmd agent -o agent_ID stop qi`
   - ITCAM agent for WebSphere MQ

     `./itmcmd agent -o QM_name stop mq`

     Tip: You can stop multiple instances of ITCAM agent for WebSphere MQ with one command by specifying multiple names to the `-o` option. Separate each name by using a comma without space, for example, `./itmcmd agent -o QM1,QM2,QM3 stop mq`.

   where *agent_ID* is the ID of the agent instance that you want to stop and *QM_name* is the name of queue manager that is monitored by ITCAM agent for WebSphere MQ. You can enter the following command in the *install_dir*`/bin` directory to find out the ID of agent instances:

   `./cinfo`

Chapter 15. Starting or stopping an agent on i5/OS systems

Use this procedure to start or stop the ITCAM configuration agent for WebSphere MQ and the ITCAM agent for WebSphere MQ from an i5/OS console.

Starting an agent from an i5/OS console

Use different commands to start ITCAM configuration agent for WebSphere MQ and ITCAM agent for WebSphere MQ.

To start the ITCAM configuration agent for WebSphere MQ from an i5/OS console, type the following command:

```
STROMAMC
```

To start the ITCAM agent for WebSphere MQ from an i5/OS console, type the following command:

```
STROMAMQA SUFFIX(QMgr_ID)
```

where is *QMgr_ID* is a unique 5-digit number, starting with 00001, to identify each WebSphere MQ queue manager.

Tip: If you do not know the suffix associated with this instance of the WebSphere MQ queue manager, type this command at the i5/OS console:

```
WRKOMAMQ
```

In the dialog window that is displayed, the suffix is displayed to the right of the associated instance that is listed.

Stopping an agent from an i5/OS console

Use different commands to stop ITCAM configuration agent for WebSphere MQ and ITCAM agent for WebSphere MQ.

To stop the ITCAM configuration agent for WebSphere MQ from an i5/OS console, type this command:

```
ENDOMAMC
```

To stop the ITCAM agent for WebSphere MQ from an i5/OS console, type the following command:

```
ENDOMAMQA SUFFIX(QMgr_ID)
```

where *QMgr_ID* is a unique 5-digit number, starting with 00001, to identify each WebSphere MQ queue manager.

Tip: If you do not know the suffix associated with this instance of the WebSphere MQ queue manager, type this command at an i5/OS console:

```
WRKOMAMQ
```

In the dialog window that is displayed, the suffix is displayed to the right of the associated instance that is listed.

Part 6. Uninstalling an agent

Use the instructions in this section to uninstall ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, and ITCAM agent for WebSphere Message Broker from Windows, Linux, UNIX, and i5/OS systems.

Chapter 16. Uninstalling an agent

Follow the instructions in the following sections to uninstall ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, or ITCAM agent for WebSphere Message Broker:

Uninstalling an agent on Windows systems

Remember: If you want to remove only some of the ITCAM Agents for WebSphere Messaging and keep the others, back up the `krwnt.dll` file in one of the following directories and restore it later after the uninstallation is complete. The `krwnt.dll` file is shared by ITCAM Agents for WebSphere Messaging and will be removed by the uninstallation program. Other agents cannot start up if this file is missing.

- 32-bit Windows: <*install_dir*>\TMAITM6
- 64-bit Windows: <*install_dir*>\TMAITM6_x64

where <*install_dir*> is the installation directory.

To uninstall an agent from a Windows system, perform the following steps:

1. Click **Start** > **Settings** > **Control Panel**.
2. Click **Add or Remove Programs**.
3. Click **IBM Tivoli Monitoring**.
4. Click **Change/Remove**.
5. The Welcome window is displayed to let you modify or remove the program. Select **Modify**, and click **Next**.

   Important: If you select **Remove**, the procedure for completely removing IBM Tivoli Monitoring and all its features begins.
6. A message is displayed stating that on the following panel, items that you have already installed are preselected, selecting a new item installs that item, and clearing an item uninstalls that item. Click **OK** to proceed.
7. In the Add or Remove Features window, click the plus sign (+) next to each main feature to expand the tree. Agents are listed under **Tivoli Enterprise Monitoring Agents - TEMA**.
8. Clear the check boxes next to the names of agents that you want to uninstall, and click **Next**.
   - Clear **WebSphere MQ Monitoring Agent** for ITCAM agent for WebSphere MQ.
   - Clear **WebSphere MQ Configuration Agent** for ITCAM configuration agent for WebSphere MQ.
   - Clear **WebSphere Message Broker Monitoring Agent** for ITCAM agent for WebSphere Message Broker.

9. In the Start Copying Files window, review the list of features or types of support that will be uninstalled. Click **Back** if you want to go back and change any of the selections. When you are ready, click **Next** to begin uninstallation.
10. A message is displayed stating that you will not be able to cancel the installation or upgrade after this point. Click **Yes** to continue.
11. In the Setup Type window, clear the check boxes and click **Next**.
12. In the InstallShield Wizard Complete window, click **Finish**.
13. The Maintenance Complete window is displayed stating that installation program wizard has finished performing maintenance operations on IBM Tivoli Monitoring and reboot can be done at your earliest convenience. Click **Finish**.

Now the uninstallation is complete.

If you backed up the `krwnt.dll` file before the uninstallation, now restore it in the original directory where you find it.

Remember: If you are using DB2 Universal Database as the configuration database of ITCAM configuration agent for WebSphere MQ, when you uninstall the ITCAM configuration agent for WebSphere MQ support at the Tivoli Enterprise Monitoring Server, the database is not removed. If you want to remove it, you must delete the RKCFAPLT database manually (see your DB2 documentation for information about deleting a database).

Uninstalling an agent on UNIX or Linux systems

Perform the following steps to uninstall an agent from UNIX or Linux systems:

1. If Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, Tivoli Enterprise Portal desktop client or any monitoring agents are running on the computer where the component you want to uninstall is located, stop them.
2. Run the following command to change to the appropriate `/bin` directory:

   `cd install_dir/bin`

   where *install_dir* is the installation directory for IBM Tivoli Monitoring.
3. Run the following command to start the uninstallation:

   `./uninstall.sh`

   A numbered list of product codes, architecture codes, version and release numbers, and product titles is displayed for all installed products.
4. For each component that you want to uninstall, perform the following procedure:
   a. Type the number that represents the agent or component that you want to uninstall and press Enter.
   b. Type 1 when prompted to confirm your selection. The component is removed.
5. If you do not want to uninstall any more components, type 99 and press Enter to exit the uninstallation program.
6. Navigate to the *install_dir*`/config` directory and delete the following files, depending on which agent you are uninstalling:
   - ITCAM agent for WebSphere MQ: `*mq*.cfg` and `mq.ini`, where * represents any combination of alphanumeric characters.
   - ITCAM configuration agent for WebSphere MQ: `*mc*.cfg` and `mc.ini`, where * represents any combination of alphanumeric characters.

- ITCAM agent for WebSphere Message Broker: `*kqi*.xml` and `kqi.ini`, where * represents any combination of alphanumeric characters.

When the uninstallation is complete, the results are written to the `uninstall-process.trc` file that is located in the *`install_dir`*`/logs` directory, where *install_dir* is the IBM Tivoli Monitoring installation directory.

Remember: If any processes belonging to the agent that you want to uninstall are still running during the uninstallation process, the uninstallation program will exit without removing the agent. However, it is possible to override this by using the `-i` option. In this case the agent is removed even when its processes are still running. You can then stop these processes manually.

Silent uninstallation

Perform the following steps for silent uninstallation:

1. Run the following command to change to the appropriate `/bin` directory:
   `cd` *`install_dir`*`/bin`

   where *install_dir* is the installation directory of IBM Tivoli Monitoring.
2. For silent uninstallation, run the following command to remove an agent from a UNIX or Linux computer:
   `./uninstall.sh [-f] [-i] [-h` *`install_directory`*`] [`*`product`*`] [`*`archcode`*`]`
   where:
   - The `-f` option forces delete, suppressing confirmation messages and prompts.
   - The `-i` option is used to ignore all running processes.
   - *install_directory* is the installation directory.
   - *product* is a two-letter code for the product to be uninstalled.
   - *archcode* is the architecture code (such as aix513, sol286, and hp11) for the operating system.

For example, run the following command to uninstall ITCAM configuration agent for WebSphere MQ from a Linux system whose architecture code is li6263:

```
./uninstall.sh mc li6263
```

Uninstalling an agent on i5/OS systems

Complete the following steps for each instance of the agent that you want to uninstall:

1. Press F3 to exit from the menu to release the object lock.
2. From an i5/OS console, enter the following command:
   `DSPSFWRSC`
3. Scroll down until you see the name of ITCAM agent for WebSphere MQ or ITCAM configuration agent for WebSphere MQ in the Description column.
4. Record the licensed program ID for the component, which is on the left under the column for Resource ID.
   `Licensed program ID` _____
5. Press Enter to continue.
6. Stop the agent that you want to uninstall by entering the following command:
   - ITCAM agent for WebSphere MQ: `ENDSBS SBS(KMQLIB) OPTION(*IMMED)`
   - ITCAM configuration agent for WebSphere MQ: `ENDSBS SBS(KMCLIB) OPTION(*IMMED)`

7. From an i5/OS console, enter the following command:

   ```
   DLTLICPGM LICPGM(licpgm)
   ```

   where *licpgm* is the licensed program ID that you recorded in step 4 on page 129.
8. If you are uninstalling the ITCAM agent for WebSphere MQ, perform the following additional steps:
   a. From an i5/OS console, enter the following command:

      ```
      QSH
      ```

   b. In Qshell environment, run the following command:

      ```
      rm -fr /home/kmq
      ```

Now the uninstallation is complete.

Removing files for remote deployment (all operating systems)

Files that are required for using remote deployment features are installed at the Tivoli Enterprise Monitoring Server when the agent application support is installed. To remove these files, run **tacmd removeBundles** the command.

See *IBM Tivoli Monitoring Installation and Setup Guide* and *IBM Tivoli Monitoring Command Reference* for more information.

Part 7. Appendixes

Appendix A. 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 the Accessibility appendix in the user's guide for the agent.

Appendix B. Product codes

The following table lists product codes that identify the agents. Use these codes when running commands.

Table 14. Product codes

Product	Code
ITCAM agent for WebSphere Message Broker	qi
ITCAM configuration agent for WebSphere MQ	mc
ITCAM agent for WebSphere MQ	mq

Appendix C. Language codes

Table 15 lists the languages supported by ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, ITCAM agent for WebSphere Message Broker, and their corresponding language codes.

Table 15. Language codes for the supported languages

Language	**code**
English	en_US
German	de_DE
Spanish	es_ES
French	fr_FR
Italian	it_IT
Japanese	ja_JP
Korean	ko_KR
Portuguese (Brazilian)	pt_BR
Simplified Chinese	zh_CN
Traditional Chinese	zh_TW

Appendix D. Architecture codes

IBM Tivoli uses abbreviations to represent the various operating system architectures. The following table shows the most current listing of these abbreviations.

This information can also be found in the following file on UNIX systems: *install_dir*/registry/archdsc.tbl.

Table 16. Operating system architecture abbreviations

Abbreviation	OS Architecture
aix4	AIX R4.1
aix42	AIX R4.2
aix420	AIX R4.2.0
aix421	AIX R4.2.1
aix43	AIX R4.3
aix433	AIX R4.3.3
aix513	AIX R5.1 (32 bit)
aix516	AIX R5.1 (64 bit)
aix523	AIX R5.2 (32 bit)
aix526	AIX R5.2 (64 bit)
aix533	AIX R5.3 (32 bit) AIX R6.1 (32 bit)
aix536	AIX R5.3 (64 bit) AIX R6.1 (64 bit)
hp10	HP-UX R10.01/10.10
hp102	HP-UX R10.20
hp11	HP-UX R11 (32 bit)
hp116	HP-UX R11 (64 bit)
hpi113	HP-UX R11 Integrity (32 bit)
hpi116	HP-UX R11 Integrity (64 bit)
li622	Linux Intel R2.2
li6223	Linux Intel R2.2 (32 bit)
li624	Linux Intel R2.4
li6242	Linux Intel R2.4 GCC 2.9.5 (32 bit)
li6243	Linux Intel R2.4 (32 bit)
li6245	Linux Intel R2.4 GCC 2.9.5 (64 bit)
li6246	Linux Intel R2.4 (64 bit)
li6262	Linux Intel R2.6 GCC 2.9.5 (32 bit)
li6263	Linux Intel R2.6 (32 bit)
li6265	Linux Intel R2.6 GCC 2.9.5 (64 bit)
li6266	Linux Intel R2.6 (64 bit)
ls322	Linux S390 R2.2
ls3223	Linux S390 R2.2 (32 bit)

Table 16. Operating system architecture abbreviations (continued)

Abbreviation	OS Architecture
ls3226	Linux S390 R2.2 (64 bit)
ls324	Linux S390 R2.4
ls3242	Linux S390 R2.4 GCC 2.9.5 (32 bit)
ls3243	Linux S390 R2.4 (32 bit)
ls3245	Linux S390 R2.4 GCC 2.9.5 (64 bit)
ls3246	Linux S390 R2.4 (64 bit)
ls3262	Linux S390 R2.6 GCC 2.9.5 (32 bit)
ls3263	Linux S390 R2.6 (32 bit)
ls3265	Linux S390 R2.6 GCC 2.9.5 (64 bit)
ls3266	Linux S390 R2.6 (64 bit)
lx8243	Linux x86_64 R2.4 (32 bit)
lx8246	Linux x86_64 R2.4 (64 bit)
lx8263	Linux x86_64 R2.6 (32 bit)
lx8266	Linux x86_64 R2.6 (64 bit)
lia246	Linux ia64 R2.4 (64 bit)
lia266	Linux ia64 R2.6 (64 bit)
lpp246	Linux ppc R2.4 (64 bit)
lpp263	Linux ppc R2.6 (32 bit)
lpp266	Linux ppc R2.6 (64 bit)
mvs	MVS™
osf1	Digital UNIX
os2	OS/2
os400	i5/OS system
sol24	Solaris R2.4
sol25	Solaris R2.5
sol26	Solaris R2.6
sol273	Solaris R7 (32 bit)
sol276	Solaris R7 (64 bit)
sol283	Solaris R8 (32 bit)
sol286	Solaris R8 (64 bit)
sol293	Solaris R9 (32 bit)
sol296	Solaris R9 (64 bit)
sol503	Solaris R10 (32 bit)
sol506	Solaris R10 (64 bit)
sol603	Solaris R10 Opteron (32 bit)
sol606	Solaris R10 Opteron (64 bit)
ta6046	Tandem Itanium (64 bit)
tv6256	Tandem MIPS (64 bit)
tsf50	Tru64 V5.0
unix	UNIX

Table 16. Operating system architecture abbreviations (continued)

Abbreviation	OS Architecture
winnt	Windows NT
wix64	Windows 86-x64

Appendix E. Supported operating systems

For the ITCAM agents, various operating systems are supported and each agent has specific prerequisites in addition to the requirements described in the *IBM Tivoli Monitoring: Installation and Setup Guide*.

See the Software product compatibility reports website for a variety of types of reports related to product requirements.

To get the supported operating system reports for the following agents, select operating system reports, enter and select the Tivoli Composite Application Manager for Applications product name and the version you want to see.

- ITCAM agent for WebSphere MQ
- ITCAM configuration agent for WebSphere MQ
- ITCAM agent for WebSphere Message Broker

Appendix F. Operating systems supported for IBM Tivoli Monitoring components

For information about operating systems are supported for the different IBM Tivoli Monitoring components, refer to the section that describes hardware and software requirements in the *IBM Tivoli Monitoring: Installation and Setup Guide*.

For the latest information about the supported operating systems, see the Software product compatibility reports website.

Appendix G. UNIX multi-platform installation program configuration files

This appendix discusses the configuration files used by the UNIX multi-platform installation program. The configuration files can be modified to customize your installation.

The UNIX system installation program stores the information in external files that are logically linked. With the linking of files, both basic and complex environments are supported. A basic or default agent to Tivoli Enterprise Monitoring Server configuration is presented when the agent configuration process is started. An advanced configuration tab is available to configure more complex environments.

Configuration information is generated from and stored in the following file types:

- User-input
- Template
- Custom-configuration

User-input type

A user-input file is generated automatically from information entered by the user, whether in dialog windows or at the command line. The user-input data is stored in a database for reconfiguration. User-input files are named according to the following format:

k*xx*env

where *xx* is the 2-letter product code; for example, kmqenv, for ITCAM agent for WebSphere MQ.

For a list of codes for the agents included in the product package, see Appendix B, "Product codes," on page 135.

Template type

Template files are shipped in the ./config directory and installed in *install_dir*/config. These files contain all the possible environment variables for a product. Template files are edited manually, only when a variable needs to be added permanently to the environment. Each variable value (for example, *install_dir*), which will be replaced from the user-input file, needs to be surrounded by the dollar sign ($). These variable values keywords are not reserved words, but rather must match the keyword in the user-input file.

Template files are named according to the format:

{*2-letter product code*}.ini

For example, mq.ini is for ITCAM agent for WebSphere MQ.

For a list of codes for the components included in the product package, see Appendix B, "Product codes," on page 135.

The template and user-input files are used to generate a custom-configuration file for a product.

Important: Any customization that is done to the `.ini` files is overwritten when the components are upgraded or reinstalled. You must keep a backup of any `.ini` files you customize.

Custom-configuration type

All variables (those surrounded by the dollar sign ($)) in the Template file are replaced with their values from the user-input file to create a custom-configuration file. This file is generated automatically if it does not exist during the configuration of an agent or Tivoli Enterprise Monitoring Server. Custom-configuration files can be edited by the user using the Advanced option in the installation program. These files are named according to the following format:

Agent

{*2-letter product code*}.config

For example, `mq.config` is for ITCAM agent for WebSphere MQ.

For a list of codes for the components included in the product package, see Appendix B, "Product codes," on page 135.

Tivoli Enterprise Monitoring Server

`Host_ms_cmsname.config`

Additional configuration file support

To maintain configuration flexibility as implemented in the current installer, the following files are also supported.

Table 17. Additional configuration files supported

File name	Description
`host_pc.config`	Read by a specific product on a specific system (host)
`host_pc_opt.config`	Read by a specific product on a specific system using a specific option (opt)
`env.config`	A configuration file that is used to store any environment variables applicable to all agents and the Tivoli Enterprise Monitoring Server. File is located in the *install_dir*/`config` directory
`mq.cfg`	Contains a default set of monitoring options for ITCAM agent for WebSphere MQ.
`kqi.xml`	Default configuration file for ITCAM agent for WebSphere Message Broker.

Table 17. Additional configuration files supported (continued)

File name	Description
*<host_name>*_mq_*<opt>*.cfg	Read by the ITCAM agent for WebSphere MQ on a specific system using a specific set of monitoring options (<opt>). If this file does not exist, it is created automatically from the `mq.cfg` file when running the **itmcmd agent** command.
*<host_name>*_qi_*<broker_name>*_##_*<agent_id>*.xml or *<host_name>*_qi_*<agent_id>*.xml	Read by the ITCAM agent for WebSphere Message Broker on a specific system with a specific broker agent. If this file does not exist, it is created automatically from the `kqi.xml` when running the **itmcmd agent** command.

The order in which the files are read is from the most general to the most specific.

The `pc.config` file is created during agent configuration and the `Host_ms_cmsname.config` file is created during Tivoli Enterprise Monitoring Server configuration. The other `.config` files can be created and edited manually.

Appendix H. Library

The following documents are available in the library for the ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, and ITCAM agent for WebSphere Message Broker:

- *IBM Tivoli Composite Application Manager Agents for WebSphere Messaging: Installation and Setup Guide*

  Describes how to install the ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, and ITCAM agent for WebSphere Message Broker on Windows, UNIX, Linux, and i5/OS systems.
- *IBM Tivoli Composite Application Manager Agents for WebSphere Messaging: Upgrade and Migration Guide*

  Provides information about how to upgrade or migrate from previous versions of ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, and ITCAM agent for WebSphere Message Broker to version 7.3.
- *IBM Tivoli Composite Application Manager Agent for WebSphere MQ User's Guide*

  Provides instructions for using the features of ITCAM agent for WebSphere MQ.
- *IBM Tivoli Composite Application Manager Agent for WebSphere Message Broker User's Guide*

  Provides instructions for using the features of ITCAM agent for WebSphere Message Broker.
- *IBM Tivoli Composite Application Manager Configuration Agent for WebSphere MQ User's Guide*

  Provides instructions for using the features of ITCAM configuration agent for WebSphere MQ.
- *IBM Tivoli Composite Application Manager Agents for WebSphere Messaging: Troubleshooting Guide*

  Provides problem determination and resolution information for the issues most commonly encountered when using ITCAM agent for WebSphere MQ, ITCAM configuration agent for WebSphere MQ, and ITCAM agent for WebSphere Message Broker.

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Glossary

This glossary includes terms and definitions for ITCAM Agents for WebSphere Messaging.

The following cross-references are used in this glossary:

- See refers you from a term to a preferred synonym, or from an acronym or abbreviation to the defined full form.
- See also refers you to a related or contrasting term.

To view glossaries for other IBM products, go to www.ibm.com/software/globalization/terminology (opens in new window).

A

access The ability to read, update, or otherwise use a resource. Access to protected resources is usually controlled by system software.

access management
The process of controlling access to IT services, data, or other assets.

address space
The range of addresses available to a computer program or process. Address space can refer to physical storage, virtual storage, or both. See also buffer pool.

agent Software that is installed to monitor systems. An agent collects data about an operating system, a subsystem, or an application.

aggregation
The process of collecting, interpreting, and sorting data from various locations into a single file.

alert A message or other indication that signals an event or an impending event. See also event.

attribute

1. The application properties that are measured and reported on, such as the amount of memory that is used or a message ID. See also attribute group.
2. Data that is associated with a component. For example, a host name, IP address, or the number of hard drives can be attributes associated with a server component.

attribute group
A set of related attributes that can be combined in a view or a situation. See also attribute, situation, view.

audit A process that logs modifications to the database and plan.

B

batch

1. Pertaining to a group of jobs to be run on a computer sequentially with the same program with little or no operator action.

2. A group of records or data processing jobs brought together for processing or transmission.

batch job
A predefined group of processing actions submitted to the system to be performed with little or no interaction between the user and the system.

batch mode
The condition established so that batch processing can be performed.

BPM See business performance management.

broker
A set of execution processes that host one or more message flows. See also execution group, message flow.

buffer pool
An area of memory into which data pages are read and in which they are modified and held during processing. See also address space.

bundle
A packaged collection of software products that is purchased as one item and that has its own product identifier (PID).

business performance management (BPM)
The monitoring, management, and tuning of business performance in real time through the analysis of business relevant information.

C

channel
A WebSphere MQ object that defines a communication link between two queue managers (message channel) or between a client and a queue manager (MQI channel). See also queue manager.

client A software program or computer that requests services from a server. See also host, server.

cluster

1. In WebSphere MQ, a group of two or more queue managers on one or more computers, providing automatic interconnection, and allowing queues to be advertised among them for load balancing and redundancy.
2. In Microsoft Cluster Server, a group of computers, connected together and configured in such a way that, if one fails, MSCS performs a failover, transferring the state data of applications from the failing computer to another computer in the cluster and reinitiating their operation there.

cluster queue manager
A queue manager that is a member of a cluster. A queue manager can be a member of more than one cluster.

component
A software item that is part of a software product, and might be separately identified, but is not individually licensed.

condition

1. An expression that consists of an agent attribute, an operator such as great than or equal to, and a value. It can be read as, "If - system condition - compared to - value - is true. See also situation.

2. A test of a situation or state that must be in place for a specific action to occur.

configuration
The manner in which the hardware and software of a system, subsystem, or network are organized and interconnected.

D

data set
The major unit of data storage and retrieval, consisting of a collection of data in one of several prescribed arrangements and described by control information to which the system has access.

dead-letter queue (DLQ)
A queue to which a queue manager or application sends messages that cannot be delivered to their correct destination.

deployment
The process of installing and configuring a software application and all its components.

DLQ See dead-letter queue.

dynamic queue
A local queue created when a program opens a model queue object.

E

enterprise
The composite of all operational entities, functions, and resources that form the total business concern and that require an information system.

event An occurrence of significance to a task or system. Events can include completion or failure of an operation, a user action, or the change in state of a process. See also alert, situation.

execution group
A named process or set of processes within a broker in which message flows are executed. The broker is guaranteed to enforce some degree of isolation between message flows in distinct execution groups by ensuring that they execute in separate address spaces, or as unique processes. See also broker, message flow.

F

full repository
A complete set of information about every queue manager in a cluster. This set of information is called the repository or sometimes the full repository and is usually held by two of the queue managers in the cluster. See also partial repository.

function
Any instruction or set of related instructions that performs a specific operation.

H

host A computer that is connected to a network and that provides an access point to that network. The host can be a client, a server, or both a client and server simultaneously. See also client, server.

hot standby
A redundant server that, if the primary server or hub server fails, assumes the responsibilities of the failed server.

I

integration
The software development activity in which separate software components are combined into an executable whole.

L

launch-in-context
An operation in which a user starts a secondary application from a primary application to perform a specific task. Using the parameters, navigation instructions, and user credentials that are supplied by the primary application, the secondary application opens to the specific place in which to complete the task.

M

managed object
A resource that is subject to management as viewed from a systems management perspective. Examples of such resources are a connection, a scalable system, or a line.

managed system
A system that is being controlled by a given system management application.

manager
An entity that monitors or controls one or more managed objects by (a) receiving notifications regarding the objects and (b) requesting management operations to modify or query the objects.

message flow
A sequence of processing steps that execute in the broker when an input message is received. Message flows are defined in the workbench by including a number of message flow nodes, each of which represents a set of actions that define a processing step. The connections in the flow determine which processing steps are carried out, in which order, and under which conditions. See also broker, execution group, subflow.

middleware
Software that acts as an intermediate layer between applications or between client and server. It is used most often to support complex, distributed applications in heterogeneous environments.

module
A program unit that is discrete and identifiable with respect to compiling, combining with other units, and loading.

monitoring agent
See agent.

multi-instance queue manager
A queue manager that is configured to share the use of queue manager data with other queue manager instances. One instance of a running multi-instance queue manager is active, other instances are on standby ready to take over from the active instance. See also queue manager.

O

offering

1. A logical unit of software packaging and sharing that has a managed development and maintenance life cycle and customer visible attributes (offering features, product IDs, licenses, maintenance contracts, and so forth). An offering is a serviceable software asset that is orderable by an IBM customer. It can be a collection of common components, assemblies, and other offerings.
2. The element or integrated set of elements (hardware, software, services) designed to satisfy the wants and needs of current and/or prospective customers. A solution is the application of the offering in a specific customer environment. See also solution.

P

partial repository
A partial set of information about queue managers in a cluster. A partial repository is maintained by all cluster queue managers that do not host a full repository. See also full repository.

performance management

1. The discipline that encompasses capacity planning, collecting performance data, and tuning resources.
2. The management processes and systems needed to effectively deliver business services.

PID See product identifier.

platform
The combination of an operating system and hardware that makes up the operating environment in which a program runs.

policy A set of considerations that influence the behavior of a managed resource or a user.

product ID
See product identifier.

product identifier (PID, product ID)
A unique value that identifies an IBM software product. Every mainframe and distributed IBM software product has a PID.

Q

query In a Tivoli environment, a combination of statements that are used to search the configuration repository for systems that meet certain criteria. The query object is created within a query library.

queue An object that holds messages for message-queueing applications. A queue is owned and maintained by a queue manager.

queue manager
A component of a message queuing system that provides queuing services to applications. See also channel, multi-instance queue manager.

queue-sharing group
In WebSphere MQ for z/OS, a group of queue managers in the same sysplex that can access a single set of object definitions stored in the shared repository, and a single set of shared queues stored in the coupling facility.

R

registry
A repository that contains access and configuration information for users, systems, and software.

S

sampled event
An event that happens when a situation becomes true. Situations sample data at regular intervals. When the situation is true, it opens an event, which is closed automatically when the situation returns to false.

segment
A set of customers/buyers within a market who have common wants, needs, characteristics and buying behavior. These wants and needs are sufficiently homogeneous that a consistent set of strategies, marketing campaigns and sales tactics can be directed toward them.

server A software program or a computer that provides services to other software programs or other computers. See also client, host.

service request
A request from a user for help, information, advice, or access to an IT service.

severity level
A classification for an event that indicates its degree of severity. The predefined severity levels, in order of descending severity, are: fatal, critical, warning, minor, harmless, and unknown.

situation
A set of conditions that, when met, creates an event. See also attribute group, condition, event.

snapshot
A capture of data at a point time for performance analysis.

solution
A combination of products that addresses a particular customer problem or project.

started task
In MVS, a process that begins at system start and runs unattended. Started tasks are generally used for critical applications. The UNIX equivalent of a started task is a daemon.

state An indication associated with an icon, color, and severity level assigned to

a situation at a point in time. A situation can reflect one of the following states: critical, warning, or informational.

status The true or false condition of a situation.

subflow
A sequence of processing steps, implemented using message flow nodes, that is designed to be embedded in a message flow or in another subflow. A subflow must include at least one Input or Output node. A subflow can be executed by a broker only as part of the message flow in which it is embedded, and therefore it cannot be deployed. See also message flow.

subnet
See subnetwork.

subnetwork (subnet)
A network that is divided into smaller independent subgroups, which still are interconnected.

subscription
In a Tivoli environment, the process of identifying the subscribers that the profiles are distributed to.

summarization
The process of aggregating events and then submitting the set of events with a much smaller number of summary events.

system
A computer and its associated devices and programs.

T

TCP/IP
See Transmission Control Protocol/Internet Protocol.

threshold
A customizable value for defining the acceptable tolerance limits (maximum, minimum, or reference limit) for an application resource or system resource. When the measured value of the resource is greater than the maximum value, less than the minimum value, or equal to the reference value, an exception or event is raised.

transaction
A unit of processing consisting of one or more application programs, affecting one or more objects, that is initiated by a single request.

Transmission Control Protocol/Internet Protocol (TCP/IP)
An industry-standard, nonproprietary set of communication protocols that provides reliable end-to-end connections between applications over interconnected networks of different types.

transmission queue
A local queue on which prepared messages destined for a remote queue manager are temporarily stored.

U

upgrade
To install a new version or release of a product to replace an earlier version or release of the same product.

user profile
A description of a user that includes such information as user ID, user name, password, access authority, and other attributes that are obtained when the user logs on.

V

view A window pane, or frame, in a workspace. It may contain data from an agent in a chart or table, or it may contain a terminal session or notepad, for example. A view can be split into two separate, autonomous views. See also attribute group.

W

workspace

1. A window comprised of one or more views.
2. In Tivoli management applications, the working area of the user interface, excluding the Navigator pane, that displays one or more views pertaining to a particular activity. Predefined workspaces are provided with each Tivoli application, and systems administrators can create customized workspaces.

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