Installation and Setup Guide

Version 5.1.1
Note
Before using this information and the product it supports, read the information in Appendix E, "Notices", on page 147.
Figures

1. Typical installation of a Tivoli management region 4
2. Typical Installation: Typical option panel 29
3. Sample Step List panel 34
4. Custom Installation: Evaluation option panel 39
5. Sample Step List panel 41
6. Step List installer panel 110
7. Detail window of the Step List panel 112
# Tables

1. Guidelines for installation and setup ........................................ 5
2. .................................................................................................. 7
3. Supported operating systems for managed nodes ........................... 8
4. Supported operating systems for endpoints ................................. 8
5. Required software for IBM Tivoli Monitoring for Databases .......... 9
6. Optional software for IBM Tivoli Monitoring for Databases .......... 10
7. Disk space requirements for installing the Tivoli environment .......... 12
8. Firewall security features of Tivoli Management Framework ........ 16
9. Managed resources and their purpose ....................................... 18
10. Planning sheet for creating managed nodes ............................... 21
11. Planning sheet for creating endpoints ..................................... 22
12. Planning sheet for creating proxy managed objects .................... 23
13. Passport Advantage installation files for IBM Tivoli Monitoring for Databases .................................................. 24
14. Software locations on installation CDs ................................. 33
15. Guidelines for an Evaluation installation ................................. 37
16. Software locations on installation CDs .................................... 40
17. Guidelines for installing the product through an existing Tivoli environment .................................................. 47
18. Product locations .............................................................. 57
19. Manual installation of the product: specifications of required patches .................................................. 61
20. Guidelines for completing the installation of the product .......... 65
21. Language support and names of corresponding installation index (.IND) files .................................................. 75
22. Monitors for Informix and the corresponding resource models in IBM Tivoli Monitoring for Databases .................. 84
23. Monitors for Oracle and the corresponding resource models in IBM Tivoli Monitoring for Databases .................. 85
24. Monitors for DB2 and the corresponding resource models in IBM Tivoli Monitoring for Databases .................. 88
25. Monitors for SQL Server and the corresponding resource models in IBM Tivoli Monitoring for Databases .................. 102
26. Tivoli Management Solution for Microsoft SQL 7.0 Rules and the corresponding resource models in IBM Tivoli Monitoring for Databases .................................................. 105
27. Tivoli Management Solution for Microsoft SQL 2000 Rules and the corresponding resource models in IBM Tivoli Monitoring for Databases .................................................. 106
28. Overview of problem determination topics and procedures ........ 109
29. Status icons and buttons for the Step List panel of the installer .......... 110
30. Error logs and descriptions .................................................. 114
31. Problems and workarounds ................................................. 114
32. Patches that the installer installs automatically .......................... 137
33. Required patches for required and optional software for manual installation .................................................. 138
34. Guidelines for uninstalling the product .................................. 139
About this guide

This guide describes how to install and set up IBM® Tivoli® Monitoring for Databases to monitor and manage server resources and other objects in a Tivoli environment.

Who should read this guide

System administrators refer to this guide to learn how to install and set up the following basic elements of the Tivoli environment:

- A Tivoli server
- Managed nodes
- Managed Databases computers, which are hosts for the Tivoli endpoint software

Readers should be familiar with the following:

- UNIX® or Windows® operating systems
- Database administration

What this guide contains

This guide contains the following sections:

- **Chapter 1, “Overview”, on page 1**
  Provides an overview of the installation and setup of IBM Tivoli Monitoring for Databases.

- **Chapter 2, “Getting started quick-reference guide”, on page 5**
  Provides guidelines for installing and setting up IBM Tivoli Monitoring for Databases.

- **Chapter 3, “Pre-installation”, on page 7**
  Describes how to plan and prepare for installing the product.

- **Chapter 4, “Performing a Typical installation”, on page 27**
  Describes the Typical installation method.

- **Chapter 5, “Performing an Evaluation installation”, on page 37**
  Describes the Evaluation installation method.

- **Chapter 6, “Installing the product manually from an existing Tivoli environment”, on page 47**
  Describes how to install the product manually.

- **Chapter 7, “Completing the installation of the product”, on page 65**
  Describes how to verify and complete the installation of the product.

- **Chapter 8, “Mapping monitors to resource models”, on page 83**
  Describes how to map monitors from previous products to IBM Tivoli Monitoring for Databases resource models.

- **Appendix A, “Problem determination”, on page 109**
  Describes how to determine the source of common problems and suggests solutions.

- **Appendix B, “Installation messages”, on page 123**
  Describes error messages that the product can generate.
Publications

This section lists publications in the IBM Tivoli Monitoring for Databases library and related documents. It also describes how to access Tivoli publications online, and how to order Tivoli publications.

IBM Tivoli Monitoring for Databases: DB2 library

The following guides are available in the IBM Tivoli Monitoring for Databases: DB2 library:

  Provides information about how to install and use the IBM Tivoli Monitoring for Databases: DB2 software to manage database resources with Tivoli Enterprise software.

- **IBM Tivoli Monitoring for Databases, Version 5.1.0: DB2 Reference Guide, SC23-4727**
  Provides task and resource model information about procedures described in the IBM Tivoli Monitoring for Databases, Version 5.1.0: DB2 User's Guide.

- **IBM Tivoli Monitoring for Databases: Installation and Setup Guide, GC23-4730**
  Provides information on how to install the product software.

- **IBM Tivoli Monitoring for Databases: DB2 Release Notes, GI11-0933**
  Describes product features and provides information about the latest changes to the installation requirements and procedures. The release notes also describe known limitations related to installation and explain how to work around each limitation.

- **IBM Tivoli Monitoring for Databases: DB2 Limitations and Workarounds Supplement, SC23-4786**
  Provides the latest information about known product limitations and workarounds. To ensure that the information is the latest available, this guide is provided only on the Web, where it is updated on a regular basis. You can access the Limitations and Workarounds guide through the IBM Tivoli Monitoring for Databases: DB2 link on the Tivoli Information Center Web site: [http://publib.boulder.ibm.com/tividd/td/tdprodlist.html](http://publib.boulder.ibm.com/tividd/td/tdprodlist.html)

IBM Tivoli Monitoring for Databases: Informix library

The following guides are available in the IBM Tivoli Monitoring for Databases: Informix library:

  Describes how to use IBM Tivoli Monitoring for Databases: Informix.

- **IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix Reference Guide, SC23-4728**
  Provides detailed information about resource models, tasks, and commands.
• **IBM Tivoli Monitoring for Databases: Installation and Setup Guide, GC23-4730**
  Provides instructions for installing the product and setting it up to manage database resources.

• **IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix Release Notes, GI11-0933**
  Describes product features and provides information about the latest changes to the installation requirements and procedures. The release notes also describe known limitations related to installation and explain how to work around each limitation.

• **IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix Limitations and Workarounds Supplement, SC23-4787**
  Provides the latest information about known product limitations and workarounds. To ensure that the information is the latest available, this guide is provided only on the Web, where it is updated on a regular basis. You can access the Limitations and Workarounds guide through the IBM Tivoli Monitoring for Databases: Informix link on the Tivoli Information Center Web site: [http://publib.boulder.ibm.com/tividd/td/tdprodlist.html](http://publib.boulder.ibm.com/tividd/td/tdprodlist.html)

### IBM Tivoli Monitoring for Databases: Microsoft SQL Server library

The following guides are available in the IBM Tivoli Monitoring for Databases: Microsoft SQL Server library:

• **IBM Tivoli Monitoring for Databases: Microsoft SQL Server User’s Guide, SC23-4723**
  Provides information about how to use IBM Tivoli Monitoring for Databases: Microsoft SQL Server to manage database resources.

• **IBM Tivoli Monitoring for Databases: Microsoft SQL Server Reference Guide, SC23-4724**
  Provides detailed information about individual tasks and resource models.

• **IBM Tivoli Monitoring for Databases: Microsoft SQL Server Release Notes, SC23-4851**
  Describes product features and provides information about the latest changes to the installation requirements and procedures. The release notes also describe known limitations related to installation and explain how to work around each limitation.

• **IBM Tivoli Monitoring for Databases: Microsoft SQL Server Limitations and Workarounds, SC23-4850**
  Provides the latest information about known product limitations and workarounds. To ensure that the information is the latest available, this guide is provided only on the Web, where it is updated on a regular basis. You can access the Limitations and Workarounds guide through the IBM Tivoli Monitoring for Databases: Microsoft SQL Server link on the Tivoli Information Center Web site: [http://publib.boulder.ibm.com/tividd/td/tdprodlist.html](http://publib.boulder.ibm.com/tividd/td/tdprodlist.html)

### IBM Tivoli Monitoring for Databases: Oracle library

The following guides are available in the IBM Tivoli Monitoring for Databases: Oracle library:

  Provides information about how to use IBM Tivoli Monitoring for Databases: Oracle to manage database resources.

• **IBM Tivoli Monitoring for Databases: Oracle Reference Guide, SC23-4724**
  Provides detailed information about individual tasks and resource models.

• **IBM Tivoli Monitoring for Databases: Oracle User Management Guide, GC23-4731-00**

About this guide  xi
Describes how to use the IBM Tivoli Monitoring for Databases: Oracle User Management application to manage users, roles, and resource profiles for databases.

- **IBM Tivoli Monitoring for Databases: Oracle Release Notes, GI11-0933-00**
  Describes product features and provides information about the latest changes to the installation requirements and procedures. The release notes also describe known limitations related to installation and explain how to work around each limitation.

- **IBM Tivoli Monitoring for Databases: Oracle Limitations and Workarounds, SC23-4785-00**
  Provides the latest information about known product limitations and workarounds. To ensure that the information is the latest available, this guide is provided only on the Web, where it is updated on a regular basis. You can access the Limitations and Workarounds guide through the IBM Tivoli Monitoring for Databases: Oracle link on the Tivoli Information Center Web site: [http://publib.boulder.ibm.com/tividd/td/tdprodlist.html](http://publib.boulder.ibm.com/tividd/td/tdprodlist.html)

### Related publications

The following guides provide related information:

  Describes how to use the IBM Tivoli Monitoring Workbench to create new resource models and to modify existing ones.

- **IBM Tivoli Monitoring User’s Guide, SH19-4569**
  Describes how to use the IBM Tivoli Monitoring user interface.

- **IBM Tivoli Monitoring Collection Reference, SH19-4570**
  Describes the resource models that come with IBM Tivoli Monitoring software.

- **Tivoli Management Framework User’s Guide, GC31-8433-04**
  Describes the Tivoli environment, including profiles and profile management.

- **Tivoli Management Framework Reference Manual, SC31-8434-04**
  Provides detailed information about Tivoli commands.

- **Tivoli Enterprise, Version 3.7.1: Installation Guide, GC32-0395-01**
  Provides information and procedures for installing and upgrading Tivoli Management Framework (Tivoli management region server, managed nodes, gateways, and endpoints), and provides the procedures for installing and upgrading Tivoli Enterprise products.

  Explains how to plan for deploying your Tivoli environment, and describes Tivoli Management Framework and its services.

  Describes how to use the Tivoli Enterprise Console® to correlate events and determine the severity and relationship of those events.

- **Tivoli Enterprise Console, Version 3.7: Rule Builder’s Guide, GC32-0669-00**
  Provides information about developing rules for managing events with Tivoli Enterprise Console with a text editor and a graphical rule builder.

- **TME 10 Software Installation Service User’s Guide, sis36ga**
  Describes how to use the Tivoli Software Installation Service (SIS) to install Tivoli products.

Describes how to use the Tivoli Business Systems Manager product.

  Describes how to use the Tivoli Business Systems Manager console.

- **Tivoli Enterprise Data Warehouse documentation**
  Describes how to use Tivoli Enterprise Data Warehouse to compile historical data to monitor your system and to help you make strategic management decisions regarding your network.

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


### Accessing publications online

The documentation CD contains the publications that are in the product library. The format of the publications is PDF, HTML, or both. Refer to the readme file on the CD for instructions on how to access the documentation.

IBM posts publications for this and all other Tivoli products, as they become available and whenever they are updated, to the Tivoli Software Information Center Web site. The Tivoli Software Information Center is located at the following Web address: [http://publib.boulder.ibm.com/tividd/td/tdprodlist.html](http://publib.boulder.ibm.com/tividd/td/tdprodlist.html)

Click the **IBM Tivoli Monitoring for Databases** link to access the product library.

**Note:** If you print PDF documents on other than letter-sized paper, select the **Fit to page** check box in the **Adobe Acrobat Print** window. This option is available when you click **File → Print**. **Fit to page** ensures that the full dimensions of a letter-sized page print on the paper that you are using.

### Ordering publications

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


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

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

In other countries, see the following Web site for a list of telephone numbers:


### Accessibility

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

For additional information, see **Appendix E, “Accessibility”, on page 145**.
Contacting software support

If you have a problem with any Tivoli product, refer to the following IBM Software Support Web site: [http://www.ibm.com/software/sysmgmt/products/support/](http://www.ibm.com/software/sysmgmt/products/support/)

If you want to contact customer support, see the IBM Software Support Guide at the following Web site:


The guide provides information about how to contact IBM Software Support, depending on the severity of your problem, and the following information:

- Registration and eligibility
- Telephone numbers and e-mail addresses, depending on the country in which you are located
- Information you must have before contacting IBM Software Support

Conventions used in this guide

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

Typeface conventions

This guide uses the following typeface conventions:

**Bold**

- Lowercase commands and mixed case commands that are otherwise difficult to distinguish from surrounding text
- Interface controls (check boxes, push buttons, radio buttons, spin buttons, fields, folders, icons, list boxes, items inside list boxes, multicolumn lists, containers, menu choices, menu names, tabs, property sheets), labels (such as Tip, and Operating system considerations)
- Column headings in a table
- Keywords and parameters in text

*Italic*

- Citations (titles of books, diskettes, and CDs)
- Words defined in text
- Emphasis of words (words as words)
- Letters as letters
- New terms in text (except in a definition list)
- Variables and values you must provide

**Monospace**

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

The commands in this book use the following special characters to define Tivoli command syntax:

< > Indicates that the text enclosed in the angle brackets is a variable that you supply.

[] Identifies optional elements. Elements that do not have brackets around them are required.

... Indicates you can specify multiple values for the previous element. Separate multiple values by a space, unless the command information specifies differently.

If the ellipsis for an element follows a closing bracket ( ) ), use the syntax within the brackets to specify multiple values. For example, to specify two administrators for the option [-a admin]..., use -a admin1 -a admin2.

If the ellipsis for an element is within brackets, use the syntax of the last element to specify multiple values. For example, to specify two hosts for the option [-h host...], use -h host1 host2.

| Indicates mutually exclusive information, meaning you can use the element on either the left or right of the vertical bar, but not both.

{} Delimits a set of mutually exclusive elements when a command requires one of them, but not multiple elements. Brackets ([ ]) are around elements that are optional.

\ A backslash indicates that a command continues on the next line.

In addition to the special characters, Tivoli command syntax uses the typeface conventions described in "Typeface conventions” on page xiv.

The following examples illustrate the typeface conventions used in Tivoli command syntax:

• wcrtpr [-a admin]... [-s region] [-m resource]... name

The name argument is the only required element for the wcrtpr command. The brackets around the options indicate that they are optional. The ellipsis after the -a admin option means that you can specify multiple administrators multiple times. The ellipsis after the -m resource option means that you can specify multiple resources multiple times.

• wchkdb [-o outfile] [-u] [-x] [-f infile | -i | object...]

The -f, -i, and object elements are mutually exclusive. The braces that surround the -f, -i, and object elements indicate that you are including required elements. If you specify the object argument, you can specify more than one object.

When you reference an object in a command issued from the command line, the reference is not an absolute object reference like those used in programming. Instead, the reference is a user-friendly name. This user-friendly name derives from a name given to the object by the user of the application, such as when creating a policy region.
Chapter 1. Overview

This document describes installation and setup of IBM Tivoli Monitoring for Databases, monitoring and management software for business-critical hardware and software. This document includes information on the following topics:

- Determining the proper installation for your environment
- Information about a typical Tivoli environment
- Guidelines and worksheets for planning your installation and setup
- Procedures for using the installation wizard or the Tivoli desktop to install your monitoring product
- Problem determination information for the installation wizard
- Guidelines for migrating or updating from Tivoli Manager for DB2, Version 2.1.0, or Tivoli Manager for Oracle, Version 2.0, installations

Choosing an installation method

The IBM Tivoli Monitoring products offer several options for installing the software, depending on the complexity of your environment and your knowledge of Tivoli management systems. Your choices include the following:

Installation wizard

The installation wizard (referred to in the rest of this guide as the installer) creates a complete Tivoli environment, if none exists, and installs the product. The installer also installs supplemental software, such as the Java runtime environment and language packs. Use the installer if you have no previous Tivoli software installations or you have Tivoli Management Framework, Version 3.7, Revision A or Revision B, installed.

If you use the installation wizard, you must choose between a Typical or Evaluation installation path. Use the following criteria to determine which path you want to take:

Use the Typical installation path when the following conditions are true:

- You want to install the product on a target computer that matches one of the following profiles:
  - Has no software installed for the Tivoli Management Framework.
  - OR—
  - Has one of the following versions of the Tivoli Management Framework installed: Version 3.7 (Revision A or Revision B) or Version 3.7.1. You cannot install this product on systems that run previous versions of the Tivoli Management Framework.
- Your environment matches the “Elements of a basic installation” on page 2

Use the Evaluation installation path if you want to install a simple Tivoli environment and IBM Tivoli Monitoring for Databases on one computer so you can test and evaluate the product.

Tivoli desktop and command line interface

Use one of these options if you are an current Tivoli user with earlier versions of the Tivoli Management Framework. You might also want to use one of these options if you have expert knowledge of the Tivoli
environment and plan to extensively customize your installation. The Tivoli Management Framework software CDs that come with IBM Tivoli Monitoring for Databases contain the Tivoli Management Framework User’s Guide. See the manual installation procedures in Chapter 6, “Installing the product manually from an existing Tivoli environment”, on page 47.

Tivoli Software Installation Service (SIS)
For information about obtaining and using this installation option, go to the following Web site:

Also see “Using Tivoli Software Installation Service” on page 47.

Migrating from previous Tivoli products
The following migration options exist for Tivoli Distributed Monitoring, Tivoli Manager for DB2, and Tivoli Manager for Oracle:

• Migrate or upgrade pre-existing software:
  – Upgrade previous versions of IBM Tivoli Monitoring to the required Version 5.1.1. See “Upgrading IBM Tivoli Monitoring manually” on page 55.
  – Migrate Tivoli Manager for DB2 or Oracle software. See “Installing Tivoli patches manually” on page 60.

  Note: The installer automatically migrates this software to IBM Tivoli Monitoring for Databases. When you perform a manual installation of the product, you must manually install the upgrade patch.

• Map tasks in Tivoli Manager for DB2, Informix, and Oracle products to IBM Tivoli Monitoring for Databases.
You use configuration tasks in the new product in the same way that you used them in Tivoli Manager for DB2, Informix, and Oracle. The program code in the new tasks has changed to work with IBM Tivoli Monitoring for Databases, but the names of the tasks and their general purpose remains the same, with the following exceptions in Oracle:
  – The DisableMonitoring task in Tivoli Manager for Oracle maps to the DisableResourceModels task.
  – the EnableMonitoring task in Tivoli Manager for Oracle maps to the EnableResourceModels task.

• Map monitors to resource models. See Chapter 8, “Mapping monitors to resource models”, on page 83.

Elements of a basic installation
This section describes a basic Tivoli environment. The installer creates a basic Tivoli environment during the Typical installation.

During the Typical installation, you can create the following elements:

• One required Tivoli management region server to monitor endpoints. The Tivoli server runs the Tivoli Management Framework and IBM Tivoli Monitoring software.

• A managed node computer system on which Tivoli Management Framework is installed. Each managed node has gateway software that increases performance in the Tivoli environment by reducing traffic on the Tivoli management region server. The IBM Tivoli Monitoring software also runs on managed nodes.
• Up to 50 endpoints for monitoring resources on your network. You distribute monitoring software to the endpoints. An endpoint is a computer system on which Tivoli software is installed to enable communication with a Tivoli management region server.

• One Web Health Console on a managed node or endpoint. The console shows the status and health of a server in a Web browser. You can create an unlimited number of Web Health Consoles. Web Health Consoles have the following characteristics:
  – Can exist on an unlimited number of computers
  – Can display the status of resources for an unlimited number of Tivoli management regions
  – Require the deployment of the Java Runtime Environment, Version 1.3, on the host computer

The Tivoli environment is software based on the Tivoli Management Framework that addresses network computing management issues across many platforms. In a Tivoli environment, a system administrator distributes software, manages user configurations, changes access privileges, automates operations, monitors resources, and schedules jobs.
A Tivoli environment spans multiple computers, as shown in Figure 1. A large company might have hundreds of managed nodes with gateways that monitor thousands of endpoints, which you set up using one of the installation methods. Figure 1 shows a typical installation of a Tivoli management region.

1. **Tivoli management region server**
   This server is required. It monitors endpoints and runs the Tivoli Management Framework and IBM Tivoli Monitoring software.

2. **Managed node with gateway**
   The managed node shares the processing load of the Tivoli management region server, runs the software, and communicates with its assigned endpoints. The managed nodes allow the Tivoli server to work more efficiently because it performs fewer management and user administration operations. Tivoli network transactions flow to multiple servers instead of just to the Tivoli server.
   Gateways enable a managed node to perform endpoint management operations for the Tivoli management region server. A gateway transfers data to and from endpoints.

3. **Endpoints**
   An endpoint is a computer system on which Tivoli software is installed to enable monitoring.

4. **Web Health Console**
   The Web Health Console shows the status and health of endpoints. You can install a Web Health Console on any computer in the same network as the Tivoli management region server. The Web Health Console has the following characteristics:
   - Can exist on an unlimited number of computers.
   - Can display the status of resources for an unlimited number of Tivoli management regions.

Figure 1. Typical installation of a Tivoli management region
# Chapter 2. Getting started quick-reference guide

Table 1 summarizes the procedures for installing and setting up IBM Tivoli Monitoring for Databases. It also tells where you can find the information and procedures that guide you through the installation.

## Table 1. Guidelines for installation and setup

<table>
<thead>
<tr>
<th>What you do</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before Installation</strong></td>
<td></td>
</tr>
<tr>
<td>1. Check your system for compliance with the system requirements and set up or check the prerequisite software.</td>
<td>“Operating system requirements” on page 8</td>
</tr>
<tr>
<td>2. Back up an existing Tivoli environment, if you have one. If you encounter a problem during an installation, use the backup to restore the environment to a known working state.</td>
<td>“Backing up and restoring Tivoli databases” on page 13</td>
</tr>
<tr>
<td>3. Complete the planning sheets for the managed nodes and endpoints that you want to create. <em>(Optional)</em></td>
<td>“Completing installation planning sheets” on page 18</td>
</tr>
<tr>
<td>4. Make sure Tivoli monitoring activity performs across your network firewalls.</td>
<td>“Handling security across firewalls” on page 15</td>
</tr>
</tbody>
</table>
| 5. If you have a Solaris Operating Environment (referred to in the remainder of this document as Solaris), you must install certain fix packages on the target computer to enable the installer. Patches are available from the following Sun Web site: [http://sunsolve.sun.com](http://sunsolve.sun.com). | Fix packages for Solaris 7 106327-10, 106541-17, 106950-14, 106980-17, 107081-37, 107153-01, 107226-18, 107544-03, 107636-08, 107656-07, 107702-09, 108374-05, 108376-29, and SUNWii1 fonts package  
Note: You can obtain the fonts package on the Solaris installation CD.  
Fix packages for Solaris 8 108652-37, 108921-13, and 108940-32 |
| 6. Hewlett-Packard Company requires a set of patches for the HP-UX environment. | See the following Web site for the latest required patches for the HP-UX operating system: [http://welcome.hp.com/country/us/eng/software_drivers.htm](http://welcome.hp.com/country/us/eng/software_drivers.htm) |
| 7. If you have AIX Version 4.3.x systems, install IBM AIX maintenance package 9 to enable the installer. | Obtain the maintenance package at the following IBM Web site: [http://techsupport.services.ibm.com/rs6k/ml.fixes.html](http://techsupport.services.ibm.com/rs6k/ml.fixes.html) |
| 8. Use the ping command to test network names of the target computers for the installation, which ensures the network recognizes the names. The target computer replies to the ping command with its IP address and statistics regarding the transaction if the name is valid, the network connection is active, and the target computer is running. | Run a ping command to contact each target computer. For example, enter the following command in the MS-DOS command prompt on Windows:  
ping <name>  
where <name> is the name of the target computer. |
| 9. Confirm that the required software services are running on the target computers. | “Verifying that required software is running” on page 17 |

**Installation**
Table 1. Guidelines for installation and setup (continued)

<table>
<thead>
<tr>
<th>What you do</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Install the product. The installation can include the following:</td>
<td>Chapter 4, “Performing a Typical installation”, on page 27</td>
</tr>
<tr>
<td>• Managed nodes</td>
<td>—OR—</td>
</tr>
<tr>
<td>• Endpoints</td>
<td>Chapter 5, “Performing an Evaluation installation”, on page 37</td>
</tr>
<tr>
<td>• Web Health Console</td>
<td>—OR—</td>
</tr>
<tr>
<td><strong>Note:</strong> You can create these components after installation. You can also use the Web Health Console’s installation executable for installation to install the console on any computer in the network in which the Tivoli environment is located.</td>
<td>Chapter 6, “Installing the product manually from an existing Tivoli environment”, on page 47</td>
</tr>
<tr>
<td></td>
<td>—OR—</td>
</tr>
<tr>
<td></td>
<td>Use Tivoli Software Installation Service (SIS) to install the product. For information about obtaining and using SIS, go to the following Web site: <a href="http://www-3.ibm.com/software/sysmgmt/products/support/">http://www-3.ibm.com/software/sysmgmt/products/support/</a></td>
</tr>
<tr>
<td>After Installation</td>
<td></td>
</tr>
<tr>
<td>11. Back up the Tivoli environment after installation.</td>
<td>&quot;Backing up and restoring Tivoli databases&quot; on page 13</td>
</tr>
<tr>
<td>If you encounter a problem during final configuration, use the backup copy to restore the environment to a known state.</td>
<td></td>
</tr>
<tr>
<td>13. Verify the functionality of the Tivoli management region by running communication commands.</td>
<td>“Verifying the installation of the product” on page 66</td>
</tr>
<tr>
<td>14. <em>(Optional)</em> Review functionality mapping for the monitors from previous Tivoli software to resource models in IBM Tivoli Monitoring for Databases.</td>
<td>Chapter 8, “Mapping monitors to resource models”, on page 83</td>
</tr>
<tr>
<td>15. Install software to enable resource models, the Web Health Console, historical reporting, and national language versions of the product.</td>
<td>Chapter 7, “Completing the installation of the product”, on page 65</td>
</tr>
<tr>
<td>16. Create server objects for the product to manage.</td>
<td>See one of the following user’s guides that corresponds to the database product you use:</td>
</tr>
</tbody>
</table>
Chapter 3. Pre-installation

This chapter provides the following pre-installation requirements and procedures for IBM Tivoli Monitoring for Databases:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review installation requirements so you can verify that your environment is ready for installation.</td>
<td>Operating System requirements, Software requirements, Disk space requirements, Permissions and privileges requirements, Language requirements, Endpoint TCP/IP requirements</td>
</tr>
<tr>
<td>Prepare your environment so you can begin installation</td>
<td>Backing up and restoring Tivoli databases, Handling security across firewalls, Verifying that required software is running, Understanding automatic upgrades, Completing installation planning sheets</td>
</tr>
<tr>
<td>Getting the files you need for installation so you can launch installation.</td>
<td>Accessing the installation CDs, Accessing electronic download</td>
</tr>
</tbody>
</table>

Chapter 7, “Completing the installation of the product”, on page 65 provides procedures for product or platform-specific prerequisites. For example, you must run the DMLinkJre task on endpoints to ensure that IBM Tivoli Monitoring can access the Java Runtime Environment.
Installation requirements

Operating system requirements

This section lists the operating systems that work with managed nodes or endpoints for IBM Tivoli Monitoring for Databases.

Table 3. Supported operating systems for managed nodes

<table>
<thead>
<tr>
<th>Supported operating systems for managed nodes</th>
<th>Version</th>
<th>DB2</th>
<th>Informix</th>
<th>Microsoft SQL Server</th>
<th>Oracle¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX</td>
<td>4.3.2</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes²</td>
</tr>
<tr>
<td></td>
<td>4.3.3</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes², ³</td>
</tr>
<tr>
<td></td>
<td>5.1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes²</td>
</tr>
<tr>
<td>HP-UX</td>
<td>10.20</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>11.00</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes², ³</td>
</tr>
<tr>
<td></td>
<td>11i</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes², ³</td>
</tr>
<tr>
<td>Sun Solaris</td>
<td>2.7</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes², ³</td>
</tr>
<tr>
<td></td>
<td>2.8</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes², ³</td>
</tr>
<tr>
<td>Windows NT 4.0</td>
<td>Service Pack 6A</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes², ³</td>
</tr>
<tr>
<td>Windows 2000</td>
<td>Service Pack 1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes², ³</td>
</tr>
</tbody>
</table>

Notes:
1. Oracle must run in 32-bit or 64-bit mode for this product.
2. Oracle Enterprise/Standard Edition, Version 8.1.7 is supported
3. Oracle Enterprise/Standard Edition, Version 9i is supported

Table 4. Supported operating systems for endpoints

<table>
<thead>
<tr>
<th>Supported operating systems for endpoints</th>
<th>Version</th>
<th>DB2</th>
<th>Informix</th>
<th>Microsoft SQL Server</th>
<th>Oracle¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX</td>
<td>4.3.3, 5.1</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>HP-UX</td>
<td>11.00</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>11i</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Sun Solaris</td>
<td>2.7</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes², ³</td>
</tr>
<tr>
<td></td>
<td>2.8</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes², ³</td>
</tr>
<tr>
<td>Windows NT 4.0</td>
<td>Service Pack 6A</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes², ³</td>
</tr>
<tr>
<td>Windows 2000</td>
<td>Service Pack 1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes², ³</td>
</tr>
<tr>
<td>Windows XP</td>
<td>Professional</td>
<td>Yes⁵</td>
<td>No</td>
<td>No</td>
<td>Yes³</td>
</tr>
<tr>
<td>Linux (including Red Hat, TurboLinux, and SuSE)</td>
<td>2.4 Kernel on Windows Intel</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes², ³</td>
</tr>
</tbody>
</table>
Table 4. Supported operating systems for endpoints (continued)

<table>
<thead>
<tr>
<th>Supported operating systems for endpoints</th>
<th>Version</th>
<th>DB2</th>
<th>Informix</th>
<th>Microsoft SQL Server</th>
<th>Oracle¹</th>
</tr>
</thead>
</table>

Notes:
1. Oracle must run in 32-bit or 64-bit mode for this product.
2. Oracle Enterprise/Standard Edition, Version 8.1.7 is supported
3. Oracle Enterprise/Standard Edition, Version 9i is supported
4. Informix Dynamic Server 7.31 only is supported
5. Does not include support of DB2 Extended Enterprise Edition (EEE)

Software requirements

This section lists the required and optional software for IBM Tivoli Monitoring for Databases. Table 5 lists required software. Table 6 on page 10 lists optional software.

The Installed by the product installer? column of the table indicates software that the installer automatically installs. If you perform a manual installation of the product, you must manually install each of these products and their patches.

If you use a previous release of Tivoli Manager for Oracle or Tivoli Manager for DB2, see “Migrating from previous Tivoli products” on page 2.

Table 5. Required software for IBM Tivoli Monitoring for Databases

<table>
<thead>
<tr>
<th>Required software</th>
<th>Release</th>
<th>Installed by the product installer?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tivoli Management Framework</td>
<td>3.7.1</td>
<td>Yes</td>
</tr>
<tr>
<td>The installer automatically detects an existing installation of Tivoli Management Framework, Version 3.7, Revision A or B, and upgrades it to the required Version 3.7.1. The installer also automatically installs all the required patches. [Table 19 on page 61] lists the patches that the installer deploys. If you have Tivoli Management Framework, Version 3.7.1, the installation is checked to ensure that the required patches are installed. If not, the installation is upgraded.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBM Tivoli Monitoring</td>
<td>5.1.1</td>
<td>Yes</td>
</tr>
<tr>
<td>Fix Pack 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note: The installer automatically installs Fix Pack 2. You must manually upgrade to Fix Pack 3. For DBCS support, install 5.1.1-ITM-0011E on Fix Pack 3. The installer automatically detects an existing installation of IBM Tivoli Monitoring, Version 4.1.x or Version 5.1.0, and upgrades it to the required Version 5.1.1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBM Tivoli Monitoring Component Services</td>
<td>5.1.0</td>
<td>Yes</td>
</tr>
<tr>
<td>Fix Pack 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5. Required software for IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>Required software</th>
<th>Release</th>
<th>Installed by the product installer?</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM Tivoli Monitoring for Databases</td>
<td>5.1.1</td>
<td>Yes</td>
</tr>
<tr>
<td>DB2</td>
<td>UDB 7.1, 7.2 WE EE, EEE 32-bit</td>
<td>No</td>
</tr>
<tr>
<td>Informix Dynamic Server</td>
<td>7.31, 9.21, 9.30</td>
<td>No</td>
</tr>
<tr>
<td>Microsoft SQL Server</td>
<td>7, 2000</td>
<td>No</td>
</tr>
<tr>
<td>Oracle</td>
<td>8.1.7.x, 9i</td>
<td>No</td>
</tr>
</tbody>
</table>

**To enable monitoring of Windows endpoints:**
Microsoft Windows Management Instrumentation (WMI). This software comes with Windows 2000. You must install it manually on Windows NT endpoints.

Search for “WMI” on the following Web site for more information: [http://msdn.microsoft.com](http://msdn.microsoft.com).

**Version 1.5 is recommended.**

**No**

**To enable endpoints:** Java Runtime Environment, Version 1.3.

1.3.0 or 1.3.1

Solaris endpoints must have Version 1.3.1-01

**No**

**To enable computers that run the Web Health Console:** Java Runtime Environment, Version 1.3.

1.3

**No**

**To enable logging of resource model data on Windows NT and Windows 2000 endpoints:** ODBC driver for Microsoft Access 2000.

If the endpoint does not have Microsoft Access 2000 installed:

1. Run the `mdac_typ.exe` file that is provided with Microsoft Data Access Components 2.1 (or later), at [http://www.microsoft.com/data](http://www.microsoft.com/data).

2. Install Jet 4.0 Service Pack 3.

See the information in the left column of this row.

**No**

Table 6. Optional software for IBM Tivoli Monitoring for Databases

<table>
<thead>
<tr>
<th>Optional software</th>
<th>Release</th>
<th>Installed by the product installer?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Health Console</td>
<td>11x</td>
<td>Yes</td>
</tr>
</tbody>
</table>

To run the Web Health Console on HP-UX, you must have HP-UX Version 11.x. The required Java Runtime Environment, Version 1.3 is not available for previous versions of HP-UX.

<table>
<thead>
<tr>
<th>Tivoli Enterprise Data Warehouse</th>
<th>1.1 or higher</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1-TDW-FP02 (TEDW 1.1 Fix Pack 2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6. Optional software for IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>Optional software</th>
<th>Release</th>
<th>Installed by the product installer?</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM DB2 Universal Database Enterprise Edition Version 7.2.</td>
<td>7.2</td>
<td>No</td>
</tr>
<tr>
<td>This software is required in the optional Tivoli Enterprise Data Warehouse.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DB2 requires the following patches are required for DB2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 1.1-TDW-0002 (required fixes to the version of DB2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tivoli Enterprise Console</td>
<td>3.7.1</td>
<td>No</td>
</tr>
<tr>
<td>The following patches are required: 3.7.1-TEC-0001 and 3.7.1-TEC-0004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tivoli Inventory</td>
<td>4.0</td>
<td>No</td>
</tr>
<tr>
<td>Tivoli Business Systems Manager</td>
<td>1.5 or 2.1</td>
<td>No</td>
</tr>
<tr>
<td>Version 1.5 requires the following patches:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• On the Tivoli Business Systems Manager server: 15-BSM-0024, 15-BSM-0029, and 15-BSM0035</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• On the Tivoli management region: 15-BSM-0032 and 15-BSM-0038</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tivoli Software Installation Service</td>
<td>3.6.1 or 3.7</td>
<td>No</td>
</tr>
<tr>
<td>Tivoli Data Protection enablement</td>
<td>5.15</td>
<td>No</td>
</tr>
<tr>
<td>To run the TDPFullBackup and TDPIncBackup tasks in IBM Tivoli Monitoring for Databases: Microsoft SQL Server, you must have the following software:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• IBM Tivoli Storage Manager Server, Version 4.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Does not need to be on the same machine as Data Protection for SQL and can run on any platform supported by IBM Tivoli Storage Manager Server.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• IBM Tivoli Storage Manager for Databases Data Protection for Microsoft SQL Server</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• IBM Tivoli Storage Manager Backup-Archive Client, Version 5.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Required only if the central scheduler service of the IBM Tivoli Storage Manager Backup-Archive Client is used. If so, the Backup-Archive Client must reside on the same machine as Data Protection for SQL.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBM Tivoli Storage Manager API, Version 5.1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For more information, see the Data Protection for Microsoft SQL Server Installation and User’s Guide.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Disk space requirements
This section lists the disk space requirements for installing the elements in the Tivoli environment.
### Table 7. Disk space requirements for installing the Tivoli environment

<table>
<thead>
<tr>
<th>Element</th>
<th>Disk space requirements</th>
</tr>
</thead>
</table>
| Tivoli management region server | • The product requires a minimum of 1.5 GB of disk space on the Tivoli management region server and on managed nodes.  
• Tivoli Management Framework and IBM Tivoli Monitoring: 500 MB.  
• The installation depot (temporary directory): 2.6 GB. (The installer provides the option to automatically delete this directory after installation.)  
**Note:** On Windows, the depot must reside on the target computer. You cannot perform an installation of the product on Windows using a depot that is located on a remote system. On UNIX, provide a directory path that is accessible from the installation computer to the installation depot.  
• Files that the installer places in the temporary ($TEMP$ or %TEMP%) directories that are defined for your operating system: 3 MB.  
**Additional Information:** Obtain the name of this directory by accessing the Tivoli command line environment (as described in “Accessing the Tivoli environment” on page 48) and entering this command: `wtemp`.  
• IBM Tivoli Monitoring for Databases: 200 to 300 MB. |
| Approximately 5 GB (including temporary installation files) |  |
| Managed node             | • Tivoli Management Framework and IBM Tivoli Monitoring: 500 MB  
(Includes the space required by the gateway software that enables the managed node to communicate with an endpoint.)  
• IBM Tivoli Monitoring for Databases: 200 to 300 MB. |
| Approximately 1 GB        |  |
| Endpoint                 | • The endpoint daemon for Tivoli Management Framework: 2 MB.  
• The Java Runtime Environment, Version 1.3.0, requires 75 MB of disk space. The Java Runtime Environment is required on all endpoints for this product.  
**Note:** Disk space size varies depending on the number of resource models pushed to the endpoint, and whether logging is enabled. 100 MB is an approximation. |
| Approximately 100 MB      |  |
| Web Health Console       | You can install the Web Health Console on the Tivoli management region server and any other computers in the same network that match the following minimum requirements:  
• The Web Health Console application requires 250 MB of disk space and 400 MB of RAM.  
• The installation depot (temporary directory): 500 MB.  
• Files that the installer places in the temporary ($TEMP$ or %TEMP%) directories that are defined for your operating system: 100 MB.  
**Additional Information:** Obtain the name of this directory by accessing the Tivoli command line environment (as described in “Accessing the Tivoli environment” on page 48) and entering this command: `wtemp`.  
• The Java Runtime Environment, Version 1.3.0, requires 75 MB of disk space. The Java Runtime Environment is required on all endpoints for this product and is required on any computer that runs the Web Health Console. |
| (Optional) 1 GB (including temporary installation files) |  |

### Permissions and privileges requirements

You must have the following key, permissions, and privileges to install the product:

• The license key for Tivoli Management Framework. Obtain this key in the printed document that comes with the installation CDs for the Tivoli Management Framework.
• On UNIX, the user who installs the product must have root privileges. On
Windows, the user who installs the product must have membership in the
Administrators group. Tivoli recommends that you log on as root on UNIX and
Administrator on Windows.
• A valid host name for all managed nodes and endpoints you create. Specify the
unique domain name for the host name when multiple computers in the system
have the same host name. For example, the fully qualified name of the tokyo
computer might be tokyo.sales.mycompany.com, where sales is the domain
name of the Sales Department’s domain at the company mycompany. The full
name distinguishes the Sales Department’s server from a tokyo server in the
marketing domain called tokyo.marketing.mycompany.com.

Language requirements
After you complete the installation, you can enable other languages in the product.
See “Installing IBM Tivoli Language Support for this product” on page 74 for
procedures regarding installing the product in these national languages: Brazilian
Portuguese, Chinese (simplified), Chinese (traditional), French, German, Italian,
Japanese, Korean, and Spanish.

Endpoint TCP/IP requirements
Before or after you load the endpoint software, you must activate the TCP/IP
communication protocol servers to enable communication with the Tivoli server.
See the documentation for the server software that runs on your systems for
instructions on enabling TCP/IP on a database server.

Preparing for installation
Before installing the product, you should perform the following procedures:
• Back up your Tivoli environment
• Handle security across firewalls
• Verify that required software is running
• Understand automatic upgrades
• Complete installation planning sheets

Back up and restoring Tivoli databases

Objective
To back up existing Tivoli object databases for all machines in the Tivoli
management region so you can use these backup copies to restore them to a
known working state if you encounter a problem during installation.

Background information

Note: This procedure describes a routine backup method that you can use
frequently. In addition to this backup, you should arrange a complete
backup of Tivoli whenever you make significant changes to the system, such
as the installation of this product. If you encounter a problem during a
change operation, you can use the system backup to restore the entire Tivoli
environment to a known working state.

This procedure provides a stable and complete snapshot of the Tivoli database and
related files and a safer alternative to manually compressing the database files in a
.tar or .zip format. For example, when you save a database to a .tar or .zip file, an error might occur if the Tivoli object dispatcher is simultaneously writing to the Tivoli database.

This procedure also enables you to estimate the size of the backup files to ensure that you have sufficient disk space in the target directory to complete the operation.

You back up or restore databases using the wbkupdb command. In a large Tivoli management region, the wbkupdb process can take a long time because backups of the managed node databases are performed serially. Concurrent backup processes are not allowed in the same Tivoli management region. You must complete one wbkupdb command before you execute a second instance of the command.

The Tivoli Management Framework must be running on the Tivoli management region server and on the managed node whose database is being restored. Otherwise, the wbkupdb command cannot restore any database (managed node or Tivoli management region server). See the Tivoli Management Framework Reference Guide for a description of all the capabilities of the wbkupdb command.

**Required authorization role**
backup or super

**Before you begin**
You must have a valid user login name and a group name for the computer on which the backup file is stored.

On UNIX, set umask to 022 for root.

**When you finish**
None

**Procedure**
You can perform backups in the Tivoli desktop or in the command line interface.

You can perform restore operations in the command line interface only.

**Command line:** Use the wbkupdb command for backups and restore operations. See the Tivoli Management Framework Reference Manual for complete information on syntax options.

`wbkupdb [-d device] [-r ] [node_name ...]`

where:

- **-d device**
  Specifies the file or device to which the backup file is saved or from which the backup file is retrieved. If you specify a file name with this option, you can insert a file date and time anywhere in the file name by adding the variable %t. The variable is replaced with a date/time stamp in the form Mondd-hhmm. For example, if you specify `-d /usr/backups/TMR1%t.bk`, the resulting file is named TMR1Dec21-0955.bk. The time is displayed in 24-hour mode.

- **-r**
  Restores the databases for the specified nodes.

- **node_name**
  Specifies the node to be backed up. You can specify multiple nodes.
See the description of the `wbkupdb` command in the *Tivoli Management Framework Reference Manual* for more options.

**Examples:** The following example backs up the Tivoli databases for all managed nodes in the Tivoli management region from which the `wbkupdb` command is run. The backups are written to the user-defined file `/usr/backups/TMR1.bk`.

```
wbkupdb -d /usr/backups/TMR1.bk
```

The following example backs up the database of a single managed node, `sherman`. Use the `wchkdb` command to determine the names of databases that exist in the Tivoli management region. In this example, the backup file is saved to the default location, which is the `backups` directory in the Tivoli database directory. The `backups` directory is created if it does not exist when you run the `wbkupdb` command.

```
wbkupdb sherman
```

The following example restores a single managed node, `sherman`. The `-r` flag restores the backed up database on `sherman`. The `-d` flag identifies `/usr/backups/TMR1.bk` as the backup file to restore.

```
wbkupdb -r -d /usr/backups/TMR1.bk sherman
```

**Tivoli desktop:**

**Note:** The default directory to which backup files are written has root write permissions only. If you cannot log in as the root administrator, you must change the location of the backup file to a directory for which you have write access.

1. Select **Backup** from the **Desktop** menu to display the Backup Tivoli Management Region window.
2. Select one or more managed nodes from the **Available managed nodes** scrolling list.
3. Click the left-arrow button to move them to the **Backup these managed nodes** area.
4. Type the name of the managed node on which the backup image or device is located in the **Save image on node** field.
5. Type the full path name for the backup file in the **Device/File** field.
6. Click **Estimate Backup Size** to see the estimated backup size required for each managed node. Be sure that sufficient disk space exists for the target directory.
7. Click **Close** to display the Backup Tivoli Management Region window.
8. Click **Start Backup** to display the Backup Status window and begin backup operation.
9. Click **Close** to close the Backup Tivoli Management Region window and display the Desktop window.

**Handling security across firewalls**

Tivoli Management Framework, Version 3.7.1, enables security across firewalls for IBM Tivoli Monitoring for Databases. To protect privacy and data integrity, you can choose options such as Bulk Data Transfer (BDT) proxy mechanism, Secure Socket Layer 3 (SSL3) encryption support or the features of the Tivoli Management Framework Firewall Security Toolbox.

Firewalls often restrict communication by ports, by protocols, and by direction. For example, a firewall might allow communications from the Internet using port 80.
and the HTTP protocol. Tivoli Management Framework works with a company’s firewall security requirements to provide the following features:

- Limits the ports used for Tivoli management communications
- Uses Tivoli relay functions to navigate across multiple security zones
- Limits Tivoli communications to unidirectional transactions

The following table lists the security features available for Tivoli Management Framework and where to obtain the features:

<table>
<thead>
<tr>
<th>Security feature</th>
<th>Where to obtain it</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Port Bulk Data Transfer</td>
<td>Included in the version of Tivoli Management Framework that ships with this product. See the Tivoli Management Framework documentation for further information.</td>
<td>Consolidates communications between servers and gateways to a single port. For example, this feature can consolidate software distribution transactions to a single port.</td>
</tr>
<tr>
<td>Endpoint Upcall Port Consolidation</td>
<td>Included in the version of Tivoli Management Framework that ships with this product. See the Tivoli Management Framework documentation for further information.</td>
<td>Channels all communication between an endpoint and its gateway through the listening port of the endpoint’s enabling software, the Tivoli management agent. Without this feature, Tivoli uses multiple ports for some transactions, including dynamically allocated ports, which are especially difficult to secure.</td>
</tr>
</tbody>
</table>
  - Endpoint and gateway proxies to consolidate communication between multiple endpoints and gateways into a single port using a TCP protocol.
  - Use of multiple relay functions to safely pass Tivoli information through a series of firewall sectors called Demilitarized Zones (DMZs).
  - Unidirectional communication that stores endpoint data at a proxy gateway outside a firewall until the original gateway calls for the data at scheduled intervals. You locate the original gateway inside a firewall so that the call transactions for Tivoli always originate from the more secure side of the network.
  - Event Sink for collecting events on an endpoint outside a firewall. A Tivoli Enterprise Console server inside a firewall can poll the Event Sink and capture the events as Tivoli events, even events that have originated from computers that are not part of the Tivoli environment. |

For further information on security and firewall issues, refer to the following documentation:

- *Tivoli Enterprise Management across Firewalls*, Redbook number: SG24-5510-01
  Provides background information and includes scenarios that refer to IBM Tivoli Monitoring.
- *Tivoli Firewall Magic*, Redpaper number: REDP0227
  Provides an overview of firewall features in the Tivoli Management Framework.
- *Tivoli Management Framework: Release Notes, Version 3.7.1*, GI11-0836-00
  Provides information about security and new command options.
Provides information about Secure Sockets Layer Data Encryption.

  Describes security capabilities of the Web Health Console. This console runs independently from the Tivoli Management Framework and has unique mechanisms for communicating with the other components across or within a firewall. See the Enabling Secure Socket Layer Support for the Web Health Console topic for more information.

**Verifying that required software is running**

Confirm that the software required to enable Tivoli transactions is running on the remote target computers configured during installation. One of the following basic execution daemons must be running on managed nodes and endpoints to enable Tivoli transactions:

- For installation on UNIX target computers, test the *rexecd* daemon.
- For installation on Windows target computers, test the Tivoli Remote Execution Service (TRIP) process.

From a command line, do the following:

1. Run an *rexec* command string against the target computer.
   
   *Additional Information:* The *rexec* command runs commands on remote hosts that are running the *rexec* service. For example, run one of the following commands:
   
   **Unix:**
   
   `rexec <target_computer_name> echo test`
   
   **Windows:**
   
   `rexec <target_computer_name> cmd /c echo test`
   
   2. Respond to the prompt for a user ID and password by typing the ID and password (For UNIX ID, use *root*. For Windows ID, use *Administrator*).
   
   *Additional Information:* An unsuccessful command returns either an error (for example, an authentication error), a notice that the server is down, or a notice that *rexec* failed to run. Do not continue installing this product until you can enable the *rexec* daemon accessible on the target computer.

   Do not continue installing this product on a Windows system until you complete these steps:
   
   a. Log on to the target computer on which you want to confirm that the Tivoli Remote Execution Service exists.
   
   b. Access the **Services** user interface in the Windows control panel.
   
   c. Find the Tivoli Remote Execution Service in the **Services** list and perform one of the following actions:
      
      - If this service exists and the status is **Stopped**, click **Start**.

      —OR—

      - If this service exists and the status is **Started**, resolve firewall blocks or other network connectivity problems between this computer and the computer on which you are installing IBM Tivoli Monitoring. For example, you can increase access privileges to resolve some types communication failure.

      —OR—
If this service does not exist, run the `setup.exe` executable in the **TRIP** directory of the software installation CD for Tivoli Management Framework. Follow the instructions in the panels of the installation wizard for this service.

**Understanding automatic upgrades**

The installer automatically detects an existing installation of Tivoli Management Framework, Version 3.7, Revision A or B, and upgrades it to the required Version 3.7.1. It also installs the required patches. The Tivoli Management Framework software CDs that come with IBM Tivoli Monitoring for Databases contain the Tivoli Management Framework documentation. Chapter 6, “Installing the product manually from an existing Tivoli environment”, on page 47 describes how to install upgrade software through the Tivoli desktop or the command line interface when you do not want to use the installer.

The installer automatically detects an existing installation of IBM Tivoli Monitoring, Version 4.1.x or Version 5.1.0, and upgrades it to the required Version 5.1.1.

The installer automatically detects an existing installation of Tivoli Monitoring for DB2 and Oracle products and upgrades them to Version 5.1.0 of IBM Tivoli Monitoring for Databases. IBM Tivoli Monitoring for Databases, Version 5.1.0: IBM Informix is a separate product and co-exists side-by-side with the prior product, Tivoli Monitoring for Informix, Version 1.0.

Chapter 8, “Mapping monitors to resource models”, on page 83 describes how to map Tivoli monitors from previous versions of monitoring products to resource models.

**Completing installation planning sheets**

A planning.html planning sheet exists in the root directory of the documentation CD for IBM Tivoli Monitoring for Databases. Use the planning sheet to plan the installation of IBM Tivoli Monitoring for Databases. You can open this .html file in an HTML editor, a word processor, or a spreadsheet application and type the values for your installation plan. You can also photocopy the sheets in this document or print the sheets from the PDF version of this document and complete them by hand.

The following table describes the managed resources that each planning sheet references:

<table>
<thead>
<tr>
<th>Managed resource</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| Managed nodes    | Create managed nodes on servers to supplement the Tivoli management region server. A managed node runs the same software that runs on a Tivoli server. It communicates with other managed nodes and helps the Tivoli server manage endpoints. Managed nodes offer the following benefits:  
  • Managed nodes share the processing burden of the Tivoli server. The Tivoli server works more efficiently because it performs fewer management and user administration operations.  
  • Tivoli network transactions flow to multiple servers, not just the Tivoli server. |
<table>
<thead>
<tr>
<th>Managed resource</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gateways</td>
<td>Create gateways on managed nodes. Gateways enable managed nodes to perform endpoint management operations on behalf of the Tivoli management region server. Gateways transfer data to endpoints more efficiently. By default, the maximum amount of memory to use for storing transient data is set to 10 MB. Always enable managed nodes for IBM Tivoli Monitoring for Databases as gateways so that they can perform endpoint management operations. When you use the Typical path in the installer for this product, the installer automatically establishes gateways on the managed nodes you create during installation. Be sure to create gateways on managed nodes that you create during a Custom installation or during an installation through an existing Tivoli environment.</td>
</tr>
<tr>
<td>Endpoints</td>
<td>Create endpoints on the computers that you want to manage. Endpoints communicate with the Tivoli management region through a specific gateway on a managed node.</td>
</tr>
<tr>
<td>Proxy managed nodes</td>
<td><strong>When to use:</strong> Proxy managed nodes improve management of applications that have multiple objects, such as database instances in a database application. When you monitor and manage multiple objects on a single endpoint, you can use a proxy managed node to store unique information about each object. For example, multiple database objects can exist on a single endpoint. The Tivoli management region server must have information to identify each database object, such as the name of the database and the password for the database. <strong>When not to use:</strong> You do not need a proxy managed node if the servers in the Tivoli environment do not need to store unique information about multiple objects on a single endpoint. For example, in some cases only one managed object exists on a single endpoint. If you manage server objects for messaging products like Lotus Domino or Microsoft Exchange, the managed object is the server itself. The Tivoli endpoint that runs on the server and the server object together supply complete information for the Tivoli server. No proxy managed node is required because there is only one managed server object on the endpoint. Remember that even if a database object exists alone on an endpoint, it has unique identifiers and possibly a password that enables co-existence with other objects. The Tivoli server must have this information. You must store this information on a gateway or consider storing it on a proxy managed node. <strong>Benefits:</strong> Proxy managed nodes are optional, but can add efficiency to the Tivoli environment. Depending on its power and location in the network, the proxy node can enable the Tivoli server to access information it needs more efficiently. The node also enables the Tivoli server to restore operations quicker when a gateway server shuts down temporarily. By default, Tivoli stores unique information about managed objects on the gateway. When the managed node that contains this gateway is geographically remote from the Tivoli server, the connection to the gateway can be lost. Tivoli enables transfer of operations to an alternate gateway when a server goes down. However, that alternate gateway does not contain the unique information on managed objects that is required for operations that affect specific managed objects. In this case, execution of these operations must wait until the original gateway returns to service. <strong>Optimizing a proxy managed node:</strong> When you want to ensure that the Tivoli server maintains access to unique information on managed objects, create a proxy managed node on a computer that has optimal network connectivity with the Tivoli server. For example, if an endpoint gateway server is geographically remote from the Tivoli server, local network connectivity might be faster and more stable than remote connectivity. If so, create a proxy managed node at the same geographic site as the Tivoli server. See the user’s guide for the product for details on creating a proxy managed node.</td>
</tr>
</tbody>
</table>

Use the following planning sheets to compile the information you need during installation:
- Planning sheet for creating managed nodes in [Table 10 on page 21](#)
- Planning sheet for creating endpoints in Table 11 on page 22
- Planning sheet for creating proxy managed nodes in Table 12 on page 23
**Table 10. Planning sheet for creating managed nodes**

**Key Concept:** One managed node must exist in a Tivoli management region. This principal managed node is called the Tivoli management region server.

<table>
<thead>
<tr>
<th>Host name</th>
<th>Gateway name *</th>
<th>Platform</th>
<th>User name</th>
<th>Password</th>
<th>Destination of installation files</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example: vision03</td>
<td>Example: vision03_gw</td>
<td>Example: Solaris</td>
<td>Example: root</td>
<td>—</td>
<td>Example: /data/mynode</td>
</tr>
</tbody>
</table>

* This name can include alphanumeric characters, underscores (_), hyphens (-), and periods (.). The names are case-sensitive. For example, the name MNName is different from mnname.

** You must create a gateway on all managed nodes for this product. A gateway enables the managed node to communicate with endpoints.

In a Typical installation, the installer automatically creates a gateway on every managed node that you create. The installer creates a unique name for these gateways by adding the **gateway** suffix to the host name. In a Custom installation, you can use any unique naming convention for the gateways that you create.
An endpoint is a computer on which Tivoli software is installed to enable communication with the Tivoli management region server.

<table>
<thead>
<tr>
<th>Host name</th>
<th>Endpoint name *</th>
<th>Platform</th>
<th>User name</th>
<th>Password</th>
<th>Destination of installation files</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of the target computer in the network</td>
<td>Name you assign to the endpoint</td>
<td>Operating system of the endpoint</td>
<td>root or Administrator</td>
<td>Password of the user on the server</td>
<td>Path on the target computer for installation of the product</td>
</tr>
<tr>
<td>Example: vision03</td>
<td>Example: vision03_ep</td>
<td>Example: Solaris</td>
<td>Example: root</td>
<td>—</td>
<td>Example: /data/mynode</td>
</tr>
</tbody>
</table>

* This name can include alphanumeric characters, underscores (_), hyphens (-), and periods (.). The names are case-sensitive. For example, the name EPName is different from epname.
Proxy managed nodes improve management of applications that have multiple objects, such as database instances in a database application.

<table>
<thead>
<tr>
<th><strong>Host name</strong></th>
<th><strong>Managed node name</strong></th>
<th><strong>Endpoint name</strong></th>
<th><strong>Managed object name</strong></th>
<th><strong>Object type</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of the target computer in the network</td>
<td>Name of the managed node you use as proxy</td>
<td>The endpoint where one or more database instance exists</td>
<td>Name of the managed object on the managed node</td>
<td>Type of object associated with the proxy server</td>
</tr>
<tr>
<td>Example: my_host</td>
<td>Example: my_host_mn</td>
<td>—</td>
<td>Example: my_database@my_endpoint</td>
<td>Example: Oracle 9i</td>
</tr>
</tbody>
</table>

* This name can include alphanumeric characters, underscores (_), hyphens (-), and periods (.). The names are case-sensitive. For example, the name MNName is different from MNNname.
Retrieving the installation files

You can obtain the necessary installation files from either installation CDs or electronic download. This section describes the two options for obtaining the installation files.

Retrieving the installation files on CDs

You need to have the following CDs before beginning installation:
- IBM Tivoli Monitoring for Databases Version 5.1.0 – Installation Disk 2
- Tivoli Management Framework with AIX 5.1 Support, Version 3.7, Revision B
- Tivoli Management Framework, Upgrade from Version 3.7, Revision B to Version 3.7.1
- IBM Tivoli Monitoring, Version 5.1.1
- IBM Tivoli Monitoring Web Health Console for Windows, Linux, Version 5.1

Retrieving the installation files by download

Passport Advantage is an IBM licensing program for distributed software. You can download installation files from Passport Advantage if you enroll in the program. Upon enrolling, you are assigned a user name and password with which to access the software files to which you are entitled.

You can access Passport Advantage at the following website:


All downloadable parts of IBM Tivoli Monitoring for Databases are self-extracting archives. You can log into Passport Advantage with your assigned user name and password and download any required and optional parts.

The following table outlines the available electronic files to download. Each part is a self-extracting archive. Extract each part into the same temporary directory. After download, follow the directions for either a Typical or Evaluation installation.

<table>
<thead>
<tr>
<th>Electronic file to download</th>
<th>What is included in the download</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tivoli Monitoring for Databases V5.1 eASSY (AP only) Multi Int Engl Japan Korea Simp Chin Trad Chin</td>
<td>Contains the same content as the media kit, including all prerequisite, required, and optional software. This eAssembly file includes 31 images.</td>
</tr>
<tr>
<td>Tivoli Monitoring for Databases V5.1 eASSY (non-AP only) Multi Int Engl Braz Port French Italian German Spanish</td>
<td>Contains the same content as the media kit, including all prerequisite, required, and optional software. This eAssembly file includes 31 images.</td>
</tr>
<tr>
<td>Electronic file to download</td>
<td>What is included in the download</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
Chapter 4. Performing a Typical installation

This chapter describes how to perform a Typical installation. This installation option creates a Tivoli server and installs IBM Tivoli Monitoring Version 5.1.1. During a Typical installation, you can specify:

- Additional computers to configure as Tivoli servers that run the IBM Tivoli Monitoring Version 5.1.1 software. These servers can share the workload with the principal Tivoli server.
- Computers that you want to monitor.
- Computers on which you want to install the Web Health Console.

**Objective**

To use an installation wizard with predefined default values to automatically create a Tivoli environment and install IBM Tivoli Monitoring for Databases. The wizard optionally creates managed resources in the Tivoli environment, as described in this procedure.

**Note:** You can perform an Evaluation installation if you want to install a simple Tivoli environment and IBM Tivoli Monitoring for Databases on one computer so you can test and evaluate the product. See “Performing an Evaluation installation”, on page 37 for instructions.

**Background information**

The target computer, which becomes the Tivoli management region server, must match one of the following profiles:

- Has no software installed for the Tivoli Management Framework.
  - OR -
  - Has Tivoli Management Framework, Version 3.7, Revision A or Revision B, installed.
  - OR -
  - Has Tivoli Management Framework, Version 3.7.1, installed but does not have the required patches.

Tivoli recommends that you close all other applications during an installation. For Windows installations, the installer requires that you restart the computer.

When you are installing a Tivoli management region server on a Windows operating system, the installer automatically creates the Windows proxy endpoint so you can create Windows endpoints in the domain of the Tivoli management region server.

You can also create managed nodes after installation.

**Details of the Step List panel of the installer**

“Background information” on page 109 describes the status icons and buttons of the Step List panel.
Required authorization
On UNIX, the user who installs the product must have root privileges. On Windows, the user who installs the product must have membership in the Administrators group.

Before you begin
See "Goals for planning and preparing for installation" in Table 1 on page 5 for a checklist of activities prior to installation.

When you finish
Complete the activities described in Chapter 7, “Completing the installation of the product”, on page 65

Procedure

Note: For the following steps, the term, "Tivoli server," is used to refer to a managed node. In addition, the phrase, "a computer to monitor," is used to refer to an endpoint.

1. Log on to the computer that you want to be the main Tivoli server for the Tivoli management region.

2. Run the setup executable in the root directory of the installation CD labeled IBM Tivoli Monitoring for Databases, Version 5.1.1: Installation to launch the IBM Tivoli Monitoring for Databases installer:
   - For Windows, run setupDB.bat
   - For UNIX, run ./setupDB.sh

3. Click Next to display the license agreement.
   Additional Information: When you click Cancel in an installer panel, you stop the installation. After you cancel the installation, delete the temporary depot directory that the installer creates. The depot directory contains all the files required for installation. After the installation is complete, the installer provides an option to automatically delete this directory.

4. Select I accept the terms in the license agreement and click Next to display a third-party license terms window.

5. Click Next to display a window to set the target directory for installation.

6. Specify the directory path where you want to install the product and click Next to display a depot directory window.
   Additional Information: This prompt does not display if you are installing the product into an existing Tivoli management region.

7. Specify the directory path where you want to create a depot (temporary directory) for product installation.
   Note: On Windows, the depot must reside on the target computer. You cannot perform an installation of the product on Windows using a depot that is located on a remote system. On UNIX, provide a directory path that is accessible from the installation computer to the installation depot (temporary directory).

8. Click Next when the installer prompts you to restart the application and continue the installation.

9. Click OK in the Discovery Complete message box.
   Additional Information: If the discovery process fails, the installation terminates. Make sure proper network communications are established between
computers. If necessary, click Change in the Detail dialog box to provide a new, valid login and password. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask customer support to help you resolve the problem.

10. Click Next to display the installation option panel.

![Typical Installation: Typical option panel](image)

Figure 2. Typical Installation: Typical option panel

11. Select the Typical option and click Next to display the Tivoli server option window.
Additional Information: A Tivoli server is also known as a managed node.

12. (Optional) Click Add to create additional Tivoli servers through the Add a Computer window.

13. (Optional) Follow these steps to add Tivoli servers:
   a. Specify values for the managed node in the fields of the Basic tab:
      • **Host Name** — Type the fully qualified host name for the computer which will be a Tivoli server. For example, the fully qualified host name for tokyo might be tokyo.sales.mycompany.com.
      • **Platform** — Click the drop-down list and select the name of the operating system on the host computer.
      • **User** — Type the login user ID of the person who performs the installation on the Tivoli server. Tivoli recommends that you use Administrator for Windows platforms, and root for UNIX platforms.
      • **Password** and **Verify Password** — Type the login password of the user specified in the User field.
   b. Click the Advanced tab.
Specify values in the fields of the **Advanced** tab.

- **Destination** — (Optional) Type a directory path on the target machine where you want to install the Tivoli software. Otherwise, Tivoli uses the default path specification.
- **Gateway** — Select this check box to designate the host computer as a gateway.

c. Click **OK** to save your settings and return to the installer.

14. Select the check boxes of any product or products that you want to install.

15. Click **Next** to display a list of Tivoli servers on which you can install the product or products.

16. Select the check boxes of the Tivoli servers on which you want to install the product or products.

17. Click **Next** to display the window in which you select computers to monitor.

   Additional Information: The phrase, "computers to monitor," is used to refer to endpoints.

18. (Optional) Click **Add** to add computers to monitor in the Add a Computer window.

   **Note:** You can also create specify computers to monitor after installation, as described in “Installing endpoints through an existing Tivoli environment” on page 53.

19. (Optional) Follow these steps to add a computer to monitor:

   a. Specify values in the fields of the **Basic** tab:
      - **Host Name** — Type the fully qualified host name for the computer to monitor. For example, the fully qualified host name for **tokyo** might be **tokyo.sales.mycompany.com**.
      - **Label** — Type the label for the computer to monitor.
      - **Platform** — Click the drop-down list and select the name of the operating system on the computer to monitor.
      - **User** — Type the login user ID of the person who can access the computer to monitor. Tivoli recommends that you use **Administrator** for Windows platforms, and **root** for UNIX platforms.
      - **Password** and **Verify Password** — Type the login password of the user specified in the **User** field.

   b. Click the **Advanced** tab.
      Specify values in the fields of the **Advanced** tab.
      - **Port** — Type the port number of the computer to monitor.
      - **Destination** — Type the path of the computer to monitor.
c. Click OK to save your settings and return to the installer.

20. **(Optional)** Do the following to install the Web Health Console in the Web Health Console option window:

![Web Health Console installation window](image)

a. Select the check box next to computers on which you want to install the Web Health Console.

   *Additional Information:* If the Web Health Console is already installed, do not place a check mark here. Otherwise, the console is installed again because the installer cannot detect previous installations of the console.

b. Click Next to display the Web Health Console user name and password window.

c. Click Edit to open the Web Health Console Configuration window.

d. Specify the user name in the **User ID** field.

e. Specify the corresponding password to the user name in the **Password** and **Verify Password** fields.

f. Click OK to close the Web Health Console Configuration window.

g. Click Next to save the Web Health Console information and display the next screen.

21. Do one of the following:
   - Click Next to continue with the installation.
   - OR—
   - Click Back to edit the previous screens.

22. Click Next to display a series of panels in which you specify the path for software.

   *Additional Information:* You specify the path to the installation CDs that contain the software listed in the following table. Type a directory path or click **Browse** to specify the path to CD.

   **Note:** The installer also prompts you for Language Support CDs, if you specified a language support option earlier in the installation process.
Table 14. Software locations on installation CDs

<table>
<thead>
<tr>
<th>Software to install</th>
<th>CD on which software is located</th>
</tr>
</thead>
</table>
If you chose to create Linux endpoints earlier in the installation process, the installer also prompts you for the CD that contains the Tier 2 version of this software. |
| 2. Version 3.7.1 of the Tivoli Management Framework       | Tivoli Management Framework Upgrade from 3.7 to 3.7.1                |
| 3. IBM Tivoli Monitoring software                        | IBM Tivoli Monitoring V5.1.1                                          |
| 4. IBM Tivoli Monitoring for Databases                    | IBM Tivoli Monitoring for Databases, Version 5.1.0: DB2 Component Software  
IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix Component Software  
IBM Tivoli Monitoring for Databases, Version 5.1.1: Microsoft SQL Server Component Software  
IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle Component Software  
Depending on your choice of products earlier in the installation process, the installer might prompt you for multiple Component Software CDs. |
| 5. IBM Tivoli Monitoring Web Health Console               | IBM Tivoli Monitoring for Databases, Version 5.1.1: Installation       |

23. Click Next to access the Step List panel of the installer.

Additional Information: The Step List shows the software components that the installer installs, and it displays status updates for the installation process. See “Troubleshooting installer problems” on page 109 for a description of status icons and buttons in the Step List panel.
24. *(Optional)* If you want to cancel the installation while the Step List is running, perform the following steps:
   
a. Click **Stop** and allow the currently running process to finish.  
   
   Additional Information: If you click **Cancel** without allowing the currently running process to finish, the system might remain in an unpredictable state.

b. Click **Cancel** to stop the installation and close the installer.

c. Delete the temporary depot directory created by the installer.

25. As needed, see “Troubleshooting installer problems” on page 109 for information on working around or resolving the following types of problems in the installer:
   
   - Errors
   - Invalid user names and password for target computers
   - Deferred steps
   - Failed steps

26. *(Optional)* Double-click any item in the list to see details and to set processing instructions for that step in the Details window. Table 29 on page 110 describes the status icons and buttons of the Details window.

   Additional Information: The installer automatically enables you to create Windows endpoints. However, this capability exists only when you are installing the Tivoli management region server on a Windows operating system. In UNIX-based installations, you must manually enable installation of Windows endpoints while the Step List is running, as described in “Manually creating a Windows proxy endpoint” on page 42.

27. Click **Run All** to begin running the Step List.

28. Click **OK** in the final prompt of the Step List.
Additional Information: This final prompt is displayed when all steps in the Step List show a “Passed” status. If all steps do not show a Passed status, see “Troubleshooting installer problems” on page 109 for troubleshooting information.

29. Click Next.

30. Select one of the following options:
   - **Delete the temporary files.** Select this option to delete the directory of temporary installation files that you specified in at the beginning of the installation process.
     —OR—
   - **Do not delete the temporary files.** Select this option to keep the temporary files. You can manually delete the files at any time.

31. Click Next.

32. Click Finish.
Chapter 5. Performing an Evaluation installation

This chapter describes how to perform an Evaluation installation. Table 15 provides an overview of the topics covered in this chapter.

Table 15. Guidelines for an Evaluation installation

<table>
<thead>
<tr>
<th>Goal</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install an Evaluation version of the product using the Evaluation installation option.</td>
<td>“Installing IBM Tivoli Monitoring for Databases Evaluation”</td>
</tr>
<tr>
<td>Create a proxy endpoint on a UNIX-based Tivoli management region server to enable the creation of Windows endpoints.</td>
<td>“Manually creating a Windows proxy endpoint” on page 42</td>
</tr>
</tbody>
</table>

Installing IBM Tivoli Monitoring for Databases Evaluation

Objective
To use a simple Tivoli environment and IBM Tivoli Monitoring for Databases so you can test and evaluate the product.

Background information
The target computer, which becomes the Tivoli management region server, must match one of the following profiles:

- Has no software installed for the Tivoli Management Framework.
- OR—
- Has Tivoli Management Framework, Version 3.7, Revision A or Revision B, installed.
- OR—
- Has Tivoli Management Framework, Version 3.7.1, installed but does not have the required patches.

Tivoli recommends that you close all other applications during an installation. For Windows installations, the installer requires that you restart the computer.

When you are installing a Tivoli management region server on a Windows operating system, the installer automatically creates the Windows proxy endpoint so you can create Windows endpoints in the domain of the Tivoli management region server. When you are installing the Tivoli management region server on a UNIX-based operating system and you want to create Windows endpoints, see “Manually creating a Windows proxy endpoint” on page 42

Details of the Step List panel of the installer: “Background information” on page 109 describes the status icons and buttons of the Step List panel in the installer.

Required authorization
On UNIX, the user who installs the product must have root privileges. On Windows, the user who installs the product must have membership in the Administrators group.
Before you begin
See “Goals for planning and preparing for installation” in Table 1 on page 5 for a checklist of activities prior to installation.

When you finish
Complete the activities described in Chapter 7, “Completing the installation of the product”, on page 65.

Procedure

1. Log on to the computer that you want to be the main Tivoli server for the Tivoli management region.

2. Run the setup executable in the root directory of the installation CD labeled IBM Tivoli Monitoring for Databases, Version 5.1.1: Installation to launch the IBM Tivoli Monitoring for Databases installer:
   - For Windows, run setupDB.bat
   - For UNIX, run ./setupDB.sh

3. Click Next to display the license agreement.
   Additional Information: When you click Cancel in an installer panel, you stop the installation. After you cancel the installation, delete the temporary depot directory that the installer creates. The depot directory contains all the files required for installation. After the installation is complete, the installer provides an option to automatically delete this directory.

4. Select I accept the terms in the license agreement and click Next to display a third-party license terms window.

5. Click Next to display a window to set the target directory for installation.

6. Specify the directory path where you want to install the product and click Next to display a depot directory window.
   Additional Information: This prompt does not display if you are installing the product into an existing Tivoli management region.

7. Specify the directory path where you want to create a depot (temporary directory) for product installation.
   Note: On Windows, the depot must reside on the target computer. You cannot perform an installation of the product on Windows using a depot that is located on a remote system. On UNIX, provide a directory path that is accessible from the installation computer to the installation depot (temporary directory).

8. Click Next when the installer prompts you to restart the the application and continue the installation.

9. Click OK in the Discovery Complete message box.
   Additional Information: If the discovery process fails, the installation terminates. Make sure proper network communications are established between computers. If necessary, click Change in the Detail dialog box to provide a new, valid login and password. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask customer support to help you resolve the problem.

10. Click Next to display the installation option panel.
11. Select the **Evaluation/Product Demonstration** option and click **Next** to display the language option window.

12. Select the check box next to any language you want to install.

13. Click **Next** to display the user password window.
14. Type the corresponding password to the user specified in the Password and Verify Password fields.

15. Click Next to display the component option window.

16. Select the check box of any of the following database component you want to install: DB2, Informix, Oracle or MSSQL.

17. Click Next to display a series of panels in which you specify the path for software.

   **Additional Information:** You specify the path to the installation CDs that contain the software listed in the following table. Type a directory path or click Browse to specify the path to CD.

   **Note:** The installer also prompts you for Language Support CDs, if you specified a language support option earlier in the installation process.

   **Table 16. Software locations on installation CDs**

<table>
<thead>
<tr>
<th>Software to install</th>
<th>CD on which software is located</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Version 3.7, Revision B, of the Tivoli Management Framework</td>
<td><em>Tivoli Management Framework V 3.7, Revision B</em>&lt;br&gt;If you chose to create Linux endpoints earlier in the installation process, the installer also prompts you for the CD that contains the Tier 2 version of this software.</td>
</tr>
<tr>
<td>2. Version 3.7.1 of the Tivoli Management Framework</td>
<td><em>Tivoli Management Framework Upgrade from 3.7 to 3.7.1</em></td>
</tr>
<tr>
<td>3. IBM Tivoli Monitoring software</td>
<td><em>IBM Tivoli Monitoring V5.1.1</em></td>
</tr>
</tbody>
</table>
Table 16. Software locations on installation CDs (continued)

<table>
<thead>
<tr>
<th>Software to install</th>
<th>CD on which software is located</th>
</tr>
</thead>
</table>
| 4. IBM Tivoli Monitoring for Databases | IBM Tivoli Monitoring for Databases, Version 5.1.0: DB2 Component Software  
IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix Component Software  
IBM Tivoli Monitoring for Databases, Version 5.1.1: Microsoft SQL Server Component Software  
IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle Component Software  
Depending on your choice of products earlier in the installation process, the installer might prompt you for multiple Component Software CDs. |
| 5. IBM Tivoli Monitoring Web Health Console | IBM Tivoli Monitoring for Databases, Version 5.1.1: Installation |

18. Click **Next** to access the Step List panel of the installer.

*Additional Information:* The Step List shows the software components that the installer installs, and it displays status updates for the installation process. See “Troubleshooting installer problems” on page 109 for a description of status icons and buttons in the Step List panel.

![Sample Step List panel](image)

Figure 5. Sample Step List panel

19. *(Optional)* If you want to cancel the installation while the Step List is running, perform the following steps:
   a. Click **Stop** and allow the currently running process to finish.
Additional Information: If you click Cancel without allowing the currently running process to finish, the system might remain in an unpredictable state.

b. Click Cancel to stop the installation and close the installer.
c. Delete the temporary depot directory created by the installer.

20. As needed, see “Troubleshooting installer problems” on page 109 for information on working around or resolving the following types of problems in the installer:
   • Errors
   • Invalid user names and password for target computers
   • Deferred steps
   • Failed steps

21. (Optional) Double-click any item in the list to see details and to set processing instructions for that step in the Details window. Table 29 on page 110 describes the status icons and buttons of the Details window.

Additional Information: The installer automatically enables you to create Windows endpoints. However, this capability exists only when you are installing the Tivoli management region server on a Windows operating system. In UNIX-based installations, you must manually enable installation of Windows endpoints while the Step List is running, as described in “Manually creating a Windows proxy endpoint” on page 42.

22. Click Run All to begin running the Step List.

Note: If you are installing the product on a UNIX-based computer and want to create Windows endpoints in the Tivoli management region go immediately to Step 23. Otherwise skip Step 23.

23. (Optional) UNIX-based Tivoli management region servers only: Click Stop at the top of the Step List and perform the procedure described in “Manually creating a Windows proxy endpoint” on page 42.

24. Click OK in the final prompt of the Step List.

Additional Information: This final prompt is displayed when all steps in the Step List show a "Passed" status. If all steps do not show a Passed status, see “Troubleshooting installer problems” on page 109 for troubleshooting information.

25. Click Next.

26. Select one of the following options:
   • Delete the temporary files. Select this option to delete the directory of temporary installation files that you specified in at the beginning of the installation process.
   —OR—
   • Do not delete the temporary files. Select this option to keep the temporary files. You can manually delete the files at any time.

27. Click Next.

28. Click Finish.

Manually creating a Windows proxy endpoint

Objective
To manually create a proxy endpoint on a UNIX-based Tivoli management region server.
Background information
The installation wizard can create Windows endpoints for the Tivoli management region server that you are installing. However, this capability exists only when you are installing the Tivoli management region server on a Windows operating system. Chapter 4, “Performing a Typical installation”, on page 27 and Chapter 5, “Performing an Evaluation installation”, on page 37 describe the installation process which includes creation of endpoints.

A proxy endpoint must exist in a Windows domain to enable the installer to create Windows endpoints. When the Tivoli management region server runs on Windows and you want to create Windows endpoints, the installer automatically creates the proxy endpoint in the domain in which that server resides. This proxy should share the same domain as the Tivoli management region domain because it uses Windows Universal Naming Convention (UNC) methods to provide remote access to newly created Window endpoints. The proxy endpoint enables creation of Windows endpoints in any domain that has a trusted relationship with the domain that contains the proxy. The Tivoli server uses the user ID and password for the proxy endpoint to obtain access to the file system of the other Windows servers.

The installation wizard also associates the proxy endpoint with a gateway in the Tivoli management region. Otherwise, the Tivoli management region server cannot use the proxy endpoint. You perform this procedure at a specific point during the installation process when a gateway has been created to associate with the proxy endpoint.

With this proxy access, the Tivoli server is able to install endpoints on Windows systems in that domain and in other Windows domains in the network that have a trusted relationship. Without a proxy endpoint, the Tivoli server cannot create Windows endpoints in that remote domain.

In UNIX installations, the wizard does not automatically create the proxy endpoint that Windows requires. When the Tivoli management region server you are installing runs a UNIX operating system, you must use this procedure. The procedure sets up the required proxy endpoint in the Windows domain that contains target Windows servers that you want to monitor with IBM Tivoli Monitoring for Databases.

Required authorization
On UNIX systems, the user who installs the product must have root privileges. On Windows systems, the user who installs the product must have membership in the Administrators group.

Before you begin
Perform the first part of the Evaluation installation procedure. This procedure is described in Chapter 4, “Performing a Typical installation”, on page 27 and Chapter 5, “Performing an Evaluation installation”, on page 37. During this procedure you access the Step List wizard panel. You manually configure a Windows proxy endpoint in the Step List wizard panel, during the installation procedure.

Identify the Windows computer that will serve as the proxy endpoint. You need the endpoint name as well as the host name for the machine. For instance, if the host name is vision35.mycompany.com, you might want to name the endpoint vision35_ep.

When you finish
None
Procedure
You perform this procedure in the product installer and Tivoli Management Framework Endpoint Setup wizard.

This procedure supplements the Evaluation installation process, at the point when the installer begins to process the Step List. Use this procedure only if you are installing the product on a UNIX-based server. This procedure is not necessary if you are installing the product on a Windows-based server.

Installation wizards:
1. Click Stop at the top of the Step List when the installer starts running Step 1.
   Additional Information: The system displays a message indicating that it will stop at the end of the current step.

2. Click OK and wait for the step to finish processing.
3. In the Step List scroll to the TMA installation step, which installs any endpoints that you have configured.
4. Double-click on the TMA installation step to access the Detail window for the step.

5. Perform the following steps in the Detail window:
   a. Click Toggle Breakpoint.
   b. Click OK.

   Additional Information: This action sets a breakpoint for when the installer begins to install endpoints. A stop sign icon indicates the step at which you inserted a breakpoint. While this step is in breakpoint mode, you enable the endpoint proxy as described in Step 7.

6. Click Run All at the top of the Step List window.
   Additional Information: Processing of the steps in the Step List resumes, until the installer reaches the breakpoint and stops. Prior to the breakpoint you set in
Step 5 the installer completes the creation of a gateway. To install correctly, the proxy endpoint must refer to this gateway. Otherwise the Tivoli management region server cannot recognize the proxy endpoint.

7. When the installer reaches the breakpoint you created in Step 5 install the proxy endpoint as follows. Perform these steps on the computer where you are going to install the proxy endpoint, not on the Tivoli management region server.
   a. Insert the Tivoli Management Framework, Version 3.7.1, CD into the CD drive of the computer that you want to be the endpoint.
   b. Run the `setup` executable located in the following subdirectory path of the Tivoli installation directory:
      \pc\lcf\winnt
   c. Click Next in the Tivoli Management Framework Endpoint Setup window.
   d. Read the license agreement.
   e. Click Next to display the Endpoint installation options window.
   f. (Optional) Click Browse to change the destination directory for the software.
   g. Click Next to display the Tivoli Remote Access Account window.
   h. Type the user name and password of the account through which Tivoli Management Framework accesses remote file systems. If you do not require access to remote domains, click Next to skip this step.
   i. Click Next to access the Advanced Configuration window.
   j. Specify the startup and configuration options information listed in the following table:

<table>
<thead>
<tr>
<th>Field name</th>
<th>Use when ...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gateway</td>
<td>The gateway uses a port number other than the default 9494.</td>
</tr>
<tr>
<td>Endpoint</td>
<td>You want to specify a port for the endpoint to use other than the default. The default is 9495.</td>
</tr>
<tr>
<td>Other</td>
<td>Use the <code>-g &lt;host_name_of_the_gateway&gt;</code> option to specify the intercepting gateway. Use the <code>-n &lt;host_name_of_the_endpoint&gt;</code> option to specify the name of the endpoint you are installing as the proxy.</td>
</tr>
</tbody>
</table>

   k. Click Next to continue the installation process.

   Additional Information: The installer reports that communication of the proxy endpoint and the gateway was successful. The endpoint is installed and logged into a gateway. The installation process configures the endpoint system to automatically start the endpoint service when the system starts.

   If the system does not start, there might be a problem with the communication between the proxy endpoint and the gateway. See “Cleaning up and removing the endpoint” on page 118 to remove the endpoint, then reinstall the endpoint.

   l. Click Next to display the Setup Complete window.

   m. Click Finish to display the Restart Windows window.

   n. Select No to prevent the restarting of the operating system.

   Additional Information: You can restart the system after the installation of IBM Tivoli Monitoring for Databases is complete. When you restart the computer, the Tivoli Endpoint service is created, with the startup type set to automatic.

8. Press OK to complete the endpoint installation.
9. On the Tivoli management region server, click **Run All** in the installer and complete the Evaluation installation steps that follow Step 23 on page 42. *Additional Information:* After the Evaluation installation process finishes, you perform the procedures in Chapter 7, “Completing the installation of the product”, on page 65 which include verification of the installation of all endpoints and managed nodes.
Chapter 6. Installing the product manually from an existing Tivoli environment

This chapter describes how to install IBM Tivoli Monitoring for Databases and related software through an existing Tivoli environment. These procedures enable you to install and set up the product without using the Typical or Evaluation installation options in the installer.

An optional product, the Tivoli Software Installation Service (SIS), can install multiple Tivoli products on multiple systems in parallel, as described in “Using Tivoli Software Installation Service”.

Version 3.7.1 of the Tivoli Management Framework must be installed in the Tivoli environment before you begin performing any of the procedures in this section. This software comes with the installation CDs for this product.

Table 17 provides an overview of the product through an existing Tivoli environment.

Table 17. Guidelines for installing the product through an existing Tivoli environment

<table>
<thead>
<tr>
<th>Goal</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access the Tivoli environment.</td>
<td>“Accessing the Tivoli environment” on page 48</td>
</tr>
<tr>
<td>Install managed nodes to assist the Tivoli server with management and monitoring operations as needed.</td>
<td>“Installing managed nodes through an existing Tivoli environment” on page 49</td>
</tr>
<tr>
<td>Install endpoint software to enable target computers to communicate in the Tivoli environment as needed.</td>
<td>“Installing endpoints through an existing Tivoli environment” on page 53</td>
</tr>
<tr>
<td>Upgrade previous versions of IBM Tivoli Monitoring to the required Version 5.1.1.</td>
<td>“Upgrading IBM Tivoli Monitoring manually” on page 55</td>
</tr>
<tr>
<td>Install Tivoli software, including IBM Tivoli Monitoring and IBM Tivoli Monitoring for Databases.</td>
<td>“Manually installing Tivoli software” on page 57</td>
</tr>
<tr>
<td>Install Tivoli patches to update performance of the Tivoli Management Framework software.</td>
<td>“Installing Tivoli patches manually” on page 60</td>
</tr>
<tr>
<td>Install the Web Health Console on computers to display real-time status of managed resources.</td>
<td>“Installing the Web Health Console manually” on page 63</td>
</tr>
</tbody>
</table>

See IBM Tivoli Monitoring User’s Guide for information on using the console.

Using Tivoli Software Installation Service

Using the optional Tivoli Software Installation Service (SIS) product, you can install multiple Tivoli products on multiple systems in parallel. This Java-based product can install more products on more systems in less time than the Tivoli Management Framework’s installation facility. Tivoli Software Installation Service performs product prerequisite checks and, if defined, user-specified prerequisite
checks to avoid or eliminate installation failure. In most cases, failures occur only when machines are turned off or removed from the network.

Tivoli Software Installation Service also creates an installation repository into which you can import the installation image of one or more Tivoli products. You can import only the interpreter types you require in your environment, which saves disk space and import time. The installation repository is the source of all your Tivoli installations. You can even share a single installation repository across multiple Tivoli management regions.

For details of the platforms on which the Tivoli Software Installation Service can run and for instructions on installing and using the product, see the Tivoli Software Installation Service User’s Guide and the release notes for that product.

---

Accessing the Tivoli environment

**Objective**
To access the Tivoli environment so that you can use the operations and functions of the Tivoli Management Framework.

**Background information**
You can access the Tivoli desktop or the Tivoli command line interface in order to use the operations and functions of Tivoli Management Framework.

The Tivoli desktop is a user interface that provides point-and-click access to features and functions. The Tivoli desktop provides a central control point for you to organize, manage, and delegate system management operations.

The command line interface (CLI) enables you to enter commands from the keyboard. You can use these commands in shell scripts and with system utilities such as the UNIX cron utility. For more information about using commands, refer to the Tivoli Management Framework Reference Manual.

**Required authorization role**
The installation routine for IBM Tivoli Monitoring for Databases creates the Tivoli administrator who is authorized to perform this procedure. Depending on the commands they want to run, other administrators might require the super, senior, admin, or user authorization roles.

**Before you begin**
None

**When you finish**
Perform installation operations or administrative operations in the Tivoli environment.

**Procedure**
You can perform this procedure from the desktop of your workstation.

**Command line:** Use one of the following two methods to access the Tivoli command line interface, depending on whether you use a Windows or UNIX operating system:

- **Windows**
  1. Log on to a Windows managed node or Tivoli management region server.
  2. Select Start → Command Prompt in the Windows task bar to open the command prompt window.
3. Enter the following command to run the environment initialization and setup script:

%SystemRoot%/system32/drivers/etc/Tivoli/setup_env.cmd

This command enables you to perform all Tivoli Management Framework operations.

—OR—

• UNIX
  1. Log on to a UNIX managed node or Tivoli management region server.
  2. Run the environment initialization and setup script.
     • If you are using the Bourne, Korn, or bash shell, run the following command:
       . /etc/Tivoli/setup_env.sh
     • If you are using the C shell, run the following command:
       source /etc/Tivoli/setup_env.csh

Tivoli desktop:
1. Do one of the following to access the login screen of the Tivoli desktop:
   • Click Start in the Windows task bar and select Programs → Tivoli → Tivoli.
   —OR—
   • Enter the tivoli command. See the Tivoli Management Framework Reference Manual for more information on this command.
2. Type the following values in the fields of the login screen:
   • Host Machine specifies the Tivoli managed node, including the Tivoli server where the Tivoli desktop should connect.
   • Log In As specifies the login name to the managed node.
   • Password specifies the password for the specified login name.
3. Click OK to display the Tivoli desktop.

Installing managed nodes through an existing Tivoli environment

Objective
To install managed nodes using an existing Tivoli user interface.

Background information
This procedure enables you to install and set up managed nodes without using the Typical or Evaluation installation options in the installer.

This procedure uses the default settings for a managed node. See the Tivoli Enterprise Installation Guide to learn how to override the defaults.

Required authorization role
super or install_client

Before you begin
As a precautionary measure, back up the Tivoli management region as described in “Backing up and restoring Tivoli databases” on page 13.

Start the command line interface or Tivoli desktop as described in “Accessing the Tivoli environment” on page 48.
When you finish
You can list the managed nodes to confirm installation by using one of the following options:

- Use the `wlookup` command to list the installed managed nodes.
  
  ```
  wlookup -a -r managed_resource
  ```

  See the *Tivoli Management Framework Reference Manual* for more information on the `wlookup` command.

  —OR—

- Use the desktop to view installed managed resources.
  Double-click the policy region icon from the desktop to open the policy region window and display its managed resources.

Procedure
This procedure describes creation of managed nodes and gateways in the command line.

Command line: Use the `wclient` command to create a managed node.

The following example creates a managed node named *everest*:

```shell
wclient -c F:\cdrom -d -p austin_pr everest
```

where

- `-c F:\cdrom`  
  Specifies the path to the installation image.

- `-d`  
  Sets installation variables to their last set values. Commonly, each installed managed node uses the same set of installation variables. This option provides a shortcut for setting the variables. In this case, the managed node obtains settings for the installation variables from the Tivoli server.

- `-p austin_pr`  
  Specifies that the managed node is for the `austin_pr` policy region.

After creating a managed node on a Windows NT or Windows 2000 system, you must reboot the system to complete the installation.

In IBM Tivoli Monitoring for Databases, each managed node should have a gateway to enable communication with endpoints. Use the `wcrtgate` command to create a gateway on the managed node. The following command creates a gateway on managed node *everest* using the default settings:

```shell
wcrtgate -h everest
```

By default the name of this gateway is `everest-gateway` and the port number is `9494`. See the *Tivoli Management Framework Reference Manual* for information on customizing the settings of the `wcrtgate` command.

After creating the gateway, you can configure its behavior as a repeater and as a vehicle for software distribution using the `wrpt` and `wmdist` commands.

Tivoli desktop:

1. Select Managed Node in the Create menu to display the Client Install window.

   *Additional Information:* The managed node is created in the current policy region. See the *Tivoli Enterprise Installation Guide* to learn about creating managed nodes in other policy regions.
2. In the **TMR Installation Password** field, type the installation password.

   *Additional Information:* If a password was not specified when the Tivoli management region server was created, leave this field empty. If a password was specified, you must use this password for each managed node.

3. Select the radio button in the **Default Access Method** area to indicate how the Tivoli management region contacts each system:
   - **Account**—In the **Account** field, type the name and password of the privileged user to contact the system. In the **Password** field, type the password for this user. This option applies to UNIX, Windows NT, and Windows 2000 systems.
   - **Trusted Host**—(*UNIX only*) For trusted host access, the `.rhost` file on each system must grant access to the system performing the installation by adding and entry for `root@hostname`, where `hostname` is the host name of the Tivoli management region server or managed node performing the installation.

   *Note:* You can override the access method when you add a single system, load systems from a file, or after the systems are added to the list.

4. Click **Add Clients** to display the Add Clients window.

5. Configure the client as follows:
   a. In the **Add Client** field, type the name of the system you want to configure as a managed node.
   b. Specify the access method that the Tivoli management region server uses to contact the system:
      - Select **Use Default Access Method** to use the default access method specified in Step 3.
      - **OR**—
      - Select **Account** to use account access specified in Step 3.
      - **OR**—
      - Select **Trusted Host Access** to use trusted host access in UNIX specified in Step 3.
   c. Click **Add & Close** to add the system to the list and return to the Client Install window.

6. Repeat Steps 4 and 5 for each computer you want to configure as a managed node.

7. If you need to change the access method for any of the listed systems, perform the following steps in the Client Install window:
   a. Select the system to change.
   b. Click **Access Method** to display the Select Access Method window.
   c. Select the access method you want.
   d. Click **Set** to return to the Client Install window.

8. Click **Select Media** to display the File Browser window in which you specify the path to the directory that contains the installation images.

9. Use the **File Browser** window to navigate to the correct file.

10. Click **Set Media & Close** to save your setting and display the Install Options window.

   *Additional Information:* See the **Tivoli Management Framework User’s Guide** for instructions on how to use the File Browser window.

   *Note:* Normally, you use the same installation image to create the Tivoli management region server and managed nodes.

11. Modify the installation options, if necessary.
12. Click **Set** to save your changes and return to the Client Install window.

13. Click **Install & Close** to start the installation of the managed node.

   Additional Information: The Client Install window is displayed. This window lists operations that will take place during the installation and any problems that you might want to correct before continuing the installation.

14. Click **Continue Install**.

15. *(Windows only)* Perform the following steps in the Tivoli Remote Access Account window:

   a. Select one of the following radio buttons:

      - **Account**—Defines an account other than the default access account.
      - **None**—Specifies that there is no Tivoli remote access account. If reinstalling and there is a previous Tivoli remote access account, this option does not overwrite the original account.
      - **Use Installation 'Access Method' Account**—Specifies that Tivoli remote access account is the default access account. This selection grants the full rights of the default access account. For more information about Tivoli remote access account, see the *Tivoli Enterprise Installation Guide*.

   b. Click **Continue**.

      Additional Information: The Client Install window returns and displays information on the progress of installation.

   c. Click **OK** in the Confirm Reboot of Clients prompt to reboot these systems.

      Additional Information: You can click **Close** and restart the computer later, if necessary. The managed node is enabled only after you restart.

16. *(UNIX only)* When the installation completes, the Client Install window ends with a completion message:

17. Click **Close** when the Client Install window displays the Finished client install message.

18. Select **Refresh** in the **Desktop** menu to display the icon of the managed nodes you created and verify success of this procedure.

19. *(Windows only)* Configure Simple Mail Transfer Protocol (SMTP) e-mail as follows. This protocol enables Tivoli to generate e-mail for alerts and other messages:

   a. Access the Tivoli command line environment as described in **Accessing the Tivoli environment** on page 48.

   b. Enter the following command:

   ```bash
   wmailhost hostname
   ```

   where `hostname` is the name of the network mail server. For additional information, see the *Tivoli Enterprise Installation Guide*.

20. Install gateway software on the managed node as follows:

   a. Right-click the **EndpointManager** icon and select **Create Gateway** to access the Create Gateway window.

   b. In the **Name** field, type a unique name for the gateway.

   c. In the **Port** field, type the port number through which the gateway will communicate with its endpoints in TCP/IP.

   d. In the **Managed Node Proxy** field, type the name of the managed node on which the gateway will run.
Installing endpoints through an existing Tivoli environment

Objective
To install and configure the endpoint software on an endpoint using the Tivoli desktop or command line interface.

Background information
Creation of endpoints during installation of the product is optional. This procedure describes how to create endpoints after you have installed the product.

To enable communication with the Tivoli server you must install the endpoint software on a database server host you want to become the endpoint. You perform this procedure from the windows machine you want to become the endpoint. The user account you use to log on to the Tivoli server must have membership in the Administrators group for the Windows operating system. For example, the default user in the Windows operating system, Administrator, has membership in the Administrators group by default. Tivoli strongly recommends that you log on as Administrator.

You can perform this procedure in the endpoint wizard. When you use the endpoint wizard, you specify the operating system of the database server host. You must provide configuration values that match the requirements of specific operating systems as follows:

• For database server hosts that reside on Windows machines, you must have at least one proxy endpoint in each Windows domain containing servers you want to manage. The installer for IBM Tivoli Monitoring for Databases creates a proxy endpoint for the domain of the Tivoli server. When a proxy endpoint already exists, you can use this procedure to create more endpoints. If a proxy endpoint does not exist, you can create one as described in “Manually creating a Windows proxy endpoint” on page 42.

• To create an endpoint or managed node that was added to the Tivoli management region after an upgrade installation, you must follow this process:
  1. Add the endpoint to a managed node that existed on the Tivoli management region prior to the upgrade.
  2. Migrate the endpoint to the new managed node as described in “Changing the gateway assignment of an endpoint” on page 80.

At the end of this procedure the endpoint is running on the database server host.

Required authorization role
The installation routine for IBM Tivoli Monitoring for Databases creates a Tivoli administrator who is authorized to perform this procedure. Other administrators must have admin authority to perform these procedures.

Before you begin
If the database server on which you want to install the endpoint resides in a domain other than the Tivoli server domain, you must create a proxy endpoint for that domain. See “Manually creating a Windows proxy endpoint” on page 42 to learn how to create a proxy endpoint.

(Optional) Use the Planning sheet for creating endpoints in Table 11 on page 22 to prepare to perform this procedure for multiple database server hosts.
When you finish
You can list the endpoints using the command line interface or the desktop.

- Type `wep ls` from the command line interface to list the endpoints
  —OR—
- Double-click the Endpoint Manager icon from the desktop to open it and display the list endpoints on the Tivoli management region.

Procedure
This procedure describes installation of endpoints from the command line or using the Endpoint Setup Wizard in Windows.

Endpoint Setup Wizard (for Windows only):
1. Insert the Tivoli Management Framework, Version 3.7.1 CD into the CD-ROM drive.
2. Run the `setup` executable located in the following subdirectory path:
   `..\pc\lc\winnt`
3. Click Next in the Tivoli Management Framework Endpoint Setup window.
4. Read the license agreement.
5. Click Next to display the Endpoint Installation Options window
6. Click Browse to change the destination directory for the software.
7. If you do not want to use the default directory, click Browse to change the default directory to `C:\Tivoli\lc`. This directory path matches the destination directory of the other product software.
8. Click Next to display the Tivoli Remote User Access File window.
9. Type the user name and password of the account through which Tivoli Management Framework accesses remote file systems. If you do not require access to remote domains, click Next to skip this step.
10. Click Next to access the Advanced Configuration window.
11. Specify the startup and configuration options information listed in the following table:

<table>
<thead>
<tr>
<th>Field name</th>
<th>Use when ...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gateway</td>
<td>The gateway uses a port number other than the default 9494. To determine gateway port information, enter the following from the command line interface: <code>wgateway gateway_name</code> The value is listed as a TCP/IP port.</td>
</tr>
<tr>
<td>Endpoint</td>
<td>Specify a port for the endpoint to use. The default is 9495.</td>
</tr>
<tr>
<td>Other</td>
<td>Use the <code>–g hostname</code> option to specify the intercepting gateway. Use the <code>–n hostname of the endpoint</code> option to specify the name of the endpoint you are installing as the proxy.</td>
</tr>
</tbody>
</table>

12. Click Next to continue the installation process.

   Additional Information: The wizard reports that communication of the proxy endpoint and the gateway was successful. The endpoint is installed and logged into a gateway. The installation process configures the endpoint system to automatically start the endpoint service when the system starts.

13. Click Next to display the Setup Complete window.
14. Click Finish to display the Restart Windows window.
15. Select No.
Upgrading IBM Tivoli Monitoring manually

Objective
To install the patches that upgrade IBM Tivoli Monitoring using an existing Tivoli desktop or command line interface.

Background information
This procedure enables you to upgrade IBM Tivoli Monitoring without using the Typical or Evaluation installation options in the installer.

For IBM Tivoli Monitoring, Version 4.x: If you use Version 4.x of IBM Tivoli Monitoring, you must perform this procedure twice. First install the patch to upgrade Version 4.x to Version 5.1.0, then run the patch to upgrade Version 5.1.0 to Version 5.1.1, as described in this procedure.

Required authorization role
install_product

Before you begin
As a precautionary measure, back up the Tivoli management region as described in “Backing up and restoring Tivoli databases” on page 13.

Start the command line interface or Tivoli desktop as described in “Accessing the Tivoli environment” on page 48.

When you finish
Verify that the IBM Tivoli Monitoring version was upgraded to 5.1.1 by entering the following from the command line interface:

wlsinst –Ph

Procedure
You can perform this procedure from the Tivoli desktop or from the command line.

Command line: Run the following command from the command prompt:
wpatch [-c <source_dir>] -i patch_name.IND [-y]
[-n | <managed_node1> <managed_node2> ...]

where:
-c <source_dir>
    Specifies the complete path to the directory containing the installation image.

-i patch_name.IND
    Specifies the product index file to reference for the installation. Install these patches from the IBM Tivoli Monitoring V5.1.1 installation CD in the following order:

1. If you are upgrading from IBM Tivoli Monitoring, Version 4.x, run this patch: /upg41to51/DM51upg.IND. After you run this patch you have Version 5.1.0 of this product.

2. If you are upgrading from IBM Tivoli Monitoring, Version 5.1.0 to Version 5.1.1, run this patch: /upgrade/DM51upg.IND.
-n Installs the product on all managed nodes that do not currently have the product installed.

<managed_node>
Installs the product on the managed nodes you specify. Use blank spaces to separate the names of multiple managed nodes. If you do not specify managed nodes, the patch is installed on all managed nodes in the Tivoli management region.

-y Installs the product without requesting confirmation.

Refer to the Tivoli Management Framework Reference Manual for more information about this command. Refer to “Tivoli command syntax” on page xv for information on Tivoli command line syntax.

Tivoli desktop:
1. Select Install in the Desktop menu.
2. Select Install Patch in the sub-menu to display the Install Patch window.
3. If necessary, click OK to bypass a harmless error message about the media settings.
4. Click Select Media to display the File Browser window.
5. In the Path Name text field, enter the full path to the patch installation files in the CD-ROM drive. Be sure to use backward slashes (\) for Windows path names instead of forward slashes (/). Install these patches from the IBM Tivoli Monitoring V5.1.1 installation CD in the following order:
   a. If you are upgrading from IBM Tivoli Monitoring, Version 4.x, run this patch: /upg41to51/DM51upg.IND. After you run this patch you have Version 5.1.0 of this product.
   b. If you are upgrading from IBM Tivoli Monitoring, Version 5.1.0 to Version 5.1.1, run this patch: upgrade/DM51upg.IND.
6. Click Set Path. The File Browser window displays the contents of the specified media in the Files scrolling list.
7. Click Set Media & Close.
8. Select the patch from the Select Patch to Install scrolling list in the Install Patch window.
9. Select the target clients on which to install the patch from the Available Clients scrolling list.
10. Click the right arrow to move the selected clients to the Clients to Install On scrolling list.
11. Click Install & Close to display the Patch Install window and a list of pending installation actions.
12. Click Continue Install to begin the installation process.
   Additional Information: The Patch Install window displays the progress of the installation. View the messages in the task output window to determine whether the patch installation was successful. If necessary, see “About the log files for installation errors” on page 114 for information on problem determination.
13. Click Close to close the Patch Install window.
14. Select Refresh from the View menu bar. The desktop displays the icon for the patch you installed.
15. As a precautionary measure, back up the Tivoli management region databases as described in “Backing up and restoring Tivoli databases” on page 13. Use a unique name for the new backup files.
Manually installing Tivoli software

**Objective**
To install Tivoli software manually using an existing Tivoli desktop or command line interface.

**Background information**
This procedure enables you to install and set up IBM Tivoli Monitoring and IBM Tivoli Monitoring for Databases without using the Typical or Evaluation installation options in the installer.

Table 18 lists the installation CDs that contain the Tivoli software and the directory location of the software. Use the information in this table while you perform the installation procedure, when you identify the path to the index (.IND) file for product installation.

**Note:** Except for the Web Health Console, you must install the software listed in Table 18 on the Tivoli management region server and on managed nodes. You have the option to install the Web Health Console on any computer in the network.

Table 18 lists the products to install and the names of the CDs where those products are located.

### Table 18. Product locations

<table>
<thead>
<tr>
<th>Product to install</th>
<th>Name of installation CD on which product is located</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. IBM Tivoli Monitoring software</td>
<td>IBM Tivoli Monitoring V5.1.1</td>
</tr>
<tr>
<td>Install this software when no version of IBM Tivoli Monitoring exists on the computer. Otherwise, see “Upgrading IBM Tivoli Monitoring manually” on page 55 to upgrade existing IBM Tivoli Monitoring software.</td>
<td>See “Installing IBM Tivoli Language Support for this product” on page 74 for language support for IBM Tivoli Monitoring software.</td>
</tr>
<tr>
<td>IBM Tivoli Monitoring and its resource models can co-exist with an installation of Tivoli Distributed Monitoring. You do not need to uninstall Tivoli Distributed Monitoring.</td>
<td></td>
</tr>
<tr>
<td>2. IBM Tivoli Monitoring Component Services, Version 5.1.1</td>
<td>IBM Tivoli Monitoring for Databases, Version 5.1.1: Installation</td>
</tr>
<tr>
<td>The IBM Tivoli Monitoring Component Services software provides a set of extensions for Tivoli products. You must install IBM Tivoli Monitoring Component Services on the same resources where you will install IBM Tivoli Monitoring for Databases; in other words, on the Tivoli management region server and on each gateway.</td>
<td>See “Installing IBM Tivoli Language Support for this product” on page 74 for language support for IBM Tivoli Monitoring Component Services, Version 5.1.1 software.</td>
</tr>
</tbody>
</table>
Table 18. Product locations (continued)

<table>
<thead>
<tr>
<th>Product to install</th>
<th>Name of installation CD on which product is located</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. IBM Tivoli Monitoring for Databases</td>
<td>Depending on your choice of products, you need to install products from multiple Component Software CDs.</td>
</tr>
<tr>
<td>IBM Tivoli Monitoring for Databases, Version 5.1.0: DB2 Component Software</td>
<td>IBM Tivoli Monitoring for Databases, Version 5.1.0: DB2 Component Software</td>
</tr>
<tr>
<td>IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix Component Software</td>
<td>IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix Component Software</td>
</tr>
<tr>
<td>IBM Tivoli Monitoring for Databases, Version 5.1.1: Microsoft SQL Server Component Software</td>
<td>IBM Tivoli Monitoring for Databases, Version 5.1.1: Microsoft SQL Server Component Software</td>
</tr>
<tr>
<td>IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle Component Software</td>
<td>IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle Component Software</td>
</tr>
<tr>
<td>4. IBM Tivoli Monitoring Web Health Console</td>
<td>Tivoli Monitoring Web Health Console for AIX, HP, SUN v5.1.1 —OR— Tivoli Monitoring Web Health Console for Windows, Linux 5.1.1</td>
</tr>
<tr>
<td></td>
<td>See “Installing the Web Health Console manually” on page 63 for more information.</td>
</tr>
</tbody>
</table>

**Required authorization role**
install_product

**Before you begin**
See "Goals for planning and preparing for installation" in Table 1 on page 5 for a checklist of activities prior to installation.

As a precautionary measure, back up the Tivoli management region as described in "Back up and restoring Tivoli databases“ on page 13.

Start the command line interface or Tivoli desktop as described in “Accessing the Tivoli environment” on page 48.

**When you finish**
After you install IBM Tivoli Monitoring for Databases, complete the activities described in Chapter 7, “Completing the installation of the product”, on page 65.

After you install IBM Tivoli Monitoring for Databases, see Chapter 2 of the IBM Tivoli Monitoring for Databases: User’s Guide for information on setting up and using the product.

**Procedure**
You can perform this procedure from the Tivoli desktop or from the command line.

**Command line:** Run the following command from the command prompt:

```
winstall [-c <source_dir>] [-s <server>] -i product_code.IND [-y] [-n | <managed_node1> <managed_node2> ...]
```
where:

- `c <source_dir>`
  Specifies the complete path to the directory containing the installation image.

- `s <server>`
  Specifies the name of the managed node to use as the installation server. By default, the installation server is the Tivoli server.

- `i product_code.IND`
  Specifies the product index file to reference for the installation. You can install one product at a time. In this case, the file is `product_code.IND` where the following codes identify the .IND files:
  - `/cdrom/DM511.IND`: IBM Tivoli Monitoring, Version 5.1.1
  - `/ITMCS/CMPTSVCS.IND`: IBM Tivoli Monitoring Component Services, Version 5.1.0
  - `/PRODUCT/DB2ECC22.IND`: IBM Tivoli Monitoring for Databases: DB2
  - `/PRODUCT/MSSQL.IND`: IBM Tivoli Monitoring for Databases: Microsoft SQL Server
  - `/PRODUCT/product_code.IND`: IBM Tivoli Monitoring for Databases: Oracle
  - `/PRODUCT/IBMIFXPA.IND`: IBM Tivoli Monitoring for Databases: Informix

- `n`
  Installs the product on all managed nodes that do not currently have the product installed.

- `<managed_node>`
  Installs the product on the managed nodes you specify. Use blank spaces to separate the names of multiple managed nodes.

- `y`
  Installs the product without requesting confirmation.

Refer to the Tivoli Management Framework Reference Manual for more information about this command. Refer to “Tivoli command syntax” on page xv for information on Tivoli command line syntax.

**Tivoli desktop:**

1. Select **Install** in the Desktop menu.
2. Select **Install Product** in the menu to display the Install Product window.
3. If necessary, click **OK** to bypass a harmless error message about the media settings.
4. Click **Select Media** to display the File Browser window.
5. In the **Path Name** text field, enter the full path to the .IND file in the CD-ROM drive. Be sure to use backward slashes (\) for Windows path names instead of forward slashes (/).
6. Click **Set Path**. The File Browser window displays the contents of the specified media in the Files scrolling list.
7. Click **Set Media & Close**.
8. Select the product from the **Select Product to Install** scrolling list in the Install Product window.
9. Select the target clients on which to install the product from the **Available Clients** scrolling list.
10. Click the left arrow to move the selected clients to the **Clients to Install On** scrolling list. Tivoli installs the software on the computers in this list.

11. Click **Install & Close** to display the Product Install window and a list of pending installation actions.

12. Click **Continue Install** to begin the installation process.

   Additional Information: The Product Install window displays the progress of the installation. View the messages in the task output window to determine whether the product installation was successful. If necessary, see “About the log files for installation errors” on page 114 for information on problem determination.

13. Click **Close** to close the Product Install window.

14. Select **Refresh** from the **View** menu bar. The desktop displays the icon for the product you installed.

15. As a precautionary measure, back up the Tivoli management region databases as described in “Backing up and restoring Tivoli databases” on page 13. Use a unique name for the new backup files.

---

**Installing Tivoli patches manually**

**Objective**
To install Tivoli patches using an existing Tivoli desktop or command line interface.

**Background information**
This procedure enables you to install patches for the Tivoli Management Framework without using the Typical or Evaluation installation options in the installer.

You must perform this procedure on every managed node in the Tivoli environment. Configure the `wpatch` command to install the patch on all managed nodes automatically, as described in this procedure. The patches are located in the PATCHES directory of the following installation CDs:

- IBM Tivoli Monitoring V5.1.1
- IBM Tivoli Monitoring for Databases, Version 5.1.1: Installation
- IBM Tivoli Monitoring for Databases, Version 5.1.1: Installation Disk 2
- IBM Tivoli Monitoring for Databases, Version 5.1.0: DB2, Component Software
- IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix, Component Software
- IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle, Component Software
- IBM Tivoli Monitoring for Databases, Version 5.1.1: Microsoft SQL Server, Component Software

**Note:** The IBM Tivoli Monitoring for Databases Limitations and Workaround Supplement provides the latest information about known product limitations and workarounds. To ensure that the information is the latest available, this document is provided only on the Web, where it is updated on a regular basis. You can access the Limitations and Workarounds document through the following link on the Tivoli Information Center Web site:


The installer automatically installs the following patches for the Tivoli Management Framework. For a manual installation of the product, install the patches as described in this procedure in the sequence shown:
Table 19. Manual installation of the product: specifications of required patches

<table>
<thead>
<tr>
<th>Software release</th>
<th>Patch name</th>
<th>Prerequisite patches</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tivoli Management Framework 3.7.1</td>
<td>3.7.1-TMF-0059</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>3.7.1-TMF-0066</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>3.7.1-TMF-0073</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>3.7.1-TMF-0087</td>
<td>3.7.1-TMF-0073</td>
<td>HP-UX support for product installer</td>
</tr>
<tr>
<td></td>
<td>3.7.1-TMF-0032</td>
<td>3.7.1-TMF-0044</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>3.7.1-TMF-0033</td>
<td>3.7.1-TMF-0067</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>3.7.1-TMF-0043</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>IBM Tivoli Monitoring</td>
<td>Fix Pack 3</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>For DBCS support, install</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>5.1.1-ITM-0011E on Fix Pack 3</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Note: When you use the command line interface or the Tivoli desktop to install the product manually, you must restart the local object dispatchers after you install either of the following items:

- The patch for upgrading the Tivoli Management Framework to Version 3.7.1
- Patches 3.7.1-TMF-0073 and 3.7.1-TMF-0087

Run the following series of commands to restart the local object dispatchers:

```bash
odadmin shutdown clients
odadmin reexec 1
odadmin start clients
```

Required authorization role
install_product

Before you begin
As a precautionary measure, back up the Tivoli management region as described in “Backing up and restoring Tivoli databases” on page 13.

Start the command line interface or Tivoli desktop as described in “Accessing the Tivoli environment” on page 48.

When you finish
Verify the patches were installed using the following command:

```bash
wlsinst -Ph
```

Procedure
You can perform this procedure from the Tivoli desktop or from the command line.

Command line: Use the `wpatch` command to install patches.

```bash
wpatch [-c <source_dir>] [-i patch_name.IND [-y] [-n | <managed_node1> <managed_node2> ...]]
```

where:

- `<source_dir>`
  Specifies the complete path to the directory containing the installation image.
-i patch_name.IND
   Specifies the product index file to reference for the installation.

-n
   Installs the product on all managed nodes that do not currently have the product installed.

<managed_node>
   Installs the product on the managed nodes you specify. Use blank spaces to separate the names of multiple managed nodes. If you do not specify managed nodes, the patch is installed on all managed nodes in the Tivoli management region.

-y
   Installs the product without requesting confirmation.

Refer to the Tivoli Management Framework Reference Manual for more information about this command. Refer to “Tivoli command syntax” on page xv for information on Tivoli command line syntax.

Tivoli desktop:

1. Select Install in the Desktop menu.
2. Select Install Patch in the sub-menu to display the Install Patch window.
3. If necessary, click OK to bypass a harmless error message about the media settings.
4. Click Select Media to display the File Browser window.
5. In the Path Name text field, enter the full path to the language support files in the CD-ROM drive. Be sure to use backward slashes (\) for Windows path names instead of forward slashes (/).
6. Click Set Path. The File Browser window displays the contents of the specified media in the Files scrolling list.
7. Click Set Media & Close.
8. Select the patch from the Select Patch to Install scrolling list in the Install Patch window.
9. Select the target clients on which to install the patch from the Clients to Install On scrolling list.
10. Click the right arrow to move the selected clients to the Available Clients scrolling list.
11. Click Install & Close to display the Patch Install window and a list of pending installation actions.
12. Click Continue Install to begin the installation process.

   Additional Information: The Patch Install window displays the progress of the installation. View the messages in the task output window to determine whether the patch installation was successful. If necessary, see “About the log files for installation errors” on page 114 for information on problem determination.

13. Click Close to close the Patch Install window.
14. Select Refresh from the View menu bar. The desktop displays the icon for the patch you installed.
15. As a precautionary measure, back up the Tivoli management region databases as described in “Backing up and restoring Tivoli databases” on page 13. Use a unique name for the new backup files.
Installing the Web Health Console manually

Objective
To install the Web Health Console using a command line interface and the installation wizard for the console.

Background information
This procedure enables you to install and set up the Web Health Console without using the Typical or Evaluation installation options in the installer.

The Web Health Console software is on one of the following CDs depending on the operating system:
- Tivoli Monitoring Web Health Console for AIX, HP, SUN v5.1.1
- Tivoli Monitoring Web Health Console for Win, Linux 5.1.1

The language support for ITM is on the IBM Tivoli Monitoring Language Support v5.1.1 CD.

The language support for PACs is on CDs for each PAC:
- IBM Tivoli Monitoring for Databases, Version 5.1.0: DB2 Language Support
- IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle Language Support
- IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix Language Support
- IBM Tivoli Monitoring for Databases, Version 5.1.1: Microsoft SQL Server Language Support

Required authorization role
Logon privileges for the target computer.

Before you begin
None

When you finish
See the IBM Tivoli Monitoring User’s Guide for information on using the console.

Procedure
You can perform this procedure from the command line only.

Command line:
1. Run the following setup executable to launch the installation wizard:
   - On UNIX: "/setupPLATFORM.bin"
     where PLATFORM is the name of the operating system.
   - On Windows: "setupwin32.exe"

2. Follow the instructions in the wizard panels.

3. Copy the contents of the HCONSOLE directory of catalog files from one of the following CDs based on the database product that you are installing:
   - IBM Tivoli Monitoring for Databases, Version 5.1.0: DB2, Component Software
   - IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix, Component Software
   - IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle, Component Software
   - IBM Tivoli Monitoring for Databases, Version 5.1.1: Microsoft SQL Server, Component Software
4. Paste the contents of the directory in the resources directory in the following path on the target computer:

```
INSTALL_DIR/installedApps/dm.ear/dm.war/WEB-INF/classes/com/tivoli/DmForNt/resources
```
Chapter 7. Completing the installation of the product

This section describes how to verify the installation and enable functionality for IBM Tivoli Monitoring for Databases.

**Note:** The last item in Table 20, "Run Discovery on the product," is required for setting up monitoring. Refer to the user’s guide for the specific database product you use.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify the success of the installation of the managed nodes and endpoints.</td>
<td>“Verifying the installation of the product” on page 66</td>
</tr>
<tr>
<td>Set up the Java runtime environment, Version 1.3.0 on endpoints:</td>
<td>“Linking to an existing Java Runtime Environment” on page 68</td>
</tr>
<tr>
<td>• If the Java software already exists on the endpoint, run a Tivoli task to link the software to IBM Tivoli Monitoring. This software enables distribution of resource models.</td>
<td>“Installing the Java Runtime Environment” on page 67</td>
</tr>
<tr>
<td>• Install the Java software on endpoints that do not have it.</td>
<td></td>
</tr>
<tr>
<td>(Optional) Load class files that enable you to customize the resource models that come with the IBM Tivoli Monitoring for Databases.</td>
<td>“Installing files to enable customization of resource models” on page 69</td>
</tr>
<tr>
<td>See IBM Tivoli Monitoring for Databases User’s Guide for information on using the resource models.</td>
<td></td>
</tr>
<tr>
<td>See IBM Tivoli Monitoring Workbench User’s Guide to learn how to use the optional Workbench tool to create custom resource models to use with IBM Tivoli Monitoring for Databases.</td>
<td></td>
</tr>
<tr>
<td>Enable the storage of historical data that you can use in the Tivoli Enterprise Data Warehouse.</td>
<td>“Installing files to enable Tivoli Enterprise Data Warehouse” on page 70</td>
</tr>
<tr>
<td>Assign authorization roles required to use the product to manage and monitor servers.</td>
<td>The IBM Tivoli Monitoring for Databases User’s Guide describes required authorization roles.</td>
</tr>
<tr>
<td>(Optional) Install available language support packages if you did not install language packs during installation of IBM Tivoli Monitoring for Databases.</td>
<td>“Installing IBM Tivoli Language Support for this product” on page 74</td>
</tr>
<tr>
<td>(Optional) Change the gateway assignment for an endpoint.</td>
<td>“Changing the gateway assignment of an endpoint” on page 80</td>
</tr>
<tr>
<td>Update enablement files for the Web Health Console when you upgrade or add components to the product.</td>
<td>“Updating Web Health Console files” on page 79</td>
</tr>
<tr>
<td>Run Discovery on the product.</td>
<td>See the IBM Tivoli Monitoring for Databases User’s Guide</td>
</tr>
</tbody>
</table>
Verifying the installation of the product

Objective
To verify successful installation of the product.

Background information
This procedure describes how to use the Tivoli command line interface to list the elements of the Tivoli environment. You should complete this procedure before running the product to confirm correct installation and connectivity for all elements.

Required authorization role
The installation routine for IBM Tivoli Monitoring for Databases creates the Tivoli administrator who is authorized to perform this procedure. On UNIX, the user who runs the installer must have root privileges. On Windows, the user who runs the installer must have membership in the Administrators group. For other users, one of the following Tivoli roles is recommended: user, admin, senior, or super.

Before you begin
Access the Tivoli environment as described in “Accessing the Tivoli environment” on page 48.

When you finish
If you cannot verify connection with an endpoint, see “Testing endpoint connectivity” on page 116.

Procedure
You can perform this procedure from the Tivoli desktop or from the command line.

Command Line: Use the wlsinst command to list the products and patches in the Tivoli environment. The following example lists the products and patches installed, with the host name and interpreter type on which each product or patch was installed:

wlsinst -ah

where -ah lists all products and patches installed in the Tivoli management region, including the host name and interpreter type of the computer.

Use the wep command to list all gateways and their associated endpoints in the Tivoli management region. When you configure this product, you install a gateway on each managed node that you create. The following command lists all managed nodes and gateways in the Tivoli management region:

wep ls

See the Tivoli Management Framework Reference Manual for a complete description of all options available for these commands.

Desktop:
1. Access the Tivoli desktop as described in “Accessing the Tivoli environment” on page 48
2. View the icons for the managed resources that you installed to verify that they exist.
Installing the Java Runtime Environment

**Objective**
To install the Java Runtime Environment and link it to IBM Tivoli Monitoring.

**Background information**
Each endpoint in an IBM Tivoli Monitoring system requires a local installation of the Java Runtime Environment (JRE), Version 1.3.0 or 1.3.1. Solaris endpoints must have Version 1.3.1-01. The runtime environment enables the distribution and running of resource models.

Installation images for the Java Runtime Environment 1.3.0 are available on the IBM Tivoli Monitoring, Version 5.1.1: Tools installation CD. You can choose one of the following setup methods:

- Use the `wdmdistrib` command or the Java Runtime Environment manual installation process. The Java software for this installation options is available on the product CD in compressed format. This procedure describes how to use the `wdmdistrib` command to install the Java Runtime Environment.
- If the endpoint already has an appropriate version of the Java Runtime Environment installed, perform the procedure “Linking to an existing Java Runtime Environment” on page 68 to link IBM Tivoli Monitoring for Databases to the runtime environment.
- Use the Tivoli Software Installation Service (SIS). See “Using Tivoli Software Installation Service” on page 47 for more information on using this method to install the runtime environment. After you use this method you must perform the “Linking to an existing Java Runtime Environment” on page 68 procedure.

You must install and link the Java Runtime Environment or the deployment of resource models fails. The use of an IBM version of the Java Runtime Environment is recommended for support purposes. All versions of the Java Runtime Environment on the IBM Tivoli Monitoring CD are supplied by IBM, except for the HP-UX version. Prerequisites for the Java Runtime Environment are described in a readme file in the JRE directory on the product installation CD for IBM Tivoli Monitoring.

**Required authorization role**
The installation routine for IBM Tivoli Monitoring for Databases creates the Tivoli administrator who is authorized to perform this procedure. On UNIX, the user who runs the installer must have root privileges. On Windows, the user who runs the installer must have membership in the Administrators group. Other users must have one of the following roles: admin, senior, or super.

**Before you begin**
Access the Tivoli environment as described in “Accessing the Tivoli environment” on page 48.

**When you finish**

**Procedure**
You can perform this procedure from the command line.

**Command Line:** Run the following command to install the Java Runtime Environment and link it to IBM Tivoli Monitoring:

```
wdmdistrib -J "JRE_location_dir" -l subscriber
```

where
**JRE_location_dir**
Specifies the complete path of the directory where Java Runtime Environment (JRE) is located on the installation CD (excluding the platform directory). Enclose the path in quotation marks.

**subscriber**
Specifies the name of the subscriber to which you want to distribute the software. See the *IBM Tivoli Monitoring User’s Guide* for full information on this variable.

See the *IBM Tivoli Monitoring User’s Guide* for full information on the `wdmdistrib` command.

---

**Linking to an existing Java Runtime Environment**

**Objective**
To link the IBM Tivoli Monitoring software to an existing Java Runtime Environment.

**Background information**
Endpoints must run the Java Runtime Environment (JRE), Version 1.3.0 or 1.3.1. Solaris endpoints must have Version 1.3.1-01. This software enables the distribution and running of resource models. The Tivoli `DMLinkJre` task enables the endpoint to identify the correct path to the Java software.

You must install the Java Runtime Environment and run the `DMLinkJre` task before you distribute resource models. You also must run the `DMLinkJre` task when you use Tivoli Software Installation Service or the installation routine that Sun Microsystems, Inc. provides to install the runtime environment.

Running the `DMLinkJre` task is not required when you use the `wdmdistrib` command to install the runtime environment. See “Installing the Java Runtime Environment” on page 67 for more information on these options.

**Required authorization role**
On UNIX, the user who runs the installer must have root privileges. On Windows, the user who runs the installer must have membership in the Administrators group.

**Before you begin**
Install the Java Runtime Environment, as described in “Installing the Java Runtime Environment” on page 67.

**When you finish**
None

**Procedure**
You can perform this procedure from the Tivoli desktop only.

**Tivoli desktop:**
1. Select TMR Connections in the Desktop menu.
2. Select Top Level Policy Regions in the sub-menu to display the Top Level Policy Regions window.
3. Double-click the `TivoliDefaultMw2kRegion-TMRname-region` icon to display the Policy Region window, where TMRname is the name of the Tivoli management region server.
4. Double-click the **IBM Tivoli Monitoring Tasks** task library icon to display the Task Library window.

5. Double-click the **DMLinkJre** task icon to display the Execute Task window.

6. Select the endpoint or endpoints that you want to link to the Java software.

   Additional Information: Alternatively, you can select target endpoints by selecting the profile managers that contain those endpoints. The installation path for the Java software on each endpoint must be the same on each target endpoint in that profile.

   **Note:** The task validates the link to the Java software and advises you of a path error. The path error becomes evident later, when the distribution of resource models to the endpoint generates an error stating that the Java software is missing or not installed.

7. Click **Execute** to display the Configure Task Arguments window.

8. Type the fully qualified path to the top-level directory of the Java software.

   Additional Information: For example, if the Java executable is installed as 
   `/usr/java/bin/java`, type this value in the text field:
   `/usr/java`

9. Click **Set & Execute**.

   Additional Information: To confirm success of this operation distribute a resource model to the endpoints you have linked. Distribution is described in the user’s guide for the product you are using:

   - **IBM Tivoli Monitoring for Databases: DB2 User’s Guide**
   - **IBM Tivoli Monitoring for Databases: Informix User’s Guide**
   - **IBM Tivoli Monitoring for Databases: Oracle User’s Guide**
   - **IBM Tivoli Monitoring for Databases: Microsoft SQL Server User’s Guide**

   When the **DMLinkJre** task is successful, distribution of the resource model completes without generating an error message.

---

**Installing files to enable customization of resource models**

**Objective**
To load class files that enable you to customize the resource models that come with the product.

**Background information**
The IBM Tivoli Monitoring Workbench is a programming tool for creating, modifying, debugging, and packaging resource models for use with IBM Tivoli Monitoring products. Samples of best practice resource models have also been provided for your use within the Workbench. You can use these resource models as working examples for creating new resource models. The Tivoli Maintenance and Support Contract covers assistance with problems and issues relative to the operation of the IBM Tivoli Monitoring Workbench, but does not cover assistance for new or modified resource models other than the ones that are included in the Workbench.

The **IBM Tivoli Monitoring Workbench User’s Guide** describes how to use the Workbench. When you customize one of these resource models in the Workbench, you must associate the new resource model with a class file called a Managed Object Format (MOF) file. This procedure describes how to make the .mof files for IBM Tivoli Monitoring for Databases available to Workbench.
A .mof file is an ASCII file that contains the formal definition of a resource. For example, the DB2 CPU Utilization resource model monitors the total DB2 system and user central processing unit time used by the database manager agents in a DB2 installation. The .mof file for this resource model defines the properties (CPU utilization) of this resource.

The .mof file format adheres to the platform-neutral Common Information Model (CIM) standard of the Distributed Management Task Force (DMTF) industry consortium. This standard reduces the cost and complexity of managing computer resources.

The Workbench tool is available on Windows only and it must have access to the resources of the Microsoft Windows Management Instrumentation (WMI) SDK. Information and software for the SDK is available through the Microsoft Corporation. Specifically, this procedure uses the MOF Compiler, mofcomp.exe, that comes with the SDK. See the Microsoft Windows Management Instrumentation: Platform SDK online help for more information.

Required authorization role
You must have log on privileges for the target computer.

Before you begin
For a Windows NT system, install the Microsoft Windows Management Instrumentation (WMI) SDK from Microsoft Corporation. The SDK comes with Windows 2000.

When you finish
See IBM Tivoli Monitoring Workbench User’s Guide to learn how to use the optional Workbench tool. You use the Workbench to create resource models based on the standard resource models that come with IBM Tivoli Monitoring for Databases. As part of the creation process, you create a dependency between the new resource model and one of the .mof files you have installed.

Procedure
You can perform this procedure from the command line only.

Command line:

1. Access the mofcomp.exe executable in the following directory path:
   %SystemRoot%\system32\wbem
2. Run the following command:
   mofcomp -N:\Root\Cimv2 mof_file_name

   where mof_file_name is the name of a .mof file for IBM Tivoli Monitoring for Databases. \Root\Cimv2 refers to the namespace in the class repository that includes resource model information.

   Additional Information: The product .mof files are located on the IBM Tivoli Monitoring for Databases, Version 5.1.1: Component software installation CD.

Installing files to enable Tivoli Enterprise Data Warehouse

Objective
To install application warehouse packs that provide the extract, transform, and load (ETL) processes and that enable reporting in the Tivoli Enterprise Data Warehouse report interface.

70 IBM Tivoli Monitoring for Databases: Installation and Setup Guide
Background information

Note: This procedure describes installation of enablement files on a Tivoli Enterprise Data Warehouse environment that exists on a single computer. This type of installation simplifies configuration and setup, but might serve only as a test or demonstration environment, and can only be installed on Windows. Most monitoring environments require a distributed installation of Tivoli Enterprise Data Warehouse. To learn how to install and configure enablement files for a distributed environment, see Installing and Configuring Tivoli Enterprise Data Warehouse, Version 1, Release 1.

You can extract, transform, and load operational data from resource models into the central data warehouse database. Furthermore, you can extract, transform, and load historical data to produce historical reports. This procedure describes installing the warehouse packs on a single, dedicated computer that has all of the Tivoli Enterprise Data Warehouse components. Specifically, the central data warehouse ETL (ETL1) process and the data mart ETL (ETL2) process perform the respective tasks:

- Extract operational data from the IBM Tivoli Monitoring for Databases resource models and load it into the central data warehouse. This process enables data collection for software components that are based on IBM Tivoli Monitoring, Version 5.1.1.
- Extract historical data from the central data warehouse for use in tabular and graphical reports. This process enables custom functionality for IBM Tivoli Monitoring for Databases.

Consider the following points:

- The installer must have a valid, fully qualified host name to complete the installation.
- The user who performs the installation must have a valid user name and password to access the DB2 instance for this product.

See the Installing and Configuring Tivoli Enterprise Data Warehouse, Version 1, Release 1, Guide for detailed information on all installation and configuration options for the warehouse packs, as well as uninstallation information. See the Installing and Configuring sections in the following documents for information on software prerequisites, supported hardware and platforms, limitations, and database sizing considerations:

- IBM Tivoli Monitoring for Databases: DB2 Warehouse Enablement Guide
- IBM Tivoli Monitoring for Databases: Informix Warehouse Enablement Guide
- IBM Tivoli Monitoring for Databases: Microsoft SQL Server Warehouse Enablement Guide
- IBM Tivoli Monitoring for Databases: Oracle Warehouse Enablement Guide

**Required authorization role**

**superadmin** for the Tivoli Enterprise Data Warehouse environment.

**Before you begin**

Install Tivoli Enterprise Data Warehouse and the required DB2 database software (IBM DB2 Universal Database Enterprise Edition) as described in the Installing and Configuring Tivoli Enterprise Data Warehouse, Version 1, Release 1 Guide.
When you finish
Run ETL processes to extract, transform, and load DB2, Informix, Microsoft SQL Server, and Oracle data. Generate tabular and graphical reports as described as described in the user’s guide for the product you are using:
• IBM Tivoli Monitoring for Databases: DB2 User’s Guide
• IBM Tivoli Monitoring for Databases: Informix User’s Guide
• IBM Tivoli Monitoring for Databases: Microsoft SQL Server User’s Guide
• IBM Tivoli Monitoring for Databases: Oracle User’s Guide

Install and configure the Tivoli Enterprise Data Warehouse Support Component. See the “Integration with Tivoli Enterprise Data Warehouse” chapter in the IBM Tivoli Monitoring User’s Guide for details. You must install this component first on the Tivoli management region server and then on all managed nodes.

Procedure
You perform this procedure using the Tivoli Enterprise Data Warehouse installation program.

Installation wizard:
1. Log on to the computer that runs Tivoli Enterprise Data Warehouse.
   Additional Information: On Windows, the user who runs the installer must have membership in the Administrators group.
2. Run the following setup executable in the root directory of the Tivoli Enterprise Data Warehouse installation CD:
   setup.exe
   Additional Information: The executable launches the installation wizard.
3. Install the IBM Tivoli Monitoring, Version 5.1.1 warehouse pack that provides the central data warehouse ETL1 that extracts data and loads it into the central data warehouse by doing the following (This warehouse pack ships on the IBM Tivoli Monitoring, Version 5.1.1 CD (LK3T-8486-01) ):
   a. Click Next to display the installation options panel.
   b. Select Application Installation only.
   c. Select the directory path where you want to install the program.
      Additional Information: You must install the warehouse pack in the installation directory for Tivoli Enterprise Data Warehouse.
   d. Click Next.
   e. Type the host name.
      Additional Information: The wizard requires the fully-qualified host name for the computer. For example, the fully-qualified host name for myhost might be myhost.mycompany.com.
   f. Type the user name and password for configuring DB2.
   g. Type the directory path for the warehouse pack configuration file.
      Additional Information: The twh_app_install_list.cfg configuration file for this warehouse pack is located on the IBM Tivoli Monitoring, Version 5.1.1 CD in directory /tedw_apps_etl/amx.
   h. Select Now to verify the source directory immediately.
   i. Click Next.
   j. (Optional) If the wizard detects a path error, modify the source directory path and click Next again.
   k. Click Next.
Additional Information: This procedure does not require use of the option to install additional packages.

The wizard displays a summary of the program installation, including disk space required.

l. Click Install.
m. Click Finish in the final summary screen.

Additional Information: For troubleshooting information, see the troubleshooting chapter in Installing and Configuring Tivoli Enterprise Data Warehouse, Version 1, Release 1, Guide.

4. Install the IBM Tivoli Monitoring for Databases, Version 5.1.1: DB2, Informix, Microsoft SQL Server, or Oracle warehouse pack that provides the data mart ETL2 that extracts data from the central data warehouse for use in tabular and graphical reports. (These warehouse packs ship on the IBM Tivoli Monitoring for Databases, Version 5.1.0: DB2 Component Software CD (LK3T-8583-00), IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix Component Software CD (LK3T-8607-00), IBM Tivoli Monitoring for Databases, Version 5.1.1: Microsoft SQL Server Component Software CD (LK3T-8977-00), and the IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle Component Software CD (LK3T-8604-00):

a. Repeat Steps l and m to re-launch the Tivoli Enterprise Data Warehouse installation wizard.
b. Click Next to display the installation options panel.
c. Select Application Installation only.
d. Select the directory path where you want to install the program.
e. Click Next.
f. Type the host name.

Additional Information: The wizard requires the fully qualified host name for the computer. For example, the fully qualified host name for myhost might be myhost.mycompany.com.
g. Determine which warehouse pack you want to install and type the directory path for its configuration file.
h. Type the directory path of the program files.

Additional Information: The twh_app_install_list.cfg configuration file is located in the following paths:

• For the DB2 component, see the IBM Tivoli Monitoring for Databases, Version 5.1.0: DB2 Component Software CD in directory /tedw_apps_etl/ctd.
• For the Informix component, see the IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix Component Software CD in directory /tedw_apps_etl/ctr.
• For the Microsoft SQL Server component, see the IBM Tivoli Monitoring for Databases, Version 5.1.1: Microsoft SQL Server Component Software CD in directory /tedw_apps_etl/ctw.
• For the Oracle component, see the IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle Component Software CD in directory /tedw_apps_etl/cto.
i. Select Now to verify the source directory immediately.
j. Click Next.
k. If the wizard detects a path error, modify the source directory path and click Next again.
l. Click Next.
**Installing IBM Tivoli Language Support for this product**

**Objective**
To install language support packages so you can enable one or more of the nine available national language versions of the product.

**Background information**
By default, IBM Tivoli Monitoring for Databases is enabled in English. To enable other languages, install the appropriate language support pack from one of the following installation CDs:

- IBM Tivoli Monitoring for Databases Version 5.1.0: DB2 Language Support
- IBM Tivoli Monitoring for Databases Version 5.1.0: Informix Language Support
- IBM Tivoli Monitoring for Databases Version 5.1.1: Microsoft SQL Server Language Support
- IBM Tivoli Monitoring for Databases Version 5.1.0: Oracle Language Support

You can install multiple language support packages for a single product.

Language support packages exist for the languages listed in Table 21. The table also shows product-name prefixes and language-support suffixes. You concatenate a prefix and a suffix to form the complete name of the .IND file. For example, the following .IND files contain German language support packages for DB2:

- DB2_DE.IND is the name of the German language support package for DB2.
- AMW_DE.IND is the name of the German language support package for IBM Tivoli Monitoring.
Table 21. Language support and names of corresponding installation index (.IND) files

<table>
<thead>
<tr>
<th>Language</th>
<th>Prefix for DB2</th>
<th>Prefix for Informix</th>
<th>Prefix for Microsoft SQL Server</th>
<th>Prefix for Oracle</th>
<th>Prefix for IBM Tivoli Monitoring</th>
<th>Language code suffix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazilian Portuguese</td>
<td>CTD</td>
<td>CTR</td>
<td>CTW</td>
<td>CTO</td>
<td>AMW</td>
<td>_PTBR (Exception: the suffix for IBM Tivoli Monitoring is _PT_B)</td>
</tr>
<tr>
<td>Chinese (simplified)</td>
<td>CTD</td>
<td>CTR</td>
<td>CTW</td>
<td>CTO</td>
<td>AMW</td>
<td>_ZHCH (Exception: the suffix for IBM Tivoli Monitoring is _ZH_C)</td>
</tr>
<tr>
<td>Chinese (traditional)</td>
<td>CTD</td>
<td>CTR</td>
<td>CTW</td>
<td>CTO</td>
<td>AMW</td>
<td>_ZHTW (Exception: the suffix for IBM Tivoli Monitoring is _ZH_T)</td>
</tr>
<tr>
<td>French</td>
<td>CTD</td>
<td>CTR</td>
<td>CTW</td>
<td>CTO</td>
<td>AMW</td>
<td>_FR</td>
</tr>
<tr>
<td>German</td>
<td>CTD</td>
<td>CTR</td>
<td>CTW</td>
<td>CTO</td>
<td>AMW</td>
<td>_DE</td>
</tr>
<tr>
<td>Italian</td>
<td>CTD</td>
<td>CTR</td>
<td>CTW</td>
<td>CTO</td>
<td>AMW</td>
<td>_IT</td>
</tr>
<tr>
<td>Japanese</td>
<td>CTD</td>
<td>CTR</td>
<td>CTW</td>
<td>CTO</td>
<td>AMW</td>
<td>_JA</td>
</tr>
<tr>
<td>Korean</td>
<td>CTD</td>
<td>CTR</td>
<td>CTW</td>
<td>CTO</td>
<td>AMW</td>
<td>_KO</td>
</tr>
<tr>
<td>Spanish</td>
<td>CTD</td>
<td>CTR</td>
<td>CTW</td>
<td>CTO</td>
<td>AMW</td>
<td>_ES</td>
</tr>
</tbody>
</table>

Some command line and keyword options are not translated in the language support packages. This approach avoids any programming complexities for scripts that can run under multiple locales. Run the scripts under the locale in which the retrieved data is stored.

The Tivoli Management Framework uses the software in the language support packages. For more information, see the following documents on the installation CDs for Tivoli Management Framework:

- Chapter 2 "Internationalization" in the Tivoli Enterprise Installation Guide
- Release Notes

**Required authorization role**

The user account that is required to install IBM Tivoli Monitoring for Databases can perform the language pack installation procedure. Other administrators need the install_product role.

**Before you begin**

As a precautionary measure, back up the Tivoli management region as described in "Back up and restore Tivoli database" on page 13.

Start the command line interface or Tivoli desktop as described in "Access the Tivoli environment" on page 48.
Installation of the language pack for IBM Tivoli Monitoring for Databases: Microsoft SQL Server provides a unique desktop installation. See “Using the Language Pack installer for IBM Tivoli Monitoring for Databases: Microsoft SQL Server” on page 78 for instructions. This installer requires you to enable Java Runtime Environment. The wdmrm -addcat command is automatically executed for all resource models using this installation.

When you finish
The installer enables language support for the Web Health Console automatically. If you manually installed the console, see “Installing the Web Health Console manually” on page 63.

If you install a language pack after you create one or more objects, the message catalog files are not automatically updated on the endpoints for those objects. To update the message catalogs for the language pack, right-click the object in the Tivoli desktop and select Push Dependencies in the Diagnostics menu. The new language pack dependencies are downloaded to the endpoint. Alternatively, you can recreate the objects that you created before installing the language pack. See the user’s guide for the product you are using for more information on creating objects.

- IBM Tivoli Monitoring for Databases: DB2 User’s Guide
- IBM Tivoli Monitoring for Databases: Informix User’s Guide
- IBM Tivoli Monitoring for Databases: Microsoft SQL Server User’s Guide
- IBM Tivoli Monitoring for Databases: Oracle User’s Guide

Procedure
You can perform this procedure from the Tivoli desktop or from the command line. For IBM Tivoli Monitoring for Databases: Microsoft SQL Server, you can also perform this procedure using the Language Pack installer.

Command line:

1. Insert the Language Support CD for the component you want:
   - IBM Tivoli Monitoring for Databases, Version 5.1.0: DB2 Language Support
   - IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix Language Support
   - IBM Tivoli Monitoring for Databases, Version 5.1.1: Microsoft SQL Server Language Support
   - IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle Language Support
2. Access the Tivoli command line interface as described in “Accessing the Tivoli environment” on page 48
3. Type bash and press Enter to access the complete libraries of Tivoli commands.
4. Execute the following command:
   
   ```bash
   wininstall -c /cdromdrive -i INDFILENAME -y
   ```

   where INDFILENAME for the language you want to install and cdromdrive is the path to the location of the .IND files.

   Additional Information: When the command completes, the message Finished Product Installation displays.
5. Repeat Step 4 to install additional language support packages.
6. Add the National Language Support (NLS) catalog to the resource models by running the following command:

   ```bash
   wdmrm -addcat <resource_model> [-f <catalog_file> -l <locale>]
   ```
where \(<resource\_model>\) is the resource model to which you want to add NLS catalog details. \([-f <catalog\_file> -l <locale>]\) defines a specific NLS catalog that is to be added to the resource model. If this is not specified, the resource model is updated with the details of all NLS catalogs in the msg_cat directory.

**Additional Information:** The `wdmrm` command adds the NLS catalog to the resource model, so that when it is subsequently distributed to endpoints, the resource model has all the necessary NLS information to support the display of localized events on the Tivoli Enterprise Console server. For more information on the `wdmrm` command, see the IBM Tivoli Monitoring User’s Guide.

Refer to the Tivoli Management Framework Reference Manual for more information about the `winstall` command. Refer to "Tivoli command syntax" on page xv for information on Tivoli command line syntax.

**Tivoli desktop:**

1. Select **Install** in the **Desktop** menu.
2. Select **Install Product** in the sub-menu to display the Install Product window.
3. (*Optional*) If necessary, click **OK** to bypass a harmless error message about the media settings.
4. Click **Select Media** to display the File Browser window.
5. In the **Path Name** text field, enter the full path to the language support files in the CD-ROM drive. Be sure to use backward slashes (`\`) for Windows path names instead of forward slashes (`/`).
6. Click **Set Path** to refresh the view.
   *Additional Information:* The **Directories** list displays .CFG files and the **Files** list displays the .IND files that include the names of all nine languages.
7. Click **Set Media & Close** to return to the Install Product window.
8. Select the language that you want to install in the **Select Product to Install** list.
   *Additional Information:* For example, select IBM Tivoli Monitoring for Databases, Version 5.1.0, [de] German language to choose German language support for installation.
9. Select the target clients on which to install the language from the **Available Clients** scrolling list.
10. Click the right arrow to move the selected clients to the **Clients to Install On** scrolling list.
11. Click **Install & Close** to launch the installation progress window.
12. Click **Continue Install** when the prompt is displayed.
13. Click **Close** when the **Finished Product Installation** message is displayed.
14. Repeat these steps to install another language support package.
15. Add the National Language Support (NLS) catalog to the resource models by running the following command from the Tivoli command line:

```
wdmrm –addcat <resource_model> [-f <catalog_file> -l <locale>] 
```

where \(<resource\_model>\) is the resource model to which you want to add NLS catalog details. \([-f <catalog\_file> -l <locale>]\) defines a specific NLS catalog that is to be added to the resource model. If this is not specified, the resource model is updated with the details of all NLS catalogs in the msg_cat directory.

*Additional Information:* The `wdmrm` command adds the NLS catalog to the resource model, so that when it is subsequently distributed to endpoints, the
resource model has all the necessary NLS information to support the display of localized events on the Tivoli Enterprise Console server. For more information on the `wdmrm` command, see the *IBM Tivoli Monitoring User’s Guide*.

**Using the Language Pack installer for IBM Tivoli Monitoring for Databases: Microsoft SQL Server:**

1. Double-click one of the following installation files to launch the installer and display the welcome window:
   - Windows: `LPinstall.bat`
   - UNIX: `LPinstall.sh`

2. Click **Next** to display the license agreement screen.

3. Select **I accept the terms in the license agreement** and click **Next** to display the installation directory window.

4. Do one of the following to select an installation directory:
   - Click **Browse** to specify an installation directory.
   - **OR**
   - Use the default installation directory.
5. Click **Next** to save the installation directory location and display the installation features window.

6. Select the check box of the software feature you want to install.

7. Click **Next** to display a confirmation screen specifying the installation directory and size of the installation.

8. Click **Next** to display an installation completion screen.

9. Click **Finish** to exit the installer.

---

### Updating Web Health Console files

**Objective**
To update the Web Health Console files when you install a new component or upgrade IBM Tivoli Monitoring for Databases.

**Background information**
This procedure describes how to update the class files for the Web Health Console when you add a component to the product. The class files specify the standard text that the console displays.

Whenever you add or upgrade components for your installation of IBM Tivoli Monitoring for Databases you must perform this procedure. For example, if you upgrade Version 5.1.0 of the product to a later release, you must update the class files located on the computer that hosts the Web Health Console. The new class files become available after you restart the Web Application Server that enables the console.

When you install the Web Health Console for the first time, the installer automatically installs the required class files and this procedure is not necessary. When you install the product without using the installer, use the procedure “Installing the Web Health Console manually” on page 63.

**Required authorization role**
The same authorization roles that are required for the target computer.
Before you begin
None

When you finish
None

Procedure
You can perform this procedure from the command line only.

Command line:
1. Copy the contents of the HCONSOLE directory of catalog files from one of the following installation CDs:
   • For the English language updates to IBM Tivoli Monitoring, copy catalog files from the "IBM Tivoli Monitoring V5.1.1" installation CD.
   • For the English language updates to IBM Tivoli Monitoring for Databases, copy catalog files from the "IBM Tivoli Monitoring for Databases" installation CDs.
   • For other languages, copy catalog files from the "IBM Tivoli Monitoring for Databases: Language Support" installation CD.

2. Paste the contents of the HCONSOLE directory in the following resources directory on the target computer that hosts the Web Health Console:
   INSTALL_DIR/installedApps/dm.ear/dm.war/WEB-INF/classes/com/tivoli/DmForNt/resources

Changing the gateway assignment of an endpoint

Objective
To assign an endpoint to a different gateway on a managed node.

Background information
An endpoint communicates with the Tivoli management region through gateway software that exists on a managed node. By default, the installer for IBM Tivoli Monitoring for Databases assigns endpoints to managed nodes whenever possible. The installer assigns endpoints to the Tivoli management region server only when no other managed node is available.

In IBM Tivoli Monitoring for Databases, the primary role of the Tivoli management region server is to administer managed nodes. The primary role of managed nodes is to administer endpoints. If you use the Tivoli management region to administer endpoints, you decrease the amount of system resources available for the administration of managed nodes.

If you want the Tivoli management region to administer endpoints, you can change the gateway assignment as described in this procedure.

Required authorization role
senior

Before you begin
None

When you finish
None
Procedure
You can perform this procedure from the command line.

Command line:
1. Access the Tivoli command line interface as described in “Accessing the Tivoli environment” on page 48.
2. Run the `wep ls` command to generate a list of gateway assignments.
3. Run the following command:
   ```
   wep <endpoint> migrate <gateway>
   ```
   where `<endpoint>` is the name of the endpoint to migrate and `<gateway>` is the name of the new gateway assignment.
Chapter 8. Mapping monitors to resource models

This chapter provides information that shows which monitors from previous versions of the product correspond to resource models in IBM Tivoli Monitoring for Databases. Previous versions of this product were called Tivoli Manager for DB2, Tivoli Manager for Informix, and Tivoli Manager for Oracle.

This chapter also provides information to map functionality for IBM Tivoli Monitoring for Databases: Microsoft SQL Server users. Although the release of IBM Tivoli Monitoring for Databases: Microsoft SQL Server is a new product offering, some functionality comparisons to previous Tivoli software offerings might be made. IBM Tivoli Monitoring for Databases: Microsoft SQL Server offers many new features and monitoring capability, but it also captures many of the quality monitoring capability of previous Tivoli software releases.

IBM Tivoli Monitoring for Databases supports concurrency with Tivoli Distributed Monitoring. You can continue to run the old monitoring systems based in Tivoli Distributed Monitoring—for example, Tivoli Manager for DB2, Tivoli Manager for Informix, and Tivoli Manager for Oracle—after you have installed IBM Tivoli Monitoring for Databases. You can gradually reproduce the functionality of your old monitors in resource models and run the resource models in IBM Tivoli Monitoring.

Tables in this section list the specific monitors that correspond to each resource model as follows:

- Table 22 on page 84 lists monitors for Informix and corresponding resource models.
- Table 23 on page 85 lists monitors for Oracle and corresponding resource models.
- Table 24 on page 88 lists monitors for DB2 and corresponding resource models.
- Table 25 on page 102 compares the Tivoli Manager for Microsoft SQL Server monitors with the IBM Tivoli Monitoring for Databases: Microsoft SQL Server resource models.
- Table 26 on page 105 compares the Microsoft SQL Server version 7 rules in Tivoli Management Solution for Microsoft SQL with the IBM Tivoli Monitoring for Databases: Microsoft SQL Server resource models.
- Table 27 on page 106 compares the Microsoft SQL Server version 2000 rules in Tivoli Management Solution for Microsoft SQL with the IBM Tivoli Monitoring for Databases: Microsoft SQL Server resource models.

The respective IBM Tivoli Monitoring for Databases User’s Guides for this product describe how to configure and deploy resource models.
### Mapping monitors from Tivoli Manager for Informix

Table 22 compares Tivoli Manager for Informix monitors to IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix resource models.

**Table 22. Monitors for Informix and the corresponding resource models in IBM Tivoli Monitoring for Databases**

<table>
<thead>
<tr>
<th>Tivoli Manager for Informix, version 1.0, monitors</th>
<th>Resource models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Transactions</td>
<td>Active Transaction</td>
</tr>
<tr>
<td>Alerts</td>
<td>Log Event</td>
</tr>
<tr>
<td>Cache Hit Ratio</td>
<td>Cache Hit Ratio</td>
</tr>
<tr>
<td>Checkpoint Duration</td>
<td>Checkpoint</td>
</tr>
<tr>
<td>Checkpoint Frequency</td>
<td>Checkpoint</td>
</tr>
<tr>
<td>Core Dump Space</td>
<td>Filesystem</td>
</tr>
<tr>
<td>DML Locks Ratio</td>
<td>DML Locks Ratio</td>
</tr>
<tr>
<td>Filesystem Usage Message Log</td>
<td>Filesystem</td>
</tr>
<tr>
<td>Filesystem Usage Lost and Found</td>
<td>Filesystem</td>
</tr>
<tr>
<td>Foreground Writes</td>
<td>Writes</td>
</tr>
<tr>
<td>LRU Writes</td>
<td>Writes</td>
</tr>
<tr>
<td>Chunk Writes</td>
<td>Writes</td>
</tr>
<tr>
<td>Free Space Deficit</td>
<td>Free Space Deficit</td>
</tr>
<tr>
<td>Free Tablespace</td>
<td>Free Dbspace</td>
</tr>
<tr>
<td>Free Tablespace by Tablespace</td>
<td>Free Dbspace</td>
</tr>
<tr>
<td>Free Form SQL Numeric</td>
<td>Withdrawn</td>
</tr>
<tr>
<td>Free Form SQL String</td>
<td>Withdrawn</td>
</tr>
<tr>
<td>Primary HDR State</td>
<td>HDR</td>
</tr>
<tr>
<td>Secondary HDR State</td>
<td>HDR</td>
</tr>
<tr>
<td>Locking</td>
<td>DML Locks Ratio</td>
</tr>
<tr>
<td>Logical Log Backup</td>
<td>Logical Log Backup</td>
</tr>
<tr>
<td>LRU Queues</td>
<td>LRU Queues</td>
</tr>
<tr>
<td>Memory Segment Number</td>
<td>Memory Segment</td>
</tr>
<tr>
<td>Memory Segment Size</td>
<td>Memory Segment</td>
</tr>
<tr>
<td>Extents</td>
<td>Table Extents</td>
</tr>
<tr>
<td>Extents by Table</td>
<td>Table Extents</td>
</tr>
<tr>
<td>Dbspaces</td>
<td>Dbspace</td>
</tr>
<tr>
<td>Chunks</td>
<td>Free Dbspace</td>
</tr>
<tr>
<td>Number of Deadlocks</td>
<td>Deadlocks</td>
</tr>
<tr>
<td>Logical Log Usage</td>
<td>Logical Log</td>
</tr>
<tr>
<td>Physical Log Usage</td>
<td>Physical Log Usage Ratio</td>
</tr>
<tr>
<td>Physical IO Reads</td>
<td>Physical Log Usage Ratio</td>
</tr>
<tr>
<td>Physical IO Writes</td>
<td>Physical Log Usage Ratio</td>
</tr>
<tr>
<td>Server State</td>
<td>State</td>
</tr>
<tr>
<td>Userthread Overflows</td>
<td>Overflows</td>
</tr>
</tbody>
</table>
### Table 22. Monitors for Informix and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>Tivoli Manager for Informix, version 1.0, monitors</th>
<th>Resource models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock Overflows</td>
<td>Overflows</td>
</tr>
<tr>
<td>Transaction Overflows</td>
<td>Overflows</td>
</tr>
<tr>
<td>Number of Checkpoints</td>
<td>Checkpoints</td>
</tr>
<tr>
<td>Number of Buffer Pool Flusheds</td>
<td>Writes</td>
</tr>
<tr>
<td>Number of Buffer Pool Waits</td>
<td>Waits</td>
</tr>
<tr>
<td>Number of Lock Waits</td>
<td>Waits</td>
</tr>
<tr>
<td>Number of Checkpoint Waits</td>
<td>Waits</td>
</tr>
<tr>
<td>Number of Latch Waits</td>
<td>Waits</td>
</tr>
<tr>
<td>Rollback</td>
<td>Rollback Ratio</td>
</tr>
<tr>
<td>User of Rollback Ratio</td>
<td>Rollback Ratio</td>
</tr>
</tbody>
</table>

### Mapping monitors from Tivoli Manager for Oracle

Table 23 compares Tivoli Manager for Oracle monitors to IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle resource models.

### Table 23. Monitors for Oracle and the corresponding resource models in IBM Tivoli Monitoring for Databases

<table>
<thead>
<tr>
<th>Tivoli Manager for Oracle, Version 2.0 monitor name</th>
<th>Resource models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Transactions</td>
<td>Transaction</td>
</tr>
<tr>
<td>Advanced Queue Propagation Status (8i)</td>
<td>Advanced Queue</td>
</tr>
<tr>
<td>Alerts</td>
<td>Log Event</td>
</tr>
<tr>
<td>Any v$lock</td>
<td>Lock</td>
</tr>
<tr>
<td>Any v$systat</td>
<td>Other Performance Monitors</td>
</tr>
<tr>
<td>AQ (Advanced Queue) Schedule Propagation errors (8i)</td>
<td>Advanced Queue</td>
</tr>
<tr>
<td>Archive Free Space</td>
<td>Archive Destination</td>
</tr>
<tr>
<td>Archive Percent Free Space</td>
<td>Archive Destination</td>
</tr>
<tr>
<td>Archive Space (Number of Redo Logs)</td>
<td>Archive Destination</td>
</tr>
<tr>
<td>Archive Used Space</td>
<td>Archive Destination</td>
</tr>
<tr>
<td>Average Message Propagation Rate (across schedule) (8i)</td>
<td>Advanced Queue</td>
</tr>
<tr>
<td>Average Redo Entry Size</td>
<td>Redo Log</td>
</tr>
<tr>
<td>Average waiting time of &quot;READY&quot; messages (8i)</td>
<td>Advanced Queue</td>
</tr>
<tr>
<td>Background Dump Space</td>
<td>Dump Space</td>
</tr>
<tr>
<td>Block Changes Per Transaction</td>
<td>Transaction</td>
</tr>
<tr>
<td>Block Get Rate</td>
<td>Other Performance Monitors</td>
</tr>
<tr>
<td>Blocked Transactions</td>
<td>Transaction</td>
</tr>
<tr>
<td>Buffer Cache Hit Ratio</td>
<td>SGA</td>
</tr>
<tr>
<td>Tivoli Manager for Oracle, Version 2.0 monitor name</td>
<td>Resource models</td>
</tr>
<tr>
<td>-------------------------------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Buffer Cache Hit Ratio (Interval)</td>
<td>SGA</td>
</tr>
<tr>
<td>Buffer Waits Ratio</td>
<td>SGA</td>
</tr>
<tr>
<td>Call Rate</td>
<td>Transaction</td>
</tr>
<tr>
<td>Calls Per Transaction</td>
<td>Transaction</td>
</tr>
<tr>
<td>Chained Rows (cluster)</td>
<td>Other Storage</td>
</tr>
<tr>
<td>Chained Rows (table)</td>
<td>Other Storage</td>
</tr>
<tr>
<td>Changed Block Ratio</td>
<td>Other Performance Monitors</td>
</tr>
<tr>
<td>Cluster Key Ratio</td>
<td>Other Storage</td>
</tr>
<tr>
<td>Completed Background Checkpoints</td>
<td>Checkpoints</td>
</tr>
<tr>
<td>Consistent Change Ratio</td>
<td>Rollback Segment</td>
</tr>
<tr>
<td>Continued Row Ratio</td>
<td>Other Storage</td>
</tr>
<tr>
<td>Currently Running Heterogeneous Services (8i)</td>
<td>Other Performance Monitors</td>
</tr>
<tr>
<td>DBWR Checkpoints</td>
<td>Checkpoints</td>
</tr>
<tr>
<td>Dictionary Cache Hit Ratio</td>
<td>SGA</td>
</tr>
<tr>
<td>Dictionary Cache Hit Ratio (Interval)</td>
<td>SGA</td>
</tr>
<tr>
<td>Dispatcher Busy Rate</td>
<td>Multi-Threaded Server</td>
</tr>
<tr>
<td>Dispatcher Wait Times</td>
<td>Multi-Threaded Server</td>
</tr>
<tr>
<td>DML Locks Ratio</td>
<td>Lock</td>
</tr>
<tr>
<td>Enqueue Timeouts</td>
<td>Lock</td>
</tr>
<tr>
<td>Extents</td>
<td>Extents</td>
</tr>
<tr>
<td>Extents by Tablespace</td>
<td>Extents by Tablespace</td>
</tr>
<tr>
<td>Extents by User</td>
<td>Extents by User</td>
</tr>
<tr>
<td>Free Space Deficit</td>
<td>Free Space Deficit</td>
</tr>
<tr>
<td>Free Space Deficit by Tablespace</td>
<td>Free Space Deficit by Tablespace</td>
</tr>
<tr>
<td>Free Space Deficit by User</td>
<td>Free Space Deficit by User</td>
</tr>
<tr>
<td>Free Space Fragmentation</td>
<td>Free Space Fragmentation</td>
</tr>
<tr>
<td>Free Space Fragmentation by Tablespace</td>
<td>Free Space Fragmentation by Tablespace</td>
</tr>
<tr>
<td>Free Tablespace</td>
<td>Free Tablespace</td>
</tr>
<tr>
<td>Free Tablespace by Tablespace</td>
<td>Free Tablespace by Tablespace</td>
</tr>
<tr>
<td>Freelist Waits Ratio</td>
<td>Other Performance Monitors</td>
</tr>
<tr>
<td>Index Statistics</td>
<td>Other Storage</td>
</tr>
<tr>
<td>Library Cache Hit Ratio</td>
<td>SGA</td>
</tr>
<tr>
<td>Library Cache Hit Ratio (Interval)</td>
<td>SGA</td>
</tr>
<tr>
<td>Lock Hit Ratio – Parallel</td>
<td>Withdrawn</td>
</tr>
<tr>
<td>Long Running Transactions</td>
<td>Transaction</td>
</tr>
<tr>
<td>Long Table Full Table Scans (Interval)</td>
<td>Full Table Scan</td>
</tr>
<tr>
<td>Maximum Extents</td>
<td>Maximum Extents</td>
</tr>
<tr>
<td>Maximum Extents by Tablespace</td>
<td>Maximum Extents by Tablespace</td>
</tr>
<tr>
<td>Tivoli Manager for Oracle, Version 2.0</td>
<td>Resource models</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Maximum Extents by User</td>
<td>Maximum Extents by User</td>
</tr>
<tr>
<td>NT Service Status</td>
<td>Process State</td>
</tr>
<tr>
<td>Number of Datafiles</td>
<td>Other Storage</td>
</tr>
<tr>
<td>Number of Deadlocks</td>
<td>Lock</td>
</tr>
<tr>
<td>Open Cursors</td>
<td>Other Performance Monitors</td>
</tr>
<tr>
<td>PCM Conversion Waits</td>
<td>Withdrawn</td>
</tr>
<tr>
<td>PCM Lock Conversion Time</td>
<td>Withdrawn</td>
</tr>
<tr>
<td>Percentage of False Pings</td>
<td>Withdrawn</td>
</tr>
<tr>
<td>Physical I/O Reads</td>
<td>I/O</td>
</tr>
<tr>
<td>Physical I/O Writes</td>
<td>I/O</td>
</tr>
<tr>
<td>Ping Rate</td>
<td>Withdrawn</td>
</tr>
<tr>
<td>Process Ratio</td>
<td>Other Performance Monitors</td>
</tr>
<tr>
<td>RDBMS State</td>
<td>RDBMS State</td>
</tr>
<tr>
<td>Recursive Call Rate</td>
<td>Recursive Calls</td>
</tr>
<tr>
<td>Recursive Calls</td>
<td>Recursive Calls</td>
</tr>
<tr>
<td>Recursive To User Calls Ratio</td>
<td>Recursive Calls</td>
</tr>
<tr>
<td>Redo AllocationLatch Ratio</td>
<td>Redo Log</td>
</tr>
<tr>
<td>Redo Copy Latch Ratio</td>
<td>Redo Log</td>
</tr>
<tr>
<td>Redo Log Space Waits</td>
<td>Redo Log</td>
</tr>
<tr>
<td>Redo Logs Not Archived</td>
<td>Redo Log</td>
</tr>
<tr>
<td>Redo Small Copy Ratio</td>
<td>Redo Log</td>
</tr>
<tr>
<td>Rollback Waits</td>
<td>Rollback Segment</td>
</tr>
<tr>
<td>Row Source Ratio</td>
<td>Full Table Scan</td>
</tr>
<tr>
<td>Rows in DUAL Table</td>
<td>Other Performance Monitors</td>
</tr>
<tr>
<td>Shared Server Process Ratio</td>
<td>Multi-Threaded Server</td>
</tr>
<tr>
<td>Shared Server Wait Time</td>
<td>Multi-Threaded Server</td>
</tr>
<tr>
<td>Sort Overflow Ratio</td>
<td>Other Performance Monitors</td>
</tr>
<tr>
<td>SQL Number</td>
<td>SQL Number</td>
</tr>
<tr>
<td>SQL String</td>
<td>SQL String</td>
</tr>
<tr>
<td>Temporary Extents</td>
<td>Temporary Extents</td>
</tr>
<tr>
<td>Temporary Extents by Tablespace</td>
<td>Temporary Extents by Tablespace</td>
</tr>
<tr>
<td>Temporary Extents by User</td>
<td>Temporary Extents by User</td>
</tr>
<tr>
<td>Total waiting time of READY messages</td>
<td>Advanced Queue</td>
</tr>
<tr>
<td>Unix Core Dump Space</td>
<td>Dump Space</td>
</tr>
<tr>
<td>Unix SQL*Net V1 TCP/IP Listener</td>
<td>Listener State</td>
</tr>
<tr>
<td>Unix SQL*Net V2 Listener</td>
<td>Listener State</td>
</tr>
<tr>
<td>User Dump Space</td>
<td>Dump Space</td>
</tr>
<tr>
<td>User Rollback Ratio</td>
<td>Rollback Segment</td>
</tr>
</tbody>
</table>
Mapping monitors from Tivoli Manager for DB2

Table 24 compares Tivoli Manager for DB2, Version 2.1.0, monitors to IBM Tivoli Monitoring for Databases, Version 5.1.0: DB2 resource models and CIM classes. If a monitor does not map to a resource model, the resource model is marked as **None**. You can use the CIM class to create a custom resource model for a data point that you monitored using Tivoli Manager for DB2. See IBM Tivoli Monitoring for Databases: DB2 Reference Guide for details on creating custom resource models.

If a monitor’s capabilities have been removed form the product, the resource model is marked as **Withdrawn**.

**Table 24. Monitors for DB2 and the corresponding resource models in IBM Tivoli Monitoring for Databases**

<table>
<thead>
<tr>
<th>Tivoli Manager for DB2, Version 2.1.0, Monitor Name</th>
<th>IBM Tivoli Monitoring for Databases, Version 5.1.0: DB2</th>
</tr>
</thead>
<tbody>
<tr>
<td>conn: # of direct reads</td>
<td>None DB2ApplicationDirectIO</td>
</tr>
<tr>
<td>conn: # of direct writes</td>
<td>None DB2ApplicationDirectIO</td>
</tr>
<tr>
<td>conn: # of times agents are stolen</td>
<td>None DB2ApplicationAgent</td>
</tr>
<tr>
<td>conn: Application section inserts</td>
<td>DB2 SQL Statement Activity DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Application section lookups</td>
<td>DB2 SQL Statement Activity DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Application sorts</td>
<td>DB2 Sorting DB2ApplicationSorts</td>
</tr>
<tr>
<td>conn: Application work load</td>
<td>DB2 Agents DB2ApplicationAgent</td>
</tr>
<tr>
<td>conn: Average # of sectors read per direct read</td>
<td>DB2 Direct IO DB2ApplicationDirectIO</td>
</tr>
<tr>
<td>conn: Average # of sectors written per direct write</td>
<td>DB2 Direct IO DB2ApplicationDirectIO</td>
</tr>
<tr>
<td>conn: Binds/precompiles attempted</td>
<td>None DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Buffer pool time waited for prefetch (ms)</td>
<td>None DB2ApplicationBufferPool</td>
</tr>
<tr>
<td>conn: Commits</td>
<td>DB2 SQL Statement Activity DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Data page writes</td>
<td>None DB2ApplicationBufferPool</td>
</tr>
<tr>
<td>conn: DDL SQL statements</td>
<td>None DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Deadlocks found during last interval</td>
<td>DB2 Locks and Deadlocks DB2ApplicationLocks</td>
</tr>
<tr>
<td>conn: Dynamic SQL statements</td>
<td>None DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Explicit rollbacks</td>
<td>DB2 SQL Statement Activity DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Failed SQL statements</td>
<td>None DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Index page reads</td>
<td>None DB2ApplicationBufferPool</td>
</tr>
<tr>
<td>conn: Index page writes</td>
<td>None DB2ApplicationBufferPool</td>
</tr>
<tr>
<td>conn: Lock escalations during last interval</td>
<td>DB2 Locks and Deadlocks DB2ApplicationBufferPool</td>
</tr>
</tbody>
</table>
### Table 24. Monitors for DB2 and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>Metric</th>
<th>DB2 Monitor</th>
<th>Resource Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>conn: Lock wait time (s)</td>
<td>DB2 Lock Waits</td>
<td>DB2ApplicationLocks</td>
</tr>
<tr>
<td>conn: Lock waits</td>
<td>None</td>
<td>DB2ApplicationLocks</td>
</tr>
<tr>
<td>conn: Locks held</td>
<td>None</td>
<td>DB2ApplicationLocks</td>
</tr>
<tr>
<td>conn: Logical data reads</td>
<td>None</td>
<td>DB2ApplicationBufferPool</td>
</tr>
<tr>
<td>conn: Maximum associated agents</td>
<td>None</td>
<td>DB2ApplicationAgent</td>
</tr>
<tr>
<td>conn: Open block cursors</td>
<td>DB2 SQL Cursor Activity</td>
<td>DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Open cursors</td>
<td>DB2 SQL Cursor Activity</td>
<td>DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Percent buffer pool hit ratio, data+index</td>
<td>DB2 Buffer Pools</td>
<td>DB2ApplicationBufferPool</td>
</tr>
<tr>
<td>conn: Percent buffer pool hit ratio, index</td>
<td>DB2 Buffer Pools</td>
<td>DB2ApplicationBufferPool</td>
</tr>
<tr>
<td>conn: Percent DDL SQL</td>
<td>DB2 SQL Statement Activity</td>
<td>DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Percent locklist space used by application</td>
<td>DB2 Locks and Deadlocks</td>
<td>DB2ApplicationLocks</td>
</tr>
<tr>
<td>conn: Percent package cache hit ratio</td>
<td>DB2 Package Cache</td>
<td>DB2ApplicationPackageCache</td>
</tr>
<tr>
<td>conn: Percent UID SQL</td>
<td>DB2 SQL Statement Activity</td>
<td>DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Pool read time (s)</td>
<td>None</td>
<td>DB2ApplicationBufferPool</td>
</tr>
<tr>
<td>conn: Pool write time (s)</td>
<td>None</td>
<td>DB2ApplicationBufferPool</td>
</tr>
<tr>
<td>conn: Rollbacks</td>
<td>DB2 SQL Statement Activity</td>
<td>DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Rows deleted</td>
<td>None</td>
<td>DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Rows inserted</td>
<td>None</td>
<td>DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Rows selected</td>
<td>None</td>
<td>DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Rows updated</td>
<td>None</td>
<td>DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Select SQL statements</td>
<td>DB2 SQL Statement Activity</td>
<td>DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Sort time (s)</td>
<td>DB2 Sorting</td>
<td>DB2ApplicationSorts</td>
</tr>
<tr>
<td>conn: Statement sorts</td>
<td>None</td>
<td>DB2ApplicationSorts</td>
</tr>
<tr>
<td>conn: Static SQL statements</td>
<td>DB2 SQL Statement Activity</td>
<td>DB2ApplicationStatement</td>
</tr>
<tr>
<td>conn: Total pool I/O time (s)</td>
<td>None</td>
<td>DB2ApplicationBufferPool</td>
</tr>
<tr>
<td>conn: Total system CPU time used by agents</td>
<td>DB2 CPU Utilization</td>
<td>DB2ApplicationAgent</td>
</tr>
<tr>
<td>conn: Total user CPU time used by agents</td>
<td>DB2 CPU Utilization</td>
<td>DB2ApplicationAgent</td>
</tr>
<tr>
<td>conn: UOW lock wait time (s)</td>
<td>None</td>
<td>DB2ApplicationLocks</td>
</tr>
<tr>
<td>conn: Update/Insert/Delete SQL</td>
<td>DB2 SQL Statement Activity</td>
<td>DB2ApplicationStatement</td>
</tr>
</tbody>
</table>
Table 24. Monitors for DB2 and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

| db: # of applications connected currently | DB2 Database Activity | DB2DatabaseApplicationActivity  
|                                          |                      | DB2PartitionApplicationActivity |
| db: # of applications executing         | DB2 Database Activity | DB2DatabaseApplicationActivity  
|                                          |                      | DB2PartitionApplicationActivity |
| db: # of binds/precomps attempted       | None                 | DB2DatabaseSQLStatements       
|                                          |                      | DB2PartitionSQLStatements      |
| db: # of catalog cache heap full        | None                 | DB2DatabaseCatalogCache        
|                                          |                      | DB2PartitionCatalogCache       |
| db: # of catalog cache inserts          | None                 | DB2DatabaseCatalogCache        
|                                          |                      | DB2PartitionCatalogCache       |
| db: # of catalog cache lookups          | None                 | DB2DatabaseCatalogCache        
|                                          |                      | DB2PartitionCatalogCache       |
| db: # of catalog cache overflows        | None                 | DB2DatabaseCatalogCache        
|                                          |                      | DB2PartitionCatalogCache       |
| db: # of commit statements attempted    | None                 | DB2DatabaseSQLStatements       
|                                          |                      | DB2PartitionSQLStatements      |
| db: # of connects since 1st db connect  | None                 | DB2DatabaseApplicationActivity  
|                                          |                      | DB2PartitionApplicationActivity |
| db: # of database files closed          | None                 | DB2DatabaseBufferPool          
|                                          |                      | DB2PartitionBufferPool         |
| db: # of database tablespaces           | None                 | DB2DatabaseContent             
|                                          |                      | DB2PartitionContent            |
| db: # of deadlocks detected             | None                 | DB2DatabaseLocks               
|                                          |                      | DB2PartitionLocks              |
| db: # of direct read requests           | None                 | DB2DatabaseDirectIO            
|                                          |                      | DB2PartitionDirectIO           |
| db: # of direct reads from database     | None                 | DB2DatabaseDirectIO            
|                                          |                      | DB2PartitionDirectIO           |
| db: # of direct write requests          | None                 | DB2DatabaseDirectIO            
|                                          |                      | DB2PartitionDirectIO           |
| db: # of direct writes to database      | None                 | DB2DatabaseDirectIO            
|                                          |                      | DB2PartitionDirectIO           |
| db: # of event monitors                 | None                 | DB2DatabaseContent             
|                                          |                      | DB2PartitionContent            |
| db: # of internal automatic rebinds      | None                 | DB2DatabaseSQLStatements       
|                                          |                      | DB2PartitionSQLStatements      |
| db: # of internal commits               | None                 | DB2DatabaseSQLStatements       
|                                          |                      | DB2PartitionSQLStatements      |
| db: # of internal rollbacks             | None                 | DB2DatabaseSQLStatements       
|                                          |                      | DB2PartitionSQLStatements      |
| db: # of internal rows deleted          | None                 | DB2DatabaseSQLStatements       
|                                          |                      | DB2PartitionSQLStatements      |
| db: # of internal rows updated          | None                 | DB2DatabaseSQLStatements       
|                                          |                      | DB2PartitionSQLStatements      |
| db: # of invalid triggers               | DB2 Database Activity | DB2DatabaseContent             
|                                          |                      | DB2PartitionContent            |
Table 24. Monitors for DB2 and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>db: # of lock timeouts</th>
<th>None</th>
<th>DB2DatabaseLocks DB2PartitionLocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>db: # of log pages read</td>
<td>DB2 Logging</td>
<td>DB2DatabaseLogging DB2PartitionLogging</td>
</tr>
<tr>
<td>db: # of log pages written</td>
<td>DB2 Logging</td>
<td>DB2DatabaseLogging DB2PartitionLogging</td>
</tr>
<tr>
<td>db: # of log space cleaners invoked</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: # of package cache inserts</td>
<td>DB2 Package Cache</td>
<td>DB2DatabasePackageCache DB2PartitionPackageCache</td>
</tr>
<tr>
<td>db: # of package cache lookups</td>
<td>DB2 Package Cache</td>
<td>DB2DatabasePackageCache DB2PartitionPackageCache</td>
</tr>
<tr>
<td>db: # of page cleans in an interval</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: # of pages for each prefetch request</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: # of pool reads</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: # of pool writes</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: # of rollback statements attempted</td>
<td>None</td>
<td>DB2DatabaseSQLStatements DB2PartitionSQLStatements</td>
</tr>
<tr>
<td>db: # of rows deleted</td>
<td>None</td>
<td>DB2DatabaseSQLStatements DB2PartitionSQLStatements</td>
</tr>
<tr>
<td>db: # of rows inserted</td>
<td>None</td>
<td>DB2DatabaseSQLStatements DB2PartitionSQLStatements</td>
</tr>
<tr>
<td>db: # of rows selected</td>
<td>None</td>
<td>DB2DatabaseSQLStatements DB2PartitionSQLStatements</td>
</tr>
<tr>
<td>db: # of rows updated</td>
<td>None</td>
<td>DB2DatabaseSQLStatements DB2PartitionSQLStatements</td>
</tr>
<tr>
<td>db: # of secondary logs allocated currently</td>
<td>DB2 Logging</td>
<td>DB2DatabaseLogging DB2PartitionLogging</td>
</tr>
<tr>
<td>db: # of synchronous I/O</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: # of synchronous index reads</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: # of synchronous index writes</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: # of synchronous reads</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: # of synchronous writes</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: # of system tablespaces</td>
<td>None</td>
<td>DB2DatabaseContent DB2PartitionContent</td>
</tr>
<tr>
<td>db: # of tables</td>
<td>None</td>
<td>DB2DatabaseContent DB2PartitionContent</td>
</tr>
</tbody>
</table>
Table 24. Monitors for DB2 and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
<th>Resource Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>db: # of tablespaces</td>
<td>None</td>
<td>DB2DatabaseContent DB2PartitionContent</td>
</tr>
<tr>
<td>db: # of tablespaces with LONG data</td>
<td>None</td>
<td>DB2DatabaseContent DB2PartitionContent</td>
</tr>
<tr>
<td>db: # of triggers</td>
<td>None</td>
<td>DB2DatabaseContent DB2PartitionContent</td>
</tr>
<tr>
<td>db: # of user indexes</td>
<td>None</td>
<td>DB2DatabaseContent DB2PartitionContent</td>
</tr>
<tr>
<td>db: # of victim page cleaners invoked</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: # of views</td>
<td>None</td>
<td>DB2DatabaseContent DB2PartitionContent</td>
</tr>
<tr>
<td>db: Active sorts</td>
<td>None</td>
<td>DB2DatabaseSorts DB2PartitionSorts</td>
</tr>
<tr>
<td>db: app_ctl_heap_sz</td>
<td>None</td>
<td>DB2DatabaseConfiguration DB2PartitionConfiguration</td>
</tr>
<tr>
<td>db: ApplHeapSz</td>
<td>None</td>
<td>DB2DatabaseConfiguration DB2PartitionConfiguration</td>
</tr>
<tr>
<td>db: Application in lock wait</td>
<td>DB2 Lock Waits</td>
<td>DB2DatabaseLocks DB2PartitionLocks</td>
</tr>
<tr>
<td>db: Average # of async reads per pool read</td>
<td>DB2 Buffer Pools</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Average # of async Writes per pool read</td>
<td>DB2 Buffer Pools</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Average # of pool writes per pool read</td>
<td>DB2 Buffer Pools</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Average # of sectors read per direct read</td>
<td>DB2 Direct IO</td>
<td>DB2DatabaseDirectIO DB2PartitionDirectIO</td>
</tr>
<tr>
<td>db: Average # of sectors written per direct write</td>
<td>DB2 Direct IO</td>
<td>DB2DatabaseDirectIO DB2PartitionDirectIO</td>
</tr>
<tr>
<td>db: Average direct read time (ms)</td>
<td>DB2 Direct IO</td>
<td>DB2DatabaseDirectIO DB2PartitionDirectIO</td>
</tr>
<tr>
<td>db: Average direct write time (ms)</td>
<td>DB2 Direct IO</td>
<td>DB2DatabaseDirectIO DB2PartitionDirectIO</td>
</tr>
<tr>
<td>db: Average lock escalations per connection</td>
<td>DB2 Locks and Deadlocks</td>
<td>DB2DatabaseLocks</td>
</tr>
<tr>
<td>db: Average lock wait time (s)</td>
<td>DB2 Lock Waits</td>
<td>DB2DatabaseLocks DB2PartitionLocks</td>
</tr>
<tr>
<td>db: Average locks held per application</td>
<td>DB2 Locks and Deadlocks</td>
<td>DB2DatabaseLocks DB2PartitionLocks</td>
</tr>
<tr>
<td>db: Average pool I/O time (ms)</td>
<td>DB2 Buffer Pools</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Average pool read time (ms)</td>
<td>DB2 Buffer Pools</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Average pool write time (ms)</td>
<td>DB2 Buffer Pools</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
</tbody>
</table>
Table 24. Monitors for DB2 and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>db: Average sort time (ms)</th>
<th>None</th>
<th>DB2DatabaseSorts DB2PartitionSorts</th>
</tr>
</thead>
<tbody>
<tr>
<td>db: Average synchronous data read time (ms)</td>
<td>DB2 Buffer Pools</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Average synchronous data write time (ms)</td>
<td>DB2 Buffer Pools</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Average synchronous I/O (ms)</td>
<td>DB2 Buffer Pools</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Avg # of pages for each cleaner</td>
<td>None</td>
<td>DB2DatabaseBufferPool</td>
</tr>
<tr>
<td>db: Avg lock escalations per connection</td>
<td>None</td>
<td>DB2PartitionLocks</td>
</tr>
<tr>
<td>db: Buffer pool async data reads</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Buffer pool async data writes</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Buffer pool async index reads</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Buffer pool async index writes</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Buffer pool async read time (ms)</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Buffer pool async write time (ms)</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Buffer pool data logical reads</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Buffer pool data pages copied from extended storage</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Buffer pool data pages copied to extended storage</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Buffer pool data physical reads</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Buffer pool data writes</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Buffer pool I/Os per second</td>
<td>DB2 Buffer Pools</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Buffer pool index logical reads</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Buffer pool index pages copied from extended storage</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Buffer pool index pages copied to extended storage</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Buffer pool index physical reads</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Buffer pool index writes</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
</tbody>
</table>
Table 24. Monitors for DB2 and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>db: Buffer pool time waited for prefetch (ms)</th>
<th>None</th>
<th>DB2DatabaseBufferPool</th>
<th>DB2PartitionBufferPool</th>
</tr>
</thead>
<tbody>
<tr>
<td>db: buffpage</td>
<td>None</td>
<td>DB2DatabaseConfiguration</td>
<td>DB2PartitionConfiguration</td>
</tr>
<tr>
<td>db: Capture errors</td>
<td>DB2 Replication Capture</td>
<td>DB2DatabaseReplication</td>
<td>DB2PartitionReplication</td>
</tr>
<tr>
<td>db: Capture lag</td>
<td>DB2 Replication Capture</td>
<td>DB2DatabaseReplication</td>
<td>DB2PartitionReplication</td>
</tr>
<tr>
<td>db: Capture Pruning</td>
<td>None</td>
<td>DB2DatabaseReplication</td>
<td></td>
</tr>
<tr>
<td>db: catalogcache_sz</td>
<td>None</td>
<td>DB2DatabaseConfiguration</td>
<td>DB2PartitionConfiguration</td>
</tr>
<tr>
<td>db: chngpgs_thresh</td>
<td>None</td>
<td>DB2DatabaseConfiguration</td>
<td>DB2PartitionConfiguration</td>
</tr>
<tr>
<td>db: Committed statements per second</td>
<td>DB2 SQL Statement Activity</td>
<td>DB2DatabaseSQLStatements</td>
<td>DB2PartitionSQLStatements</td>
</tr>
<tr>
<td>db: dbheap</td>
<td>None</td>
<td>DB2DatabaseConfiguration</td>
<td>DB2PartitionConfiguration</td>
</tr>
<tr>
<td>db: DDL SQL statements</td>
<td>None</td>
<td>DB2DatabaseSQLStatements</td>
<td>DB2PartitionSQLStatements</td>
</tr>
<tr>
<td>db: Deadlocks found during last interval</td>
<td>DB2 Locks and Deadlocks</td>
<td>DB2DatabaseLocks</td>
<td>DB2PartitionLocks</td>
</tr>
<tr>
<td>db: Direct read time (ms)</td>
<td>None</td>
<td>DB2DatabaseDirectIO</td>
<td>DB2PartitionDirectIO</td>
</tr>
<tr>
<td>db: Direct write time (ms)</td>
<td>None</td>
<td>DB2DatabaseDirectIO</td>
<td>DB2PartitionDirectIO</td>
</tr>
<tr>
<td>db: DLL SQL statements</td>
<td>DB2 SQL Statement Activity</td>
<td>DB2DatabaseSQLStatements</td>
<td>DB2PartitionSQLStatements</td>
</tr>
<tr>
<td>db: Dynamic SQL statements</td>
<td>DB2 SQL Statement Activity</td>
<td>DB2DatabaseSQLStatements</td>
<td>DB2PartitionSQLStatements</td>
</tr>
<tr>
<td>db: Extended storage read/write ratio</td>
<td>DB2 Buffer Pool/Extended Storage</td>
<td>DB2DatabaseBufferPool</td>
<td>DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Failed SQL statements</td>
<td>DB2 SQL Statement Activity</td>
<td>DB2DatabaseSQLStatements</td>
<td>DB2PartitionSQLStatements</td>
</tr>
<tr>
<td>db: Internal rollback due to deadlock</td>
<td>None</td>
<td>DB2DatabaseLocks</td>
<td>DB2PartitionLocks</td>
</tr>
<tr>
<td>db: Last backup timestamp</td>
<td>DB2 Database Activity</td>
<td>DB2DatabaseStatus</td>
<td>DB2PartitionStatus</td>
</tr>
<tr>
<td>db: Lock escalations during last interval</td>
<td>DB2 Locks and Deadlocks</td>
<td>DB2DatabaseLocks</td>
<td>DB2PartitionLocks</td>
</tr>
<tr>
<td>db: Lock list in use (bytes)</td>
<td>None</td>
<td>DB2DatabaseLocks</td>
<td>DB2PartitionLocks</td>
</tr>
<tr>
<td>db: Lock timeouts during last interval</td>
<td>DB2 Locks and Deadlocks</td>
<td>DB2DatabaseLocks</td>
<td>DB2PartitionLocks</td>
</tr>
<tr>
<td>db: Lock waits</td>
<td>None</td>
<td>DB2DatabaseLocks</td>
<td>DB2PartitionLocks</td>
</tr>
<tr>
<td>db: Lock waits in an interval</td>
<td>DB2 Lock Waits</td>
<td>DB2DatabaseLocks</td>
<td>DB2PartitionLocks</td>
</tr>
</tbody>
</table>
Table 24. Monitors for DB2 and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>db: locklist</th>
<th>None</th>
<th>DB2DatabaseConfiguration DB2PartitionConfiguration</th>
</tr>
</thead>
<tbody>
<tr>
<td>db: Locks held</td>
<td>None</td>
<td>DB2DatabaseLocks DB2PartitionLocks</td>
</tr>
<tr>
<td>db: Log I/O</td>
<td>DB2 Logging</td>
<td>DB2DatabaseLogging DB2PartitionLogging</td>
</tr>
<tr>
<td>db: logbufsz</td>
<td>None</td>
<td>DB2DatabaseConfiguration DB2PartitionConfiguration</td>
</tr>
<tr>
<td>db: logprimary</td>
<td>None</td>
<td>DB2DatabaseConfiguration DB2PartitionConfiguration</td>
</tr>
<tr>
<td>db: Max # of concurrent connections</td>
<td>None</td>
<td>DB2DatabaseApplicationActivity DB2PartitionApplicationActivity</td>
</tr>
<tr>
<td>db: Max primary log space used</td>
<td>None</td>
<td>DB2DatabaseLogging DB2PartitionLogging</td>
</tr>
<tr>
<td>db: Max secondary log space used</td>
<td>None</td>
<td>DB2DatabaseLogging DB2PartitionLogging</td>
</tr>
<tr>
<td>db: Max total log space used</td>
<td>None</td>
<td>DB2DatabaseLogging DB2PartitionLogging</td>
</tr>
<tr>
<td>db: maxapps</td>
<td>None</td>
<td>DB2DatabaseConfiguration DB2PartitionConfiguration</td>
</tr>
<tr>
<td>db: Maximum agents associated with application</td>
<td>None</td>
<td>DB2DatabaseAgent DB2PartitionAgent</td>
</tr>
<tr>
<td>db: Maximum coordinating agents</td>
<td>None</td>
<td>DB2DatabaseAgent DB2PartitionAgent</td>
</tr>
<tr>
<td>db: maxlocks</td>
<td>None</td>
<td>DB2DatabaseConfiguration DB2PartitionConfiguration</td>
</tr>
<tr>
<td>db: mincommit</td>
<td>None</td>
<td>DB2DatabaseConfiguration DB2PartitionConfiguration</td>
</tr>
<tr>
<td>db: newlogpath</td>
<td>None</td>
<td>DB2DatabaseConfiguration DB2PartitionConfiguration</td>
</tr>
<tr>
<td>db: num_iocleaners</td>
<td>None</td>
<td>DB2DatabaseConfiguration DB2PartitionConfiguration</td>
</tr>
<tr>
<td>db: num_ioservers</td>
<td>None</td>
<td>DB2DatabaseConfiguration DB2PartitionConfiguration</td>
</tr>
<tr>
<td>db: Number of all invalid packages</td>
<td>DB2 Database Activity</td>
<td>DB2DatabaseContent DB2PartitionContent</td>
</tr>
<tr>
<td>db: number of cleaners due to dirty threshold</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Number of invalid SYSTEM packages</td>
<td>DB2 Database Activity</td>
<td>DB2DatabaseContent DB2PartitionContent</td>
</tr>
<tr>
<td>db: Number of invalid user packages</td>
<td>DB2 Database Activity</td>
<td>DB2DatabaseContent DB2PartitionContent</td>
</tr>
<tr>
<td>db: pckcachesz</td>
<td>None</td>
<td>DB2DatabaseConfiguration DB2PartitionConfiguration</td>
</tr>
<tr>
<td>db: Percent application in lock wait</td>
<td>DB2 Lock Waits</td>
<td>DB2DatabaseLocks DB2PartitionLocks</td>
</tr>
</tbody>
</table>
Table 24. Monitors for DB2 and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>DB:</th>
<th>Monitor Description</th>
<th>Resource Model</th>
<th>Corresponding Resource Models</th>
</tr>
</thead>
</table>
| db: | Percent buffer pool hit ratio, data+index | DB2 Buffer Pools | DB2DatabaseBufferPool
|     |                     |                | DB2PartitionBufferPool       |
| db: | Percent buffer pool hit ratio, index      | DB2 Buffer Pools | DB2DatabaseBufferPool
|     |                     |                | DB2PartitionBufferPool       |
| db: | Percent catalog cache hit ratio            | DB2 Catalog Cache | DB2DatabaseCatalogCache
|     |                     |                | DB2PartitionCatalogCache     |
| db: | Percent connections used                   | DB2 Database Activity | DB2DatabaseApplicationActivity
|     |                     |                | DB2PartitionApplicationActivity |
| db: | Percent DDL SQL                            | DB2 SQL Statement Activity | DB2DatabaseSQLStatements
|     |                     |                | DB2PartitionSQLStatements    |
| db: | Percent deadlock rollbacks                 | DB2 Locks and Deadlocks | DB2DatabaseLocks
|     |                     |                | DB2PartitionLocks            |
| db: | Percent failed SQL                         | DB2 SQL Statement Activity | DB2DatabaseSQLStatements
|     |                     |                | DB2PartitionSQLStatements    |
| db: | Percent internal rollbacks due to internal deadlocks | None | DB2DatabaseLocks
|     |                     |                | DB2PartitionLocks            |
| db: | Percent locklist space used by database    | DB2 Locks and Deadlocks | DB2DatabaseLocks
|     |                     |                | DB2PartitionLocks            |
| db: | Percent package cache hit ratio            | DB2 Package Cache | DB2DatabasePackageCache
|     |                     |                | DB2PartitionPackageCache     |
| db: | Percent select SQL                         | DB2 SQL Statement Activity | DB2DatabaseSQLStatements
|     |                     |                | DB2PartitionSQLStatements    |
| db: | Percent sort overflowed                    | DB2 Sorting     | DB2DatabaseSorts
|     |                     |                | DB2PartitionSorts            |
| db: | Percent UID SQL                            | DB2 SQL Statement Activity | DB2DatabaseSQLStatements
|     |                     |                | DB2PartitionSQLStatements    |
| db: | Percent used in primary log                | DB2 Logging     | DB2DatabaseLogging
|     |                     |                | DB2PartitionLogging          |
| db: | Percent used in secondary log              | DB2 Logging     | DB2DatabaseLogging
|     |                     |                | DB2PartitionLogging          |
| db: | Primary log space allocated                | None            | DB2DatabaseLogging
|     |                     |                | DB2PartitionLogging          |
| db: | restore_pending                            | DB2 Database Activity | DB2DatabaseStatus
|     |                     |                | DB2PartitionStatus           |
| db: | Rollbacks per second                       | DB2 SQL Statement Activity | DB2DatabaseSQLStatements
|     |                     |                | DB2PartitionSQLStatements    |
| db: | Select SQL statements                      | DB2 SQL Statement Activity | DB2DatabaseSQLStatements
|     |                     |                | DB2PartitionSQLStatements    |
| db: | Sort heap allocated                        | None            | DB2DatabaseSorts
|     |                     |                | DB2PartitionSorts            |
| db: | SQL statements per second                  | DB2 SQL Statement Activity | DB2DatabaseSQLStatements
|     |                     |                | DB2PartitionSQLStatements    |
| db: | Synchronous read time (ms)                 | None            | DB2DatabaseBufferPool
|     |                     |                | DB2PartitionBufferPool       |
| db: | Synchronous write time (ms)                | None            | DB2DatabaseBufferPool
|     |                     |                | DB2PartitionBufferPool       |
Table 24. Monitors for DB2 and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>db: Time waited on locks</th>
<th>None</th>
<th>DB2DatabaseLocks   DB2PartitionLocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>db: Total direct I/O time (ms)</td>
<td>None</td>
<td>DB2DatabaseDirectIO DB2PartitionDirectIO</td>
</tr>
<tr>
<td>db: Total exclusive lock escalations</td>
<td>None</td>
<td>DB2DatabaseLocks   DB2PartitionLocks</td>
</tr>
<tr>
<td>db: Total pool physical I/O (ms)</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Total pool physical read (ms)</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Total pool physical write (ms)</td>
<td>None</td>
<td>DB2DatabaseBufferPool DB2PartitionBufferPool</td>
</tr>
<tr>
<td>db: Total Sort Time (ms)</td>
<td>None</td>
<td>DB2DatabaseSorts   DB2PartitionSorts</td>
</tr>
<tr>
<td>db: Total sorts</td>
<td></td>
<td>DB2DatabaseSorts   DB2PartitionSorts</td>
</tr>
<tr>
<td>db: Update/Insert/Delete SQL Activity</td>
<td>DB2 SQL Statement Activity</td>
<td>DB2DatabaseSQLStatements   DB2PartitionSQLStatements</td>
</tr>
<tr>
<td>db: seqdetect</td>
<td>None</td>
<td>DB2DatabaseConfiguration DB2PartitionConfiguration</td>
</tr>
</tbody>
</table>

**DB2 database state** | Withdrawn
**DB2 server accumulated connections** | Withdrawn
**DB2 server current connections** | Withdrawn
**DB2 server finished transactions** | Withdrawn
**DB2 server status** | Withdrawn
**DB2 server version** | Withdrawn
**dbms: # of idle agents** | None | DB2InstanceAgents
**dbms: # of local connections** | None | DB2InstanceConnections
**dbms: # of local connections executing** | None | DB2InstanceConnections
**dbms: # of local databases with current connections** | None | DB2InstanceConnections
**dbms: # of piped sorts accepted** | None | DB2InstanceSorts
**dbms: # of piped sorts requested** | None | DB2InstanceSorts
**dbms: # of remote connections** | None | DB2InstanceConnections
**dbms: # of remote connections executing** | None | DB2InstanceConnections
**dbms: # of times agents are stolen** | None | DB2InstanceAgents
**dbms: Agent creation ratio** | DB2 Agents | DB2InstanceAgents
**dbms: agentpri** | None | DB2InstanceConfiguration
Table 24. Monitors for DB2 and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>Monitors</th>
<th>None</th>
<th>DB2InstanceAgents</th>
</tr>
</thead>
<tbody>
<tr>
<td>dbms: Agents registered</td>
<td>None</td>
<td>DB2InstanceAgents</td>
</tr>
<tr>
<td>dbms: Agents waiting for a token</td>
<td>None</td>
<td>DB2InstanceAgents</td>
</tr>
<tr>
<td>dbms: fcm_num_anchors</td>
<td>None</td>
<td>DB2InstanceConfiguration</td>
</tr>
<tr>
<td>dbms: fcm_num_buffers</td>
<td>None</td>
<td>DB2InstanceConfiguration</td>
</tr>
<tr>
<td>dbms: fcm_num_connect</td>
<td>None</td>
<td>DB2InstanceConfiguration</td>
</tr>
<tr>
<td>dbms: fcm_num_rqb</td>
<td>None</td>
<td>DB2InstanceConfiguration</td>
</tr>
<tr>
<td>dbms: Last reset timestamp</td>
<td>DB2 Instance Status</td>
<td>DB2InstanceStatus</td>
</tr>
<tr>
<td>dbms: max_agents</td>
<td>None</td>
<td>DB2InstanceConfiguration</td>
</tr>
<tr>
<td>dbms: maxcagents</td>
<td>None</td>
<td>DB2InstanceConfiguration</td>
</tr>
<tr>
<td>dbms: Maximum agents registered</td>
<td>None</td>
<td>DB2InstanceAgents</td>
</tr>
<tr>
<td>dbms: Maximum agents waiting</td>
<td>None</td>
<td>DB2InstanceAgents</td>
</tr>
<tr>
<td>dbms: Maximum idle agents in the agent pool</td>
<td>None</td>
<td>DB2InstanceConfiguration</td>
</tr>
<tr>
<td>dbms: mon_heap_sz</td>
<td>None</td>
<td>DB2InstanceConfiguration</td>
</tr>
<tr>
<td>dbms: num_poolagents</td>
<td>None</td>
<td>DB2InstanceConfiguration</td>
</tr>
<tr>
<td>dbms: Percent agents waiting</td>
<td>DB2 Agents</td>
<td>DB2InstanceAgents</td>
</tr>
<tr>
<td>dbms: Percent piped sort hit ratio</td>
<td>DB2 Sorting</td>
<td>DB2InstanceSorts</td>
</tr>
<tr>
<td>dbms: Percent piped sorts rejected</td>
<td>DB2 Sorting</td>
<td>DB2InstanceSorts</td>
</tr>
<tr>
<td>dbms: Percent private memory used</td>
<td>Withdrawn</td>
<td></td>
</tr>
<tr>
<td>dbms: Percent sort heap allocated</td>
<td>DB2 Sorting</td>
<td>DB2InstanceSorts</td>
</tr>
<tr>
<td>dbms: Percent total connections executing</td>
<td>DB2 Instance Status</td>
<td>DB2InstanceStatus</td>
</tr>
<tr>
<td>dbms: Post threshold sorts</td>
<td>None</td>
<td>DB2InstanceSorts</td>
</tr>
<tr>
<td>dbms: query_heap_sz</td>
<td>None</td>
<td>DB2InstanceConfiguration</td>
</tr>
<tr>
<td>dbms: sriobiok</td>
<td>None</td>
<td>DB2InstanceConfiguration</td>
</tr>
<tr>
<td>dbms: sriobiok</td>
<td>None</td>
<td>DB2InstanceConfiguration</td>
</tr>
<tr>
<td>dbms: Sort heap allocated</td>
<td>None</td>
<td>DB2InstanceSorts</td>
</tr>
<tr>
<td>dbms: stmtsz</td>
<td>None</td>
<td>DB2InstanceConfiguration</td>
</tr>
<tr>
<td>dbms: Start database manager timestamp</td>
<td>None</td>
<td>DB2InstanceStatus</td>
</tr>
<tr>
<td>dbms: Total piped sorts rejected</td>
<td>None</td>
<td>DB2InstanceSorts</td>
</tr>
<tr>
<td>dbp: # of FCM nodes</td>
<td>None</td>
<td>DB2PartitionFCMActivity</td>
</tr>
<tr>
<td>dbp: Connection status</td>
<td>DB2 Fast Communication Manager</td>
<td>DB2PartitionFCMActivity</td>
</tr>
</tbody>
</table>
Table 24. Monitors for DB2 and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>dbp: FCM buffers currently free</th>
<th>None</th>
<th>DB2PartitionFCMActivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>dbp: FCM connection entries currently free</td>
<td>None</td>
<td>DB2PartitionFCMActivity</td>
</tr>
<tr>
<td>dbp: FCM request blocks currently free</td>
<td>None</td>
<td>DB2PartitionFCMActivity</td>
</tr>
<tr>
<td>dbp: Minimum FCM buffers free</td>
<td>None</td>
<td>DB2PartitionFCMActivity</td>
</tr>
<tr>
<td>dbp: Minimum FCM connection entries free</td>
<td>None</td>
<td>DB2PartitionFCMActivity</td>
</tr>
<tr>
<td>dbp: Minimum FCM message anchors free</td>
<td>None</td>
<td>DB2PartitionFCMActivity</td>
</tr>
<tr>
<td>dbp: Minimum FCM request blocks free</td>
<td>None</td>
<td>DB2PartitionFCMActivity</td>
</tr>
<tr>
<td>dbp: Percent FCM buffers currently used</td>
<td>DB2 Fast Communication Manager</td>
<td>DB2PartitionFCMActivity</td>
</tr>
<tr>
<td>dbp: Percent FCM connection entries currently used</td>
<td>DB2 Fast Communication Manager</td>
<td>DB2PartitionFCMActivity</td>
</tr>
<tr>
<td>dbp: Percent maximum FCM buffers used</td>
<td>DB2 Fast Communication Manager</td>
<td>DB2PartitionFCMActivity</td>
</tr>
<tr>
<td>dbp: Percent maximum FCM connection entries used</td>
<td>DB2 Fast Communication Manager</td>
<td>DB2PartitionFCMActivity</td>
</tr>
<tr>
<td>dbp: Percent maximum FCM message anchors used</td>
<td>DB2 Fast Communication Manager</td>
<td>DB2PartitionFCMActivity</td>
</tr>
<tr>
<td>dbp: Percent maximum FCM request blocks used</td>
<td>DB2 Fast Communication Manager</td>
<td>DB2PartitionFCMActivity</td>
</tr>
<tr>
<td>dbp: Total buffers received</td>
<td>None</td>
<td>DB2PartitionFCMActivity</td>
</tr>
<tr>
<td>dbp: Total buffers sent</td>
<td>None</td>
<td>DB2PartitionFCMActivity</td>
</tr>
<tr>
<td>dbpg: Data redistribution status for a nodegroup</td>
<td>None</td>
<td>DB2PartitionGroup</td>
</tr>
<tr>
<td>dbpg: DB2 local nodes status</td>
<td>None</td>
<td>DB2PartitionGroup</td>
</tr>
<tr>
<td>dbpg: Partitioned database data redistribution status</td>
<td>None</td>
<td>DB2PartitionGroup</td>
</tr>
<tr>
<td>dbpg: Percentage differential in row distribution of a table</td>
<td>None</td>
<td>DB2PartitionGroup</td>
</tr>
<tr>
<td>Maximum number of agents allowed to register at the same time</td>
<td>Withdrawn</td>
<td></td>
</tr>
<tr>
<td>Maximum number of agents registered at the same time</td>
<td>Withdrawn</td>
<td></td>
</tr>
<tr>
<td>table: # of rows</td>
<td>DB2 Table Activity</td>
<td>DB2TableStatus</td>
</tr>
<tr>
<td>table: Overflow accesses</td>
<td>DB2TableActivity</td>
<td></td>
</tr>
</tbody>
</table>
Table 24. Monitors for DB2 and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
<th>Resource Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rows read per second</td>
<td>DB2 Table Activity</td>
<td>DB2TableActivity</td>
</tr>
<tr>
<td>Rows written per second</td>
<td>DB2 Table Activity</td>
<td>DB2TableActivity</td>
</tr>
<tr>
<td>tbsp: # of direct read requests</td>
<td>None</td>
<td>DB2TableSpaceDirectIO</td>
</tr>
<tr>
<td>tbsp: # of direct reads from database</td>
<td>None</td>
<td>DB2TableSpaceDirectIO</td>
</tr>
<tr>
<td>tbsp: # of direct write requests</td>
<td>None</td>
<td>DB2TableSpaceDirectIO</td>
</tr>
<tr>
<td>tbsp: # of direct writes to database</td>
<td>None</td>
<td>DB2TableSpaceDirectIO</td>
</tr>
<tr>
<td>tbsp: # of pool reads</td>
<td>None</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: # of pool writes</td>
<td>None</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: # of synchronous index reads</td>
<td>None</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: # of synchronous index writes</td>
<td>None</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: # of synchronous reads</td>
<td>None</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: # of synchronous writes</td>
<td>None</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: Average # of sectors read per direct read</td>
<td>DB2 Direct IO</td>
<td>DB2TableSpaceDirectIO</td>
</tr>
<tr>
<td>tbsp: Average # of sectors written per direct write</td>
<td>DB2 Direct IO</td>
<td>DB2TableSpaceDirectIO</td>
</tr>
<tr>
<td>tbsp: Average direct read time (ms)</td>
<td>DB2 Direct IO</td>
<td>DB2TableSpaceDirectIO</td>
</tr>
<tr>
<td>tbsp: Average direct write time (ms)</td>
<td>DB2 Direct IO</td>
<td>DB2TableSpaceDirectIO</td>
</tr>
<tr>
<td>tbsp: Average pool I/O time (ms)</td>
<td>DB2 Buffer Pools</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: Average pool read time (ms)</td>
<td>DB2 Buffer Pools</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: Average pool write time (ms)</td>
<td>DB2 Buffer Pools</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: Average synchronous data read time (ms)</td>
<td>DB2 Buffer Pools</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: Average synchronous data write time (ms)</td>
<td>DB2 Buffer Pools</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: Average synchronous I/O time (ms)</td>
<td>DB2 Buffer Pools</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: Buffer pool async data reads</td>
<td>None</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: Buffer pool async data writes</td>
<td>None</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: Buffer pool async index reads</td>
<td>None</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: Buffer pool async index writes</td>
<td>None</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: Buffer pool async read time (ms)</td>
<td>None</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
</tbody>
</table>
Table 24. Monitors for DB2 and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

| tbsp: Buffer pool async write time (ms) | None | DB2TableSpaceBufferPool |
| tbsp: Buffer pool data logical reads | None | DB2TableSpaceBufferPool |
| tbsp: Buffer pool data pages copied from extended storage | None | DB2TableSpaceBufferPool |
| tbsp: Buffer pool data pages copied to extended storage | None | DB2TableSpaceBufferPool |
| tbsp: Buffer pool data physical reads | None | DB2TableSpaceBufferPool |
| tbsp: Buffer pool data physical writes | None | DB2TableSpaceBufferPool |
| tbsp: Buffer pool I/O per second | DB2 Buffer Pools | DB2TableSpaceBufferPool |
| tbsp: Buffer pool index logical reads | None | DB2TableSpaceBufferPool |
| tbsp: Buffer pool index pages copied from extended storage | None | DB2TableSpaceBufferPool |
| tbsp: Buffer pool index pages copied to extended storage | None | DB2TableSpaceBufferPool |
| tbsp: Buffer pool index physical reads | None | DB2TableSpaceBufferPool |
| tbsp: Buffer pool index physical writes | None | DB2TableSpaceBufferPool |
| tbsp: Direct read time | None | DB2TableSpaceDirectIO |
| tbsp: Direct write time | None | DB2TableSpaceDirectIO |
| tbsp: Extended storage read/write ratio | DB2 Buffer Pool/Extended Storage | DB2TableSpaceBufferPool |
| tbsp: File closed | None | DB2TableSpaceBufferPool |
| tbsp: Percent buffer pool hit ratio, data+index | DB2 Buffer Pools | DB2TableSpaceBufferPool |
| tbsp: Percent buffer pool hit ratio, index | DB2 Buffer Pools | DB2TableSpaceBufferPool |
| tbsp: Percent prefetch satisfied | None | DB2TableSpaceBufferPool |
| tbsp: Percent space used in DMS tablespace | DB2 Database Activity | DB2TableSpaceSizeDMS |
| tbsp: Prefetch requests in an interval | None | DB2TableSpaceBufferPool |
| tbsp: Space used in SMS tablespace | DB2 Database Activity | DB2TableSpaceSizeSMS |
| tbsp: Synchronous read time (ms) | None | DB2TableSpaceBufferPool |
| tbsp: Synchronous write time (ms) | None | DB2TableSpaceBufferPool |
| tbsp: Tablespace status | DB2 Database Activity | DB2TableSpaceBufferPool |
| tbsp: Total direct I/O time (ms) | None | DB2TableSpaceDirectIO |
Table 24. Monitors for DB2 and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>Description</th>
<th>None</th>
<th>DB2TableSpaceBufferPool</th>
</tr>
</thead>
<tbody>
<tr>
<td>tbsp: Total pool physical I/O time (ms)</td>
<td>None</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: Total pool physical read time (ms)</td>
<td>None</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: Total pool physical write time (ms)</td>
<td>None</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>tbsp: Total synchronous I/O</td>
<td>None</td>
<td>DB2TableSpaceBufferPool</td>
</tr>
<tr>
<td>Total Logical bytes read by DB2 server for all active databases</td>
<td>Withdrawn</td>
<td></td>
</tr>
<tr>
<td>Total logical pages read by DB2 server for all active databases</td>
<td>Withdrawn</td>
<td></td>
</tr>
<tr>
<td>Total physical bytes read by DB2 server</td>
<td>Withdrawn</td>
<td></td>
</tr>
<tr>
<td>Total physical bytes written by DB2 server for all active databases</td>
<td>Withdrawn</td>
<td></td>
</tr>
<tr>
<td>Total rows selected returned by DB2 server for all active databases</td>
<td>Withdrawn</td>
<td></td>
</tr>
<tr>
<td>Total SQL statements handled by DB2 server for all active databases</td>
<td>Withdrawn</td>
<td></td>
</tr>
<tr>
<td>Total SQL statements received by DB2 server for all active databases</td>
<td>Withdrawn</td>
<td></td>
</tr>
</tbody>
</table>

Mapping monitors and rules for Microsoft SQL Server

Table 25 compares the Tivoli Manager for Microsoft SQL Server monitors with the IBM Tivoli Monitoring for Databases: Microsoft SQL Server resource models.

Table 26 on page 105 compares the Microsoft SQL Server version 7 rules in Tivoli Management Solution for Microsoft SQL rules with the IBM Tivoli Monitoring for Databases: Microsoft SQL Server resource models.

Table 27 on page 106 compares the Microsoft SQL Server version 2000 rules in Tivoli Management Solution for Microsoft SQL rules with the IBM Tivoli Monitoring for Databases: Microsoft SQL Server resource models.

Table 25. Monitors for SQL Server and the corresponding resource models in IBM Tivoli Monitoring for Databases

<table>
<thead>
<tr>
<th>Tivoli Manager for Microsoft SQL Server, Version 1.3 monitor name</th>
<th>IBM Tivoli Monitoring for Databases: Microsoft SQL Server, Version 5.1.1 resource model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cache Average Free Page Scan</td>
<td>None</td>
</tr>
</tbody>
</table>
Table 25. Monitors for SQL Server and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>Tivoli Manager for Microsoft SQL Server, Version 1.3 monitor name</th>
<th>IBM Tivoli Monitoring for Databases: Microsoft SQL Server, Version 5.1.1 resource model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cache Configured Free Buffers Percent Used</td>
<td>None</td>
</tr>
<tr>
<td>Cache Hit Ratio</td>
<td>Cache/CPU</td>
</tr>
<tr>
<td>Cache Maximum Free Page Scan</td>
<td>None</td>
</tr>
<tr>
<td>Cache Number of Free Buffers</td>
<td>Cache/CPU</td>
</tr>
<tr>
<td>Client Count</td>
<td>None</td>
</tr>
<tr>
<td>Client Count Percent Used</td>
<td>None</td>
</tr>
<tr>
<td>CPU Percent Busy</td>
<td>Cache/CPU</td>
</tr>
<tr>
<td>CPU Percent Busy Doing I/O</td>
<td>None</td>
</tr>
<tr>
<td>CPU Percent Idle</td>
<td>None</td>
</tr>
<tr>
<td>Database Status (Server)</td>
<td>Availability</td>
</tr>
<tr>
<td>Data Space Percent Used (Server)</td>
<td>Space Usage</td>
</tr>
<tr>
<td>Delivered Latency</td>
<td>Replication</td>
</tr>
<tr>
<td>Delivered Transaction Rate</td>
<td>Replication</td>
</tr>
<tr>
<td>Delivered Transactions</td>
<td>None</td>
</tr>
<tr>
<td>Extent Locks Exclusive</td>
<td>None</td>
</tr>
<tr>
<td>Extent Locks Total</td>
<td>None</td>
</tr>
<tr>
<td>Extent Locks Update</td>
<td>None</td>
</tr>
<tr>
<td>Freeform SQL Numeric</td>
<td>None</td>
</tr>
<tr>
<td>Freeform SQL String</td>
<td>None</td>
</tr>
<tr>
<td>I/O Batch Average Size</td>
<td>None</td>
</tr>
<tr>
<td>I/O Batch Maximum Size</td>
<td>None</td>
</tr>
<tr>
<td>I/O Batch Write Rate</td>
<td>None</td>
</tr>
<tr>
<td>I/O Disk Errors</td>
<td>Errors</td>
</tr>
<tr>
<td>I/O Disk Reads</td>
<td>None</td>
</tr>
<tr>
<td>I/O Disk Writes</td>
<td>None</td>
</tr>
<tr>
<td>I/O Log Write Rate</td>
<td>None</td>
</tr>
<tr>
<td>I/O Outstanding Reads</td>
<td>None</td>
</tr>
<tr>
<td>I/O Outstanding Writes</td>
<td>None</td>
</tr>
<tr>
<td>I/O Page Read Rate</td>
<td>Cache/CPU</td>
</tr>
<tr>
<td>I/O Single Page Write Rate</td>
<td>None</td>
</tr>
<tr>
<td>I/O Transaction Rate</td>
<td>Cache/CPU</td>
</tr>
<tr>
<td>I/O Transactions Per Log Record</td>
<td>None</td>
</tr>
<tr>
<td>Intent Locks Exclusive</td>
<td>None</td>
</tr>
<tr>
<td>Intent Locks Shared</td>
<td>None</td>
</tr>
<tr>
<td>Intent Locks Total</td>
<td>None</td>
</tr>
<tr>
<td>Log Space Percent Used (Server)</td>
<td>Space Usage</td>
</tr>
<tr>
<td>Network Read Rate</td>
<td>None</td>
</tr>
<tr>
<td>Network Write Rate</td>
<td>None</td>
</tr>
</tbody>
</table>
Table 25. Monitors for SQL Server and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>Tivoli Manager for Microsoft SQL Server, Version 1.3 monitor name</th>
<th>IBM Tivoli Monitoring for Databases: Microsoft SQL Server, Version 5.1.1 resource model</th>
</tr>
</thead>
<tbody>
<tr>
<td>NT Application Log</td>
<td>None</td>
</tr>
<tr>
<td>NT Application Log Age</td>
<td>None</td>
</tr>
<tr>
<td>NT Application Log Percent Full</td>
<td>None</td>
</tr>
<tr>
<td>Number of Blocked Processes</td>
<td>Users/Transactions</td>
</tr>
<tr>
<td>Number of Deadlocks</td>
<td>Locks</td>
</tr>
<tr>
<td>Oldest Open Transaction (Server)</td>
<td>None</td>
</tr>
<tr>
<td>Page Locks Exclusive</td>
<td>None</td>
</tr>
<tr>
<td>Page Locks Shared</td>
<td>None</td>
</tr>
<tr>
<td>Page Locks Update</td>
<td>None</td>
</tr>
<tr>
<td>Procedure Buffers Active</td>
<td>None</td>
</tr>
<tr>
<td>Procedure Buffers Total</td>
<td>None</td>
</tr>
<tr>
<td>Procedure Buffers Used</td>
<td>None</td>
</tr>
<tr>
<td>Procedure Cache Active</td>
<td>None</td>
</tr>
<tr>
<td>Procedure Cache Size</td>
<td>None</td>
</tr>
<tr>
<td>Procedure Cache Used</td>
<td>None</td>
</tr>
<tr>
<td>RA Effectiveness</td>
<td>None</td>
</tr>
<tr>
<td>RA Pages Fetched into Cache Per Second</td>
<td>Cache/CPU</td>
</tr>
<tr>
<td>RA Pages Found in Cache Per Second</td>
<td>None</td>
</tr>
<tr>
<td>RA Physical Read Rate</td>
<td>None</td>
</tr>
<tr>
<td>RA Slots Used</td>
<td>None</td>
</tr>
<tr>
<td>Service State</td>
<td>Availability</td>
</tr>
<tr>
<td>SQL Server State</td>
<td>Availability</td>
</tr>
<tr>
<td>SQL Server Agent Failed Jobs</td>
<td>Jobs</td>
</tr>
<tr>
<td>Table Locks Exclusive</td>
<td>None</td>
</tr>
<tr>
<td>Table Locks Shared</td>
<td>None</td>
</tr>
<tr>
<td>Table Locks Total</td>
<td>None</td>
</tr>
<tr>
<td>Total Blocking Locks</td>
<td>None</td>
</tr>
<tr>
<td>Total Exclusive Locks</td>
<td>None</td>
</tr>
<tr>
<td>Total Locks</td>
<td>None</td>
</tr>
<tr>
<td>Total Locks Percent Used</td>
<td>None</td>
</tr>
<tr>
<td>Total Locks Remaining</td>
<td>None</td>
</tr>
<tr>
<td>Total Shared Locks</td>
<td>None</td>
</tr>
<tr>
<td>Undelivered Transactions</td>
<td>None</td>
</tr>
<tr>
<td>User Connections</td>
<td>Users/Transactions (Logged metric only)</td>
</tr>
<tr>
<td>User Connections Percent Used</td>
<td>Users/Transactions</td>
</tr>
<tr>
<td>User Connections Remaining</td>
<td>None</td>
</tr>
<tr>
<td><strong>Database Monitoring</strong></td>
<td><strong>Space Usage</strong></td>
</tr>
<tr>
<td>Data Space Percent Used (Database)</td>
<td>Space Usage</td>
</tr>
</tbody>
</table>
Table 25. Monitors for SQL Server and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>Tivoli Manager for Microsoft SQL Server, Version 1.3 monitor name</th>
<th>IBM Tivoli Monitoring for Databases: Microsoft SQL Server, Version 5.1.1 resource model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Space Used</td>
<td>Space Usage</td>
</tr>
<tr>
<td>Database Status (Database)</td>
<td>Availability</td>
</tr>
<tr>
<td>Fragmentation</td>
<td>None</td>
</tr>
<tr>
<td>Log Space Percent Used (Database)</td>
<td>Space Usage</td>
</tr>
<tr>
<td>Log Space Used</td>
<td>Space Usage</td>
</tr>
<tr>
<td>Oldest Open Transaction (Database)</td>
<td>None</td>
</tr>
<tr>
<td>Optimizer Statistics Age</td>
<td>None</td>
</tr>
<tr>
<td>PeopleSoft Fragmentation</td>
<td>None</td>
</tr>
<tr>
<td>PeopleSoft Optimizer Statistics Age</td>
<td>None</td>
</tr>
<tr>
<td>PeopleSoft Space Used Table</td>
<td>None</td>
</tr>
<tr>
<td>Replicated Transaction Rate</td>
<td>Replication</td>
</tr>
<tr>
<td>Replicated Transactions</td>
<td>None</td>
</tr>
<tr>
<td>Replication Latency</td>
<td>Replication</td>
</tr>
<tr>
<td>Space Used (Table)</td>
<td>Space Usage</td>
</tr>
<tr>
<td>Suspect Database</td>
<td>Availability</td>
</tr>
</tbody>
</table>

Table 26. Tivoli Management Solution for Microsoft SQL 7.0 Rules and the corresponding resource models in IBM Tivoli Monitoring for Databases

<table>
<thead>
<tr>
<th>SQL Server 7.0 Rule</th>
<th>IBM Tivoli Monitoring for Databases: Microsoft SQL Server, Version 5.1.1 resource model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allocate_Space_Failed</td>
<td>Errors</td>
</tr>
<tr>
<td>Blocked_Processes_Alert</td>
<td>Users/Transactions</td>
</tr>
<tr>
<td>Blocked_Processes_Details</td>
<td>None</td>
</tr>
<tr>
<td>Connection_Failed</td>
<td>Errors</td>
</tr>
<tr>
<td>Connections_High</td>
<td>Users/Transactions</td>
</tr>
<tr>
<td>Corrupted_Database</td>
<td>None</td>
</tr>
<tr>
<td>Data_Throughput</td>
<td>None</td>
</tr>
<tr>
<td>Database_Growth</td>
<td>Space Usage</td>
</tr>
<tr>
<td>Databases_Present</td>
<td>None</td>
</tr>
<tr>
<td>Deadlock_Alert</td>
<td>Errors</td>
</tr>
<tr>
<td>Errors_Detected</td>
<td>Errors</td>
</tr>
<tr>
<td>Full_Databases</td>
<td>Space Usage</td>
</tr>
<tr>
<td>Full_Logs</td>
<td>None</td>
</tr>
<tr>
<td>Generate_DB_Used_SQL</td>
<td>Space Usage</td>
</tr>
<tr>
<td>Generate_DB_Used_Statistics</td>
<td>None</td>
</tr>
<tr>
<td>Insufficient_Locks</td>
<td>None</td>
</tr>
<tr>
<td>Log_Growth</td>
<td>None</td>
</tr>
<tr>
<td>Replication_Latency</td>
<td>Replication</td>
</tr>
</tbody>
</table>
Table 26. Tivoli Management Solution for Microsoft SQL 7.0 Rules and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>SQL Server 7.0 Rule</th>
<th>IBM Tivoli Monitoring for Databases: Microsoft SQL Server, Version 5.1.1 resource model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server_Memory</td>
<td>Space Usage</td>
</tr>
<tr>
<td>Set_SQL7_Errorlog</td>
<td>Errors</td>
</tr>
<tr>
<td>SQL7_Buffer_Cache_Efficiency</td>
<td>Cache/CPU</td>
</tr>
<tr>
<td>SQL7_Disks</td>
<td>None</td>
</tr>
<tr>
<td>SQL7_IO_Errors</td>
<td>Errors</td>
</tr>
<tr>
<td>SQL7_Process_Busy</td>
<td>None</td>
</tr>
<tr>
<td>SQL7_Process_CPU</td>
<td>None</td>
</tr>
<tr>
<td>SQL7_Recompiles</td>
<td>None</td>
</tr>
<tr>
<td>SQL7_Services</td>
<td>Availability</td>
</tr>
<tr>
<td>SQL7_Transaction_Log_Full</td>
<td>None</td>
</tr>
<tr>
<td>Total_Database_Growth</td>
<td>None</td>
</tr>
<tr>
<td>Total_Log_Growth</td>
<td>None</td>
</tr>
<tr>
<td>Unsafe_Auto_Params</td>
<td>None</td>
</tr>
<tr>
<td>Warnings_Detected</td>
<td>None</td>
</tr>
<tr>
<td>Workspace_Memory</td>
<td>None</td>
</tr>
<tr>
<td>Workspace_Memory_Grants</td>
<td>None</td>
</tr>
</tbody>
</table>

Table 27. Tivoli Management Solution for Microsoft SQL 2000 Rules and the corresponding resource models in IBM Tivoli Monitoring for Databases

<table>
<thead>
<tr>
<th>SQL Server 2000 Rule</th>
<th>IBM Tivoli Monitoring for Databases: Microsoft SQL Server, Version 5.1.1 resource model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blocked_SS2K_Processes_Alert</td>
<td>Users/Transactions</td>
</tr>
<tr>
<td>Blocked_SS2K_Processes_Details</td>
<td>None</td>
</tr>
<tr>
<td>SS2K_Allocate_Space_Failed</td>
<td>Errors</td>
</tr>
<tr>
<td>SS2K_Buffer_Cache_Efficiency</td>
<td>Cache/CPU</td>
</tr>
<tr>
<td>SS2K_Connection_Failed</td>
<td>Errors</td>
</tr>
<tr>
<td>SS2K_Connections_High</td>
<td>Users/Transactions</td>
</tr>
<tr>
<td>SS2K_Corrupted_Database</td>
<td>Errors</td>
</tr>
<tr>
<td>SS2K_Data_Throughput</td>
<td>None</td>
</tr>
<tr>
<td>SS2K_Database_Growth</td>
<td>Space Usage</td>
</tr>
<tr>
<td>SS2K_Deadlock_Alert</td>
<td>Errors</td>
</tr>
<tr>
<td>SS2K_Disk_Space</td>
<td>None</td>
</tr>
<tr>
<td>SS2K_Errors_Detected</td>
<td>Errors</td>
</tr>
<tr>
<td>SS2K_Full_Databases</td>
<td>Space Usage</td>
</tr>
<tr>
<td>SS2K_Full_Logs</td>
<td>None</td>
</tr>
<tr>
<td>SS2K_Insufficient_Locks</td>
<td>None</td>
</tr>
<tr>
<td>SS2K_IO_Errors</td>
<td>Errors</td>
</tr>
<tr>
<td>SS2K_Log_Growth</td>
<td>None</td>
</tr>
</tbody>
</table>
Table 27. Tivoli Management Solution for Microsoft SQL 2000 Rules and the corresponding resource models in IBM Tivoli Monitoring for Databases (continued)

<table>
<thead>
<tr>
<th>SQL Server 2000 Rule</th>
<th>IBM Tivoli Monitoring for Databases: Microsoft SQL Server, Version 5.1.1 resource model</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS2K_Performance_Checks</td>
<td>Cache/CPU</td>
</tr>
<tr>
<td>SS2K_Process_Load</td>
<td>None</td>
</tr>
<tr>
<td>SS2K_Processes</td>
<td>None</td>
</tr>
<tr>
<td>SS2K_Recompiles</td>
<td>None</td>
</tr>
<tr>
<td>SS2K_Replication_Latency</td>
<td>Replication</td>
</tr>
<tr>
<td>SS2K_Server_Memory</td>
<td>None</td>
</tr>
<tr>
<td>SS2K_Services</td>
<td>Availability</td>
</tr>
<tr>
<td>SS2K_Total_Database_Growth</td>
<td>Space Usage</td>
</tr>
<tr>
<td>SS2K_Total_Log_Growth</td>
<td>None</td>
</tr>
<tr>
<td>SS2K_Transaction_Log_Full</td>
<td>None</td>
</tr>
<tr>
<td>SS2K_Unsafe_Auto_Params</td>
<td>None</td>
</tr>
<tr>
<td>SS2K_Warnings_Detected</td>
<td>None</td>
</tr>
<tr>
<td>SS2K_Workspace_Memory</td>
<td>None</td>
</tr>
<tr>
<td>SS2K_Workspace_Memory_Grants</td>
<td>None</td>
</tr>
</tbody>
</table>
Appendix A. Problem determination

This appendix describes how to determine the source of problems and how to correct those problems. Table 28 provides an overview of the topics and procedures covered in this appendix.

Table 28. Overview of problem determination topics and procedures

<table>
<thead>
<tr>
<th>Topic or procedure</th>
<th>Where to find information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use indicators and tools in the installer to identify and resolve problems.</td>
<td>“Troubleshooting installer problems” on page 109</td>
</tr>
<tr>
<td>See the error message logs that the Tivoli Management Framework Endpoint Setup</td>
<td>“About the log files for installation errors” on page 114</td>
</tr>
<tr>
<td>wizard generates when installing the agent.</td>
<td></td>
</tr>
<tr>
<td>Determine the source of a common problem and resolve it.</td>
<td>“Problems and workarounds” on page 114</td>
</tr>
<tr>
<td>Determine the source of connectivity errors in a database endpoint and resolve the</td>
<td>“Testing endpoint connectivity” on page 116</td>
</tr>
<tr>
<td>errors.</td>
<td></td>
</tr>
<tr>
<td>To clean up the endpoint process and remove endpoint files from the Tivoli</td>
<td>“Cleaning up and removing the endpoint” on page 118</td>
</tr>
<tr>
<td>environment.</td>
<td></td>
</tr>
<tr>
<td><strong>Note:</strong> Use this procedure to resolve connectivity problems. Remove the endpoint</td>
<td></td>
</tr>
<tr>
<td>using this procedure and then reinstall it. A completely new installation of the</td>
<td></td>
</tr>
<tr>
<td>agent might resolve the connectivity problem.</td>
<td></td>
</tr>
</tbody>
</table>

Troubleshooting installer problems

Objective
To resolve or work around common problems that can arise during a Typical or Evaluation installation.

Background information
This procedure describes actions you can take in the Step List panel of the installer. The Step List provides detailed information about the progress of installation. This panel is displayed near the end of the installation process, when the installer is processing all of your configuration settings.
The Step List contains a list of the installation steps. You can see information such as the following on any step that you select:

- The software that you are installing and configuring
- The installation status of the current step
- A short description of the step
- Error messages and error resolution options in case of a warning or step failure

Table 29 shows the graphical user interface elements in the Detail window:

<table>
<thead>
<tr>
<th>Status in the Step List</th>
<th>Icon</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pending</td>
<td>None</td>
<td>The step has not run.</td>
</tr>
<tr>
<td>Passed</td>
<td>✔️</td>
<td>The step completed successfully.</td>
</tr>
<tr>
<td>Passed_Reboot</td>
<td>✔️</td>
<td>The step completed successfully and you must reboot the system. This status causes the installer to prompt you to restart the computer.</td>
</tr>
<tr>
<td>Passed_Warning</td>
<td>🚨</td>
<td>The step completed with one or more warnings.</td>
</tr>
<tr>
<td>Failed</td>
<td>❌</td>
<td>The step failed. This procedure describes how to analyze and handle failed steps.</td>
</tr>
<tr>
<td>Deferred</td>
<td>⚙️</td>
<td>The step was postponed. This icon is displayed after you defer a step in the Detail window, as described near the end of the installation procedure. See the description of the Defer option in this table for more information.</td>
</tr>
</tbody>
</table>

Figure 6. Step List installer panel

The Step List contains a list of the installation steps. You can see information such as the following on any step that you select:

- The software that you are installing and configuring
- The installation status of the current step
- A short description of the step
- Error messages and error resolution options in case of a warning or step failure

Table 29 shows the graphical user interface elements in the Detail window:
Table 29. Status icons and buttons for the Step List panel of the installer (continued)

<table>
<thead>
<tr>
<th>Name</th>
<th>Icon</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locked</td>
<td>locked icon</td>
<td>The step was skipped because it is dependent on a previous step that was deferred. The only way a locked step can be unlocked is for you to enable (or &quot;un-defer&quot;) all steps on which it is dependent. To see a list of these dependencies, double-click on the locked step and read the error message in its Detail window.</td>
</tr>
<tr>
<td>Breakpoint</td>
<td>breakpoint icon</td>
<td>The step was placed in breakpoint mode. The installer stops processing steps at the breakpoint. You can check progress and change settings, if necessary.</td>
</tr>
</tbody>
</table>

Options

<table>
<thead>
<tr>
<th>Defer/Enable</th>
<th>Postpones the step to a later time. If a step has failed, you can, as a last resort, defer the step. After that, the only way to re-activate that step is by pressing Execute (see description below).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>If you defer a step before it is executed (such as when it has a &quot;Pending&quot; status), you can enable the step. The Defer option turns into Enable, allowing you to return its status from &quot;Deferred&quot; to &quot;Pending.&quot;</td>
</tr>
<tr>
<td></td>
<td>If subsequent steps are dependent on a deferred step, they are automatically locked. A locked step cannot run. For instance, if you defer a step for creating a managed node, all other steps that install to that managed node are locked, since they are dependent upon its creation. These locked steps are only reset when the deferred step changes status.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Toggle Breakpoint</th>
<th>Activate or Deactivate the breakpoint. If you activate the breakpoint, the automatic installation process is interrupted when it reaches that step and you are asked for input. If you want the installer to pause after specific steps are complete, activate a breakpoint on the subsequent step. For example, you can set a breakpoint to enable installation of a proxy endpoints as described in &quot;Manually creating a Windows proxy endpoint&quot; on page 42.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>OK</th>
<th>Returns to the previous dialog box.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Execute</td>
<td>Executes a deferred step that is above the current step. After completing the deferred step, any dependent steps that were previously locked change to the &quot;Pending&quot; status. After the deferred step executes successfully, click Run Steps on the Step List to run the subsequent steps.</td>
</tr>
<tr>
<td>Change</td>
<td>Enables you to make the following types of change:</td>
</tr>
<tr>
<td></td>
<td>• Change the user ID or password.</td>
</tr>
<tr>
<td></td>
<td>• Change the destination directory for the creation of a managed node or endpoint.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Some steps do not have &quot;Change&quot; as an active option. Steps that do have &quot;Change&quot; as an option include managed node and endpoint creation.</td>
</tr>
</tbody>
</table>

**Required authorization**

On UNIX, the user who installs the product must have root privileges. On Windows, the user who installs the product must have membership in the Administrators group.

**Before you begin**

Use the installer to start one of the following types of installation:

- **Typical installation** as described in Chapter 4, “Performing a Typical installation”, on page 27
- **Evaluation installation** as described in Chapter 5, “Performing an Evaluation installation”, on page 37

While you work with the installer, you can use the options described in this procedure to work around and resolve problems.

**When you finish**

Complete the activities described in Chapter 7, “Completing the installation of the product”, on page 65
Procedure

1. *(Optional)* If you want to cancel the installation while the Step List is running, perform the following steps:
   a. Click **Stop** and allow the currently running process to finish.
      
      *Additional Information*: If you click **Cancel** without allowing the currently running process to finish, the system might remain in an unpredictable state.
   b. Click **Cancel** to stop the installation and close the installer.
   c. Delete the temporary depot directory created by the installer.

2. *(Optional)* Double-click any item in the Step List to see details and to set processing instructions for that step in the Detail window. Table 29 on page 110 describes the status icons and options of the Detail window.

3. Respond to the Step List error, event, or action prompts that might be displayed.
   - **Error message logs**: Consult the following resources in case of installation errors:
     - The error log in the following directory:
       tivoli/depot/DeployEngine/logs/deploy.log. Customer support uses this file to determine the source of problems.
     - See “About the log files for installation errors” on page 114 for more information on problem determination.
     - See the *Tivoli Enterprise Installation Guide* that comes with Tivoli Management Framework, Version 3.7.1, for complete troubleshooting analysis.
   - **Warnings**: The step might complete with one or more warnings. For example, the installer might warn you to restart computers on which you installed the Web Health Console. Otherwise, the console is not activated. The installer might also list warnings from the installation logs of the Tivoli Management Framework. You can consult the documentation that comes on the installation CDs for Tivoli Management Framework for information on this type of warning. Also see Table 30 on page 114.
   - **Change value operations**: Perform the following steps any time you become aware of a user name or password error:
     a. Double-click the step in which an error occurs to display the Detail window.
     b. Click **Change** to display the Change Value window.
c. Enter the new value in the Change Value window for user ID, password, and destination directory, as needed.

d. Click OK.

4. If a Change Value operation fails, perform the following steps:
   a. See Table 29 on page 110 for a description of the proper use of Defer option.
   b. Click Defer in the Step Detail window.
   c. Allow the installer to finish processing the Step List.

5. If you have made changes that will permit successful execution of deferred steps, execute steps that you deferred by completing Steps 5a to 5e.

   Additional Information: For example, you can successfully execute a deferred step after this sequence of events:

   Event 1: The installer initially failed to create a managed node on a computer because the target computer was down.
   Event 2: You defer the step so that installation can continue while the target computer is starting.
   Event 3: The installer finishes processing the Step List and the target computer for the managed node finishes starting.

   Execute deferred steps as follows:
   a. Double-click the first deferred step in the Step List to display the Detail window.
   b. Click Execute.
   c. Double-click the next deferred step in the Step List to display the Detail window.
   d. Click Execute.
   e. Continue executing the deferred steps in sequence until all steps are complete.

6. If failed steps remain in the Step List, perform the following steps:

   Additional Information: The installation can be successful even when deferred steps exist or when optional steps fail or generate warnings. For example, the creation of the Tivoli environment and installation of the product is successful when the following optional steps fail:
   - Creation of managed nodes or endpoints
   - Installation of the Web Health Console

   For these types of failures, the installer does not display a completion window or other options, but the installation is successful. You can exit the installer and begin to run the product. Resolve failed steps and warnings as follows:
   a. Click Cancel to dismiss the user interface of the installer.
   b. If possible, resolve conditions that prevented failed steps or caused warnings. For example, resolve network connectivity problems. Also, be sure the prerequisite conditions exist on the computers on which failure occurred, as described in Chapter 3, “Pre-installation”, on page 7. You might be able to use the procedures in the Tivoli Enterprise Installation Guide that comes with the Tivoli Management Framework software to manually complete failed steps, such as the installation of managed nodes and endpoints. See the limitations and workaround document for IBM Tivoli Monitoring for Databases components provides the latest information about known product limitations and workarounds. To ensure that the information is the latest available, this document is provided only on the
Web, where it is updated on a regular basis. You can access the Limitations and Workarounds document through the following link on the Tivoli Information Center Web site:

http://publib.boulder.ibm.com/tividd/td/tdprodlist.html

c. Analyze the installation logs. See Table 30 on page 114 for further information.

About the log files for installation errors

The installer prompts you when errors occur. In some cases, the installer guides you to resolution of the problem. In other cases, you can defer a step in the list and resolve it later.

If you encounter installation errors, see the details in the logs that are automatically created in the directories listed in Table 30. If you need help, contact customer support staff and send the installation log file. See “Contacting software support” on page xiv. The last entry in a log file often corresponds to the event that caused the error.

Table 30. Error logs and descriptions

<table>
<thead>
<tr>
<th>Log file name</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>deploy.log</td>
<td>./depot/deployEngine/logs/deploy.log</td>
<td>This file is located in the path you choose for the product during installation. Lists the events for the installation of the Tivoli environment. See the Tivoli Enterprise Installation Guide that comes with Tivoli management region Version 3.7.1 for further information on this set of errors.</td>
</tr>
<tr>
<td>DB2 component: DB2install.log</td>
<td>See the Tivoli temporary directory. Find this directory as follows: 1. Access the Tivoli command line environment as described in “Accessing the Tivoli environment” on page 48. 2. Run the wtemp command to display the directory path.</td>
<td>Lists the events for the installation of the IBM Tivoli Monitoring for Databases.</td>
</tr>
<tr>
<td>Informix component: CTRinstall.log</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microsoft SQL Server component: CTWinstall.log</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oracle component: ORAinstall.log</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAMinstall.log</td>
<td>The temporary (/TMP or %TEMP%) directories that are defined for your operating system.</td>
<td>Lists the events for that the installer generates.</td>
</tr>
</tbody>
</table>

Problems and workarounds

This section lists problems that you might encounter when you install and set up IBM Tivoli Monitoring for Databases. The section also describes workarounds for those problems.

Table 31. Problems and workarounds

<table>
<thead>
<tr>
<th>Problem</th>
<th>Workaround</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some HP-UX operating systems might fail to find long file names on the installation CDs for IBM Tivoli Monitoring for Databases. These systems are unable to process the Rock Ridge extensions used to burn the IBM Tivoli Monitoring for Databases CDs.</td>
<td>You must change how the operating system mounts CDs. See the Hewlett-Packard Company Web site for information. The Patch Database in the Hewlett-Packard IT Resource Center has information for some versions. The release notes for HP-UX 10.x systems also provide information.</td>
</tr>
</tbody>
</table>
Table 31. Problems and workarounds (continued)

<table>
<thead>
<tr>
<th>Problem</th>
<th>Workaround</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Language Settings</strong>: In non-English operating systems, characters might become illegible.</td>
<td>Try to resolve illegible characters by changing the locale settings of the operating system of the Tivoli server. Many operating systems that use double-byte character sets, such as Chinese, have variable locale settings. If you adjust the locale settings in the Tivoli server you might resolve this error. For example, a Chinese operating system might have multiple locale variants that you can try until you find one that works for the target language. However, not all operating systems have variable locale settings. See the documentation for your operating system to learn about its capabilities.</td>
</tr>
<tr>
<td>The system can generate an error regarding a missing Dynamic Link Library that Tivoli requires.</td>
<td>For a non-English Tivoli environment, you must install the kbdus.dll file before installing IBM Tivoli Monitoring for Databases. This requirement applies to both the Tivoli server and the Databases server hosts in the Tivoli environment. You can obtain this file from Microsoft or on the product CDs for Windows NT or Windows 2000 in all language versions of these operating systems. The kbdus.dll file must reside in the %SystemRoot%\system32 directory.</td>
</tr>
<tr>
<td>In the Step List panel of the installer you might see the following message box when installation of the Tivoli desktop software begins: &quot;String variable is not large enough for string. Check string declarations. Error 401.&quot;.</td>
<td>Click OK to continue the installation. After installation, if you are unable to launch the Tivoli desktop, run the installation wizard for this tool in the following directory path of the Tivoli Management Framework, Upgrade from Version 3.7, Revision B to Version 3.7.1 installation CD: PC\DESKTOP\DISK1\SETUP.EXE.</td>
</tr>
</tbody>
</table>
| You might see the following message during installation: "This program must run on the TMR server." | 1. Click OK. The installer prompts you to end the installation.  
2. Click Finish.  
3. Delete the temporary depot directory created by the installer.  
4. Delete the environment setup file from the following directory:  
   - On UNIX: /etc/Tivoli  
   - On Windows: %SystemRoot%\system32\drivers\etc\Tivoli  
5. Start the installation process again. |
| The Browse option in the installer panels requires a long time period to launch the file selection window. | Minimize the number of file systems mounted on the computer.  
—OR—  
Type the path of the target file system in the text box to directly access that file system. |
| The Browse option in the installer panels fails to display a CD-ROM drive. | Type the path of the target file system in the text box to directly access the CD.  
Avoid the problem in subsequent installer panels by making sure a CD is in the CD-ROM drive before you click Browse. |
### Table 31. Problems and workarounds (continued)

<table>
<thead>
<tr>
<th>Problem</th>
<th>Workaround</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why am I unable to connect to an Oracle database after registering it with Discovery?</td>
<td>Oracle has updated the security model for connecting to the database for versions 9i and above. The SVRMGR program as well as the INTERNAL account are no longer valid for versions of Oracle 9i and above. For this reason, IBM Tivoli Monitoring for Databases: Oracle uses SQLPLUS for initial registration, startup, and shutdown for Oracle 9i and above. Using SQLPLUS and SVRMGR, it is possible to use syntax such as <code>/ as sysdba</code>. The Oracle JDBC driver used by the resource models, however, does not support connecting to the database without valid user name and password credentials. You must provide IBM Tivoli Monitoring for Databases: Oracle valid user name and password credentials for a successful login to the Oracle database using the Oracle-provided JDBC driver. IBM Tivoli Monitoring for Databases: Oracle does provide functionality from both the GUI and CLI (<code>wochregdb</code>) to change the following registered object’s properties: <code>ORACLE_HOME</code>, <code>Oracle Owner</code>, <code>Oracle Owner Group</code>, <code>Oracle User</code>, <code>Oracle User Password</code>. See the <em>IBM Tivoli Monitoring for Databases: Oracle Reference Guide</em> for more information on using the <code>wochregdb</code> command.</td>
</tr>
</tbody>
</table>
| Why am I unable to connect to a Microsoft SQL Server after registering it with Discovery? | IBM Tivoli Monitoring for Databases: Microsoft SQL Server provides the following options to configure the user name and password on each server following registration:  
- **MSSQLAuthentication task**  
  Use this task to automatically configure multiple servers. See the `MSSQLAuthentication` task in the *IBM Tivoli Monitoring for Databases: Microsoft SQL Server Reference Guide* for task information. See the *IBM Tivoli Monitoring for Databases: Microsoft SQL Server User’s Guide* for instructions on how to run a task.  
- **Desktop** (`Edit Properties` window)  
  Use the desktop to configure an individual server. See the *IBM Tivoli Monitoring for Databases: Microsoft SQL Server User’s Guide* for more information.  
- **Command line** (`wmchregsvr`)  
  Use the command line to configure an individual server. See the *IBM Tivoli Monitoring for Databases: Microsoft SQL Server User’s Guide* for more information. |

### Testing endpoint connectivity

**Objective**
To test whether the Tivoli server can communicate with a specific endpoint.

**Background information**
The Tivoli server must be able to communicate with the database server hosts it manages. The endpoint is software that you install on a database server to enable communication.

**Required authorization**
On UNIX, the user who installs the managed nodes must have root privileges. On Windows, the user who installs the product must have membership in the Administrators group.

**Before you begin**
None
When you finish
If endpoint connectivity problems continue, see “Cleaning up and removing the endpoint” on page 118.

Procedure

Command line:

1. Access the Tivoli environment as described in “Accessing the Tivoli environment” on page 48.
2. Run the ping command from the Tivoli server to confirm that the endpoint is accessible over the network. If you receive connection or timeout errors, stop at this point and contact your network administrator for help.
3. If you do not know the name of the endpoint, run the following command on the Tivoli server to see a list of all endpoints that are connected to the server:
   `wlookup -a -r Endpoint`
4. Run the following command on the Tivoli server:
   `wadminep <ep_name> view_version`
   where <ep_name> is the name of a specific endpoint on a database server. See the list generated in Step 3 to obtain the names of endpoints.
5. If you receive a message other than one containing a single version number, the endpoint software must be restarted. You can manually restart the endpoint on that server as follows:
   - **On Windows systems:**
     a. Run the following command to stop lcfd, the process of the endpoint:
        `net stop lcfd`
     b. Run the following command to start the lcfd process:
        `net start lcfd`
   - **On Solaris and AIX systems:**
     a. Use the following command to identify the lcfd process:
        `ps -ef | grep lcfd`
     b. Kill this process using a command like the following:
        `kill -9 <process_ID>`
        where <process_ID> is the ID of the process.
     c. Use the following command to set the required environment variables:
        `./etc/Tivoli/lcf/<process_ID>/lcf_env.sh`
     d. Use the following command to restart the lcfd process:
        `$LCF_BINDIR/lcfd.sh`
6. Monitor the state of the endpoint you have just restarted from a Web browser using the following URL:
   `http://<ep_host>:<ep_port>`
   where <ep_host> is the name of the database server host and <ep_port> is the name of the port that you assigned for endpoint transactions in the Tivoli server. The value of Status for the endpoint should be running.
Cleaning up and removing the endpoint

**Objective**
To clean up the endpoint process and remove endpoint files from the Tivoli environment.

**Background information**
You use clean up and remove an endpoint after you complete the diagnostic tests listed in “Testing endpoint connectivity” on page 116. Those tests can confirm that the endpoint is not working.

If you used the InstallShield endpoint installation option on Windows, you do not need to perform this procedure. The endpoint installation wizard is described in “Installing endpoints through an existing Tivoli environment” on page 53. You can run the following command to uninstall an endpoint:

```bash
%SystemDrive%\Program Files\Tivoli\lc\uninst.bat
```

where `%SystemDrive%` is the environment variable for system drive.

The endpoint is a process that runs at all times on a Databases server host. Removal of the agent requires four actions that this procedure describes:
- Stopping the IBM Tivoli Monitoring engine
- Stopping the endpoint service
- Erasing the endpoint directories and files on the client computer
- Removing startup statements from system configuration files on the client computer

Step 5 of this procedure stops the IBM Tivoli Monitoring engine. If you do not stop the engine during this procedure the $LCF_DATDIR/LCFNEW directory is not removed and old resource model files continue to exist on the endpoint. When the engine is not removed the product might begin to behave unpredictably. For example, distribution of new resource models to the endpoint might fail.

On a partitioned Databases server that runs in a Windows, UNIX, or AIX environment, each partition runs a separate copy of the endpoint. When you uninstall a endpoint, you must identify the specific agent that you want to uninstall, as described in this procedure.

**Required authorization role**
The installation routine for IBM Tivoli Monitoring for Databases creates the Tivoli administrator who is authorized to perform this procedure. Other administrators must have the senior role to perform this operation.

**Before you begin**
Complete the tests described in “Testing endpoint connectivity” on page 116.

**When you finish**
If you used this procedure to resolve a communications error with a Databases server endpoint, perform the following steps to re-install the endpoint software:

1. Install a new endpoint as described in “Installing endpoints through an existing Tivoli environment” on page 53.

   **Note:** If you re-use the original name of the endpoint, wait 15 minutes before you perform this step to ensure that no process is referencing the name.
2. **Verify the new endpoint** you installed as described in “Verifying the installation of the product” on page 66.

**Procedure**

You can perform this procedure from the command line only.

**Command line:**

**Note:** The directories specified in the following procedure reflect the default locations. Your installation path might differ.

1. Log on to the Tivoli server.
2. Access a command prompt window.
3. Start the command line interface as described in “Accessing the Tivoli environment” on page 48.
4. Run the `wadminep` command to obtain the ID number of the endpoint that you want to uninstall.
   
   **Additional Information:** For example, the following `wadminep` command uses the `view_run_dir` flag to determine the path of the directory for an endpoint named `WebServer01`:
   
   ```
   wadminep WebServer01_ep view_run_dir
   ```
   
   If the command returns the directory path `/opt/lcf/dat/2`, the ID number for this endpoint is 2, the numerical name of the directory that contains the endpoint software.

   **Note:** In partitioned Databases servers, the `dat` directory contains a numbered subdirectory for each partition that you configure as a endpoint.

5. Run the following command to stop the IBM Tivoli Monitoring engine and remove related files:
   
   ```
   wdmcmd -stop -e endpoint_name
   ```
   
   where `endpoint_name` is the name of the endpoint in the Tivoli system, which you obtained earlier in Step 4.

6. Log on to the Databases server endpoint.
7. Confirm success of the `wdmcmd` command as follows:
   
   - On UNIX, run the following command to view processes that are running:
     ```
     ps -ef | grep ep_location
     ```
     
     where `ep_location` is the directory in which the endpoint software is located.
   
   a. Go to Step 9 if the output does not contain the string `..../JRE/DMAE/bin/...` This result indicates success, as in the following example:
     ```
     /data/Tivoli-4558/lcf/bin/solaris2/mrt/..../bin/sparc/native_th..
     ```
   
   b. Go to the UNIX instructions in Step 8 if the output contains the string `..../JRE/DMAE/bin/...` This result indicates failure of the command, as in the following example:
     ```
     /data/Tivoli-4558/lcf/bin/solaris2/mrt/..../JRE/DMAE/bin/..../
     bin/sparc/native_th..
     ```
   
   - On Windows, look for the `Tmw2k` process in the **Processes** tab of the Windows Task Manager.
   
   a. Go to Step 9 if the `Tmw2k` process is not running. This result indicates success of the command in Step 5.
b. Go to the Windows instructions in Step 8 if the Tmw2k process is not running. This result indicates failure of the command in Step 5.

8. If Step 7 shows that the wdmcmd command failed, manually stop the IBM Tivoli Monitoring engine as follows:
   • On Windows, run the following command to kill the process:
     `ntprocinfo -k process_ID`
     where `process_ID` is the ID number of the monitoring engine process that you want to kill.
   • On UNIX, kill the Tmw2k process.

Verify that `SLCF_DATDIR/LCFNEW` has been deleted on the endpoint.

9. Stop the endpoint as follows:
   • On Windows, stop and remove the endpoint service by entering the following command on one line:
     `%SystemDrive%\Tivoli\lcf\bin\w32-ix86\mrt\lcfd -r "lcfd"
     where `%SystemDrive%\Tivoli\lcf` is the default path where an endpoint is installed.
   • On UNIX, use one of the following methods:
     – Enter the `/opt/Tivoli/lcf/dat/1/lcfd.sh` stop command.
     —OR—
     – Obtain the process identification (PID) of the endpoint daemon and enter the following `kill` command against it:
       `kill -9 <PID>`
     where `<PID>` is the process ID.

10. (Windows only) Run the following command to remove the Tivoli tool that tracks connection statistics:
    `%SystemDrive%\Tivoli\lcf\bin\w32-ix86\mrt\lcfep -s`

11. Remove the endpoint installation directory and subdirectories from the following default locations:
    • On UNIX: `/opt/Tivoli/lcf`
    • On Windows: `c:\Tivoli\lcf`

12. Remove the endpoint environment directory, including its subdirectories and files from the following default locations:
    • On UNIX: `/etc/Tivoli/lcf`
    • On Windows: `%SystemRoot%\Tivoli\lcf`

13. Remove the endpoint startup item in one of the following locations:
    • On AIX: `/etc/inittab` (You must use the following removal command: `/etc/rmitab rctma1``)
    • On HP-UX: `/sbin/init.d/lcfd1.sh`
    • On Solaris: `/etc/init.d/lcfd1.rc`
    • On Windows: (No action necessary. The endpoint startup item is the Tivoli Endpoint service, and the command in Step 9 automatically removed it.)

14. (AIX only) Remove the `/etc/rc.tma1` and `/etc/inittab.before.tma1` files.

15. (Solaris and HP-UX only) Remove the following symbolic links:
    • On Solaris:
      – `/etc/rc0.d/K50Tivoli_lcf1`
– /etc/rc1.d/K50Tivoli_lcf1
– /etc/rc2.d/K50Tivoli_lcf1
– /etc/rc3.d/S99Tivoli_lcf1

• On HP-UX:
  – /sbin/rc0.d/K100Tivoli_lcf1
  – /sbin/rc1.d/K100Tivoli_lcf1
  – /sbin/rc2.d/K100Tivoli_lcf1
  – /sbin/rc3.d/S500Tivoli_lcf1

16. Remove the userlink.htm file from the following location:
   • On UNIX: /etc/Tivoli/*/userlink.htm
   • On Windows: %SystemRoot%\etc\Tivoli\C\userlink.htm

17. Run the following command on the Tivoli server to delete the endpoint object from the Tivoli database:
    wdelep <endpoint_name>

    where <endpoint_name> is the name of the endpoint that you assign when you create an endpoint.
Appendix B. Installation messages

This section lists the messages that the installer for IBM Tivoli Monitoring for Databases can generate.

The installer can generate the following general messages.

DNO1000E Plugin creation failed %s
Explanation: The installer builds the Step List panel from your settings. Each step is represented by a plugin module. If the information needed for a step is corrupt, this message appears. Contact Customer Support.

DNO1001E The following plugin failed:
Explanation: The installer builds the Step List panel from your settings. Each step is represented by a plugin module. If the information needed for a step is corrupt, this message appears. Contact Customer Support.

DNO1051E Unable to find the XML model file
Explanation: The XML model file deployConfig.xml should exist under the <depot>/deployEngine directory.

DNO1052E Process model error --
Explanation: The installer cannot locate the deployConfig.xml file. Check the deploy.ini file (in /etc on UNIX; in %SystemRoot% on Windows.

DNO1053E Unable to delete session :
Explanation: The installer attempted and failed to delete the <depot>/deployEngine/var/session directory.

DNO1151E Unable to get the step to run
Explanation: This message might result from a software problem. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO1152E Unable to update the status of the step
Explanation: This message might result from a software problem. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO1153E Unable to run the GenericPlugin.RebootPlugin
Explanation: This Windows error possibly occurred because a change to the Registry failed. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO1200E Unable to find the required model in the repository
Explanation: The deployConfig.xml file does not exist in <depot>/deployEngine/var/models. Try restarting. If the problem persists, contact Customer Support.

DNO1201E An error occurred during the creation of the model repository directory
Explanation: A system error can cause this message to display during creation of the directory <depot>/deployEngine/var/models in your depot. Check disk space and file permissions. If the problem persists, contact Customer Support.

DNO1202E The required model file does not exist
Explanation: The deployConfig.xml file does not exist in <depot>/deployEngine/var/models. Try restarting. If the problem persists, contact Customer Support.

DNO1203E Unable to copy the file in the model repository
Explanation: An error occurred during an attempt to copy the file <depot>/deployEngine/deployConfig.xml to the directory <depot>/deployEngine/var/models. Check disk space and file permissions. If the problem persists, contact Customer Support.
**DNO1204E** An error occurred: unable to delete the file:

**Explanation:** An error occurred during an attempt to delete the file `depot/deployEngine/var/models/deployConfig.xml`. Check file permissions. If the problem persists, contact Customer Support.

**DNO1205E** An error occurred during file deletion

**Explanation:** An error occurred during an attempt to delete the file `depot/deployEngine/var/models/deployConfig.xml`. Check file permissions. Contact Customer Support if problem cannot be fixed.

**DNO1250E** Unable to create plugin object of type %s

**Explanation:** This message might result from a software problem. Check the `depot/deployEngine/logs/deploy.log` file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

**DNO1300E** Error updating %s

**Explanation:** An error occurred during an attempt to update %s, which is the full path to the file containing all search paths for your install images. Check file permissions for this file.

**DNO1350E** The home directory for the following session already exists:

**Explanation:** The `depot/deployEngine/var/session` directory was created previously and this was not expected. Delete this directory and restart the installer by running `depot/restart.bat` (on UNIX run `depot/restart.sh`).

**DNO1351E** Unable to create a home directory for the session:

**Explanation:** The installer cannot create the `depot/deployEngine/var/session` directory. Check file permissions and disk space.

**DNO1352E** Unable to create SessionStatus.p file of the session:

**Explanation:** The installer cannot create the file `depot/deployEngine/var/session/SessionStatus.p`. Check file permissions and disk space.

**DNO1353E** Unable to find the session:

**Explanation:** Problem locating directory `depot/deployEngine/var/session`. Contact Customer Support.

**DNO1355E** Unable to access the SessionStatus.p file of session:

**Explanation:** The installer cannot read the file `depot/deployEngine/var/session/SessionStatus.p`. Check file permissions and disk space.

**DNO1356E** Unable to find the home directory for the session:

**Explanation:** Problem locating directory `depot/deployEngine/var/session`. Contact Customer Support.

**DNO1357E** Unable to delete the home directory for the session:

**Explanation:** The installer cannot delete the directory `depot/deployEngine/var/session`. Check file permissions and disk space.

**DNO1358E** Error open log file of step:

**Explanation:** The installer cannot read the following file located in the `depot` directory `/deployEngine/var/session/Step_n/Step_n.log` (where n is the number of the current step). Check file permissions.

**DNO1359E** Unable to find the plugin input file:

**Explanation:** This message might result from a software problem. Check the `depot/deployEngine/logs/deploy.log` file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

**DNO1361E** The session is not in begin sessionID:

**Explanation:** This message might result from a software problem. Check the `depot/deployEngine/logs/deploy.log` file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

**DNO1362E** The step home directory for the following step already exists:

**Explanation:** This error might occur because of a corrupted directory:
<depot>/deployEngine/var/session. Delete this directory and restart the installer.

DNO1363E Unable to create the step home directory for the session:
Explanation: The installer cannot create the directory <depot>/deployEngine/var/session. Check file permissions and disk space.

DNO1364E Unable to copy the pluginInput file:
Explanation: The installer cannot create the following XML file located in the <depot> directory /deployEngine/var/session/Step_n (where n is the number of the current step). Check file permissions and disk space.

DNO1365E Unable to access Step_xxxx.p file:
Explanation: This message might result from a software problem. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO1366E Unable to update the SessionStatus.p file of the session:
Explanation: This message might result from a software problem. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO1371E Found step status for:
Explanation: No error has occurred. No action is necessary.

DNO1372E Unable to find step:
Explanation: This message might result from a software problem. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO1900E Rapid Deployment Assistant incorrectly installed. Missing or invalid deploy.ini file.
Explanation: The file deploy.ini could not be found in its usual location. On Windows, it is located in the system root directory. The directory c:\WINNT is used as a default if the installer cannot resolve the root directory from the system variables. On UNIX systems, the file should be located in the /etc directory. Make sure the file exists in the proper directory. The contents of the file point to the location of the deployEngine directory located in the temporary depot directory. For example, the file might contain the following statement:
[Deploy]
H:\Tivoli\depot\deployEngine

H:\Tivoli\depot becomes the default depot directory when the installer begins. If the problem cannot be corrected, contact Customer Support.

DNO1903E Be sure to load a valid model.
Explanation: An attempt was made to load an invalid XML model. Please select a valid XML model to continue.

DNO1903Ebis You have tried to load an invalid model, please try again.
Explanation: An attempt was made to load an invalid XML model. Please select a valid XML model to continue.

DNO1904E An error occurred during the model registration. Ensure you have the required disk permissions and select a model again.
Explanation: An error has occurred in registering the XML model that describes the installation. Ensure that enough disk space is available and the current user has the correct file permissions. If the problem persists, contact Customer Support.

DNO1905E The session could not be opened because the following error occurred: {0} (return code: {1}). Select another model to continue.
Explanation: An error has occurred in parsing the XML model describing the installation. Try to run the installation a second time. If it still fails, contact Customer Support.

DNO1906E Unable to get status information for step {0}.
Explanation: The installer cannot retrieve the status of the last executed step. Contact Customer Support.
DNO1907E The step could not be deferred because the following error occurred: {0} (return code: {1}).

Explanation: The installer cannot defer the step. Try to defer the step again. If deferral fails again, contact Customer Support.

DNO1908E A fatal error occurred. Error message: {0}

Explanation: An installer command has failed. If the failure occurs before or after the Step List runs, contact Customer Support. If the failure occurs while the Step List runs, try to rerun the current step. If it fails again, contact Customer Support.

DNO1909W Are you sure you want to exit the application?

Explanation: Click OK to confirm that you want to exit the installation process.

DNO1910I The installation process will stop at the end of the current step.

Explanation: This message is displayed when you click the Stop button. The installation stops after the current step completes execution.

DNO1911I Installation completed, press next to continue.

Explanation: This message confirms that the installation has completed. The Next button becomes active after you close the message dialog box.

DNO1912I Installation completed. {0} steps passed. {1} steps deferred. Press next to continue.

Explanation: This message confirms that the installation has completed and lists the number of steps passed and deferred. The Next button becomes active after you close the message dialog box.

DNO1913I Nothing to do for this install. Press Next to continue.

Explanation: The settings you made in the installer do not require the installation of any software. The automatic discovery process indicates that all your settings are already implemented. The Next button becomes active after you close the message dialog box.

DNO2001E Reboot failed

Explanation: The installer cannot reboot the local computer. Reboot the computer through normal means. If the installer does not automatically restart after the reboot operation, run the reboot.bat file in the depot directory.

DNO2054E Tivoli user account tmersrvd cannot be created.

Explanation: A system error has occurred on a Windows computer. Make sure that proper Administrator authority exists for the user who is currently logged on.

DNO2055E This step is required only on Windows operating systems.

Explanation: This message might result from a software problem. Defer the step and continue. Report the problem to Customer Support.

DNO2056E The kbdus.dll is a prerequisite for the Tivoli Management Framework installation. Install it before proceeding.

Explanation: The file %SystemRoot%\System32\kbdus.dll was not found. This U.S. keyboard DLL is necessary for a complete installation on Windows. The DLL is available from Microsoft and also comes on the installation CDs for Windows.

DNO2057E Installation failed.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%/tmp/tivoli.cinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated. If necessary, ask Customer Support to help you resolve the problem.

DNO2059E Installation failed: directory dbdir already exists.

Explanation: This error occurs in the rare case of an unsuccessful cleanup of remnants of an old Tivoli installation. Specifically, an attempt to rename an old $DBDIR failed.

DNO2060E Installation failed: directory bindir already exists.

Explanation: This error occurs in the rare case of an unsuccessful cleanup of remnants of an old Tivoli installation. Specifically, an attempt to rename an old $DBDIR failed.
DNO2061E Installation failed: unable to create silent install setup file.

Explanation: The installer could not create the %SystemRoot%\setup_tmf.iss file. Check disk space and file accessibility.

DNO2062E Installation failed: unable to create the installation directory.

Explanation: The installer could not create the destination directory. Check disk space and file accessibility.

DNO2063E Installation failed: unable to install Tivoli Management Framework pre-installation files.

Explanation: The installer could not execute WPREINSTALL.SH. Check disk space and file accessibility.

DNO2064E Installation failed: some or all installation parameters are missing.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You might have to restart the Typical or Custom installation process to make sure all parameters are filled in.

DNO2065E Installation failed: unable to find Tivoli Management Framework binary files.

Explanation: The binary files needed for this installation cannot be found in the depot search path. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information.

DNO2066E Warning: unable to check that the installation succeeded.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for the name of the error file that is missing.

DNO2067E The Tivoli Object Dispatcher service could not be started.

Explanation: The oserv daemon did not start during installation. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated.

DNO2070E Installation failed: encryption set failed

Explanation: The installation had a problem with message encryption. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated.

DNO2071E Installation failed: unable to set the Tivoli Management Region Server name

Explanation: The installation had a problem updating the Tivoli database. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated.

DNO2072E Installation failed: unable to set the installation password.

Explanation: This problem normally occurs only if you specify an installation password. Tivoli recommends that you do not set an installation password until later.

DNO2073E Installation failed: some or all installation parameters are missing.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for more details. The end of the log file contains the most recently logged information. You might have to restart the Typical or Custom installation process to make sure all parameters are filled in.

DNO2074E Desktop Installation failed: unable to create silent install setup file.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for more details. This step can be deferred without affecting subsequent steps.

DNO2075E Unable to install Tivoli Desktop on this operating system.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for more details. This step can be deferred without affecting subsequent steps.

DNO2076E Unable to set Tivoli environment.

Explanation: The installer attempted to set up the Tivoli environment and failed. To manually set up the Tivoli environment on UNIX, run the setup_env.sh script in the /etc/Tivoli directory. On Windows, run the setup_env.cmd command in the %SystemRoot%\System32\drivers\etc\Tivoli directory.
DNO2077E Desktop Installation failed. Will not affect remaining install. Please create Desktop through Framework cd:
PC\DESKTOP\DISK1\SETUP.EXE.

Explanation: Defer the step and continue. Install the optional Desktop interface after installation is complete. The installation executable for this interface is located in the following path on the Tivoli Management Framework installation CDs:
PC\DESKTOP\DISK1\SETUP.EXE.

DNO2078E Installation failed: unable to find Desktop binary files.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO2079E The Tivoli Management Framework installed on this machine is not supported by the rapid Deployment Tool.

Explanation: The operating system of the local computer is not compatible with the Tivoli Management Framework installation. See the system requirements section of the installation and setup guide to see a list of supported operating systems.

DNO2080E Installation failed: Unable to create the RapidDeployment directory under the $BINDIR directory.

Explanation: An attempt to make the directory RapidDeployment under the destination directory was unsuccessful. Check disk space and file permissions.

DNO2084E Installation failed: Not enough disk space.

Explanation: The file system or partition for the destination directory of the target computer is too small. Allocate more disk space for this directory and rerun the step.

DNO2085E Installation failed: Problem encountered.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.sinstall (%Dbdir%/tmp/tivoli.sinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated. If necessary, ask Customer Support to help you resolve the problem.

DNO2086E Installation failed: Fatal error.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.sinstall (%Dbdir%/tmp/tivoli.sinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated. If necessary, ask Customer Support to help you resolve the problem.

DNO2087E Installation failed: unable to find the output file tivoli.sinstall.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.sinstall (%Dbdir%/tmp/tivoli.sinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated. If necessary, ask Customer Support to help you resolve the problem.

DNO2104E Installation failed.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%/tmp/tivoli.cinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated. If necessary, ask Customer Support to help you resolve the problem.

DNO2106E Installation failed: unable to find the output file tivoli.cinstall.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%/tmp/tivoli.cinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated. If necessary, ask Customer Support to help you resolve the problem.

DNO2107E Installation failed: incorrect return code.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%/tmp/tivoli.cinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated. If necessary, ask Customer Support to help you resolve the problem.
DNO2108E Installation failed: insufficient disk space. You may change the destination directory via the Change button.

Explanation: The file system or partition for the destination directory of the target computer is too small. Allocate more disk space for this directory, or use the Change button in the Detail dialog box to change the destination directory.

DNO2109E Installation failed: installation error occurred.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%/tmp/tivoli.cinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated. If necessary, ask Customer Support to help you resolve the problem.

DNO2110E Installation failed: communication problem occurred.

Explanation: Possible network problem. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%/tmp/tivoli.cinstall on Windows). Also, there is possibly a XXXInstall.log file in the same directory, where XXX is the product ID. If necessary, ask Customer Support to help you resolve the problem.

DNO2111E Installation failed: there is nothing to install.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%/tmp/tivoli.cinstall on Windows). Also, there is possibly a XXXInstall.log file in the same directory, where XXX is the product ID. If necessary, ask Customer Support to help you resolve the problem.

DNO2112E Installation failed: unable to access the system.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. Make sure proper network communications are established between computers. If necessary, click Change in the Detail dialog box to provide a new, valid login and password.

DNO2113E Installation failed: unable to recognize the Interp type.

Explanation: The operating system for the local computer is not compatible with the Tivoli Management Framework installation. See the system requirements section of the installation and setup guide to see a list of supported operating systems.

DNO2114E Installation failed: the managed node oserv would not start.

Explanation: The following message was received during the installation process: Object Dispatcher service could not be started. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%/tmp/tivoli.cinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated. If necessary, ask Customer Support to help you resolve the problem.

DNO2115E Installation failed: incorrect encryption, or installation password.

Explanation: This error arises when an installation password was previously set, and then the wrong one was provided during this installation step. Also, it is possible that the installer had a problem with message encryption. You can find further information in /tmp/tivoli.cinstall (%Dbdir%/tmp/tivoli.cinstall on Windows).

DNO2116E Installation failed: Managed Node is not registered.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. This error usually means that a fatal error occurred late in the installation process, preventing the managed node’s name from being entered into the Tivoli Registry. If necessary, ask Customer Support to help you resolve the problem.

DNO2117E Installation failed: some or all installation parameters are missing.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You might have to restart the Typical or Custom installation process to make sure all parameters are filled in.
DNO2119E Installation failed: unable find Tivoli Management Framework binary files.

Explanation: The .IND file is the index file that accompanies and defines the installation binary files. The installer cannot find this file. You can find the file somewhere in the temporary depot directory or on the installation CD.

DNO2120E Installation halted: Managed node was rebooted, but it is not active.

Explanation: The Windows managed node creation required a reboot. After this reboot, the computer is not responding to a ping command within the allotted time period.

DNO2121E Gateway creation failed.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO2152E Gateway creation failed: incorrect return code.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You might have to restart the Typical or Custom installation process to make sure all parameters are filled in.

DNO2202E Installation failed.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO2203E Installation failed: incorrect return code.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO2204E Installation failed: unable to access the system.

Explanation: Make sure proper network communications are established between computers. If necessary, click Change in the Detail dialog box to provide a new, valid login and password.

DNO2205E Installation failed: some or all installation parameters are missing.

Explanation: You might have to restart the Typical or Custom installation process to make sure all parameters are filled in.
<table>
<thead>
<tr>
<th>Error Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNO2206E</td>
<td>Installation failed: invalid port number. Explanation: The port number for an endpoint is typically 9495. Certain rules apply to alternative port numbers. For example, the port number must be unique on the target computer. You might have to restart the Typical or Custom installation process to make sure all parameters are filled in. Check the &lt;depot&gt;/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.</td>
</tr>
<tr>
<td>DNO2207E</td>
<td>The endpoint proxy %s is not connected to its gateway. Explanation: An error occurred because the endpoint proxy named %s is not connected to its gateway. This error can occur during the installation of Windows NT endpoints. Be sure that the referenced proxy endpoint is up and running. Use the following command to check endpoint status: <code>wep &lt;endpoint&gt; status</code></td>
</tr>
<tr>
<td>DNO2208E</td>
<td>Installation failed: Unable to upgrade the endpoint proxy %s to required version. Explanation: An attempt to run the wadminep &lt;endpoint&gt; upgrade command failed. Check the &lt;depot&gt;/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.</td>
</tr>
<tr>
<td>DNO2253E</td>
<td>Installation failed: unable to find the IND file. Explanation: The .IND file is the index file that accompanies and defines the installation binary files. The installer cannot find this file. You can find the file somewhere in the temporary depot directory or on the installation CD.</td>
</tr>
<tr>
<td>DNO2255E</td>
<td>Installation failed: unable to retrieve information from Tivoli database. Explanation: The Tivoli oserv daemon might not be running. Check the &lt;depot&gt;/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows). Also, there is possibly a XXXInstall.log file in the same directory, where XXX is the product ID. If necessary, ask Customer Support to help you resolve the problem.</td>
</tr>
<tr>
<td>DNO2256E</td>
<td>Installation failed: unable to find the target Managed Node. Explanation: Make sure proper network communications are established between computers. If necessary, click Change in the Detail dialog box to provide a new, valid login and password. Check the &lt;depot&gt;/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.</td>
</tr>
<tr>
<td>DNO2257E</td>
<td>Installation failed: incorrect return code. Explanation: Check the &lt;depot&gt;/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated. If necessary, ask Customer Support to help you resolve the problem.</td>
</tr>
<tr>
<td>DNO2258E</td>
<td>Installation failed: unable to access the tivoli.cinstall output file. Explanation: The installer normally generates the tivoli.cinstall file after creation of a Managed Node. The file is placed in the /tmp directory in UNIX, or in the %Dbdir%\tmp directory in Windows. There is a possible disk access problem.</td>
</tr>
</tbody>
</table>
DNO2259E  Installation failed: insufficient disk space.
Explanation:  The file system or partition for the destination directory of the target computer is too small. Allocate more disk space for this directory and rerun the step.

DNO2260E  An error occurred. The installation failed.
Explanation:  Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated. If necessary, ask Customer Support to help you resolve the problem.

DNO2261E  Installation failed: communication problem occurred.
Explanation:  Possible network problem. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows). Also, there is possibly a XXXInstall.log file in the same directory, where XXX is the product ID. If necessary, ask Customer Support to help you resolve the problem.

DNO2262E  Installation failed: there is nothing to install.
Explanation:  Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows). Also, there is possibly a XXXInstall.log file in the same directory, where XXX is the product ID. If necessary, ask Customer Support to help you resolve the problem.

DNO2263E  Installation failed: unable to access the system.
Explanation:  Make sure proper network communications are established between computers. If necessary, click Change in the Detail dialog box to provide a new, valid login and password. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO2264E  Installation failed: unable to recognize the Interp type.
Explanation:  The operating system of the local computer is not compatible with the Tivoli Management Framework installation. See the system requirements section of the installation and setup guide to see a list of supported operating systems.

DNO2265E  Installation failed: the managed node oserv would not start.
Explanation:  The following message was received during the installation process: Object Dispatcher service could not be started. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated. If necessary, ask Customer Support to help you resolve the problem.

DNO2266E  Installation failed: incorrect encryption or installation password.
Explanation:  This error arises when an installation password was previously set, and then the wrong one was provided during this installation step. Also, it is possible that the installer had a problem with message encryption. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows).

DNO2267E  Installation failed: required parameters are missing.
Explanation:  You might have to restart the Typical or Custom installation process to make sure all parameters are filled in. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO2268E  Installation failed: unable to find IND binary files.
Explanation:  The .IND file is the index file that accompanies and defines the installation binary files. The installer cannot find this file. You can find the file somewhere in the temporary depot directory or on the installation CD.
DNO2269E Installation failed: the description does not match the IND file.

Explanation: The .IND file is the index file that accompanies and defines the installation binary files. The installer found this file but the description in its first line does not match what was expected. The correct .IND file should be somewhere in the depot or on the installation CD.

DNO2270E Installation failed: see log files for details.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in %Tdbdir%/tmp/tivoli.cinstall file (or %Dbdir%/tmp/tivoli.cinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated. If necessary, ask Customer Support to help you resolve the problem.

DNO2271E Installation failed: product patch is required.

Explanation: This message might result from a software problem. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO2453E Installation failed: unable to run the required command.

Explanation: A problem was encountered running the install command. This message might result from a software problem. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO2454E Installation failed: unable to find the IND file.

Explanation: The .IND file is the index file that accompanies and defines the installation binary files. The installer cannot find this file. You can find the file somewhere in the temporary depot directory or on the installation CD.

DNO2455E Installation failed: unable to retrieve information from Tivoli database.

Explanation: It is possible that the Tivoli oserv daemon is not running. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in %Tdbdir%/tmp/tivoli.cinstall file (or %Dbdir%/tmp/tivoli.cinstall on Windows). Also, there is possibly a XXXInstall.log file in the same directory, where XXX is the product ID. If necessary, ask Customer Support to help you resolve the problem.
DNO2456E Installation failed: unable to find the target Managed Node.

Explanation: Make sure proper network communications are established between computers. If necessary, click Change in the Detail dialog box to provide a new, valid login and password. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO2457E Installation failed: incorrect return code.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows). Also, there is possibly a XXXInstall.log file in the same directory, where XXX is the product ID. If necessary, ask Customer Support to help you resolve the problem.

DNO2458E Installation failed: unable to access the tivoli.cinstall output file.

Explanation: The installer normally generates the tivoli.cinstall file after creation of a Managed Node. The file is placed in the /tmp directory in UNIX, or in the %Dbdir%\tmp directory in Windows. There is a possible disk access problem.

DNO2459E Installation failed: insufficient disk space.

Explanation: The file system or partition for the destination directory of the target computer is too small. Allocate more disk space for this directory and rerun the step.

DNO2460E An error occurred. The installation failed.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated. If necessary, ask Customer Support to help you resolve the problem.

DNO2461E Installation failed: communication problem occurred.

Explanation: Possible network problem. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows). Also, there is possibly a XXXInstall.log file in the same directory, where XXX is the product ID. If necessary, ask Customer Support to help you resolve the problem.

DNO2462E Installation failed: there is nothing to install.

Explanation: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows). Also, there is possibly a XXXInstall.log file in the same directory, where XXX is the product ID. If necessary, ask Customer Support to help you resolve the problem.

DNO2463E Installation failed: unable to access the system.

Explanation: The operating system of the local computer is not compatible with the Tivoli Management Framework installation. See the system requirements section of the installation and setup guide to see a list of supported operating systems.

DNO2464E Installation failed: unable to recognize the Interp type.

Explanation: Make sure proper network communications are established between computers. If necessary, click Change in the Detail dialog box to provide a new, valid login and password. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO2465E Installation failed: the managed node oserv would not start.

Explanation: The following message was received during the installation process: Object Dispatcher service could not be started. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated. If necessary, ask Customer Support to help you resolve the problem.
DNO2466E Installation failed: incorrect encryption or installation password.

Explaination: It is possible that the installer had a problem with message encryption. More probably, an installation password was previously set, and then the wrong one was provided during this installation step. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows).

DNO2467E Installation failed: required parameters are missing.

Explaination: You might have to restart the Typical or Custom installation process to make sure all parameters are filled in. Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. If necessary, ask Customer Support to help you resolve the problem.

DNO2468E Installation failed: unable to find IND binary files.

Explaination: The .IND file is the index file that accompanies and defines the installation binary files. The installer cannot find this file. You can find the file somewhere in the temporary depot directory or on the installation CD.

DNO2469E Installation failed: the description does not match the IND file.

Explaination: The .IND file is the index file that accompanies and defines the installation binary files. The installer found this file but the description in its first line does not match what was expected. You should be able to find all required .IND files somewhere in the depot or on the installation CD.

DNO2470E Installation failed: see log files for details.

Explaination: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows). Also, check the install.cfg.error file in the same directory, if it has been generated. If necessary, ask Customer Support to help you resolve the problem.

DNO2473E Install Failed: Cannot reexec Tivoli Management Region.

Explaination: The installer ran the odadmin reexec all command and the oserv daemon did not correctly recycle. If you are unable to restart the oserv daemon manually, contact Customer Support.

DNO2474E No hostname provided by user data

Explaination: This message might result from a software problem. Defer the step and continue. Report the problem to Customer Support.

DNO2475E No log information provided. Probable install failure.

Explaination: Check the <depot>/deployEngine/logs/deploy.log file for information about the problem. The end of the log file contains the most recently logged information. You can find further information in /tmp/tivoli.cinstall (%Dbdir%\tmp\tivoli.cinstall on Windows). Also, there is possibly a XXXInstall.log file in the same directory, where XXX is the product ID. If necessary, ask Customer Support to help you resolve the problem.

DNO3000E WRONG_MACHINE=This program must run on the Tivoli management region server.

Explaination: You must run the installer on a Tivoli management region server. If you are running the installer on the host computer for the Tivoli management region server, make sure the Tivoli Object Dispatcher service or daemon is started and rerun the installation program. If you are not running the installer on the host computer for the Tivoli management region server, rerun the installer on the computer.

DNO3001E TME_TOO_OLD=The Tivoli Management Framework product installed on this Tivoli Management Region is older than 3.7. You must upgrade to at least 3.7 to use this tool.

Explaination: The minimum level of the Tivoli Management Environment must be version 3.7. Manually upgrade the Framework to version 3.7 then proceed with the installation. See the manual installation instructions in the installation and setup guide for this product.

DNO3002E NOT_ADMINID=The current userid does not have the proper roles. Logon to a Tivoli administrator userid with admin, super, install_client, and install_product roles.

Explaination: The user ID under which the installer runs must have the privileges of a Tivoli Administrator user ID. Log on to a user ID that has admin, super, install_client, and install_product roles to run the installer.
DNO3003E  DISCOVERY_FAILED=Discovery of the current Tivoli environment failed. The installation wizard cannot continue.

Explanation: The installer cannot continue because of a condition that has already been logged. If there has not been an error message displayed, examine the log for the error condition. Correct it and rerun the installer.
Appendix C. Patches

This section lists two types of patches:

- Table 32 lists patches that the installer for IBM Tivoli Monitoring for Databases installs automatically. (For a manual installation of the product, install these patches as described in "Installing Tivoli patches manually" on page 60.)
- Table 33 lists patches that you must install for the required and optional software for the product.

Table 32. Patches that the installer installs automatically

<table>
<thead>
<tr>
<th>Software release</th>
<th>Patch name</th>
<th>Prerequisite patches</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tivoli Management Framework 3.6</td>
<td>3.6.1-TMF-0034</td>
<td>—</td>
<td>Linux support</td>
</tr>
<tr>
<td>Provides required updates to Tivoli Management Framework 3.7.1</td>
<td>3.6.1-TMF-0062</td>
<td>3.6.1-TMF-0034</td>
<td>Linux support</td>
</tr>
<tr>
<td>Tivoli Management Framework 3.7</td>
<td>3.7-TMF-0018</td>
<td>—</td>
<td>OS/400 support</td>
</tr>
<tr>
<td>Provides required updates to Tivoli Management Framework 3.7.1</td>
<td>3.7-TMF-0021</td>
<td>3.6.1-TMF-0034 &amp; -0062</td>
<td>Linux-390 support</td>
</tr>
<tr>
<td></td>
<td>3.7-TMF-0035</td>
<td>—</td>
<td>Linux support</td>
</tr>
<tr>
<td>Tivoli Management Framework 3.7.1</td>
<td>3.7.1-TMF-0059</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>3.7.1-TMF-0066</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>3.7.1-TMF-0073</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>3.7.1-TMF-0076</td>
<td>3.6.1-TMF-0034 &amp; -0062</td>
<td>Linux support (Oracle and DB2 only)</td>
</tr>
<tr>
<td></td>
<td>3.7.1-TMF-0087</td>
<td>3.7.1-TMF-0073</td>
<td>HP-UX support for product installer</td>
</tr>
<tr>
<td>IBM Tivoli Monitoring</td>
<td>Fix Pack 2</td>
<td>Note: You must manually install Fix Pack 3.</td>
<td>—</td>
</tr>
<tr>
<td>For DBCS support, manually install 5.1.1-ITM-0011E on Fix Pack 3.</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
</tbody>
</table>
Table 32. Patches that the installer installs automatically (continued)

<table>
<thead>
<tr>
<th>Software release</th>
<th>Patch name</th>
<th>Prerequisite patches</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Note: When you use the command line interface or the Tivoli desktop to install the product manually, local object dispatchers must be restarted after you install either of the following items:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• The patch for upgrading the Tivoli Management Framework to Version 3.7.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Patches 3.7.1-TMF-0073 and 3.7.1-TMF-0087</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Run the following series of commands to restart the local object dispatchers:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>odadmin shutdown clients</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>odadmin reexec 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>odadmin start clients</td>
</tr>
</tbody>
</table>

Table 33. Required patches for required and optional software for manual installation

<table>
<thead>
<tr>
<th>Software release</th>
<th>Patch/Fix Pack name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tivoli Enterprise Data Warehouse, Version 1.1</td>
<td>1.1-TDW-FP02 (TEDW 1.1 Fix Pack 2)</td>
</tr>
<tr>
<td>Tivoli Enterprise Console 3.7.1</td>
<td>3.7.1-TEC-0001</td>
</tr>
<tr>
<td>Tivoli Business Systems Manager 1.5</td>
<td>TBSM Patch 24</td>
</tr>
<tr>
<td></td>
<td>TBSM Patch 32</td>
</tr>
<tr>
<td></td>
<td>TBSM Patch 35</td>
</tr>
<tr>
<td></td>
<td>15-BSM-0038</td>
</tr>
<tr>
<td>IBM Tivoli Monitoring</td>
<td>Fix Pack 3</td>
</tr>
<tr>
<td></td>
<td>For DBCS support, install 5.1.1-ITM-0011E on Fix Pack 3.</td>
</tr>
</tbody>
</table>
Appendix D. Uninstalling the product

This section describes how to uninstall IBM Tivoli Monitoring for Databases.

Table 34. Guidelines for uninstalling the product

<table>
<thead>
<tr>
<th>Goal</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uninstall IBM Tivoli Monitoring for Databases: DB2</td>
<td>&quot;Uninstalling managed nodes for IBM Tivoli Monitoring for Databases: DB2&quot;</td>
</tr>
<tr>
<td>Uninstall IBM Tivoli Monitoring for Databases: Informix</td>
<td>&quot;Uninstalling IBM Tivoli Monitoring for Databases: Informix&quot; on page 140</td>
</tr>
<tr>
<td>Uninstall IBM Tivoli Monitoring for Databases: Microsoft SQL Server</td>
<td>&quot;Uninstalling IBM Tivoli Monitoring for Databases: Microsoft SQL Server&quot; on page 141</td>
</tr>
<tr>
<td>Uninstall IBM Tivoli Monitoring for Databases: Oracle</td>
<td>&quot;Uninstalling IBM Tivoli Monitoring for Databases: Oracle&quot; on page 142</td>
</tr>
</tbody>
</table>

Uninstalling managed nodes for IBM Tivoli Monitoring for Databases: DB2

Objective
To uninstall managed nodes for IBM Tivoli Monitoring for Databases: DB2.

Background information
This procedure uses a script that uninstalls all IBM Tivoli Monitoring for Databases: DB2 managed nodes in the Tivoli environment. You might want to uninstall the product from a managed node in these situations:

- You want to uninstall the product completely.
- You want to uninstall the product, then perform a clean re-install.

Note: If Tivoli Manager for DB2 2.1 existed on a managed node prior to an installation of IBM Tivoli Monitoring for Databases: DB2, you cannot restore Tivoli Manager for DB2 by performing this procedure. This procedure prepares the managed node for a clean installation of Tivoli Manager for DB2 2.1 or IBM Tivoli Monitoring for Databases: DB2. Alternatively, you could restore Tivoli Manager for DB2 2.1 using a backed up version of that product that you created prior to the installation of IBM Tivoli Monitoring for Databases: DB2.

Required authorization role
senior

Before you begin
As a precautionary measure, perform the follow backups:

- Stop the oserv process and save a compressed version (.tar or .zip format) of the Tivoli installation directory in a separate directory.
- Back up the Tivoli management region databases as described in “Back up and restoring Tivoli databases” on page 13.
Start the command line interface as described in “Accessing the Tivoli environment” on page 48.

When you finish
Run the following command on the Tivoli management region server:

```
wchkdb -u
```

The `wchkdb` command needs to be run after you perform this procedure and before you install any Tivoli product.

Procedure
You can perform this procedure from the command line only.

Command line: Use the `wdb2uninstall` script to write a log file to `$DBDIR/wdb2uninstall.log`.

```
wdb2uninstall ALL
```

where:

**ALL** Removes all IBM Tivoli monitoring products for DB2, including the resources, classes, objects and binaries. Because the goal of uninstalling the IBM Tivoli monitoring for DB2 products is to prepare for a reinstallation, the **ALL** option is recommended for most situations.

See the introduction of the *IBM Tivoli Monitoring for Databases: DB2 Reference Guide* for information on Tivoli command line syntax.

---

**Uninstalling IBM Tivoli Monitoring for Databases: Informix**

**Objective**
To uninstall IBM Tivoli Monitoring for Databases: Informix.

**Background information**
This procedure uses the Tivoli Management Framework `wuninst` command.

**Required authorization role**
super

**Before you begin**
As a precautionary measure, perform the follow backups:

- Stop the `oserv` process and save a compressed version (.tar or .zip format) of the Tivoli installation directory in a separate directory.
- Back up the Tivoli management region databases as described in “Backing up and restoring Tivoli databases” on page 13.

Start the command line interface as described in “Accessing the Tivoli environment” on page 48.

**When you finish**
Run the following command on the Tivoli management region server:

```
wchkdb -u
```

The `wchkdb` command needs to be run after you perform this procedure and before you install any Tivoli product.
Procedure
You can perform this procedure from the command line only.

Command line: Perform these steps in the command line:
1. Run the following command to list products that can be uninstalled with wuninst:
   
   wuninst -list

   Additional Information: The command creates a log file in the following directory: /tmp/wuninst.log. The following excerpt shows typical results from this command:
   
   Creating Log File (/tmp/wuninst.log)...
   ------------------------------------------------
   Uninstallable Products installed:
   ITMCmptSvcs
   ITMInformix
   TMNT_3.6.2
   wuninst complete.

2. Run the wuninst command to uninstall specific products in the list. For example, run the following command to uninstall IBM Tivoli Monitoring for Databases: Informix:
   
   wuninst ITMInformix

   Additional Information: The first time you run wuninst, the command uninstalls IBM Tivoli Monitoring for Databases: Informix from all managed nodes, except for the Tivoli management region server. When you run the command from the managed node that is the Tivoli management region server, the command removes the product from all managed nodes except the Tivoli management region server. You run the command a second time to remove the product from the final managed node, as described in Step 3.

3. Run the wuninst ITMInformix command a second time to remove the product from the Tivoli management region server.

Refer to the Tivoli Management Framework Reference Manual for more options for running the wuninst command. Refer to the introduction of the IBM Tivoli Monitoring for Databases: Informix Reference Guide for information on Tivoli command line syntax.

Uninstalling IBM Tivoli Monitoring for Databases: Microsoft SQL Server

Objective
To uninstall IBM Tivoli Monitoring for Databases: Microsoft SQL Server software.

Background information
This procedure uses a script that uninstalls the IBM Tivoli Monitoring for Databases: Microsoft SQL Server product in the Tivoli environment.

Use the wuninst command to uninstall IBM Tivoli Monitoring for Databases: Microsoft SQL Server products. This command offers the following options for removing IBM Tivoli Monitoring for Databases: Microsoft SQL Server products:

- Uninstall from the Tivoli management region, which also uninstalls the software from all managed nodes
- Uninstall from specific managed nodes only
Run the `wuninst` command from the command line interface.

**Required authorization role**

*senior*

**Before you begin**

As a precautionary measure, back up your Tivoli management region server before uninstalling IBM Tivoli Monitoring for Databases: Microsoft SQL Server. If there is a system failure or other problem during uninstallation, the backup files can be used to restore your Tivoli environment.

**When you finish**

Run the following command on the Tivoli management region server:

```
wchkdb -u
```

You must run the `wchkdb` command after you perform this procedure and before you install any Tivoli product.

**Procedure**

You can perform this procedure from the Tivoli command line only.

**Command line:**

```
wuninst MSSQL {<Tivoli_management_region_server> | <managed_node>}
```

where:

- **Tivoli_management_region_server**
  Specifying `<Tivoli_management_region_server>` uninstalls IBM Tivoli Monitoring for Databases: Microsoft SQL Server from that Tivoli management region and all associated managed nodes.

- **managed_node**
  Specifying `<managed_node>` uninstalls IBM Tivoli Monitoring for Databases: Microsoft SQL Server from the specified managed node only.

---

**Uninstalling IBM Tivoli Monitoring for Databases: Oracle**

**Objective**

To uninstall IBM Tivoli Monitoring for Databases: Oracle software

**Background information**

It is recommended that you uninstall any version of Tivoli Manager for Oracle only after successfully migrating all of your data and resources to IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle.

When you execute the `wouninstall` command, Tivoli generates a `$DBDIR/wouninstall.log` file that stores everything that is echoed to the screen during an uninstall.

This procedure uses a script that uninstalls all IBM Tivoli Monitoring for Databases: Oracle managed nodes in the Tivoli environment. You might want to uninstall the product from a managed node in these situations:

- You want to uninstall the product completely.
- You want to uninstall the product, then perform a clean re-install.

**Note:** If Tivoli Manager for Oracle existed on a managed node prior to an installation of IBM Tivoli Monitoring for Databases: Oracle, you cannot
restore Tivoli Manager for Oracle by performing this procedure. This procedure prepares the managed node for a clean installation of Tivoli Manager for Oracle or IBM Tivoli Monitoring for Databases: Oracle. Alternatively, restore Tivoli Manager for Oracle using a backed up version of that product that you created prior to the installation of IBM Tivoli Monitoring for Databases: Oracle.

**Required authorization role**

senior

**Before you begin**

As a precautionary measure, back up your Tivoli management region server before uninstalling IBM Tivoli Monitoring for Databases: Oracle. If there is a system failure or other problem during uninstallation, the backup files can be used to restore your Tivoli environment.

Tivoli provides a `wouninstall` command that removes the IBM Tivoli Monitoring for Databases: Oracle products from the local Tivoli management region and any managed nodes. The `wouninstall` command removes all IBM Tivoli Monitoring for Databases: Oracle-related Tivoli database objects as well as all IBM Tivoli Monitoring for Databases: Oracle-related binaries, message catalogs, man pages, and libraries from the file system.

The `wouninstall` command is executed from the command line interface.

**When you finish**

Run the following command on the Tivoli management region server:

```shell
wchkdb -u
```

You must run the `wchkdb` command after you perform this procedure and before you install any Tivoli product.

**Procedure**

You can perform this procedure from the Tivoli command line only.

**Command line:**

```
wouninstall <ALL | ITMORA51 | ORACLE2.0>
```

where:

- **ALL** Uninstalls IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle and Tivoli Manager for Oracle Version 2.0. If you do not have Tivoli Manager for Oracle Version 2.0, this option uninstalls only IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle.

- **ITMORA51** Uninstalls only IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle. This option does not uninstall Tivoli Manager for Oracle Version 2.0.

- **ORACLE2.0** Uninstalls Tivoli Manager for Oracle 2.0 only. This option does not uninstall IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle.

For example, run the following command to uninstall only IBM Tivoli Monitoring for Databases, Version 5.1.0: Oracle:

```
wouninstall ITMORA51
```
Appendix E. Accessibility

Accessibility features help users who have physical disabilities, such as restricted mobility or limited vision, to use software products successfully. The major accessibility features in IBM Tivoli Monitoring for Databases enable users to:

- Use assistive technologies such as screen-reader software and a digital speech synthesizer to hear what is displayed on the screen
- Operate specific or equivalent features using only the keyboard
- Magnify what is displayed on the screen

In addition, the product documentation has been modified to include features to aid accessibility:

- All documentation available in both HTML and convertible PDF formats to give the maximum opportunity for users to apply screen-reader software.
- All images provided with alternative text so that users of the documentation with vision impairments can understand the contents of the images.

Using assistive technologies

Assistive technology products such as screen-readers, function with both the text-based and graphical user interfaces found in IBM Tivoli Monitoring for Databases. Consult the assistive technology product documentation for specific information about using it to access command line or graphical interfaces.

Additional accessibility features might be included as part of the user interface of a particular IBM Tivoli Monitoring for Databases component. Check with the individual component’s documentation for any additional information about accessibility.

Magnifying what is displayed on the screen

In all components of IBM Tivoli Monitoring for Databases other than the Web Health Console, you can magnify the screens used by the product’s user interfaces using facilities provided by the operating systems on which the product is run. For example, in a Windows® environment you can change the screen settings to a lower resolution to enlarge the font sizes of the text on the screen. Information about these facilities is provided in the relevant operating system documentation.

Documentation in accessible formats

All user documentation is provided in HTML format, which can be read directly by assistive tools such as screen readers, or in convertible PDF format. Convertible PDF files are those that can be converted from PDF to HTML by the Adobe PDF to HTML converter. For information about converting PDF documents to HTML, refer to the Adobe book Optimizing Adobe PDF Files for Accessibility.

Using alternative text

All documentation images are provided with an alternative text that can be read by assistive tools such as screen readers.
Appendix F. Notices

This information was developed for products and services offered in the U.S.A. IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user’s responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing

IBM Corporation

North Castle Drive

Armonk, NY 10504-1785 U.S.A.

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

IBM World Trade Asia Corporation

Licensing

2-31 Roppongi 3-chome, Minato-ku

Tokyo 106, Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement might not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.
Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

IBM Corporation

2Z4A/101

11400 Burnet Road

Austin, TX 78758 U.S.A.

Such information may be available, subject to appropriate terms and conditions, including in some cases payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurement may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

All statements regarding IBM’s future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

COPYRIGHT LICENSE:
This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. You may copy, modify, and distribute these sample programs in any form without payment to IBM for the purposes of developing, using, marketing, or distributing application programs conforming to IBM’s application programming interfaces.

Each copy or any portion of these sample programs or any derivative work, must include a copyright notice as follows:

© (your company name) (year). Portions of this code are derived from IBM Corp. Sample Programs. © Copyright IBM Corp. _enter the year or years_. All rights reserved.

If you are viewing this information in softcopy form, the photographs and color illustrations might not appear.

**Trademarks**

The following terms are trademarks of International Business Machines Corporation in the United States, other countries, or both:

AIX, IBM, the IBM logo, Tivoli, the Tivoli logo, DB2, Informix, OS/400, and Tivoli Enterprise Console are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both.

Lotus and Lotus Notes are registered trademarks of Lotus Development Corporation. Domino is a trademark of Lotus Development Corporation.

Oracle is a registered trademark of Oracle Corporation.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Solaris Operating Environment, Java, and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Other company, product, and service names may be trademarks or service marks of others.
Index

A
access, Tivoli environment 48
accessibility xiii, 145
automatic upgrades 18

B
back up environment 13
basic installation, elements 2
books
accessing online xiii
feedback on x
online x
ordering x

C
CDs
required installation 24
change gateway assignment of endpoint 80
choose an installation method 1
commands
lcf_env.sh 117
lcfd.sh 117
net start 117
net stop 117
ping 5
ps 117
special characters xv
syntax xv
wadmin.ep 117, 119
wdelep 121
wlookup 117
wping 117
completing installation of product 65
connectivity, testing endpoint 116
create
Windows proxy endpoint manually 42
customer support xiv

deploy.log file, checking for error messages 114
Detail window 109
disk space requirements 11
display characters and locale settings 115
download installation files 24

elements of a basic installation 2
enable customization of resource models, installing 69
endpoint
removing 118
Endpoint Setup Wizard to install endpoint 54
endpoints
Endpoint Setup Wizard 54
installing 53
installing through existing Tivoli environment 53
TCP/IP 13
troubleshooting 116
endpoints,
process, stopping 118
error messages
Set messages
Evaluation installation 37
existing Java Runtime Environment, link 68
firewalls 15

G
gateway assignment of endpoint, change 80
guidelines for installation and setup 5

I
IBM Tivoli Language Support 74
illegible character display 115
installation CDs 24
installation download 24
installation planning sheets 18
installer problems, troubleshooting 109
installing
choose a method 1
endpoint 53
endpoints through existing Tivoli environment 53
error messages 123
checking the deploy.log file for 114
files to enable customization of resource models 69
files to enable Tivoli Enterprise Data Warehouse 70
guidelines for IBM Tivoli Monitoring for Databases 5
IBM Tivoli Language Support for this product 74
Java Runtime Environment 67
managed nodes through existing Tivoli environment 49
pre-installation 7
product manually from an existing Tivoli environment 47
Tivoli patches manually 60
Tivoli software manually 57
Web Health Console manually 63

J
Java Runtime Environment
link to existing 68
Java Runtime Environment (JRE) installing 67

L
language requirements 13
Language Support installing 74
lcf_env.sh command
using to access lcfd endpoint process 117
lcfd command 117
locale settings, causing illegible character display 115

M
manual installation
create Windows proxy endpoint 42
managed nodes through existing Tivoli environment installing 49
of product from existing Tivoli environment 47
Tivoli patches 60
Tivoli software 57
Web Health Console 63
manual upgrade of IBM Tivoli Monitoring 55
manuals
accessing online xiii
feedback on x
online x
ordering x
mapping monitors to resource models 83
messages
checking the deploy.log file for 114
installation 123
migrating
from previous Tivoli products 2
monitors 83

N
net start command 117
net stop command 117

O
online publications
accessing xiii
operating systems, supported 8
ordering publications x, xiii
overview of IBM Tivoli Monitoring for Databases 1