Note

Before using this information and the product it supports, read the information in Appendix G, “Notices” on page 123.

First Edition (September 2002)

This edition applies to Version 5.1.0 of IBM Tivoli Monitoring for Databases: Informix and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this guide

The IBM Tivoli Monitoring for Databases: Informix User’s Guide provides information about setting up and working with the product. Use this guide in conjunction with the IBM Tivoli Monitoring for Databases: Informix Reference Guide.

Who should read this guide

This guide is intended for system architects (for planning) and system administrators and database administrators (for implementation and operation).

Readers should be familiar with the following:

- Windows NT® or UNIX® operating systems
- Tivoli software
- Informix software

What this guide contains

This guide contains the following sections:

- **Chapter 1, “Overview” on page 1**
  Provides an overview of IBM Tivoli Monitoring for Databases: Informix features, its extensions to other Tivoli products, authorization roles, and IBM Tivoli Monitoring.

- **Chapter 2, “Getting started quick-reference guide” on page 11**
  Provides an overview of the setup tasks for IBM Tivoli Monitoring for Databases: Informix including cross-references to additional information.

- **Chapter 3, “Setting up IBM Tivoli Monitoring for Databases: Informix” on page 13**
  Provides procedures for subscribing to notice groups, adding managed resource types to a policy region, and discovering and registering databases.

- **Chapter 4, “Setting up IBM Tivoli Monitoring” on page 25**
  Provides procedures for setting up IBM Tivoli Monitoring for Databases: Informix.

- **Chapter 5, “Working with IBM Tivoli Monitoring for Databases: Informix” on page 37**
  Provides procedures for viewing and editing database object properties, and starting and shutting down a database.

- **Chapter 6, “Working with tasks and jobs” on page 47**
  Provides procedures for customizing the standard IBM Tivoli Monitoring for Databases: Informix tasks and creating and scheduling jobs.

- **Chapter 7, “Viewing resource model results with the IBM Tivoli Web Health Console” on page 63**
  Provides information on the IBM Tivoli Monitoring Web Health Console.

- **Chapter 8, “Working with resource models” on page 65**
  Provides procedures for subscribing and distributing a monitoring collection profile, and determining which resource models have been distributed to Informix instances on an endpoint.
• Chapter 9, “Enabling IBM Tivoli Monitoring for Databases: Informix for Tivoli Enterprise Data Warehouse” on page 89
  Provides information about setting up IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix to work with Tivoli Enterprise Data Warehouse.

• Appendix A, “Authorization roles quick reference” on page 101
  Summarizes required authorization roles and activities and tells where to find additional information about them in this manual.

• Appendix B, “Setting up the Tivoli Enterprise Console” on page 103
  Provides procedures for integrating the Tivoli Enterprise Console® with IBM Tivoli Monitoring for Databases: Informix.

• Appendix C, “Integrating with Tivoli Business Systems Manager” on page 109
  Describes how to set up Tivoli Business Systems Manager, and how to use it to manage Informix resources.

• Appendix D, “Problem determination” on page 115
  Provides information about troubleshooting and frequently asked questions for IBM Tivoli Monitoring for Databases: Informix.

• Appendix E, “Messages” on page 119
  Provides a list of error messages for IBM Tivoli Monitoring for Databases: Informix.

Publications

This section lists publications in the IBM Tivoli Monitoring for Databases: Informix library and any other related documents. It also describes how to access Tivoli publications online, how to order Tivoli publications, and how to submit comments on Tivoli publications.

IBM Tivoli Monitoring for Databases: Informix library

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

• IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix User’s Guide, SC23-4729-00
  Describes how to use IBM Tivoli Monitoring for Databases: Informix.

• IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix Reference Guide, SC23-4728-00
  Provides detailed information about Informix resource models, tasks, and commands.

• IBM Tivoli Monitoring for Databases, Version 5.1.0 Installation and Setup Guide, GC23-4730-00
  Provides instructions for installing the product and setting it up to manage Informix resources.

• IBM Tivoli Monitoring for Databases, Version 5.1.0 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, Version 5.1.0: Informix Limitations and Workarounds Supplement, SC23-4787-00
  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 IBM Tivoli Monitoring for Databases: Informix link on the Tivoli Information Center Web site:

Prerequisite publications
To use the information in this book effectively, you must have some prerequisite knowledge, which you can find in the following books:
- **IBM Tivoli® Management Framework User’s Guide**
  Provides information about profiles and profile management.
- **IBM Tivoli Management Framework Planning and Installation Guide**
  Provides information about server and hardware requirements.
- **IBM Tivoli Management Framework Reference Guide**
  Provides information about command line commands, such as the `winstall` command.
- **IBM Tivoli Monitoring User’s Guide**
  Provides information about distributed monitoring.
- **IBM Tivoli Enterprise Console® User’s Guide**
  Provides information about using the Tivoli Enterprise Console®.
- **IBM Tivoli Software Installation Service (SIS) User’s Guide, Version 4.0**
  Provides information about using SIS to install the IBM Tivoli Monitoring for Databases: Informix software.

Related publications
The following IBM Informix documents also provide useful information:
- **Administrator’s Guide for IBM Informix Dynamic Server**
  This manual is both a user guide and a reference manual to the features of Informix Dynamic Server. It is intended to help you understand, configure, and use your database server.
- **Getting Started with IBM Informix Dynamic Server**
  This manual provides an overview of the Informix database server and SQL API environment, summarizes important features of Informix Dynamic Server, and provides a road map to help you use the Version 9.3 documentation set.
- **IBM Informix Guide to SQL: Reference**
  This guide provides information on the following topics: Informix databases, data types, system catalog tables, environment variables, and the stores_demo demonstration database. It also contains a glossary.

The **Tivoli Glossary** includes definitions for many of the technical terms related to Tivoli software. The **Tivoli Glossary** is available, in English only, at the following Web site:
http://www.tivoli.com/support/documents/glossary/termshm03.htm

Accessing softcopy publications
The publications for this product are available in PDF and HTML formats through the following media:
• IBM Tivoli Monitoring for Databases: Documentation CD, LK3T-8517-00
The Documentation CD contains all of the English language publications for this product, except for the Web-only Limitations and Workarounds supplements. To access the publications, use a Web browser to open the start.html file, which is located in the root directory of the CD.

• IBM Tivoli Monitoring for Databases: NLS Documentation CD, LK3T-8611-00
The NLS (national language support) Documentation CD contains both English and non-English language publications for this product, except for the Web-only Limitations and Workarounds supplements. To access the publications, use a Web browser to open the start.html file, which is located in the root directory of the CD.

• Tivoli Information Center
IBM posts all publications for this and all other Tivoli products, as they become available and whenever they are updated, to the Tivoli Information Center Web site. The Tivoli Information Center is located at the following Web address:


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

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

See the following Web site for a list of telephone numbers in other countries:

http://www.tivoli.com/inside/store/lit_order.html

Providing feedback about publications
If you have comments or suggestions about Tivoli products and documentation, complete the customer feedback survey at the following Web site:

http://www.tivoli.com/support/survey/

Accessibility
Accessibility features help a user who has 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. See the Accessibility Appendix in the IBM Tivoli Monitoring for Databases: Informix Reference Guide for additional information.
Contacting customer support

If you have a problem with any Tivoli product, you can contact Tivoli Customer Support. See the Tivoli Customer Support Handbook at the following Web site:

http://www.tivoli.com/support/handbook/

The handbook provides information about how to contact Tivoli Customer 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
- What information you should gather before contacting support

Conventions used in this book

This book uses several conventions for special terms and actions and operating system-dependent commands and paths.

Typeface conventions

The following typeface conventions are used in this book:

**Bold**

Lowercase and mixed-case commands, command options, file and path names, and flags that appear within text appear like **this**, in **bold** type. Graphical user interface elements and names of keys also appear like **this**, in **bold** type.

*Italic*

Variables, values you must provide, new terms, and words and phrases that are emphasized appear like *this*, in *italic* type.

**Monospace**

Commands, command options, and flags that appear on a separate line, code examples, output, and message text appear like **this**, in **monospace** type. Names of files and directories, text strings you must type when they appear within text, names of Java methods and classes, and HTML and XML tags also appear like **this**, in **monospace** type.

Operating system-dependent variables and paths

This book uses the UNIX convention for specifying environment variables and for directory notation.

When using the Windows command line, replace $variable with %variable% for environment variables and replace each forward slash (/) with a backslash (\) in directory paths.

**Note:** If you are using the bash shell on a Windows system, you can use the UNIX conventions.
Chapter 1. Overview

The IBM Tivoli Monitoring for Databases: Informix product complements existing tools for Informix and adds features so you can manage a large number of Informix databases in a distributed environment. This product concentrates on those tasks that can be defined and deployed by generic methods. It reduces the complexity of managing large distributed database environments and frees administrators to concentrate on the non-generic issues associated with each of the individual databases.

This product provides the ability to manage and monitor Informix databases by providing extensions to Tivoli Management Framework, IBM Tivoli Monitoring, and the Tivoli Enterprise Console. It includes the resource models, which provide monitoring sources. The resource models and tasks enable you to manage distributed Informix computing resources effectively and to the granularity that you need.

Using the IBM Tivoli Monitoring for Databases: Informix product, you can do the following:

- Automate repetitive DBA tasks, such as those in the following list, which enables you to define simple tasks once and perform them on multiple databases and instances in a single action.
  - Check that server instances are online
  - Alert when cache hit ratios are outside of specified performance limits
  - Monitor diminishing logical log space and send alerts as specified
  - Measure the ratio of committed to rolled back transactions and send alert as specified
  - Monitor the status of logical log backups and send alert as specified
  - Send alert on tables that do not have enough space to allocate their next extent
  - Monitor the status of High availability Data Replications servers (HDR)
- Use the resource models for global Informix database availability and performance monitoring facilities.
- Alert administrators to Informix performance problems or serious errors and failures.
- Integrate with the Tivoli Enterprise Console to provide event correlation to determine the severity and relationship of events. You can define rules for automated responses, such as running a corrective task.
- Consolidate, transform, and display historical data in a variety of formats by using the Tivoli Enterprise Data Warehouse.
- Integrate with Tivoli Business Systems Manager.

When you install the IBM Tivoli Monitoring for Databases: Informix a top-level policy region named Monitoring for IBM Informix is created on your Tivoli desktop. This policy region is installed with the correct managed resources set, and with custom policies loaded to control the targets of all IBM Tivoli Monitoring for Databases: Informix tasks. The Monitoring for IBM Informix policy region contains the following policy regions and task library:
IBMInformixConfigured policy region

After you discover instances of Informix on your endpoints and configure the IBMInformixServer objects that represent them, the objects are moved to this policy region. Objects in this policy region are ready to be used as targets for IBM Tivoli Monitoring for Databases: Informix resource models and tasks.

IBMInformixDiscovered policy region

This policy region is created containing the IBMInformixDiscovery object. Use this object to discover Informix instances on your endpoints. See "Discovering Informix instance objects" on page 19 for more information. After you run discovery, temporary IBMInformixServer objects are created in the IBMInformixDiscovered policy region for each instance of Informix found. You can either configure these objects to be used as the targets of tasks and resource models or move them to the IBMInformixUnmanaged policy region. If you configure them they are moved to the IBMInformixConfigured policy region. If you move them to the IBMInformixUnmanaged policy region the instances of Informix represented by the temporary IBMInformixServer objects are not discovered if you run subsequent discovery processes.

IBMInformixUnmanaged policy region

The IBMInformixUnmanaged policy region is used to store instances of Informix that exist on endpoints on which IBMInformixDiscovery was run, but that you do not want to manage or monitor at this time. Objects that are discovered and either configured or moved to the IBMInformixUnmanaged policy region are not discovered again when IBMInformixDiscovery is run. This saves both time and resources.

IBM Informix Server Tasks task library

The IBM Informix Server Tasks task library contains the IBM Tivoli Monitoring for Databases: Informix tasks. These tasks are used to set up the IBM Tivoli Monitoring for Databases: Informix product and manage instances of Informix represented by IBMInformixServer objects. See, Chapter 5, “Working with IBM Tivoli Monitoring for Databases: Informix” on page 37 for more information.

Overview of extensions to the Tivoli environment

The IBM Tivoli Monitoring for Databases: Informix product is fully integrated into the Tivoli environment. You should already be familiar with the concepts of the Tivoli environment as outlined in the Tivoli Management Framework User’s Guide.
Tivoli administrators

Tivoli administrators are system or database administrators who have the authorization to perform system or database management tasks using the Tivoli Management environment. Each administrator or group of administrators is represented by an icon on the Tivoli desktop.

The IBM Tivoli Monitoring for Databases: Informix product fully integrates into Tivoli security. To perform Informix administration functions, administrators must have authorization roles for both IBM Tivoli Monitoring for Databases: Informix and Tivoli Management Framework.

Authorization roles

Authorization roles determine the range of actions an administrator can perform. You assign roles to administrators so they can perform system or database management tasks. A role might be over the entire Tivoli management region or over a specific set of resources, such as those contained in a policy region. Super, senior, admin, and user are examples of standard authorization roles.

The IBM Tivoli Monitoring for Databases: Informix product also adds the following authorization roles:

IBMInformix_super
This role provides the ability to discover and configure IBMInformixServer instances.

IBMInformix_admin
This role provides the ability to query and update a database. An administrator with the IBMInformix_admin role can perform all IBM Tivoli Monitoring for Databases: Informix operations on an Informix database.

IBMInformix_user
This role provides read-only access to a limited set of IBM Tivoli Monitoring for Databases: Informix operations. An administrator with the IBMInformix_user role can only view the properties of a database.

Using the desktop or CLI

In many cases, this manual provides procedures for executing from either the desktop or the command line interface (CLI). You may choose to use the desktop or graphical user interface (GUI) when you want to take advantage of visual input prompting, which includes drop-down lists of options, and the defaults provided by options, such as the Display on Desktop check box. Use the command line interface when you want to create scripts, set tasks to respond to monitors, and rapidly enter commands.

Understanding IBM Tivoli Monitoring

This section describes the main concepts required for understanding how to set up and use resource models. IBM Tivoli Monitoring uses resource models to monitor and manage resources at distributed systems. A managed resource is a database object that represents a hardware, software, or data entity that you manage according to policies set up in a Tivoli environment. Managed resources can include physical and logical disks, CPUs, memory, printers, processes, and services.
A distributed system is the service that monitors resources, compares data from monitored resources against configured thresholds, and runs automated responses in a Tivoli environment.

**Actions**

You can associate one or more recovery actions with a specific event. These actions are automatically triggered when the event occurs and, typically, are used for restoring satisfactory system service level. Each time an event occurs, the system provides a notification of the event, triggers a recovery action to restore satisfactory conditions and, if the action is successful, provides a notification that the action was performed. Actions are associated with the execution of a CIM method or the execution of a program. Associate actions with indications when modifying an existing resource model using this software, or when creating a new resource model with the IBM Tivoli Monitoring Workbench.

**Attributes**

Attributes can be string or numeric values. A resource model receives attributes when it is created. In IBM Tivoli Monitoring for Databases: Informix, you do not add, delete, or modify attributes that are in the default resource models. When creating a new resource model with the IBM Tivoli Monitoring Workbench, you can qualify an event by specifying relevant attributes according to the information you want the resource model to monitor. For example, an event might indicate insufficient disk space. When you specify attributes, such as disk name, or available disk space, the resource model can generate a more precise indication of the problem. For each resource model, some of the attributes are designated as keys.

**Cycles**

When a resource model runs at an endpoint, it gathers data at regular intervals, called cycles; the duration of a cycle is the cycle time, which is displayed in seconds. A resource model with a cycle time of 60 seconds gathers data every 60 seconds. Each of the supplied resource models has a default cycle time that you can modify when you define the resource model. At each cycle, the resource model collects data, analyzes it, generates the events, and triggers specified actions. The data collected are a snapshot of the status of the resources specified in the resource model.

**Gathering Historical Data component**

The Gathering Historical Data component uses data collected by specific IBM Tivoli Monitoring resource models to populate a database on the Tivoli server where it is installed. The collected data is aggregated every 24 hours and added to the Tivoli Enterprise Data Warehouse database, from which it can be used in the long term analyses of system resources using key system metrics.

For more information about Tivoli Enterprise Data Warehouse, see the following publications:

- *Tivoli Distributed Monitoring Warehouse Enablement Pack: Implementation Guide*
- *Enabling an Application for Tivoli Enterprise™ Data Warehouse*

**Heartbeat function**

In addition to the monitoring processes described above, IBM Tivoli Monitoring operates a heartbeat function, which monitors the basic system status at endpoints attached to the gateway at which it is enabled. Events can be sent to the Tivoli Business Systems Manager, the Tivoli Enterprise Console, and the IBM Tivoli Monitoring Notice Group.
Indications and events

An indication is generated when the state of a given resource meets defined criteria. By itself, an indication does not trigger any specific action. When indications are aggregated, the resource model generates an event. When you define an event, you must specify under what conditions a certain number of indications are aggregated into an event. You also specify whether these indications must be consecutive, or whether the sequence may be interrupted by one or more monitoring cycles that do not register any indication. The cycles during which no indication is generated are called holes. An event can notify that there is a problem in the resource state, trigger an action and, if enabled, send a notification to the Tivoli Enterprise Console server or to the Tivoli Business Systems Manager.

Indications

Each resource model generates an indication in a given cycle based on the settings defined for it. A single occurrence of an indication does not always represent a problem, however the persistence of indications might. The resource model measures the persistence of the indications and aggregates them according to your specifications, or how you define settings for occurrences and holes. If the persistence of an indication meets the specified number of occurrences, the resource model generates an event. Indications can be generated in any one of the following circumstances:

- When a single threshold is exceeded. For example, in the Windows® Process resource model, the Process High CPU indication is generated when the High CPU Usage threshold is exceeded (for any process that has a non-zero process ID).

- When a combination of two or more thresholds are exceeded. For example, in the Windows Logical Disk resource model a High Read Bytes per Second indication is generated when both the following thresholds are exceeded:
  - The amount of bytes transferred per second (being written or read) exceeds the High Bytes per Second threshold
  - The percentage of time that the selected disk drive spends making read or write requests exceeds the High Percent Usage threshold.

- When a combination of other factors change. For example, in the Windows Process resource model the Process Handle Leak indication is generated when a process is losing memory. There is no threshold for this indication. The resource model compares the number of handles of the five processes with the most handles in consecutive cycles. If the number of handles has increased, the indication is generated.

Occurrences and holes

Occurrences and holes record whether or not an indication occurs during the cycle for a specific resource model. An occurrence is a cycle during which at least one threshold is exceeded and an indication occurs for a given resource model. A hole is a cycle during which an indication does not occur for a given resource model. A hole means none of the conditions that generate an indication were met, but it does not necessarily mean that no thresholds were exceeded.
For example, in the Windows Logical Disk resource model a **High Read Bytes per Second** indication is *not* created when the percentage disk time is higher than the **High Percent Usage** threshold, provided that the **Low Disk Space** threshold is exceeded.

**Events**

An *event* verifies the persistence of an indication by eliminating unrepresentative peaks and troughs for the indication. For example, a process that generates the **Process High CPU** indication in one cycle might not threaten other processes if the high usage is not repeated. However, an indication that persists over several cycles is more likely to be a problem. Thus, an event defines the significant number of consecutive occurrences of the indication.

When you define an event, you can specify how many consecutive *holes* in the sequence of consecutive occurrences are permitted. Specifying how many consecutive holes are permitted during the accumulation of the consecutive occurrences enables you to continue the counting of consecutive occurrences if one or two cycles fall below the threshold.

An event is an aggregation of a defined number of consecutive occurrences during which there can be a defined number of consecutive holes. The following examples illustrate what happens if you define an event as three occurrences and two holes. 1 represents an occurrence and 0 represents a hole.

- 0 1 0 1 0 0 1
  
  Because fewer than three holes exist between each of the three occurrences, the three occurrences are consecutive. Therefore, the sequence represents an event.

- 1 0 0 1 0 0 1
  
  If each occurrence is followed by the maximum specified holes within seven cycles, an event is triggered.

- 1 0 0 1 0 0 0
  
  If the algorithm counts two consecutive occurrences and then observes three consecutive holes (more holes than that allowed in the definition of an event for this example) it sets the count of occurrences to zero. See [Table 1](#).

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Count of occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 0 0</td>
<td>1</td>
</tr>
<tr>
<td>1 0 0 1</td>
<td>2</td>
</tr>
<tr>
<td>1 0 0 1 0</td>
<td>2</td>
</tr>
<tr>
<td>1 0 0 1 0 0</td>
<td>2</td>
</tr>
<tr>
<td>1 0 0 1 0 0 0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Table 1. Counting occurrences**

The snapshots of the CPU usage obtained by the resource model are shown in [Table 2 on page 7](#). The first row shows the cycle number and the second the percentage of CPU usage.
Cycles that exceed the threshold are occurrences and are shown in bold type. The other cycles are holes.

For this example, an event is created for this indication if there are four consecutive occurrences with only one hole permitted. The final row in Table 2 shows the count that the resource model makes of the consecutive occurrences. The count is set to zero at the 7th cycle snapshot because the resource model has encountered two consecutive holes. In this example, an event is triggered in the 12th cycle. The count is then set to zero and the process continues.

While defining an event, you can also indicate if you want the system to notify the Tivoli Enterprise Console server, or the Tivoli Business Systems Manager, that an event was generated. The Tivoli Monitoring operator can change these selections later, when the resource model is included in a Tivoli Monitoring profile. You can also define the degree of severity and the message that will specify the notification of the event.

Clearing events

A clearing event is a resource model function that, if enabled, allows IBM Tivoli Monitoring to close an event when the circumstances that caused the event are no longer present. Clearing events can be processed by the Tivoli Enterprise Console server and by Tivoli Business Systems Manager. Clearing events have a severity of harmless, regardless of the severity of the original event, but have the same event ID as the original event.

For example, a service stops and the Tivoli Enterprise Console server receives an event notifying it of this problem. Until the service restarts, the problem is still present on the endpoint, but IBM Tivoli Monitoring does not send any further event notifications to the Tivoli Enterprise Console server. If the Clearing Event function is enabled, as soon as the service restarts, Tivoli Enterprise Console server, thereby closing the original event. The Clearing Event itself does not normally appear on the server, because its only function is to clear the original error event.

Note: Correlated events cannot be cleared.

Monitoring of events and indications

Events can be sent to the Tivoli Enterprise Console server, the IBM Tivoli Monitoring Web Health Console, and Tivoli Business Systems Manager.

Tivoli Enterprise Console Server

Events can be viewed by a Tivoli Enterprise Console server provided that you have compiled and loaded the relevant Basic Recorder of Objects in C (BAROC) files on the server.
The event contains a set of properties that can help to identify the problem. For example, the information in the ProcessHandleLeak event includes values for the following:

- Current process ID
- Number of handles allocated to the process
- Name of the process

Clearing events can also be processed by the Tivoli Enterprise Console server. If the default procedure is used to enable the monitoring of events, the Tivoli Enterprise Console server uses the clearing event to close the associated error event. However, if you choose not to install the clearing events rule incorporated in the above-mentioned default procedure, the clearing event is displayed as a separate entity with the same ID as the original error event.

**IBM Tivoli Monitoring Web Health Console**

The Web Health Console, which is an optional part of IBM Tivoli Monitoring, obtains events and indications from endpoints. The Web Health Console displays the health of each potential problem as a numeric value between 100 (perfect health) and zero (with zero meaning that the conditions for the corresponding event have been met). Intermediate values show the percentage of occurrences currently registered with respect to the total number of occurrences needed to trigger an event. For example, Table 3 is based on Table 2 on page 7, but additionally shows the health percentage:

<table>
<thead>
<tr>
<th>Cycle</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU%</td>
<td>55</td>
<td>73</td>
<td>54</td>
<td>63</td>
<td>68</td>
<td>42</td>
<td>50</td>
<td>70</td>
<td>90</td>
<td>55</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>Occurrence or Hole</td>
<td>H</td>
<td>O</td>
<td>H</td>
<td>O</td>
<td>H</td>
<td>O</td>
<td>H</td>
<td>O</td>
<td>H</td>
<td>O</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>Occurrence Count</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Health (%)</td>
<td>100</td>
<td>75</td>
<td>75</td>
<td>50</td>
<td>25</td>
<td>25</td>
<td>100</td>
<td>75</td>
<td>50</td>
<td>50</td>
<td>25</td>
<td>0</td>
</tr>
</tbody>
</table>

In this example, the health percentage changes in steps of 25% because 4 occurrences were required to trigger an event; if the indication had required 5 occurrences, the health percentage would have changed by steps of 20%.

**Tivoli Business Systems Manager**

Events can also be sent to the Tivoli Business Systems Manager. A full description of Tivoli Business Systems Manager can be found in the Tivoli Business Systems Manager documentation.

Clearing events can also be processed by the Tivoli Business Systems Manager, which uses the clearing event to close the associated error event.

**Logging**

For any endpoint, you can log the data collected by a resource model and
write it in a local database. Then you can view it through the History View of the Web Health Console. You can choose to store raw or aggregated data.

Parameters
While thresholds can be only numeric values, parameters can be lists of numbers or strings. Using parameters enables you to customize your resource model. You can define different parameters, as required. For each parameter you can specify a value, which can be a list of numbers or strings. This list can represent the instances you want to monitor, or a limit you do not want your resource to exceed, depending on how you use this setting in your script. The lists will then be displayed in the Tivoli Monitoring dialogs, and depending on the type of list you select in the workbench, the lists will appear in different forms on Tivoli Monitoring. Within the workbench you can define default values and then let the operator customize the settings in Tivoli Monitoring. You can choose one among the following kinds of lists when you specify the parameters:

- Boolean List
- Choice List
- String List
- Numeric List

Some resource models have one or more parameters. For example, the Windows Parametric TCP/IP Ports resource model uses parameters that contain lists of ports and port states that you want to monitor.

Profiles
IBM Tivoli Monitoring is a profile-based application that runs in a Tivoli environment. Different profiles can be defined containing different selections of resource models. All aspects of existing profiles can be modified, including the addition, deletion and customization of resource models. You can distribute multiple profiles to each endpoint.

Recovery actions
For any event, recovery actions can be run automatically, such as built-in actions (for Windows) or tasks. The actions can take positive steps to remedy the situation, or can ensure that information about the event is distributed to the appropriate authorities or entities.

Built-in actions

Note: The indications in IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix resource models do not have built-in actions.

Certain events can have one or more built-in actions predefined for them. An action can be either the execution of a CIM class method or the execution of a program. Both type of actions can be implemented only through the IBM Tivoli Monitoring Workbench. For example, an event that detects the failure of a service could have the restart of that service as its built-in action. Thus, without any human intervention, IBM Tivoli Monitoring detects the failure of a service and automatically restarts it. Built-in actions are defined by default as part of an event, but can be removed. They have the same event ID as the event that they are designed to correct.

Tasks
For each event you can select one or more tasks to be performed
when the event is triggered. The tasks that are triggered by a IBM Tivoli Monitoring event can access the event name and event thresholds of the triggering event by accessing the environment variables.

Resource models
IBM Tivoli Monitoring products provide predefined resource models that access specific performance data from the system at runtime. (For example, the Process resource model gathers data about processes running on the system.) The resource models process the data they collect using an algorithm that determines whether or not the system is performing to expectations. You can either use a resource model’s default values to collect performance data or customize the resource models to match specific requirements in your environment. Distributing resource models using default values enables you begin monitoring immediately to obtain useful data concerning your enterprise. When you become more familiar with the monitoring process and feedback, you may choose to customize the resource model information.

Scheduling
IBM Tivoli Monitoring contains a scheduling feature that enables you to determine a period within which monitoring takes place and specific scheduling rules. The monitoring period is determined by defining a from and a to date.

The scheduling rules enable you to define time periods on specific weekdays during which monitoring takes place. Any number of rules can be defined, allowing you to set up a complex pattern of resource monitoring for a profile, covering the time periods important to you.

The scheduled times are always interpreted as local times, enabling you to set up a single rule that monitors the same local time period in different time zones. For example, if your region covers several time zones, but you want to monitor morning activities in each time zone, a single rule defining the monitoring period of between 08:00 and 13:00 is interpreted locally in each of the time zones, so that you monitor the same relative period.

You should note also that all times of events or activities reported from endpoints or gateways are also logged in the local time of the system from where they originated.

Thresholds
Each resource model defines one or more thresholds. Each threshold has a default numeric value that you can change when you define the profile. The monitoring algorithm written into the logic of the resource model determines how the resource model uses a threshold. The following are examples of how a resource model can use thresholds:

- A threshold value might represent a limit that, if not met, indicates an unsatisfactory resource state. For example, if you want the system to notify you when disk space drops under 70%, set the threshold value to 70 to generate an indication each time your disk space is less than 70%.

- Some threshold values control the scope of what the resource model monitors. For example, the Windows Process resource model uses the Maximum Processes threshold to limit the number processes monitored for the highest usage of CPU. Thus, if you set the Maximum Processes threshold to 5, the resource model only reports on the the five highest CPU-using processes.
Chapter 2. Getting started quick-reference guide

This chapter provides an overview of the setup tasks you must perform before you can use the IBM Tivoli Monitoring for Databases: Informix product. It includes cross-references to places where you can find additional information about each of these tasks.

The tasks can be divided into the following categories:

- Setting up administrators to use the software
- Registering a database
- Setting up the resource models and tasks
- Setting up the IBM Tivoli Monitoring for Databases: Informix product to work with the Tivoli Enterprise Console product
- Setting up the IBM Tivoli Monitoring for Databases: Informix product to work with the Tivoli Business Systems Manager product
- Setting up the IBM Tivoli Monitoring for Databases: Informix product to work with the Tivoli Enterprise Data Warehouse product

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<th>For more information</th>
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<td><strong>Note:</strong> You must assign both Tivoli and Informix authorization roles to administrators in the policy regions you want them to administer.</td>
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<td></td>
<td>Assign each administrator the appropriate authorization role for the procedures that the administrator will perform.</td>
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<td></td>
<td>Assign the IBMInformix_super role to the administrator who will set up IBM Tivoli Monitoring for Databases: Informix to work in your environment.</td>
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<td>Appendix A, “Authorization roles quick reference” on page 101 provides a list of the authorization roles required for each procedure.</td>
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<td>Use the Edit Default Policies dialog in a IBM Tivoli Monitoring profile to set the user and group IDs for the profile.</td>
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<tr>
<td>Task</td>
<td>For more information</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
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<td>Refer to the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference</td>
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<td>Guide for more information about resource models.</td>
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Chapter 3. Setting up IBM Tivoli Monitoring for Databases: Informix

This chapter describes the general setup procedures for IBM Tivoli Monitoring for Databases: Informix. Table 4 provides an overview of the topics covered in this chapter.

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<td>“Starting the Tivoli environment”</td>
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<td>operations and functions of IBM Tivoli Monitoring for Databases:</td>
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Starting the Tivoli environment

Objective
To access the Tivoli environment so that you can use the operations and functions of IBM Tivoli Monitoring for Databases: Informix.

Background information
You can access the Tivoli desktop or the Tivoli command line interface in order to use the operations and functions of IBM Tivoli Monitoring for Databases: Informix.

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

IBM Tivoli Monitoring for Databases: Informix also provides a command line interface (CLI) that 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. For more information on IBM Tivoli Monitoring for Databases: Informix specific commands, see the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide.
**Required authorization role**
All authorization roles can start the Tivoli environment. Your authorization role determines the actions you can perform in the Tivoli environment.

**Before you begin**
None.

**When you finish**
None.

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

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

- **Windows NT**
  1. Log on to a Windows NT 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:
     ```
     sh .%SystemRoot%/system32/drivers/etc/Tivoli/setup_env
     ```
     This command enables you to perform all of the IBM Tivoli Monitoring for Databases: Informix operations.

- **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
       ```

**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, Version 3.7.1: 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.
Setting authorization roles

Objective
To assign Informix administrators and users the roles they need for managing resources in IBM Tivoli Monitoring for Databases: Informix.

Background information
You can authorize roles for the persons who use the product so that they can perform operations and access the resources that their jobs require. The following roles are created when you install the product:

- **IBMInformix_super** — provides the ability to discover and configure IBMInformixServer instances
- **IBMInformix_admin** — provides the ability to query and update a database. An administrator with the **IBMInformix_admin** role can perform all IBM Tivoli Monitoring for Databases: Informix operations on an Informix database
- **IBMInformix_user** — provides read-only access to a limited set of IBM Tivoli Monitoring for Databases: Informix operations. An administrator with the **IBMInformix_user** role can only view the properties of a database

A Tivoli administrator must have the required Tivoli authority and be assigned one of these roles to successfully use this product.

Required authorization role
**senior** (Tivoli)

Before you begin
None.

When you finish
You can discover objects. See “Discovering Informix instance objects” on page 19

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

Command line: Use the `wsetadmin` command to set or change resource authorization roles. See the *Tivoli Management Framework Reference Manual* for more information.

Desktop:
1. Double-click the **Administrators** icon to display the collection to see the icons representing the defined Tivoli administrators.
2. Right-click the existing administrator whose role you want to modify to display the **Administrators** drop-down menu.
3. Select **Edit Resource Roles** to display the **Set Resource Roles** dialog box.
4. Select a resource for which you want to set the administrator’s role from the **Resources** scrolling list.
5. Add or remove roles for the selected resources as follows:
   - **Add roles**
     a. Select one or more roles from those shown in the **Available Roles** scrolling list
     b. Click the left-arrow button to move the selected roles from the **Available Roles** scrolling list to the **Current Roles** scrolling list.
**Additional Information**: You can also double-click an entry to move it automatically from one list to the other.

- Remove roles
  a. Select one or more roles from those shown in the **Current Roles** scrolling list.
  b. Click the right-arrow button to move the selected roles from the **Current Roles** scrolling list to the **Available Roles** scrolling list.

You can also double-click an entry in the **Current Roles** scrolling list to move it automatically to the **Available Roles** scrolling list.

**Note**: The list of roles can include others not listed here, depending on the particular applications installed. You must click **Change & Close** or **Change** to add and remove the selected roles; the selected roles are only temporarily moved to the **Current Roles** or **Available Roles** scrolling lists.

6. If you are adding more than one role, click **Change** to add or remove the selected resource roles for the administrator as specified. The **Set Resource Roles** dialog box remains displayed.

**Note**: You must click **Change** for each resource to which you assign roles.

7. *(Optional)* Repeat steps 4 through 6 for each resource to which you want to assign roles.

8. Click **Change & Close** to add or remove the selected resource roles for the administrator and return to the **Administrators** window.

---

### Specifying the managed resource types in a policy region

**Objective**
To define the managed resource types that are available in a policy region so you can create the resource objects that are managed by the IBM Tivoli Monitoring for Databases: Informix product.

**Background information**
_*A managed resource* is any hardware or software entity that can be viewed or managed from the Tivoli desktop. Examples of managed resource types include:
- IBMInformixServer (representation of each Informix Dynamic Server discovered)
- InformixDiscovery (InformixDiscovery class is represented by the IBMInformixDiscovery icon)
- ProfileManager

_*A policy region* is a collection of Informix resources that share one or more common policies. By grouping similar resources into policy hierarchies that reflect your organization, you can customize IBM Tivoli Monitoring for Databases: Informix to maintain and manage your Informix resources. For example, you can create a policy region, North_America, that distinguishes the location, department, or group of resources.

Each policy region maintains a list of managed resource types that are valid for that policy region. Before you can create an instance of a managed resource in a policy region, you must add the managed resource type to this list. You can add or remove managed resource types at any time.
When you add a managed resource type to a policy region, the software does the following:

- Assigns a default policy to the managed resource when you first add it to a policy region.
- Adds the managed resource type to the policy region’s Create menu so that you can create new instances of the managed resource in the policy region.

**Note:** You must set the Tmw2kProfile option as a managed resource for the policy region (if you have not already done so) so you can create IBM Tivoli Monitoring profiles.

**Required authorization role**

*senior* (Tivoli)

**Before you begin**

None.

**When you finish**

None.

**Procedure**

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

**Command line:** Use the `wgetpr` and `wsetpr` commands to examine and change the managed resource types in a policy region.

To assign the policy used in a policy region, enable or disable policy validation, or add or remove a managed resource in a policy region, use the `wsetpr` command. The partial CLI syntax is as follows:

**Adding a Managed Resource**

```bash
wsetpr
[-d default_pol]
[-v validation_pol]
[-E | -e]
resource
region
```

where:

- `-d default_pol` Specifies the label of the default policy to be used for the managed resource.
- `-v validation_pol` Specifies the label of the validation policy to be used for the managed resource.
- `-E` Displays policy validation.
- `-e` Enables policy validation.

**Deleting a Managed Resource**

```bash
wsetpr
```

contains:

*resource* Specifies the managed resource type.

*region* Specifies the label of the target policy region.
wsetpr [-r] resource region

where:

-r Removes the specified resource from the policy region.

resource Specifies the managed resource type.

region Specifies the label of the target policy region.

Examples

The following example lists all of the managed resources in the Monitoring for IBM Informix policy region:

```
wgetpr @PolicyRegion:Monitoring_for_IBM_Informix
IBMInformixServer
InformixDiscovery
ProfileManager
TaskLibrary
```

The following example adds the TaskLibrary resource to the Engineering policy region:

```
wsetpr TaskLibrary @PolicyRegion:Engineering
```

The following example enables policy validation for the TaskLibrary resource in the Engineering policy region. The default policy is BasicTaskLibrary and the validation policy is BasicTaskLibrary.

```
wsetpr -d BasicTaskLibrary -v BasicTaskLibrary -e TaskLibrary @Engineering
```

For more information about these commands, see the Tivoli Management Framework Reference Manual.

Desktop:

1. Open the Tivoli desktop.
2. Double-click the policy region that contains the IBM Tivoli Monitoring for Databases: Informix resource to display the Policy Region window.
3. Click Properties to display the Properties drop-down menu.
4. Click Managed Resources from the Properties drop-down menu to display the Set Managed Resources dialog box.
   
   Additional Information: The following lists display:

   **Current Resources**
   Displays the current managed resource types for the policy region.

   **Available Resources**
   Displays the managed resource types that are available to add to the policy region.

5. Do one of the following to move a resource from Available to Current:
   - Double-click the managed resource type.
   - OR —
   - Do the following:
     a. Select a resource from the Available Resources list.
     b. Click the left arrow button to move your selection to the Current Resources list.
6. Optional: Remove a managed resource from the policy region by doing the following:
   a. Choose one or more managed resources from the **Current Resources** list.
   b. Click the right arrow button to move the managed resource into the **Available Resources** list.

7. Click **Set & Close** to save the changes and return to the policy region window.

---

**Discovering Informix instance objects**

**Objective**
To automatically create multiple IBMInformixServer instance objects on the Tivoli desktop.

**Background information**
Discovery searches for Informix instances that reside on endpoints. If an Informix instance is found that is not already being managed, a temporary IBMInformixServer instance object is automatically created in the **IBMInformixDiscovered** policy region on the Tivoli desktop. An Informix instance is an occurrence of a database server. IBMInformixDiscovery creates temporary objects containing as many attributes as can be automatically discovered. Before you can use the instance you have to configure it by entering the attributes that are not discovered automatically, such as the user name, password, JDBC driver, JDBC driver location, and JDBC port number. After the instance is configured it is moved to the **IBMInformixConfigured** policy region and is available as a target for tasks and resource models.

**Note:** If you delete and then recreate an Informix instance, you must delete and recreate the corresponding IBMInformixServer object from the IBM Tivoli Monitoring for Databases: Informix product. If you delete an IBMInformixServer object, you must also unsubscribe the object from all profile managers to which it is subscribed.

**Required authorization role**
IBMInformix_super

**Before you begin**
None

**When you finish**
Configure the objects you want to manage and move the others to the **IBMInformixUnmanaged** Policy region. See “Configuring Informix instance objects” on page 20 and “Moving objects to IBMInformixUnmanaged policy region” on page 23 for more information.

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

**Command line:** You can use the command line to discover Informix instances with the **wifxdiscovery** command. The CLI syntax is:

```
wifxdiscovery
  -e endpoint_label
  -d discovery_label
```

where:
Specifies the endpoints on which to run discovery.

Specifies the label of the discovery object being run.

Desktop:
1. Double-click the Monitoring for IBM Informix policy region to display the policy region window.
2. Double-click the IBMInformixDiscovered policy region to open the policy region window.
3. Right-click on the IBMInformixDiscovery object and select Edit Endpoints to display the Edit Discovery Endpoints dialog.
4. Select a gateway from the Available Discovery Gateways box.
5. Select the endpoints on which you want to discover Informix instances from the Available Discovery Endpoints scrolling list.
6. Click the left arrow button to move the endpoints to the Current Discovery Endpoints scrolling list.
7. Click the Change & Close button to save your changes and return to the Edit Discovery Endpoints policy region.
8. Right-click the IBMInformixDiscovery object icon and select Run Discovery to begin the discovery process.

IBMInformixDiscovery creates a temporary IBMInformixServer object for each Informix instance discovered on the specified endpoints in the IBMInformixDiscovered policy region.

9. Perform one of the following:
   • Configure the Informix instance. See “Configuring Informix instance objects”
     —OR—
   • Move the instance to the IBMInformixUnmanaged policy region. See “Moving objects to IBMInformixUnmanaged policy region” on page 23.

---

### Configuring Informix instance objects

**Objective**
To configure a temporary IBMInformixServer object so that it can be managed by IBM Tivoli Monitoring for Databases: Informix.

**Background information**
When you run IBMInformixDiscovery it creates temporary object containing as many attributes as can be automatically discovered. The temporary object has a question mark (?) on the normal object icon. Before you can use the instance you have to configure it by entering the attributes that are not discovered automatically, such as the IBM Informix user name, IBM Informix password, JDBC driver, JDBC driver location, and JDBC port number. After the instance is configured it is moved to the IBMInformixConfigured policy region and is available as a target for task and resource models.

Unconfigured IBMInformixServer objects can also exist in the IBMInformixUnmanaged policy region. The IBMInformixUnmanaged policy region is used to store instances of Informix that exist on endpoints on which IBMInformixDiscovery was run, but that you did not want to manage or monitor at the time of discovery.
Required authorization role
IBMInformix_super

Before you begin
Run IBMInformixDiscovery on selected endpoints to create temporary
IBMInformixServer objects for every instance of Informix not previously
discovered.

When you finish
Subscribe the IBMInformixServer objects to profiles to start monitoring. See
"Subscribing resources to profile managers" on page 28.

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

Command line: You can use the command line to configure IBMInformixServer
objects with the wifxconfept command. The CLI syntax is:

wifxconfept
  –m managed_node
  –u user
  –p password
  –j jdbc_port
  –d jdbc_driver
  –c jdbc_driver_location
  –h object_label

where:

–m managed_node
  Specifies the name of the managed node on which the IBMInformixServer
  object resides.

–u user
  Specifies the name of the user accessing the IBMInformixServer database
  through the JDBC connection.

–p password
  Specifies the password of the user accessing the IBMInformixServer
  database through the JDBC connection.

–j jdbc_port
  The number of the port for the desired JDBC driver.

–d jdbc_driver
  Name and location of the JDBC driver. For example:
  com.informix.jdbc.IfxDriver.

–c jdbc_driver_location
  Full path to the ifxjdbc.jar file. For example:
  /data/informix/jdbc/lib/ifxjdbc.jar.

–h object_label
  The name of the Informix instance represented by the IBMInformixServer
  object.

When you complete the task the object is moved to the IBMInformixConfigured
policy region and is no longer marked as temporary with the question mark (?) on
the icon.
If you need to edit the attribute information for a configured IBMInformixServer object, see “Editing IBMInformixServer object attributes” on page 37.

**Desktop:**
1. Right-click the temporary IBMInformixServer object.
2. Select configure from the pop-up menu to open the **Configure IBMInformixServer** dialog.

![Configure IBMInformixServer dialog](image)

3. Enter the information that was not automatically retrieved during discovery.

   **Managed Node**
   Specifies the name of the managed node on which the IBMInformixServer object resides.

   **User Name**
   Specifies the name of the user accessing the IBMInformixServer database through the JDBC connection.

   **Password**
   Specifies the password of the user accessing the IBMInformixServer database through the JDBC connection.

   **JDBC Port Number**
   The number of the port for the desired JDBC driver.

   **JDBC Driver**
   Name and location of the JDBC driver. For example: `com.informix.jdbc.IfxDriver`.

   **Driver Location**
   Full path to the ifxjdbc.jar file. For example: `/data/informix/jdbc/lib/ifxjdbc.jar`.

4. Click **Create And Close** to configure the IBMInformixServer object.

   Additional Information: When you click **Create And Close** the object is moved to the **IBMInformixConfigured** policy region and is no longer marked as temporary with the question mark (?) on the icon.

If you need to edit the attribute information for a configured IBMInformixServer object, see “Editing IBMInformixServer object attributes” on page 37.
Moving objects to IBMInformixUnmanaged policy region

**Objective**
To move unconfigured IBMInformixServer objects to the IBMInformixUnmanaged policy region.

**Background information**
You can move unconfigured IBMInformixServer objects to the IBMInformixUnmanaged policy region. The IBMInformixUnmanaged policy region is used to store instances of Informix that exist on endpoints on which IBMInformixDiscovery was run, but that you do not want to manage or monitor at this time. Objects that are discovered and either configured or moved to the IBMInformixUnmanaged policy region are not discovered again when IBMInformixDiscovery is run. This saves both time and resources.

**Required authorization role**
IBMInformix_super

**Before you begin**
Run IBMInformixDiscovery on selected endpoints to create temporary IBMInformixServer objects for every instance of Informix not previously discovered. The temporary objects have a question mark (?) on the normal object icon.

**When you finish**
None

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

**Command line:** You can use the command line to move IBMInformixServer objects with the wmv command. The CLI syntax is:

```
wmv @InformixDiscoveryHBO:ObjectName@PolicyRegion:IBMInformixUnmanaged
```

where:

**InformixDiscoveryHBO**
Specifies the class of the temporary IBMInformixServer object being moved.

**ObjectName**
Specifies the name of the Informix instance represented by the temporary IBMInformixServer object.

**PolicyRegion:IBMInformixUnmanaged**
Specifies the policy region into which unmanaged IBMInformixServer are moved.

**Note:** On interconnected Tivoli management regions fully qualify the name of the policy region on which the IBMInformixUnmanaged policy region resides.

**Example:**

The following example shows the temporary object ol_starbug@starbug being moved to the IBMInformixUnmanaged policy region.

---

Chapter 3. Setting up IBM Tivoli Monitoring for Databases: Informix 23
1. Hold the **Shift** key down and select the objects that you do not want to manage at this time.

2. While depressing the **Shift** key drag the selected objects to the **IBMInformixUnmanaged** policy region.

   Objects that are discovered and moved to the **IBMInformixUnmanaged** policy region are not discovered when IBMInformixDiscovery is run again.
Chapter 4. Setting up IBM Tivoli Monitoring

This chapter describes the general setup procedures needed to use IBM Tivoli Monitoring with IBM Tivoli Monitoring for Databases: Informix.

Suggested guidelines for setting up your resource models

Table 5 provides guidelines for the order in which you set up monitoring information and where to find specific information on how to do so. As you become more familiar with IBM Tivoli Monitoring, you will discover additional ways of working with resource models that meet the needs of your environment.

Note: For additional or advanced information on IBM Tivoli Monitoring in the Tivoli environment, see the IBM Tivoli Monitoring User’s Guide.

Table 5. Monitoring resources and applications guidelines

<table>
<thead>
<tr>
<th>Goal</th>
<th>See</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Set up profile managers and profiles to organize your resource models. This makes the distribution of resource models more efficient. You might need to set up multiple profile managers and profiles within the profile managers to meet the needs of your environment.</td>
<td>“Creating profile managers and profiles” on page 26</td>
</tr>
<tr>
<td>2. Subscribe Informix to the profile manager. This determines which resources receive a profile when the profile is distributed. Profiles contain resource models to run against the endpoints (see Step 3).</td>
<td>“Subscribing resources to profile managers” on page 28</td>
</tr>
<tr>
<td>3. Populate each profile manager/profile with resource models for the resource that you want to monitor. Include resource models with the default values or customize the default values to meet the needs of your environment.</td>
<td>“Adding default resource models to profiles” on page 29</td>
</tr>
<tr>
<td>4. For each profile in your profile manager, do the following:</td>
<td>“Distributing profiles from the desktop” on page 30</td>
</tr>
<tr>
<td>• Specify the subscribers that you want to distribute the monitoring profile to and distribute the profile.</td>
<td>“Distributing profiles using MDist2” on page 33</td>
</tr>
<tr>
<td>• Specify the subscribers that you want to distribute the monitoring profile to while using MDist2.</td>
<td>“Rerunning failed profile distributions” on page 34</td>
</tr>
<tr>
<td>• Determine if you must rerun any failed distributions.</td>
<td></td>
</tr>
</tbody>
</table>
Creating profile managers and profiles

Objective
To create profile managers and profiles so you can organize and distribute your resource models more efficiently.

Background information
A monitoring profile is a group of defined resource models that you can distribute (download or push) to a subscribed (marked to receive) managed resource in a profile manager.

In addition to activating default resource models, profile managers and profiles can group resources to enable simultaneous monitoring of multiple resources. You can hierarchically organized the profile managers. The profile manager is the top level of the organization and contains specific profiles that contain specific resource models. Instances and databases are then subscribed to the profile managers, which enable the monitoring information to be channeled to those resources.

You can create an unlimited number of profile managers, but it is recommended that they reflect some logical or functional grouping of database resources or the business’s organizational structure. For example, profile managers could be labeled Sales and Marketing, Administration and Finance, and Operations to reflect a business organization.

Note: Profile managers for IBM Tivoli Monitoring for Databases: Informix must be dataless to work with the product.
You can create a *dataless* profile manager that distributes profiles without regard to the existence of a database on its subscribers. A dataless profile manager distributes to the system files on resources that have a profile database. However, it bypasses the profile database on these systems. Therefore, profiles are available only with database profile managers. A profile manager (database or dataless) cannot subscribe to a dataless profile manager. Likewise, dataless profile managers cannot distribute to other profile managers because they require profiles to be written to a profile database.

**Required authorization role**

admin

**Before you begin**

Set up the Tmw2kProfile managed resource types. Refer to the *IBM Tivoli Monitoring User’s Guide* for information.

**When you finish**

Add resource models to the profile. See “Adding default resource models to profiles” on page 29 or “Adding custom resource models to profiles” on page 66.

**Procedure**

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

**Command line:**

1. Use the wcrtprfmgmt command to create a profile manager. For example, to create a profile manager called ProfMgr2 in the TestRegion policy region, enter the following command:

   wcrtprfmgmt @PolicyRegion:TestRegion ProfMgr2

2. Use the wsetpm command to make the policy manager operate in dataless mode. For example, to make the profile manager ProfMgr2 dataless, enter the following command:

   wsetpm -d @ProfileManager:ProfMgr2

   Where:

   -d Specifies that the profile manager operates in a dataless mode.

3. Use the wcrtprf command to create a profile. For example, to create a profile called MarketingProf2 in the ProfMgr2 profile manager, enter the following command:

   wcrtprf @ProfileManager:ProfMgr2 MarketingProfile MarketingProf2

For additional information about these commands, see the *Tivoli Management Framework Reference Manual*.

**Desktop:**

1. Open the Policy Region dialog box by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon in which you want to create profile managers and profiles to open the policy region.

2. Select Create ➤ Profile Manager to open the Create Profile Manager dialog box.

3. Type a unique name in the Name/Icon Label text box.

4. Select the Dataless Endpoint Mode check box to create the profile manager in dataless mode.
5. Click the Create & Close button to close the Create Profile Manager dialog box.

Additional Information: In the following example, the policy region contains two profile manager icons, Manufacturing and Operations. The Manufacturing profile manager is defined as dataless (the feathers under the Manufacturing profile manager indicates that it is a dataless profile manager).

6. Double-click a profile manager icon to open the Profile Manager window.
7. Select Create → Profile to open the Create Profile dialog box.
8. Type a unique name for the profile in the Name/Icon text box.
9. Select the Tmw2kProfile resource from the Type list.
10. Click the Create & Close button. An icon for the new profile is displayed in the Profiles area of the Profile Manager window.

Subscribing resources to profile managers

Objective
To add managed resources to a monitoring profile so administrators can define which resource to monitor.

Background information
Subscribing resources to a profile manager determines which resources receive a profile when the profile is distributed. IBM Tivoli Monitoring uses the list of subscribers to determine which systems are monitored. To add a subscriber to a distributed monitoring profile, you must add the subscriber to the profile manager.

Note: Resources can also be subscribed to profiles from the IBM Tivoli Monitoring Profile dialog. See “Distributing profiles from the desktop” on page 30.

Required authorization role
admin

Before you begin
Create a monitoring profile with monitoring sources. See “Creating profile managers and profiles” on page 26 for information.

When you finish
Distribute the monitoring profile to the subscribed resource. See “Distributing profiles from the desktop” on page 30 for information.
Procedure
You can perform this procedure from either the Tivoli command line or the desktop.

Command line: Use the wsub command to add subscribers to the profile manager. For example, to add a database called Sample@bburns as a subscriber to the profile manager DatabaseMonitors, enter the following command:

```
wsub @ProfileManager:DatabaseMonitors @PolicyRegionName:Sample@bburns
```

For additional information about these commands, see the Tivoli Management Framework Reference Manual

Desktop:
1. Open the Policy Region dialog box by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to display the policy region.
2. Double-click a profile manager icon to open the Profile Manager dialog box.
3. Select Profile Manager → Subscribers to open the Subscribers dialog box.
4. Select the subscribers to receive the profile distribution from the Available to become Subscribers scrolling list.

Note: The Available to become Subscribers lists all possible subscribers, including both IBMInformixServer objects (appropriate subscriber) and endpoints (inappropriate subscriber). You can subscribe IBM Tivoli Monitoring for Databases: Informix resource models to endpoints and they are distributed with the profile taking up resource space, but they do not run on the endpoints and an error is logged if you try to run them. For detailed information on trace logging, see "Problem determination" on page 115.

5. Click the left arrow button to move the selected subscribers to the Current Subscribers scrolling list.
6. Click Set Subscriptions & Close to add the subscribers. Subscribers are displayed in the Subscribers field of the Profile Manager dialog box.

Adding default resource models to profiles

Objective
To add a resource model to a profile using its default values so you can run the resource model immediately.

Background information
A resource model captures and returns information about a resource or application. You set up resource models and distribute them to IBMInformixServer instances. Each resource model monitors multiple resources. Choose the resource models to add to a profile based on the resources you want to monitor. Adding one or more of these resource models to a profile allows you to begin monitoring resources immediately.

Put all of the resource models that you are going to distribute to the same IBMInformixServer instance in a single profile because the distribution occurs on a per-profile basis.
You can also use resource models that you have customized by customizing an existing resource model, or adding a new one and customizing it. See, “Adding custom resource models to profiles” on page 66 for information about customizing resource models.

**Required authorization role**

*admin*

**Before you begin**

- Create a profile manager and profile. See “Creating profile managers and profiles” on page 26 for information.
- Add subscribers to a profile manager. See “Subscribing resources to profile managers” on page 28 for information.
- See the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for detailed information about each resource model.

**When you finish**

Distribute the profile. See “Distributing profiles from the desktop”

**Procedure**

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

**Command line:** Use the `wdmeditprf` command to add a customized resource model to a profile.

For additional information about these commands, see the *Tivoli Management Framework Reference Manual*.

**Desktop:**

1. Open the *IBM Tivoli Monitoring Profile* dialog box by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to open the policy region.
   c. Double-click the profile manager icon to open the profile manager.
   d. Double-click the profile icon to which you want to add a customized resource model.

2. Click *Add With Defaults* to open the *Add Resource Models to Profile* dialog box.

3. Select the resource model category from the *Category* drop-down list.
4. Select the resource model you want from the *Resource Model* drop-down list.
5. Click *Add & Close*. The resource model is added to the *IBM Tivoli Monitoring Profile*.

Repeat this procedure for each resource model you want to add to the profile using its default values.

---

**Distributing profiles from the desktop**

**Objective**

To distribute profiles to specified subscribers.
**Background information**

**Note:** IBM Tivoli Monitoring for Databases: Informix resource models can be distributed only to IBMInformixServer instances. If you try to distribute an IBM Tivoli Monitoring for Databases: Informix resource model to an endpoint an error message is sent to the trace file and logged. For detailed information on trace logging, see Appendix D, “Problem determination” on page 115.

You can distribute profiles to the following groups:

**Next level of subscribers**
Distributes the profile only to the subscribers named in the **Distribute to These Subscribers:** scrolling list of the **Distribute Profile** dialog box. This option does not distribute to subscribers at lower levels of the hierarchy. Perform the distribution process from profile managers at more than one level to reach all the profile resources if a profile manager with subscribers resides at the next lower level.

**All levels of subscribers**
Distributes the profile to all subscribers in the hierarchy. Consider the following example. You have a profile in which a dataless profile manager is subscribed to a profile manager, and the dataless profile manager has a subscribed IBMInformixServer instance. If you distribute to the next level of subscribers, the profile manager distributes the profile only to the dataless profile manager. If you distribute to all levels of subscribers, the profile manager distributes the profile to the dataless profile manager and to the IBMInformixServer instance.

Select this option if you want to distribute a profile in which your resource is the only subscriber.

**Required authorization role**
**admin**

**Before You Begin**
- Create a profile manager and profile. See “Creating profile managers and profiles” on page 26 for information.
- Add subscribers to a profile manager. See “Subscribing resources to profile managers” on page 28 for information.
- Add a resource model to a profile. See “Adding default resource models to profiles” on page 29 and “Adding custom resource models to profiles” on page 66 for information.
- See the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for detailed information about each resource model.

**When you finish**
View the output of your resource models on the IBM Tivoli Monitoring Web Health Console, the Tivoli Business Systems Manager, or the Tivoli Enterprise Data Warehouse.

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

**Desktop:**
1. Open the **IBM Tivoli Monitoring Profile** dialog box by doing the following:
   a. Open the Tivoli desktop.
b. Double-click the policy region icon to open the policy region.

c. Double-click the profile manager icon you want to open the Profile Manager dialog box.

d. Double-click the profile you want to distribute to open the IBM Tivoli Monitoring Profile dialog box.

2. Click Profile + Distribute. The Distribute Profile dialog box opens.

3. Select one of the Distribute To options based on the following descriptions:

   **Next level of subscribers**
   Distributes the profile only to the subscribers named in the Distribute to These Subscribers: scrolling list of the Distribute Profile dialog box. This selection does not distribute to subscribers at lower levels of the hierarchy. Perform the distribution process from profile managers at more than one level to reach all the profile resources if a profile manager with subscribers resides at the next lower level.

   **All levels of subscribers**
   Distributes the profile to all subscribers in the hierarchy. Consider the following example. You have a profile in which a dataless profile manager is subscribed to a profile manager, and the dataless profile manager has a subscribed IBMInformixServer instance. If you distribute to the next level of subscribers, the profile manager distributes the profile only to the dataless profile manager. If you distribute to all levels of subscribers, the profile manager distributes the profile to the dataless profile manager and to the IBMInformixServer instance.

   Select this option if you want to distribute a profile in which your resource is the only subscriber.

4. Select Make each subscriber’s profile an EXACT COPY of this profile from the Distribution Will options.

   *Additional Information:* This option overwrites the subscriber’s profile with an exact copy of the profile that you are distributing.

   **Note:** Always select the Make each subscriber’s profile an EXACT COPY of this profile option when you distribute a profile to a IBMInformixServer object. Do not select the Preserve modifications in subscriber’s copies of the profile option. A Make each subscriber’s profile an EXACT COPY of this profile pushes all profiles in a dataless profile manager to the target, even if only one is specified.

5. Select the subscribers to receive the profile using the following steps:

   **Note:** Make sure that each subscriber in the Distribute to These Subscribers scrolling list is either a profile manager or a IBMInformixServer instance. You can distribute IBM Tivoli Monitoring for Databases: Informix resource models to endpoints taking up resource space, but resource models do not run on endpoints and an error is sent to the trace file and logged. For detailed information on trace logging, see Appendix D, “Problem determination” on page 113.

   a. Select the list of subscribers that you do not want to distribute the profile to from the Distribute to These Subscribers scrolling list.

   b. Click the right arrow to move the subscribers to the Do Not Distribute to These Subscribers scrolling list.

   c. Select the list of subscribers that you want to distribute the profile to from the Do Not Distribute to These Subscribers scrolling list.
d. Click the left arrow to move the subscribers to the **Distribute to These Subscribers** scrolling list.

6. Click one of the following:

**Distribute & Close**
Distributes the profile immediately, closes the **Distribute Profile** dialog box, saves the settings you made, and returns to the **IBM Tivoli Monitoring Profile** dialog box.

**Distribute**
Distributes the profile immediately, saves the settings you made, and leaves the **Distribute Profile** dialog box open.

**Schedule**
Schedules the distribution of the profile with the Tivoli Scheduler. For details about using the Tivoli Scheduler, refer to the *Tivoli Management Framework User’s Guide*.

---

**Distributing profiles using MDist2**

**Objective**
To circulate copies of the monitoring profile to subscribers while using MDist2 so that administrators and users can activate the monitoring process.

**Background information**
IBM Tivoli Monitoring uses Multiplexed Distribution (MDist2) to perform asynchronous profile data transfers through a hierarchy of repeaters. MDist2 returns a sequence of responses containing the distribution status from each resource to the application initiating the distribution. These responses are sent back to IBM Tivoli Monitoring in a log file, on the MDist2 command line, or through the MDist2 GUI.

IBM Tivoli Monitoring uses the following MDist2 functions:

**Asynchronous delivery**
IBM Tivoli Monitoring submits a distribution request and immediately receives a distribution identifier and confirmation that the distribution is in progress. MDist2 uses the callback function to send the final distribution status for each resource when it completes each endpoint distribution instead of waiting until all resources are distributed.

**Assured delivery**
Assures that distributed profiles are delivered to the resources when there are network interruptions, computer shutdowns, or disconnections. Assured delivery tries to reestablish the connections until it is either successful or the distribution time expires. The distribution begins at the point where it was interrupted.

**Check-point and restart**
Assures that an interrupted data stream resumes from the last successful checkpoint. You do not have to resend all the IBM Tivoli Monitoring Profile data when the distribution resumes, but only the data that was not sent when the interruption occurred.

**Data depoting**
Stores segments of the profile at a depot close to the resource so the resources can retrieve the data from the depot instead of from the source host. This reduces network traffic and speeds up the distribution.
Required authorization role
admin

Before you begin

- Create a profile manager and profile. See "Creating profile managers and profiles" on page 26 for information.
- Add subscribers to a profile manager. See "Subscribing resources to profile managers" on page 28 for information.
- Add a resource model to a profile. See "Adding default resource models to profiles" on page 29 and "Adding custom resource models to profiles" on page 66 for information.
- See the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for detailed information about each resource model.

When you finish
None

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

Command line: Use the wdmdistrib command to distribute the profile to the subscribers of the profile manager. For example, to distribute the default profile DBManager-DBMSMonProfile to an instance labeled inst1@bburns, enter the following command:

wdmdistrib @Tmw2kProfile:DBManager-DBMSMonProfile \ @InstanceManager:inst1@bburns

This command updates subscriber databases and configuration files. If no subscriber is specified, wdistrib updates all subscribers. The syntax varies depending on the version of Tivoli management region that you installed. Refer to the Tivoli Management Framework Reference Manual for more information about the wdistrib command.

Rerunning failed profile distributions

Objective
To verify that the distribution to a resource failed so that you can rerun the failed distribution.

Background information
When a distribution fails, IBM Tivoli Monitoring creates a profile manager that contains the subscribers that failed.

When you successfully redistribute profiles, the software deletes the profile manager that it created for the failed distribution. A wholly or partially unsuccessful redistribution retains the profile manager containing only the subscribers that were unsuccessful in the redistribution. Continue the process of correcting the errors and retrying the distribution until the profile is successfully distributed to all resources.

Required authorization role
admin

Before you begin
None
When you finish
None

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

Desktop:
1. Open the IBM Tivoli Monitoring Profile dialog box by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to open the policy region.
2. Select View \[ Refresh \] from the Policy Region dialog box to see the new profile managers.
3. Review the new profile manager names to determine and correct the cause of the failure. The following profile manager names are derived from a failed distribution:
   - The failed distribution creates the following profile manager name due to a Bad_Interpreter error:
     \[ OriginalProfileName\_Push\_Failed\_Bad\_Interpreter \]
     where:
     \[ OriginalProfileName \]
     The name of the profile that you were distributing when the error occurred.

     The AMW089E error message is displayed at this point, indicating that the resource model type is not compatible with the resource operating system. For example, you might have distributed a Windows resource model to a UNIX-T resource.
   - The failed distribution creates the following profile manager name due to any other error:
     \[ OriginalProfileName\_Distribution\_Failed \]
     where:
     \[ OriginalProfileName \]
     The name of the profile that you were distributing when the error occurred.
4. Subscribe the profile managers that contain the failed resources to the profile manager that contained the original profile. See “Subscribing resources to profile managers” on page 28

   Note: This can be done only if the profile manager used for the original distribution was not dataless.
5. Distribute the original profile to the failed resources by selecting these profile managers as the target for the distribution. See “Distributing profiles from the desktop” on page 30. You can also edit the profile managers to delete a resource from a group of failed resources before retrying the distribution.
Chapter 5. Working with IBM Tivoli Monitoring for Databases: Informix

After you finish setting up the various components of IBM Tivoli Monitoring for Databases: Informix, you are ready to manage Informix databases.

Table 6

Table 6. Procedures for Working with IBM Tivoli Monitoring for Databases: Informix

<table>
<thead>
<tr>
<th>Goal</th>
<th>Refer to</th>
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<tr>
<td>Edit IBMInformixServer object properties</td>
<td>&quot;Editing IBMInformixServer object attributes&quot;</td>
</tr>
<tr>
<td>View server properties</td>
<td>&quot;Viewing server properties&quot; on page 39</td>
</tr>
<tr>
<td>Start a server</td>
<td>&quot;Starting a server to online&quot; on page 40</td>
</tr>
<tr>
<td></td>
<td>or &quot;Starting a server to quiescent&quot; on page 41</td>
</tr>
<tr>
<td>Shut down a server</td>
<td>&quot;Shutting down a server to offline&quot; on page 42</td>
</tr>
<tr>
<td></td>
<td>or &quot;Stopping a server to quiescent gracefully&quot; on page 43</td>
</tr>
<tr>
<td></td>
<td>or &quot;Stopping a server to quiescent immediately&quot; on page 44</td>
</tr>
</tbody>
</table>

Editing IBMInformixServer object attributes

**Objective**
To edit the attributes of an IBMInformixServer object.

**Background information**
You can use the IBM Tivoli Monitoring for Databases: Informix commands to edit IBMInformixServer objects. Using the `wifxrmvar` and `wifxaddvar` commands enables you to change dynamic attributes, such as password, without removing the IBMInformixServer object and then rediscovering the Informix instance on the endpoint.

These commands are used in conjunction, if you remove attribute definitions using the `wifxrmvar` command and do not add new definitions using the `wifxaddvar` command the IBMInformixServer object is no longer valid.

**Note:** Changes made with these commands do not take affect until you redistribute the resource models to the changed IBMInformixServer object.

**Required authorization role**
IBMInformix_super

**Before you begin**
None

**When you finish**
Redistribute any resource models you had running on this object. The changes to the object attributes do not take affect until the resource models are redistributed. See, "Distributing profiles from the desktop" on page 30.
Procedure
You can perform this procedure from the Tivoli command line only.

Command line: The CLI syntax for the wifxaddvar commands are:

wifxrmvar
- o ibminformix_oid
- n attribute_name

wifxaddvar
- o ibminformix_oid
- n attribute_name
- v attribute_value

where:
- o ibminformix_oid
  Specifies the object ID of the IBMInformixServer to which you are adding
  the attribute definition.

- n attribute_name
  Specifies the attribute to which you are adding the definition. Valid
  attribute names are:

  dbservername
  Specifies the name of the database server represented by this
  IBMInformixServer object.

  dbservernum
  Specifies the number of the database server represented by this
  IBMInformixServer object.

  hostname
  Specifies the name of the managed node on which the
  IBMInformixServer object resides.

  informixdir
  Specifies the directory where you installed your Informix database
  server.

  jdbcdriver
  Specifies the name and location of the JDBC driver. For example:
  com.informix.jdbc.IfxDriver.

  jdbcdriverlocation
  Specifies the full path to the ifxjdbc.jar file. For example:
  /data/informix/jdbc/lib/ifxjdbc.jar.

  jdbcport
  Specifies the port that is connected to the JDBC driver.

  onconfig
  Specifies the name of the active ONCONFIG file.

  password
  Specifies the password of the user accessing the IBMInformixServer
  database through the JDBC connection.

  sqlhosts
  Specifies the path to the sqlhosts file that contains the sqlhosts
  information for one database server.
user  Specifies the user name of the user accessing the IBMInformixServer database through the JDBC connection.

version  Specifies the version of Informix running.

–v attribute_value
  Specifies the value you are assigning to the attribute you are adding to the IBMInformixServer.

For example to change the password attribute on the IBMInformixServer object reddwarf@reddwarf do the following:

Use the wlookup command to find the object ID
wlookup -ar IBMInformixServer

returns
reddwarf@reddwarf 1456789545.1.727#IBMInformixEndpoint::IBMInformixServer#

Use the returned object ID to run the wifxrmvar and wifxaddvar commands.
wifxrmvar -o 1456789545.1.727 -n password
wifxaddvar -o 1456789545.1.727 -n password -v rosebud

Viewing server properties

Objective
To view the properties of the Informix instance represented by an IBMInformixServer object.

Background information
The View Properties option displays the following information about the server:

Table 7. Informix Instance properties

<table>
<thead>
<tr>
<th>Hostname</th>
<th>OID of the machine on which the Informix instance is running</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jdbc port</td>
<td>The port that is connected to the JDBC driver.</td>
</tr>
<tr>
<td>DB server name</td>
<td>Name of the server represented by the IBMInformixServer object.</td>
</tr>
<tr>
<td>DB server number</td>
<td>Object ID of the server represented by the IBMInformixServer object.</td>
</tr>
<tr>
<td>Informix directory</td>
<td>Specifies the directory where you installed your Informix database server.</td>
</tr>
<tr>
<td>OnConfig file</td>
<td>Specifies the name of the active ONCONFIG file.</td>
</tr>
<tr>
<td>Jdbc driver</td>
<td>Specifies the name and location of the JDBC driver. For example: com.informix.jdbc.IfxDriver .</td>
</tr>
<tr>
<td>Jdbc driver location</td>
<td>Specifies the full path to the ifxjdbc.jar file. For example: /data/informix/jdbc/lib/ifxjdbc.jar .</td>
</tr>
<tr>
<td>User</td>
<td>Specifies the user name of the user accessing the IBMInformixServer database through the JDBC connection.</td>
</tr>
</tbody>
</table>
Table 7. Informix Instance properties (continued)

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password</td>
<td>Specifies the password of the user accessing the IBMInformixServer database through the JDBC connection.</td>
</tr>
<tr>
<td>Version</td>
<td>The version of Informix being run.</td>
</tr>
<tr>
<td>Sql Hosts</td>
<td>The SQLHOSTS registry key for the database server.</td>
</tr>
</tbody>
</table>

**Required authorization role**
IBMInformix_user

**Before you begin**
None

**When you finish**
None

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

**Desktop:** Use the following steps to view database properties:
1. From the Tivoli desktop, double-click the policy region that contains the server. This displays the Policy Region window.
2. Right-click the server icon to display the icon’s pop-up menu.
3. Select the Properties option from the pop-up menu to open the Properties dialog.

---

**Starting a server to online**

**Objective**
To start a server in the multi-user online state.

**Background information**
This task takes the database server to the multi-user online state from the Quiescent state or the Offline state.

This task performs the equivalent of the Informix onmode -my command. See your Informix documentation for detailed information on Informix commands.

**Required authorization role**
IBMInformix_admin

**Before you begin**
None

**When you finish**
None

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

**Command line:** Use the command line to start a server to online with the wruntask command. The CLI syntax is as follows:
wruntask [-t TaskName] [-l LibraryName] [-h EndpointName] [-m TimeOut]

where:

-t TaskName
   The name of the task.

-l LibraryName
   The name of the library in which the task resides.

-h EndpointName
   The name of the endpoint on which to run the task.

-m TimeOut
   The number of seconds this task runs without response before timing out.

For example, to do a startup to online of the server on endpoint @IBMInformixServer:Informix@vision75_11 with a 600 second timeout, use the following command:

wruntask
-t "Start-up_to_On-Line"
-l "IBM Informix Server Tasks"
-h @IBMInformixServer:Informix@vision75_11
-m 600

For more information about the wruntask command, refer to the Tivoli Management Framework Reference Manual.

Desktop:
1. Double-click the policy region to display the Policy Region window.
2. Right-click the server icon.
3. Select the Start Online option from the pop-up menu.

Starting a server to quiescent

Objective
To start a database server in the administrative state from the Tivoli desktop.

Background information
This task takes the database server to an administrative state from an offline state.

This task performs the equivalent of the Informix oninit -s command.

Required authorization role
IBMInformix_admin

Before you begin
None

When you finish
None

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

Command line: Use the command line to start a server to quiescent with the wruntask command. The CLI syntax is as follows:
wruntask [-t TaskName] [-l LibraryName] [-h EndpointName] [-m TimeOut]

where:
-t TaskName
   The name of the task.
-l LibraryName
   The name of the library in which the task resides.
-h EndpointName
   The name of the endpoint on which to run the task.
-m TimeOut
   The number of seconds this task runs without response before timing out.

For example, to do a startup to quiescent of the server on endpoint @IBMInformixServer:Informix@vision75_11 with a 600 second timeout, use the following command:

wruntask
-t "Start-up to Quiescent"
-l "IBM Informix Server Tasks"
-h @IBMInformixServer:Informix@vision75_11
-m 600

For more information about the wruntask command, refer to the Tivoli Management Framework Reference Manual.

Desktop:
1. Double-click the policy region to display the Policy Region window.
2. Right-click the server icon.
3. Select the Start Quiescent option from the pop-up menu.

---

### Shutting down a server to offline

**Objective**
To shut down an Informix server to offline.

**Background information**
Shut down the server. This task takes a database server in the Online or Quiescent state to Offline and removes the online shared memory.

This task performs the equivalent of the Informix onmode –ky command.

**Required authorization role**
IBMInformix_admin

**Before you begin**
None

**When you finish**
None

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

**Command line:** Use the command line to shut down a server to off line with the wruntask command. The CLI syntax is as follows:
wruntask [-t TaskName] [-l LibraryName] [-h EndpointName] [-m TimeOut]

where:

-t TaskName
The name of the task.

-l LibraryName
The name of the library in which the task resides.

-h EndpointName
The name of the endpoint on which to run the task.

-m TimeOut
The number of seconds this task runs without response before timing out.

For example, to do a shut down to off line of the server on endpoint @IBMInformixServer:Informix@vision75_11 with a 600 second timeout, use the following command:

wruntask
-t "Shutdown_to_Off-Line"
-l "IBM Informix Server Tasks"
-h @IBMInformixServer:Informix@vision75_11
-m 600

For more information about the wruntask command, refer to the Tivoli Management Framework Reference Manual.

Desktop:
1. Double-click the policy region to display the Policy Region window.
2. Right-click the database icon.
3. Select Stop OffLine from the pop-up menu.
4. Confirm the shutdown.

Stopping a server to quiescent gracefully

Objective
To stop an Informix server to the quiescent state gracefully.

Background information
This task takes the database server to the Quiescent state. This task allows any running processes using the database to finish but does not allow new connections to the database server. When all processes finish, the database server goes into the Quiescent state and leaves the shared online memory intact.

This task is the equivalent of the Informix onmode –sy command. See your Informix documentation for detailed information on Informix commands.

Required authorization role
IBMInformix_admin

Before you begin
None

When you finish
None
**Procedure**

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

**Command line:** Use the command line to stop a server to **Quiescent** gracefully with the `wruntask` command. The CLI syntax is as follows:

```
wruntask [-t TaskName] [-l LibraryName] [-h EndpointName] [-m TimeOut]
```

where:

- `-t TaskName`  
The name of the task.

- `-l LibraryName`  
The name of the library in which the task resides.

- `-h EndpointName`  
The name of the endpoint on which to run the task.

- `-m TimeOut`  
The number of seconds this task runs without response before timing out.

For example, to do a shut down to quiescent gracefully of the server on endpoint `@IBMInformixServer:Informix@vision75_11` with a 600 second timeout, use the following command:

```
wruntask  
-t "Stop_to_Quiescent_(Gracefully)"  
-l "IBM Informix Server Tasks"  
-h @IBMInformixServer:Informix@vision75_11  
-m 600
```

For more information about the `wruntask` command, refer to the **Tivoli Management Framework Reference Manual**.

**Desktop:**

1. Double-click the policy region to display the **Policy Region** window.
2. Right-click the database icon.
3. Select the **Stop Gracefully** option from the pop-up menu.
4. Confirm the shutdown.

---

**Stopping a server to quiescent immediately**

**Objective**

To stop an Informix database to the quiescent state immediately from the Tivoli desktop.

**Background information**

This task takes the online database server to the **Quiescent** state without waiting for running processes to finish. The current transactions are rolled back and the user sessions are terminated.

This task is the equivalent of the Informix `onmode -uy` command. See your Informix documentation for detailed information on Informix commands.

**Required authorization role**

IBMInformix_admin
Before you begin
None

When you finish
None

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

Command line: Use the command line to stop a server to Quiescent immediately with the **wruntask** command. The CLI syntax is as follows:

```
wruntask [-t TaskName] [-l LibraryName] [-h EndpointName] [-m TimeOut]
```

where:
- **-t TaskName**
  The name of the task.
- **-l LibraryName**
  The name of the library in which the task resides.
- **-h EndpointName**
  The name of the endpoint on which to run the task.
- **-m TimeOut**
  The number of seconds this task runs without response before timing out.

For example, to do a shut down to quiescent immediately of the server on endpoint @IBMInformixServer:Informix@vision75_11 with a 600 second timeout, use the following command:

```
wruntask -t "Stop_to_Quiescent_(Immediately)" -l "IBM Informix Server Tasks" -h @IBMInformixServer:Informix@vision75_11 -m 600
```

For more information about the **wruntask** command, refer to the *Tivoli Management Framework Reference Manual*.

Desktop: Use the following steps to stop a database to Quiescent immediately:
1. From the Tivoli desktop, double-click the policy region that contains the database. This displays the **Policy Region** window.
2. Right-click the database icon to display the icon’s pop-up menu.
3. Select the **Stop Immediately** option from the pop-up menu.
4. Confirm the shutdown.
Chapter 6. Working with tasks and jobs

A task is an action that must be routinely performed on selected IBM InformixServer throughout the network. A task defines the executables to be run, the authorization role required to execute the task, and the user or group name under which the task executes. The product provides tasks in the IBM Informix Server Tasks task library. Standard tasks run on any machine without consideration of platform type. When you run tasks from the IBM Informix Server Tasks task library from the desktop, only valid targets are displayed.

A customized task is a standard task with defined arguments saved in the task library with a unique name. For example, you can customize a task to save task output results to a file after each execution. Because you can customize task arguments, the Tivoli environment does not display argument dialogs when you run the task from the desktop. However, if you run a customized task from the command line, you still must specify the task arguments. Running a customized task requires additional information before it runs, such as the target of the execution.

A job is a task with defined and saved arguments that can be executed many times on specific managed resources. You can create jobs from both standard and customized tasks in the product task library. Like tasks, you store jobs in task libraries so you can reuse them. After you create a job, you can run it immediately using the procedure described in “Running a job” on page 56. You also can schedule jobs to run at certain times in the Scheduler, as described in “Scheduling a job” on page 57.

Table 8 shows the options to manage tasks and jobs.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Running a task to perform a specific operation.</td>
<td>“Running a task” on page 48</td>
</tr>
<tr>
<td>2. Defining a standard task with specific arguments to customize the task.</td>
<td>“Customizing a task” on page 51</td>
</tr>
<tr>
<td>3. Creating a job from a task so that it can be scheduled to run.</td>
<td>“Creating a job” on page 52</td>
</tr>
<tr>
<td>4. Running a job with predefined arguments.</td>
<td>“Running a job” on page 56</td>
</tr>
<tr>
<td>5. Scheduling jobs to run at specified times.</td>
<td>“Scheduling a job” on page 57</td>
</tr>
</tbody>
</table>

The installation process installs the IBM Informix Server Tasks task library in the Monitoring for IBM Informix policy region. We recommend that you do not remove the task library from this policy region. The task library contains default policies that affect how the task library works.

The policy region containing the task library defines task and job policies. Default policies set profile manager options and limit the execution of tasks to the appropriate targets. Validation policies control the creation and execution of tasks.
Running a task

Objective
Perform a routine action on a selected managed node.

Background information
A task is an action that must be routinely performed on selected resources throughout the network. A task defines the executables to be run, the authorization role required to execute the task, and the user or group name under which the task is run. The product provides standard tasks in a task library. Standard tasks run on any machine without consideration of platform type.

Required authorization roles
IBMInformix_admin

Before you begin
None.

When you finish
None.

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

Command line: Use the wruntask command to run a task. Because not all users use the same task library, the documentation for the wruntask command does not provide information for specific tasks. See the “CLI (command line interface) syntax” and “CLI example” sections in the IBM Tivoli Monitoring for Databases: Informix Reference Guide. The “CLI example” section provides an example of how to enter the wruntask command and the task arguments at the command line.

For more information about the wruntask command, see the Tivoli Framework Management Reference Manual.

Desktop:
1. Open the task library window by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to display the policy region.
   c. Double-click the IBM Informix Server Tasks library icon to display the IBM Informix Server Tasks library window.
2. Double-click the task icon that you want to run to display the **Execute Task** dialog box.

   *Additional Information:* The **Execute Task** dialog box is a generic dialog box of execution parameters for all tasks.

![Execute Task Dialog Box](image)

3. Click one of the following check boxes in the **Execution Mode** group box:
   - **Parallel** runs the task simultaneously on all targets. Parallel is typically the fastest method of execution.
   - OR—
   - **Serial** runs the task sequentially on all targets in alphabetical order.
   - OR—
   - **Staged** runs the task on all targets in alphabetical order according to a schedule you specify. Staged execution is useful if you run the task on a large number of targets. Specify the **Staging Count** (number of targets to run against for each stage) and the **Staging Interval** (number of seconds between each set).

4. Type a timeout value (in seconds) for the task in the **Timeout** text box.

   *Additional Information:* The **Timeout** value does not stop the task. This value specifies the number of seconds the desktop waits for the task to complete before it issues an error. The task continues to execute on the selected target without display of output results. Setting an early timeout enables your desktop to become available again if the task takes a long time to execute. The

---

Chapter 6. Working with tasks and jobs
default is 60 seconds. If the task takes longer to complete than the specified **Timeout** and is running in **Serial** or **Staged** mode, the product moves on to other targets after this time expires.

5. Click one or more of the following check boxes in the **Output Format** group box to choose the output returned upon task completion:

   - **Header**
     Includes a descriptive header for each record, such as the task name and target.

   - **Return Code**
     Includes the programming codes produced when the task executes.

   - **Standard Error**
     Includes all error messages encountered when the task executes.

   - **Standard Output**
     Includes all information that results from the task execution.

6. Select one of the following in the **Output Destination** group box to choose an output destination:
   - Click **Display on Desktop** to display the task output on the desktop.
     
     Additional Information: If you choose **Display on Desktop**, you have an option to save the information to a file as an option inside the output display window.
   
   —OR—
   
   - Click **Save to File** to save the output to a file.

To save the task output to a file, do the following:

a. Click the **Save to File** check box in the **Output Destination** group box to display the **Destination for Task Output** dialog box.

b. Type the name of the endpoint on which to save the output in the **On Host** text box.

   Additional Information: The endpoint must be a Tivoli client.

c. Type the absolute path name for the output file in the **Output File** text box.

   Additional Information: Example: `/tmp/mytask.out`

d. Click **Set & Close** to set your choices and return to the **Execute Task** dialog box.

7. Choose the targets on which you want to run the task by doing one of the following:
   - Run the task on specific targets by doing the following:
     a. Select the targets from the **Available Task Endpoints** list.
     b. Click the left arrow button to move the selected targets to the **Selected Task Endpoints** list.

   —OR—

   - Run the task on all subscribers of the specified profile managers by doing the following:
     a. Select profile managers from the **Available Profile Managers** list.
     b. Click the left arrow button to move the selected profile managers to the **Selected Profile Managers** list.

8. Click **Execute** to run the task.

   —OR—
Customizing a task

Objective
To customize one of the standard tasks in the task library so you can save defined arguments for future executions.

Background information
A customized task is a standard task with defined arguments saved in the task library with a unique name. For example, you can customize a task to save task output results to a file after each execution. Because you can customize task arguments, the Tivoli environment does not display argument dialogs when you run the task from the desktop. However, if you run a customized task from the command line, you still must specify the task arguments. Running a customized task requires additional information before it runs, such as the target of the execution.

Required authorization roles
admin

Before you begin
None.

When you finish
You can run the task by following the procedure in “Running a task” on page 48. When you run a customized task, the Tivoli desktop does not display the task argument dialog.

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

1. Open the task library window by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to display the policy region.
   c. Double-click the product Task icon to display the task library window.

2. Double-click a task icon to display the Execute Task window for that task.
   Additional Information: The Execute Task window is a generic dialog box of execution parameters for all tasks. Complete this dialog box to run the task as described in “Running a task” on page 48.

3. Click Execute to run the task.
   —OR—
   a. Fill in the task argument dialog.
      Additional Information: For information about how to fill in the task argument dialog, refer to the task description in the product reference guide or click Task Description to display the online help.
   b. Click Save to display the Save Argument dialog box.
      Type the following information to define the customized task:
      1) Type a name for the task in the Name text box.
Creating a job

Objective
To create a job by defining execution parameters so you can specify a target enabling you to schedule it to run at certain times in the Scheduler.

Background information
A job is a task with defined and saved arguments that can be executed many times on specific managed resources. You can create jobs from both standard and customized tasks in the product task library. Like tasks, you store jobs in task libraries so you can reuse them.

Required authorization roles
admin (Tivoli)

Before you begin
None.

When you finish
After you create a job, you can run it immediately using the procedure described in "Running a job" on page 56. You also can schedule jobs to run at certain times in the Scheduler, as described in "Scheduling a job" on page 57.

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

Command line: Use the wcrtjob command to create jobs from the command line.
For more information about this command, see the Tivoli Framework Management
Reference Manual. The syntax is as follows:

```
wcrtjob -j job_name -l library_name -t task_name -M mode [-s interval -n number]
-m timeout -o output_format [-D|--d mannode_name -f file_name] [-h mannode_name]
[-p prof_manager_name]
```

where:

- `–j job_name`
  The name of the job being created. Job names can include any
  alphanumeric character, an underscore (_), a dash (–), a period (.), and a
  space.

- `–l library_name`
  Specifies the task library containing the task to be included in the job.

- `–t task_name`
  Specifies the name of the task to include in the job.

- `–M mode`
  Specifies the mode in which the job runs. Valid options are as follows:

  parallel
  Runs the job on all specified endpoints and any subscribers
  simultaneously.

  serial
  Runs the job on one endpoint at a time.

  staged
  Runs the job on a set number of endpoints at specified intervals.

- `–m timeout`
  Specifies the number of seconds that the task library waits for results to be
  returned from the task. This option does not affect the execution of the job.
  If you are using staged mode, the timeout must be smaller than the
  interval time.

- `–o output_format`
  Defines the format of the job output. The job output contains a summary
  of the job on each managed node. Task execution output format is
  specified with an octal number from 0 to 17. The format is constructed by
  adding the value of the desired output. For example, to print the task’s
  return code and standard output, enter `–o 12`. Output values are as
  follows:

  01  Prints a descriptive header for each record
  02  Prints the task’s return code
  04  Prints the standard error output
  10  Prints the standard output

- `–D`
  Displays the job output to the screen.

- `–d hostname` and `–f file_name`
  Specifies the host system and file name in which to save the job output.
—h task_endpoint
    Specifies the endpoint on which to run the job.

—p prof_manager_name
    Specifies the profile managers on which the job runs.

Desktop:
1. Access the task library window by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to display the policy region.
   c. Double-click the task library icon to display the task library window.
2. Click Create to display the Create drop-down menu.
3. Click Job from the Create drop-down menu to display the Create Job dialog box.
4. Type a descriptive job name in the Job Name text box.
**Additional Information:** The job name identifies the icon on the desktop. The name can include any alphanumeric character, an underscore (_), dash (–), period (.), or blank space.

5. Select the task on which the job is based from the **Task Name** list.

6. In the **Execution Mode** group box, select one of the following check boxes:

   **Parallel**
   
   Runs the task simultaneously on all targets. Parallel is typically the fastest method of execution.

   —OR—

   **Serial**
   
   Runs the task sequentially on all targets in alphabetical order.

   —OR—

   **Staged**
   
   Runs the task on all targets in alphabetical order according to a schedule you specify. Staged execution is useful if you are running the task on a large number of targets. Complete Step 8 to specify the **Staging Count** (number of targets to run against per stage) and the **Staging Interval** (number of seconds between each set).

7. In the **Execution Parameters** group box, type the timeout value (in seconds) for the task in the **Timeout** text box.

   **Additional Information:** This value specifies the number of seconds the product waits for the task or job to complete before it issues an error. The default is 60 seconds. If the task takes longer to complete than the specified **Timeout** and is running in **Serial** or **Staged** mode, the product moves on to other target sets after this time expires. The task continues to execute on the target, even though the product stopped waiting for it to end.

8. **Optional:** If you selected **Staged** in Step 6, specify the number of targets to include in each staged set in the **Staging Count** text box and the number of seconds between each set’s startup time in the **Staging Interval** text box.

9. Click one or more of the following check boxes to choose the output type in the **Output Format** group box:

   **Header**
   
   Includes a descriptive header for each record.

   **Return Code**
   
   Includes the programming codes produced when the job executes.

   **Standard Error**
   
   Includes all error messages encountered when the job executes.

   **Standard Output**
   
   Includes all information that results from the job execution.

10. Do one of the following in the **Output Destination** group box to choose an output destination:

    - Click **Display on Desktop** to display the job output on the desktop. Go to Step 12.

      **Additional Information:** If you choose **Display to Desktop**, you have an option to save the information to a file as an option inside the output display window.

    —OR—

    - Click **Save to File** to save the output to a file and display the **Destination for Task Output** dialog box. Go to Step 11.
11. Do the following in the **Destination for Task Output** dialog box to save the job output to a file:

   a. Type a Tivoli client endpoint name on which to save the output in the **On Host** text box.
   
   b. Type the absolute path name for the output file in the **Output File** text box.

   **Additional Information:** Example: /tmp/myjob.out

   c. Click **Set & Close** to set your choices and return to the **Create Job** dialog box.

12. Do one of the following to choose the resources on which to run the job:

   - Run the job on specific resource by doing the following:
     
     a. Select the targets from the **Available Task Endpoints** list.
     
     b. Click the left arrow button to move the selected targets to the **Selected Task Endpoints** list.

   - OR -

   - Run the job on all subscribers of the specified profile managers by doing the following:
     
     a. Select profile managers from the **Available Profile Managers** list.
     
     b. Click the left arrow button to move the selected profile managers to the **Selected Profile Managers** list.

13. Click **Create & Close** to create the job and return to the **Task Library** window.

   **Additional Information:** The new job icon appears in the **Task Library** window.

---

**Running a job**

**Objective**
To execute a job on specific resources immediately so you can perform a management operation.

**Background information**
Before you can run a job, you must create it, as described in “Creating a job” on page 52.

If you created a job from a standard task, the Tivoli desktop displays the task argument dialog so that you can fill in any required information.

Jobs created from customized tasks run without further input because all required information is specified. (See “Customizing a task” on page 51 for information about how to create a customized task.)

**Required authorization roles**
IBMInformix_admin

**Before you begin**
None.

**When you finish**
After you create a job, you can set it up to run on a regular schedule as described in “Scheduling a job” on page 57.

**Procedure**
You can perform this procedure from either the Tivoli command line or the desktop.
Command line: Use the wrunjob command to run jobs from the command line. For more information about this command, see the Tivoli Management Framework Reference Manual.

Desktop:
1. Open the task library window by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to display the policy region.
   c. Double-click the task icon to display the task library window.
2. Do one of the following:
   • Double-click the job icon created from a customized task to begin executing the job.
   – OR –
   • Double-click the job icon created from a standard task. Go to Step 3.
3. Type the values in the task dialog box.

Additional Information: For information about specific fields, see the task description in the product reference guide or click Task Description to display the online help. The product runs the job and displays the output on the desktop or sends it to a file in accordance with the job specification.

Scheduling a job

Objective
To schedule jobs to occur regularly so you can routinely perform management operations.

Background information
The product uses Scheduler to schedule jobs. Scheduler is a service that enables you to run jobs unattended. You can schedule a job to run one time or multiple times. Scheduler notifies you by the manner you select when a job is complete. To schedule a job, the job must exist in the task library. You create a job by following the procedure described in "Creating a job" on page 52

Required authorization roles
IBMInformix_admin

Before you begin
None.

When you finish
None.

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

Command Line: Use the wschedjob command to schedule a job in the Task Library from the command line. You can only schedule jobs that already exist in the task library from the command line. For more information, see the Tivoli Management Framework Reference Manual.

Desktop:
1. Open the product task library window by doing the following:
   a. Open the Tivoli desktop.
b. Double-click the product policy region icon to display the policy region.
c. Double-click the product task library icon to display the task library window.

2. Drag the job icon that you want to schedule onto the Scheduler icon located on the Tivoli desktop.

3. Optional: Do the following if a task argument dialog box displays:
   a. Type the appropriate information for each field in the dialog.
      Additional Information: Refer to the task description in the product reference guide or click Task Description to display the online help for this task.
   b. Click Set & Execute to set the task arguments and open the Add Scheduled Job dialog box.

4. Type a label for the job icon in the Job Label text box of the Add Scheduled Job dialog box.
   Additional Information: The label identifies the icon on the desktop. The job label can include alphanumeric character, underscores (_), dashes (-), periods (.), and blanks. If you do not specify a label, the job name is used.
5. Do one of the following:
   • Select the **The Disable the Job** check box to stop a scheduled job from running.
   —OR—
   • Deselect the **The Disable the Job** check box to continue running a scheduled job.

*Additional Information:* For more information on job disabling, see the *Tivoli Environment Framework User’s Guide.*

6. **Optional:** Type a job description to uniquely identify the job in the **Description** field.

7. Set the date and time to begin scheduling in the **Schedule Job For** group box:
   a. Type a date in the **Month**, **Day**, and **Year** text boxes.
   b. Enter the time using the **Hour** and **Minute** drop-down lists and the **AM** and **PM** radio buttons.

8. **Optional:** Repeat the job by doing the following in the **Repeat the Job** group box:
   a. Do one of the following:
      • Select the **Repeat the job indefinitely** check box to repeat the job indefinitely.
      —OR—
      • Repeat the job a finite number of times by doing the following:
        1) Select the **Repeat the job** check box.
        2) Type the number of times you want the job to run.
   b. Set the interval between start times for the job in the **The job should start every** field.

9. Click any of the following check boxes in the **When Job Completes** group box to send job completion notification:
   • Send a notice to a specific group by doing the following:
     a. Click the **Post Tivoli Notice** check box.
     b. Click **Available Groups** to display the **Available Groups** dialog box.
     c. Select a group from the list of notice groups.
     d. Click **Set** to set your group and return to the **Add Scheduled Job** dialog box.

*Additional Information:* You can read notices from the Tivoli desktop by clicking on the **Notices** icon.
   • Send a notice to your desktop by doing the following:
     a. Click the **Post Status Dialog on Desktop** check box.
     b. Type the message you want displayed in the text box next to the check box.
   • Send an email to a specified user by doing the following:
     a. Click the **Send e-mail to** check box.
     b. Type the complete e-mail address in the text box next to the check box.
   • Log the job completion status to a file by doing the following:
     a. Click the **Log to File** check box.
     b. Enter the file destination by doing one of the following:
        – Type the file destination in the **Host** and **File** text boxes.
Browse for the file destination by doing the following:

1. Click File Browser to display the File Browser dialog.
2. Double-click on a host name to display the directories and files for that host.
3. Select a directory and file from the Directories and Files lists.
4. Click Set File & Close to return to the Add Scheduled Job dialog box.

10. Optional: Set retry, cancel, or restriction options by doing the following:
   a. Click Set Retry/Cancel/Restriction Options to display the Set Retry/Cancel Restrictions Options dialog box.

   ![Set Retry/Cancel/Restriction Options Dialog]

   b. Choose one of the following cancel job options:
      - Deselect the Cancel job check box to have the Scheduler continue trying the job indefinitely.
        —OR—
      - Set the Scheduler to cancel a job in a specified time frame by doing the following:
        1) Select the Cancel job check box.
        2) Type the time frame for the Scheduler to wait before canceling a job that has not started.

   c. Click one of the following retry options:
      - Click Retry the job until success to retry the job until it runs successfully.
        —OR—
      - Specify the number of times a job attempts to run by doing the following:
        1) Click the Retry the job check box.
2) Type the number of attempts to start the job in the text box.

3) Type the amount of time the Scheduler waits before retrying in the The job should retry every field.

d. Click any of the following check boxes in the Restrictions group box to specify the job run times:

   During the day
   Set the beginning and ending hour of day for the job to run.

   At night
   Set the beginning and ending hour of night for the job to run.

   During the week
   Set the beginning and ending day of the week for the job to run.

   On weekends
   Set the beginning and ending day of the weekend for the job to run.

e. Click Set to set the options and return to the Add Scheduled Job dialog box.

11. Click Schedule Job & Close to schedule the job and return to the Tivoli desktop.
Chapter 7. Viewing resource model results with the IBM Tivoli Web Health Console

This chapter provides an overview of the IBM Tivoli Monitoring Web Health Console. For complete information on installing and working with the IBM Tivoli Monitoring Web Health Console see the latest version of the IBM Tivoli Monitoring User’s Guide. The IBM Tivoli Monitoring Web Health Console runs on Netscape 6.x and Internet Explorer 6.x. You can use the IBM Tivoli Monitoring Web Health Console for the following purposes:

- Checking, displaying, and analyzing the status and health of endpoints that have distributed resource monitors
- Displaying an endpoint’s real-time and historical data logged to the IBM Tivoli Monitoring database
- Viewing online and historical data on endpoints as a follow-up to specific problems
- Starting and stopping the IBM Tivoli Monitoring engine and individual resource models on selected endpoint
- Removing a profile from the selected endpoint

You can use the IBM Tivoli Monitoring Web Health Console to check, display, and analyze the status and health of any endpoint with profiles and resource models. Status reflects the state of the endpoint displayed on the IBM Tivoli Monitoring Web Health Console, such as running or stopped. Health is a numeric value determined by resource model settings. You can also use the Web Health Console to work with real-time or historical data from an endpoint that is logged to the IBM Tivoli Monitoring database.

You can use the diagnostic and monitoring capabilities of the IBM Tivoli Monitoring Web Health Console to perform targeted analysis of problems associated with individual endpoints when an event is sent to the Tivoli Enterprise Console. Use the online and historical data to follow up specific problems with single endpoints.

Understanding resource health

The IBM Tivoli Monitoring Web Health Console obtains events and indications from endpoints. The IBM Tivoli Monitoring Web Health Console displays the health of each potential problem as a numeric value between 100 (perfect health) and zero (with zero meaning that the conditions for the corresponding event are met). Intermediate values show the percentage of occurrences currently registered with respect to the total number of occurrences needed to trigger an event. See Table 9.

<table>
<thead>
<tr>
<th>Cycle</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU%</td>
<td>55</td>
<td>73</td>
<td>54</td>
<td>63</td>
<td>68</td>
</tr>
<tr>
<td>Occurrences or Holes</td>
<td>H</td>
<td>O</td>
<td>H</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Occurrence Count</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Health %</td>
<td>100</td>
<td>75</td>
<td>75</td>
<td>50</td>
<td>25</td>
</tr>
</tbody>
</table>
Table 9 on page 63 displays the health percentage changes in steps of 25% because 4 occurrences were required to trigger an event; if the indication required 5 occurrences, the health percentage would have changed by steps of 20%. Resource health is determined at the indication level and passed up to the endpoint. The lowest health of any indication in a resource model is shown as the health of that resource model and the lowest health of any resource model installed on an endpoint is shown as the health of that endpoint. For example, if one indication on one resource model that is installed on an endpoint has a health of zero, the health of the endpoint is shown as zero. The required occurrences, cycle times, thresholds, and parameters for indications are defined when the resource model is created in the IBM Tivoli Monitoring Workbench.

Connecting the IBM Tivoli Monitoring Web Health Console

You can connect the IBM Tivoli Monitoring Web Health Console to any Tivoli management region server or managed node and configure it to monitor any or all of the endpoints that are found in that region. The IBM Tivoli Monitoring Web Health Console does not have to be within the region itself, although it could be. To connect to the IBM Tivoli Monitoring Web Health Console you need access to the server on which the IBM Tivoli Monitoring Web Health Console server is installed and the IBM Tivoli Managed Region on which you want to monitor health. All user management and security is handled through the IBM Tivoli management environment. This includes creating users and passwords as well as assigning authority.
Chapter 8. Working with resource models

This chapter provides an overview of IBM Tivoli Monitoring procedures you need to follow to customize resource models.

Overview of IBM Tivoli Monitoring

IBM® Tivoli® Monitoring 5.1.1 allows you deploy preconfigured best practices resource models as well as standard and customized resource models to automate the monitoring of essential resources. In this context, a resource is anything that affects the operation of a computer system and includes physical and logical disks, CPUs, memory, printers, as well as the processes running, and the services, such as LanMan, the Windows event log, the UNIX syslogd (logging system daemon) and TCP/IP. This allows you to detect bottlenecks and other potential problems and define automatic recovery from critical situations. This ability frees system administrators from manually scanning extensive performance data. The monitoring software integrates with other Tivoli Availability solutions, including Tivoli Business Systems Manager®, Tivoli Enterprise Console®, and Tivoli Enterprise Data Warehouse®.

A resource model captures and returns information, such as database status or server availability, about a resource or software application in the Tivoli management environment. To use a resource model, you must define and distribute it to a resource.

Tivoli provides tools for organizing system resources on the Tivoli desktop. A profile manager is the top level of organization. Servers are subscribed to profile managers. These subscriptions provide the channel through which resource models are distributed to servers. A profile manager also can contains profiles, which are containers for application-specific information about a particular type of resource. Each profile contains one or more resource models. You can subscribe resources to a pre-defined profile manager. You can distribute individual profiles within the profile manager to subscribers of the profile manager. You can group profile managers in a way that meets your needs. Profile managers can reflect functional grouping of resources, functional grouping of resource models, or any grouping at all. Likewise, a profile can contain any combination of resource models.

You must segregate profiles according to resources: Web servers need Web server resource models, and database servers need database server resource models. You can define each resource model to include information such as how often to check the server resource status and what to do when certain conditions are met. Some resource models provide predefined settings and response actions, which you can adjust. Other resource models require you to define all the settings. See the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for a description of individual settings.

Before running a resource model, you must subscribe the server resource to the profile manager that contains the profile in which the resource model is stored. You can distribute the profile to the resource. By default, resource models are set up to become active when you distribute them to subscribers. You can activate and deactivate resource models after they are distributed.
Adding custom resource models to profiles

Objective
To specify the category, cycle time, and threshold values that customize a resource model to meet the needs of your environment and add the resource model to a profile.

Background information
A resource model captures and returns information about a resource or application. You set up resource models and distributed them to IBM Informix Server instance. A number of predefined resource models are installed with the product. To customize their basic settings, specify the category, cycle time, and threshold values appropriate for your environment. You can also edit the values of the resource model indications and parameters and set scheduling and change the logging setting before adding the resource model. Each resource model monitors a different resource. Choose the resource models to add to a profile based on the resources you want to monitor. Adding one or more of these resource models to a profile enables you to begin monitoring resources immediately.

Put all of the resource monitors that you want to distribute to the same resource in a single profile because the distribution occurs at the individual profile level.

Note: Each resource model can have only one configuration in a profile. You can run the same resource model with different configurations by setting up the resource model in an additional profile. In other words, multiple configurations of a resource model require multiple profiles.

Required authorization role
admin

Before you begin
• Create a profile manager and profile. See “Creating profile managers and profiles” on page 26 for information.
• Add subscribers to a profile manager. See “Subscribing resources to profile managers” on page 28 for information.
• See the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for detailed information about each resource model.

When you finish
Distribute the profile. See “Distributing profiles from the desktop” on page 30.

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

Command line: Use the wdmeditprf command to add a customized resource model to a profile.

For additional information about these commands, see the Tivoli Management Framework Reference Manual

Desktop:
1. Open the IBM Tivoli Monitoring Profile dialog box by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to open the policy region.
c. Double-click the profile manager icon to open the **Profile Manager** dialog box.

d. Double-click the profile icon to which you want to add a customized resource model.

2. Click **Add** to open the **Add Resource Models to Profile** dialog box.

3. Select the resource model category from the **Category** drop-down list.

4. Select the desired resource model from the **Resource Model** drop-down list.

5. Set the frequency with which the resource model monitors the data in the **Cycle Time** text box. Enter a time in seconds.

6. Use the following steps to change any of the threshold values:

   a. Select the **Threshold Name** that you want to change.

      **Additional Information:** The description box displays a description of the threshold that you selected. A dialog box above the description displays the currently assigned threshold value. For the default threshold values see the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide.

   b. Change the currently assigned threshold value to a value appropriate to your requirements.

   c. Click **Apply** to set and display the new value in the **Threshold Value** dialog box.

7. **Optional:** Click **Indications** or **Parameters** to make required modifications to indications and parameters and click **Schedule** to add schedule information.

   **Additional information:** If you do not perform this step, the indications and parameters use the default values shipped with the resource models. See "Customizing indications" on page 77 and "Customizing the scheduling monitoring period" on page 80 for information.

8. Click **Add & Close** to save your changes. The **IBM Tivoli Monitoring Profile** dialog box now shows the customized resource model.

---

**Customizing indications**

**Objective**

To customize indication rules so that resources are monitored and events generated in the manor most appropriate to your environment.

**Background information**

Each resource model triggers an **indication** if certain conditions defined by the resource model’s thresholds are not satisfied during the monitoring cycle. Each resource model has predefined thresholds that meet the business needs of most customers; however, you may have specific requirements for which these thresholds are not appropriate; therefore, you can adjust these values as needed.

An **event** is used to verify the persistence of a given indication by eliminating unrepresentative peaks and troughs for the indication. For example, a process that generates the Process High CPU indication in one cycle is behaving perfectly normally, and is of no threat to other processes if the high usage does not repeat. However, an indication that persists over several cycles is a problem. Thus, an event defines the number of consecutive occurrences of the indication that are significant.

An **occurrence** refers to a cycle during which an indication occurs for a given resource model.
A hole refers to a cycle during which an indication does not occur for a given resource model. In other words, none of the conditions specified for the generation of any indication are met. This does not mean that none of the thresholds are exceeded.

**Required authorization role**

admin

**Before you begin**

- Create a profile manager and profile. See “Creating profile managers and profiles” on page 26 for information.
- Add subscribers to a profile manager. See “Subscribing resources to profile managers” on page 28 for information.
- Add a resource model to a profile. See “Adding default resource models to profiles” on page 29 and “Adding custom resource models to profiles” on page 66 for information.
- See the *IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide* for detailed information about each resource model.

**When you finish**

Distribute the profile to which the resource model belongs. See “Distributing profiles from the desktop” on page 30.

**Optional:** Continue customizing the resource model:

- Specify if you want a recovery action when a specific event occurs. See “Editing a built-in action” on page 72.
- Specify if you want corrective or reporting tasks for an event. See “Specifying tasks for an event” on page 74.
- Specify if you want to receive information on a specific event through a notice. See “Sending a notice to administrators when an event occurs” on page 75.
- Specify if you want to customize your parameters to optimize the monitoring process. See “Customizing parameters” on page 77.
- Specify if you want the monitoring of resource models to take place on specific time periods of selected days. See “Creating scheduling rules” on page 78.
- Determine when the monitoring of resource models takes place. See “Customizing the scheduling monitoring period” on page 80.
- Specify if you want the log data collected by a resource model written to a local database. See “Customizing data logging information” on page 82.

**Procedure**

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

**Command line:** Use the `wdmeditprf` command to customize a resource model for a profile.

For more information about this command, see the *IBM Tivoli Monitoring, Version 5.1.0: User’s Guide*.

**Desktop:**

1. Open the IBM Tivoli Monitoring Profile dialog box by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to display the policy region.
c. Double-click the profile manager icon to display the profile manager.

d. Double-click the profile icon in which you want to customize a resource model.

2. Select the resource model that you want to customize from the IBM Tivoli Monitoring Profile dialog box.

3. Click Edit to open the Edit Resource Model dialog.

4. Click Indications. The Indications and Actions dialog box opens and displays the indications appropriate to the selected resource model.

5. Select the indication for which you want to customize the values of the event associated with that indication.

6. Apply the changes to the values that are appropriate to your requirements. See the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for the default resource model settings. The following describes the values that you can customize:

**Number of Occurrences**

Specifies the number of consecutive times the problem occurs before the software generates an indication. You can change this value to specify the number of times a problem occurs before an indication generates.

**Number of Holes**

Determines how many cycles that do not produce an indication can occur between cycles that do produce an indication. This determines if the occurrences of an indication are consecutive. Each cycle without an indication is termed a hole. For example, an event that has a value of two holes means that when up to two cycles without an indication occur between any two cycles with an indication, the cycles with an indication are considered consecutive.

Use the value for the **Number of Holes** in conjunction with the **Number of Occurrences** parameter and the **Cycle Time** to define a time window for the generation of an event. If, for example, you define **Cycle Time** as 300 seconds, **Number of Occurrences** as 5, and **Number of Holes** as 2, the time that must elapse before an event occurs is between 1500 and 3900 seconds. The minimum elapsed time is the number of occurrences multiplied by the cycle time. The maximum time window assumes that the maximum number of holes occur between each pair of occurrences, and is determined by the following equation:

\[ TW = CT \times (Oc + (H \times (Oc - 1)) \]

where:

- \( TW \): Specifies the time window calculated
- \( CT \): Specifies the cycle time
- \( Oc \): Specifies the number of occurrences
- \( H \): Specifies the number of holes

**Send TEC Events**

Select this check box to send an event to the Tivoli Enterprise Console. You must have Tivoli Enterprise Console installed and configured.

**Send to TBSM**
Note: This box has no affect on IBM Tivoli Monitoring for Databases: Informix resource model behavior. IBM Tivoli Monitoring for Databases: Informix integrates with Tivoli Business Systems Manager through Tivoli Enterprise Console rules.

7. Click Apply Changes & Close to save your changes to the indication.

Adding or removing a built-in action

**Objective**

**Note:** IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix resource models do not use built-in actions.

To add a built-in action so administrators and users can reinstate an event’s recovery actions or to remove a built-in action so administrators and users can clear an event’s recovery actions.

**Background information**

A built-in action is a recovery action for an event. The actions take positive steps to remedy the situation, or ensure distribution of information about the event to the appropriate authorities or entities.

Tivoli software has predefined actions for certain events. An action is either the execution of a common information model (CIM) class method, or the execution of a program. For example, an event that detects the failure of a service has the restart of that service as its built-in action. IBM Tivoli Monitoring detects the failure of a service and automatically restarts it. Built-in actions are defined by default as part of an event when the resource model is created in the IBM Tivoli Monitoring Workbench. See the IBM Tivoli Monitoring documentation for more information.

**Required authorization role**

admin

**Before you begin**

- You must have previously removed a built-in action to activate the Built-In button for adding a built-in action. Use this procedure to reinstate the previously removed built-in action.
- Create a profile manager and profile. See “Creating profile managers and profiles” on page 26 for information.
- Add subscribers to a profile manager. See “Subscribing resources to profile managers” on page 28 for information.
- Add a resource model to a profile. See “Adding default resource models to profiles” on page 29 and “Adding custom resource models to profiles” on page 66 for information.
- See the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for detailed information about each resource model.

**When you finish**

Distribute the profile to which the resource model belongs. See “Distributing profiles from the desktop” on page 30.

Optional: Continue customizing the resource model:

- Specify if you want a recovery action when a specific event occurs. See “Editing a built-in action” on page 72.
• Specify if you want corrective or reporting tasks for an event. See “Specifying tasks for an event” on page 74.
• Specify if you want to receive information on a specific event through a notice. See “Sending a notice to administrators when an event occurs” on page 75.
• Specify if you want to customize your parameters to optimize the monitoring process. See “Customizing parameters” on page 77.
• Specify if you want the monitoring of resource models to take place on specific time periods of selected days. See “Creating scheduling rules” on page 78.
• Determine when the monitoring of resource models takes place. See “Customizing the scheduling monitoring period” on page 80.
• Specify if you want the log data collected by a resource model written to a local database. See “Customizing data logging information” on page 82.

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

Command line: Use the wdmeditprf command to customize a resource model for a profile.

For more information about this command, see the IBM Tivoli Monitoring, Version 5.1.0: User’s Guide.

Desktop:
1. Open the IBM Tivoli Monitoring Profile dialog box by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to display the policy region.
   c. Double-click the profile manager icon to display the profile manager.
   d. Double-click the profile icon in which you want to customize a resource model.
2. Select a resource model from the IBM Tivoli Monitoring Profile dialog box.
3. Click Edit to open the Edit Resource Model dialog box.
4. Click Indications. The Indications and Actions dialog box opens and displays the indications appropriate to the selected resource model.
5. Select the indication that has the associated events you want to add or remove.
6. Select the action from the Action List panel of the Indications and Actions dialog box.
7. Click Remove to remove the action from the list.
   — or —
   Click Built-in to open the Add Action dialog box.
   a. Select the action you want to run when an event occurs.
   b. Enter the number of times you want the action to perform when an indication generates an event in the Retry field.
   Additional information: If you set the Retry field to zero, the product continually tries to perform the action until the action is successful.
   c. Click one of the following buttons:
      Add  Adds the selected action with the values specified and keeps the Add Action dialog box open.
      Add & Close  Adds the selected action and closes the Add Action dialog box.
Click one of the following buttons:

**Apply Changes**
Saves the changes made to the built-in actions and leaves the **Indications and Actions** dialog box open.

**Apply Changes and Close**
Closes the **Indications and Actions** dialog box and saves the changes made to the built-in actions.

---

**Editing a built-in action**

**Objective**

**Note:** IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix resource models do not use built-in actions.

Specifies the number of times the software attempts to execute the built-in action when an event is generated.

**Background information**

A built-in action is a recovery action for an event. The actions take positive steps to remedy the situation, or ensures distribution of information about the event to the appropriate authorities or entities.

The Tivoli software has predefined actions for certain events. An action is either the execution of a common information model class method, or the execution of a program. For example, an event that detects the failure of a service has the restart of that service as its built-in action. IBM Tivoli Monitoring detects the failure of a service and automatically restarts it. Built-in actions are defined by default as part of an event when the resource model is created in the IBM Tivoli Monitoring Workbench. See the IBM Tivoli Monitoring documentation for more information. You can removing built-in actions from a resource model using the Tivoli desktop. See “Adding or removing a built-in action” on page 70.

**Required authorization role**

**admin**

**Before you begin**

- Create a profile manager and profile. See “Creating profile managers and profiles” on page 26 for information.
- Add subscribers to a profile manager. See “Subscribing resources to profile managers” on page 28 for information.
- Add a resource model to a profile. See “Adding default resource models to profiles” on page 29 and “Adding custom resource models to profiles” on page 66 for information.
- See the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for detailed information about each resource model.

**When you finish**

Distribute the profile to which the resource model belongs. See “Distributing profiles from the desktop” on page 30.

**Optional:** Continue customizing the resource model:
Specify if you want to customize your thresholds and events to optimize the monitoring process. See “Customizing indications” on page 67.

Specify if you want corrective or reporting tasks for an event. See “Specifying tasks for an event” on page 74.

Specify if you want to receive information on a specific event through a notice. See “Sending a notice to administrators when an event occurs” on page 75.

Specify if you want to customize your parameters to optimize the monitoring process. See “Customizing parameters” on page 77.

Specify if you want the monitoring of resource models to take place on specific time periods of selected days. See “Creating scheduling rules” on page 78.

Determine when the monitoring of resource models takes place. See “Customizing the scheduling monitoring period” on page 80.

Specify if you want the log data collected by a resource model written to a local database. See “Customizing data logging information” on page 82.

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

Command line: Use the wdmeditprf command to customize a resource model for a profile.

For more information about this command, see the IBM Tivoli Monitoring, Version 5.1.0: User’s Guide.

Desktop:
1. Open the IBM Tivoli Monitoring Profile dialog box by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to display the policy region.
   c. Double-click the profile manager icon to display the profile manager.
   d. Double-click the profile icon in which you want to customize a resource model.
2. Select a resource model from the IBM Tivoli Monitoring Profile dialog box.
3. Click Edit to open the Edit Resource Model dialog box.
4. Click Indications. The Indications and Actions dialog box opens and displays the indications appropriate to the selected resource model.
5. Select the indication that has the associated events you want to customize.
6. Select the action to edit from the Action List panel of the Indications and Actions dialog box.
7. Click Edit to open the Edit Current Action dialog box.
8. Enter the number of times you want the action to perform when an indication generates an event in the Retry field.
   *Additional information:* If you set the Retry field to zero, the product continually tries to perform the action until the action is successful.
9. Click Apply next to the Retry field to apply the changes.
10. Click one of the following buttons:
    - **Close** Closes the Edit Current Action dialog box and saves the original retry value.
Modify & Close
Closes the Edit Current Action dialog box and saves the modified retry value.

Specifying tasks for an event

Objective
To specify a task so administrators and users can determine corrective or reporting tasks for an event.

Background information
You can select one or more tasks to perform when an indication generates an event. You can select one or more tasks for each event. These tasks can access the IBM Tivoli Monitoring event name and thresholds by accessing the environment variables.

Required authorization role
admin

Before you begin
- Create a profile manager and profile. See "Creating profile managers and profiles" on page 26 for information.
- Add subscribers to a profile manager. See "Subscribing resources to profile managers" on page 28 for information.
- Add a resource model to a profile. See "Adding default resource models to profiles" on page 29 and "Adding custom resource models to profiles" on page 66 for information.
- See the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for detailed information about each resource model.

When you finish
Distribute the profile to which the resource model belongs. See "Distributing profiles from the desktop" on page 30.

Optional: Continue customizing the resource model:
- Specify if you want to customize your thresholds and events to optimize the monitoring process. See "Customizing indications" on page 67.
- Specify if you want a recovery action when a specific event occurs. See "Editing a built-in action" on page 72.
- Specify if you want to receive information on a specific event through a notice. See "Sending a notice to administrators when an event occurs" on page 75.
- Specify if you want to customize your parameters to optimize the monitoring process. See "Customizing parameters" on page 77.
- Specify if you want the monitoring of resource models to take place on specific time periods of selected days. See "Creating scheduling rules" on page 78.
- Determine when the monitoring of resource models takes place. See "Customizing the scheduling monitoring period" on page 80.
- Specify if you want the log data collected by a resource model written to a local database. See "Customizing data logging information" on page 82.

Procedure
You can perform this procedure from either the Tivoli command line or the desktop.
Command line: Use the `wdmeditprf` command to customize a resource model for a profile.

For more information about this command, see the IBM Tivoli Monitoring, Version 5.1.0: User’s Guide.

Desktop:
1. Open the IBM Tivoli Monitoring Profile dialog box by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to display the policy region.
   c. Double-click the profile manager icon to display the profile manager.
   d. Double-click the profile icon in which you want to customize a resource model.
2. Select the resource model that you want to customize.
3. Click Edit to open the Edit Resource Model dialog box.
4. Click Indications. The Indications and Actions dialog box opens and displays the indications appropriate to the selected resource model.
5. Select the indication that you want to generate a task from the Indications and Actions dialog box.
6. Click the Tasks button in the Action List dialog box. The Tasks dialog box opens.
7. Double-click the appropriate task library from the scroll list of the Libraries panel. The tasks contained in the library are displayed in the Tasks panel.
8. Double-click the appropriate task in the Tasks panel.
9. Specify the appropriate parameters in the Configure Task dialog box.
   Additional Information: Run the `wlsnotif -g` command to see the available Notice Groups.
10. Click Change & Close to add the task to the Action List panel in the Indications and Actions dialog box.

Sending a notice to administrators when an event occurs

Objective
To send a notice in response to an event so administrators can take the appropriate actions or responses.

Background information
You can select the IBM Tivoli Monitoring Utility task to send notices in response to an event.

For more information see the IBM Tivoli Monitoring User’s Guide.

Required authorization role
admin

Before you begin
- Create a profile manager and profile. See "Creating profile managers and profiles" on page 26 for information.
- Add subscribers to a profile manager. See "Subscribing resources to profile managers" on page 28 for information.
• Add a resource model to a profile. See “Adding default resource models to profiles” on page 29 and “Adding custom resource models to profiles” on page 66 for information.

• See the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for detailed information about each resource model.

When you finish
Distribute the profile to which the resource model belongs. See “Distributing profiles from the desktop” on page 30.

Optional: Continue customizing the resource model:
• Specify if you want to customize your thresholds and events to optimize the monitoring process. See “Customizing indications” on page 67.
• Specify if you want a recovery action when a specific event occurs. See “Editing a built-in action” on page 72.
• Specify if you want corrective or reporting tasks for an event. See “Specifying tasks for an event” on page 74.
• Specify if you want to customize your parameters to optimize the monitoring process. See “Customizing parameters” on page 77.
• Specify if you want the monitoring of resource models to take place on specific time periods of selected days. See “Creating scheduling rules” on page 78.
• Determine when the monitoring of resource models takes place. See “Customizing the scheduling monitoring period” on page 80.
• Specify if you want the log data collected by a resource model written to a local database. See “Customizing data logging information” on page 82.

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

Command line: Use the wdmeditprf command to customize a resource model for a profile.

For more information about this command, see the IBM Tivoli Monitoring, Version 5.1.0: User’s Guide.

Desktop:
1. Open the IBM Tivoli Monitoring Profile dialog box by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to display the policy region.
   c. Double-click the profile manager icon to display the profile manager.
   d. Double-click the profile icon in which you want to customize a resource model.
2. Select the resource model that you want to customize.
3. Click Edit to open the Edit Resource Model dialog box.
4. Click Indications. The Indications and Actions dialog box opens and displays the indications appropriate to the selected resource model.
5. Select the indication that you want to generate a task from the Indications and Actions dialog box.
6. Click Tasks in the Action List dialog box. The Tasks dialog box opens.
7. Double-click the IBM Tivoli Monitoring Utility Tasks library in the scroll list of the Libraries panel. The tasks contained in the IBM Tivoli Monitoring Utility Tasks library are displayed in the Tasks panel.


9. Specify the appropriate parameters in the Configure Task dialog box. Additional Information: Run the wlsnotif -g command to see the available Notice Groups.

10. Click Change & Close to add the task to the Action List panel in the Indications and Actions dialog box.

Customizing parameters

Objective
To customize the parameters of a resource model so administrators and users can optimize the monitoring process.

Background information
Some resource models have one or more parameters. For IBM Tivoli Monitoring for Databases: Informix each parameter is a choice list from which you can enable or disable the associated indication within the resource model. This enables you to fine tune the resource models to better fit your environment.

Note: If an indication is disabled and the resource model is distributed, the indication always appears as 100% healthy, because resource models never generate events for indications that are disabled in this way.

Required authorization role
admin

Before you begin
- Create a profile manager and profile. See “Creating profile managers and profiles” on page 26 for information.
- Add subscribers to a profile manager. See “Subscribing resources to profile managers” on page 28 for information.
- Add a resource model to a profile. See “Adding default resource models to profiles” on page 29 and “Adding custom resource models to profiles” on page 66 for information.
- See the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for detailed information about each resource model.

When you finish
Distribute the profile to which the resource model belongs. See “Distributing profiles from the desktop” on page 30.

Optional: Continue customizing the resource model:
- Specify if you want to customize your thresholds and events to optimize the monitoring process. See “Customizing indications” on page 67
- Specify if you want a recovery action when a specific event occurs. See “Editing a built-in action” on page 72
- Specify if you want corrective or reporting tasks for an event. See “Specifying tasks for an event” on page 74
- Specify if you want to receive information on a specific event through a notice. See “Sending a notice to administrators when an event occurs” on page 75
Specify if you want the monitoring of resource models to take place on specific time periods of selected days. See "Creating scheduling rules".

Determine when the monitoring of resource models takes place. See "Customizing the scheduling monitoring period" on page 80.

Specify if you want the log data collected by a resource model written to a local database. See "Customizing data logging information" on page 82.

**Procedure**

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

**Command line:** Use the `wdmeditprf` command to customize a resource model for a profile.

For more information about this command, see the *IBM Tivoli Monitoring, Version 5.1.0: User’s Guide*.

**Desktop:**

1. Open the IBM Tivoli Monitoring Profile dialog box by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to display the policy region.
   c. Double-click the profile manager icon to display the profile manager.
   d. Double-click the profile icon in which you want to customize a resource model.
2. Select the resource model that you want to customize.
3. Click Edit to open the Edit Resource Model dialog box.
4. Click the Parameters button.
5. Select a parameter from the Name drop-down list in the Parameters dialog box.
6. Enable or disable the indication associated with the parameter using the choice box.
7. Click Apply Changes and Close to save your changes.

---

**Creating scheduling rules**

**Objective**

To create schedule rules so administrators and users can determine the time periods on selected days when monitoring takes place.

**Background information**

IBM Tivoli Monitoring contains a scheduling feature that enables you to determine a period when monitoring takes place and specific scheduling rules. You can divide the overall collection period into active and inactive intervals by applying one or more schedule rules.

The scheduling rules enable you to define time periods on specific weekdays during which monitoring takes place. You can define any number of rules which allows you set up a complex pattern of resource monitoring for a profile and covers the periods that you want to monitor. If the profile contains more than one schedule rule, all the time intervals are respected, and rules are combined by adding together the time periods they define. For example, if you specify a rule that requests monitoring between 8:00 and 14:00 every day and another that requests all-day monitoring on Fridays, the sum of the two rules gives all-day monitoring only on Fridays, and monitoring between 8:00 and 14:00 on all other...
days. If the second rule instead requested monitoring from 12:00 to 18:00 on Fridays, the sum of the rules would give monitoring between 8:00 and 18:00 on Fridays and between 08:00 and 14:00 on all other days.

The scheduled times are always interpreted as local times, enabling you to set up a single rule that monitors the same local time period in different time zones. All times of events or activities reported from endpoints or gateways are also logged in the local time of the system from where they originated.

The Scheduling dialog box has the following group boxes:

Schedule
Sets the data collection period. By default, all resource models are set to always collect data.

Schedule Rules
Manages time intervals during which the resource model is active.

Rule Editor
Creates and edits schedule rules.

Required authorization role
admin

Before you begin
• Create a profile manager and profile. See “Creating profile managers and profiles” on page 26 for information.
• Add subscribers to a profile manager. See “Subscribing resources to profile managers” on page 28 for information.
• Add a resource model to a profile. See “Adding default resource models to profiles” on page 29 and “Adding custom resource models to profiles” on page 66 for information.
• See the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for detailed information about each resource model.

When you finish
Distribute the profile to which the resource model belongs. See “Distributing profiles from the desktop” on page 30.

Optional: Continue customizing the resource model:
• Specify if you want to customize your thresholds and events to optimize the monitoring process. See “Customizing indications” on page 67.
• Specify if you want a recovery action when a specific event occurs. See “Editing a built-in action” on page 72.
• Specify if you want corrective or reporting tasks for an event. See “Specifying tasks for an event” on page 74.
• Specify if you want to receive information on a specific event through a notice. See “Sending a notice to administrators when an event occurs” on page 75.
• Specify if you want to customize your parameters to optimize the monitoring process. See “Customizing parameters” on page 77.
• Determine when the monitoring of resource models takes place. See “Customizing the scheduling monitoring period” on page 80.
• Specify if you want the log data collected by a resource model written to a local database. See “Customizing data logging information” on page 82.
**Procedure**

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

**Command line:** Use the `wdmeditprf` command to customize a resource model for a profile.

For more information about this command, see the *IBM Tivoli Monitoring, Version 5.1.0: User’s Guide*.

**Desktop:**

1. Open the **IBM Tivoli Monitoring Profile** dialog box by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to display the policy region.
   c. Double-click the profile manager icon to display the profile manager.
   d. Double-click the profile icon in which you want to customize a resource model.
2. Select the resource model that you want to customize.
3. Click **Edit** to open the **Edit Resource Model** dialog box.
4. Click **Schedule** to open the **Scheduling** dialog box.
5. Clear the **Always** check box in the **Schedule** panel.
6. Click the **New Rule** button in the **Schedule Rules** panel.
7. Type a name for the rule in the **Rule Name** text box of the **Rule Editor** panel.
8. Select one or more items in the weekday list to specify the day or days on which you want the collections active during the collection period.
   - **Additional information:** Use the **Shift** or **Ctrl** key as necessary to select more than one day from the list.
9. Set the **Start Time** and **Stop Time** for the collection activity or select the **All Day** check box.
   - **Additional information:** Times are always interpreted as local time where the endpoint engine runs. Setting a time interval of 08:00 to 13:00 ensures that monitoring takes place between those times in all time zones to which you distribute the profile.
10. Click **Set Rule**. Your new rule appears in the **Schedule Rules** list.
    - **Additional information:** To display the details of any rule, select the rule in the **Schedule Rules** list. Its settings are displayed in the **Rule Editor** group box.
11. Click **Modify & Close** to save your rule and close the **Scheduling** dialog box.

---

**Customizing the scheduling monitoring period**

**Objective**

To customize the scheduling monitoring period of a resource model so administrators and users can determine when monitoring takes place.

**Background information**

IBM Tivoli Monitoring contains a scheduling feature that enables you to determine a period when monitoring takes place and specific scheduling rules.

The scheduling rules enable you to define time periods on specific weekdays during which monitoring takes place. You can define any number of rules which enables you to set up a complex pattern of resource monitoring for a profile and...
covers the periods that you want to monitor. If a profile contains more than one schedule rule, all the time intervals are respected, and rules are combined by adding together the time periods they define. For example, if you specify a rule that requests monitoring between 8:00 and 14:00 every day and another that requests all-day monitoring on Fridays, the sum of the two rules gives all-day monitoring only on Fridays, and monitoring between 8:00 and 14:00 on all other days. If the second rule instead requested monitoring from 12:00 to 18:00 on Fridays, the sum of the rules would give monitoring between 8:00 and 18:00 on Fridays and between 08:00 and 14:00 on all other days.

The scheduled times are always interpreted as local times, enabling you to set up a single rule that monitors the same local time period in different time zones. All times of events or activities reported from endpoints or gateways are also logged in the local time of the system from where they originated.

The **Scheduling** dialog box has the following group boxes:

- **Schedule**
  - Sets the data collection period. By default, all resource models are set to always collect data.

- **Schedule Rules**
  - Manages time intervals during which the resource model is active.

- **Rule Editor**
  - Creates and edits schedule rules.

**Required authorization role**

**admin**

**Before you begin**

- Create a profile manager and profile. See “Creating profile managers and profiles” on page 26 for information.
- Add subscribers to a profile manager. See “Subscribing resources to profile managers” on page 28 for information.
- Add a resource model to a profile. See “Adding default resource models to profiles” on page 29 and “Adding custom resource models to profiles” on page 66 for information.
- Create the schedule rules. See “Creating scheduling rules” on page 78 for more details.
- See the *IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide* for detailed information about each resource model.

**When you finish**

Distribute the profile to which the resource model belongs. See “Distributing profiles from the desktop” on page 30.

**Optional:** Continue customizing the resource model:

- Specify if you want to customize your thresholds and events to optimize the monitoring process. See “Customizing indications” on page 67
- Specify if you want a recovery action when a specific event occurs. See “Editing a built-in action” on page 72
- Specify if you want corrective or reporting tasks for an event. See “Specifying tasks for an event” on page 74
- Specify if you want to receive information on a specific event through a notice. See “Sending a notice to administrators when an event occurs” on page 75
• Specify if you want to customize your parameters to optimize the monitoring process. See “Customizing parameters” on page 77.
• Specify if you want the monitoring of resource models to take place on specific time periods of selected days. See “Creating scheduling rules” on page 78.
• Specify if you want the log data collected by a resource model written to a local database. See “Customizing data logging information”.

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

Command line: Use the wdmeditprf command to customize a resource model for a profile. For more information about this command, see the IBM Tivoli Monitoring, Version 5.1.0: User’s Guide.

Desktop:
1. Open the IBM Tivoli Monitoring Profile dialog box by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to display the policy region.
   c. Double-click the profile manager icon to display the profile manager.
   d. Double-click the profile icon in which you want to customize a resource model.
2. Select the resource model that you want to customize.
3. Click Edit to open the Edit Resource Model dialog box.
4. Click the Schedule to open the Scheduling dialog box.
5. Clear the Always check box in the Schedule panel.
6. Set a Start Date and Stop Date to define the monitoring period.
7. Optional: Add one or more schedule rules that determine time periods on the selected dates that monitoring takes place.
8. Click Modify & Close to save your changes.

Customizing data logging information

Objective
To customize data logging information so administrators and users can log data collected by a resource model and write it in a local database.

Background information
You can view the log data through the IBM Tivoli Monitoring Web Health Console after you write it in a local database. You can store one of the following types of data in the database:

Raw data
Data written exactly as the resource model collects it. All the monitored values are collected and copied in the database.

TEDW data
Data is collected and copied in the database for later use by Tivoli Enterprise Data Warehouse.

Note: The TEDW Data choice will be grayed-out unless you have previously installed the Tivoli Enterprise Data Warehouse Support
Component. See your Tivoli Enterprise Data Warehouse documentation for more information on the Tivoli Enterprise Data Warehouse Support Component.

**Aggregated data**
Data collected and aggregated at fixed intervals that you define (**Aggregation Period**). Only the aggregated values are written in the database. The aggregated data is calculated on the basis of one or more of the following options:
- Maximum
- Minimum
- Average

**Required authorization role**
admin

**Before you begin**
- Create a profile manager and profile. See “Creating profile managers and profiles” on page 26 for information.
- Add subscribers to a profile manager. See “Subscribing resources to profile managers” on page 28 for information.
- Add a resource model to a profile. See “Adding default resource models to profiles” on page 29 and “Adding custom resource models to profiles” on page 66 for information.
- See the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for detailed information about each resource model.

**When you finish**
Distribute the profile to which the resource model belongs. See “Distributing profiles from the desktop” on page 30.

**Optional:** Continue customizing the resource model:
- Specify if you want to customize your thresholds and events to optimize the monitoring process. See “Customizing indications” on page 67
- Specify if you want a recovery action when a specific event occurs. See “Editing a built-in action” on page 72
- Specify if you want corrective or reporting tasks for an event. See “Specifying tasks for an event” on page 74
- Specify if you want to receive information on a specific event through a notice. See “Sending a notice to administrators when an event occurs” on page 75
- Specify if you want to customize your parameters to optimize the monitoring process. See “Customizing parameters” on page 77
- Specify if you want the monitoring of resource models to take place on specific time periods of selected days. See “Creating scheduling rules” on page 78
- Determine when the monitoring of resource models takes place. See “Customizing the scheduling monitoring period” on page 80

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

**Command line:** Use the `wdmeditprf` command to customize a resource model for a profile.
For more information about this command, see the IBM Tivoli Monitoring, Version 5.1.0: User’s Guide.

**Desktop:**

1. Open the IBM Tivoli Monitoring Profile dialog box by doing the following:
   a. Open the Tivoli desktop.
   b. Double-click the policy region icon to display the policy region.
   c. Double-click the profile manager icon to display the profile manager.
   d. Double-click the profile icon in which you want to customize a resource model.
2. Select the resource model that you want to customize.
3. Click **Edit** to open the **Edit Resource Model** dialog box.
4. Click **Logging** to open the **Logging** dialog box.
5. Select the **Enable Data Logging** check box in the **Data Logging Settings** panel to enable logging.
   
   **Additional Information:** This enables the data type selection and **Historical Period** options on the dialog.
6. Select the type of data to store from the following:

   **Note:** The **TEDW Data** choice will be grayed-out unless you have previously installed the Tivoli Enterprise Data Warehouse Support Component. See your Tivoli Enterprise Data Warehouse documentation for more information on the Tivoli Enterprise Data Warehouse Support Component.

   - Raw Data
     — OR —
   - TEDW Data
     — OR —
   - Raw Data and TEDW Data
     — OR —
   - Aggregate Data
7. Perform the following steps to specify the aggregation rule applied to the data before it is written to the database:
   a. Set **Hours** and **Minutes** of the **Aggregation Period** to the required values.
   b. Select one or more of the following functions to perform on the numerical data collected during the aggregation period before it is written to the database:

   **Maximum**
   Calculates and logs the peak value in each aggregation period.

   **Minimum**
   Calculates and logs the lowest value in each aggregation period.

   **Average**
   Calculates and logs the average of all values in each aggregation period. Average is the default setting.
8. If you want to log the raw data instead of aggregate data, do the following:
   a. Clear the **Aggregate Data** check box.
   b. Select **Raw Data**.
c. Optional: If Tivoli Enterprise Data Warehouse is installed, you can check the TEDW Data option to store the raw data for use in Tivoli Enterprise Data Warehouse.

9. Set Hours and Minutes of the Historical Period to the required values.

10. Click Apply Changes and Close to save your changes and close the Logging dialog box.

---

Managing profiles and resource models at endpoints

**Objective**

To manage profiles and resource models after they are distributed to resources so administrators and users can maintain monitoring processes on those endpoints.

**Background information**

None

**Required authorization role**

admin

**Before you begin**

- Create a profile manager and profile. See “Creating profile managers and profiles” on page 26 for information.
- Add subscribers to a profile manager. See “Subscribing resources to profile managers” on page 28 for information.
- Add a resource model to a profile. See “Adding default resource models to profiles” on page 29 and “Adding custom resource models to profiles” on page 66 for information.
- Distribute the profile. See “Distributing profiles from the desktop” on page 30 for information.
- See the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for detailed information about each resource model.

When you finish

None

**Procedure**

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

**Command line:** Use the wdmcmd command to stop or restart IBM Tivoli Monitoring on one or more endpoints from a gateway or server.

Use the wdmdistrib command to distribute a profile to one or more subscribers.

Use the wdmeng command to stop or start profiles or resource models at endpoints or to delete profiles at endpoints.

Use the wdmlseng command to return a list and the status of all resource models that have been distributed on a specified endpoint.

Use the wdmtrceng command to set the trace parameters of the IBM Tivoli Monitoring engine at the endpoint.

Refer to the IBM Tivoli Monitoring User’s Guide for more information.
Managing IBM Tivoli monitoring gateways

Objective
To manage IBM Tivoli Monitoring on gateways so administrators and users can run monitoring processes on those gateways.

Background information
None

Required authorization role
admin

Before you begin
- Create a profile manager and profile. See “Creating profile managers and profiles” on page 26 for information.
- Add subscribers to a profile manager. See “Subscribing resources to profile managers” on page 28 for information.
- Add a resource model to a profile. See “Adding default resource models to profiles” on page 29 and “Adding custom resource models to profiles” on page 66 for information.
- Distribute the profile. See “Distributing profiles from the desktop” on page 30 for information.
- See the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for detailed information about each resource model.

When you finish
None

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

Command line: Use the wdmmn command to stop or start selected IBM Tivoli Monitoring processes on one or all gateways.

For more information about this command, see the IBM Tivoli Monitoring, Version 5.1.0: User’s Guide.

Determining which resource models are running on endpoints

Objective
To determine which resource models are running on an endpoint.

Background information
Note: Resource models might show false running states under the following circumstances:
- When the database is down and the RDBMS State resource model has not run, IBM Tivoli Monitoring shows the state of the resource model as running.
- When resource models are first distributed to a profile endpoint, the resource models all show running, even though they have not been executed. The resource models show valid states after they are executed by the IBM Tivoli Monitoring engine.
Use the Tivoli command line to determine which resource models are running on an endpoint.

**Required authorization role**
admin

**Before you begin**

- Create a profile manager and profile. See “Creating profile managers and profiles” on page 26 for information.
- Add subscribers to a profile manager. See “Subscribing resources to profile managers” on page 28 for information.
- Add a resource model to a profile. See “Adding default resource models to profiles” on page 29 and “Adding custom resource models to profiles” on page 66 for information.
- Distribute the profile. See “Distributing profiles from the desktop” on page 30 for information.
- See the *IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide* for detailed information about each resource model.

**When you finish**
None

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

**Command line:** Use the `wdmlseng` command to determine which monitors are running on an endpoint. For example, to view the list of monitors on an endpoint, enter the following command:

```
wdmlseng -e <endpoint>
```

Refer to the *IBM Tivoli Monitoring User’s Guide* for more information.
This chapter provides information on enabling IBM Tivoli Monitoring for Databases: Informix for Tivoli Enterprise Data Warehouse.

**Note:** Before any data is send to the Tivoli Enterprise Data Warehouse for logging you must enable Tivoli Enterprise Data Warehouse logging on your resource models. See, “Customizing data logging information” on page 82 for more information.

### Overview

Tivoli Enterprise Data Warehouse enables you to access application reports from various Tivoli and customer applications. The infrastructure provides a set of extract, transform and load (ETL) utilities that you use to extract and move data from Tivoli application data stores to a central data warehouse database.

Tivoli Enterprise Data Warehouse provides the following capabilities:

- An open architecture for storing, aggregating, and correlating historical data. In addition to the data collected by IBM Tivoli software, Tivoli Enterprise Data Warehouse has the flexibility and extensibility to enable you to integrate your own application data.
- Database optimizations for the efficient storage of large amounts of historical data and for fast access to data for analysis and report generation.
- The infrastructure and tools necessary for maintaining and viewing the collected data. These include the Tivoli Enterprise Data Warehouse application, IBM DB2 Universal Database™ Enterprise Edition, the Data Warehouse Center, DB2® Warehouse Manager, and a user interface for creating and viewing reports.
- The ability to use your choice of data analysis tools to examine your historical data. In addition to the report interface, you can analyze your data using other products such as online analytical processing (OLAP), planning, trending, analysis, accounting, and data mining tools.
- The ability to control access to your historical data. You can keep data about multiple customers and data centers in one central data warehouse, but restrict access so that customers can see and work with data and reports based only on their data and not any other customer’s data. You can also restrict an individual user’s ability to access data.
- A zero-footprint client. Users can access Tivoli Enterprise Data Warehouse reports from any system by using a Web browser. No special software is required on the user’s system.
- Internationalization support. Not only is the report interface localized, application programmers can localize the data stored in the central data warehouse.

Tivoli Enterprise Data Warehouse consists of the following components:

- Control server
- Central data warehouse
- Data marts
- Report interface
Control server

The control server contains the control database for Tivoli Enterprise Data Warehouse from which you manage your data warehouse.

The control server has these subcomponents:

- A server that controls communication between the control server, the central data warehouse server, the data mart server, and the report server.
- The control database, which contains metadata for Tivoli Enterprise Data Warehouse.

The control server uses the following parts of the IBM DB2 product, which you must install manually before installing the control server. These parts are all automatically installed when you install IBM DB2 Universal Database™ Enterprise Edition on a Microsoft® Windows system.

- DB2 Server
- The Data Warehouse Center, a component that automates data warehouse processing. You can use the Data Warehouse Center to define the ETL processes that move and transform data into the central data warehouse and the star schemas used by the data marts. Then, you can use the Data Warehouse Center to schedule, maintain, and monitor these processes.
- The warehouse agent, part of DB2 Warehouse Manager.

Central data warehouse

The central data warehouse is a DB2 database that contains the historical data for your enterprise. The system that hosts the central data warehouse is called the central data warehouse server. The central data warehouse component uses IBM DB2 Universal Database Enterprise Edition, which you must install manually before installing the control server.

Data marts

A separate DB2 database contains the data marts for your enterprise. Each data mart contains a subset of the historical data from the central data warehouse to satisfy the analysis and reporting needs of a specific department, team, customer, or application. The system that hosts this DB2 database is called the data mart server. Although you can have many data marts, you can have only one data mart server.

The data mart component requires IBM DB2 Universal Database Enterprise Edition, which you must install manually before installing the control server.

The warehouse pack for IBM Tivoli Monitoring for Databases: Informix creates data marts whose structure is suitable for the report interface. They do this by providing an extract, transform, and load (ETL) process, called a data mart ETL, that creates the data mart and loads it with data from the central data warehouse.

You can modify an existing data mart, or create new data marts that contain slightly different data, to address a reporting need specific to your situation. To modify or create a data mart, you must be familiar with database ETL processes and with the internal representation of a data mart as star schemas in the Tivoli Enterprise Data Warehouse databases. For information about this, see Enabling an Application for Tivoli Enterprise Data Warehouse.
Report interface

The Tivoli Enterprise Data Warehouse report interface (RPI) provides tools and a graphical user interface that other Tivoli software products use to create and display reports. You can use Tivoli Enterprise Data Warehouse to customize reports provided with other Tivoli software and to create new reports. You also use the report interface to control access to data marts and to the reports associated with a data mart. The system on which you install the report interface is called the report server.

Use the Work with Reports task group in the report interface to manage users, groups, and data marts for Tivoli Enterprise Data Warehouse or to run, create, and view Tivoli Enterprise Data Warehouse reports. The following sections describe how to do the following tasks:

- Working with users
- Working with roles and groups
- Working with data marts
- Working with reports

Working with users and user groups

This section describes tasks associated with managing user groups for Tivoli Enterprise Data Warehouse. It includes the following topics:

- An overview of users and user groups
- Creating an IBM Console user
- An overview of the Tivoli Enterprise Data Warehouse roles
- Assigning roles to a user
- Creating a user group
- Assigning users to a user group

About users and user groups

You control access to data in Tivoli Enterprise Data Warehouse data marts by specifying which user groups (collections of users) can run the reports that access the data in each data mart. Each user in a user group is given access to all reports that access the data in the data marts to which that user group has access.

By default, Tivoli Enterprise Data Warehouse provides the TWHAdmin user group, which contains a single user: superadmin. You can customize the TWHAdmin user group for the needs of your enterprise.

A user can be assigned to more than one user group.

The Tivoli Enterprise Data Warehouse authorization roles

The following Tivoli Enterprise Data Warehouse roles control access to tasks and activities in the Work with Reports task group:

- Warehouse Security Administrator

  With this role, a user can create and manage groups and data marts. A user with this role controls access to data marts by assigning users to groups and by giving groups access to specific data marts. In effect, this role controls access to the Tivoli Enterprise Data Warehouse data using user groups and data marts.
Report roles control a user’s ability to create and modify reports for the data marts his user groups can access. Assign only one of the following roles to each user:

- Advanced Report Author
  With this role, a user can create, modify, run, and delete public and their own personal reports, and save the output of reports, both public and personal.

- Report Author
  With this role, a user can run and save the output of public reports and create and modify their own personal reports. They can run public and personal reports, and create, modify, and delete personal reports.

- Report Reader
  With this role, a user can run public reports and view the saved output of public reports.

Creating an IBM Console user

**Objective**
To create an IBM Console user.

**Background information**
Tivoli Enterprise Data Warehouse is displayed using the IBM Console, which is also used by other Tivoli software products. A user is given access to tasks in the IBM Console based on the roles that are assigned to that user. One user can have roles for diverse tasks including administering IBM Console users, managing Tivoli Enterprise Data Warehouse user groups and data marts, running and viewing the output of Tivoli Enterprise Data Warehouse reports, and performing tasks associated with other Tivoli software products.

**Required authorization role**
super or admin

**Before you begin**
None.

**When you finish**
The Tivoli Enterprise Data Warehouse online help also guides you through additional tasks for managing users, such as updating or displaying the properties of a user and deleting a user.

**Procedure**
To create an IBM Console user, complete the following steps:
1. From the IBM Console, select Administer Users and then Create a User.
2. Open the Task Assistant and follow the instructions provided in the online help to create a user.

Assigning roles to a user

**Objective**
To assign roles to a user.

**Background information**
None.

**Required authorization role**
superuser
Before you begin
None.

When you finish
The Tivoli Enterprise Data Warehouse online help also guides you through additional tasks for managing users, such as updating or displaying the properties of a user and deleting a user.

Procedure
To assign a role to a user, complete the following steps:
1. From the IBM Console, select **Administer Users and Roles** and then **Manage Users**.
2. From the table of users, click the context menu icon of a user and select **Properties**.
3. Follow the instructions in the Task Assistant about assigning roles to the user.

Creating a user group

Objective
To create a user group.

Background information
None.

Required authorization role
Administration Authorizations

Before you begin
None.

When you finish
The Tivoli Enterprise Data Warehouse online help also guides you through additional tasks for managing user groups, such as updating or displaying the properties of a user group, adding users to a user group, and deleting a user group.

Procedure
To create a user group, complete the following steps:
1. From the IBM console, select **Work with Reports** and then **Manage User Groups**.
2. In the Manage User Groups window, click the context menu of Root and select **Create**.
3. Follow the instructions in the Task Assistant about creating user groups.

Assigning users to a user group

Objective
To assign users to user groups.

Background information
None.

Required authorization role
Administration Authorizations
Before you begin
None.

When you finish
The Tivoli Enterprise Data Warehouse online help also guides you through additional tasks for managing user groups, such as updating or displaying the properties of a user group, adding or removing users from a user group, and deleting a user group.

Procedure
To assign one or more users to a user group, perform the following steps:
1. From the IBM Console, select Work with Reports and then Manage User Groups.
2. In the Manage User Groups window, click the context menu icon of a group and select Properties.
3. Follow the instructions in the Task Assistant about assigning users to user groups.

Assigning user groups to a data mart

Objective
To assign user groups to a data mart.

Background information
Grant access to only those user groups whose users need the data mart to perform tasks.

Required authorization role
Administration Authorizations

Before you begin
None.

When you finish
The Tivoli Enterprise Data Warehouse online help can guide you through additional tasks for managing user groups, such as updating or displaying the properties of a user group, removing users from a user group, and removing data mart access from a user group.

Procedure
To assign user groups to a data mart, complete the following steps:
1. From the IBM Console, select Work with Reports and then Manage Data Marts.
2. In the Manage Data Marts window, in the Data Mart view, click the context menu icon for the data mart that you want to change and click Properties.
3. Select the User Groups tab.

Managing Tivoli Enterprise Data Warehouse reports

Tivoli Enterprise Data Warehouse reports display a static view of the data in a data mart. Reports are provided by the warehouse pack for IBM Tivoli Monitoring for Databases: Informix, along with the data marts required to collect the data used in the report.

This section describes the following tasks:
• Running a report manually
• Automatically running reports
• Modifying default settings for report creation
• Creating a report

For more information about working with reports, see the Tivoli Enterprise Data Warehouse online help.

Tivoli software products using the Tivoli Enterprise Data Warehouse can provide prepackaged reports that enable you to access specific information about your business environment. All of these reports are listed in the Manage Reports and Report Output task of the Work with Reports task group in the IBM Console. This includes reports from all Tivoli software products that use the Tivoli Enterprise Data Warehouse report interface. Tivoli software products can also provide a different reporting interface.

A Tivoli Enterprise Data Warehouse report may use data from one or more data marts.

If you have the appropriate role, you can also create additional reports or modify existing reports. Before you can create a new report or modify an existing report, you must understand the structure of the underlying warehouse data and of the operational data that is the source of that data. For information about the structure of data in the data mart and in the central data warehouse, see Enabling an Application for Tivoli Enterprise Data Warehouse.

For information on the specific data mart, star schema, and report mapping of IBM Tivoli Monitoring for Databases: Informix, see the IBM Tivoli Monitoring for Databases: Informix Warehouse Enablement Pack Implementation Guide located in the Docs directory of the IBM Tivoli Monitoring for Databases, version 5.1.0 Installation CD.

For information on the specific data mart, star schema, and report mapping of IBM Tivoli Monitoring for Databases: Informix, see the IBM Tivoli Monitoring for Databases: Informix Warehouse Enablement Pack Implementation Guide located in the Docs directory of the IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix Installation CD.

---

Running reports

**Objective**
To run a report using the report interface.

**Background information**
None.

**Required authorization role**
AdvRepAuthRole, RepAuthRole, or RepReaderRole

**Before you begin**
None.

**When you finish**
The Tivoli Enterprise Data Warehouse online help can also guide you through additional tasks for reports, such as displaying the properties of a report and deleting a report.
**Procedure**
To run a report using the report interface, complete the following steps:

1. From the IBM Console, select **Work with Reports** and then **Manage Reports** and **Report Output**.
2. In the Manage Reports and Report Output window, in the Reports view, click the context menu icon of a report and select **Run**.

**Scheduling reports to run automatically**

**Objective**
To automatically run reports.

**Background information**
Using the Tivoli Enterprise Data Warehouse report interface, you can schedule a report to run automatically when the associated data mart is updated. This ensures that when you examine the output of the report, it displays the most recent data in the warehouse.

**Required authorization role**
AdvRepAuthRole

**Before you begin**
None.

**When you finish**
The Tivoli Enterprise Data Warehouse online help can also guide you through additional tasks for reports, such as modifying or displaying the properties of a report and deleting a report.

**Procedure**
To schedule a report to run automatically when the associated data mart is updated, complete the following steps:

1. From the IBM Console, select **Work with Reports** and then **Manage Reports** and **Report Output**.
2. In the Manage Reports and Report Output window, in the Reports view, click **Reports**.
3. Click the context menu icon of a report and select **Properties**.

**Modifying default settings for reports**

**Objective**
To modify default settings for report creation.

**Background information**
When you create or modify a report, you select predetermined values for the time frame of the report. The predetermined values of Peak Hours and Weekdays specified under Filtering in the Time page of report properties can be modified. Do this by modifying the information in the control database on the control server.

The default value for Peak Hours is 9:00 am through 5:00 PM, or 0900 to 1700. This value can be modified to reflect different peak hours if necessary.

The default value for Weekdays is Monday through Friday. This value can also be modified.
The RPI.TimeFilters table contains the following filters and default filter values.

Table 10. Default time filter names and values

<table>
<thead>
<tr>
<th>TIME_FILTER_NAME</th>
<th>TIME_FILTER_VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak hours</td>
<td>hour(meas_hour) in (9,10,11,12,13,14,15,16,17)</td>
</tr>
<tr>
<td>Weekdays</td>
<td>dayofweek(meas_date) between 2 and 6</td>
</tr>
</tbody>
</table>

**Required authorization role**
AdvRepAuthRole

**Before you begin**
None.

**When you finish**
For additional information on the properties of the RPI.TimeFilters table, see Enabling an Application for Tivoli Enterprise Data Warehouse.

**Procedure**
To change the values displayed in the report interface, perform the following steps:
1. Connect to the control database (TWH_MD).
2. Use an SQL statement similar to the following to modify the values for Peak Hours or Weekdays in the RPI.TimeFilters table. The following example sets the Weekdays filter to represent Sunday through Thursday:

   \[
   \text{Update RPI.TimeFilters set TIME_FILTER_VALUES = dayofweek(meas_date) between 1 and 5} \\
   \text{where TIME_FILTER_NAME = \text{Weekdays}}
   \]

   After doing this, when a user selects a Weekdays filter for a report in the report interface, the data returned is for Sunday through Thursday.

   **Note:** There is no error-checking for the values inserted into the tables for Peak Hours and Weekdays. Therefore, ensure that the information you insert into the tables is correct. You can save a report that contains incorrect values for these parameters without receiving an error message. The message is not generated until the report is run.

---

**Creating reports**

**Objective**
To create a report.

**Background information**
You can receive a message that the name you specified is already in use, even if you do not have access to the report with that name.

**Required authorization role**
AdvRepAuthRole or RepAuthRole

**Before you begin**
Ensure that you use descriptive and meaningful names for the reports you create. Report names are unique across all users of Tivoli Enterprise Data Warehouse.

**When you finish**
The Tivoli Enterprise Data Warehouse online help also guides you through additional tasks for reports, such as modifying or displaying the properties of a report and deleting a report.
**Procedure**

1. Click **Work with Reports** and select **Create a Report**.
2. Select one of the following type of reports to create: **Extreme Case, Health Check, and Summary**.
3. Select the data mart that contains the information from which to create the report.
4. Click **OK**.
5. Click the **General** tab and enter the **Name** and **Description** for the report.
6. Click the **Metrics** tab, and select **Add** to add a new metric to graph and display the **Add Metrics** screen.
7. Select the star schema containing the metric that you would like to graph and to display a list of Available Metrics for the star schema.
8. Check one or more of the metrics that you would like to graph.
9. Click **Next**.
10. Select the aggregation type that you would like for each metric.
11. Click **Next**.
12. Specify the attributes to filter by, group by, or order by.
   
   *Additional information:* For example, if you only want to display information about a specific Domino server, specify the name of the Domino server in the **Domino Server Component Name Filter By** field.
13. Click the **Time** tab, and specify the Time frame for which you would like to run the report.
   
   *Additional information:* You can either specify a General Time Frame, such as the Last 7 days, or a Specific Time Interval, such as January 1, 2002 through January 31, 2002.
14. Click the **Schedule** tab, and select whether the report should be run when the data mart is built.
15. Click **OK**.

---

**IBM Tivoli Monitoring for Databases: Informix data marts and reports**

This section describes the prepackaged data marts, star schemas, and reports used for IBM Tivoli Monitoring for Databases: Informix.

IBM Tivoli Monitoring for Databases: Informix provides the **CRT Informix Daily Data Mart**. This data mart uses the following star schemas:

- CTR Informix Instance Daily Star Schema
- CTR Informix Memory Segment Daily Star Schema
- CTR Informix Logical Log Daily Star Schema
- CTR Informix Least Recently Used Queue Daily Star Schema
- CTR Informix Database Space Daily Star Schema
- CTR Informix Storage Chunk Daily Star Schema
- CTR Informix Virtual Processor Daily Star Schema

Four prepackaged health check reports are provided. They report data over the past seven days. They use the **CRT Informix Daily Data Mart** as their data source.

**Informix Health Check – 7 Days**

This health check report presents a chart of the following metrics over the past 7 days:
• Active_Transactions (average)
• Transaction_Overflows (average)
• Number_of_Commits (average)
• Number_of_Rollbacks (average)
• Percent_State_On-Line (average)

Informix Thread Activity – 7 Days
This health check report presents a chart of the following metrics over the past 7 days:
• Number_of_Deadlocks (average)
• User_Thread_Overflows (average)
• System_CPU (average)
• User_CPU (average)

Informix Disk Utilization – 7 Days
This health check report presents a chart of the following metrics over the past 7 days:
• Free_Pages (average)
• Pages (average)
• Number_Chunks (average)
• Percent_Free_Space (average)

Informix Logical Log – 7 Days
This health check report presents a chart of the following metrics over the past 7 days:
• Logical_Log_Percent_Available (average)
• Pages_Used (average)
### Appendix A. Authorization roles quick reference

Each IBM Tivoli Monitoring for Databases: Informix procedure has a required authorization role. The following table summarizes these activities and roles and tells you where to find additional information in this manual:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Context</th>
<th>Required role</th>
<th>For additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set authorization roles</td>
<td>Administrators collection</td>
<td>senior</td>
<td>“Setting authorization roles” on page 15</td>
</tr>
<tr>
<td>Discover Informix instances</td>
<td>Instance</td>
<td>IBMInformix_super</td>
<td>“Discovering Informix instance objects” on page 19</td>
</tr>
<tr>
<td>Configure IBMInformixServer objects</td>
<td>Instance</td>
<td>IBMInformix_super</td>
<td>“Configuring Informix instance objects” on page 20</td>
</tr>
<tr>
<td>MoveIBMInformixServer objects</td>
<td>Instance</td>
<td>IBMInformix_super</td>
<td>“Moving objects to IBMInformixUnmanaged policy region” on page 23</td>
</tr>
<tr>
<td>Create profile managers and profiles</td>
<td>Profile manager</td>
<td>admin</td>
<td>“Creating profile managers and profiles” on page 26</td>
</tr>
<tr>
<td>Subscribe resources to profile managers</td>
<td>Profile manager</td>
<td>admin</td>
<td>“Subscribing resources to profile managers” on page 28</td>
</tr>
<tr>
<td>Add default resource models to profiles</td>
<td>Profile manager</td>
<td>admin</td>
<td>“Adding default resource models to profiles” on page 29</td>
</tr>
<tr>
<td>Add custom resource models to profiles</td>
<td>Profile manager</td>
<td>admin</td>
<td>“Adding custom resource models to profiles” on page 66</td>
</tr>
<tr>
<td>Distribute Profiles</td>
<td>Profile manager</td>
<td>admin</td>
<td>“Distributing profiles from the desktop” on page 30</td>
</tr>
<tr>
<td>EditIBMInformixServer object attributes</td>
<td>Instance</td>
<td>IBMInformix_super</td>
<td>“Editing IBMInformixServer object attributes” on page 37</td>
</tr>
<tr>
<td>ViewIBMInformixServer object properties</td>
<td>Instance</td>
<td>IBMInformix_user</td>
<td>“Viewing server properties” on page 39</td>
</tr>
<tr>
<td>Start a server</td>
<td>Database</td>
<td>IBMInformix_admin</td>
<td>Chapter 5, “Working with IBM Tivoli Monitoring for Databases: Informix” on page 37</td>
</tr>
<tr>
<td>Stop a server</td>
<td>Database</td>
<td>IBMInformix_admin</td>
<td>Chapter 5, “Working with IBM Tivoli Monitoring for Databases: Informix” on page 37</td>
</tr>
<tr>
<td>Run a task</td>
<td>Task library</td>
<td>IBMInformix_super</td>
<td>“Running a task” on page 48</td>
</tr>
<tr>
<td>Customize a task</td>
<td>Task library</td>
<td>admin</td>
<td>“Customizing a task” on page 51</td>
</tr>
<tr>
<td>Create a job</td>
<td>Task library</td>
<td>admin</td>
<td>“Creating a job” on page 52</td>
</tr>
<tr>
<td>Run a job</td>
<td>Task library</td>
<td>IBMInformix_admin</td>
<td>“Running a job” on page 56</td>
</tr>
<tr>
<td>Schedule a job</td>
<td>Task library</td>
<td>IBMInformix_admin</td>
<td>“Scheduling a job” on page 57</td>
</tr>
<tr>
<td>Customize resource models</td>
<td>Resource model</td>
<td>admin</td>
<td>Chapter 8, “Working with resource models” on page 65</td>
</tr>
<tr>
<td>Configure Tivoli Enterprise Console</td>
<td>Managed node</td>
<td>super or senior</td>
<td>“Configuring Tivoli Enterprise Console to work with IBM Tivoli Monitoring for Databases: Informix” on page 104</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Activity</th>
<th>Context</th>
<th>Required role</th>
<th>For additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>View events in the Tivoli Enterprise Console</td>
<td>Event console</td>
<td>user</td>
<td>&quot;Viewing events in the Tivoli Enterprise Console&quot; on page 107</td>
</tr>
</tbody>
</table>
Appendix B. Setting up the Tivoli Enterprise Console

This chapter provides information about setting up the Tivoli Enterprise Console for use with IBM Tivoli Monitoring for Databases: Informix. You can skip this chapter if you do not have the Tivoli Enterprise Console or do not want to have IBM Tivoli Monitoring for Databases, Version 5.1.0: Informix send events to it you do not need to use this information.

This appendix covers the following topics:
- Overview of the Tivoli Enterprise Console
- Procedures for setting up the Tivoli Enterprise Console to receive monitoring and task events
- Procedures for viewing events in the Tivoli Enterprise Console console
- Lists of event classes and events
- Procedures for setting up automated task execution in response to events

Table 11. Setting Up the Tivoli Enterprise Console Guidelines

<table>
<thead>
<tr>
<th>Goal</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Overview of how IBM Tivoli Monitoring for Databases: Informix works with the Tivoli Enterprise Console</td>
<td>“Overview of the Tivoli Enterprise Console”</td>
</tr>
<tr>
<td>2. Setting up the Tivoli Enterprise Console to receive monitoring and task events</td>
<td>“Configuring Tivoli Enterprise Console to work with IBM Tivoli Monitoring for Databases: Informix” on page 104</td>
</tr>
<tr>
<td>4. Listings of event classes and events</td>
<td>“Lists of event classes” on page 108</td>
</tr>
</tbody>
</table>

Overview of the Tivoli Enterprise Console

In distributed computing environments, it is essential to address events and conditions that can lead to problems in a timely and efficient manner. The Tivoli Enterprise Console provides tools for:
- Receiving events from various sources
- Processing events using rules
- Grouping events and delegating the groups selectively to administrators
- Responding to events automatically
- Viewing events at a console

For more information about the Tivoli Enterprise Console, refer to the Tivoli Enterprise Console User’s Guide.

Events

In the Tivoli Enterprise Console environment, an event is an object that has been created using data obtained from a source that is monitored by an event adapter. Each event is identified by a class name. Class names may vary and are defined by their respective event adapters.

Sources of events

The Tivoli Enterprise Console accepts events from many sources. Typically,
Tivoli software is set up so that events are sent in response to changes in an application or system resource. For example, distributed monitors can be configured to send events as well as report in other ways. Tivoli tasks can send events.

**Event processing**

The Tivoli Enterprise Console uses rules to process events. A *rule* is made up of a set of logic statements. The rule makes decisions on what to do with the event based on information provided in the event, such as the event class, event name, severity, location, and description.

A rule’s logic provides one or more responses to the event. A rule can drop insignificant events, escalate important events, create new events, or respond to defined relationships of multiple events (event correlation). It can also close an old event when a new event indicates that the original condition is resolved.

**Event grouping**

The Tivoli Enterprise Console can filter events into *event groups*. These event groups are typically organized by function but can also be configured by other criteria, such as location or organizational jurisdiction.

Event groups are especially useful for subdividing all the Tivoli Enterprise Console events into manageable chunks. Administrators can be assigned to one or more event groups.

*Note:* This option is not available for Tivoli Enterprise Console, Version 3.7. For information on creating event groups for that version, refer to the *Tivoli Enterprise Console, Version 3.7, User's Guide*.

**Viewing events**

The Tivoli Enterprise Console includes a console where administrators can watch for incoming events and respond to them. The event console is a useful tool for managing by exception. The Tivoli Enterprise Console can filter out normal events, respond automatically to anticipated problems, and forward only those events that require human intervention.

**Responses to events**

The Tivoli Enterprise Console normally can provide automatic responses to many common events, either by executing response programs or executing Tivoli tasks. For example, you can set a response program to respond to the event that is received when a database becomes unavailable. The specific response can be to inform an administrator or to attempt automatic restarts of the database, or a combination of both.

---

**Configuring Tivoli Enterprise Console to work with IBM Tivoli Monitoring for Databases: Informix**

**Objective**

To configure Tivoli Enterprise Console so you can use Tivoli Enterprise Console with IBM Tivoli Monitoring for Databases: Informix.

**Background information**

When you configure Tivoli Enterprise Console for use with IBM Tivoli Monitoring for Databases: Informix, you can have it work with events from resource models.

**Resource models and Tivoli Enterprise Console**
Specific resource models provided by IBM Tivoli Monitoring for Databases: Informix provide the option to send events to Tivoli Enterprise Console. For example, the Cache Hit Ratio resource model can be configured such that when the read cache hit ratio falls below 95 percent, an event is sent to Tivoli Enterprise Console. In order to use this option, you must first configure Tivoli Enterprise Console to accept events from IBM Tivoli Monitoring for Databases: Informix resource models.

You can configure Tivoli Enterprise Console in any of the following ways:

- Use the Send_TEC_Files_to_TEC and Configure_TEC tasks from the Tivoli desktop
- Use the Send_TEC_Files_to_TEC and Configure_TEC tasks from the command line

The tasks do all of the following:

- Create the specified rule base, if it does not already exist.
- Copy an existing rule base into a newly created rule base, if you select the option to do so.
- Configure the rule base for the selected option(s) by importing the appropriate class and rule set files.
- Compile the rule base.
- Restart the event server, if you select the option to do so.

Refer to the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for additional information about this task.

Required authorization role
senior or super

Before you begin
None.

When you finish
None.

Procedure

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

Command line: You can run the Send_TEC_Files_to_TEC and Configure_TEC tasks from the command line. See the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide for information about these tasks.

Desktop: Use the following steps to configure Tivoli Enterprise Console by running the Send_TEC_Files_to_TEC and Configure_TEC tasks from the desktop.

1. From the Tivoli desktop, double-click the Monitoring for IBM Informix policy region.
2. Double-click the IBM Informix Server Task icon to display the Task Library: IBM Informix Server Task window.
3. Double-click the Send_TEC_Files_to_TEC icon to display the Execute Task dialog.
4. To view the task results, do the following:
   a. Change the value in the Timeout text box from 60 to 600.
   b. Select Display on Desktop to see the output when the task is executed.
5. Select a managed resource in the **Available Task Endpoints**, then click left arrow to move it into the **Selected Task Endpoints** list in the **Execution Targets** panel.

**Note:** This task must be run on the local Tivoli management region server.

6. Click **Execute** or **Execute & Dismiss** to display the **Send_TEC_Files_to_TEC** task argument dialog.

7. Enter the name of the managed node on which the Tivoli Enterprise Console server resides.

8. Click **Set & Execute** to run the task.

9. Click **Close** to return to the previous dialog. If you set the **Display on Desktop** option, the system displays the results of this task in a dialog.

10. Click **Close** to return to the previous dialog.

11. Double-click the **Configure_TEC** icon to display the **Execute Task** dialog.

12. To view the task results, do the following:
   a. Change the value in the **Timeout** text box from 60 to 600.
   b. Select **Display on Desktop** to see the output when the task is executed.

13. Select a managed resource in the **Available Task Endpoints**, then click the left arrow to move it into the **Selected Task Endpoints** list in the **Execution Targets** panel.

**Note:** This task must be run on a Tivoli Enterprise Console server.

The **Available Task Endpoints** list displays only those managed resources that have Tivoli Enterprise Console servers.
14. Click Execute or Execute & Dismiss to display the Configure_TEC task argument dialog.

15. In the dialog, specify how you want Tivoli Enterprise Console configured:
   - **Rule Base Name**: Enter the name of the rule base to configure. It can be a new rule base to create or an existing rule base. If you specify an existing rule base, the task checks to make sure that both its class and rule set files are defined correctly.

     **Note**: Enter only the name; do not enter a full path. If a full path is entered, only the name portion is used.

   - **Rule Base Name to Copy**: Specify the rule base to copy.

     **Note**: If you specify an invalid rule base name, the task fails with a message that the rule base is invalid. If this happens, re-run the task with the correct rule base name. If the name is correct but the task fails, check the validity of the specified rule base by compiling the rule base. If the compiler does not report an error, the rule base is valid.

   - **Restart Event Server**: Select this check box if you want the task to restart the event server. The new rule base (or modified rule base) does not take effect until the event server is restarted.

     **Note**: If you do not have the task restart the event server, you must load the rule base and restart the event server manually.

16. Click Set & Execute to run the task.

   If the **Restart Event Server** option is specified, this task starts the server if it is not running, or stops and restarts it if it is currently running. If you set the **Display on Desktop** option (in step 12), the system displays the results of this task in a dialog.

---

**Viewing events in the Tivoli Enterprise Console**

**Objective**
To view events in Tivoli Enterprise Console so you can work with the events.

**Background information**
After you have set up the Tivoli Enterprise Console, you can view events.
Required authorization role
user

Before you begin
The example used in the procedure for this topic is based on the following assumptions:

• The Tivoli Enterprise Console has been configured and it has been configured to receive IBM Tivoli Monitoring for Databases: Informix events.

• The RDBMS State resource model has been configured to send an event with severity level of CRITICAL to the Tivoli Enterprise Console when it detects that the Informix instance is unavailable.

• The RDBMS State resource model has detected this condition and has sent an event.

When you finish
None

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

Desktop: Use the following steps to view events:
1. On the command line type TEC_concole to open the Tivoli Enterprise Console Chart View.
2. Click on the bar graph to display its Event Viewer. The Event Viewer contains all of the events that were sent to the Tivoli Enterprise Console.
3. To view the details of an event, do one of the following:
   Double-click the desired event.
   —OR—
   Select the desired event, then click Details.
   The Event Group Message Viewer dialog is displayed.

Lists of event classes

For a complete listing of event classes and their descriptions, refer to the IBM Tivoli Monitoring for Databases: Informix Reference Guide.
Appendix C. Integrating with Tivoli Business Systems Manager

This chapter provides information on using Tivoli Business Systems Manager to manage IBM Tivoli Monitoring for Databases: Informix resources and events.

Integrating IBM Tivoli Monitoring for Databases: Informix into Tivoli Business Systems Manager includes the following steps:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Refer to</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Install the IBM Tivoli Monitoring for Databases: Informix integration on the Tivoli Business Systems Manager server</td>
<td>“Integrating IBM Tivoli Monitoring for Databases: Informix with Tivoli Business Systems Manager” on page 110</td>
</tr>
<tr>
<td>2. Configure your Tivoli Enterprise Console event server to forward events to Tivoli Business Systems Manager</td>
<td>“Configuring the Tivoli Enterprise Console event server” on page 111</td>
</tr>
<tr>
<td>3. Define the specific IBM Tivoli Monitoring for Databases: Informix objects to Tivoli Business Systems Manager using a discovery task.</td>
<td>“Discovering resources for Tivoli Business Systems Manager” on page 112</td>
</tr>
</tbody>
</table>

This chapter also provides a list of the IBM Tivoli Monitoring for Databases: Informix tasks that you can run from Tivoli Business Systems Manager and information about uninstalling the IBM Tivoli Monitoring for Databases: Informix integration from Tivoli Business Systems Manager.

Understanding Tivoli Business Systems Manager

Tivoli Business Systems Manager is a business systems management tool that enables you to graphically monitor and control interconnected business components and operating system resources. A business resource and its resources are referred to as a Line of Business (LOB).

Tivoli Business Systems Manager consists of the following components:

**Tivoli Business Systems Manager management server**

The Tivoli Business Systems Manager management server processes all the availability data that is collected from various sources. Availability data is inserted in the Tivoli Business Systems Manager database, where intelligent agents provide alerts on monitored objects and then broadcast those alerts to Tivoli Business Systems Manager workstations. The management server processes all user requests that originate from the workstation and includes a database server that is built around a Microsoft SQL Server database.

**Tivoli Business Systems Manager workstation**

The Tivoli Business Systems Manager workstation displays objects in customized views, called Line of Business Views. Objects are presented in a hierarchical TreeView so that users can see the relationship between objects. Alerts are overlaid on the objects when the availability of the object is threatened.
**Tivoli Event Enablement**

Tivoli Event Enablement is installed on the Tivoli Enterprise Console event server and enables the event server to forward events to Tivoli Business Systems Manager. Tivoli Event Enablement defines event classes and rules for handling events related to Tivoli Business Systems Manager.

**Task server**

The Tivoli Business Systems Manager task server is installed on the Tivoli Enterprise Console event server with Tivoli Event Enablement. It receives task requests from the Tivoli Business Systems Manager workstation, runs the tasks on the Tivoli server on which it is installed, and returns the output to Tivoli Business Systems Manager.

---

**Prerequisites**

Before you integrate IBM Tivoli Monitoring for Databases: Informix into Tivoli Business Systems Manager, perform the following prerequisite steps:

- Install the Tivoli Business Systems Manager configuration, as described in the *Tivoli Business Systems Manager Installation and Configuration Guide*. You must install Tivoli Business Systems Manager Version 1.5.
- Install and configure the Tivoli Event Enablement on all Tivoli Enterprise Console event servers that receive events that you want to forward to Tivoli Business Systems Manager. See the *Tivoli Business Systems Manager Installation and Configuration Guide* for more information.
- Configure Tivoli Business Systems Manager to communicate with each Tivoli Event Enablement installed in the previous step. See the *Tivoli Business Systems Manager Installation and Configuration Guide* for more information.

---

**Integrating IBM Tivoli Monitoring for Databases: Informix with Tivoli Business Systems Manager**

**Objective**

To integrate IBM Tivoli Monitoring for Databases: Informix with Tivoli Business Systems Manager so you can receive IBM Tivoli Monitoring for Databases: Informix events on the Tivoli Business Systems Manager.

**Background information**

To enable Tivoli Business Systems Manager to manage IBM Tivoli Monitoring for Databases: Informix events, you must install an IBM Tivoli Monitoring for Databases: Informix integration program on the Tivoli Business Systems Manager server. This integration program does the following steps:

- Defines the IBM Tivoli Monitoring for Databases: Informix objects in Tivoli Business Systems Manager
- Adds IBM Tivoli Monitoring for Databases: Informix tasks to the object types in Tivoli Business Systems Manager
- Defines a line of business for Informix resources

**Required authorization role**

You must have administrator authority on the Tivoli Business Systems Manager server.

**Before you begin**

Make sure that your Tivoli Business Systems Manager environment is configured correctly and that you have Tivoli Event Enablement installed on each Tivoli
Enterprise Console event server that you want to forward events. For more information, see the *Tivoli Business Systems Manager Installation and Configuration Guide*.

**When you finish**
Configuring the Tivoli Enterprise Console event server to forward events to Tivoli Business Systems Manager. See "Configuring the Tivoli Enterprise Console event server" for more information.

**Procedure**
Use the following steps to install the IBM Tivoli Monitoring for Databases:
Informix integration:

1. On the Tivoli Business Systems Manager server, insert the IBM Tivoli Monitoring for Databases, version 5.1.0 installation CD and, from a command prompt, navigate to the \TBSM directory.
2. Type `install` to start the installation wizard.
3. Click `Next` on the welcome screen.
4. Specify an installation location for the Tivoli Business Systems Manager integration. The default location is C:\tivoli\informix. Click `Browse` to select a different installation location.
   - Click `Next` to continue.
   - The installation location and total installed size are displayed.
5. Click `Next` to continue.
6. Provide the following Microsoft SQL Server information and click `Next` to start the installation.
   - **SQL Server**
     - The name of the SQL server with which this Tivoli Business Systems Manager server is associated
   - **SQL Userid**
     - The SQL user ID.
   - **SQL Password**
     - The password for the user ID defined above.
   - A progress bar is displayed to show the progress of the installation. When installation is complete, a message appears.
7. Click `Finish` to exit the installation wizard.

---

**Configuring the Tivoli Enterprise Console event server**

**Objective**
To configure the Tivoli Enterprise Console event server to forward events to Tivoli Business Systems Manager.

**Background information**
Before Tivoli Enterprise Console event servers can forward events to Tivoli Business Systems Manager, you must configure them to use a rule base to forward the events.

**Required authorization role**
Senior
Before you begin
Install the Tivoli Event Enablement on each Tivoli Enterprise Console event server that you want to forward events to Tivoli Business Systems Manager. For more information, see the Tivoli Business Systems Manager Installation and Configuration Guide for more information.

When you finish
Define your IBM Tivoli Monitoring for Databases: Informix objects to Tivoli Business Systems Manager with the TBSM_Discovery task, as described in "Discovering resources for Tivoli Business Systems Manager".

Procedure
Use the Configure Event Server and Send TEC Files to TEC tasks to configure (or reconfigure) each event server. If you installed the Tivoli Event Enablement on the event server, this task recognizes that and compiles the rule base that forwards events to Tivoli Business Systems Manager. For information on running this task, see “Configuring Tivoli Enterprise Console to work with IBM Tivoli Monitoring for Databases: Informix” on page 104.

Discovering resources for Tivoli Business Systems Manager

Objective
To define the specific IBM Tivoli Monitoring for Databases: Informix objects to Tivoli Business Systems Manager.

Background information
The IBM Tivoli Monitoring for Databases: Informix integration that you installed in Appendix C, “Integrating with Tivoli Business Systems Manager” on page 109 defined the types of objects that you want Tivoli Business Systems Manager to manage. After you define the object types, you must define the specific objects. You can do this with the TBSM_Discovery task. This task searches a managed node for objects and sends a DISCOVER event to Tivoli Business Systems Manager for each object. The TBSM_Discovery task also maintains a list of the objects that have been discovered and alerts Tivoli Business Systems Manager when they have been deleted by sending Tivoli Business Systems Manager a GONE event for each object that no longer exists on the managed node.

Required authorization role
super or senior

Before you begin
Configure your Tivoli Enterprise Console event server, as described in "Configuring the Tivoli Enterprise Console event server” on page 111.

When you finish
Use Tivoli Business Systems Manager to view and manage your IBM Tivoli Monitoring for Databases: Informix objects. For information on using Tivoli Business Systems Manager, see the Tivoli Business Systems Manager User’s Guide.

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

Command line: Use the wruntask command to run the TBSM_Discovery task from the command line. For information on the CLI syntax for this task, see the IBM Tivoli Monitoring for Databases, version 5.1.0: Informix Reference Guide.

Desktop: Use the following steps to run this procedure as a task:
1. In the IBMInformix Server Tasks task library, double-click the TBSM_Discovery task.

2. Select the managed node on which the Tivoli Enterprise Console resides to search for objects and click Execute.

If the task completes successfully, you receive a list of the DISCOVER and GONE events that were sent to Tivoli Business Systems Manager.

Uninstalling IBM Tivoli Monitoring for Databases: Informix integration from Tivoli Business Systems Manager

Objective
To remove the IBM Tivoli Monitoring for Databases: Informix integration from Tivoli Business Systems Manager.

Background information
Uninstalling the IBM Tivoli Monitoring for Databases: Informix integration removes the Informix object definitions and objects from Tivoli Business Systems Manager.

Required authorization role
You must have administrator authority on the Tivoli Business Systems Manager server

Before you begin
Not applicable

When you finish
Not applicable

Procedure
Use the following steps to perform this procedure:

1. On the Tivoli Business Systems Manager server, from a command prompt, navigate to the directory where you installed the IBM Tivoli Monitoring for Databases: Informix integration. The default directory is C:\tivoli\itmwas.

2. Type uninstall to start the uninstallation wizard.

3. Click Next on the welcome screen.

4. The installation location for the Tivoli Business Systems Manager integration is displayed. Click Next to continue.

5. Provide the following Microsoft SQL Server information and click Next to start the uninstallation:
   
   **SQL Server**
   The name of the SQL server with which this Tivoli Business Systems Manager server is associated

   **SQL Userid**
   The SQL user ID.

   **SQL Password**
   The password for the user ID defined above.

6. Click Finish to exit the installation wizard.
Appendix D. Problem determination

This appendix provides information about resolving problems that might occur when you run IBM Tivoli Monitoring for Databases: Informix.

Note: For installation and uninstallation issues, see the IBM Tivoli Monitoring for Databases Installation and Setup Guide.

The following lists frequently asked questions regarding IBM Tivoli Monitoring for Databases: Informix and related software.

What is Discovery?
Discovery provides a convenient way of registering multiple IBM Informix Dynamic Server instances on one or more endpoints in a single operation. For more information about Discovery and using it to register IBM Informix Dynamic Server instances, see "Discovering Informix instance objects" on page 19.

Why is my resource model failing on HP-UX?
A kernel parameter might be set too low if one of the following errors appears in the trace_dmxengine.log:
1. OutOfMemoryException
2. - java.io.IOException: Too many open files caught running /bin/sh -c

Do the following to increase the appropriate kernel parameter:
1. Go to your HP-UX endpoint and run the command: sam
2. Go to Kernel Configuration ➔ Configurable Parameters.
3. Do one of the following:
   - For the error, OutOfMemory Exception: Increase the max_thread_proc parameter. This parameter controls the maximum number of threads allowed in each process. The default is 64.
   - OR—
   - for the error, - java.io.IOException: Too many open files caught running /bin/sh -c:
     Increase the maxfiles parameter. This parameter controls the soft file limit per process. The maximum value you can set through SAM is 2048. The default is 60.

What are the port requirements for communication?
There are no special firewall considerations for IBM Tivoli Monitoring for Databases: Informix. The software depends on the framework’s ability to communicate with the LCF endpoint and receive upcalls. The ports required to be open on the LCF endpoint are local ports and have no firewall implications.

What does ‘Unable to start 150’ mean?
This message appears on the IBM Tivoli Monitoring Web Health Console and in the output from the wdmseng -e endpoint_name CLI. It indicates that an attribute required to monitor IBM Informix Dynamic Server...
instances was not present for the resource type receiving the distributed resource model. This situation typically arises when an IBM Tivoli Monitoring for Databases: Informix resource model has been distributed to an unsupported Resource Type (e.g. an Endpoint itself) or if an attribute for a configured IBMInformixServer object has been deleted. A message of the following form can be found in the trace_dmxengine.log on UNIX endpoints and in the Tmw2k.log on NT endpoints:

Context Attribute: AttributeName missing

What does 'Unable to start 10' mean?
This message appears on the IBM Tivoli Monitoring Web Health Console and in the output from the wdm1seng -e endpoint_name CLI. The error indicates the IBM Informix database is down. A level 3 error message of the following form can be found in the trace_dmxengine.log on UNIX endpoints and in the Tmw2k.log on NT endpoints:

This RM will not collect data this cycle.

What does 'Retrying 50' mean?
This message appears on the IBM Tivoli Monitoring Web Health Console and in the output from the wdm1seng -e endpoint_name CLI. The error indicates that a data provider for a resource model has generated an exception. A level 0 error message of the following form can be found in the trace_dmxengine.log on UNIX endpoints and in the Tmw2k.log on NT endpoints:

for example:

for example:

Can I get all the trace log information in one place?
Yes. Using the witmcollectsupporData command, you can produce an XML file capturing all the various trace files in addition to other useful
information such as installed Tivoli software and platform types. You can name the XML file in any way that is logical for your environment.

Two useful forms of the command include:

itmcollectsupportdata EndPoint_OID support.xml
witmcollectsupportdata IBMInformixServer_OID support.xml

Both commands collect all of the information into the support.xml file. The first form of the command collects information about an endpoint given its OID. The second form of the command collects information about the IBMInformixServer object specified by the OID with additional details unique to IBMInformixServer objects included.

Where is the trace log for IBM Tivoli Monitoring, and how do I increase the trace logging level?

The IBM Tivoli Monitoring trace log will be found at $LCF_DATDIR/LCFNEW/AMW/logs/trace_dmxengine.log for UNIX endpoints and $LCF_DATDIR/LCFNEW/Tmw2k/Tmw2k.log for NT endpoints.

To increase the level of detail written to the trace log, you must have previously set trace log level to 3. To set the trace level to 3 enter the following command from a Managed Node command prompt:

wdmtrceng -e Endpoint_Name "" 3 -1

You must stop the IBM Tivoli Monitoring engine and restart it after running this command. Enter the following two CLI commands from a Managed Node [not the endpoint] to stop and then restart the IBM Tivoli Monitoring engine:

wdmcmd -stop -e Endpoint_Name
wdmcmd -restart -e Endpoint_Name

Where is the trace log for IBM Tivoli Monitoring for Databases: Informix ILTs--IBMInformixJdbc, InformixLogfileAdapter, AlertsILT, CheckpointILT, and LogicalLogBackupILT—and how do I enable ILT trace logging?

The various ILTs all write to the same trace log found at $LCF_DATDIR/LCFNEW/AMG/logs/, named either trace1.log, trace2.log or trace3.log; where trace2.log and trace3.log are written only when their predecessor has reached maximum size. From that point the trace logging rolls over from trace3.log to trace1.log, and the cycle repeats.

To enable trace logging from each ILT you must changing the value from false to true on the appropriate line in the $LCF_DATDIR/LCFNEW/AMG/logs/logging.properties file:

To enable trace logging for the IBMInformixJdbc ILT, change:

AMS.IBMInformixJdbcTrace.isLogging=false

to

AMS.IBMInformixJdbcTrace.isLogging=true

To enable trace logging for the IBM Informix Logfile Adapter ILT, change:

AMS.InformixLogfileAdapterTrace.isLogging=false

to

AMS.InformixLogfileAdapterTrace.isLogging=true

To enable trace logging for the Checkpoint ILT, change:
To enable trace logging for the Alerts ILT, change:

AMS.AlertsILTTrace.isLogging=false
to

AMS.AlertsILTTrace.isLogging=true

To enable trace logging for the Logical Log Backup ILT, change:

AMS.LogicalLogBackupILTTrace.isLogging=false
to

AMS.LogicalLogBackupILTTrace.isLogging=true

Note: Each line appears in the logging.properties file only after a resource model using the specific ILT corresponding to the line is distributed and run on an IBMInformixServer on the endpoint.

You must stop the IBM Tivoli Monitoring engine and restart it before these changes take effect. Enter the following two CLI commands from a Managed Node [not the endpoint] to stop and then restart the IBM Tivoli Monitoring engine:

wdmcmd -stop -e Endpoint_Name
wdmcmd -restart -e Endpoint_Name

Note: If you enable tracing and increase the trace level at the same time you only need to stop and restart the IBM Tivoli Monitoring engine once.
# Appendix E. Messages

<table>
<thead>
<tr>
<th>Message Code</th>
<th>Message Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTR1001W</td>
<td>&amp;1 is already Quiescent.</td>
</tr>
<tr>
<td>CTR1002I</td>
<td>&amp;1 is changing to Quiescent immediately.</td>
</tr>
<tr>
<td>CTR1003E</td>
<td>The server is not online. onstat output follows:</td>
</tr>
<tr>
<td>CTR1004W</td>
<td>&amp;1 is already offline.</td>
</tr>
<tr>
<td>CTR1005I</td>
<td>&amp;1 is changing to offline.</td>
</tr>
<tr>
<td>CTR1006E</td>
<td>You can only run this task on an IBMInformixServer object.</td>
</tr>
<tr>
<td>CTR1007E</td>
<td>The context parameter &amp;1 was not found.</td>
</tr>
<tr>
<td>CTR1008E</td>
<td>&amp;1 did not run.</td>
</tr>
<tr>
<td>CTR1009E</td>
<td>&amp;1 is online and cannot become Quiescent with a Start command.</td>
</tr>
<tr>
<td>CTR1010I</td>
<td>&amp;1 changed to Quiescent.</td>
</tr>
<tr>
<td>CTR1011W</td>
<td>&amp;1 is already online.</td>
</tr>
<tr>
<td>CTR1012I</td>
<td>Changing &amp;1 to online.</td>
</tr>
<tr>
<td>CTR1013E</td>
<td>Server is not online, offline or Quiescent. onstat output follows:</td>
</tr>
<tr>
<td>CTR1014I</td>
<td>Changing &amp;1 to Quiescent gracefully.</td>
</tr>
<tr>
<td>CTR1015E</td>
<td>Usage: &amp;1 [startq</td>
</tr>
<tr>
<td>CTR1017E</td>
<td>TBSM command &amp;1 not found.</td>
</tr>
<tr>
<td>CTR1018I</td>
<td>IBM Informix TBSM Discovery Task is complete</td>
</tr>
<tr>
<td>CTR1030E</td>
<td>Lookup of resource type &amp;1 failed</td>
</tr>
<tr>
<td>CTR1031I</td>
<td>Forwarding GONE event to TBSM: &amp;1</td>
</tr>
<tr>
<td>CTR1032I</td>
<td>Forwarding DISCOVER event to TBSM: &amp;1</td>
</tr>
<tr>
<td>CTR1033I</td>
<td>No objects of type (&amp;1) were found to send to TBSM.</td>
</tr>
<tr>
<td>CTR1034I</td>
<td>Copying file: (&amp;1) to (&amp;2)</td>
</tr>
<tr>
<td>CTR1045E</td>
<td>No Event Server was found in this TMR</td>
</tr>
<tr>
<td>CTR1046E</td>
<td>Creation of Rulebase (&amp;1) Failed</td>
</tr>
<tr>
<td>CTR1047E</td>
<td>The Rulebase copy from (&amp;1) to (&amp;2) Failed</td>
</tr>
<tr>
<td>CTR1048E</td>
<td>The import of Baroc file (&amp;1) into Rulebase (&amp;2) Failed</td>
</tr>
<tr>
<td>CTR1049E</td>
<td>The import of Rule file (&amp;1) into Rulebase (&amp;2) Failed</td>
</tr>
<tr>
<td>CTR1050E</td>
<td>The compilation of Rulebase (&amp;1) Failed</td>
</tr>
<tr>
<td>CTR1051E</td>
<td>The load of Rulebase (&amp;1) Failed</td>
</tr>
<tr>
<td>CTR1052E</td>
<td>The EventServer could not be started</td>
</tr>
<tr>
<td>CTR1053E</td>
<td>The EventServer could not be stopped</td>
</tr>
<tr>
<td>CTR1054I</td>
<td>The Event Server has been configured OK for IBM Informix</td>
</tr>
<tr>
<td>CTR1057E</td>
<td>The import of Rule file (&amp;1) into target EventServer for Rulebase (&amp;2) Failed</td>
</tr>
</tbody>
</table>
Appendix F. Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully. The major accessibility features in IBM Tivoli Monitoring for Databases: Informix 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: Informix. 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: Informix 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: Informix other than the Web Health Console, users 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.
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