

IBM Director 4.20



# Upward Integration Modules Installation Guide



IBM Director 4.20



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**Note:** Before using this information and the product it supports, read the general information in Appendix E, “Notices,” on page 75.

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## About this book

This book provides instructions for installing and integrating IBM® Director 4.20 Upward Integration Modules (UIM) into the following software:

- Microsoft® System Management Server (SMS)
- HP OpenView
- IBM Tivoli® NetView®
- IBM Tivoli Management Environment®

**Note:** The documentation for IBM Director 4.20 Upward Integration Module for CA Unicenter is included with the CA Unicenter UIM.

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## How this book is organized

Chapter 1, “Introducing IBM Director 4.20 Upward Integration Modules,” on page 1 provides an overview of the IBM Director Upward Integration Modules.

Chapter 2, “Integrating IBM Director UIM for Microsoft System Management Server,” on page 3 provides instructions for installing and configuring the UIM for SMS.

Chapter 3, “Integrating IBM Director UIM for HP OpenView,” on page 11 provides instructions for installing and configuring the UIM for HP OpenView.

Chapter 4, “Integrating IBM Director UIM for IBM Tivoli NetView,” on page 19 provides instructions for installing and configuring the UIM for Tivoli NetView.

Chapter 5, “Integrating IBM Director UIM for IBM Tivoli Management Environment,” on page 27 provides instructions for configuring the UIM for the Tivoli Management Environment.

Appendix A, “IBM Director UIM events,” on page 45 provides the list of events sent by IBM Director Agent.

Appendix B, “IBM Director UIM inventory collection,” on page 67 provides the inventory collection list for each UIM.

Appendix C, “Rule sets,” on page 69 provides information about Tivoli Enterprise Console® rules, their actions, and associated events.

Appendix D, “Getting help and technical assistance,” on page 73 provides information about accessing IBM Support Web sites for help and technical assistance.

Appendix E, “Notices,” on page 75 contains product notices and trademarks.

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## Notices that are used in this book

This book contains the following notices to highlight key information:

- **Notes:** These notices provide important tips, guidance, or advice.
- **Important:** These notices provide information or advice that might help you avoid inconvenient or difficult situations.

- **Attention:** These notices indicate possible damage to programs, devices, or data. An attention notice is placed just before the instruction or situation in which damage could occur.

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## IBM Director documentation

The following documentation is available in Portable Document Format (PDF) from the IBM Support Web site:

- *IBM Director 4.20 Installation and Configuration Guide* (dir4.20\_docs\_install.pdf)
- *IBM Director 4.20 Systems Management Guide* (dir4.20\_docs\_sysmgt.pdf)
- *IBM Director 4.1 Events Reference* (dir41\_events.pdf)
- *IBM Director 4.20 Upward Integration Modules Installation Guide* (dir4.20\_docs\_uim.pdf)

Check this Web site regularly for new or updated IBM Director documentation. For additional information about downloading materials from the IBM Support Web site, see “IBM Director resources on the World Wide Web.”

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## IBM Director resources on the World Wide Web

The following Web pages provide resources for understanding, using, and troubleshooting IBM Director and systems-management tools.

### **IBM Director 4.20 UIM Service and Support page**

<http://www.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-55433>

You can download the following IBM Director 4.20 UIM code and information from this Web page:

- Compressed files of the UIMs
- Documentation
- Readme files

Check this Web page regularly for updated readme files and documentation.

### **IBM Director 4.20**

<http://www.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-55606>

You can download the following IBM Director 4.20 code and information from this Web page:

- CD image
- Documentation
- IBM LM78 and system management bus (SMBus) device drivers for Linux<sup>®</sup>
- Readme files
- Extensible Markup Language (XML) files for use with the Software Distribution task

Check this Web page regularly for updated readme files and documentation.

### **IBM Director Agent page**

[http://www.ibm.com/servers/eserver/xseries/systems\\_management/sys\\_migration/ibmdiragent.html](http://www.ibm.com/servers/eserver/xseries/systems_management/sys_migration/ibmdiragent.html)

You can download the IBM Director Hardware and Software Compatibility document from this Web page. This document lists supported @server<sup>®</sup> and xSeries<sup>®</sup> systems, as well as all supported operating systems. It is updated every 6 to 8 weeks.

**IBM @server Information Center**

<http://www.ibm.com/servers/library/infocenter>

This Web page provides information about the IBM Virtualization Engine<sup>™</sup> and IBM Director Multiplatform.

**IBM ServerProven page**

<http://www.ibm.com/pc/us/compat/index.html>

The ServerProven<sup>®</sup> Web page provides information about xSeries, BladeCenter<sup>™</sup>, and IntelliStation<sup>®</sup> hardware compatibility with IBM Director.

**IBM Support page**

<http://www.ibm.com/pc/support/>

This is the IBM Support Web site for IBM hardware and systems-management software. For systems-management software support, click **Systems management**.

**IBM Systems Management Software: Download/Electronic Support page**

[http://www.ibm.com/pc/us/eserver/xseries/systems\\_management/dwnl.html](http://www.ibm.com/pc/us/eserver/xseries/systems_management/dwnl.html)

Use this Web page to download IBM systems-management software, including IBM Director. Check this Web page regularly for new IBM Director releases and updates.

**IBM xSeries Systems Management page**

[http://www.ibm.com/pc/ww/eserver/xseries/systems\\_management/index.html](http://www.ibm.com/pc/ww/eserver/xseries/systems_management/index.html)

This Web page presents an overview of IBM systems management and IBM Director. It also contains links to Web pages for IBM Director extensions including Remote Deployment Manager, Scalable Systems Manager, Server Plus Pack, and Software Distribution (Premium Edition).



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## Chapter 1. Introducing IBM Director 4.20 Upward Integration Modules

IBM Director 4.20 Upward Integration Modules (UIMs) enable workgroup and enterprise systems-management products to interpret and display data that is provided by systems with IBM Director Agent installed. The UIMs provide enhancements to the workgroup and enterprise systems-management products that you can use to start IBM Director Agent from within the systems-management platform, collect IBM Director Agent inventory data, view IBM Director Agent event notifications, and for some UIMs, distribute IBM Director Agent software packages.

This book provides information about the following IBM Director UIMs:

- IBM Director UIM for Microsoft Systems Management Server (SMS)
- IBM Director UIM for HP OpenView
- IBM Director UIM for IBM Tivoli NetView
- IBM Director UIM for Tivoli Management Environment

With the UIMs, you can use your systems-management software to manage systems installed with IBM Director Agent software. You can use IBM Director Agent software to:

- Gather detailed inventory information about your systems, including operating system, memory, network adapters, and hardware
- Track your systems with features such as power management, event log, and system monitor capabilities

IBM Director Agent uses some of the latest systems-management standards, including Common Information Model (CIM), Web-Based Enterprise Management (WEBM) and Extensible Markup Language (XML), to provide compatibility with your existing enterprise-management software.

Depending on your systems-management environment, you can install all of IBM Director Agent, or you can install only selected features of IBM Director Agent. For more information about IBM Director Agent software, see the *IBM Director 4.20 Installation and Configuration Guide*.





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## Chapter 2. Integrating IBM Director UIM for Microsoft System Management Server

This chapter contains information about integrating IBM Director UIM for Microsoft System Management Server (SMS). When you install IBM Director UIM for SMS, the following functions are added to the SMS environment:

- **Event notification**

Provides notification of events that occur on managed systems on which IBM Director Agent is installed. These notifications are translated into SMS status messages. For a complete list of events that IBM Director Agent sends, see Appendix A, “IBM Director UIM events,” on page 45.

**Note:** Microsoft System Management Server 2.0 does not support SNMP trap listening.

- **Collections**

Adds an SMS Collection to easily identify all managed systems on which IBM Director Agent is installed.

- **Inventory collection**

Scans inventory directly from IBM Director Agent, including Asset ID™ data, BIOS details, field-replaceable unit (FRU) numbers, lease information, and network details. For a complete list of the inventory that is collected, see Appendix B, “IBM Director UIM inventory collection,” on page 67.

**Notes:**

1. The inventory feature is compatible only with IBM Director Agent 4.20 or later.
2. Inventory collection can scan static MIF files, which provides compatibility with SMS 1.2.

- **Monitors**

Extends the health-monitoring feature of Microsoft SMS by adding new properties that can be monitored, including hardware thresholds and status.

- **Queries**

Adds an SMS Query to identify all managed systems on which IBM Director Agent is installed.

- **Software distribution**

Distributes an IBM Director Agent software package and performs an unattended installation on any system in the Microsoft SMS environment.

- **Tools for managing IBM Director Agent systems**

Provides a Microsoft Management Console snap-in so that you can view real-time information about, and manage asset and health information on managed systems on which IBM Director Agent is installed.

- **Wake on LAN®**

Remotely turns on managed systems on which IBM Director Agent is installed, and are Wake-on-LAN-capable.

The rest of this chapter provides the following information and instructions to help ensure a successful integration:

- Installation requirements, on page 4
- Limitations, on page 4
- Downloading IBM Director UIM for Microsoft SMS, on page 4
- Installing IBM Director UIM for Microsoft SMS, on page 4
- Distributing the IBM Director Agent software package, on page 7

- Working with IBM Director UIM for Microsoft SMS, on page 9
- Uninstalling IBM Director UIM for Microsoft SMS, on page 10

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## Installation requirements

IBM Director UIM for Microsoft SMS can be installed on systems running the following applications and operating systems:

- Microsoft Systems Management Server 2.0, Service Pack 5.0
- Windows® 2000, Service Pack 2 or later
- Microsoft Internet Explorer version 5.0 or later or the latest version of the Microsoft Java™ Virtual Machine (JVM) installed

**Note:** If you need to install the Microsoft JVM, run the executable file (MSJava86.exe), which is located in the directory where you installed the IBM Director UIM for SMS.

IBM Director UIM for Microsoft SMS works with IBM Director Agent Versions 3.1, 3.1.1, 4.1, 4.10.2, 4.11, 4.12, and 4.20 running on the following operating systems:

- Windows NT® 4.0 Workstation (Service Pack 6a or later required)
- Windows NT 4.0 Server, Standard, Enterprise and Terminal Server Editions (Service Pack 6a or later required)
- Windows NT 4.0 Server with Citrix MetaFrame (Service Pack 6a or later required)
- Windows 2000, Advanced Server, Datacenter Server, Professional, and Server (Service Pack 3 or later required)
- Windows XP Professional Edition (Service Pack 1 or 1a recommended)
- Windows Server 2003, Enterprise, Datacenter, Standard, and Web Editions

**Note:** IBM Director UIM for SMS does not support managed systems running 64-bit versions of IBM Director Agent.

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## Limitations

When you install IBM Director UIM for SMS, you must first uninstall any previous version that is installed. For more information about uninstalling IBM Director UIM for SMS, see “Uninstalling IBM Director UIM for SMS” on page 10.

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## Downloading IBM Director UIM for Microsoft SMS

You can download the IBM Director UIM for Microsoft SMS executable file, dir4.20\_uim\_sms.exe, and the readme file, dir4.20\_uim\_sms.txt, from <http://www.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-55433>. Download these files into a temporary directory.

---

## Installing IBM Director UIM for Microsoft SMS

You must install IBM Director UIM for Microsoft SMS on all the servers that are in the SMS domain. During the installation, the SMS Administrator Console is configured with IBM Director Agent entries in the **Collections**, **Queries**, and **Tools** trees. Also, the installation provides a Microsoft Management Console (MMC) snap-in module that enables you to display real-time information about, and manage asset and health information on, managed systems on which IBM Director Agent is installed.

For you to install IBM Director UIM for Microsoft SMS, you must be logged on to Microsoft SMS with administrator privileges.

Complete the following steps to install IBM Director UIM for Microsoft SMS:

1. Double-click **dir4.20\_uim\_sms.exe**. The InstallShield Wizard starts, and the “Preparing to Install” window opens.

After the Windows Installer is configured, the “Welcome to the InstallShield Wizard for IBM Director UIM for Microsoft SMS” window opens.

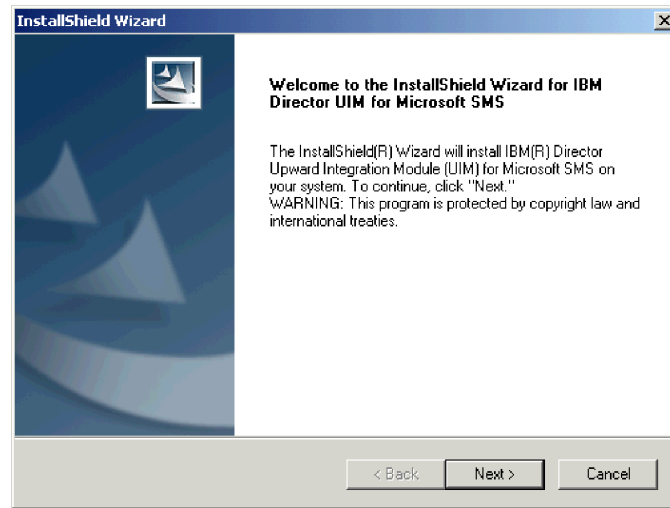


Figure 1. “Welcome to the InstallShield Wizard for IBM Director UIM for Microsoft SMS” window

2. Click **Next**. The “License agreement” window opens.
3. Click **Yes**. The “User information” window opens. By default, the fields are already completed.

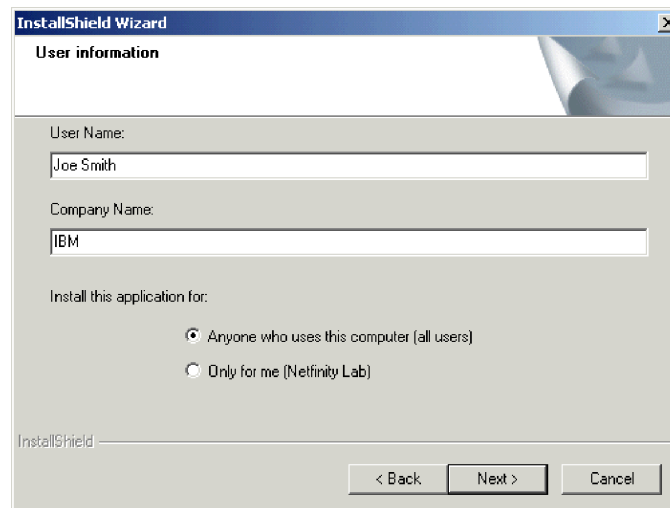


Figure 2. “User information” window

4. Complete the following steps to change the default information:
  - a. In the **User Name** field, type the name of the site server administrator.
  - b. In the **Company Name** field, type the name of your company.

- c. If you want to enable access only for the current operating-system account, click **Only for me (username)**, where *username* is automatically substituted. Otherwise, click **Anyone who uses this computer (all users)**.
5. Click **Next**. The “Installation type” window opens.
6. Click the type of installation that you want.

**Typical**

Installs IBM Director UIM for Microsoft SMS and the IBM Director UIM for Microsoft SMS help files.

**Compact**

Installs IBM Director UIM for Microsoft SMS only.

**Custom**

Installs IBM Director UIM for Microsoft SMS; and enables you to select whether to install the IBM Director UIM for Microsoft SMS help files and database support.

7. Click **Next**. If you specified a typical or compact installation, the “Setup Type” window opens; go to step 10. If you specified a custom installation, the “Feature selection” window opens; go to step 8.
8. Select the IBM Director features that you want to install. If you want to install database support, select the **Database support** check box.
9. Click **Next**. The “Setup Type” window opens.
10. If you are installing UIM on a site server, click **Server and Console**. Otherwise, click **Console Only**.
11. Click **Next**. The “Choose Destination Location” window opens.
12. (Optional) Specify the installation location. By default, the UIM is installed in the following location:  
*d:\Program Files\IBM\Director*, where *d* is the drive letter of the hard disk drive.  
 If you want to specify an alternative location, click **Browse**. The “Choose Folder” window opens. Select the directory to which you want to install the UIM and click **OK**.
13. Click **Next**. The “Enter Text” window opens.

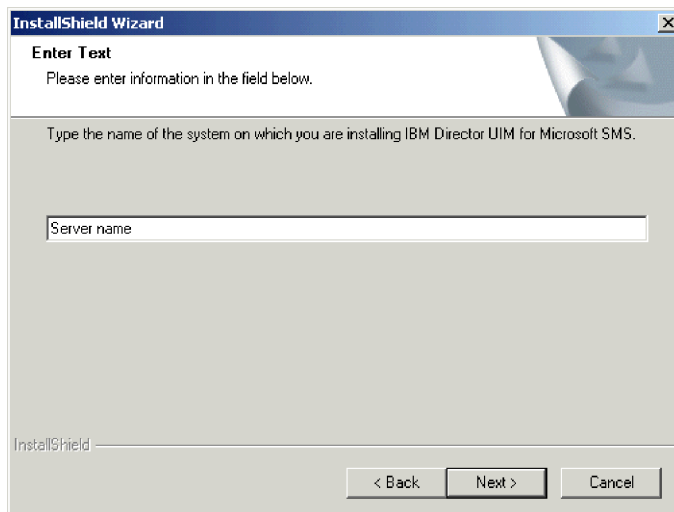


Figure 3. “Enter Text” window

14. In the entry field, type the SMS server name.

- Note:** You must type a fully qualified domain name for the server.
15. Click **Next**. The “Setup summary” window opens.
  16. Review the setup summary. Click **Back** to make a change to the setup. Otherwise, click **Next**. The “Setup Status” window opens. When the setup is completed, a command-prompt window opens, and the progress of the installation is displayed. When the installation is completed, the “Restart” window opens.
  17. Click **Yes, I want to restart my computer now**, then click **Finish**. The site server restarts.

---

## Distributing IBM Director Agent software

After you install IBM Director UIM for Microsoft SMS, you can use SMS software distribution to install IBM Director Agent on your managed systems. This section provides information about how to create, prepare, and distribute the IBM Director Agent software package.

Before you can distribute the IBM Director Agent software package to your SMS systems, you must download the IBM Director Agent installation file, `dir4.20_agent_windows.zip`, from <http://www.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-55433>.

**Note:** For additional information about IBM Director Agent features and installation requirements, see the *IBM Director 4.20 Installation and Configuration Guide*.

## Creating the IBM Director Agent software package

Complete the following steps to create the IBM Director Agent software package:

1. Create a temporary directory on the SMS server to which you want to extract the software package.
2. Extract the `dir4.20_agent_windows.zip` file to the temporary directory.
3. Using an ASCII text editor, complete the following steps:
  - a. Open the `diragent.rsp` file (located in the temporary directory that you created) and verify the configuration options. This file follows the Windows INI file format and is fully commented.
  - b. Modify the configuration options in the `diragent.rsp` file as applicable.
  - c. Change the last line in the `diragent.rsp` file to  
`RebootIfRequired = N`
- Note:** If you do not set this parameter to N, when you try to distribute the software package, the system restarts twice and the IBM Director Agent software is not installed properly.
- d. Save the `diragent.rsp` file to the temporary directory.
4. Open the SMS Administrator Console.
5. In the **SMS Administrator Console** tree, right-click **Packages**; then, click **New** → **Package from Definition**. The Create Package from Definition wizard starts, and the “Welcome to the Create New Package from Definition Wizard” window opens.
6. Click **Next**. The “Package Definition” window opens.
7. Click **Browse** and navigate to the `IBM Director\bin` subdirectory. If you installed the IBM Director UIM for SMS in the default location, the path is `d:\Program Files\IBM\Director\bin`, where `d` is the drive letter of the hard disk drive. Click

- UMS.SMS**; then, click **Open**. The “Package Definition” window opens, and DirectorAgent is displayed in the **Package definition** field.
8. Click **Next**. The “Source Files” window opens.
  9. Click **Always obtain files from a source directory** and click **Next**. The “Source Directory” window opens.
  10. Complete the following steps to specify the location of the source files:
    - a. In the **Source directory location** field, click **Local drive on site server** or **Network location**.
    - b. In the **Source directory** field, type *d:\TemporaryDirectory* where *d* is the drive letter of the hard disk drive and *TemporaryDirectory* is the directory to which you extracted the dir4.20\_agent\_windows.zip file.
  11. Click **Next**. The “Completing the Create Package from Definition Wizard” window opens.
  12. Review the package characteristics information and click **Finish**. The IBM Director Agent software package is displayed under **Packages** in the **SMS Administrator Console** tree.

## Preparing the IBM Director Agent software package for distribution

Complete the following steps to prepare the IBM Director Agent software package for distribution:

1. Create a temporary directory on your site server to serve as a share distribution directory.
  2. Copy the contents of the temporary directory to the temporary share distribution directory.
- Note:** Do not use the temporary directory as the share distribution directory. The contents of the share distribution directory are automatically deleted after the software distribution is completed.
3. In the **SMS Administrator Console** tree, expand the **Packages** tree.
  4. In the right pane, right-click **Director Agent** and click **Properties**. The “IBM Corp. DirectorAgent 4.20 English Package Properties” window opens.
  5. Click the **Data Access** tab. The Data Access page is displayed.
  6. Click **Share distribution folder** and in the **Name** field, type the name of the temporary directory that you created in step 1.
  7. Click **OK**.
  8. In the **SMS Administrator Console** tree, click the **Programs** directory that is displayed under the **IBM Corp.DirectorAgent English Package**.
  9. In the right pane, right-click **Director Agent** and click **Properties**. The “DirectorAgent Program Properties” window opens.
  10. Change the contents of the **Command line** field to the following string:  
`IBMDirectorAgent4.20.exe -s -a SILENT RSP=\\server\share_name\diragent.rsp`

where:

    - *server* is the SMS site server.
    - *share\_name* is the name of the network share.
  11. Click **OK**. The IBM Director Agent software package is ready for distribution.

## Distributing the IBM Director Agent software package

Complete the following steps to distribute the IBM Director Agent software package:

1. In the SMS Administrator Console, right-click **Advertisements**; then, click **New** → **Advertisement**. The New Advertisement wizard opens.
2. On the General page, in the **Name** field, type a name for the package.
3. In the **Comment** field, type a comment, such as *IBM Director Agent software*.
4. In the **Package** list, click **DirectorAgent**.
5. In the **Program** list, click **Director Agent**.
6. In the **Collection** field, type the name of the collection to which you want to distribute the package, or click **Browse** to select a collection.
7. Click the **Schedule** tab. Specify a date and time to distribute the package.
8. Click **OK**. The software package is scheduled for distribution.

At the specified time and date, IBM Director Agent is installed on the selected systems.

---

## Working with IBM Director UIM for SMS

After you install the IBM Director UIM for Microsoft SMS, several IBM Director functions can be accessed from the SMS Administrator Console.

**Note:** IBM Director functions cannot be used on managed systems that do not have IBM Director Agent installed, although, their context menus display the **Director Agent Resources** option.

In the **Systems Management Server** tree, expand the **Collections** or **Queries** tree to display the **All Systems with Director Agent** node.

In the **Systems Management Server** tree, expand the **Tools** tree to display the **Director Agent Console** node.

## Using the IBM Director Agent Console

Complete the following steps to use IBM Director Agent Console on a managed system:

1. In the **SMS Administrator Console** tree, expand **Tools**.
2. Right-click **Director Agent Console**; then, click **All Tasks** → **Start**. The “Director Agent Console” window opens.
3. Click **Action** → **New** → **System**. The “Dialog” window opens.
4. Type the following information:
  - a. In the **Name** field, type the computer name of the system.
  - b. In the **Web Address** field, type the IP address of the system or the alias that is mapped to the IP address.
  - c. In the **Port** field, type the number of the port through which you access the managed system that has IBM Director Agent installed on it. By default, this is set to 411.
5. Click **OK**. The “Director Agent Console” window opens.
6. Expand **My\_Computer**, where *My\_Computer* is the computer name of the system that you typed in step 4a.

## Using the IBM Director Agent Resources Browser

Complete the following steps to use IBM Director Agent Resources Browser on a managed system:

1. In the **SMS Administrator Console** tree, expand **Queries**.
2. Click **All Systems with Director Agent**.
3. In the right pane, right-click a managed system; then, click **All Tasks** → **Director Agent Resources**. The “Director Agent Resources” window opens.
4. Expand the tree in the left pane; then, click an IBM Director Agent service to view the information of that service.

## Performing inventory collections on IBM Director Agents

Complete the following steps to perform inventory collections on a managed system:

1. In the **SMS Administrator Console** tree, expand **Collections**.
2. Click **All Systems with Director Agent**.
3. In the right pane, right-click a managed system; then, click **All Tasks** → **Start Resource Explorer**. The “Resource Explorer” window opens.
4. Expand the **Hardware** node of the tree in the left pane; then, click an IBM Director Agent service to connect to that service on the managed system.
5. View or edit the service settings as applicable.

## Issuing a Wake on LAN command

Complete the following steps to issue a Wake on LAN command to a managed system on which IBM Director Agent is installed:

1. From the **SMS Administrator Console**, right-click any managed system that has IBM Director Agent installed and then select **All Tasks** → **Wake on LAN**. A confirmation window opens.
2. Click **OK**. The system is turned on.

---

## Uninstalling IBM Director UIM for SMS

Complete the following steps to uninstall IBM Director UIM for SMS:

1. From the Windows desktop, click **Start** → **Settings** → **Control Panel**. The “Control Panel” window opens.
2. Double-click **Add/Remove Programs**. The “Add/Remove Programs” window opens.
3. From the list of programs, select **Director Agent Integration with SMS**; then, click **Remove**. The “Confirm File Deletion” window opens.
4. Click **OK**. The uninstallation program starts.
5. When the uninstallation is completed, click **OK**.
6. Restart the system.



---

## Chapter 3. Integrating IBM Director UIM for HP OpenView

This chapter provides information about how to integrate IBM Director with HP OpenView using IBM Director UIM for HP OpenView. When you install IBM Director UIM for HP OpenView, the following functions are added to the Network Node Manager:

- **Event notification**  
Provides notification of events that occur on managed systems on which IBM Director Agent is installed. These notifications are delivered using SNMP traps. For a complete list of events that IBM Director Agent sends, see Appendix A, “IBM Director UIM events,” on page 45.
- **Inventory collection**  
Scans inventory using an inventory plug-in that starts a Java application that collects the inventory from IBM Director Agent, including Asset ID data, BIOS details, and lease information. For a complete list of the inventory that is collected, see Appendix B, “IBM Director UIM inventory collection,” on page 67.
- **Web browser launch**  
Provides Web browser capability from within the HP OpenView environment so that you can display and manage real-time asset and health information about managed systems on which IBM Director Agent is installed.
- **Discovery**  
Provides SNMP-based discovery of managed systems on which IBM Director Agent is installed.

**Note:** You must configure the SNMP community name of the managed system.

The rest of this chapter provides the following information and instructions to help ensure a successful integration:

- Installation requirements, on page 11
- Limitations, on page 12
- Downloading IBM Director UIM for HP OpenView, on page 13
- Installing IBM Director UIM for HP OpenView, on page 13
- Configuring the database source, on page 16
- Working with IBM Director UIM for HP OpenView, on page 15
- Uninstalling IBM Director UIM for HP OpenView, on page 17

---

### Installation requirements

IBM Director UIM for HP OpenView can be installed on systems that have the following applications and operating systems installed:

- HP OpenView Network Node Manager
  - Version 6.2 with patches NNM\_00932 and NNM\_00983 installed
  - Version 6.4 with patches NNM\_00973 and NNM\_00981 installed
- Microsoft Windows 2000

IBM Director UIM for HP OpenView works with the following versions of IBM Director Agent:

- Versions 3.1.1, 4.1, 4.10.2, 4.11, 4.12, and 4.20 running on the following operating systems:
  - Windows NT 4.0 Workstation (Service Pack 6a or later required)

- Windows NT 4.0 Server, Standard, Enterprise and Terminal Server Editions (Service Pack 6a or later required)
- Windows NT 4.0 Server with Citrix MetaFrame (Service Pack 6a or later required)
- Windows 2000, Advanced Server, Datacenter Server, Professional, and Server Editions (Service Pack 3 or later required)
- Windows XP Professional Edition (Service Pack 1 or 1a recommended)
- Windows Server 2003, Enterprise, Datacenter, Standard, and Web Editions
- Versions 4.1, 4.10.2, 4.11, 4.12, and 4.20 running on the following operating systems:
  - Red Hat® Linux Advanced Server, version 2.1 (Update 3 required)
  - Red Hat Enterprise Linux AS, version 2.1 (Update 3 required)
  - Red Hat Enterprise Linux AS, version 3.0 for Intel x86
  - Red Hat Enterprise Linux ES and WS, versions 2.1 and 3.0
  - SUSE LINUX Enterprise Server 8 (Service Pack 3 required)

**Notes:**

1. (Managed systems running Linux only) SNMP must be running on the managed system before you start installing IBM Director UIM for HP OpenView.
2. IBM Director UIM for HP OpenView does not support managed systems running 64-bit versions of IBM Director Agent 4.12 or later.

The following additional installation requirements must be met:

- If you want to install database support, you must have installed and configured Microsoft SQL Server 2000 before you install IBM Director UIM for HP OpenView.

**Note:** There is no database support for Linux.

- For IBM Director Agent discovery, you must have Windows SNMP support enabled on the system, and the SNMP option must be enabled before you install IBM Director Agent on the system.
- (Windows only) To access the Web browser function or to receive health alerts, you must enable these functions when you install IBM Director Agent on the system.

---

## Limitations

When you install IBM Director UIM for HP OpenView, consider the following limitations:

- Discovery, inventory, and event notification are supported on all client/server operating system combinations for HP OpenView, with one exception: an HP OpenView server that is installed on Windows NT cannot collect inventory data from a system that uses Windows XP.
- When you display inventory data for multiple video adapters and the inventory data is not retrieved correctly, the problem is with CIM. If you try the wbmestest tool, you still do not retrieve the correct information for multiple video adapters.
- With SMBIOS 2.3.3:
  - PCI-X slots do not report the correct connector type. Retrieved inventory data displays the connector type as Unknown for all PCI-X slots.
  - Some multi-threaded processors might report processor details incorrectly. For these processors, the inventory function reports two processors, one with the correct information and the other with no information.

- With older versions of SMBIOS, ISA slots do not report current usage correctly. For these systems, current usage for ISA slots is reported as 7.
- Systems that are running Windows 2000 Professional Edition with S3 Trio 3D video adapters might not report the correct amount of adapter RAM. Adapter RAM is reported as 0.

---

## Downloading IBM Director UIM for HP OpenView

You can download the IBM Director UIM for HP OpenView executable file, `dir4.20_uim_openview.exe`, and the readme file, `dir4.20_uim_openview.txt`, from <http://www.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-55433>. Download these files into a temporary directory.

---

## Installing IBM Director UIM for HP OpenView

This section provides the installation steps for the UIM. After you install the UIM for HP OpenView, you must configure a database source if you want to collect inventory data. See “Configuring the database source” on page 16 for instructions.

Complete the following steps to install IBM Director UIM for HP OpenView:

1. Stop Network Node Manager.
2. Double-click **dir4.20\_uim\_openview.exe**. The InstallShield Wizard starts, and the “Preparing to Install” window opens. When the Windows Installer is configured, the “Welcome to the InstallShield Wizard for IBM Director UIM for HP OpenView” window opens.

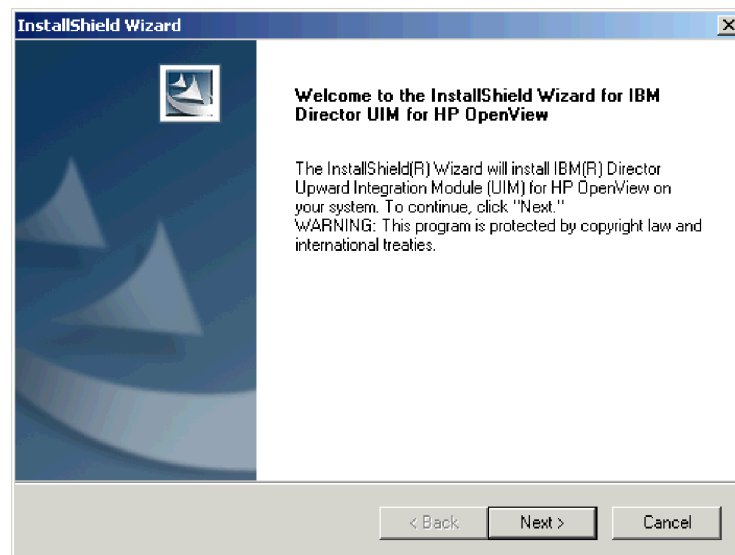


Figure 4. “Welcome to the InstallShield Wizard for IBM Director UIM for HP OpenView” window

3. Click **Next**. The “License agreement” window opens.
4. Click **Yes**. The “IBM Director UIM for HP OpenView” window opens.
5. Read the information on the screen and click **Next**. The “User information” window opens. By default, the fields are already completed.

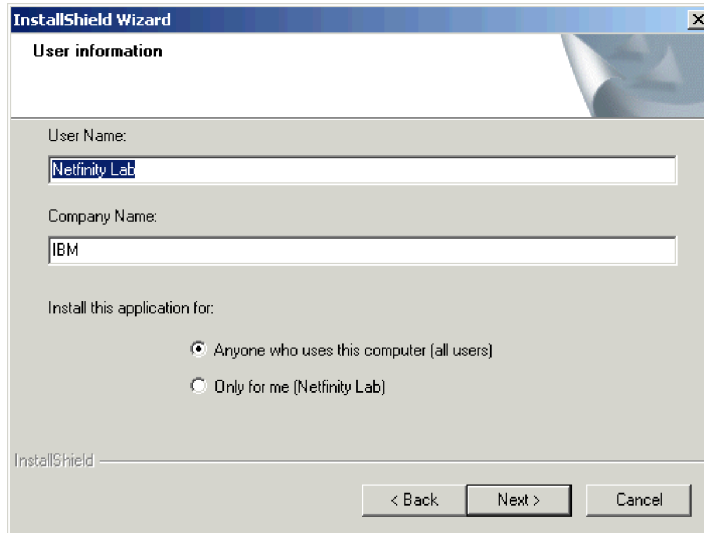


Figure 5. “User information” window

6. Complete the following steps to change the default information:
  - a. In the **User Name** field, type the name of the OpenView administrator.
  - b. In the **Company Name** field, type the name of your company.
  - c. If you want to enable access only for the current operating-system account, click **Only for me (username)**, where *username* is automatically substituted. Otherwise, click **Anyone who uses this computer (all users)**.
7. Click **Next**. The “Installation type” window opens.
8. Click the type of installation that you want.

#### Typical

Installs IBM Director UIM for HP OpenView and the IBM Director UIM for HP OpenView help files.

#### Compact

Installs IBM Director UIM for HP OpenView only.

#### Custom

Installs IBM Director UIM for HP OpenView; and enables you to select whether to install the IBM Director UIM for HP OpenView help files and database support.

9. Click **Next**. If you specified a typical or compact installation, the “Setup summary” window opens; go to step 11. If you specified a custom installation, the “Feature selection” window opens; go to step 10.
10. Select the IBM Director features that you want to install and click **Next**. If you want to install database support, select the **Database support** check box.

**Note:** To use this option, you already must have installed and configured Microsoft SQL Server 2000.

The “Setup summary” window opens.

11. Review the setup summary. Click **Back** to make a change to the setup. Otherwise, click **Next**. The “Setup Status” window opens.  
When the installation is completed, the “Restart” window opens.
12. Click **Finish** to restart the system now. The system restarts.

13. Start Network Node Manager. The “Root” window opens and the error log containing error messages about MIBs for IBM Director event alerts is displayed.
14. Click **Edit** → **Clear**; then, close the window.
15. Start Network Node Manager again. The problem is corrected, and the error log is not displayed.

---

## Working with IBM Director UIM for HP OpenView

After you install IBM Director UIM for HP OpenView, you can access IBM Director functions from the Network Node Manager. In the “Network Node Manager Root” window, double-click the **DirectorAgent** icon to begin working with managed systems with IBM Director Agent installed. The “Director Agent” window opens.

### Using discovery

To discover all systems with IBM Director Agent installed, in the “Director Agent” window, click **Tools** → **Director Agent** → **Director Agent Status**.

To remove any systems that have been removed by the Network Node Manager because of status polling, click **Tools** → **Director Agent** → **Remove Offline Nodes**.

### Creating a certificate

HP OpenView uses a stored certificate to access inventory information for a managed system. Complete the following steps to create a certificate:

1. In the “Director Agent” window, click a managed system.
2. In the “HP OpenView Root” window, click **Tools** → **Director Agent** → **Create Certificate**. The “Client Authentication” window opens.
3. Type the user name and password in the applicable fields.
4. Click **OK**.

You can have only one certificate at a time. You cannot view inventory information for a managed system for which the certificate is not valid. To access inventory information for a managed system for which the certificate is not valid, click **Tools** → **Director Agent** → **Create Certificate** to type and save a new user name and password pair as the certificate.

### Viewing inventory

Complete the following steps to view the inventory for a system:

1. In the “Director Agent” window, click the system.
2. Click **Tools** → **Director Agent** → **Director Agent Inventory** and click the inventory item that you want to view.

#### Notes:

1. For the inventory items that are collected by the inventory function of the IBM Director UIMs, see Appendix B, “IBM Director UIM inventory collection,” on page 67.
2. The Director Agent Inventory task uses the stored certificate for authentication. If you have not created a certificate, the “Client Authentication” window opens when you click **Tools** → **Director Agent** → **Director Agent Inventory**. The Director Agent Inventory task will successfully collect and save inventory data only from the managed systems for which the certificate is valid.

## Configuring the database source

If you specified a custom installation to include database support, you must configure the database source. Also, you must have installed and configured Microsoft SQL Server 2000 before you install IBM Director UIM for HP OpenView.

**Note:** On systems that are running Windows XP, you might also have to correct inventory collection.

Complete the following steps to configure a database source:

1. Start Network Node Manager.
2. Double-click the **Director Agent** icon.
3. Click **Tools** → **Director Agent** → **Configure ODBC DataSource**. The “Configure DataSource for Database Access” window opens.

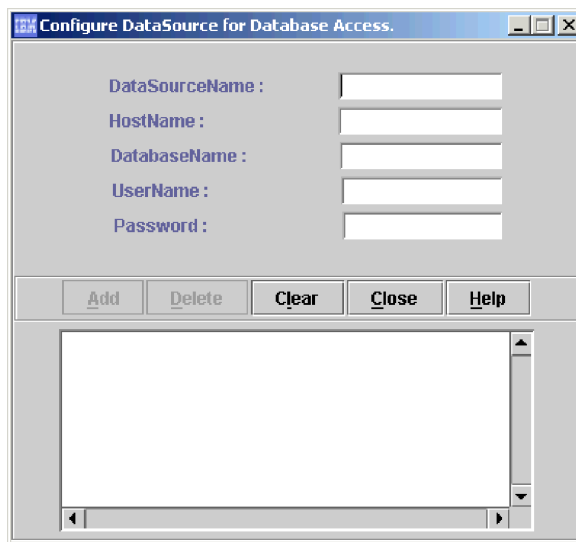


Figure 6. “Configure DataSource for Database Access” window

4. Complete the fields.
5. Click **Add**. A message is displayed in the bottom pane to indicate whether the database tables were created successfully.
6. Click **Close**.

## Saving inventory data to the database

Complete the following steps to save the IBM Director Agent inventory data to the database:

1. Click **Tools** → **Director Agent** → **Get Director Agent Nodes**. A message is displayed stating that the IBM Director Agents are collected.
2. Click **OK**.
3. Click **Tools** → **Director Agent** → **Save Inventory to Database**. The “Inventory Status” window opens.

**Note:** The Save Inventory to Database task uses the stored certificate for authentication. If you have not created a certificate, the “Client Authentication” window opens after you click **Tools** → **Director Agent** → **Save Inventory to Database**. The Save Inventory to Database task will

successfully collect and save inventory data only from the managed systems for which the certificate is valid.

In the bottom pane, a message is displayed when the inventory has been saved successfully.

4. Click **Close**.

## Viewing event notifications

IBM Director UIM for HP OpenView adds IBM Director trap definitions to HP OpenView. To view the event notifications for a single system, in the “Director Agent” window, right-click the system and click **Alarms**. To view all event notifications, in the “Alarm Categories” window, click **Status Alarms**.

For a list of IBM Director Agent events, see Appendix A, “IBM Director UIM events,” on page 45. For more information about how to customize events, see your HP OpenView documentation.

## Accessing the Web browser

To access the Web browser, click **Tools** → **Director Agent** → **Director Agent Browser**. The “Web browser” window opens.

---

## Uninstalling IBM Director UIM for HP OpenView

Complete the following steps to uninstall IBM Director UIM for HP OpenView:

1. On the HP OpenView server open a command prompt; then, type the following command to run the delovums application:

```
d\installdirectory\delovums.exe
```

where:

- *d* is the drive letter of the hard disk drive.
- *installdirectory* is the installation directory, typically Program Files\HP OpenView\NNM\bin\.

The Director Agent map and Director Agent symbol are deleted from the submap of the Director Agent nodes.

2. Stop the HP OpenView server.
3. Click **Start** → **Settings** → **Control Panel**. The “Control Panel” window opens.
4. Double-click **Add/Remove Programs**. The “Add/Remove Programs” window opens.
5. From the Add/Remove list, select **IBM Director UIM for HP OpenView**; then, click **Remove**. The “Confirm File Deletion” window opens.
6. Click **OK**. The uninstallation program starts.
7. When the uninstallation is completed, click **OK**. Then, restart the system or refresh the Windows directory to remove the Director Agent folder icons from the **Start** menu.

## Unloading the MIB files

You must unload the MIB files manually to complete the uninstallation. Complete the following steps to unload the MIB files:

1. Start the HP OpenView server.
2. In Network Node Manager, click **Options** → **Load/Unload MIBs:SNMP**.
3. Click the MIBs that you want to unload.

4. Click **Unload**.

## Removing the database entry for IBM Director Agent

You must delete the database entry for IBM Director Agent to complete the uninstallation. Complete the following steps to remove the database entry for IBM Director Agent:

1. Start Microsoft SQL Server 2000 Enterprise Manager.
2. Expand the **Microsoft SQL Servers** tree.
3. Expand the **SQL Servers Group** tree.
4. Navigate to the IBM Director database.
5. Right-click the database and click **Delete**.



---

## Chapter 4. Integrating IBM Director UIM for IBM Tivoli NetView

This chapter contains information about how to integrate IBM Director UIM for IBM Tivoli NetView. When you install IBM Director UIM for IBM Tivoli NetView, the following functions are added to the Tivoli NetView Console:

- **Event notification**  
Provides notification of events that occur on managed systems on which IBM Director Agent is installed. These notifications are delivered using SNMP traps. For a complete list of events that IBM Director Agent sends, see Appendix A, “IBM Director UIM events,” on page 45.
- **Inventory collection**  
Scans inventory using an inventory plug-in that starts a Java application that collects the inventory from IBM Director Agent, including Asset ID data, BIOS details, FRU service numbers, lease information, and network details. For a complete list of the inventory that is collected, see Appendix B, “IBM Director UIM inventory collection,” on page 67.
- **Web browser launch**  
Provides Web-browser capability from within the Tivoli NetView environment so that you can view and manage real-time asset and health information about managed systems on which IBM Director Agent is installed.
- **Discovery**  
Provides SNMP-based discovery capability for managed systems on which IBM Director Agent is installed.

**Note:** You must configure the SNMP community name of the managed system.

The rest of this chapter provides the following information and instructions to help ensure a successful integration:

- Installation requirements, on page 19
- Limitations, on page 20
- Downloading IBM Director UIM for Tivoli NetView, on page 21
- Installing IBM Director UIM for Tivoli NetView, on page 21
- Post-installation tasks, on page 23
- Working with IBM Director UIM for Tivoli NetView, on page 24
- Uninstalling IBM Director UIM for Tivoli NetView, on page 26

---

### Installation requirements

IBM Director UIM for Tivoli NetView can be installed on systems running the following applications and operating systems:

- IBM Tivoli NetView, versions 6.0.2 and 7.1
- Microsoft Windows 2000 and 2003
- Red Hat Linux version 7.2
- SUSE LINUX version 7.2
- (Linux only) Red Hat Package Manager (RPM)

IBM Director UIM for Tivoli NetView works with the following versions of IBM Director Agent:

- Versions 3.1.1, 4.1, 4.10.2, 4.11, 4.12, and 4.20 running on the following operating systems:

- Windows NT 4.0 Workstation (Service Pack 6a or later required)
- Windows NT 4.0 Server, Standard, Enterprise and Terminal Server Editions (Service Pack 6a or later required)
- Windows NT 4.0 Server with Citrix MetaFrame (Service Pack 6a or later required)
- Windows 2000, Advanced Server, Datacenter Server, Professional, and Server Editions (Service Pack 3 or later required)
- Windows XP Professional Edition (Service Pack 1 or 1a recommended)
- Windows Server 2003, Enterprise, Datacenter, Standard, and Web Editions
- Versions 4.1, 4.10.2, 4.11, 4.12, and 4.20 running on the following operating systems:
  - Red Hat Linux Advanced Server, version 2.1 (Update 3 required)
  - Red Hat Enterprise Linux AS, version 2.1 (Update 3 required)
  - Red Hat Enterprise Linux AS, version 3.0 for Intel x86
  - Red Hat Enterprise Linux ES and WS, versions 2.1 and 3.0
  - SUSE LINUX Enterprise Server 8 (Service Pack 3 required)

**Notes:**

1. (Managed systems running Linux only) SNMP must be running on the managed system before you start installing IBM Director UIM for IBM Tivoli NetView.
2. IBM Director UIM for IBM Tivoli NetView does not support managed systems running 64-bit versions of IBM Director Agent 4.12 or later.

The following additional installation requirements must be met:

- If you want to install database support, you must install and configure Microsoft SQL Server 2000 before you install IBM Director UIM for Tivoli NetView.
- For IBM Director Agent discovery, SNMP support must be enabled on the system.
- To access the Web browser function or to receive health alerts, you must enable these functions when you install IBM Director Agent on the system.

---

## Limitations

When you install IBM Director UIM for Tivoli NetView, consider the following limitations:

- There is no database support for Linux.
- Discovery, inventory, and event notification are supported on all client/server operating-system combinations for Tivoli NetView, with two exceptions:
  - An IBM Tivoli NetView server that is running Linux can get inventory only from managed systems that are running IBM Director Agent 4.20.
  - An IBM Tivoli NetView server that is running Windows cannot get inventory from managed systems that are running IBM Director 4.1.
- Before you start IBM Director on Tivoli NetView, make sure that the Web browser on the NetView server is not set to use proxy accounts; otherwise, discovery fails.
- In Windows Internet Explorer 5.0, if you start the HTTP-based IBM Director Agent through Tivoli NetView, a proxy server authorization window opens even if the browser options are set to bypass a proxy server for local addresses. To correct this problem, you must upgrade to Internet Explorer 5.5.
- When you display inventory data for multiple video adapters and the inventory data is not retrieved correctly, the problem is with CIM. If you try the `wbemtest` tool, you still do not retrieve the correct information for multiple video adapters.

- With SMBIOS 2.3.3:
  - PCI-X slots do not report the correct connector type. Retrieved inventory data displays the connector type as Unknown for all PCI-X slots.
  - Some multi-threaded processors might report processor details incorrectly. For these processors, the inventory function reports two processors, one with the correct information and the other with no information.
- With older versions of SMBIOS, ISA slots do not report current usage correctly. For these systems, current usage for ISA slots is reported as 7.
- Systems that are running Windows 2000 Professional Edition with S3 Trio 3D video adapters might not report the correct amount of adapter RAM. Adapter RAM is reported as 0.
- All IBM Director Agent traps that are received are reported as Critical regardless of their severity. You can modify the severity by selecting **Options** → **Trap Settings** from the NetView server menu.
- If IBM Director UIM for Tivoli NetView is uninstalled and then reinstalled, you might receive the following error: Browser service event ID: 8032. Complete the following steps to correct this problem:
  1. Open Internet Explorer.
  2. Click **Tools** → **Internet Options**.
  3. Click **Delete Files**, and then click **OK**.
  4. Click **Clear History**, and then click **OK**.

---

## Downloading IBM Director UIM for Tivoli NetView

You can download the IBM Director UIM for Tivoli NetView executable file, `dir4.20_uim_netview.exe`, and the readme file, `dir4.20_uim_netview.txt`, from the following Web site:

<http://www.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-55433>.

Download these files into a temporary directory.

---

## Installing IBM Director UIM for Tivoli NetView

This section provides the installation instructions for the UIM. After you install the UIM for Tivoli NetView, you must configure a database source and create an IBM Director Agent SmartSet if you want to collect inventory data. See “Configuring the database source” on page 24 and “Discovering IBM Director Agents” on page 23 for instructions.

Complete the following steps to install IBM Director UIM for Tivoli NetView:

1. Stop Tivoli NetView Server.
2. Double-click **dir4.20\_uim\_netview.exe**. The InstallShield Wizard starts, and the “Preparing to Install” window opens. When the Windows Installer is configured, the “Welcome to the InstallShield Wizard for IBM Director UIM for Tivoli NetView” window opens.

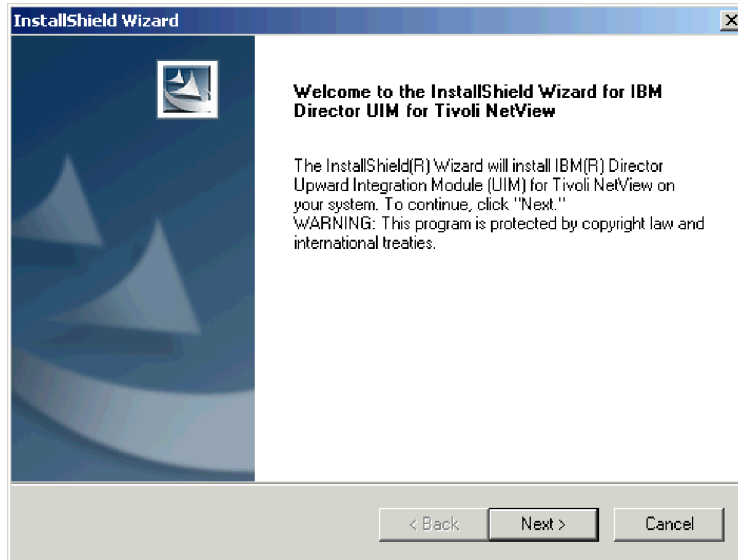


Figure 7. “Welcome to the InstallShield Wizard for IBM Director UIM for Tivoli NetView” window

3. Click **Next**. The “License agreement” window opens.
4. Click **Yes**. The “IBM Director UIM for Tivoli NetView” window opens.
5. Read the information in the window and click **Next**. The second “IBM Director UIM for Tivoli NetView” window opens. By default, the fields are already completed.

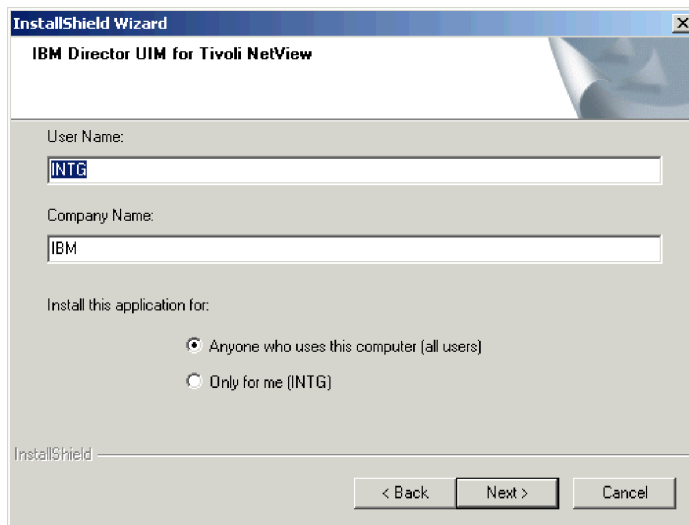


Figure 8. “IBM Director UIM for Tivoli NetView” window

6. Complete the following steps to change the default information:
  - a. In the **User Name** field, type the name of the NetView administrator.
  - b. In the **Company Name** field, type the name of your company.
  - c. If you want to enable access only for the current operating-system account, click **Only for me (username)**, where *username* is automatically substituted. Otherwise, click **Anyone who uses this computer (all users)**.
7. Click **Next**. The “Installation type” window opens.

- Click the type of installation that you want:

**Typical**

Installs IBM Director UIM for Tivoli NetView and the IBM Director UIM for Tivoli NetView help files.

**Compact**

Installs IBM Director UIM for Tivoli NetView only.

**Custom**

Installs IBM Director UIM for Tivoli NetView; and enables you to select whether to install the IBM Director UIM for Tivoli NetView help files and database support.

- Click **Next**. If you specified a typical or compact installation, the “Setup Type” window opens; go to step 11. If you specified a custom installation, the “Features selection” window opens; go to step 10.
- Select the IBM Director features that you want to install and click **Next**. If you want to install database support, be sure to select the **Database support** check box.

**Note:** For you to use this option, Microsoft SQL Server 2000 must already be installed and configured.

The “Setup Type” window opens.

- If you are installing the UIM on a management system, click **NetView Server**. Otherwise, click **NetView Console**.
- Click **Next**. The “Setup summary” window opens.
- Review the setup summary. Click **Back** to make any changes. Otherwise, click **Next**. When the installation is completed, the “Restart” window opens.
- Click **Yes, I want to restart my computer now**; then, click **Finish**. The system restarts.

---

## Post-installation tasks

After you install IBM Director UIM for Tivoli NetView, you might have to correct how icons are displayed.

### Correcting how the icons for IP Internet and SmartSet are displayed

After you install the IBM Director UIM for Tivoli NetView, the icons for IP Internet and SmartSets might not be displayed correctly. Complete the following steps to correct the problem:

- From the NetView Server, click **Options** → **Server Setup**. The “Server Setup” window opens.
- Click the **Databases** tab. The Databases page is displayed.
- In the top entry field, click **Clear Databases**. The text on the window is refreshed.
- Click **Clear Bitmap Database**; then, click **OK**.
- Close and reopen NetView Server. The icons for IP Internet and SmartSets are displayed correctly.

### Discovering IBM Director Agents

To create an IBM Director Agent SmartSet to access IBM Director Agent inventory, run the nvsniiffer.exe file. This file is in the *d:\usr\ov\bin* directory, where *d* is the drive letter of the hard disk drive. At a command prompt, navigate to the *\usr\ov\bin* directory; then, type *nvsniiffer.exe*.

---

## Working with IBM Director UIM for Tivoli NetView

After you install IBM Director UIM for Tivoli NetView, complete the following steps to access IBM Director functions from the “Tivoli NetView Root” window:

1. In the “Tivoli NetView Root” window, double-click the **SmartSets** icon.
2. Double-click the **DirectorAgent** icon to begin working with managed systems on which IBM Director Agent is installed. The “Director Agent” window opens.

### Creating a certificate

IBM Tivoli NetView uses a stored certificate to access inventory information for a managed system. Complete the following steps to create a certificate:

1. In the “Director Agent” window, click a managed system.
2. In the “Tivoli NetView Root” window, click **Tools → Director Agent → Create Certificate**. The “Client Authentication” window opens.
3. Type the user name and password in the applicable fields.
4. Click **OK**.

You can have only one certificate at a time. You cannot view inventory information for a managed system for which the certificate is not valid. To access inventory information for a managed system for which the certificate is not valid, click **Tools → Director Agent → Create Certificate** to type and save a new user name and password pair as the certificate.

### Viewing inventory

Complete the following steps to view the inventory for a managed system:

1. In the “Director Agent” window, click the system.
2. Click **Tools → Director Agent → Director Agent Inventory** and click the inventory item that you want to view.

#### Notes:

1. For the inventory items collected by the inventory function of the IBM Director UIMs, see Appendix B, “IBM Director UIM inventory collection,” on page 67.
2. The Director Agent Inventory task uses the stored certificate for authentication. If you have not created a certificate, the “Client Authentication” window opens when you click **Tools → Director Agent → Director Agent Inventory**. The Director Agent Inventory task will successfully collect and save inventory data only from the managed systems for which the certificate is valid.

### Configuring the database source

If you specified a custom installation to include database support, you must configure the database source.

**Note:** Microsoft SQL Server 2000 must be installed and configured before you install IBM Director UIM for Tivoli NetView.

Complete the following steps to configure a database source:

1. Start Tivoli NetView.
2. Click **Tools → Director Agent → Configure ODBC DataSource**. The “Configure DataSource for Database Access” window opens.

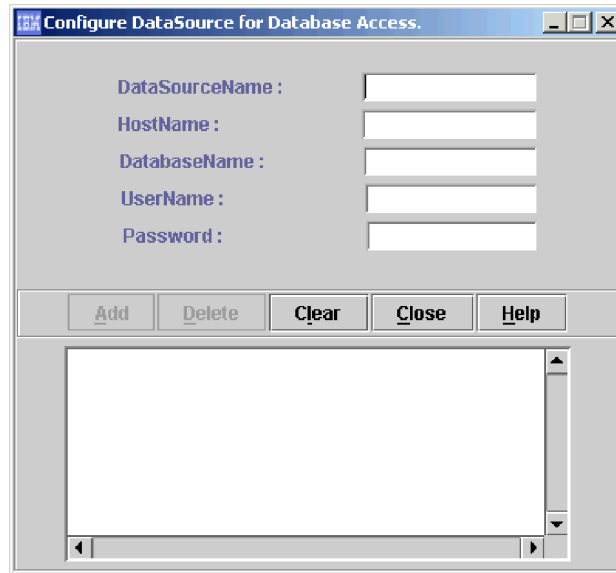


Figure 9. “Configure DataSource for Database Access” window

3. Complete the fields.
4. Click **Add**. A message is displayed in the bottom pane indicating whether the database tables were created successfully.
5. Click **Close**.

## Saving inventory data to the database

Complete the following steps to save the IBM Director Agent inventory data to the database:

1. Click **Tools** → **Director Agent** → **Get Director Agent Nodes**. A message is displayed stating that the IBM Director Agents are collected.
2. Click **OK**.
3. Click **Tools** → **Director Agent** → **Save Inventory to Database**. The “Inventory Status” window opens.

**Note:** The Save Inventory to Database task uses the stored certificate for authentication. If you have not created a certificate, the “Client Authentication” window opens after you click **Tools** → **Director Agent** → **Save Inventory to Database**. The Director Agent Inventory task successfully collects and saves inventory data only from the managed systems for which the certificate is valid.

In the bottom pane, a message is displayed when the inventory has been saved successfully.

4. Click **Close**.

## Viewing event notifications

IBM Director UIM for IBM Tivoli NetView adds IBM Director trap definitions to IBM Tivoli NetView. To view the event notifications for a single system, in the “Director Agent” window, select the system and click the **Events** icon. The “Event Browser” window opens and displays all events for the system.

For a list of IBM Director Agent events, see Appendix A, “IBM Director UIM events,” on page 45. For more information about how to customize events, see your Tivoli NetView documentation.

## Accessing the Web browser (Windows only)

To access the Web browser, click **Tools** → **Director Agent** → **Director Agent Browser**. The “Web browser” window opens.

---

## Uninstalling IBM Director UIM for Tivoli NetView

Complete the following steps to uninstall IBM Director UIM for Tivoli NetView:

1. Stop the Tivoli NetView server or servers.
2. From the Windows task bar, click **Start** → **Settings** → **Control Panel**. The “Control Panel” window opens.
3. Double-click **Add/Remove Programs**. The “Add/Remove Programs” window opens.
4. Scroll down to **IBM Director UIM for Tivoli NetView** and click **Remove**. The “Confirm File Deletion” window opens.
5. Click **OK**. The uninstallation program begins.
6. When the uninstallation is completed, click **OK**. Then, remove any objects that have been added to the Tivoli NetView environment, such as the IBM Director Agent SmartSet.



---

## Chapter 5. Integrating IBM Director UIM for IBM Tivoli Management Environment

This chapter provides information about configuring IBM Director UIM for Tivoli Management Environment. IBM Director UIM for Tivoli Management Environment provides enhancements to Tivoli systems-management products by using IBM Director Agent capabilities. When you configure the components of this module, the following systems-management functions are available in the Tivoli Management Environment:

- **Event notification**  
Provides notification of events that occur on managed systems on which IBM Director Agent is installed. These notifications can be sent as native Tivoli Enterprise Console<sup>®</sup> events, as SNMP traps, and as Windows event log events. For a complete list of events that IBM Director Agent sends, see Appendix A, “IBM Director UIM events,” on page 45.
- **Inventory collection**  
Scans inventory directly from managed systems on which IBM Director Agent is installed using custom MIF files, SQL scripts, and inventory queries. For a complete list of the inventory that is collected, see Appendix B, “IBM Director UIM inventory collection,” on page 67.
- **Monitors**  
Provides monitors for managed systems on which IBM Director Agent is installed. For IBM Tivoli Distributed Monitoring 5.1.1, you can monitor hardware thresholds, various system status, HTTP server status, and SNMP service status.
- **Software distribution**  
Enables you to build and distribute a package for IBM Director Agent software and perform an unattended installation on any Tivoli endpoint that is running Microsoft Windows.
- **Tasks**  
Provides tasks for you to view information and restart or shut down a managed system that has IBM Director Agent installed.

The rest of this chapter provides the following information and instructions to help ensure a successful integration:

- Integration requirements, on page 27
- Limitations, on page 29
- Downloading IBM Director UIM for Tivoli Management Environment, on page 29
- Configuring IBM Director UIM for Tivoli Management Environment, on page 29
- Creating the IBM Director Agent software package, on page 40
- Working with IBM Director UIM for Tivoli Management Environment, on page 42
- Upgrading or removing components, on page 44

---

### Installation requirements

To use IBM Director UIM for Tivoli Management Environment, one of the following Tivoli Management Framework versions must be installed on the server:

- Tivoli Management Framework 3.7.1
- Tivoli Management Framework 4.1
- Tivoli Management Framework 4.1.1

In addition, the following table lists the Tivoli components that must be installed to enable the UIM functions.

Table 1. Tivoli components needed for Framework version

| Function              | Component  |
|-----------------------|--|
| Events                | Tivoli Enterprise Console 3.7.1 or later                             |
| Inventory             | Tivoli Inventory 4.0 with 4.0-INV-FP05 and 4.0-INV-E-FIX 36 or later |
| Monitoring            | IBM Tivoli Distributed Monitoring 5.1.1 or later                     |
| Software distribution | Tivoli Software Distribution 4.0 or later                            |

IBM Director UIM for Tivoli Management Environment works with the following versions of IBM Director Agent:

- Versions 3.1, 3.1.1, 4.1, 4.10.2, 4.11, 4.12, and 4.20 that are running on the following operating systems:
  - Windows NT 4.0 Workstation (Service Pack 6a or later required)
  - Windows NT 4.0 Server, Standard, Enterprise and Terminal Server Editions (Service Pack 6a or later required)
  - Windows 2000, Advanced Server, Datacenter Server, Professional, and Server Editions (Service Pack 3 or later required)
  - Windows XP Professional Edition (Service Pack 1 or 1a recommended)
  - Windows Server 2003, Enterprise, Datacenter, Standard, and Web Editions
- Version 4.20 running on the following operating systems:
  - Red Hat Linux Advanced Server, version 2.1 (Update 3 required)
  - Red Hat Enterprise Linux AS, version 2.1 (Update 3 required)
  - Red Hat Enterprise Linux AS, version 3.0 for Intel x86
  - Red Hat Enterprise Linux ES and WS, versions 2.1 and 3.0
  - SUSE LINUX Enterprise Server 8 (Service Pack 3 required)

**Notes:**

1. (Linux only) The following patches are recommended for use with Tivoli Management Framework 3.7.1 for Linux:
  - 3.6.1-TMF-034
  - 3.6.1-TMF-062
  - 3.7.1-CLL-002
  - 3.7.1-TMF-073
  - 3.7.1-TMF-090
2. (Microsoft Windows NT, Windows 2000, or Windows 2003 only) For Tivoli Management Framework 3.7.1 or 4.1, you must source your command environment for Tivoli Management Environment commands to work. To do this, type `c:\windows\system32\drivers\etc\tivoli\setup_env.cmd` at a command prompt.
3. (Managed systems running Linux only) You must install and configure `net-snmp5.0.9` for IBM Tivoli Management Enterprise to receive SNMP events from the managed system. For more information, see *IBM Director 4.20 Installation and Configuration Guide*.
4. IBM Director UIM for Tivoli Management Environment does not support managed systems that are running 64-bit versions of IBM Director Agent 4.12 or later.

---

## Limitations

When you install IBM Director UIM for Tivoli Management Environment, consider the following limitations:

- Microsoft Windows 2000 servers that are running Terminal Services might be severely limited in functionality.
- Because of the way Tivoli classifies events, all informational events are classified as test traps when the events are generated by managed systems on which IBM Director Agent is installed.

---

## Downloading IBM Director UIM for Tivoli Management Environment

IBM Director UIM for Tivoli Management Environment is a compressed file that contains the following components:

- Events
- Inventory
- Monitors
- Software distribution
- Tasks

Complete the following steps to download and expand the IBM Director UIM for Tivoli Management Environment:

1. Download IBM Director UIM for Tivoli Management Environment compressed file, `dir4.20_uim_tme.tar`, and the readme file, `dir4.20_uim_tme.txt`, from the following Web site:  
<http://www.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-55433>.  
Download these files into a temporary directory.
2. To expand the TAR file, from a command prompt navigate to the temporary directory, and then type the following command:

```
tar -xvf dir4.20_uim_tme.tar
```

A new directory is created in the temporary directory with the following content.

*Table 2. Directory structure of extracted IBM Director UIM for Tivoli Management Environment file*

| Directory name      | Contents                        |
|---------------------|---------------------------------|
| ..\datme            | Component subdirectories        |
| ..\datme\readme.txt | Readme file                     |
| ..\datme\DM         | Monitoring component            |
| ..\datme\INV        | Inventory component             |
| ..\datme\SD         | Software distribution component |
| ..\datme\Tasks      | Tasks component                 |
| ..\datme\TEC        | Event component                 |

---

## Configuring IBM Director UIM for Tivoli Management Environment

You can configure one or more of the IBM Director UIM for Tivoli Management Environment components; however, you must configure each component individually. This section contains instructions for configuring the following components:

- Events, on page 30
- Inventory, on page 33
- Monitors, on page 37
- Tasks, on page 40

## Configuring the events component

To receive native Tivoli Enterprise Console events from IBM Director Agent, you must install the Tivoli Enterprise Console Adapter Configuration Facility on all your endpoint gateways. Complete the following steps to configure the Tivoli Enterprise Console server for the events component:

1. To create a new rule base and an IBM Director Agent event source and to load the IBM Director Agent .baroc file, from a command prompt on your Tivoli Enterprise Console server, change to the `..\datme\TEC` directory and type one of the following commands:

|  |   |
|--|---|
| <b>For a Windows Tivoli Management Environment</b> | <code>bash datec.sh NewRuleBase d:\NewDirectory SourceRulebase</code> |
| <b>For a UNIX® Tivoli Management Environment</b>   | <code>./datec.sh NewRuleBase d:/NewDirectory SourceRulebase</code>    |

where:

- `NewRuleBase` is the name that you want to assign to the new rule base.
- `d:\NewDirectory` or `d:/NewDirectory` is the path name of the new directory that you want to create.
- `SourceRuleBase` is the name of the rule base that you want to use as a template for the new rule base. If you do not specify a source rule base, the Default rule base is used.

**Note:** If you are using the IBM Director monitors component, you might want to use the same rule base as a template for the events rule base. In this case, for `SourceRuleBase`, specify the name of the rule base that you created for monitors.

The event server is restarted, and a message is displayed stating that the Tivoli Enterprise Console integration is complete.

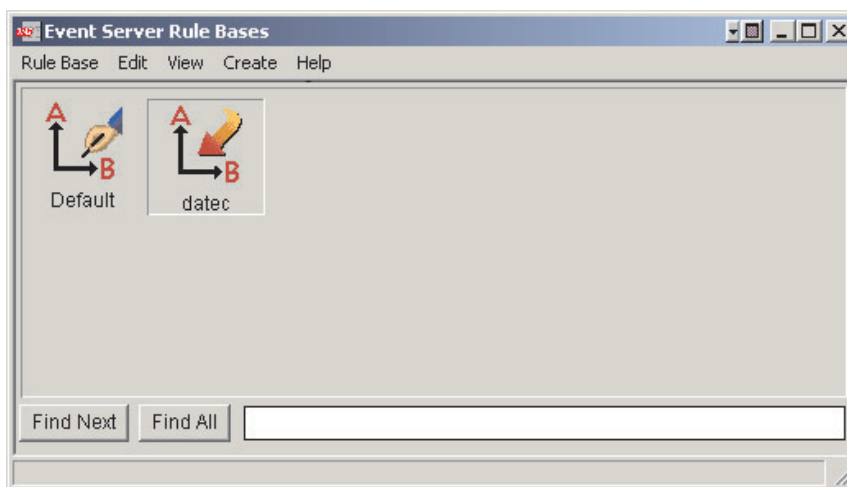


Figure 10. New rule base displayed in “Event Server Rule Bases” window

- (Optional) To load the rule sets for IBM Director Agent events into a rule base, type one of the following commands:

|  |                                       |
|--|---------------------------------------|
| <b>For a Windows Tivoli Management Environment</b> | <code>bash darules.sh RuleBase</code> |
| <b>For a UNIX Tivoli Management Environment</b>    | <code>./darules.sh RuleBase</code>    |

where:

- RuleBase* is the name of the rule base where the rule sets are imported.

**Note:** You can load rule sets into a rule base one at a time. The rule sets are located in the `..\datme\TEC` directory.

- Start the Tivoli Enterprise Console.
- Complete the following steps to create the IBM Director Agent event groups and console:
  - Import the DirectorTEC file from the `..\datme\TEC` directory using the “Tivoli Enterprise Console Configuration” window.
  - From the Tivoli Enterprise Console, click **File** → **Import** → **Browse**.
  - Navigate to the `..\datme\TEC` directory and select **DirectorTEC**; then, click **OK**. The “Import” window opens.
  - From the **Consoles** section, select **Director Agent**.
  - From the **Event Groups** section, select the groups that you want to monitor.
  - Click **OK**.
- Shut down and restart the Tivoli Enterprise Console.

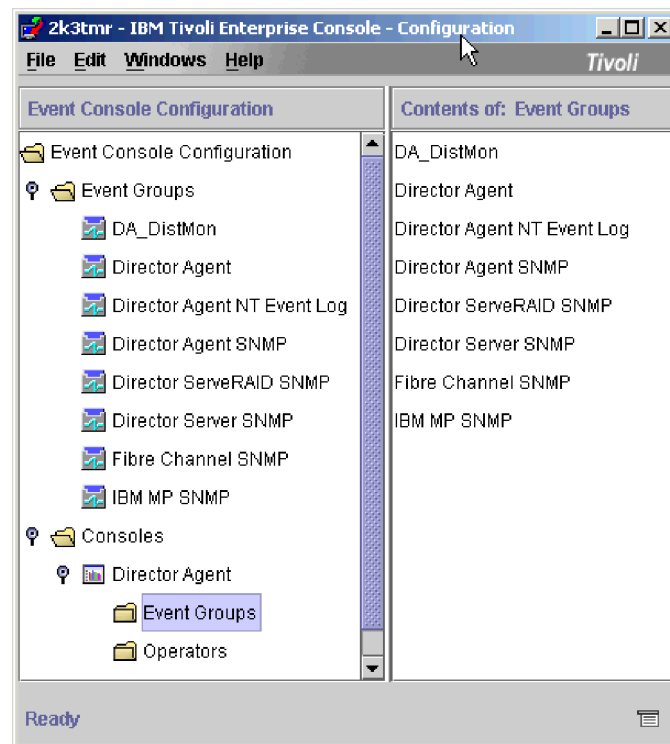


Figure 11. Director Agent console and event groups displayed in the configuration window

6. (Optional) Complete the following steps if you want to receive IBM Director Agent, Fibre Channel switch SNMP, Director ServerRAID™ SNMP, or Director Server SNMP traps:

**Note:** You must configure the Tivoli Enterprise Console SNMP Adapter to receive these traps.

- a. Append the contents of Director.cds, located in the ..\datme\TEC directory, to tecad\_snmp.cds.
  - b. Append the contents of Director.oid, located in the ..\datme\TEC directory, to tecad\_snmp.oid.
7. (Optional, Windows only) Configure the Tivoli Enterprise Console NT Event Adapter on the managed system to receive Windows event log event traps. Append the contents of diragent\_win.cds, which is in the ..\datme\TEC directory, to tecad\_win.cds.

**Note:** The diragent\_win.cds contents must precede the generic NT Base Event class in the tecad\_win.cds file.

8. (Optional) Complete the following steps to configure the Tivoli Enterprise Console SNMP Adapter to receive Management Processor SNMP traps:
  - a. Append the contents of ibmmp.cds, located in the ..\datme\TEC directory, to tecad\_snmp.cds.
  - b. Append the contents of ibmmp.oid, located in the ..\datme\TEC directory, to tecad\_snmp.oid.
  - c. Using the datme\TEC\datec.sh script, make sure the ibmmp.baroc file is included in the current rule base.
  - d. Assign the IBM MP SNMP event group to the applicable Tivoli Enterprise Console consoles.

In the “Tivoli Enterprise Console Configuration” window, the Director Agent console tree is displayed and contains the following event groups:

- **DA\_DistMon**  
IBM Director Distributed Monitors events
- **Director Agent**  
Native IBM Director events
- **Director Agent SNMP**  
IBM Director SNMP traps
- **Director Agent ServeRAID SNMP**  
IBM ServeRAID SNMP traps
- **Director Agent NT Event Log**  
IBM Director Agent events in the Windows NT event log
- **Director Server SNMP**  
IBM Director Server SNMP traps
- **Fibre Channel SNMP**  
Fibre Channel SNMP traps
- **IBM MP SNMP**  
IBM Management Processor SNMP traps

**Note:** If you are using the IBM Director Agent monitors component also, assign the DA\_Monitoring event group to the Director Agent console.

(Optional) Complete the following steps to enable IBM Director events for the Tivoli Enterprise Console for managed systems running Linux:

1. Modify the dacimom startup script that is installed with IBM Director Agent and is in the following directories:

|                          |                  |
|--------------------------|------------------|
| <b>For Red Hat Linux</b> | /etc/rc.d/init.d |
| <b>For SUSE LINUX</b>    | /etc/init.d      |

2. Locate the following line:  

```
. /etc/DirAgent/cimom
```
3. After that line, add the following line:  

```
. /opt/Tivoli/lcf/dat/1/lcf_env.sh
```
4. Save the modified file.

## Configuring the inventory component

To scan and retrieve inventory information from IBM Director Agent systems, you must ensure that Tivoli Inventory Gateway is installed on any managed nodes that you want to use to distribute the Inventory profile as well. Complete the following steps to configure the inventory component:

1. Verify that you have administrator privileges and the necessary Tivoli Management Environment authorization for the Tivoli Management Region where you want to install the inventory library.
2. To create the IBM Director Agent inventory library and queries, from a command prompt change to the `..\datme\INV` directory and type one of the following commands:

|  |  |
|--|--|
| <b>For a Windows Tivoli Management Environment</b> | <code>bash dainv_queries.sh RIMName PolicyRegion QueryLibrary</code> |
| <b>For a UNIX Tivoli Management Environment</b>    | <code>./dainv_queries.sh RIMName PolicyRegion QueryLibrary</code>    |

where:

- *RIMName* is the name of the RIM host for your inventory query. Typically, the inventory inquiry is named `inv_query`.
- *PolicyRegion* is the name of your policy region.
- *QueryLibrary* is the name for your IBM Director Agent query library. If you do not specify a name, the default is `DIRECTOR_AGENT_INV`.

In your policy region, the IBM Director Agent query library is created and contains 34 inventory queries.

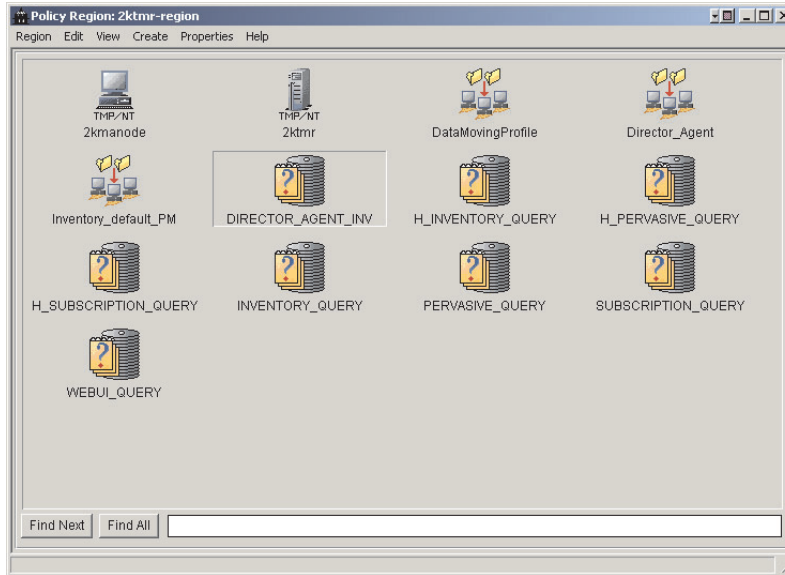


Figure 12. IBM Director Agent query library displayed in policy region

- From the policy region where you want to add the inventory profile, create a profile manager for IBM Director Agent, for example `Director_Agent` (see Figure 13). Make sure that you select **Dataless Endpoint Mode**.

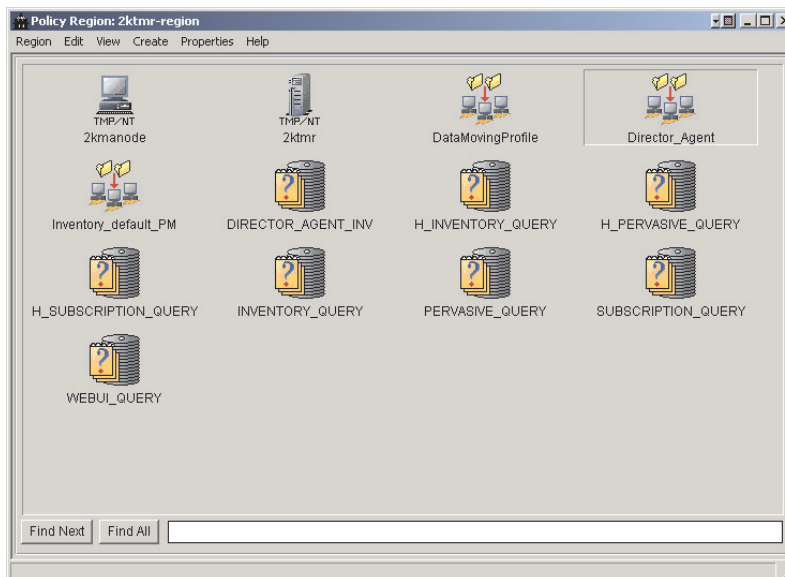


Figure 13. IBM Director Agent profile manager displayed in policy region

**Note:** You can use the same profile manager for the monitors and inventory components profiles.

- Create an inventory profile, `DA_Inventory` (see Figure 14), for the `Director_Agent` profile manager. Make sure that you select **InventoryConfig** as the profile type.



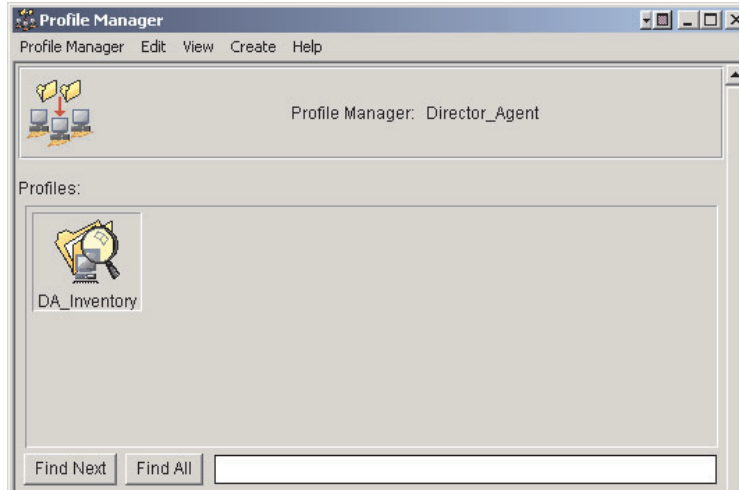


Figure 14. IBM Director Agent inventory profile displayed in the “Profile Manager” window

5. Make the following modifications to the properties for the **DA\_Inventory** profile:
  - a. In the “Inventory Administration” window, click the applicable **Scripts and MIF Files** node and type the applicable script in the **Enter a script to be run before the scan** field.

**Note:** Because of its length and to prevent errors, copy the PC script from the `..\datme\dir4.20_uim_tme.txt` file and paste it into this field.

**For PC client systems**

```
%UMS_DRIVE% @cd "%UMS_HOME%\inventory" IF NOT EXIST
"%UMS_HOME%" GOTO tag IF NOT EXIST
"%UMS_HOME%\jre\bin\java.exe GOTO jre @..\jre\bin\java.exe
-D:WINDIR="%WINDIR%" -cp
.\cim2mif.jar;"%UMS_HOME%\httpserv\cimdre.jar";
"%UMS_HOME%\httpserv\cimxml.jar";"%UMS_HOME%\
httpserv\guitools.jar";"%UMS_HOME%\httpserv\
cimfac.jar";"%UMS_HOME%\httpserv\cimwmi.jar";
"%UMS_HOME%\httpserv\cimcmn.jar"
com.ibm.sysmgt.cim.cim2mif.cim2mif /TME c:\
"%UMS_HOME%\inventory\dmi2tiv.exe" @dmi.lst exit 0 :jre IF
NOT EXIST "%UMS_HOME%\jre\bin\jre.exe GOTO jview
@..\jre\bin\jre.exe -D:WINDIR="%WINDIR%" -cp
.\cim2mif.jar;"%UMS_HOME%\httpserv\cimdre.jar";
"%UMS_HOME%\httpserv\cimxml.jar";"%UMS_
HOME%\httpserv\guitools.jar";"%UMS_HOME%\
httpserv\cimfac.jar";"%UMS_HOME%\httpserv\
cimwmi.jar";"%UMS_HOME%\httpserv\cimcmn.jar"
com.ibm.sysmgt.cim.cim2mif.cim2mif /TME c:\
"%UMS_HOME%\inventory\dmi2tiv.exe" @dmi.lst exit 0 :jview
@jview -d:WINDIR="%WINDIR%" -cp:a
.\cim2mif.jar;"%UMS_HOME%\httpserv\cimdre.jar";
"%UMS_HOME%\httpserv\cimxml.jar";"%UMS_HOME
%\httpserv\guitools.jar";"%UMS_HOME%\httpserv\
mswmi.jar";"%UMS_HOME%\httpserv\xml4j2.jar";
"%UMS_HOME%\httpserv\xml4j.jar"
com.ibm.sysmgt.cim.cim2mif.cim2mif /TME c:\
"%UMS_HOME%\inventory\dmi2tiv.exe" @dmi.lst exit 0 :tag
pegsunprv.exe -D"WINDIR=%WINDIR%" -cp
%%DIRECTOR_HOME%\classes\cim2mif.jar;%%DIRECTOR
_HOME%\classes\cimdre.jar;%%DIRECTOR_HOME%\
httpserv\cimxml.jar;%%DIRECTOR_HOME%\httpserv\
guitools.jar;%%DIRECTOR_HOME%\classes\
cimfac.jar;%%DIRECTOR_HOME%\classes\
cimwmi.jar;%%DIRECTOR_HOME%\classes\
cimutl.jar;%%DIRECTOR_HOME%\classes\cimcmn.jar
com.ibm.sysmgt.cim.cim2mif.cim2mif /TME exit 0
```

**For UNIX client systems**

/etc/DirAgent/tmeinv.sh

b. Type the applicable MIF text into the **Enter the path and name of custom MIF files to be read during installation** field:

|                                |   |
|--------------------------------|---|
| <b>For PC client systems</b>   | For DB2®, type c:\umsinodb2.mif                         |
|                                | For other databases, type c:\umsinv.mif                 |
| <b>For UNIX client systems</b> | For DB2, type /etc/DirAgent/data/umsinodb2.mif          |
|                                | For other databases, type /etc/DirAgent/data/umsinv.mif |

**Note:** The default path is c:\; however, this might change depending on the location you specify for the files.

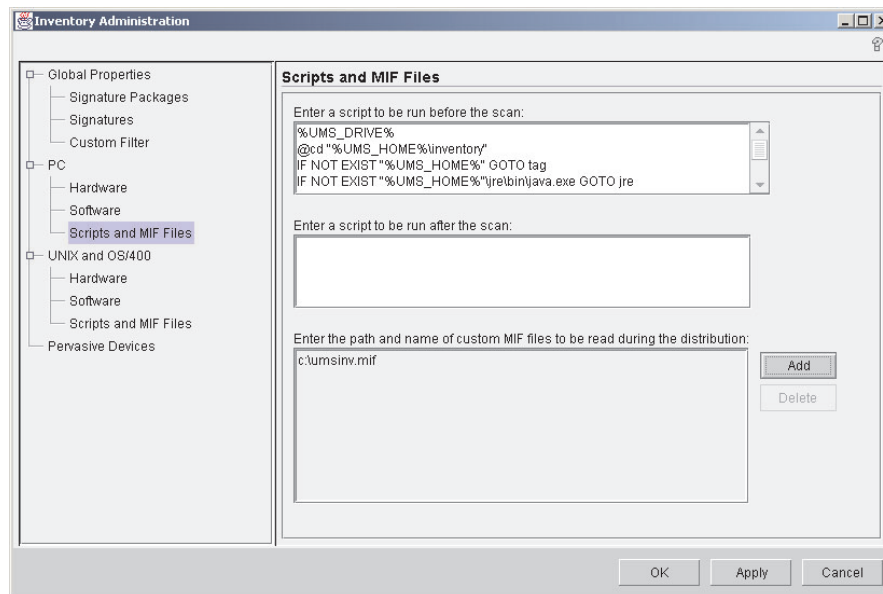


Figure 15. Scripts and MIF Files pane of "Inventory Administration" window

- c. Click **Apply**.
6. Connect to your Tivoli inventory database and load the IBM Director inventory schemas. From the `..\datme\INV` directory, load the applicable database schema file:

|                          |                                    |
|--------------------------|------------------------------------|
| <b>For IBM DB2</b>       | <code>ums_db2_schema.sql</code>    |
| <b>For Microsoft SQL</b> | <code>ums_ms_sql_schema.sql</code> |
| <b>For Oracle</b>        | <code>ums_oracle_schema.sql</code> |

**Attention:** Do not make any changes to the schema file.

The inventory component is now configured.

## Configuring the monitors component

Complete the following steps to configure the monitors component for Tivoli Distributed Monitoring 5.1.1:

1. To add distributed monitoring resource models, from a command prompt on your IBM Tivoli Monitoring Server, change to the `..\datme\DM` directory and type one of the following commands:

|  |                                 |
|--|---------------------------------|
| <b>For a Windows Tivoli Management Environment</b> | <code>bash damonitors.sh</code> |
| <b>For a UNIX Tivoli Management Environment</b>    | <code>./damonitors.sh</code>    |

A message is displayed stating that the installation is complete.

2. You must load the `tmw2k.baroc` file into the source rule base before you load the `IBM Director.baroc` file. If you have only the default rule base, you must create a new rule base and import the `tmw2k.baroc` into it. Then, run the shell script against this new rule base.  
To create a new rule base and classes, from a command prompt on your Tivoli Enterprise Console server, type one of the following commands:

|  |  |
|--|--|
| <b>For a Windows Tivoli Management Environment</b> | <code>bash damonitorsTEC.sh <i>NewRuleBase</i> d:\NewDirectory<br/>SourceRulebase</code> |
| <b>For a UNIX Tivoli Management Environment</b>    | <code>./damonitorsTEC.sh <i>NewRuleBase</i> d:/NewDirectory<br/>SourceRulebase</code>    |

where:

- *NewRuleBase* is the name that you want to assign to the new rule base.
- *d:\NewDirectory* or *d:/NewDirectory* is the path name of the new directory you want to create.
- *SourceRuleBase* is the name of the rule base that you want to use as a template for the new rule base. If you do not specify a source rule base, the Default rule base is used.

**Note:** If you are using the IBM Director event component, you might want to use the same rule base. In this case, for *SourceRuleBase*, specify the name of the rule base that you created for events.

The event server is restarted. A confirmation window opens.

3. (Optional) To load the rule sets for IBM Director Agent monitors into a rule base, at a command prompt on your Tivoli Enterprise Console server, type one of the following commands:

|  |   |
|--|---|
| <b>For a Windows Tivoli Management Environment</b> | <code>bash damonrules51.sh <i>RuleBase</i></code> |
| <b>For a UNIX Tivoli Management Environment</b>    | <code>./damonrules51.sh <i>RuleBase</i></code>    |

where *RuleBase* is the name of the rule base to which the rule sets are imported.

**Note:** You can manually load rule sets into a rule base one at a time. The rule sets are located in the `..\datme\DM` directory.

Complete the following steps to add the IBM Director Agent monitors:

1. From the policy region where you want to add the monitors, create a profile manager for IBM Director Agent, for example `Director_Agent`. Make sure that you select **Dataless Endpoint Mode**.

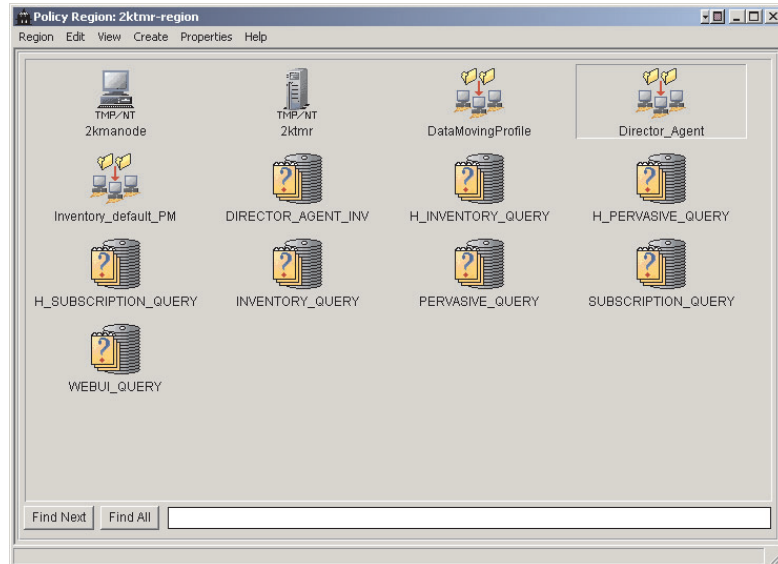


Figure 16. IBM Director Agent profile manager displayed in policy region

**Note:** You can use the same profile manager for the monitors and inventory components profiles.

2. Create a monitors profile for the Director\_Agent profile manager, for example DA\_Monitors. Make sure that you select **Tmw2kProfile** as the profile type.

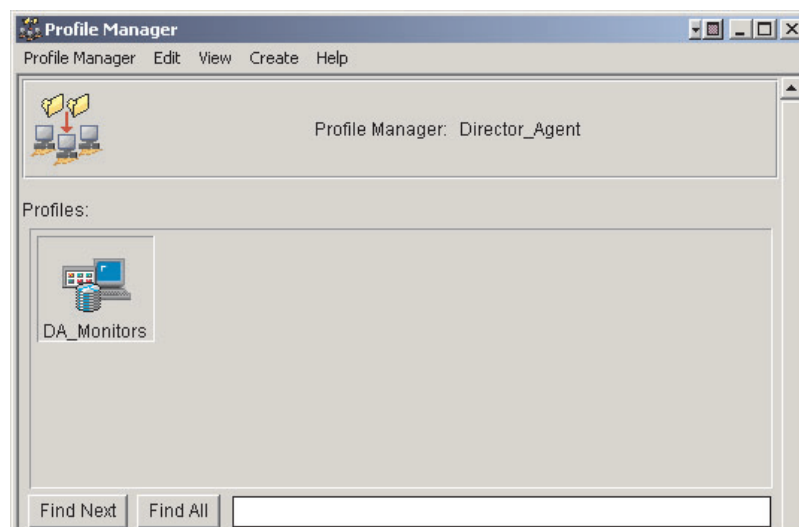


Figure 17. IBM Director Agent profile displayed in profile manager

3. Add the IBM Director Agent monitors to **DA\_Monitors**. Make sure that you select the **Wizard Generated Resource Models** category and add any of the following monitors as applicable:
  - HTTPCheck\_sh
  - IBMPSG\_Chassis
  - IBMPSG\_PhysicalMemory Monitor
  - IBMPSG\_Processor Monitor
  - IBMPSG\_ServeRAIDOverallStaus Monitor

- IBMPSG\_StorageFailurePredictionSettings Monitor
  - IBMPSG\_PhysicalNetworkAdapter
  - IBMPSG\_PortableBattery
  - IBMPSG\_Tachometer
  - IBMPSG\_TemperatureSensor
  - IBMPSG\_VoltageSensor
  - SNMPCheck\_sh
4. Double-click the **DA\_Monitors** profile. The “IBM Tivoli Monitoring Profile” window opens.
  5. Click **Edit** → **Properties**. The “Profile Properties” window opens.
  6. Select **Send TEC events**.
  7. Select **TME (secure) delivery**.
  8. From the **Choose TEC server** list, select your event server.
  9. Click **OK**.

## Configuring the tasks component

Complete the following steps to configure the tasks component to enable shutdown, restart, or view version information for the Tivoli Management Region (TMR) of managed systems with IBM Director Agent installed:

1. Verify that you have administrator privileges and the necessary Tivoli Management Environment authorization for the Tivoli Management Region where the tasks library must be located.
2. At a command prompt, navigate to the `..\datme\Tasks` directory.
3. Type one of the following commands to create the tasks:

|  |  |
|--|--|
| <b>For a Windows Tivoli Management Environment</b> | <code>bash datasks.sh HostName PolicyRegion TaskLibraryName</code> |
| <b>For a UNIX Tivoli Management Environment</b>    | <code>./datasks.sh HostName PolicyRegion TaskLibraryName</code>    |

where:

- *HostName* is the name of the host system for your tasks.
- *PolicyRegion* is the name of your policy region.
- *TaskLibraryName* is the name of your IBM Director Agent task library. If you do not specify a name, the default is DIRECTOR\_TASKS.

The DIRECTOR\_TASKS library contains three tasks: About, Reboot, and Shutdown.

## Creating the IBM Director Agent software package

To take advantage of IBM Director functions, you must install IBM Director Agent on the endpoints that you want to manage. You can create an IBM Director Agent software package and then distribute it for installation. To distribute IBM Director Agent to endpoints, you must first meet the following requirements:

- Tivoli Software Distribution Server is installed on the software distribution server.
- Tivoli Software Distribution Gateway is installed on all of the managed nodes that you plan to use as a software distribution gateway.
- A Tivoli endpoint is installed on each of the systems to which you want to distribute IBM Director Agent.
- Windows is installed on the target system.

Complete the following steps to create an IBM Director Agent software package to install on endpoints in your Tivoli Management Environment:

1. Create a temporary directory on your software distribution server.
2. Download the IBM Director Agent Installation for Windows version 4.20, `dir4.20_agent_windows.zip`, from <http://www-3.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-46492>. Download this file into a temporary directory.
3. Extract `dir4.20_agent_windows.zip` to the temporary directory.
4. (Optional) From the temporary directory, edit the response file, `diragent.rsp`, to set the IBM Director Agent installation options that you want. For example, you might need to change the target drive if Windows is installed on a drive other than C.
  - a. Using an ASCII text editor, open the `diragent.rsp` file and view the configuration options. This file follows the Windows INI file format and is fully commented. For more information about configuring IBM Director Agent, see the *IBM Director 4.20 Installation and Configuration Guide*.
  - b. Modify and save the `diragent.rsp` file.
5. To create a new IBM Director Agent package, from a command prompt, change to the `..\datme\SD` directory and type one of the following commands:

|                             |   |
|-----------------------------|---|
| <b>For a Windows server</b> | <code>bash daswd.sh HostName PolicyRegion SourcePath<br/>TargetPath PackageName SWDversion</code> |
| <b>For a UNIX server</b>    | <code>./daswd.sh HostName PolicyRegion SourcePath<br/>TargetPath PackageName SWDversion</code>    |

where:

- *HostName* is the name of the host system for software distribution.
- *PolicyRegion* is the name of your policy region.
- *SourcePath* is the fully-qualified path of the source of the package, in the temporary directory.

**Note:** If the temporary directory structure contains subdirectories, they must be separated with a forward slash (/) for a system that is running either Windows or UNIX.

- *TargetPath* is the fully-qualified path of the destination of the package.
- *PackageName* is the name that you want to give the IBM Director Agent software package.
- *SWDversion* is the version number (either 4.0 or 4.2) of the Tivoli Software Distribution that is installed.

The `DIRECTOR_SWD` profile manager is created with an IBM Director Agent software package.

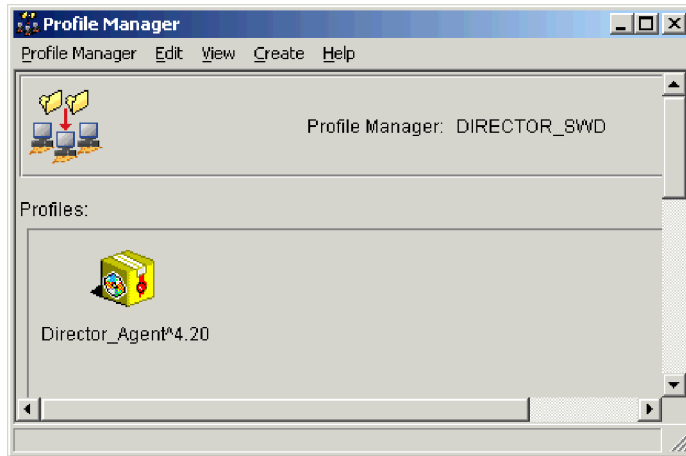


Figure 18. IBM Director Agent software package displayed in Profile Manager

After the IBM Director Agent software package is created, see the *IBM Director 4.20 Installation and Configuration Guide* for information about how to install and configure IBM Director Agent. For more information about how to distribute the software package, see your IBM Tivoli documentation.

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## Working with IBM Director UIM for Tivoli Management Environment

After you configure the IBM Director UIM for Tivoli Management Environment components and install IBM Director Agent software on your endpoints, you can use the event notification, inventory collection, distributed monitoring, and tasks functions.

### Using IBM Director events

The event server processes events that are sent to it by distributed monitors, native Tivoli Enterprise Console events, and SNMP traps. The event server processes the events according to a rule base. Depending on the event and the rule used to handle it, the server can forward the event to a Tivoli Enterprise Console or respond to it. At least one event console must be installed before the event server can be set up.

You can view and manage the IBM Director events through the event console on the Tivoli desktop. You can also further customize IBM Director UIM for Tivoli Management Environment event component. For example, you can:

- Assign the event groups to other event consoles
- Trigger rules and actions by an event or a combination of events

For a list of IBM Director events, see Appendix A, "IBM Director UIM events," on page 45. For more information about how to customize events, see your IBM Tivoli documentation.

IBM Director Agent also logs all events, except for Normal/Recovery events, to the Windows event log. For detailed information about Windows event log events and SNMP traps, see the *IBM Director 4.1 Events Reference* (dir41\_events.pdf), which you can download from the following Web site:

<http://www-3.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-46492>

**Note:** Check the Web site for an updated version of this document.



## Using IBM Director inventory

Before you can collect any inventory, you must add the subscribers that are running IBM Director Agent. After you run an inventory scan, an entry is written to the inventory group reporting success or failure, and you can run any inventory query.

Each query has its own set of information that is populated by default and can be modified. Some inventory items extend the Tivoli inventory, and some are additions to the Tivoli Management Environment. See Appendix B, “IBM Director UIM inventory collection,” on page 67 for a list of the inventory queries that are created.

## Using IBM Director monitors

You can configure the IBM Director monitors to suit your needs. All monitors are preconfigured to poll at 5-minute intervals; however, you can set applicable polling intervals for each monitor. You can also enable or disable a monitor.

You can check the status of monitors in Tivoli Management Environment in the following ways:

- Sending e-mails
- Sending Tivoli notices
- Sending Tivoli Enterprise Console events

See your IBM Tivoli documentation for more information about how to configure monitors.

## Using IBM Director tasks

You can edit and run these tasks as you would any other Tivoli task. The About task returns information about the IBM Director UIM for Tivoli Management Environment that is installed. The Reboot task restarts subscribers on which IBM Director Agent is installed. The Shutdown task shuts down subscribers on which IBM Director Agent is installed.

## Using IBM Director rule sets

Rule sets provide a mechanism that automatically handles events as they appear in the Tivoli Enterprise Console. These rules implement such tasks as dropping incoming events and canceling other events to reduce the number of insignificant or outdated events present in the Tivoli Enterprise Console. IBM Director UIM for Tivoli Management Enterprise provides a set of rules that can be used to automatically handle certain IBM Director-generated events.

All IBM Director rules function to either drop incoming events or cancel already-received events. When an incoming event is caught by a rule, the event server searches through all the events in the Tivoli Enterprise Console that occurred within the previous 24 hours and cancels any events that meet the criteria of that rule. In this way, old events are canceled and replaced by new events, and only the most recent event is present in the Tivoli Enterprise Console for any one sensor on a host.

For example, Fan Sensor 2 on host ABC has reached critical status. The Tivoli Enterprise Console receives an IBMPMSG\_FanEvent. Two hours later, the condition is corrected. Finally, the Tivoli Enterprise Console receives a harmless IBMPMSG\_FanEvent. If the IBM Director rule sets have been loaded, the harmless IBMPMSG\_FanEvent automatically closes the critical IBMPMSG\_FanEvent that was received.

IBM Director rule sets are in the ..\datme\DM directory for Distributed Monitoring and in the ..\datme\TEC directory for native Tivoli Enterprise Console and SNMP events. These rule sets can be imported one at a time into a rule base. Then, you recompile and reload the rule base and restart the event server. Or, you can follow the instructions in “Configuring the events component” on page 30 and “Configuring the monitors component” on page 37 to automatically import all IBM Director rule sets.

**Note:** Neither method works if the rule base you are modifying is read-only. Also, the rule base cannot be compiled if the BAROC (Basic Recorder of Objects in C) files have not been imported.

For more information about the rule sets, see Appendix C, “Rule sets,” on page 69.

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## Upgrading or removing components

There is no upgrade path from the IBM Director 3.1.1 Upward Integration Plus Module to the IBM Director UIM for Tivoli Management Environment. You must follow the uninstallation procedures in *Director Agent Plus, version 3.1.1 for Tivoli*. Then, you can configure one or more of the IBM Director UIM for Tivoli Management Environment components.

To remove any IBM Director UIM for Tivoli Management Environment components, you must undo the configuration changes you have made and remove any information from the database and event server.

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## Appendix A. IBM Director UIM events

IBM Director Agent can send events to your systems-management software. For HP OpenView and Tivoli NetView, the events are sent as SNMP traps. For Microsoft SMS and Tivoli Management Environment, the events are converted to the native format of each system. Also, with Tivoli Management Environment, you can use SNMP traps if you prefer.

For detailed information about SNMP traps and Windows Event Log events, see the *IBM Director 4.1 Events Reference* (dir41\_events.pdf) which you can download from the following Web site:

<http://www-3.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-53168>.

**Note:** Check the following Web site for an updated version of the *IBM Director 4.1 Events Reference*:

<http://www.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-55606>

This section lists events that IBM Director Agent sends. Following each event definition are the corresponding Tivoli Enterprise Console and Microsoft SMS native event types and the Tivoli Enterprise Console SNMP event types.

**Note:** Microsoft SMS does not support ServeRAID controller events.

### **iBMPSGTemperatureEvent**

This event occurs when the state of a system temperature sensor changes with respect to a manufacturer-defined or user-defined threshold.

|   |   |
|---|---|
| Tivoli Enterprise Console Native event type         | IBMPSG_TemperatureEvent   |
| Tivoli Enterprise Console SNMP event types          | UMS_TemperatureNormal<br>UMS_TemperatureOutOfRange<br>UMS_TemperatureCriticallyOutOfRange                 |
| Microsoft SMS Native event types (Message ID 50020) | IBM_UMS_AGENT_TEMPERATURE_INFO_<br>IBM_UMS_AGENT_TEMPERATURE_WARNING_<br>IBM_UMS_AGENT_TEMPERATURE_ERROR_ |

### **iBMPSGVoltageEvent**

This event occurs when the state of a system voltage sensor changes with respect to a manufacturer-defined threshold.

|   |   |
|---|---|
| Tivoli Enterprise Console Native event type         | IBMPSG_VoltageEvent   |
| Tivoli Enterprise Console SNMP event types          | UMS_VoltageNormal<br>UMS_VoltageOutOfRange<br>UMS_VoltageCriticallyOutOfRange                 |
| Microsoft SMS Native event types (Message ID 50030) | IBM_UMS_AGENT_VOLTAGE_INFO_<br>IBM_UMS_AGENT_VOLTAGE_WARNING_<br>IBM_UMS_AGENT_VOLTAGE_ERROR_ |

### **iBMPSGChassisEvent**

This event occurs when the state of a system chassis changes.

|   |   |
|---|---|
| Tivoli Enterprise Console<br>Native event type            | IBMPSG_ChassisEvent   |
| Tivoli Enterprise Console<br>SNMP event types             | UMS_ChassisInPlace<br>UMS_ChassisIntruded   |
| Microsoft SMS<br>Native event types<br>(Message ID 50040) | IBM_UMS_AGENT_CHASSIS_INFO_<br>IBM_UMS_AGENT_CHASSIS_WARNING_<br>IBM_UMS_AGENT_CHASSIS_ERROR_ |

#### **IBMPSGFanEvent**

This event occurs when the state of a system fan has changed with respect to the manufacturer-defined revolutions per minute (RPM) values.

|   |   |
|---|---|
| Tivoli Enterprise Console<br>Native event type            | IBMPSG_FanEvent   |
| Tivoli Enterprise Console<br>SNMP event types             | UMS_FanOperational<br>UMS_FanOutOfOrder   |
| Microsoft SMS<br>Native event types<br>(Message ID 50050) | IBM_UMS_AGENT_FAN_INFO_<br>IBM_UMS_AGENT_FAN_WARNING_<br>IBM_UMS_AGENT_FAN_ERROR_ |

#### **IBMPSGStorageEvent**

This event occurs when the state of a system hard disk drive space changes with respect to the user-defined levels of hard disk drive space remaining.

|   |   |
|---|---|
| Tivoli Enterprise Console<br>Native event type            | IBMPSG_StorageEvent   |
| Tivoli Enterprise Console<br>SNMP event types             | UMS_StorageNormal<br>UMS_StorageLow<br>UMS_StorageVeryLow                                     |
| Microsoft SMS<br>Native event types<br>(Message ID 50070) | IBM_UMS_AGENT_STORAGE_INFO_<br>IBM_UMS_AGENT_STORAGE_WARNING_<br>IBM_UMS_AGENT_STORAGE_ERROR_ |

#### **IBMPSGSMARTEvent**

This event occurs when the state of an IDE or SCSI hard disk drive that complies with the self-monitoring, analysis, and reporting technology (SMART) changes with respect to its availability.

|   |   |
|---|---|
| Tivoli Enterprise Console<br>Native event type            | IBMPSG_SMARTEvent   |
| Tivoli Enterprise Console<br>SNMP event types             | UMS_SMARTNormal<br>UMS_SMARTWarning<br>UMS_SMARTCritical                                |
| Microsoft SMS<br>Native event types<br>(Message ID 50090) | IBM_UMS_AGENT_SMART_INFO_<br>IBM_UMS_AGENT_SMART_WARNING_<br>IBM_UMS_AGENT_SMART_ERROR_ |

#### **IBMPSGLANLeashEvent**

This event occurs when the state of the system LAN connectivity changes with respect to the physical connection between Alert on LAN™-capable network interface cards (NICs) and the LAN.

|   |  |
|---|--|
| Tivoli Enterprise Console<br>Native event type            | IBMPMSG_LANLeashEvent  |
| Tivoli Enterprise Console<br>SNMP event type              | UMS_LANLeashEvent  |
| Microsoft SMS<br>Native event types<br>(Message ID 50120) | IBM_UMS_AGENT_LANLEASH_INFO_<br>IBM_UMS_AGENT_LANLEASH_WARNING_<br>IBM_UMS_AGENT_LANLEASH_ERROR_ |

#### **iBMPMSGLeaseExpirationEvent**

This event occurs when the system lease expiration date has been reached with respect to the value configured for the date in the Asset ID task.

|   |   |
|---|---|
| Tivoli Enterprise Console<br>Native event type            | IBMPMSG_LeaseExpirationEvent  |
| Tivoli Enterprise Console<br>SNMP event types             | UMS_LeaseExpiredNormal<br>UMS_LeaseExpiredWarning<br>UMS_LeaseExpiredCritical           |
| Microsoft SMS<br>Native event types<br>(Message ID 50130) | IBM_UMS_AGENT_LEASE_INFO_<br>IBM_UMS_AGENT_LEASE_WARNING_<br>IBM_UMS_AGENT_LEASE_ERROR_ |

#### **iBMPMSGWarrantyExpirationEvent**

This event occurs when the system warranty expiration date has been reached with respect to the value configured for the date in the Asset ID task.

|   |  |
|---|--|
| Tivoli Enterprise Console<br>Native event type            | IBMPMSG_WarrantyExpirationEvent  |
| Tivoli Enterprise Console<br>SNMP event types             | UMS_WarrantyExpiredNormal<br>UMS_WarrantyExpiredWarning<br>UMS_WarrantyExpiredCritical           |
| Microsoft SMS<br>Native event types<br>(Message ID 50140) | IBM_UMS_AGENT_WARRANTY_INFO_<br>IBM_UMS_AGENT_WARRANTY_WARNING_<br>IBM_UMS_AGENT_WARRANTY_ERROR_ |

#### **iBMPMSGRedundantNetworkAdapterEvent**

This event occurs when the state of a system NIC changes with respect to its redundancy.

|   |   |
|---|---|
| Tivoli Enterprise Console<br>Native event type            | IBMPMSG_RedundantNetworkAdapterEvent  |
| Tivoli Enterprise Console<br>SNMP event type              | UMS_RedundantNetworkAdapterEvent  |
| Microsoft SMS<br>Native event types<br>(Message ID 50150) | IBM_UMS_AGENT_REDUNDANTNETWORKADAPTER_INFO_<br>IBM_UMS_AGENT_REDUNDANTNETWORKADAPTER_<br>WARNING_<br>IBM_UMS_AGENT_REDUNDANTNETWORKADAPTER_<br>ERROR_ |

#### **iBMPMSGRedundantNetworkAdapterSwitchoverEvent**

This event occurs in a teamed NIC configuration when the primary NIC in the team fails and the standby NIC becomes the active NIC.

|   |  |
|---|--|
| Tivoli Enterprise Console Native event type         | IBMPMSG_RedundantNetworkAdapterSwitchoverEvent   |
| Tivoli Enterprise Console SNMP event type           | UMS_RedundantNetworkAdapterSwitchoverEvent   |
| Microsoft SMS Native event types (Message ID 50160) | IBM_UMS_AGENT_REDUNDANTNETWORKADAPTER_SWITCHOVER_INFO_<br>IBM_UMS_AGENT_REDUNDANTNETWORKADAPTER_SWITCHOVER_WARNING_<br>IBM_UMS_AGENT_REDUNDANTNETWORKADAPTER_SWITCHOVER_ERROR_ |

#### **iBMPMSGRedundantNetworkAdapterSwitchbackEvent**

This event occurs in a teamed NIC configuration when the primary NIC in the team is restored.

|   |  |
|---|--|
| Tivoli Enterprise Console Native event type         | IBMPMSG_RedundantNetworkAdapterSwitchbackEvent   |
| Tivoli Enterprise Console SNMP event type           | UMS_RedundantNetworkAdapterSwitchbackEvent   |
| Microsoft SMS Native event types (Message ID 50170) | IBM_UMS_AGENT_REDUNDANTNETWORKADAPTER_SWITCHBACK_INFO_<br>IBM_UMS_AGENT_REDUNDANTNETWORKADAPTER_SWITCHBACK_WARNING_<br>IBM_UMS_AGENT_REDUNDANTNETWORKADAPTER_SWITCHBACK_ERROR_ |

#### **iBMPMSGProcessorPFEEvent**

This event occurs when the state of a system processor changes with respect to its availability.

|   |  |
|---|--|
| Tivoli Enterprise Console Native event type         | IBMPMSG_ProcessorPFEEvent  |
| Tivoli Enterprise Console SNMP event types          | UMS_ProcessorPFNormal<br>UMS_ProcessorPFWarning<br>UMS_ProcessorPFCritical                                   |
| Microsoft SMS Native event types (Message ID 50180) | IBM_UMS_AGENT_PROCESSORPFA_INFO_<br>IBM_UMS_AGENT_PROCESSORPFA_WARNING_<br>IBM_UMS_AGENT_PROCESSORPFA_ERROR_ |

#### **iBMPMSGMemoryPFEEvent**

This event occurs when a dual inline memory module (DIMM) in a system changes with respect to its availability.

|   |   |
|---|---|
| Tivoli Enterprise Console Native event type         | IBMPMSG_MemoryPFEEvent  |
| Tivoli Enterprise Console SNMP event types          | UMS_MemoryPFNormal<br>UMS_MemoryPFWarning<br>UMS_MemoryPFCritical                                   |
| Microsoft SMS Native event types (Message ID 50190) | IBM_UMS_AGENT_MEMORYPFA_INFO_<br>IBM_UMS_AGENT_MEMORYPFA_WARNING_<br>IBM_UMS_AGENT_MEMORYPFA_ERROR_ |

#### **iBMPMSGPFAEvent**

This event occurs when the Remote Supervisor Adapter detects that a

component in a system is about to fail.

|   |   |
|---|---|
| Tivoli Enterprise Console<br>Native event type            | IBMPSG_PFAEvent   |
| Tivoli Enterprise Console<br>SNMP event type              | UMS_PFAEvent  |
| Microsoft SMS<br>Native event types<br>(Message ID 50210) | IBM_UMS_AGENT_PFA_INFO_<br>IBM_UMS_AGENT_PFA_WARNING_<br>IBM_UMS_AGENT_PFA_ERROR_ |

#### **IBMPSGPowerSupplyEvent**

This event occurs when the state of a system power supply changes with respect to its availability.

|   |   |
|---|---|
| Tivoli Enterprise Console<br>Native event type            | IBMPSG_PowerSupplyEvent   |
| Tivoli Enterprise Console<br>SNMP event types             | UMS_PowerSupplyNormal<br>UMS_PowerSupplyWarning<br>UMS_PowerSupplyCritical                                |
| Microsoft SMS<br>Native event types<br>(Message ID 50230) | IBM_UMS_AGENT_POWERSUPPLY_INFO_<br>IBM_UMS_AGENT_POWERSUPPLY_WARNING_<br>IBM_UMS_AGENT_POWERSUPPLY_ERROR_ |

#### **IBMPSGErrorLogEvent**

This event occurs when the Remote Supervisor Adapter detects that its error log is at 75% or 100% of its capacity.

|   |  |
|---|--|
| Tivoli Enterprise Console<br>Native event type            | IBMPSG_ErrorLogEvent   |
| Tivoli Enterprise Console<br>SNMP event type              | UMS_ErrorLogEvent  |
| Microsoft SMS<br>Native event types<br>(Message ID 50240) | IBM_UMS_AGENT_ERRORLOG_INFO_<br>IBM_UMS_AGENT_ERRORLOG_WARNING_<br>IBM_UMS_AGENT_ERRORLOG_ERROR_ |

#### **IBMPSGRemoteLoginEvent**

This event occurs when an end-user or application has logged in to the Remote Supervisor Adapter.

|   |   |
|---|---|
| Tivoli Enterprise Console<br>Native event type            | IBMPSG_RemoteLoginEvent   |
| Tivoli Enterprise Console<br>SNMP event type              | UMS_RemoteLoginEvent  |
| Microsoft SMS<br>Native event types<br>(Message ID 50250) | IBM_UMS_AGENT_REMOTELOGIN_INFO_<br>IBM_UMS_AGENT_REMOTELOGIN_WARNING_<br>IBM_UMS_AGENT_REMOTELOGIN_ERROR_ |

#### **IBMPSGNetworkAdapterFailedEvent**

This event occurs when a NIC in a system has failed.

|  |                                  |
|--|----------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPSG_NetworkAdapterFailedEvent |
| Tivoli Enterprise Console<br>SNMP event type   | UMS_NetworkAdapterFailedEvent    |

|   |  |
|---|--|
| Microsoft SMS<br>Native event types<br>(Message ID 50260) | IBM_UMS_AGENT_NETWORKADAPTERFAILED_INFO_<br>IBM_UMS_AGENT_NETWORKADAPTERFAILED_WARNING_<br>IBM_UMS_AGENT_NETWORKADAPTERFAILED_ERROR_ |
|---|--|

### **iBMPSGNetworkAdapterOfflineEvent**

This event occurs when a NIC in a system goes offline.

|   |   |
|---|---|
| Tivoli Enterprise Console<br>Native event type            | IBMPMSG_NetworkAdapterOfflineEvent  |
| Tivoli Enterprise Console<br>SNMP event type              | UMS_NetworkAdapterOfflineEvent  |
| Microsoft SMS<br>Native event types<br>(Message ID 50270) | IBM_UMS_AGENT_NETWORKADAPTEROFFLINE_INFO_<br>IBM_UMS_AGENT_NETWORKADAPTEROFFLINE_<br>WARNING_<br>IBM_UMS_AGENT_NETWORKADAPTEROFFLINE_ERROR_ |

### **iBMPSGNetworkAdapterOnlineEvent**

This event occurs when the state of a system NIC changes from offline to online.

|   |  |
|---|--|
| Tivoli Enterprise Console<br>Native event type            | IBMPMSG_NetworkAdapterOnlineEvent  |
| Tivoli Enterprise Console<br>SNMP event type              | UMS_NetworkAdapterOnlineEvent  |
| Microsoft SMS<br>Native event types<br>(Message ID 50280) | IBM_UMS_AGENT_NETWORKADAPTERONLINE_INFO_<br>IBM_UMS_AGENT_NETWORKADAPTERONLINE_WARNING_<br>IBM_UMS_AGENT_NETWORKADAPTERONLINE_ERROR_ |

### **iBMPSGSPPowerSupplyEvent**

This event occurs when the Advanced Systems Management processor (ASM processor) detects that the state of the system power supply changes with respect to its availability.

|   |   |
|---|---|
| Tivoli Enterprise Console<br>Native event type            | IBMPMSG_SP_PowerSupplyEvent   |
| Tivoli Enterprise Console<br>SNMP event type              | UMS_SPPowerSupplyEvent  |
| Microsoft SMS<br>Native event types<br>(Message ID 50290) | IBM_UMS_AGENT_SPPOWERSUPPLY_INFO_<br>IBM_UMS_AGENT_SPPOWERSUPPLY_WARNING_<br>IBM_UMS_AGENT_SPPOWERSUPPLY_ERROR_ |

### **iBMPSGDASDBackplaneEvent**

This event occurs when the Remote Supervisor Adapter detects that the state of the system hard disk drive changes with respect to its availability.

|   |   |
|---|---|
| Tivoli Enterprise Console<br>Native event type            | IBMPMSG_DASDBackplaneEvent  |
| Tivoli Enterprise Console<br>SNMP event type              | UMS_DASDBackplaneEvent  |
| Microsoft SMS<br>Native event types<br>(Message ID 50300) | IBM_UMS_AGENT_DASDBACKPLANE_INFO_<br>IBM_UMS_AGENT_DASDBACKPLANE_WARNING_<br>IBM_UMS_AGENT_DASDBACKPLANE_ERROR_ |



### **iBMPSGGenericFanEvent**

This event occurs when the Remote Supervisor Adapter or ASM processor detects that the state of a system fan has changed with respect to its manufacturer-defined RPM thresholds but the precise fan instance cannot be determined.

|   |  |
|---|--|
| Tivoli Enterprise Console<br>Native event type            | IBMPSG_GenericFanEvent   |
| Tivoli Enterprise Console<br>SNMP event type              | UMS_GenericFanEvent  |
| Microsoft SMS<br>Native event types<br>(Message ID 50310) | IBM_UMS_AGENT_GENERICFAN_INFO_<br>IBM_UMS_AGENT_GENERICFAN_WARNING_<br>IBM_UMS_AGENT_GENERICFAN_ERROR_ |

### **iBMPSGGenericVoltageEvent**

This event occurs when the Remote Supervisor Adapter or the ASM processor detects that the state of a system voltage sensor has changed with respect to a manufacturer-defined threshold but the precise voltage sensor cannot be determined.

|   |  |
|---|--|
| Tivoli Enterprise Console<br>Native event type            | IBMPSG_GenericVoltageEvent   |
| Tivoli Enterprise Console<br>SNMP event type              | UMS_GenericVoltageEvent  |
| Microsoft SMS<br>Native event types<br>(Message ID 50320) | IBM_UMS_AGENT_GENERICVOLTAGE_INFO_<br>IBM_UMS_AGENT_GENERICVOLTAGE_WARNING_<br>IBM_UMS_AGENT_GENERICVOLTAGE_ERROR_ |

### **iBMPSGServerRAIDNoControllers**

This event occurs when a ServeRAID controller is not detected.

|  |                                |
|--|--------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPSG_ServerRAIDNoControllers |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_NoControllers        |

### **iBMPSGServerRAIDControllerFail**

This event occurs when a ServeRAID controller has failed.

|  |                                 |
|--|---------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPSG_ServerRAIDControllerFail |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_ControllerFail        |

### **iBMPSGServerRAIDDeadBattery**

This event occurs when a ServeRAID battery has failed.

|  |                              |
|--|------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPSG_ServerRAIDDeadBattery |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_DeadBattery        |

### **iBMPSGServerRAIDDeadBatteryCache**

This event occurs when a ServeRAID battery-backup cache has failed.

|   |                                  |
|---|----------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDDeadBatteryCache |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_DeadBatteryCache       |

#### **iBMP5GServerRAIDPollingFail**

This event occurs when a ServeRAID polling has failed.

|   |                             |
|---|-----------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDPollingFail |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_PollingFail       |

#### **iBMP5GServerRAIDConfigFail**

This event occurs when a ServeRAID configuration has failed.

|   |                            |
|---|----------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDConfigFail |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ConfigFail       |

#### **iBMP5GServerRAIDControllerAdded**

This event occurs when a ServeRAID controller is added.

|   |                                 |
|---|---------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDControllerAdded |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ControllerAdded       |

#### **iBMP5GServerRAIDControllerReplaced**

This event occurs when a ServeRAID controller is replaced.

|   |                                    |
|---|------------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDControllerReplaced |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ControllerReplaced       |

#### **iBMP5GServerRAIDControllerFailover**

This event occurs when a ServeRAID controller has failed over.

|   |                                    |
|---|------------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDControllerFailover |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ControllerFailover       |

#### **iBMP5GServerRAIDControllerMismatchedVersions**

This event occurs when the versions of drivers for a ServeRAID controller do not match the firmware on the controller.

|   |  |
|---|--|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDControllerMismatchedVersions |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ControllerMismatchedVersions       |

**IBMPSGServeRAIDControllerBatteryOvertemp**

This event occurs when a ServeRAID controller battery has exceeded its temperature threshold.

|   |   |
|---|---|
| Tivoli Enterprise Console Native event type | IBMPSG_ServeRAIDControllerBatteryOvertemp |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ControllerBatteryOvertemp       |

**IBMPSGServeRAIDControllerBadStripes**

This event occurs when one or more ServeRAID logical drives contain a bad stripe.

|   |                                      |
|---|--------------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServeRAIDControllerBadStripes |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ControllerBadStripes       |

**IBMPSGServeRAIDControllerBatteryTempNormal**

This event occurs when a ServeRAID controller battery temperature changes to normal.

|   |   |
|---|---|
| Tivoli Enterprise Console Native event type | IBMPSG_ServeRAIDControllerBatteryTempNormal |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ControllerBatteryTempNormal       |

**IBMPSGServeRAIDLogicalDriveCritical**

This event occurs when a ServeRAID logical drive changes to a critical state.

|   |                                      |
|---|--------------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServeRAIDLogicalDriveCritical |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_DriveCritical              |

**IBMPSGServeRAIDLogicalDriveBlocked**

This event occurs when a ServeRAID logical drive changes from an unblocked to a blocked state.

|   |                                     |
|---|-------------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServeRAIDLogicalDriveBlocked |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_DriveBlocked              |

**IBMPSGServeRAIDLogicalDriveOffLine**

This event occurs when a ServeRAID logical drive changes to an offline state.

|   |                                     |
|---|-------------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServeRAIDLogicalDriveOffLine |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_DriveOffLine              |

**iBMPSGServerRAIDRebuildDetected**

This event occurs when a ServeRAID rebuild operation is detected.

|   |                                  |
|---|----------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServerRAIDRebuildDetected |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_RebuildDetected        |

**iBMPSGServerRAIDRebuildComplete**

This event occurs when a ServeRAID rebuild operation is completed.

|   |                                  |
|---|----------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServerRAIDRebuildComplete |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_RebuildComplete        |

**iBMPSGServerRAIDRebuildFail**

This event occurs when a ServeRAID rebuild operation has failed.

|   |                              |
|---|------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServerRAIDRebuildFail |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_RebuildFail        |

**iBMPSGServerRAIDSyncDetected**

This event occurs when a ServeRAID synchronization is detected.

|   |                               |
|---|-------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServerRAIDSyncDetected |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_SyncDetected        |

**iBMPSGServerRAIDSyncComplete**

This event occurs when a ServeRAID synchronization is completed.

|   |                               |
|---|-------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServerRAIDSyncComplete |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_SyncComplete        |

**iBMPSGServerRAIDSyncFail**

This event occurs when a ServeRAID synchronization has failed.

|   |                           |
|---|---------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServerRAIDSyncFail |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_SyncFail        |

**iBMPSGServerRAIDMigrationDetected**

This event occurs when a ServeRAID logical-drive migration is detected.

|   |                                    |
|---|------------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServerRAIDMigrationDetected |
|---|------------------------------------|

|  |                             |
|--|-----------------------------|
| Tivoli Enterprise Console<br>SNMP event type | ServeRAID_MigrationDetected |
|--|-----------------------------|

### **iBMPSGServeRAIDMigrationComplete**

This event occurs when a ServeRAID logical-drive migration is completed.

|  |                                   |
|--|-----------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPSG_ServeRAIDMigrationComplete |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_MigrationComplete       |

### **iBMPSGServeRAIDMigrationFail**

This event occurs when a ServeRAID logical-drive migration has failed.

|  |                               |
|--|-------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPSG_ServeRAIDMigrationFail |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_MigrationFail       |

### **iBMPSGServeRAIDCompressionDetected**

This event occurs when a ServeRAID logical-drive compression is detected.

|  |                                     |
|--|-------------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPSG_ServeRAIDCompressionDetected |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_CompressionDetected       |

### **iBMPSGServeRAIDCompressionComplete**

This event occurs when a ServeRAID logical-drive compression is completed.

|  |                                     |
|--|-------------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPSG_ServeRAIDCompressionComplete |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_CompressionComplete       |

### **iBMPSGServeRAIDCompressionFail**

This event occurs when a ServeRAID logical-drive compression has failed.

|  |                                 |
|--|---------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPSG_ServeRAIDCompressionFail |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_CompressionFail       |

### **iBMPSGServeRAIDDecompressionDetected**

This event occurs when a ServeRAID logical-drive decompression is detected.

|  |                                       |
|--|---------------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPSG_ServeRAIDDecompressionDetected |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_DecompressionDetected       |

**iBMPSGServerRAIDDecompressionComplete**

This event occurs when a ServeRAID logical-drive decompression is completed.

|   |                                       |
|---|---------------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDDecompressionComplete |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_DecompressionComplete       |

**iBMPSGServerRAIDDecompressionFail**

This event occurs when a ServeRAID logical-drive decompression has failed.

|   |                                   |
|---|-----------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDDecompressionFail |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_DecompressionFail       |

**iBMPSGServerRAIDFlashCopyDetected**

This event occurs when a ServeRAID FlashCopy<sup>®</sup> operation is detected.

|   |                                   |
|---|-----------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDFlashCopyDetected |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_FlashCopyDetected       |

**iBMPSGServerRAIDFlashCopyComplete**

This event occurs when a ServeRAID FlashCopy operation is completed.

|   |                                   |
|---|-----------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDFlashCopyComplete |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_FlashCopyComplete       |

**iBMPSGServerRAIDFlashCopyFail**

This event occurs when a ServeRAID FlashCopy operation has failed.

|   |                               |
|---|-------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDFlashCopyFail |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_FlashCopyFail       |

**iBMPSGServerRAIDArrayRebuildDetected**

This event occurs when a ServeRAID array rebuild operation is detected.

|   |                                      |
|---|--------------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDArrayRebuildDetected |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ArrayRebuildDetected       |

**iBMPSGServerRAIDArrayRebuildComplete**

This event occurs when a ServeRAID array rebuild operation is completed.

|   |                                      |
|---|--------------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDArrayRebuildComplete |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ArrayRebuildComplete       |

### **iBMP5GServerRAIDArrayRebuildFail**

This event occurs when a ServeRAID array rebuild operation has failed.

|   |                                  |
|---|----------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDArrayRebuildFail |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ArrayRebuildFail       |

### **iBMP5GServerRAIDArraySyncDetected**

This event occurs when a ServeRAID array synchronization is detected.

|   |                                   |
|---|-----------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDArraySyncDetected |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ArraySyncDetected       |

### **iBMP5GServerRAIDArraySyncComplete**

This event occurs when a ServeRAID array synchronization is completed.

|   |                                   |
|---|-----------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDArraySyncComplete |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ArraySyncComplete       |

### **iBMP5GServerRAIDArraySyncFail**

This event occurs when a ServeRAID array synchronization has failed.

|   |                               |
|---|-------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDArraySyncFail |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ArraySyncFail       |

### **iBMP5GServerRAIDArrayFlashCopyDetected**

This event occurs when a ServeRAID array FlashCopy operation is detected.

|   |  |
|---|--|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDArrayFlashCopyDetected |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ArrayFlashCopyDetected       |

### **iBMP5GServerRAIDArrayFlashCopyComplete**

This event occurs when a ServeRAID array FlashCopy operation is completed.

|   |  |
|---|--|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDArrayFlashCopyComplete |
|---|--|

|  |                                  |
|--|----------------------------------|
| Tivoli Enterprise Console<br>SNMP event type | ServeRAID_ArrayFlashCopyComplete |
|--|----------------------------------|

### **iBMPSGServerRAIDArrayFlashCopyFail**

This event occurs when a ServeRAID array FlashCopy operation has failed.

|  |                                     |
|--|-------------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDArrayFlashCopyFail |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_ArrayFlashCopyFail        |

### **iBMPSGServerRAIDLogicalDriveUnblocked**

This event occurs when a ServeRAID logical drive changes from blocked to unblocked.

|  |  |
|--|--|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDLogicalDriveUnblocked |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_LogicalDriveUnblocked        |

### **iBMPSGServerRAIDCompactionDetected**

This event occurs when a ServeRAID compaction operation is detected.

|  |                                     |
|--|-------------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDCompactionDetected |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_CompactionDetected        |

### **iBMPSGServerRAIDCompactionComplete**

This event occurs when a ServeRAID compaction operation is complete.

|  |                                     |
|--|-------------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDCompactionComplete |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_CompactionComplete        |

### **iBMPSGServerRAIDCompactionFail**

This event occurs when a ServeRAID compaction operation has failed.

|  |                                 |
|--|---------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDCompactionFail |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_CompactionFail        |

### **iBMPSGServerRAIDExpansionDetected**

This event occurs when a ServeRAID expansion operation is detected.

|  |                                    |
|--|------------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDExpansionDetected |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_ExpansionDetected        |



**IBMPSGServerRAIDExpansionComplete**

This event occurs when a ServeRAID expansion operation is completed.

|   |                                    |
|---|------------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServerRAIDExpansionComplete |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ExpansionComplete        |

**IBMPSGServerRAIDExpansionFail**

This event occurs when a ServeRAID expansion operation has failed.

|   |                                |
|---|--------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServerRAIDExpansionFail |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_ExpansionFail        |

**IBMPSGServerRAIDLogicalDriveCriticalPeriodic**

This event occurs when a ServeRAID logical drive is in a critical state.

|   |   |
|---|---|
| Tivoli Enterprise Console Native event type | IBMPSG_ServerRAIDLogicalDriveCriticalPeriodic |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_LogicalDriveCriticalPeriodic        |

**IBMPSGServerRAIDCopyBackDetected**

This event occurs when a ServeRAID copy-back operation is detected.

|   |                                   |
|---|-----------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServerRAIDCopyBackDetected |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_CopyBackDetected        |

**IBMPSGServerRAIDCopyBackComplete**

This event occurs when a ServeRAID copy-back operation is completed.

|   |                                   |
|---|-----------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServerRAIDCopyBackComplete |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_CopyBackComplete        |

**IBMPSGServerRAIDCopyBackFail**

This event occurs when a ServeRAID copy-back operation has failed.

|   |                               |
|---|-------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServerRAIDCopyBackFail |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_CopyBackFail        |

**IBMPSGServerRAIDInitDetected**

This event occurs when a ServeRAID initialization operation is detected.

|   |                               |
|---|-------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServerRAIDInitDetected |
|---|-------------------------------|

|  |                        |
|--|------------------------|
| Tivoli Enterprise Console<br>SNMP event type | ServeRAID_InitDetected |
|--|------------------------|

### **iBMPSGServeRAIDInitComplete**

This event occurs when a ServeRAID initialization operation is completed.

|  |                               |
|--|-------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDInitComplete |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_InitComplete        |

### **iBMPSGServeRAIDInitFail**

This event occurs when a ServeRAID initialization operation has failed.

|  |                           |
|--|---------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDInitFail |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_InitFail        |

### **iBMPSGServeRAIDLogicalDriveOK**

This event occurs when a ServeRAID logical drive changes to a normal state.

|  |                                 |
|--|---------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDLogicalDriveOK |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_LogicalDriveOK        |

### **iBMPSGServeRAIDLogicalDriveAdded**

This event occurs when a ServeRAID logical drive is added.

|  |                                    |
|--|------------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDLogicalDriveAdded |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_LogicalDriveAdded        |

### **iBMPSGServeRAIDLogicalDriveRemoved**

This event occurs when a ServeRAID logical drive is removed.

|  |                                      |
|--|--------------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDLogicalDriveRemoved |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_LogicalDriveRemoved        |

### **iBMPSGServeRAIDDefunctDrive**

This event occurs when a ServeRAID physical drive changes to a defunct state.

|  |                               |
|--|-------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDDefunctDrive |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_DefunctDrive        |

**iBMPSGServerRAIDPFADrive**

This event occurs when a ServeRAID physical drive with a Predictive Failure Analysis® (PFA) event is detected.

|   |                           |
|---|---------------------------|
| Tivoli Enterprise Console Native event type | IBMPMSG_ServeRAIDPFADrive |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_PfaDrive        |

**iBMPSGServerRAIDDefunctReplaced**

This event occurs when a defunct physical drive is replaced in a ServeRAID configuration.

|   |                                  |
|---|----------------------------------|
| Tivoli Enterprise Console Native event type | IBMPMSG_ServeRAIDDefunctReplaced |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_DefunctReplaced        |

**iBMPSGServerRAIDDefunctDriveFRU**

This event occurs when the field-replaceable unit (FRU) number is identified for a ServeRAID defunct physical drive.

|   |                                  |
|---|----------------------------------|
| Tivoli Enterprise Console Native event type | IBMPMSG_ServeRAIDDefunctDriveFRU |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_DefunctDriveFRU        |

**iBMPSGServerRAIDPFADriveFRU**

This event occurs when a FRU number is identified for a ServeRAID physical drive on which a PFA has been detected.

|   |                              |
|---|------------------------------|
| Tivoli Enterprise Console Native event type | IBMPMSG_ServeRAIDPFADriveFRU |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_PfaDriveFRU        |

**iBMPSGServerRAIDUnsupportedDrive**

This event occurs when there is an unsupported physical drive is detected in a ServeRAID configuration.

|   |                                   |
|---|-----------------------------------|
| Tivoli Enterprise Console Native event type | IBMPMSG_ServeRAIDUnsupportedDrive |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_UnsupportedDrive        |

**iBMPSGServerRAIDDriveAdded**

This event occurs when a ServeRAID physical drive is added.

|   |                             |
|---|-----------------------------|
| Tivoli Enterprise Console Native event type | IBMPMSG_ServeRAIDDriveAdded |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_DriveAdded        |

**iBMPSGServerRAIDDriveRemoved**

This event occurs when a ServeRAID physical drive is removed.

|   |                              |
|---|------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDDriveRemoved |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_DriveRemoved       |

**iBMPSGServerRAIDDriveClearDetected**

This event occurs when a ServeRAID clear operation is detected.

|   |                                    |
|---|------------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDDriveClearDetected |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_DriveClearDetected       |

**iBMPSGServerRAIDDriveClearComplete**

This event occurs when a ServeRAID clear operation is completed.

|   |                                    |
|---|------------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDDriveClearComplete |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_DriveClearComplete       |

**iBMPSGServerRAIDDriveClearFail**

This event occurs when a ServeRAID clear operation has failed.

|   |                                |
|---|--------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDDriveClearFail |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_DriveClearFail       |

**iBMPSGServerRAIDDriveSyncDetected**

This event occurs when a ServeRAID synchronization operation is detected.

|   |                                   |
|---|-----------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDDriveSyncDetected |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_DriveSyncDetected       |

**iBMPSGServerRAIDDriveSyncComplete**

This event occurs when a ServeRAID synchronization operation is completed.

|   |                                   |
|---|-----------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDDriveSyncComplete |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_DriveSyncComplete       |

**iBMPSGServerRAIDDriveSyncFail**

This event occurs when a ServeRAID synchronization operation has failed.

|   |                               |
|---|-------------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDDriveSyncFail |
|---|-------------------------------|

|  |                         |
|--|-------------------------|
| Tivoli Enterprise Console<br>SNMP event type | ServeRAID_DriveSyncFail |
|--|-------------------------|

### **iBMPSGServerRAIDDriveVerifyDetected**

This event occurs when a ServeRAID verify operation is detected.

|  |                                      |
|--|--------------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDDriveVerifyDetected |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_DriveVerifyDetected        |

### **iBMPSGServerRAIDDriveVerifyComplete**

This event occurs when a ServeRAID verify operation is completed.

|  |                                      |
|--|--------------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDDriveVerifyComplete |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_DriveVerifyComplete        |

### **iBMPSGServerRAIDDriveVerifyFail**

This event occurs when a ServeRAID verify operation has failed.

|  |                                  |
|--|----------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDDriveVerifyFail |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_DriveVerifyFail        |

### **iBMPSGServerRAIDEnclosureOK**

This event occurs when an enclosure is functioning correctly in a ServeRAID configuration.

|  |                              |
|--|------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDEnclosureOk |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_EnclosureOK        |

### **iBMPSGServerRAIDEnclosureFail**

This event occurs when an enclosure has failed in a ServeRAID configuration.

|  |                                 |
|--|---------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDAEnclosureFail |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_EnclosureFail         |

### **iBMPSGServerRAIDEnclosureFanOK**

This event occurs when an enclosure fan is functioning correctly in a ServeRAID configuration.

|  |                                 |
|--|---------------------------------|
| Tivoli Enterprise Console<br>Native event type | IBMPMSG_ServeRAIDEnclosureFanOk |
| Tivoli Enterprise Console<br>SNMP event type   | ServeRAID_FanOK                 |

**IBMPSGServerRAIDEnclosureFanFail**

This event occurs when an enclosure fan has failed in a ServeRAID configuration.

|   |                                  |
|---|----------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServeRAIDEnclosureFanFail |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_FanFail                |

**IBMPSGServerRAIDEnclosureFanInstalled**

This event occurs when an enclosure fan is installed in a ServeRAID configuration.

|   |                                       |
|---|---------------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServeRAIDEnclosureFanInstalled |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_FanInstalled                |

**IBMPSGServerRAIDEnclosureFanRemoved**

This event occurs when an enclosure fan is removed from a ServeRAID configuration.

|   |                                     |
|---|-------------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServeRAIDEnclosureFanRemoved |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_FanRemoved                |

**IBMPSGServerRAIDEnclosureTempOK**

This event occurs when an enclosure temperature is within a normal temperature range in a ServeRAID configuration.

|   |                                 |
|---|---------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServeRAIDEnclosureTempOk |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_TempOK                |

**IBMPSGServerRAIDEnclosureTempFail**

This event occurs when an enclosure temperature exceeds a normal temperature range in a ServeRAID configuration.

|   |                                   |
|---|-----------------------------------|
| Tivoli Enterprise Console Native event type | IBMPSG_ServeRAIDEnclosureTempFail |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_TempFail                |

**IBMPSGServerRAIDEnclosurePowerSupplyOK**

This event occurs when an enclosure power supply is functioning properly in a ServeRAID configuration.

|   |  |
|---|--|
| Tivoli Enterprise Console Native event type | IBMPSG_ServeRAIDEnclosurePowerSupplyOk |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_PowerSupplyOK                |

**iBMPSGServerRAIDEnclosurePowerSupplyFail**

This event occurs when an enclosure power supply has failed in a ServeRAID configuration.

|   |  |
|---|--|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDEnclosurePowerSupplyFail |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_PowerSupplyFail                |

**iBMPSGServerRAIDEnclosurePowerSupplyInstalled**

This event occurs when an enclosure power supply is installed in a ServeRAID configuration.

|   |   |
|---|---|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDEnclosurePowerSupplyInstalled |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_PowerSupplyInstalled                |

**iBMPSGServerRAIDEnclosurePowerSupplyRemoved**

This event occurs when an enclosure power supply is removed from a ServeRAID configuration.

|   |   |
|---|---|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDEnclosurePowerSupplyRemoved |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_PowerSupplyRemoved                |

**iBMPSGServerRAIDTestEvent**

This event occurs when a ServeRAID test event occurs.

|   |                           |
|---|---------------------------|
| Tivoli Enterprise Console Native event type | IBMP5G_ServeRAIDTestEvent |
| Tivoli Enterprise Console SNMP event type   | ServeRAID_TestTrap        |





## Appendix B. IBM Director UIM inventory collection

The inventory function of the IBM Director UIMs collects the following inventory items, depending on your systems-management tool.

Table 3. Inventory items collected by systems-management tool

| Microsoft SMS   | HP OpenView and Tivoli NetView  | Tivoli Management Environment  |
|---|---|--|
| <ul style="list-style-type: none"> <li>• Asset ID</li> <li>• BIOS details</li> <li>• Cache</li> <li>• CIM</li> <li>• Firmware</li> <li>• FRU service numbers</li> <li>• IBM UM services</li> <li>• IP network configuration</li> <li>• IPX network configuration</li> <li>• Lease information</li> <li>• Memory details</li> <li>• Network details</li> <li>• Personalized data</li> <li>• Processor details</li> <li>• RAID controllers</li> <li>• RAID disk drives</li> <li>• RAID enclosures</li> <li>• RAID logical drives</li> <li>• Serial number information</li> <li>• SNMP agent configuration</li> <li>• System board configuration</li> <li>• System enclosure</li> <li>• System slots</li> <li>• User details</li> <li>• Video details</li> <li>• Warranty information</li> </ul> | <ul style="list-style-type: none"> <li>• Asset ID</li> <li>• BIOS details</li> <li>• Cache</li> <li>• CIMOM identification</li> <li>• IBM Director Agent</li> <li>• IBM Director Agent HTTP port</li> <li>• Lease information</li> <li>• Memory details</li> <li>• Personalized data</li> <li>• Port connectors</li> <li>• Processor details</li> <li>• Serial number information</li> <li>• SNMP configuration</li> <li>• System board configuration</li> <li>• System enclosure</li> <li>• System slots</li> <li>• User details</li> <li>• Video details</li> <li>• <b>Note:</b> Because of a limitation with CIM, inventory for multiple video adapters is not collected correctly.</li> <li>• Warranty information</li> </ul> | <ul style="list-style-type: none"> <li>• Alert on LAN settings</li> <li>• Alert standard format settings</li> <li>• Asset ID</li> <li>• BIOS details</li> <li>• Cache</li> <li>• CIM</li> <li>• Firmware</li> <li>• FRU service numbers</li> <li>• Geographic information</li> <li>• IBM Director Agent</li> <li>• IP network configuration</li> <li>• IPX network configuration</li> <li>• Lease information</li> <li>• Memory details</li> <li>• Network details</li> <li>• Personalized data</li> <li>• Port connectors</li> <li>• Processor details</li> <li>• RAID controllers</li> <li>• RAID disk drives</li> <li>• RAID enclosures</li> <li>• RAID logical drives</li> <li>• Serial number information</li> <li>• ServeRAID controllers</li> <li>• ServeRAID disk drives</li> <li>• ServeRAID enclosures</li> <li>• ServeRAID logical drives</li> <li>• SNMP agent configuration</li> <li>• System board configuration</li> <li>• System enclosure</li> <li>• System slots</li> <li>• User details</li> <li>• Video details</li> <li>• Warranty information</li> </ul> |



## Appendix C. Rule sets

The following tables provide details about the rule sets for native Tivoli Enterprise Console and SNMP events and for distributed monitoring events.

*Table 4. Native Tivoli Enterprise Console rules*

| File name       | Rule action        | Associated events   |
|-----------------|--------------------|---|
| fan.rls         | fan_cancel         | IBMPSG_FanEvent   |
| chassis.rls     | chassis_cancel     | IBMPSG_ChassisEvent   |
| lease.rls       | lease_cancel       | IBMPSG_LeaseExpirationEvent   |
| memory.rls      | mem_cancel         | IBMPSG_MemoryPFEvent  |
| network.rls     | net_cancel         | IBMPSG_NetworkAdapterFailEvent<br>IBMPSG_NetworkAdapterOnline<br>Event<br>IBMPSG_NetworkAdapterOffline<br>Event |
| power.rls       | pwr_cancel         | IBMPSG_PowerSupplyEvent   |
| processor.rls   | proc_cancel        | IBMPSG_ProcessorPFEvent   |
| smart.rls       | smart_cancel       | IBMPSG_SMARTEvent   |
| storage.rls     | storage_cancel     | IBMPSG_StorageEvent   |
| temperature.rls | temperature_cancel | IBMPSG_TemperatureEvent   |
| voltage.rls     | voltage_cancel     | IBMPSG_VoltageEvent   |
| warranty.rls    | warranty_cancel    | IBMPSG_WarrantyExpirationEvent  |

*Table 5. SNMP rules*

| File name     | Rule action                 | Associated events   |
|---------------|-----------------------------|---|
| serveraid.rls | powersupply_ok_cancels_fail | ServeRAID_PowerSupplyOk<br>cancels<br>ServeRAID_PowerSupplyFail |
| serveraid.rls | powersupply_fail_cancels_ok | ServeRAID_PowerSupplyFail<br>cancels<br>ServeRAID_PowerSupplyOk |
| serveraid.rls | temp_ok_cancels_fail        | ServeRAID_TempOk<br>cancels<br>ServeRAID_TempFail               |
| serveraid.rls | temp_fail_cancels_ok        | ServeRAID_TempFail<br>cancels<br>ServeRAID_TempOk               |
| serveraid.rls | fan_ok_cancels_fail         | ServeRAID_FanOk<br>cancels<br>ServeRAID_FanFail                 |
| serveraid.rls | fan_fail_cancels_ok         | ServeRAID_FanFail<br>cancels<br>ServeRAID_FanOk                 |
| serveraid.rls | enclosure_ok_cancels_fail   | ServeRAID_EnclosureOk<br>cancels<br>ServeRAID_EnclosureFail     |

Table 5. SNMP rules (continued)

| File name     | Rule action                           | Associated events   |
|---------------|---------------------------------------|---|
| serveraid.rls | enclosure_fail_cancels_ok             | ServeRAID_EnclosureFail<br>cancels<br>ServeRAID_EnclosureOk                               |
| ums.rls       | networkadapter_offline_cancels_online | UMS_NetworkAdapterOfflineEvent<br>UMS_NetworkAdapterOnlineEvent                           |
| ums.rls       | storage_normal_cancels-low            | UMS_StorageNormal<br>UMS_StorageLow<br>UMS_StorageVeryLow                                 |
| ums.rls       | fan_operational_cancels_outoforder    | UMS_FanOperational<br>UMS_FanOutOfOrder   |
| ums.rls       | warranty_cancels                      | UMS_WarrantyExpiredNormal<br>UMS_WarrantyExpiredWarning<br>UMS_WarrantyExpiredCritical    |
| ums.rls       | lease_cancels                         | UMS_LeaseExpiredNormal<br>UMS_LeaseExpiredWarning<br>UMS_LeaseExpiredCritical             |
| ums.rls       | chassis_inplace_cancels_intruded      | UMS_ChassisInPlace<br>UMS_ChassisIntruded   |
| ums.rls       | pwr_cancels                           | UMS_PowerSupplyNormal<br>UMS_PowerSupplyWarning<br>UMS_PowerSupplyCritical                |
| ums.rls       | mem_cancels                           | UMS_MemoryPFNormal<br>UMS_MemoryPFWarning<br>UMS_MemoryPFCritical                         |
| ums.rls       | proc_cancels                          | UMS_ProcessorNormal<br>UMS_ProcessorWarning<br>UMS_ProcessorCritical                      |
| ums.rls       | voltage_normal_cancels_outofrange     | UMS_VoltageNormal<br>UMS_VoltageOutOfRange<br>UMS_VoltageCriticallyOutOfRange             |
| ums.rls       | temperature_normal_cancels_outofrange | UMS_TemperatureNormal<br>UMS_TemperatureOutOfRange<br>UMS_TemperatureCriticallyOutOfRange |
| ums.rls       | smart_cancels                         | UMS_SMARTNormal<br>UMS_SMARTWarning<br>UMS_SMARTCritical                                  |

Table 6. Tivoli Distributed Monitoring 5.1.1 rules

| File name | Rule action | Associated events   |
|-----------|-------------|---|
| dm.rls    | action_drop | TMW_ActionResult<br>(HTTP and SNMP monitors only) This event is dropped from the event server because it misinforms the user about the success of an IBM Director Agent HTTP or SNMP service restart. |

Table 6. Tivoli Distributed Monitoring 5.1.1 rules (continued)

| File name | Rule action      | Associated events  |
|-----------|------------------|--|
| dm.rls    | clearing_cancel  | TMW_ClearingEvent<br>clears<br>Ev_HTTPCheck_sh_ScriptResult_matches<br>Ev_SNMPCheck_sh_ScriptResult_matches<br>IBMPDG_Chassis_SecurityBreach_is_Attempted<br>IBMPDG_Chassis_SecurityBreach_is_Successful<br>IBMPDG_Chassis_IsNotLocked |
| dm.rls    | clearing_cancel2 | Ev_HTTPCheck_sh_ScriptResult_matches<br>Ev_SNMPCheck_sh_ScriptResult_matches<br>IBMPDG_Chassis_SecurityBreach_is_Attempted<br>IBMPDG_Chassis_SecurityBreach_is_Successful<br>IBMPDG_Chassis_IsNotLocked<br>clears<br>TMW_ClearingEvent |
| dm.rls    | clearing_cancel5 | TMW_ClearingEvent<br>clears<br>IBMPDG_NetworkAdapter_Degraded<br>IBMPDG_NetworkAdapter_Error<br>IBMPDG_NetworkAdapter_PredFail   |
| dm.rls    | clearing_cancel6 | IBMPDG_NetworkAdapter_Degraded<br>IBMPDG_NetworkAdapter_Error<br>IBMPDG_NetworkAdapter_PredFail<br>clears<br>TMW_ClearingEvent   |
| dm.rls    | clearing_cancel7 | TMW_ClearingEvent<br>clears<br>IBMPDG_PortableBattery_BatteryStatus_is_critical<br>IBMPDG_PortableBattery_BatteryStatus_is_low<br>IBMPDG_PortableBattery_CriticalLow<br>IBMPDG_PortableBattery_FullChargeCapacity_too_low              |
| dm.rls    | clearing_cancel8 | IBMPDG_PortableBattery_BatteryStatus_is_critical<br>IBMPDG_PortableBattery_BatteryStatus_is_low<br>IBMPDG_PortableBattery_CriticalLow<br>IBMPDG_PortableBattery_FullChargeCapacity_too_low<br>clears<br>TMW_ClearingEvent              |
| dm.rls    | clearing_cancel3 | TMW_ClearingEvent<br>clears<br>IBMPDG_Tachometer_WarningHigh<br>IBMPDG_Tachometer_CriticalHigh<br>IBMPDG_Tachometer_CriticalLow<br>IBMPDG_Tachometer_WarningLow  |
| dm.rls    | clearing_cancel4 | IBMPDG_Tachometer_WarningHigh<br>IBMPDG_Tachometer_CriticalHigh<br>IBMPDG_Tachometer_CriticalLow<br>IBMPDG_Tachometer_WarningLow<br>clears<br>TMW_ClearingEvent  |

Table 6. Tivoli Distributed Monitoring 5.1.1 rules (continued)

| File name | Rule action       | Associated events   |
|-----------|-------------------|---|
| dm.rls    | clearing_cancel9  | TMW_ClearingEvent<br>clears<br>IBMPSG_TemperatureSensor_CriticalHigh<br>IBMPSG_TemperatureSensor_WarningHigh  |
| dm.rls    | clearing_cancel10 | IBMPSG_TemperatureSensor_CriticalHigh<br>IBMPSG_TemperatureSensor_WarningHigh<br>clears<br>TMW_ClearingEvent  |
| dm.rls    | clearing_cancel11 | TMW_ClearingEvent<br>clears<br>IBMPSG_VoltageSensor_WarningHigh<br>IBMPSG_VoltageSensor_CriticalHigh<br>IBMPSG_VoltageSensor_CriticalLow<br>IBMPSG_VoltageSensor_WarningLow |
| dm.rls    | clearing_cancel12 | IBMPSG_VoltageSensor_WarningHigh<br>IBMPSG_VoltageSensor_CriticalHigh<br>IBMPSG_VoltageSensor_CriticalLow<br>IBMPSG_VoltageSensor_WarningLow<br>clears<br>TMW_ClearingEvent |

---

## Appendix D. Getting help and technical assistance

If you need help, service, or technical assistance or just want more information about IBM® products, you will find a wide variety of sources available from IBM to assist you. This appendix contains information about where to go for additional information about IBM and IBM products, what to do if you experience a problem with your xSeries or IntelliStation® system, and whom to call for service, if it is necessary.

---

### Before you call

Before you call, make sure that you have taken these steps to try to solve the problem yourself:

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system is turned on.
- Use the troubleshooting information in your system documentation, and use the diagnostic tools that come with your system. Information about diagnostic tools is in the *Hardware Maintenance Manual and Troubleshooting Guide* on the IBM *xSeries Documentation* CD or in the *IntelliStation Hardware Maintenance Manual* at the IBM Support Web site.
- Go to the IBM Support Web site at <http://www.ibm.com/pc/support/> to check for technical information, hints, tips, and new device drivers or to submit a request for information.

You can solve many problems without outside assistance by following the troubleshooting procedures that IBM provides in the online help or in the publications that are provided with your system and software. The information that comes with your system also describes the diagnostic tests that you can perform. Most xSeries and IntelliStation systems, operating systems, and programs come with information that contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the information for the operating system or program.

---

### Using the documentation

Information about your IBM xSeries or IntelliStation system and preinstalled software, if any, is available in the documentation that comes with your system. That documentation includes printed books, online books, readme files, and help files. See the troubleshooting information in your system documentation for instructions for using the diagnostic programs. The troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software. IBM maintains pages on the World Wide Web where you can get the latest technical information and download device drivers and updates. To access these pages, go to <http://www.ibm.com/pc/support/> and follow the instructions. Also, you can order publications through the IBM Publications Ordering System at <http://www.elink.ibm.com/public/applications/publications/cgibin/pbi.cgi>.

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## Getting help and information from the World Wide Web

On the World Wide Web, the IBM Web site has up-to-date information about IBM xSeries and IntelliStation products, services, and support. The address for IBM xSeries information is <http://www.ibm.com/eserver/xseries/>. The address for IBM IntelliStation information is <http://www.ibm.com/pc/intellistation/>.

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---

## Software service and support

Through IBM Support Line, you can get telephone assistance, for a fee, with usage, configuration, and software problems with xSeries servers, IntelliStation workstations, and appliances. For information about which products are supported by Support Line in your country or region, go to <http://www.ibm.com/services/sl/products/>.

For more information about Support Line and other IBM services, go to <http://www.ibm.com/services/>, or go to <http://www.ibm.com/planetwide/> for support telephone numbers. In the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).



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