IBM

System x

IBM Hardware Management Pack for Microsoft System Center Operations Manager Installation and User's Guide

Version 2.0

SC23-9521-00

IBM

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> **Note**
> Before using this information and the product it supports, read the information in "Notices" on page 27.

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About this publication

This book provides instructions for installing IBM® Hardware Management Pack for Microsoft® System Center Operations Manager 2007, Version 2.0 into the Microsoft System Center Operations Manager 2007 and using the integrated features to manage systems in your environment.

Conventions and terminology

These notices are designed to highlight key information:

Note: 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 appears before the instruction or situation in which damage can occur.

Printable PDF files

View or print documentation that is available in Portable Document Format (PDF).

Downloading Adobe® Acrobat Reader

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Viewing and printing PDF files

You can view or print any of the PDF files in the following list. The most current version of each document is available online in the information center and on the product download page. Go to the product download page to sign in and locate the download links for the following titles, or click any title in the following list to open the version of each book that is in the IBM System x™ and BladeCenter® Tools information center:

IBM Hardware Management Pack PDFs

- *IBM Hardware Management Pack for Microsoft System Center Operations Manager 2007, Version 2.0 Release Notes*
- *IBM Hardware Management Pack for Microsoft System Center Operations Manager 2007, Version 2.0 Installation and User's Guide*

IBM BladeCenter Chassis Management Pack PDFs

- *IBM BladeCenter Chassis Management Pack for Microsoft System Center Operations Manager 2007 Release Notes, Version 1.0.2*
- *IBM BladeCenter Chassis Management Pack for Microsoft System Center Operations Manager 2007 Installation and User's Guide, Version 1.0.2*

World Wide Web resources

The following Web pages provide resources for understanding, using, and troubleshooting IBM System x, BladeCenter blade servers, and systems-management tools.

IBM Systems: Technical support site

IBM Systems: Technical support site

Locate support for IBM hardware and systems-management software.

IBM Systems Management Software: Download/Registration page

IBM Systems Management Software: Download/Registration page

Download IBM systems-management software.

IBM System x Systems Management page

IBM System x Systems Management page

Obtain an overview of IBM systems management using IBM Director Agent or IBM Director Core Services.

IBM ServerProven® page

IBM ServerProven page

Obtain information about hardware compatibility with IBM System x, IBM BladeCenter, and IBM IntelliStation® hardware.

Microsoft System Center Operations Manager 2007 page

Microsoft System Center Operations Manager 2007 page

Obtain information about System Center Operations Manager that describes how to monitor your IBM systems across large organizations, using IBM and Microsoft applications and operating system knowledge to resolve operational problems.

Chapter 1. IBM Hardware Management Pack for Microsoft System Center Operations Manager 2007, Version 2.0

With the IBM Hardware Management Pack for Microsoft System Center Operations Manager 2007, Version 2.0 installed on the Operations Manager Server, you can use Operations Manager to discover and manage IBM System x and BladeCenter x86 systems that have installed either IBM Director Core Services (Level 1) or IBM Director Agent (Level 2).

Install a supported version of IBM Director Core Services or IBM Director Agent on every IBM system that you intend to manage.

Install Operations Manager 2007 on the management server; then install IBM Hardware Management Pack, V2.0 on the server. Use the Computer and Device Management Wizard of the Operations Manager to choose to manage Windows® systems running on an IBM System x system or an BladeCenter blade server. After selecting a system to be managed, Operations Manager pushes its Operations Manager Agent onto the managed system, along with management packs that specifically target the type of system, such as the IBM Hardware Management Pack that targets an IBM System x or BladeCenter x86 system. The Operations Manager Agent and the management packs begin communicating with the IBM Director Agent on the system and communicating across the network to the Operations Manager Server.

With IBM Hardware Management Pack, V2.0, the Operations Manager can monitor and manage an IBM System x or BladeCenter x86 system, as well as more granular targets within a managed computer system, such as its operating system, its applications, its network adapters, and its subcomponents, such as its cooling fan.

The Operations Manager monitors and manages the health of a management target. The health is measured in four categories:
- Availability
- Configuration
- Performance
- Security

The Operations Manager also provides the ability to create management packs and groups of systems, applications, and health dependencies as aggregate targets. Once defined, you can roll up all the indicators for an aggregate target, or drill down when the aggregate indicator shows a problem that requires examining the health of individual components.

If you find a problem, you can look in the history databases to see if it is a recurring problem. You can also use the knowledge provided in IBM Hardware Management Pack, V2.0 to learn the recommended solution to a problem.

When you install IBM Hardware Management Pack for Microsoft System Center Operations Manager 2007, Version 2.0, the following Operations Manager functions are enhanced for IBM System x and BladeCenter x86 systems:

- **Health explorer view**: Examines the health state of IBM Director Level-1 and Level-2 enabled systems at a component level in a hierarchical view of availability, configuration, performance, and security.
- **Diagram view**: Shows inner organization views of IBM System x systems.
- **Events view**: Captures events that occur on specific or aggregate targets of IBM Director Level-1 and Level-2 enabled systems.
- **Active alerts view**: Lists all alert notifications for specific or aggregate targets of IBM Director Level-1 and Level-2 enabled systems.

Note: These management functions are supported on System x and BladeCenter x86 systems running Windows. They are not supported on System i™, System p™, and System z™ systems.

If you intend to monitor the health of an entire BladeCenter chassis unit, you can install the separate IBM BladeCenter Chassis Management Pack for Microsoft System Center Operations Manager 2007, Version 1.0.2.

Major features

Major features of the IBM Hardware Management Pack for Microsoft System Center Operations Manager 2007, Version 2.0 include:
- Monitoring the health of IBM systems and system components
- Creating groups of IBM systems and system components for monitoring at a high level
- Automatically restoring the health state of a component from an error state to a healthy state when an error is resolved

IBM Hardware Management Pack, V2.0 monitors all of the hardware health states that are critical for continuous functioning of your IBM systems. To help you focus on events that might need your attention, the Hardware Management Pack reports errors for all critical health conditions that might impact the system.

Chapter 2. Installing

IBM provides the Hardware Management Pack and the BladeCenter Chassis Management Pack for you to integrate into the Operations Manager, to enhance the management of IBM systems. The Hardware Management Pack discovers IBM System x systems, BladeCenter blade server systems, and system components, and then monitors their health. The IBM BladeCenter Chassis Management Pack discovers IBM BladeCenter chassis units and chassis components, such as the management module and I/O modules, and monitors their health. The Hardware Management Pack will integrate the BladeCenter Chassis Management Pack more tightly in future releases, but for now they are two separate management packs.

This information describes installing the Hardware Management Pack.

See the for information about integrating the BladeCenter Chassis Management Pack into the Operations Manager.

Installation requirements for the IBM Hardware Management Pack

You install the Hardware Management Pack on an IBM system that is running the Microsoft Operations Manager Server.

The Operations Manager Server must be a 32-bit or 64-bit IBM system that is listed on the IBM ServerProven Web site at http://www-03.ibm.com/systems/serverproven/.

You do not install the Hardware Management Pack on a managed IBM system. The Operations Manager Server pushes the Hardware Management Pack to an IBM system that you discover, if IBM Director Agent (Level 2) or IBM Director Core Services (Level 1) are installed on the system and the Hardware Management Pack supports the system, as specified in the "Supported configurations of managed systems" section of the current Hardware Management Pack *Release Notes* document.

Installing the Hardware Management Pack

You can install the IBM Hardware Management Pack for Microsoft System Center Operations Manager 2007, Version 2.0 on a Microsoft Operations Manager 2007 server.

To install the Hardware Management Pack, complete the following steps:

1. Uninstall any previously installed version of the IBM Hardware Management Pack.

   Uninstall Version 1.0 of the IBM Hardware Management Pack before installing Version 2.0.

   Both versions can coexist, but should not be used interchangeably. Version 1.0 does not detect all of the hardware components and events that Version 2.0 can detect. It is possible that Version 1.0 might give you no indication of an error that Version 2.0 can recognize.

   Uninstall the earlier version to avoid any such possible confusion.

2. If it is not already installed, install Microsoft Operations Manager 2007 on your management server.

   Go to the Operations Manager 2007 Quick Start Guide Web site at http://technet.microsoft.com/en-us/library/bb418758.aspx to install Microsoft Operations Manager 2007.

3. Go to the IBM Web site for Microsoft Systems Management Solutions for IBM Servers at http://www-03.ibm.com/systems/management/director/partners/microsoft/index.html to install the Hardware Management Pack.

4. Click **IBM Hardware Management Pack for Microsoft System Center Operations Manager 2007** in the "Microsoft System Center Operations Manager 2007" section to sign in with your IBM ID and password. After signing in, the download page for IBM Director Upward Integration Modules (UIMs) is displayed.

5. Click the Download Director tab or the "http" tab to download the files using your preferred download method.

6. Go to the IBM Director Upward Integration Modules for Microsoft section and download the IBM Hardware Management Pack for Microsoft System Center Operations Manager 2007, Version 2.0 installation package that is appropriate for your Microsoft Operations Manager Server to a temporary directory:
   - **Version 2.0 (32-bit):** IBM_HW_MgmtPack_v2.0.0_x86.msi
   - **Version 2.0 (64-bit):** IBM_HW_MgmtPack_v2.0.0_x64.msi

   a. Click the package that you intend to download.

   b. Scroll down to the License area and select "I agree."

   c. Click "I confirm" to begin the download to the temp directory.

7. Double-click the downloaded installation file to install the IBM Hardware Management Pack to the Microsoft System Center Operations Manager management server.

   If the installer cannot find Microsoft Operations Manager on your system, the installation closes. Otherwise, the Welcome to the InstallShield Wizard for IBM Hardware Management Pack for Microsoft System Center Operations Manager 2007, Version 2.0 window is displayed.

8. Click **Next**.

   The License Agreement window is displayed.

9. Read the software license agreement. If you agree with the terms, select **I accept the terms in the license agreement**; then click **Next**.

10. Verify the default target location. If necessary, select the target folder for the installation code and the knowledge articles that describe IBM System x and BladeCenter x86 systems and components.

11. Click **Next** to confirm the installation.

12. When the installation is complete, click **Close**.

    The installation process imports the sealed Hardware Management Pack into the Operations Manager 2007. The installation process also configures Operations Manager 2007 with the location of the knowledge articles about IBM System x and BladeCenter x86 systems.

13. Open the Operations Console of the Microsoft System Center Operations Manager.

14. Click the **Administration** button; then click **Management Packs** to verify the installation of the Hardware Management Pack.

    If the Hardware Management Pack installed successfully, you can find the "IBM Hardware Management Pack - Common Library" and the "IBM Hardware Management Pack for System x and BladeCenter x86 Blade Systems" in the list.

    Note: Sometimes new management pack entries might not be displayed immediately after the installation. Refresh the window or wait a few minutes until the management pack entries are displayed.

Uninstalling IBM Hardware Management Pack, V2.0

To uninstall the Management Pack entirely, go to the "Add or Remove Programs" function in the Windows Control Panel, and select **Remove** on the Management Pack entry. Deleting a management pack from the Operations Manager console detaches the management pack from the Operations Manager Server, but does not remove any files that the management pack installs.

Reinstalling IBM Hardware Management Pack, V2.0

If you recently uninstalled, wait approximately three minutes for the settings to get propagated to the Operations Manager database before you reinstall.

If you do not wait for the uninstall to register, reinstalling can result in managed clients that are not listed in the Operations Manager Console.

If you uninstall, you detach the Hardware Management Pack from the Operations Manager Server. You must then reinstall the Hardware Management Pack into the Operations Manager 2007.

See "Installing the Hardware Management Pack" on page 3 for more information.

Chapter 3. Working with the Hardware Management Pack

The Hardware Management Pack enhances the functionality of the Operations Manager to provide more detailed information about managed IBM systems.

Use the following tasks to learn more about using the Operations Manager when you have installed the Hardware Management Pack.

- Use the Monitoring pane of the Operations Manager Console, as described in "Using the Operations Manager Console with the Hardware Management Pack installed."
- Add an IBM system to the managed systems, as described in "Adding an IBM system to be managed by the Operations Manager" on page 11.
- Monitor the health of systems, components, and systems-management software, as described in "Monitoring the health of systems, hardware components, and other targets" on page 14.
- Identify and resolve errors, as described in "Using Health Explorer to identify and resolve problems" on page 16.
- Access IBM knowledge pages, as described in "Using knowledge pages to resolve problems" on page 18.

Using the Operations Manager Console with the Hardware Management Pack installed

After installing the IBM Hardware Management Pack, you can use the Monitoring pane of the Operations Manager Console to monitor the system. The IBM Hardware folders and views in the Monitoring pane provide a complete view of the health of your IBM System x and BladeCenter x86 Blade Systems.

Perform the following procedure to become familiar with the Monitoring pane of the Operations Manager Console so that you can see what the Hardware Management Pack adds.

1. Click the **Monitoring** tab in the left pane of the Operations Manager Console to show the systems and hardware components that you can monitor with the Hardware Management Pack.

   Part of the **Monitoring** pane of the Operations Manager Console with the Hardware Management Pack installed is shown in the following graphic.
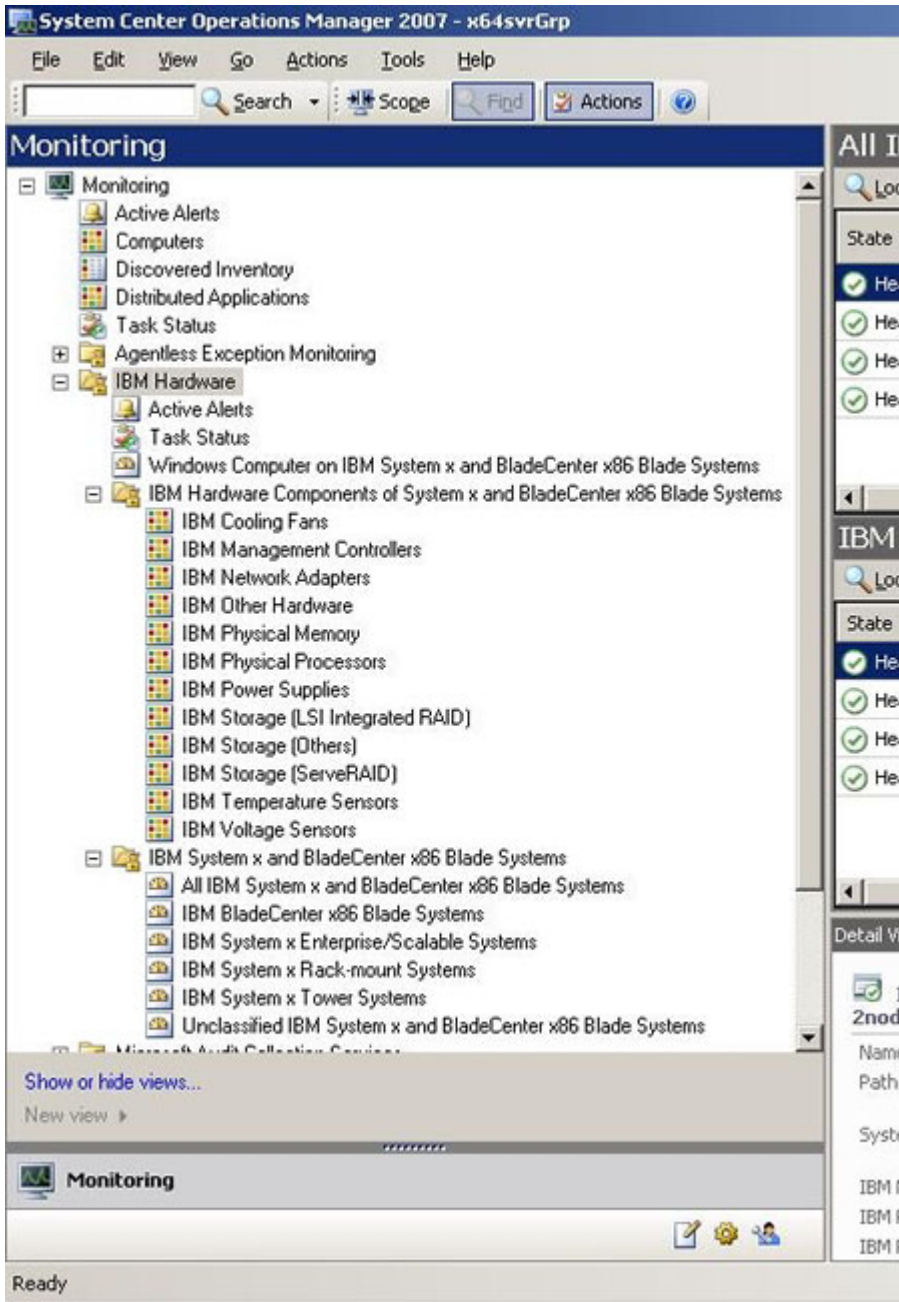
Figure 1. Monitoring pane folders and views added by the Hardware Management Pack

Under the IBM Hardware folder are three views that provide a global view that displays aspects of all of your IBM systems: an overall IBM hardware related Active Alerts view, a Task Status view, and a Windows Computer on IBM System x and BladeCenter x86 Blade Systems view.

There are also two more folders of additional views of different aspects of monitoring data that is collected from IBM systems.

The IBM Hardware Management Pack adds the following folders and views:

IBM Hardware (folder)

The IBM Hardware folder includes active alerts, task status, and aggregate targets for all discovered IBM systems and hardware components. It also includes systems diagrams.

Active Alerts (view)

Active Alerts is a state view of IBM active alerts. Use this view as you would use the **Monitoring** → **Active Alerts** view. The difference is that this view contains active alerts for only IBM hardware.

Task Status (view)

Task Status is a state view of IBM System x systems. Use this view as you would use the **Monitoring** → **Task Status** view. The difference is that this view contains the status of each task that was started only on IBM systems.

Windows Computer on IBM System x and BladeCenter x86 Blade Systems (view)

Windows Computers on IBM Systems is a state view of IBM System x and BladeCenter x86 Blade Systems. Use this view as you would use the **Monitoring** → **Computers** view. The difference is that this view contains computers that are only IBM System x and BladeCenter x86 Blade Systems.

IBM Hardware Components of System x and BladeCenter x86 Blade Systems (folder)

This folder contains personalized global IBM hardware views that include hardware monitors such as network adapters, physical processors, and other hardware components.

The IBM Hardware Components of System x and BladeCenter x86 Blade Systems state views do not use the dashboard presentation to display state views of specific components. This folder contains state views on a per-hardware-component-class basis. Each component-level state view provides access to more detailed properties of the component instance. Such detail is not possible through a platform-oriented dashboard state view.

IBM System x and BladeCenter x86 Blade Systems (folder)

This folder contains a summarized view of all IBM systems in "All IBM System x and BladeCenter x86 Blade Systems" and personalized summary views of specific types of IBM System x and BladeCenter x86 Blade Systems that are grouped by the type of platform, such as Tower, rack, Blade, Enterprise server, and unclassified.

2. Click the **Active Alerts** view to see potential problems in the managed systems.
3. Click the **IBM Hardware Components of System x and BladeCenter x86 Blade Systems** view to find detailed information about hardware components.

Only manageable hardware components are discovered and monitored, not all components. For example, a system with one or more non-manageable fans does not have all of its fans discovered or monitored. The following graphic shows the types of manageable components that the Hardware Management Pack can discover and monitor. As shown in the graphic, the view under IBM Hardware labelled **IBM Hardware Components of System x and BladeCenter x86 Blade Systems** shows various components.
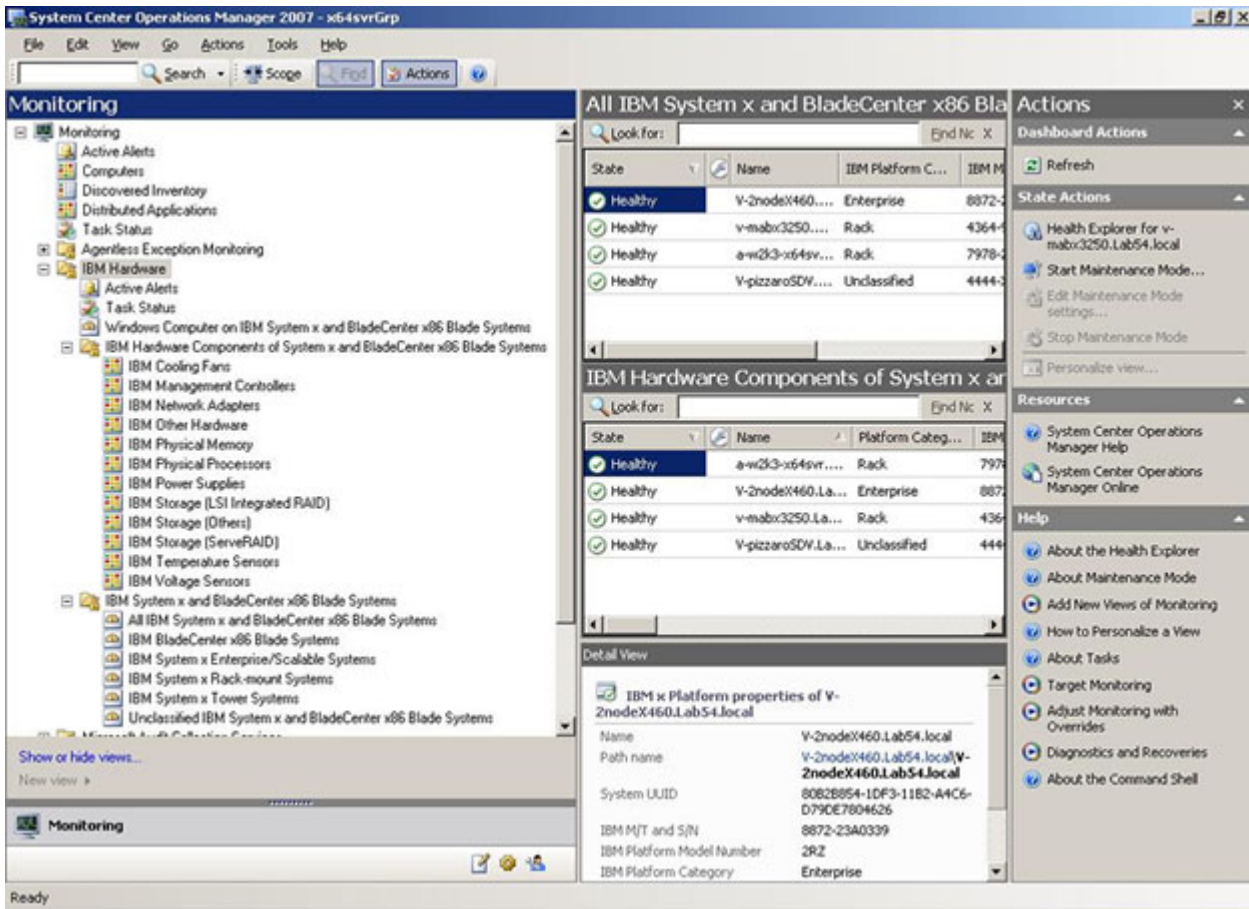
Figure 2. The Monitoring pane of the Operations Manager Console, showing the views of manageable components under the IBM Hardware Components of System x and BladeCenter x86 Blade Systems folder

4. Click the **IBM System x and BladeCenter x86 Blade Systems** folder to display the views in the folder.

   After discovering an IBM system, the Hardware Management Pack classifies the system according to its system type, and adds the system to the view of all systems and to one of the other groups of system views:

   • All IBM System x and BladeCenter x86 Blade Systems (all of the systems)

   • IBM BladeCenter x86 Blade Systems

   • IBM System x Enterprise/Scalable Systems

   • IBM System x Rack-mount Systems

   • IBM System x Tower Systems

   • Unclassified IBM System x and BladeCenter x86 Blade Systems (systems that are either too old or too new to be classified correctly)

5. Click the **All IBM System x and BladeCenter x86 Blade Systems** view to show the dashboard views of its systems and hardware components.

Each view of systems provides a dashboard view of its systems health states and another dashboard view of its systems manageable hardware components, as shown in the following graphic.
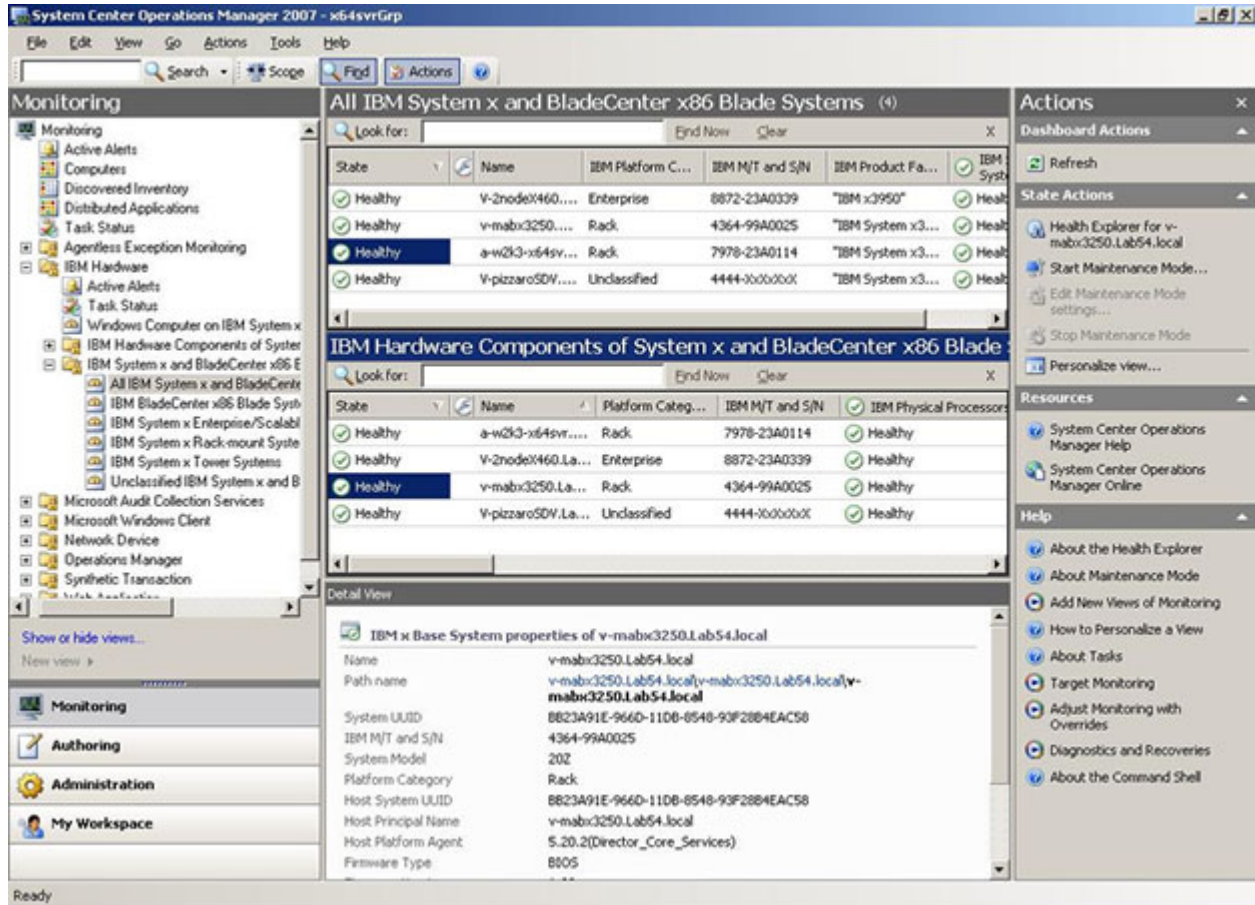

Figure 3. Selecting the All IBM System x and BladeCenter x86 Blade Systems view to show both dashboard views

Adding an IBM system to be managed by the Operations Manager

Use the Microsoft Operations Manager 2007 Discovery Wizard to discover and add IBM systems to be managed. The Discovery Wizard deploys the Hardware Management Pack to the discovered system.

The Discovery Wizard does not show systems that are already being monitored.

1. Log on to the Operations Manager Server with an account that is a member of the Administrators role.

2. Click **Administration**.

3. Click **Discovery Wizard** at the bottom of the navigation pane above the list of buttons, or select **Configure computers and devices to manage** in the Actions column.

   You can also right-click the Agent Managed view to select the Discovery Wizard from a context menu, as shown in the following graphic.
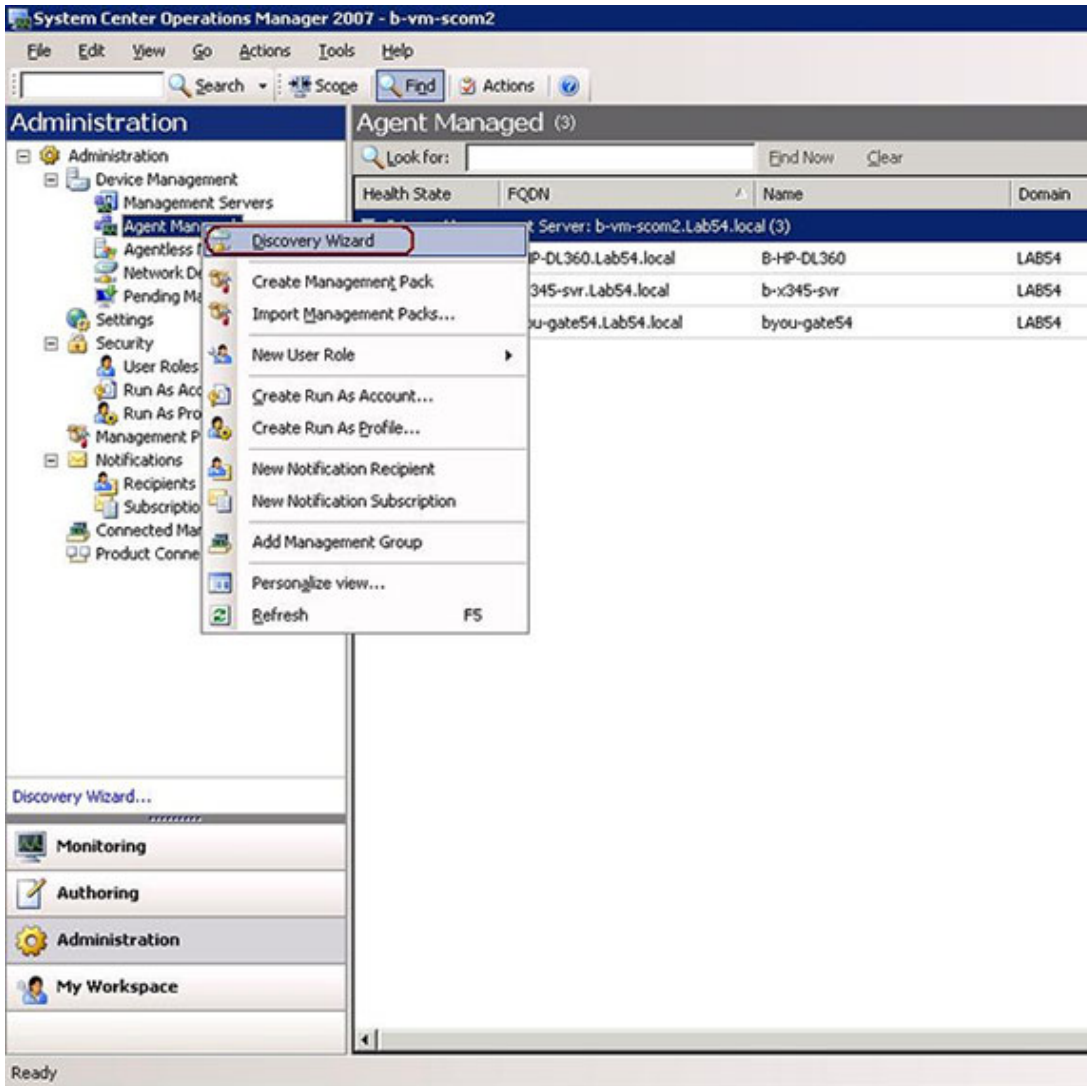

Figure 4. Using the context menu to select the Discovery Wizard

4. Click **Next** if the Introduction page is displayed. The page does not display if the Computer and Device Management Wizard has run before and ″Do not show this page again″ was selected.

5. Select **Advanced discovery** on the Auto or Advanced? page.

6. Select **Servers & Clients** in the Computer & Device Types list.

7. Select the Management Server to use to discover the computers in the Management Server list.

8. Select the **Verify discovered computers can be contacted** check box.

9. Click **Next** to display the Discovery Method page.

10. Click **Browse for, or type-in computer names** to type in the names of IBM systems, or to click **Browse** to search the network for IBM systems.

11. Click **Next** to display the Administrator Account page.

12. Type the user name, password, and domain of an account that is a member of the Administrators role.

    The account must have administrative privileges on the targeted computers to be managed. If **This is a local computer account, not a domain account** is selected, the Management Server Action Account is used to perform discovery. For more information about Operations Manager 2007 accounts, see ″Security Considerations in Operations Manager 2007″ at http://technet.microsoft.com/en-us/library/bb309725.aspx.

    When you run the Operations Console on a computer that is not an Management Server, the Connect To Server dialog box is displayed. Type the name of the Management Server to connect to it.

13. Click **Discover** to display the Discovery Progress page.

    Progress depends on the number of computers in the network and other factors. The Discovery Wizard might return up to 4000 computers if you selected the **Verify discovered computers can be contacted** check box, or up to 10,000 computers if the check box is not selected.

14. Select the computers to manage on the Select Objects to Manage page.

15. Click **Agent** in the Management Mode list; then click **Next**.

16. Click **Finish**.

17. Examine the Agent Management Task Status dialog box to verify that the status for the selected computers changes from Queued to Success.

18. Click **Close**.

See the Microsoft Operations Manager documentation at http://technet.microsoft.com/en-us/opsmgr/default.aspx for more information about using the Discovery Wizard.

Monitoring the health of systems, hardware components, and other targets

The Hardware Management Pack discovers and monitors the health of hardware components: processors, memory, network adapters, storage, management controllers, power supplies, fans, temperature sensors, and voltage sensors. The Hardware Management Pack can also discover and monitor the health of system-management software, such as IBM Director Agent, IPMI driver, IBM IPMI Mapping Layer, and ServeRAID™ Manager Level 1 Agent.

Component discovery and health monitoring depend on firmware support, hardware compatibility, and management-software support. Because of the various factors involved, not all components are always discoverable. If a component is not discovered, it cannot be monitored or managed.

1. Click the **Monitoring** button in the navigation pane.
2. Click the **IBM Hardware** folder to display the folders and views that the Hardware Management Pack adds to the Operations Manager Console.
3. Click **Active Alerts** to see if any Critical or Warning alerts are associated with your IBM Hardware.

   The following graphic shows an example of how active alerts might be displayed:
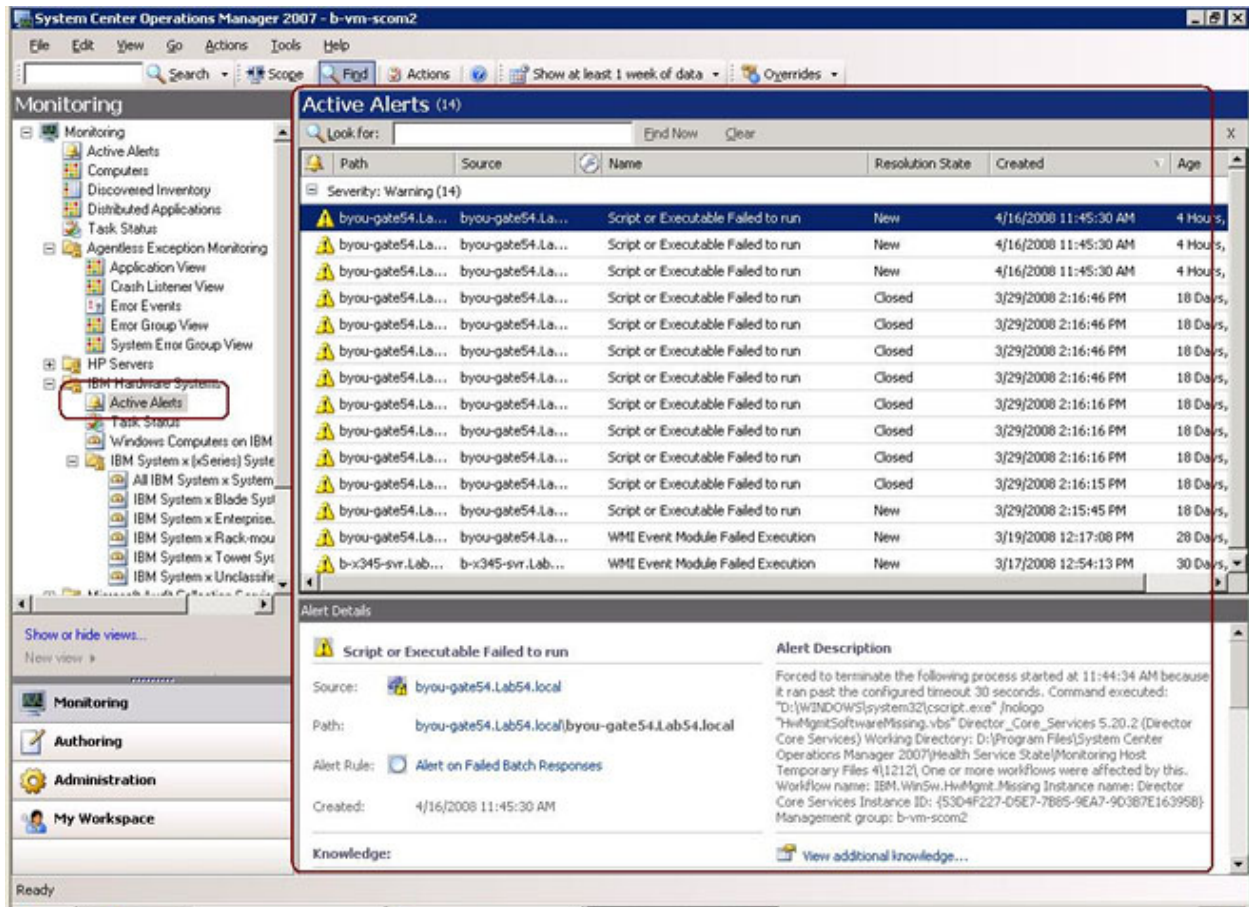
Figure 5. Example of active alerts in managed systems

4. Click **Windows Computer on IBM System x and BladeCenter x86 Blade Systems** to check the status of the Windows platform on the IBM Hardware.

5. Click the **IBM System x and BladeCenter x86 Blade Systems** folder to the check the hardware status on all IBM systems.

6. Click the **All IBM System x and BladeCenter x86 Blade Systems** view to display the health indicators in the first column of the systems dashboard and in the first column of the hardware components dashboard.

7. Click **IBM System x Rack-Mount Systems** to check the hardware state for those systems.

Go to "Using Health Explorer to identify and resolve problems" to learn how to use the Health Explorer to examine a critical problem.

Using Health Explorer to identify and resolve problems

You can use the Health Explorer to identify and resolve error states that show up when monitoring IBM systems and hardware components. For a quick check up, you can take a look at Active Alerts, Windows Computer on IBM System x and BladeCenter x86 Blade Systems, or All IBM System x and BladeCenter x86 Blade Systems. These views show any existing Alerts on your IBM hardware.

You can use the Health Explorer to view, learn, and take action on alerts, state changes, and other issues raised by a monitored object. The Health Explorer helps troubleshoot your alerts.

Suppose that you see a critical error when you are monitoring your systems and hardware components, such as shown in the following graphic.
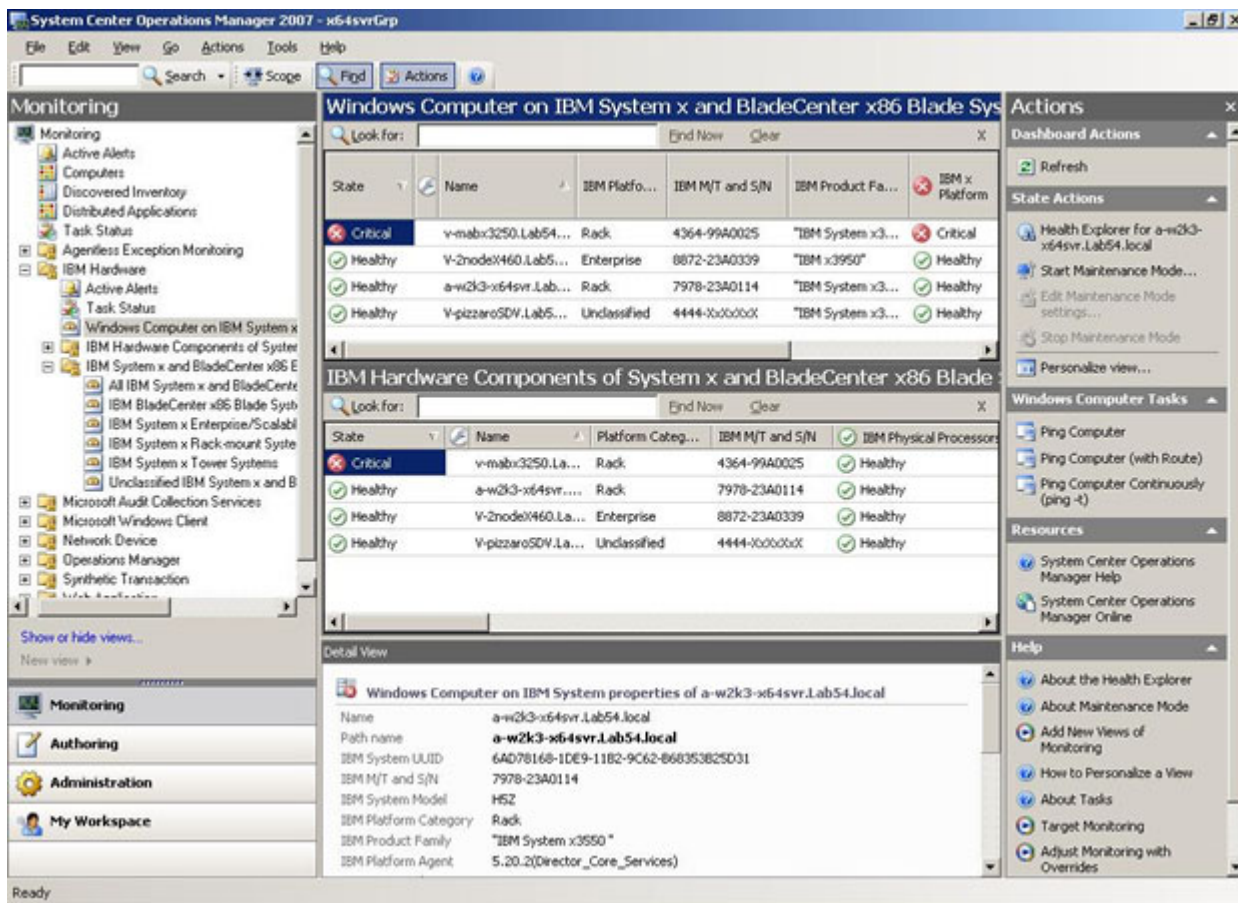

Figure 6. An example of a critical error showing up in a managed system

Use the following procedure to identify and resolve the error.

1. To open the Health Explorer when there is a Warning or a Critical alert, click **All IBM System x and BladeCenter x86 Blade Systems**; then double-click on the state. By default, the health Explorer opens with all failed monitors in expanded view.

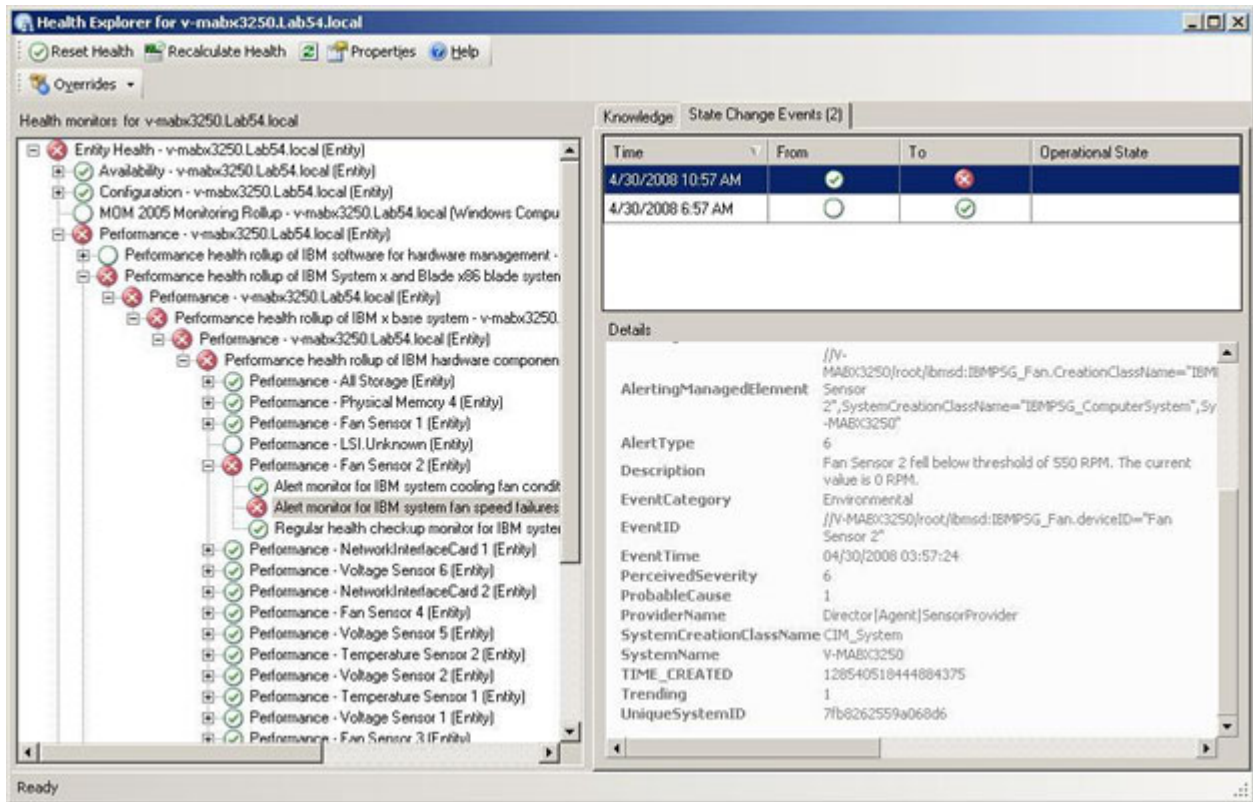   The following graphic shows how such an error might be displayed in the Heath Explorer:

Figure 7. Example of hardware components causing a system to be in the error state

   If there is no warning or critical alert, highlight an IBM system in the All IBM System x and BladeCenter x86 Blade Systems view; then right-click it to show its context menu. Click **Open**; then click **Health Explorer for** *system_name*.

2. Use the Health Explorer to identify the basal level health monitor that is indicating an error. The indication should refer to a particular component instance.

   In this case, the cause of the error is a faulty fan.

3. Click **State Change Events** in the right-hand pane for details about the latest state change event.

   You can see the date and the time that the fan went into the error state. You can also read details about the nature of the error.

Go to "Using knowledge pages to resolve problems" to learn how to use the knowledge pages to get help for resolving an error state and to learn about hardware components.

Using knowledge pages to resolve problems

You can access knowledge pages about errors, events, and components to learn more about your systems and hardware components, and to learn how to resolve errors when they occur.

This topic builds upon "Using Health Explorer to identify and resolve problems" on page 16. The following graphic shows how an error might be displayed in the Heath Explorer:
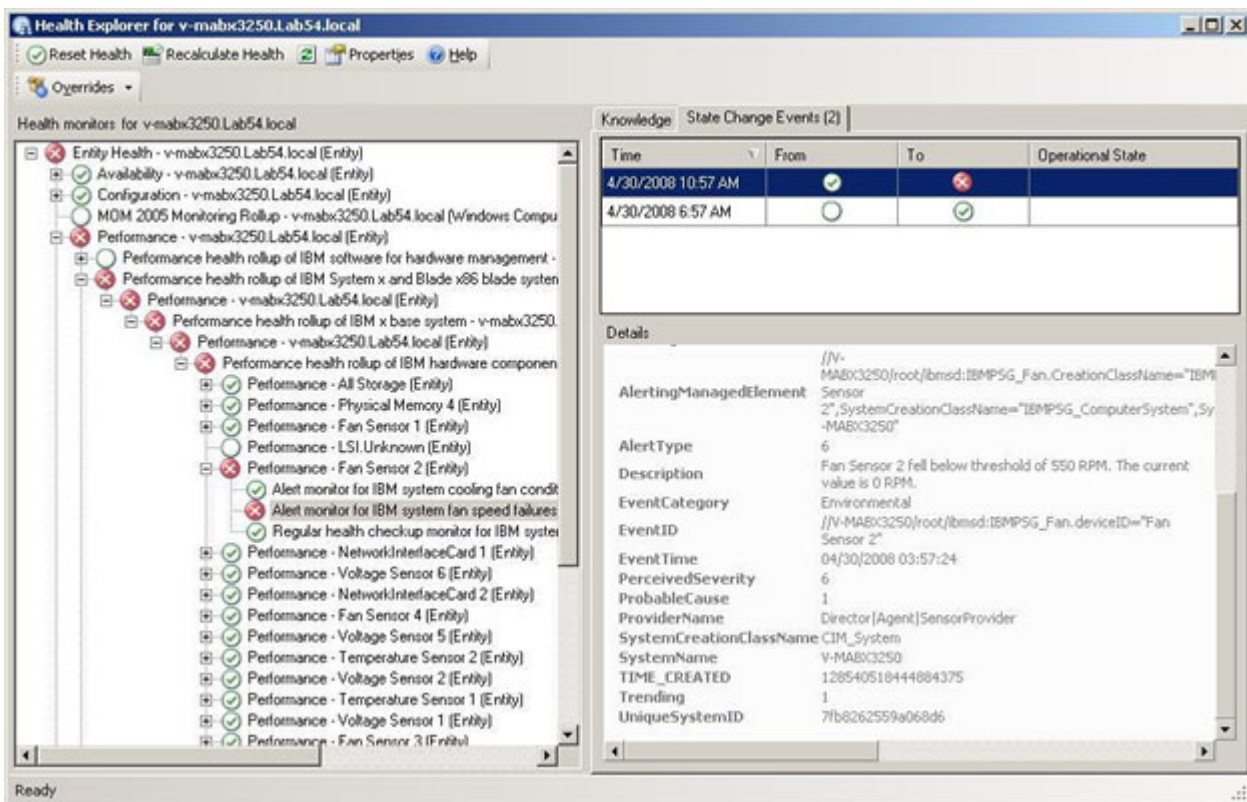

Figure 8. Example of hardware components causing a system to be in the error state

Knowledge articles written by IBM developers can help you understand more about IBM Systems x and BladeCenter x86 Blade Systems events, alerts, components, and other information.

You can access the knowledge pages in these ways:
- Use the Health Explorer/Monitors View to access IBM Hardware Management Pack monitor knowledge.
- Use the Events view to access knowledge about the event.
- You can also use any links provided in the knowledge to access related hardware event knowledge.

Perform the following procedure to learn how to use knowledge pages.

1. Click **Knowledge** in the right-hand pane of the Health Explorer to read about the error event, including explanations and necessary steps that might help you fix the problem.

   Read the "Knowledge" for the monitor in the right-hand pane to see if a manual "Reset Health" is needed, and for information about how to resolve the error if extra steps are needed. The following graphic shows how such a page might be displayed:
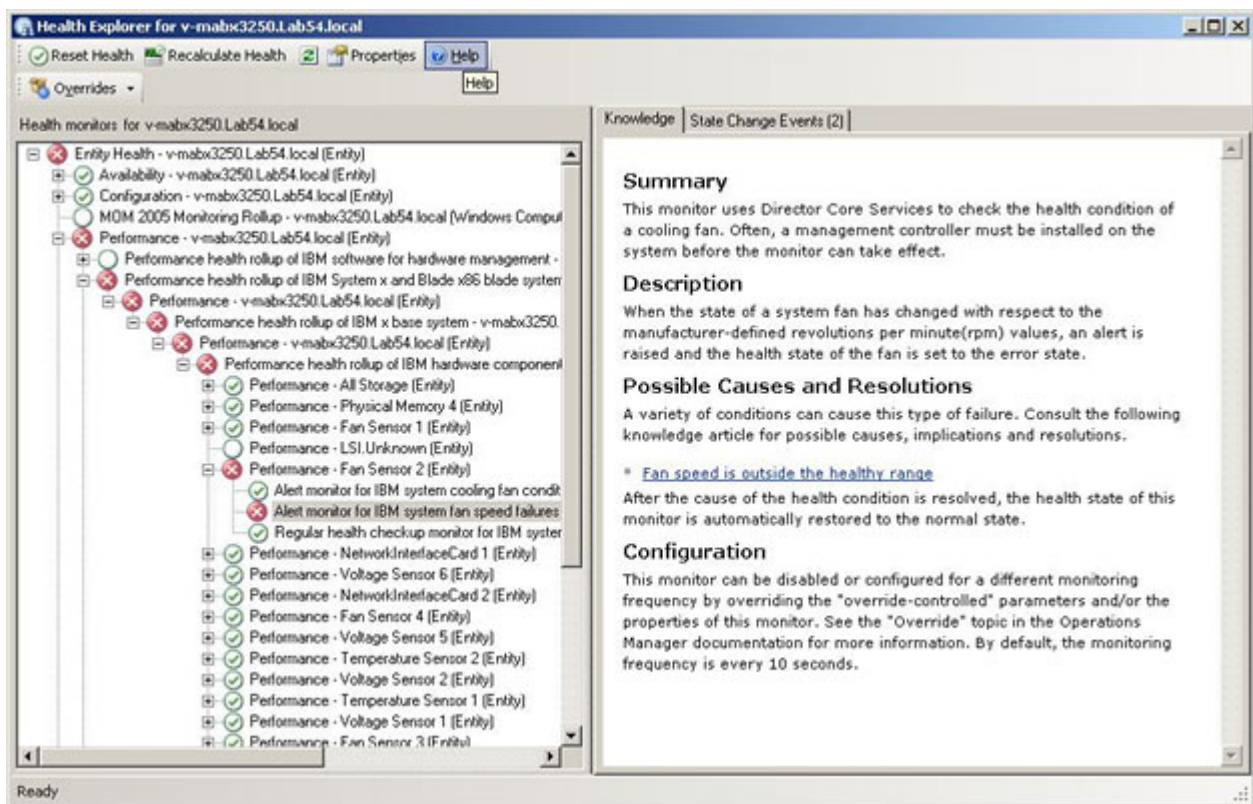

Figure 9. Example of a knowledge page that describes an error event

Some knowledge pages have links to another knowledge page for possible causes and suggested actions. Such pages might describe specific errors and their remedies, or describe hardware components.

2. Click the **Fan speed is outside the healthy range** link.

   The link opens another knowledge page, as shown in the following graphic:
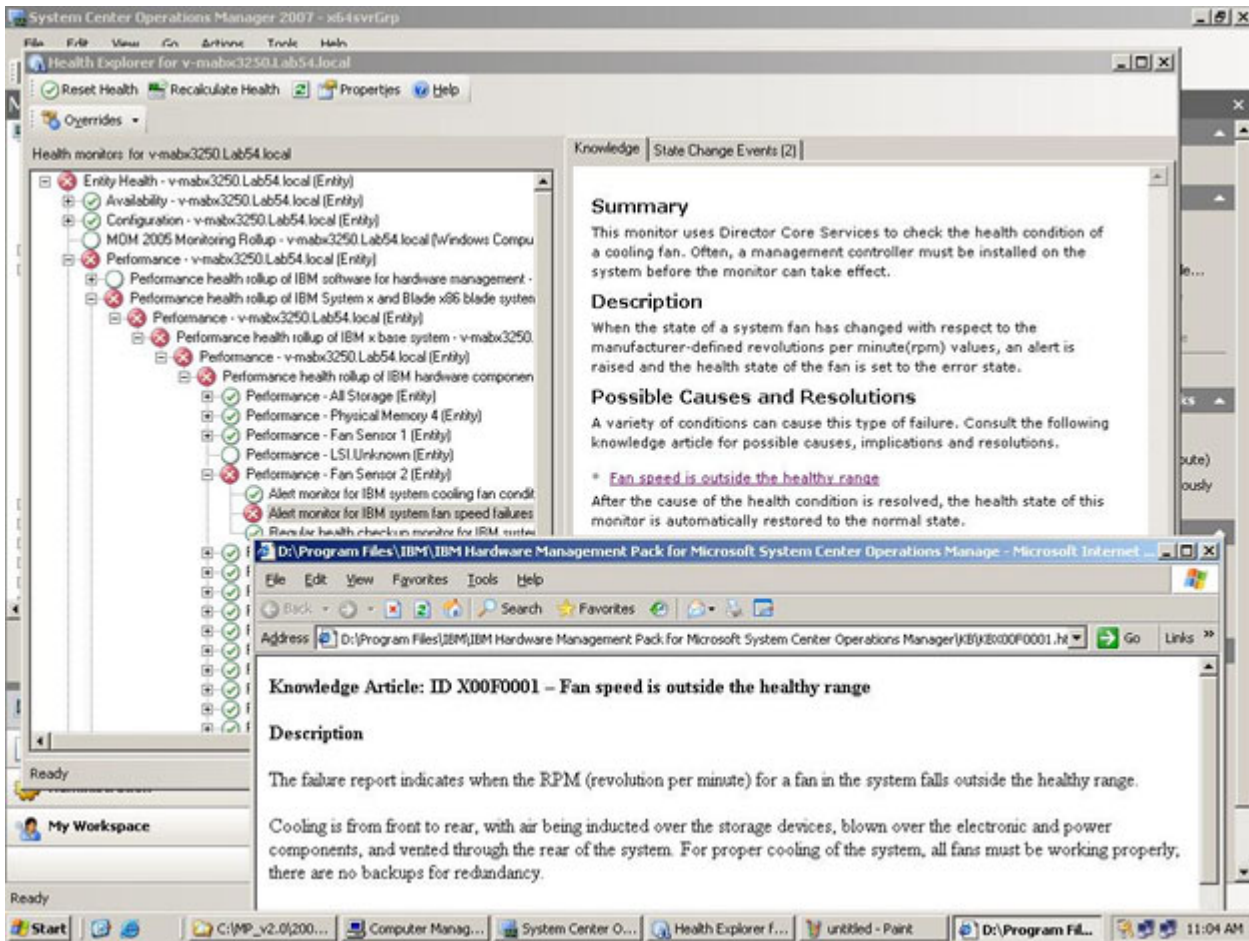
Figure 10. One knowledge page linking to another

3. Perform the procedures identified in the knowledge pages to resolve the error and reset the health sensor, if necessary.

The knowledge is also accessible through the Active Alerts view. Double click an Alert to show the Alert Properties. The Alert description is in the General tab. The second tab is Product Knowledge that includes the link to the Knowledge article. The following graphic shows the Alert Properties for an Alert:

Figure 11. Example Alert Properties

Appendix A. Accessibility for IBM Hardware Management Pack, V2.0

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products successfully.

IBM strives to provide products with usable access for everyone, regardless of age or ability.

Accessibility features

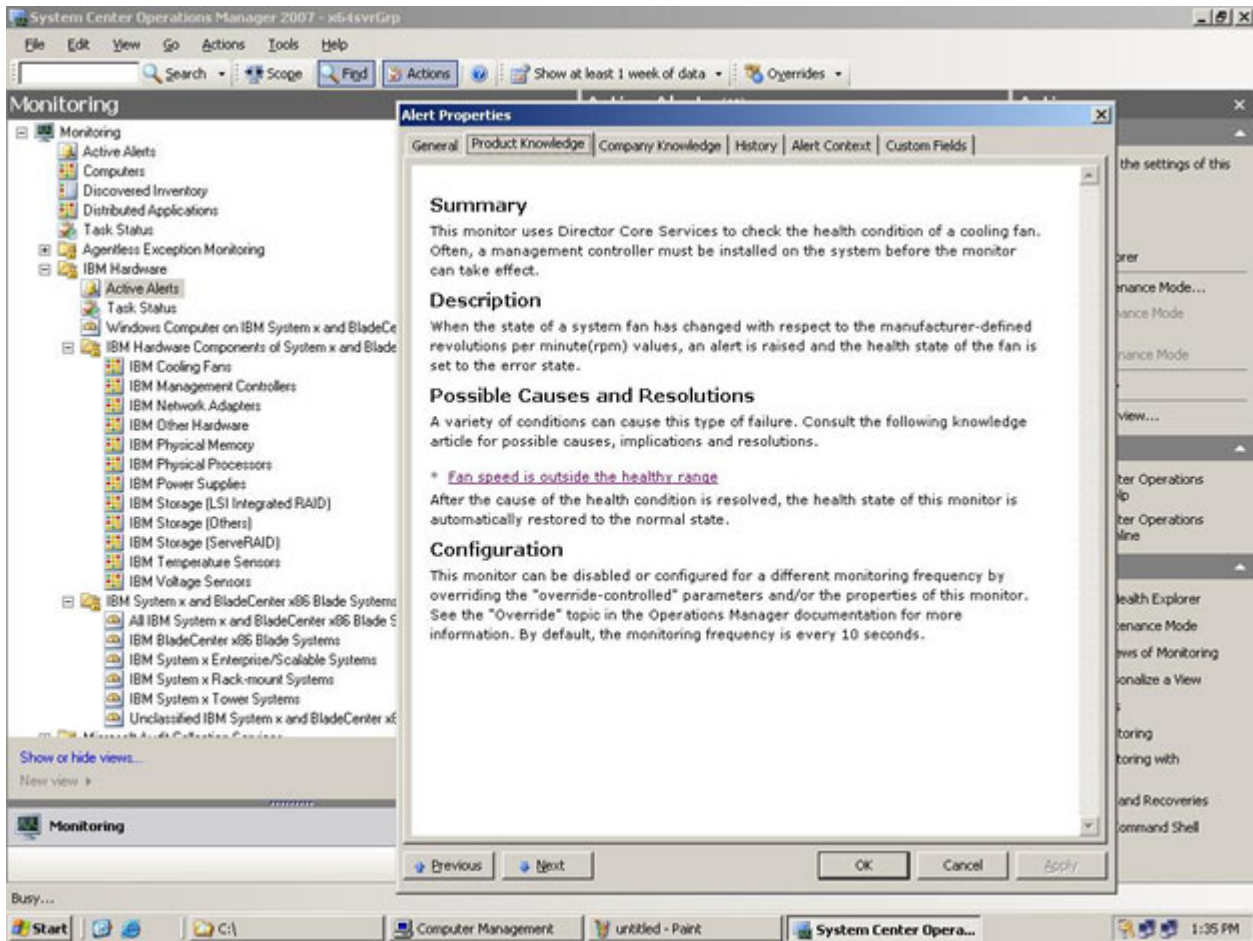The IBM Hardware Management Pack, V2.0 supports accessibility features of the system-management software in which they are integrated. Refer to your system-management software documentation for specific information about accessibility features and keyboard navigation.

Tip: The IBM Hardware Management Pack, V2.0 topic collection and its related publications are accessibility-enabled for the IBM Home Page Reader. You can operate all features using the keyboard instead of the mouse.

You can view the publications for IBM Hardware Management Pack, V2.0 in Adobe Portable Document Format (PDF) using the Adobe Acrobat Reader. You can access the PDFs from theIBM Hardware Management Pack, V2.0 download site.

IBM and accessibility

See the IBM Accessibility Center Web page at IBM Accessibility Center Web page for more information about the commitment that IBM has to accessibility.

Appendix B. Hardware Management Pack rule groups

The IBM Director Agent helps the IBM Hardware Management Pack, V2.0 manage Level-1 and Level-2 managed systems.

These rules are assigned to all managed IBM System x and BladeCenter x86 systems. For the most current list of Upward Integration Modules (UIM) rule groups for IBM Director, see the IBM Director Rule groups topic in the IBM Systems Information Center.

IBM Director Core Services

These unit monitors process events from Level 1: IBM Director Core Services and generate alerts when warranted. These monitors also set the state of the IBM Director Agent state monitors.

Device:
- The system has been disconnected from the network.
- The system lease has expired.
- A power supply has failed.
- A system NIC is now online.
- The Remote Supervisor Adapter has detected that a system component is about to fail.
- A system POST event has been detected.
- The Remote Supervisor Adapter has detected that a disk drive has failed.
- An Advanced Systems Management processor has detected that a system power supply has failed.
- The system warranty has expired.
- A user has logged into the Remote Supervisor Adapter web interface.
- A processor threshold event has been detected.
- An AssetID event has been detected.
- A disk SMART event has been detected.
- A storage threshold event has been detected.
- The Remote Supervisor Adapter has detected that its error log is almost full or full.
- A RAID Health status event has been detected.
- A BIOS configuration change event has been detected.

Environmental:
- A service processor has detected a fan threshold event.
- A temperature sensor threshold event has been detected.
- A fan sensor threshold event has been detected.
- A generic event has occurred.
- A voltage sensor threshold has been detected.
- The system chassis is open.
- A service processor has detected a voltage threshold event.

Security:
- A service processor has detected that its error log is almost full or full.
- A processor event has been detected
- A physical memory event has been detected.

Heartbeat:

- IBM Director Core Services Hardware Monitoring Status.

Communications:
- A change in the state of NIC redundancy has been detected.
- A system NIC has failed.
- The primary NIC has failed. The standby NIC has become active.
- A system NIC is now offline.
- The primary NIC is functional and is teamed.

Other:
- An unclassified event has occurred.

The Event Collection for IBM Director Agent rule processes all WMI indications produced by Level-1 and Level-2 managed systems. The rule must remain enabled in order to get the entire event from IBM Director Agent . The IBM Director Agent Discovery objects runs on all the Windows systems under the management group. It adds the IBM Director Agent and ServeRAID Manager Level 1 Agent component to each system according to the discovery result.

LSI Logic Storage Controllers

These unit monitors process events from LSI Logic controllers running IBM Director Agent 5.20 or later and generate alerts when warranted. These monitors also set the state of the IBM Director Agent state monitors.

Availability:
- A RAID event of Warning severity from LSI has been detected.
- A RAID event of Critical severity from LSI has been detected.

The Event Collection for LSI Logic controllers running IBM Director 5.20 or later Agent rule processes all WMI indications from LSI Logic controllers produced by managed systems. The rule must remain enabled in order to get the entire LSI event from Director Agent 5.20 or later.

ServeRAID Manager Level-1 Agent

These rules are assigned to all systems found in the IBM Director Core Services 5.20.x computer groups. Systems are assigned to one of these computer groups based on the Computer Attribute IBM Director ServeRAID Manager Level 1 Agent. Systems in this group are assigned the IBM Director Agent role by the discovery script.

These unit monitors process events from IBM ServeRAID Manager Level 1 Agent and generate alerts when warranted. These monitors also set the state of both the IBM Director Agent and ServeRAID Manager Level 1 Agent state monitors.
- A RAID event of Warning severity from ServeRAID Manager Level 1 Agent has been detected.
- A RAID event of Critical severity from ServeRAID Manager Level 1 Agent has been detected.

The Event Collection for IBM ServeRAID Manager Level 1 Agent rule processes all WMI indications from Director ServeRAID Manager Level 1 Agent managed systems. The rule must remain enabled in order to get the ServeRAID event from Director ServeRAID Manager Level 1 Agent.

Appendix C. CIM indications in IBM Hardware Management Pack, V2.0

Common Information Model (CIM) indications are the fundamental means that IBM Hardware Management Pack for Microsoft System Center Operations Manager 2007, Version 2.0 receives hardware and system information. Depending on how your system-management environment is implemented, IBM Hardware Management Pack for Microsoft System Center Operations Manager 2007, Version 2.0 converts the CIM indications into events or other appropriate vehicles for communicating information to end consumers.

IBM Hardware Management Pack, V2.0 converts CIM indications for use by Microsoft System Center Operations Manager 2007 events.

Find more information about CIM indications on the IBM Systems Information Center at: http://publib.boulder.ibm.com/infocenter/systems/index.jsp?topic=/diricinfo_5.20/btq0_r_events_cim_indicators.html.

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