IBM System x

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

Version 4.5

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Note

Before using this information and the product it supports, read the information in “Notices” on page 121.

Edition Notice

This edition applies to the IBM Hardware Management Pack for Microsoft System Center Operations Manager, v4.5 and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this publication

This book provides instructions for installing the IBM® Hardware Management Pack for Microsoft System Center Operations Manager, v4.5 into Microsoft System Center Operations Manager and using it's integrated features to manage systems in your environment.

Conventions and terminology

Paragraphs that start with a bold **Note**, **Important**, or **Attention** are notices with specific meanings that 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.

Information resources

You can find additional information about the IBM Hardware Management Pack for Microsoft System Center Operations Manager, v4.5 in the product documentation and on the World Wide Web.

PDF files

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

Downloading Adobe Acrobat Reader

You need Adobe Acrobat Reader to view or print these PDF files. You can download a copy from the Adobe Reader Web site.

Viewing and printing PDF files

You can view or print any of the respective PDF files located on the IBM System x Integration Offerings for Microsoft Systems Management Solutions website. Please click the link provided to locate the individual product pages for each publication.

World Wide Web resources

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

IBM System x Integration Offerings for Microsoft Systems Management Solutions

IBM System x Integration Offerings for Microsoft Systems Management Solutions

Locate the latest downloads for the IBM Hardware Management Pack for Microsoft System Center Operations Manager, v4.5.

Support for IBM Systems

Support for IBM Systems

Locate IBM Systems Technical support.

IBM Systems Director: Download Software Registration

IBM Systems Director: Download Registration

Download IBM systems-management software, including IBM Systems Director.

IBM Systems Management for System x

IBM systems management solutions for System x

This web page provides an overview of IBM Systems Management.

IBM ServerProven websites

System x and xSeries ServerProven: IBM ServerProven Compatibility for hardware, applications, and middleware

BladeCenter ServerProven: IBM ServerProven Compatibility for BladeCenter products

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

Microsoft System Center Operations Manager

Technet: Systems Center Operations Manager

Obtain information about Microsoft 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, v4.5

The IBM Hardware Management Pack for Microsoft System Center Operations Manager, v4.5 enables customers to use the enhanced features of Microsoft System Center Operations Manager for managing the health state of IBM System x servers, Blades, IBM BladeCenter Chassis, Compute Nodes, and IBM Flex System™ Chassis.

Key features

The key features of the IBM Hardware Management Pack are:

- Rich monitoring of the health of the IBM BladeCenter Chassis, IBM Flex System Chassis, and the modules using the SNMP protocol.
- Extensive monitoring of the health of hardware components for the IBM System x servers, BladeCenter x86/x64 blades, Flex System x86/x64 compute nodes running Windows.
- Comprehensive monitoring of the health of software stacks for managing IBM hardware
- Easy determination of overall system health by the aggregation of hardware health monitors

Premium features

Premium features are part of the IBM Upward Integration for Microsoft System Center and require an activation license.

The following additional features are fee-based and require the purchase of an activation license on a per managed endpoint basis. Activation licenses can be purchased by contacting your IBM representative or an IBM Business Partner.

- Offers the ability to establish an OOB-IB Reflection to synchronize the information obtained out of band (using SNMP) and in band (using OS).
- Offers the ability to launch a CMM Web Console of a Flex System Chassis from the Operations Manager Console.
- Offers the ability to discover an FSM device and launch an FSM Console in Operations Manager Console.
- Offers the ability for monitoring the IBM Flex System Chassis and Chassis modules using both SNMP v1 and v3. This feature requires installing the 4.0 license tool; the activation version is 255.0.
- Launches the IMM Web Console of a Windows server from the Operations Manager console. This feature requires installing the 4.0 license tool; the activation version is 255.0.
- Active Power Management and Monitoring on uEFI/IMM System x servers and Blades running Windows 2008 and R2 with the IBM Director Platform Agent v6.2.1 or newer, offers the ability to manage and monitor overall system power usage, and generate alerts when power consumption rises above predefined consumption thresholds.
- Set power consumption thresholds for Power Monitoring alerts. This feature offers the ability to customize power consumption thresholds for Power Monitoring alerts.

- Power capping: This feature provides the ability to set and enable maximum power consumption wattage.
- System X Power Data Chart: This feature allow you to monitor the power data of client System x systems by viewing a usage chart.
- Reflecting the health of BladeCenter x86/x64 modules to the BladeCenter x86/x64 blade servers affected by those modules. BladeCenter and Blade hardware health correlation and event propagation provides BladeCenter specific hardware health condition monitoring under the Windows health explorer view.
- Enabling the "Hardware Management Software Configuration Advisor for IBM Systems" (SW Configuration Advisor) program, which analyzes the software dependencies of the IBM Hardware Management Pack on the managed Microsoft Windows system. The program is run from the Operations Manager management server. SW Configuration Advisor detects the presence of the IBM Hardware Management Pack software dependencies, and makes appropriate configuration recommendations.
- Remote power on and off of Blades Servers uses the Operations Manager console.

Note: All of the features listed above are available when the licensed feature level is at least 3.0, unless version 4.5 is noted for a particular licensed feature level.

Trial license support

A trial license is automatically activated if a product license is not activated when installing this product for the first time. It is necessary to verify your system time is correct before allowing the trial license to become activated. After a trial license is activated, the trial period is 90 days. During the trial period, the premium features are usable.

After the trial license expires, a product license should be activated or the premium features will be disabled.

You can obtain a product license from: IBM Upward Integration for MSSC.

To view the license information for each managed server, select **Monitoring IBM Hardware IBM Licensed System Group**. The license information for each IBM server is displayed in **IBM HW Management Licensed System** column.

Chapter 2. Technical overview

This topic provides a technical overview and describes how Microsoft System Center Operations Manager monitors the health of a management target, authors management packs, and performs administrative operations.

A management target in the Microsoft System Center Operations Manager can be a computer system, an operating system instance, an application, a network adapter, or a subcomponent inside of a management target. The scope of management classifies the Operations Manager as a systems management software tool. The IBM Hardware Management Pack provides the management know-how of its IBM management targets. Upon finding (discovering) a Windows system, the Microsoft System Center Operations Manager management server pushes the Microsoft System Center Operations Manager agent onto the system, along with scripts inside the IBM Hardware Management Pack that provide policies for monitoring health and collecting events.

With the Microsoft System Center Operations Manager you can create custom groups of objects to manage a holistic health aggregation based on your business needs. You can define different monitoring or aggregation rules for different groups. For example, an application hosting provider might have a per-client holistic health view of all of the hardware, operating systems, applications, and other objects involved with the client. The hosting provider might also have a per-application view or have both views available at the same time.

Microsoft System Center Operations Manager maintains operations databases for tracking all events that are reported. Expert analysis of the operations databases can show deep cause and effect relationships in the historical data that can reveal the root cause of a sophisticated problem.

Example

For example, the Operations Manager reports cooling fan availability based on the fan presence sensor reading and fan performance by the fan tachometer reading. The IBM Hardware Management Pack establishes relationships for hosting and aggregating, and also establishes health dependency among IBM management targets. The Operations Manager provides health roll-ups and drill-downs to give you a holistic view of objects, and to allow you to quickly identify any specific problem.

How the IBM Hardware Management Pack supports IBM systems

With IBM Hardware Management Pack for Microsoft System Center Operations Manager, v4.5 you can use the enhanced features of Microsoft System Center Operations Manager to communicate with Flex System Management modules, BladeCenter Management modules, System x, and x86/x64 Blade servers installed with IBM Director Core Services or Platform Agent to discover and monitor the health of:

- IBM BladeCenter Chassis and chassis components
- IBM Flex System Chassis and chassis components
- IBM System x systems and BladeCenter blade server systems

Because the IBM Hardware Management Pack communicates with the IBM Flex System Chassis, IBM BladeCenter Chassis and components, and the individual IBM System x, Flex Chassis x86/x64 Compute Node, and BladeCenter x86/x64 blade servers, you can use Microsoft System Center Operations Manager to monitor all Flex chassis, BladeCenter chassis, and Windows-based IBM servers holistically.

The IBM Hardware Management Pack communicates with the Flex System and BladeCenter chassis and chassis components through the management module using Simple Network Management Protocol (SNMP) over a LAN.

The IBM Hardware Management Pack communicates with individual servers, including BladeCenter Blade servers, which are running a Windows operating system and that have a supported version of IBM Director Core Services or Platform Agent installed.

Management concepts

This topic describes management concepts as they apply to a BladeCenter managed by the Microsoft System Center Operations Manager.

Individual Windows servers are handled differently. After it selects a server to manage, Microsoft System Center Operations Manager pushes its Operations Manager Agent onto the managed system with the IBM Hardware Management Pack, if the target is an IBM System x or BladeCenter x86/x64 blade server. The Operations Manager Agent and the IBM Hardware Management Pack communicate with the IBM Director Agent and other software for hardware management on the system and across the network to the Operations Manager server.

Note: These management functions are supported on the IBM BladeCenter chassis, IBM Flex System chassis, and on System x and x86/x64 Blade servers and compute nodes running Windows operating system. They are not supported on System i®, System p, and System z systems.

Chapter 3. Supported Configurations

This section describes supported configurations of the IBM Hardware Management Pack for this release.

Supported systems

The topics in this section provide information about the systems that are supported by the IBM Hardware Management Pack:

Supported servers

The following servers are supported by IBM Hardware Management Pack for Microsoft System Center Operations Manager, v4.5:

Note: Fee-based Power Monitoring support is available for the systems denoted with an "*" when the system has the latest firmware. Power management requires that the system is running Windows 2008 or Windows 2008 R2 and the IBM Director Agent v6.2.1 or higher. For further information, see "Supported configuration of managed systems with Power Monitoring" on page 14.

For a description of the compatibility of a specific system with Windows and other hardware components, see "World Wide Web resources" on page xi and the respective ServerProven® page for that system.

Table 1. Supported servers

Server Product Name	Machine Type
IBM BladeCenter HS12	8014, 8028
IBM BladeCenter HS21	8853
IBM BladeCenter HS22	7870*, 1911
IBM BladeCenter HS22V	7871*
IBM BladeCenter HS23	7875*, 1929
IBM BladeCenter HS23E	8038*, 8039*
IBM BladeCenter HX5	7872*
IBM BladeCenter LS21	7971
IBM BladeCenter LS22	7901
IBM BladeCenter LS41	7972
IBM BladeCenter LS42	7902
IBM Flex System x220 Compute Node	7906, 2585
IBM Flex System x222 Compute Node	7916
IBM Flex System x240 Compute Node	8737, 8738, 7863
IBM Flex System x440 Compute Node	7917
IBM System x3100 M4	2582, 2586
IBM System x3200 M2	4367, 4368
IBM System x3200 M3	7327*, 7328*
IBM System x3250 M2	4190, 4191, 4194

Table 1. Supported servers (continued)

Server Product Name	Machine Type
IBM System x3250 M3	4251*, 4252*, 4261
IBM System x3250 M4	2583,2587
IBM System x3300 M4	7382
IBM System x3350	4192, 4193
IBM System x3400 M2	7836*, 7837*
IBM System x3400 M3	7378*, 7379*
IBM System x3450	7948, 7949, 4197
IBM System x3455	7940, 7941
IBM System x3500 M2	7839*
IBM System x3500 M3	4254, 7944*
IBM System x3500 M4	7383*
IBM System x3530 M4	7160
IBM System x3550	7978
IBM System x3550 M2	7946*
IBM System x3550 M3	4254, 7944*
IBM System x3550 M4	7914*
IBM System x3620 M3	7376*
IBM System x3630 M3	7377*
IBM System x3630 M4	7158*
IBM System x3650	7979
IBM System x3650 M2	7947*
IBM System x3650 M3	4255, 7945*
IBM System x3650 M4	7915*
IBM System x3650 T	7980, 8837
IBM System x3655	7985
IBM System x3690 X5	7147, 7148*, 7149*, 7192
IBM System x3750 M4	8722*, 8733*
IBM System x3755	7163, 8877
IBM System x3755 M3	7164
IBM System x3850 M2	7141, 7144, 7233, 7234
IBM System x3850 X5	7143, 7145*, 7146*,7191
IBM System x3850 MAX5	7145*, 7146*
IBM System x3950 M2	7141, 7144, 7233, 7234
IBM System x3950 X5	7143, 7145*, 7146*
IBM System x3950 MAX5	7145*, 7146*
IBM System x iDataPlex® dx360 M2	6380*, 7323*, 7321*
IBM System x iDataPlex dx360 M3	6391
IBM System x iDataPlex Direct Water Cooled dx360 M4	7918*, 7919*
IBM System x iDataPlex dx360 M4	7912*, 7913*

Supported IBM BladeCenter chassis

The following table provides a list of IBM BladeCenter chassis that are supported by the IBM Hardware Management Pack for Microsoft System Center Operations Manager, v4.5.

Table 2. Supported IBM BladeCenter chassis

IBM BladeCenter Chassis	Machine Type
BladeCenter	7967
BladeCenter E	8677
BladeCenter H	8852, 7989
BladeCenter S	8886, 7779
BladeCenter T	8720, 8730
BladeCenter HT	8740, 8750

Supported IBM Flex System chassis

The following table provides information for an IBM Flex System chassis that is supported by the IBM Hardware Management Pack for Microsoft System Center Operations Manager, v4.5.

Table 3. Supported IBM Flex System chassis

IBM Flex System Chassis	Machine Type
IBM Flex System Chassis	7893, 8721, 8724

Supported configurations of management servers

The topics in this section describe the factors which determine if a system is supported by the IBM Hardware Management Pack as a management server.

Management server requirements

A management server is supported if it meets the requirements of a management server of Systems Center Operations Manager on a supported hardware configuration.

Supported versions of Microsoft System Center Operations Manager for management servers

A management server that is running Microsoft System Center Operations Manager 2007, Microsoft System Center Operations Manager 2007 R2, Microsoft System Center Operations Manager 2012, or Microsoft System Center Operations Manager 2012 SP1.

Supported operating systems for management servers

This topic describes the supported operating systems for management servers.

The following references provide information for Microsoft System Center Operations Manager 2007 SP1, Microsoft System Center Operations Manager 2007 R2, Microsoft System Center Operations Manager 2012, and Microsoft System Center Operations Manager 2012 SP1:

- Microsoft System Center Operations Manager 2012, see System Requirements: System Center 2012 - Operations Manager.
- Microsoft System Center Operations Manager 2012 SP1, see System Requirements: System Center 2012 SP1 - Operations Manager.
- Microsoft System Center Operations Manager 2007 SP1, see the "Management server or root management server" row in the table for Operations Manager 2007 SP1 Supported Configurations for the supported operating systems.
- Microsoft System Center Operations Manager 2007 R2, see the "Management server or root management server" row in the table for Operations Manager 2007 R2 Supported Configurations for the supported operating systems.

  Note: Operations Manager 2007 SP1 is supported on Windows Server 2008 and Windows Server 2008 SP1/R2, but requires you to apply a set of hot fixes.

  For more information, see:

  – Support for running Microsoft System Center Operations Manager Service Pack 1 and System Center Essentials 2007 Service Pack 1 on a Windows Server 2008-based computer, or
  – Microsoft System Center Operations Manager 2007 SP1 Update Rollup

Additional configuration requirements for management servers

All of the management servers of the Operations Manager within the same management group must have the same version of the IBM Hardware Management Pack installed.

- The management servers that are managing BladeCenters must have the IBM Hardware Management Pack package installed.
- The `IBM.HardwareMgmtPack.BladeCenter.mp` or `IBM.HardwareMgmtPack.BladeCenter.v2.mp` of the IBM Hardware Management Pack package must be imported to the Operations Manager.
- A mixed version of the management packs from a different version of IBM Hardware Management Pack is not supported.
- The management servers that are managing Flex System chassis must have the IBM Hardware Management Pack package installed.
- The `IBM.HardwareMgmtPack.FlexSystem.mp` or the `IBM.HardwareMgmtPack.FlexSystem.v2.mp` of the IBM Hardware Management Pack package must be imported to the Operations Manager.

Supported configurations for management servers

The topics in this section provide information about the supported configurations of management servers.

For more information on supported hardware configurations for management servers, see “Supported systems” on page 5 and their respective ServerProven page for the compatibility with operating systems and add-on hardware.

Supported configurations of managed systems

A managed system is supported if the system is properly configured as noted in the following list.

- It is managed in an Operations Manager management group that has a management server which has a supported configuration.
- It is installed on a supported server. For more information, see “Supported systems” on page 5.
- It is running a supported version of Windows operating system.
- It is running the software required for hardware management.

Supported operating systems for managed systems

Managed systems require one of the following operating systems:

- Microsoft System Center Operations Manager 2012, see the "Operating Systems" line in System Requirements: System Center 2012 - Operations Manager.
- Microsoft System Center Operations Manager 2012 SP1, see System Requirements: System Center 2012 SP1 - Operations Manager.
- Microsoft System Center Operations Manager 2007 R2, see the "Agent" row in the table of Operations Manager 2007 R2 Supported Configurations for the supported Windows operating systems.
- Microsoft System Center Operations Manager 2007 SP1, see the "Agent" row in the table of Operations Manager 2007 SP1 Supported Configurations for the supported Windows operating systems.

Hardware management software for managed systems

The topics in this section describe the hardware management software for managed systems.

Supported versions of IBM Systems Director Agent

A managed Windows system requires that a supported version of IBM Systems Director Agent is installed and running.

The following table provides a list of the supported versions of IBM Systems Director Agent.

Table 4. Supported versions of IBM Systems Director Agent

IBM Systems Director Agent version	Supported by IBM Hardware Management Pack v4.5	Notes
6.3.3	Supported	Platform Agent and Common Agent are supported.
6.3.2	Supported	Platform Agent and Common Agent are supported.
6.3.1	Supported	Platform Agent and Common Agent are supported.
6.3	Supported	Platform Agent and Common Agent are supported.
6.2.1	Supported	Platform Agent and Common Agent are supported.
6.2.0	Supported	Platform Agent and Common Agent are supported.
6.1.2	Supported	Platform Agent and Common Agent are supported.
6.1.1	Not supported	Known compatibility issues
5.20.3x	Supported	IBM Director Core Services (also called Level-1 Agent) or Level-2 Agent
5.20.2	Supported	IBM Director Core Services (also called Level-1 Agent) or Level-2 Agent
5.20.1	Not supported	Known compatibility issues
5.20	Supported	IBM Director Core Services (also called Level-1 Agent or Level-2 Agent)

Supported configurations of IBM Systems Director Agent

The following table describes compatibility with the respective version of the IBM Systems Director Agent.

Table 5. Supported configurations of IBM Systems Director Agent

IBM Systems Director Agent version	Supported hardware and software
6.3.1, 6.3.2, 6.3.3	See IBM Systems Director resources for the most current IBM systems, products, and operating systems supported. To locate this information, click **Product documentation** and refer to IBM Systems Director v6.3. Click **Hardware and Software Support Guide**.
6.3	See IBM Systems Director resources for the most current IBM systems, products, and operating systems supported. To locate this information, click **Product documentation** and refer to IBM Systems Director v6.3. Click **Hardware and Software Support Guide**.
6.2.1	See Supported IBM systems and products for v6.2.x for supported BladeCenter Blade servers and System x servers. See Supported operating systems for v6.2.x for supported Windows versions.
6.2.0	See Supported IBM systems and products for v6.2.x for supported BladeCenter Blade servers and System x servers. See Supported operating systems for v6.2.x for supported Windows versions.
6.1.2	See Supported IBM systems and products for v6.1.x for supported BladeCenter Blade servers, and System x servers. See Operating systems supported by IBM Systems Director 6.1.2 for supported Windows versions.
5.20.x	See Supported Hardware for IBM Director V5.20 for supported BladeCenter Blade servers, System x servers, xSeries servers, eServer™ servers, and NetFinity servers. See Operating systems supported by IBM Director 5.20 for supported Windows versions.

Supported configurations of managed systems with Baseboard Management Controller or Intelligent Platform Management Interface

A managed Windows system with Baseboard Management Controller (BMC) or an Intelligent Platform Management Interface (IPMI) requires a supported version of the IPMI driver stack is installed and running.

For Windows Server 2000 or Windows Server 2003, both the OSA IPMI device driver and the IBM Mapping Layer for OSA IPMI driver are required. The OSA IPMI device driver for Windows is available at: OSA IPMI device driver support and downloads.

The IBM Mapping Layer for OSA IPMI on Windows is available at:

- IBM Mapping Layer for OSA IPMI for x86 version
- IBM Mapping Layer for OSA IPMI for x64 version

For Windows Server 2003 R2, the IPMI driver must be installed and running. The Microsoft IPMI driver is not installed by default.

For Windows Server 2008 and later version of Windows Server 2008, the Microsoft IPMI driver is required. The Microsoft IPMI driver is automatically installed on IBM servers that come with BMC or an IPMI. There is no need to install the IBM Mapping Layer for OSA IPMI driver with the Microsoft IPMI driver stack.

To acquire and apply the latest firmware for the Baseboard Management Controller or an Intelligent Platform Management Interface on managed systems, see Support for IBM Systems.

Supported configurations of managed systems with Remote Supervisor Adapter-II

A managed Windows system with Remote Supervisor Adapter (RSA) II requires the RSA-II daemon is installed and running.

The RSA-II daemon for Windows is available at:

- IBM Remote Supervisor Adapter II for x86 version
- IBM Remote Supervisor Adapter II for x64 version

For systems that come with a Baseboard Management Controller (BMC) that also have the RSA-II installed, the RSA-II daemon is optional, if a supported Intelligent Platform Management Interface (IPMI) driver stack is installed and running. However, the RSA-II daemon adds additional in-band system management functions to the functionality that is offered through the IPMI driver stack with a BMC.

IBM Systems Director Agent 6.x does not support systems that do not have a BMC but have only the RSA-II. Use IBM Systems Director Agent 5.20.3x with the RSA-II daemon for these systems.

Acquire and apply the latest firmware for the RSA-II on the managed systems. See Support for IBM Systems to locate the latest firmware for RSA-II.

Supported configurations of managed systems with ServeRAID-MR or MegaRAID

This topic describes the supported configurations of managed systems with ServeRAID-MR or MegaRAID.

The following table lists the requirements of systems with ServeRAID-MR or MegaRAID. Acquire and apply the latest firmware and the device driver for the controller on the managed system. See Support for IBM Systems to locate the latest firmware and the device driver for the ServeRAID-MR or MegaRAID controller.

Table 6. Requirements for ServeRAID-MR or MegaRAID

IBM Systems Director Agent	**Additional software needed**
6.3.1, 6.3.2, 6.3.3	No additional software is needed. The IBM Power® CIM Provider is part of the Platform Agent.
6.3	No additional software is needed. The IBM Power CIM Provider is part of the Platform Agent.
6.2.1	No additional software is needed. The IBM Power CIM Provider is part of the Platform Agent.
6.2.0	No additional software is needed. The IBM Power CIM Provider is part of the Platform Agent.
6.1.2	No additional software is needed. The IBM Power CIM Provider is part of the Platform Agent.
5.20.x	Download and install the LSI Mega RAID Provider for Windows from IBM Director 5.2 Downloads.

Supported configurations of managed systems with ServeRAID-BR/IR or Integrated RAID

This topic describes the supported configurations of managed systems with ServeRAID-BR/IR or Integrated RAID.

The following table lists the requirements of systems with ServeRAID-BR/IR or Integrated RAID. Acquire and apply the latest firmware and the device driver for the controller on the managed system. See Support for IBM Systems to locate the latest firmware and the device driver for the ServeRAID-BR/IR or Integrated controller.

Table 7. Requirements for ServeRAID-BR/IR or Integrated RAID

IBM Systems Director Agent version	**Additional software needed**
6.3.1, 6.3.2, 6.3.3	No additional software is needed. The IBM Power CIM Provider is part of the Platform Agent.
6.3	No additional software is needed. The IBM Power CIM Provider is part of the Platform Agent.
6.2.1	No additional software is needed. The IBM Power CIM Provider is part of the Platform Agent.
6.2.0	No additional software is needed. The IBM Power CIM Provider is part of the Platform Agent.
6.1.2	No additional software is needed. The IBM Power CIM Provider is part of the Platform Agent.
5.20.x	Download and install the LSI Mega RAID Provider for Windows from IBM Director 5.2 Downloads.

Supported configurations of managed systems with ServeRAID versions 8x/7x/6x

This topic describes the supported configurations of managed systems with ServeRAID versions 8x/7x/6x.

The following table lists the requirements of systems with ServeRAID with controller versions 8x, 7x, and 6x. Acquire and apply the latest firmware and the device driver for the controller on the managed system. See Support for IBM Systems to locate the latest firmware and the device driver for the ServeRAID-8x/7x/6x controller.

Table 8. Requirements of ServeRAID-8x/7x/6x

IBM Systems Director Agent version	**Additional software needed**
6.3.1, 6.3.2, 6.3.3	No additional software is needed. The IBM Power CIM Provider is part of the Platform Agent.
6.3	No additional software is needed. The IBM Power CIM Provider is part of the Platform Agent.
6.2.1	No additional software is needed. The IBM Power CIM Provider is part of the Platform Agent.
6.2.0	No additional software is needed. The IBM Power CIM Provider is part of the Platform Agent.
6.1.2	Not supported.

Table 8. Requirements of ServeRAID-8x/7x/6x (continued)

IBM Systems Director Agent version	Additional software needed
5.20.x	Download and install the ServeRAID Manager 9.0 – Windows L1 Agent or ServeRAID Manager 9.0 – Windows L2 Agent from IBM Director 5.2 Downloads.

Supported configuration of managed systems with Power Monitoring

This topic describes the supported configuration of managed systems with Power Monitoring.

The IBM Power CIM Provider has the following software and hardware requirements:

- Windows Server 2008, Windows Server 2008 SP1/R2, Windows Server 2008 SP1/R2 with Service Pack 1, or Windows Server 2012
- The physical hardware requires the latest versions of IMM and uEFI. See "Supported configurations of managed systems with Baseboard Management Controller or Intelligent Platform Management Interface" on page 11 for additional setup information.
- IMM must support power monitoring and/or capping
- IBM Systems Director Agent 6.2.1 or later

Chapter 4. Installing the IBM Hardware Management Pack and other components

The topics in this section describe how to install, upgrade, uninstall and reinstall the IBM Hardware Management Pack and other components.

The IBM Hardware Management Pack enhances the management of IBM systems in the Operations Manager. The IBM Hardware Management Pack discovers and monitors the health of the IBM BladeCenter chassis and the chassis components, such as the management module and I/O modules, as well as, IBM System x systems, BladeCenter blade server systems, and system components.

Overview of the installation process

The installation process starts by first installing a supported version of the Microsoft System Center Operations Manager 2007 or 2012 on the management server.

Follow the instructions in the *Operations Manager 2012 Deployment Guide* to install Microsoft System Center Operations Manager 2012: Deployment System Center 2012 - Operations Manager.

After Microsoft System Center Operations Manager has been installed, the IBM Hardware Management Pack can be installed on the management server. Using the Operations Manager Discovery Wizard, add a Windows system running on an IBM System x server or a BladeCenter Blade server, which the Operations Manager is to manage.

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

- **Health explorer view**: Examines the health state of IBM BladeCenter chassis and components, and individual servers at a component level in a hierarchical view of availability, configuration, performance, and security.
- **Diagram view**: Shows inner organization views of the IBM chassis, IBM System x, BladeCenter, and Compute Node x86/x64.
- **Events view**: Captures events that occur on specific or aggregate targets of IBM chassis and IBM System x and System x x86/x64 systems.
- **Active alerts view**: Lists all alert notifications for specific or aggregate targets of IBM chassis and IBMSystem x and IBM BladeCenter x86/x64 systems.

Installation requirements for the IBM Hardware Management Pack

This topic describes the installation requirements of the IBM Hardware Management Pack.

Install the IBM Hardware Management Pack on an IBM system that is running as a Microsoft System Center Operations Manager management server. The server can be the Root Management Server in the Operations Manager management group or a non-Root Management Server in the management group. See "Supported configurations of management servers" on page 7 for detailed requirements.

If the IBM Hardware Management Pack is installed on a server with Microsoft System Center Operations Manager 2007, you should install Microsoft .NET Framework 4.0 first.

You need administrative privileges for the system where you are installing the IBM Hardware Management Pack and also for the Operations Manager's management group where you import the management packs.

IBM Hardware Management Pack v4.5 dependencies are listed in the following table. IBM Hardware Management Pack versions require a minimum of the version noted or a later and compatible version that is supported.

Table 9. IBM Hardware Management Pack dependencies for Microsoft System Center Operations Manager 2007

Management Pack name	Management Pack ID	Management Pack version
Health Library	`System.Health.Library`	6.0.5000.0
System Library	`System.Library`	6.0.5000.0
Performance Library	`System.Performance.Library`	6.0.5000.0
SNMP Library	`System.Snmp.Library`	6.0.6278.0
Data Warehouse Library	`Microsoft.SystemCenter.Datawarehouse.Library`	6.0.6278.0
System Center Core Library	`Microsoft.SystemCenter.Library`	6.0.5000.0
Network Device Library	`Microsoft.SystemCenter.NetworkDevice.Libary`	6.0.6278.0
Windows Core Library	`Microsoft.Windows.Library`	6.0.5000.0

Table 10. IBM Hardware Management Pack dependencies for Microsoft System Center Operations Manager 2012

Management Pack name	Management Pack ID	Management Pack version
Health Library	`System.Health.Library`	6.0.5000.0
System Library	`System.Library`	6.0.5000.0

Table 10. IBM Hardware Management Pack dependencies for Microsoft System Center Operations Manager 2012 (continued)

Management Pack name	Management Pack ID	Management Pack version
Performance Library	System.Performance.Library	6.0.5000.0
SNMP Library	System.Snmp.Library	6.0.6278.0
Data Warehouse Library	Microsoft.SystemCenter.Datawarehouse.Library	6.0.6278.0
System Center Core Library	Microsoft.SystemCenter.Library	6.0.5000.0
Network Device Library	System.NetworkManagement.Library	7.0.8107.0
Windows Core Library	Microsoft.Windows.Library	6.0.5000.0

Installing the IBM Hardware Management Pack

You can install the IBM Hardware Management Pack for Microsoft System Center Operations Manager, v4.5 on a Root Management Server or a non-Root Management Server for Microsoft System Center Operations Manager 2007. The Root Management Server is the first management server on which you install the Operations Manager. For Microsoft System Center Operations Manager 2012, you can install the IBM Hardware Management Pack for Microsoft System Center Operations Manager, v4.5 on the Management Server (a non-Root Management Server).

There is only one installation package of the IBM Hardware Management Pack for 32-bit and 64-bit Windows. To start the installation, follow the instructions to locate and launch the correct installation package and then follow the instructions in the User's Guide to complete the installation process.

You must have a sufficient level of privilege and knowledge about the Root Management Server of the management group before you can start the installation process.

If you have an earlier version of the IBM Hardware Management Pack installed on a management server or the management packs have already been imported to the Operations Manager, see “Upgrading to IBM Hardware Management Pack, version 4.5” on page 25.

Note: The installation or uninstallation of the IBM Hardware Management Pack can also be executed by using the IBM Upward Integration for Microsoft System Center Integrated Installer. Please refer to the IBM Upward Integration for Microsoft System Center Integrated Installer User's Guide for more information on how to perform this action.

Steps for installing the IBM Hardware Management Pack

This topic describes how to install the IBM Hardware Management Pack.

Procedure

1. Go to the IBM System x Integration Offerings for Microsoft Systems Management Solutions web page. Select **Microsoft System Center Operations Manager** in the Current Offerings for Microsoft System section.
2. Locate the appropriate link in the File Details section for the "IBM Systems Director - downloads" page for “IBM Director Upward Integration Modules”. On the downloads page, locate "IBM Hardware Management Pack for Microsoft System Center Operations Manager, v4.5" in the "IBM Director Upward Integration Modules for Microsoft" section and download the file named `ibm_sw_hwmp_4.5.x_windows_32-64.exe`.

   If not already installed, install IBM Hardware Management Pack for Microsoft System Center Operations Manager, v4.5 to establish a management server.

   Refer to the Operations Manager 2007 R2 Quick Start Guide for more information on how to install Microsoft System Center Operations Manager 2007.

   Refer to the Deployment System Center 2012 - Operations Manager for more information on how to install Microsoft System Center Operations Manager 2012.
3. If you are running Microsoft System Center Operations Manager 2007 Service Pack 1 (SP1) on a Windows Server 2008, install hotfixes on both Windows Server 2008 and Microsoft System Center Operations Manager 2007 SP1.

   Refer to the Support for running Microsoft System Center Operations Manager 2007 SP1 and System Center Essentials 2007 Service Pack 1 on a Windows Server 2008-based computer at Support for running System Center Operations Manager 2007 Service Pack 1 and System Center Essentials 2007 Service Pack 1 on a Windows Server 2008-based computer for more information on how to install the hotfixes.
4. Double-click the downloaded installation executable file to start installing the IBM Hardware Management Pack.

   The Welcome to the InstallShield Wizard for IBM Hardware Management Pack for Microsoft Operations Manager, v4.5 window is displayed. If the installer cannot find the Microsoft System Center Operations Manager on your system, the installation closes.
5. Click **Next**.
6. Read the software license agreement for IBM terms. Click **Read Non-IBM Terms** to read the Non-IBM Terms. If you agree and accept both IBM and Non-IBM terms, select **I accept the IBM and the non-IBM term**; then click **Next**.

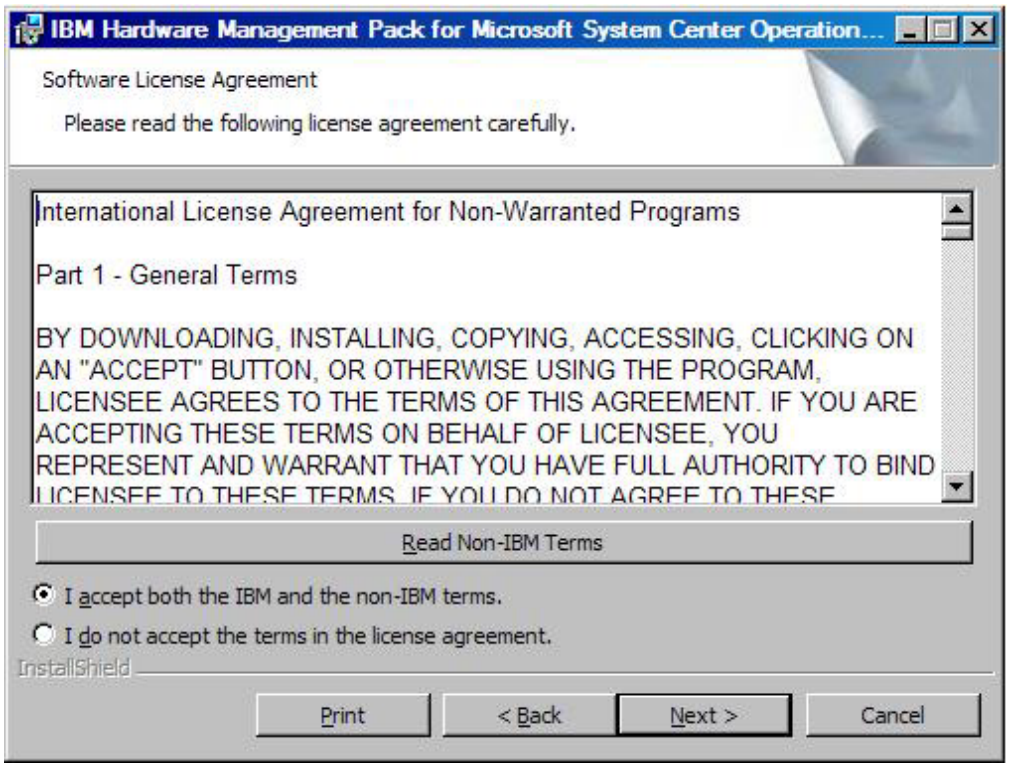

Figure 1. Software License Agreement

If this is the first installation of IBM Hardware Management Pack and no product license is activated, the Trial Version page is displayed. Complete step 7 for the Trial Version page.

If a product license is activated, complete step 8.

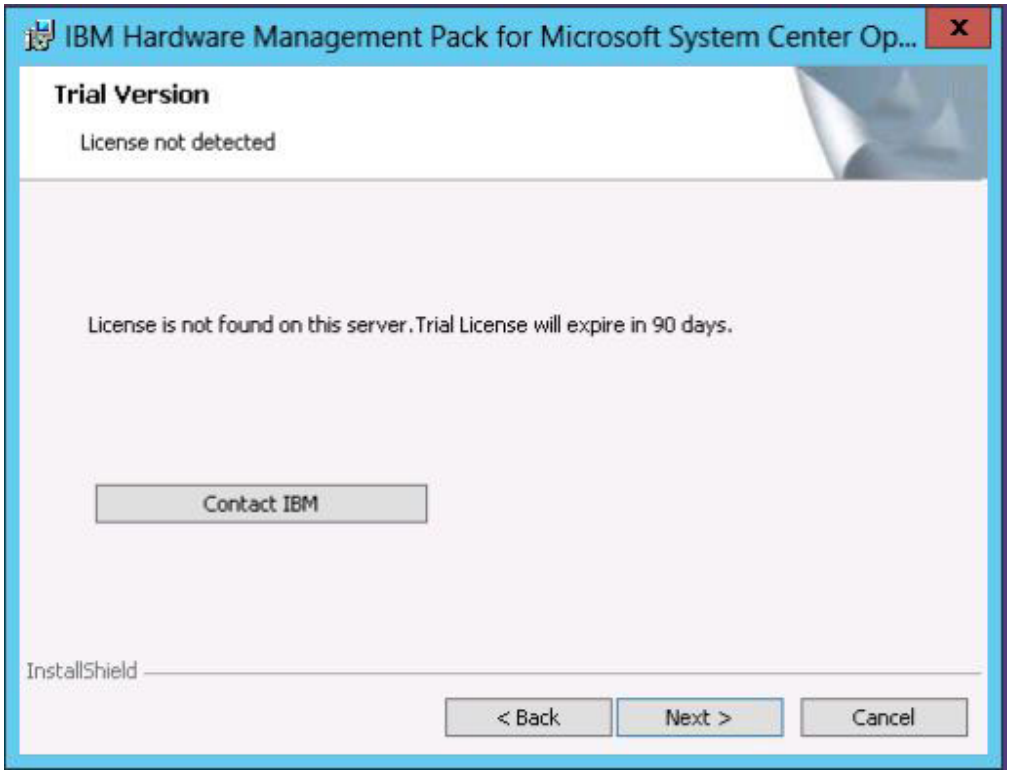

Figure 2. Trial Version page

7. On Trial Version page, select one of the following options:
   - Click **Contact IBM to obtain a valid product license** to obtain a product license.
   - Click **Next** to proceed to the **Destination Folder page**.
8. On the Destinations Folder page, verify the default target location is correct and click **Next**, or click **Change** to select the target folder for the installation software and then click **Next**.

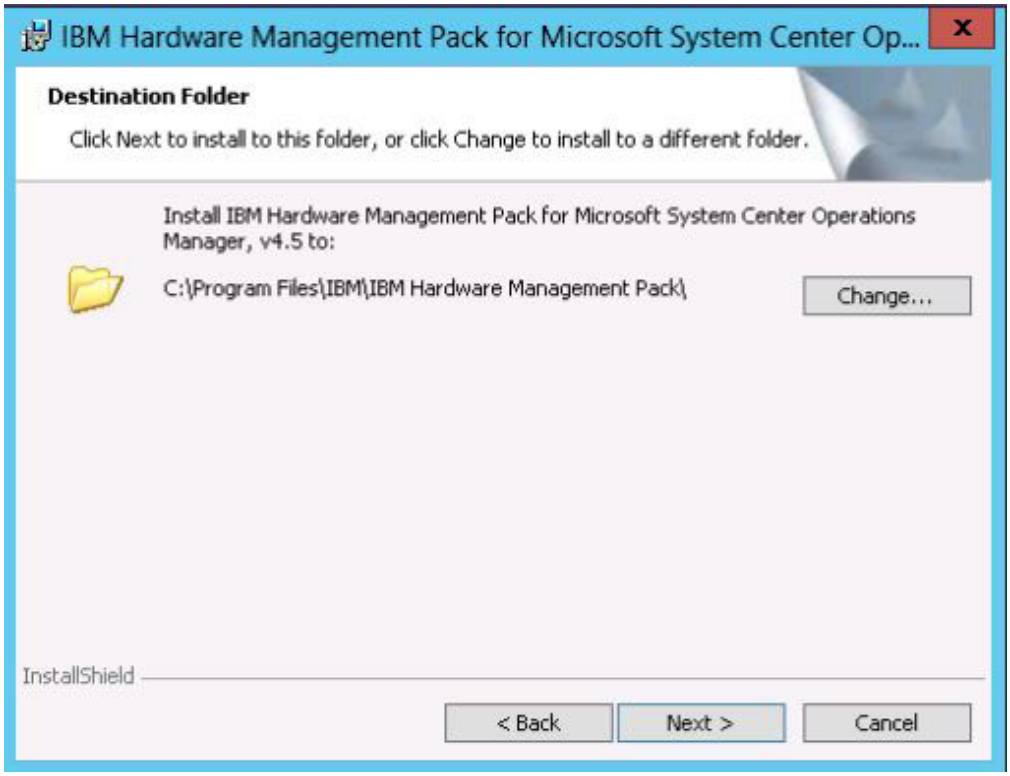

Figure 3. Destinations folder page

9. If your system had a previous installation of IBM Hardware Management Pack, the Program Maintenance page is displayed. Click to select one of the following options.
   - **Repair function**: Reinstalls the code and registry entries on the local server.

     If the system already has version 4.5 installed, you can select to repair or remove the IBM Hardware Management Pack code.

     Verify the default target location. If necessary, select the target folder for the installation code and the knowledge articles that describe IBM systems and components.
   - **Remove function**: Uninstalls the IBM Hardware Management Pack package from the local system but does not delete the management packs from the Operations Manager.

     Use the Operations Manager Console to delete the management packs from the Operations Manager.

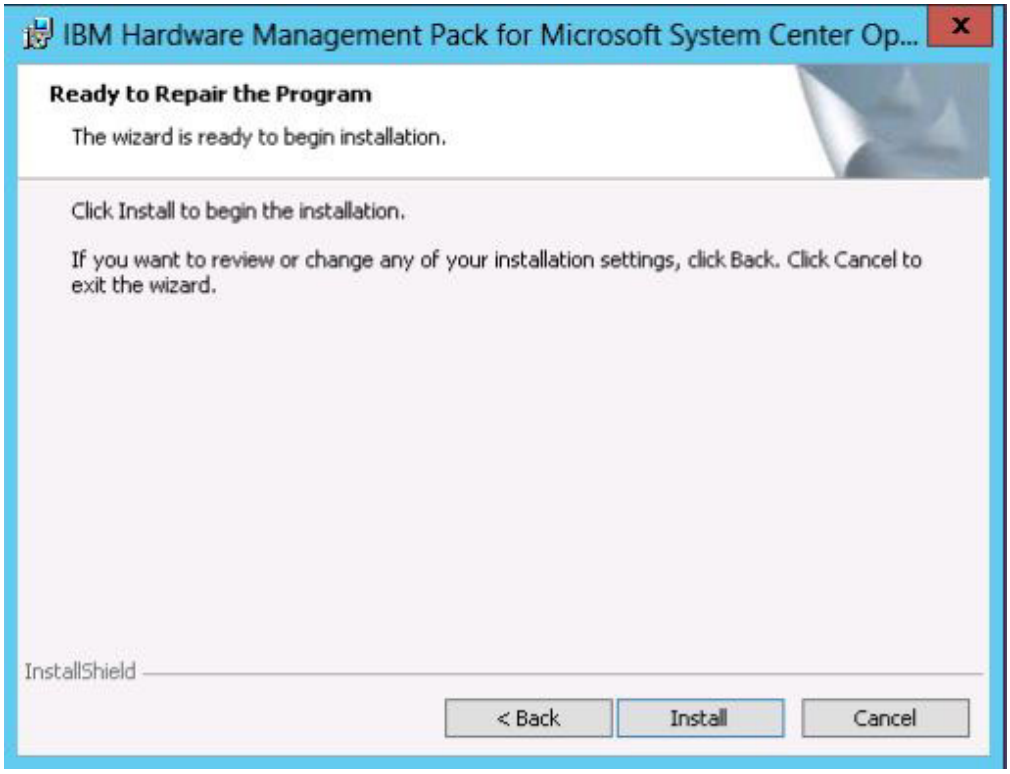

Figure 4. Ready to Repair Program page

10. If you selected Repair Function, click **Install** to proceed with the repair. The Install/Repair/Remove Confirmation page is displayed.
11. Click **Next** to confirm the installation.

    If you are installing on a non-Root Management Server, you need to manually configure the Root Management Server name.
12. When the installation has completed, select **Read me** and **Import Management packs to the Operations Manager**, and then click **Finish**.

    Note: Import management packs to Operations Manager is displayed when the software dependency is satisfied. When this option is not displayed, you must import the management packs manually. The imported management packs may not be visible from Operations Manager Console until the Operations Manager refreshes management pack inventory data.

    It is recommended that you read the `PostSetupCheckList.rtf` file and take the suggested actions. The `PostSetupCheckList.rtf` file is installed in `%Program Files%\IBM\IBM Hardware Management Pack\.`

    Note: Use the following manual steps to import management packs can be skipped when **Import management packs to Operations Manager** is selected and the import operation has successfully completed.

13. Open the Operations Console of the Microsoft System Center Operations Manager, to import the management packs of the IBM Hardware Management Pack to the Operations Manager.
14. Click the **Administration** button then right-click **Management Packs** and then click **Import Management Packs**.

    Follow the directions of the wizard to manually import the five management packs of the IBM Hardware Management Pack.

    Note: By default, the management packs are installed in `%ProgramFiles%\IBM\IBM Hardware Management Pack\Management Packs`.

IBM Hardware Management Packs

After the IBM Hardware Management Packs are successfully imported, the IBM Hardware Management Packs listed below should appear in the Administration pane of the Operations Manager Console.

For Microsoft System Center Operations Manager 2012, the IBM Hardware Management Packs are:

- IBM Hardware Management Pack - Common Library: `IBM.HardwareMgmtPack.Common.mp`
- IBM Hardware Management Pack for IBM System x and x86/x64 Blade Systems: `IBM.HardwareMgmtPack.xSystems.mp`
- IBM Hardware Management Pack for IBM BladeCenter Chassis and Modules: `IBM.HardwareMgmtPack.BladeCenter.v2.mp`
- IBM Hardware Management Pack – Hardware IDs Library: `IBM.HardwareMgmtPack.HardwareIDs.mp`
- IBM Hardware Management Pack - Relation Library:`IBM.HardwareMgmtPack.Relation.v2.mp`
- IBM Hardware Management Pack for IBM Flex System Chassis and Modules: `IBM.HardwareMgmtPack.FlexSystem.v2.mp`
- IBM Hardware Management Pack - Flex Relation Library: `IBM.HardwareMgmtPack.RelationCMM.v2.mp`

For Microsoft System Center Operations Manager 2007, the IBM Hardware Management Packs are:

- IBM Hardware Management Pack - Common Library: `IBM.HardwareMgmtPack.Common.mp`
- IBM Hardware Management Pack for IBM System x and x86/x64 Blade Systems: `IBM.HardwareMgmtPack.xSystems.mp`
- IBM Hardware Management Pack for IBM BladeCenter Chassis and Modules: `IBM.HardwareMgmtPack.BladeCenter.mp`
- IBM Hardware Management Pack – Hardware IDs Library: `IBM.HardwareMgmtPack.HardwareIDs.mp`
- IBM Hardware Management Pack - Relation Library: `IBM.HardwareMgmtPack.Relation.mp`
- IBM Hardware Management Pack for IBM Flex System Chassis and Modules: `IBM.HardwareMgmtPack.FlexSystem.mp`
- IBM Hardware Management Pack - Flex Relation Library: `IBM.HardwareMgmtPack.RelationCMM.mp`

Note: Sometimes management pack entries do not display immediately after the installation. Refresh the window by pressing **F5**, or wait a few minutes for the

management pack entries to display.

Installing on more than one management server

This topic describes how to install the IBM Hardware Management Pack on more than one management server.

To install the IBM Hardware Management Pack on more than one management server, first install the IBM Hardware Management Pack on all the management servers where desired. Then, import the management packs on one of the management servers to the Operations Manager. See the documentation for Operations Manager for information about importing management packs.

Note: To manage more than one BladeCenter in disjoint networks, install the IBM Hardware Management Pack on more than one management server. This enables communication with the respective BladeCenters using SNMP. One management server can manage more than one BladeCenter chassis as long as the management server can use SNMP to communicate with the target chassis.

Installing IBM Power CIM Provider

This installation is optional and only enables power management features on power-capable target systems. Unlike the IBM Hardware Management Pack installation, the IBM Power CIM Provider installation must be performed on every endpoint where power management functionality is desired.

See "Supported servers" on page 5 for a list of IBM server systems that provide power management capabilities.

Power management is a premium feature that requires the purchase of an activation license. For details on obtaining an activation license, please contact your IBM sales representative.

The filename of the IBM Power CIM Provider installer is `IBMPowerCIMInstaller.msi`. By default, the installer file is in the toolbox directory: `%ProgramFiles%\IBM\IBM Hardware Management Pack\toolbox`.

The user interface level of the installation program can be controlled with standard **`msiexec`** command-line parameters. In order to run an automated silent installation of the IBM Power CIM Provider without user interface prompting, execute the following command: **`msiexec /qn /i IBMPowerCIMInstaller.msi`**.

Similarly, to run a silent uninstallation of the IBM Power CIM Provider, execute the following command: **`msiexec /qn /x IBMPowerCIMInstaller.msi`**. When the installation is run in silent mode, the default folder location `C:\Program Files\IBM\IBM Power CIM Provider\` is used as the target for all installation files.

The IBM Power CIM Provider installer executes a custom action batch script during the installation process in order to register the provider with the IBM Director Platform Agent CIM server. If any errors occur while running this script, the details of the errors will be logged to a file called `RegIBMPowerCIM.log` in the IBM Power CIM Provider installation directory. Consult this file for more detailed information about installation and uninstallation results.

IBM Power CIM installer will not detect multiple simultaneous installation instances of itself. Please use caution and make sure not to run more than one

instance of the Power CIM installer at a time.

Installing the IBM License Tool and activating the Premium feature

SCOM UIM only requires you to activate the license on the SCOM Server. It is not necessary to activate the license on each management target (client). The license token will automatically be delivered to the client when it is managed by a licensed SCOM server. For more information about activating the Premium features, refer to the "IBM Upward Integration for Microsoft System Center Installer Guide".

Upgrading to IBM Hardware Management Pack, version 4.5

If you start the installation process and you have a version of the IBM Hardware Management Pack installed, the installation performs an upgrade of the IBM Hardware Management Pack.

To upgrade to version 4.5, on the Operations Manager console, place the management server where you are installing the IBM Hardware Management Pack, in maintenance mode. Keep the management server in maintenance mode until you complete the importing of the new management packs of the IBM Hardware Management Pack to the Operations Manager.

Upgrading more than one management server

If you are installing the IBM Hardware Management Pack on more than one management server, finish installing the IBM Hardware Management Pack on all of the management servers completely before proceeding to import the management packs of the IBM Hardware Management Pack to the Operations Manager. When the installation is complete, take the management servers out of maintenance mode.

Upgrading from version 2.4 or earlier

To install version 4.5, delete IBM Hardware Management Pack version 2.4 or earlier from the Operations Manager first, uninstall version 2.4 or earlier from the file system, then install version 4.5.

Uninstalling IBM Hardware Management Pack, version 4.5

This topic describes how to uninstall the IBM Hardware Management Pack.

Procedure

1. Place the server you are uninstalling into maintenance mode.
2. Remove the management pack entries from the Operations Manager Console of the Microsoft System Center Operations Manager. For more information, see “Deleting the IBM Hardware Management Packs” on page 26.

3. Using **Add or Remove Programs**, remove the IBM Hardware Management Pack.

Deleting the IBM Hardware Management Packs

Delete the management packs from the Operations Manager first to prevent errors caused by missing runtime support libraries, by removing the package of the IBM Hardware Management Pack too early. These errors also occur if you uninstall the IBM Hardware Management Pack from more than one management server.

Procedure

1. Using the Administration pane in the Operations Manager Console, select and delete the following management pack entries of the IBM Hardware Management Pack from Operations Manager:
   - IBM Hardware Management Pack - Common Library
   - IBM Hardware Management Pack for IBM System x and x86/x64 Blade Systems
   - IBM Hardware Management Pack for IBM BladeCenter Chassis and Modules
   - IBM Hardware Management Pack – Hardware IDs Library
   - IBM Hardware Management Pack - Relation Library
   - IBM Hardware Management Pack for IBM Flex System Chassis and Modules
   - IBM Hardware Management Pack - Flex Relation Library
2. If you plan to continue using the IBM Hardware Management Pack, but only need to move the responsibility of one management server to another server, make sure that a new designated management server has taken over the responsibility successfully before you remove the installed package of the IBM Hardware Management Pack.
3. Remove the software package and files as described in the "Uninstalling the software package" on page 27 section, using the **Add/Remove Programs** option.

Removing the IBM Power CIM Provider

This topic describes how to remove the IBM Power CIM Provider.

About this task

To remove the IBM Power CIM Provider, perform step 1. Step 2 provides supporting debug information for you to find out more about the uninstallation results.

Procedure

1. Using **Add/Remove Programs** on the managed server, select the IBM Power CIM Provider, and click **uninstall**. The CIM Server, *wmicimserver* may take a few minutes to completely unload the IBM Power CIM Provider. If you would like to find out more about the uninstallation results, perform the following step.

2. Look in the IBM Power CIM Provider installation directory for a filed called `RegIBMPowerCim.log`, which contains a listing of the output from the uninstallation process. This log file will indicate whether an error may have occurred during uninstallation.

   Note:

   - If uninstalling IBM Power CIM Provider, you must uninstall it before uninstalling the IBM Director Agent. Unpredictable results could occur if this rule is not followed.
   - If you accidentally uninstall IBM Director Agent first, and then tried uninstalling IBM Power CIM Provider, the IBM Power CIM Provider may not get uninstalled. To uninstall it, re-install IBM Director Agent, repair the IBM Power CIM Provider. Uninstall IBM Power CIM Provider, and then uninstall the IBM Director Agent.

Uninstalling the software package

There are two methods for uninstalling the IBM Hardware Management Pack.

About this task

Perform step 1 or 2 to complete this task.

Procedure

1. Remove the management pack entries as described in "Deleting the IBM Hardware Management Packs" on page 26.
2. Uninstall the software package and files entirely. There are 2 methods for uninstalling the IBM Hardware Management Pack:
   - Using **Add/Remove Programs** in the Windows Control panel, select **Remove the IBM Hardware Management Pack for Microsoft System Center Operations Manager 2007, v4.5**.
   - **Start** > **All Programs** > **IBM Upward Integration** > **IBM Hardware Management Pack** > **Uninstall IBM Hardware Management Pack**.

Downgrading to a previous version

To downgrade the IBM Hardware Management Pack to a previous version, uninstall the current version and reinstall the earlier version.

Reinstalling IBM Hardware Management Pack, version 4.5

If you recently removed management packs from the Microsoft System Center Operations Manager console, you will need to wait for the settings to be propagated to the Operations Manager Console database before you can reinstall.

Important: If you do not wait for the removal of the management packs to register, reinstalling can result in managed clients not being listed on the Operations Manager.

See Discovery information is missing after you delete and then reimport a management pack in Microsoft System Center Operations Manager 2007 for information about this known limitation for Microsoft System Center Operations Manager.

If you remove the management packs from the console, you detach the IBM Hardware Management Pack from the Microsoft System Center Operations Manager server. You must then reinstall the IBM Hardware Management Pack into Microsoft System Center Operations Manager to add the management packs back to the console view.

Configuring BladeCenter SNMP settings

IBM BladeCenter chassis that are correctly enabled for SNMP can be discovered automatically by Microsoft network device discovery. After installing the IBM Hardware Management Pack, you can verify whether the BladeCenter chassis are discoverable.

Procedure

1. To view the Microsoft System Center Operations Manager consoles that discover BladeCenter chassis, click **IBM Hardware** > **IBM BladeCenters and Modules** > **Windows Computers for managing IBM BladeCenters** .

   Use this view to identify the health of computers that have the IBM Hardware Management Pack installed and are able to discover and manage BladeCenter chassis and components.
2. To monitor IBM(r)BladeCenter(r)s and modules, click **Monitoring** > **IBM Hardware** > **IBM BladeCenter(s) and Modules**.

   Chassis units are displayed in the middle pane followed by a view of their components that is organized in the same way that the management modules present components:
   - IBM BladeCenter Blades
   - IBM BladeCenter Chassis
   - IBM BladeCenter Cooling Modules
   - IBM BladeCenter I/O Modules
   - IBM BladeCenter Management Modules
   - IBM BladeCenter Media Modules
   - IBM BladeCenter Power Modules
   - IBM BladeCenter Storage Modules

   Each module type has a health state and the following properties:
   - Product name, and a logical name for blades
   - Product name, and a logical name for the module
   - Physical location info

3. Log in to the IBM BladeCenter AMM web console. To set ports for SNMP communication for a BladeCenter chassis that has not been discovered automatically, click **MM Control** > **Port Assignment** on the management module web console.

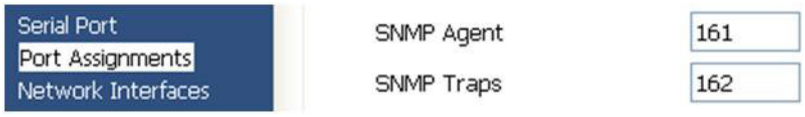

Figure 5. Default SNMP ports

Use the default SNMP ports of **161** for agent (queries/polling) and **162** for trapping. It is important for the SNMP port settings to be consistent. Otherwise, the Operations Manager cannot discover the BladeCenter chassis.

4. To change the SNMP settings, click **MM Control** > **Network Protocols** > **Simple Network Management Protocol SNMP**.
   a. Select **Enabled for SNMP Traps, SNMP v1 agent**.
   b. Enter the following information of every Microsoft System Center Operations Manager Management Server that will manage the BladeCenter:
      - Community name assigned to the BladeCenter through which SNMP will communicate
      - The fully qualified host name or the IP address

Table 11. SNMP settings

Community name	Access type	Fully qualified host name or IP address
Public	Set	yourOpsMgrServer.yoursite.yourcompany.com

The "Set" access type is required for enabling the management tasks, such as for remotely powering on or off a blade server through the Operations Manager Console. If you do not intend to allow this type of task through the Operations Manager console, you can lower the access type to **Trap**. At a minimum, the **Trap** access type must be set so that the Operations Manager server can perform SNMP queries and receive SNMP traps from the BladeCenter.

To receive events from management modules, a network connection must exist between the management module and the Microsoft System Center Operations Manager. You must also configure the management module to send events.

5. To enable alerts using SNMP over the LAN in firmware revision 46, click **MM Control** > **Alerts**. In the right pane, under Remote Alert Recipients, click a **~not used~** link to configure the alert recipient as illustrated in the next figure. This step might vary slightly depending on the firmware level.

Figure 6. Enabling alerts using SNMP

a. In the new Remote Alert Recipient window, change the status from **Disabled** to **Enabled**.

b. In the **Name** field, enter a descriptive name for the Management Server for Microsoft System Center Operations Manager that you will be using to manage the BladeCenter. See "Discovering a BladeCenter in Operations Manager 2007" on page 31 for more about the Management Server setting.

c. Select **SNMP over LAN** for the Notification method.

d. Click **Save**. The following figure is an example of a completed Remote Alert Recipient.

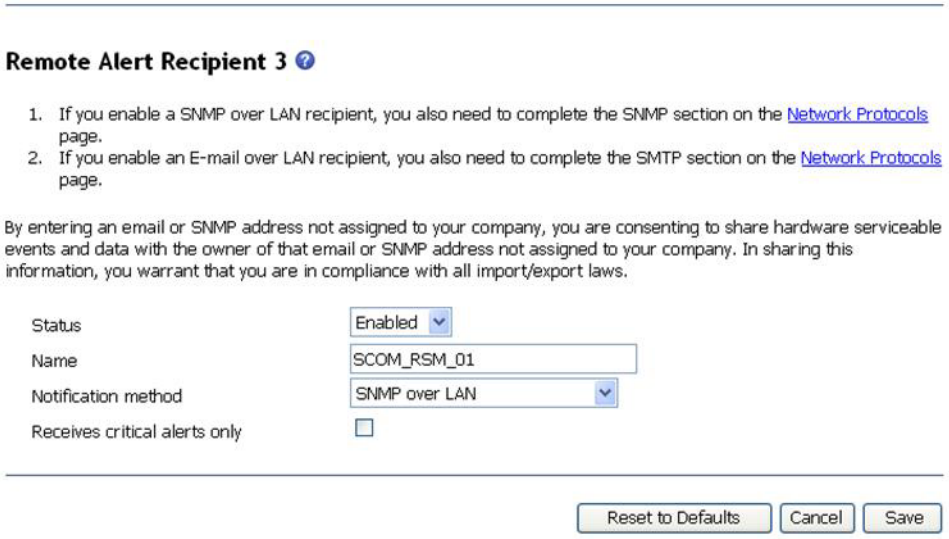

Figure 7. Remote Alert Recipient

6. Complete the following instructions for firmware revision 46:
   a. In the left pane, under **MM Control**, click **Alerts**.
   b. From the context menu, select **Monitor Alerts**.
   c. Click to select the alerts to send, and click **Save**.

   The following figure provides an example of what is displayed after completing this task.

Figure 8. Monitored alerts

Discovering a BladeCenter in Operations Manager 2007

This topic describes how to discover a BladeCenter in Operations Manager 2007.

About this task

To discover a chassis and its components in Microsoft System Center Operations Manager 2007, complete the following steps on a management server:

Procedure

1. Start the **Discovery Wizard**.

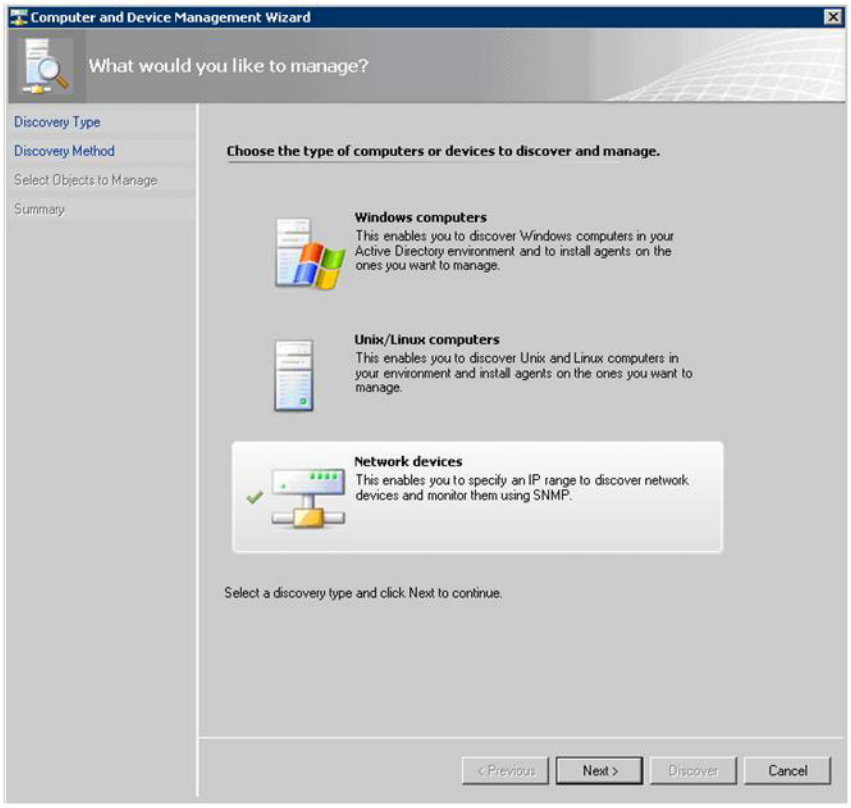

Figure 9. Discovery Wizard

2. On the Discovery Wizard page, select **Network devices** and click **Next**, as shown in the figure above for Microsoft System Center Operations Manager 2007 R2.

   Note: For Microsoft System Center Operations Manager 2007 SP1, make the following selections:

   a. Select **Advanced discovery** for the **Auto or Advanced?**
   b. Select **Network Devices for Computer & Device Types**.
   c. Select the management server that will discover and manage the BladeCenter Management server.

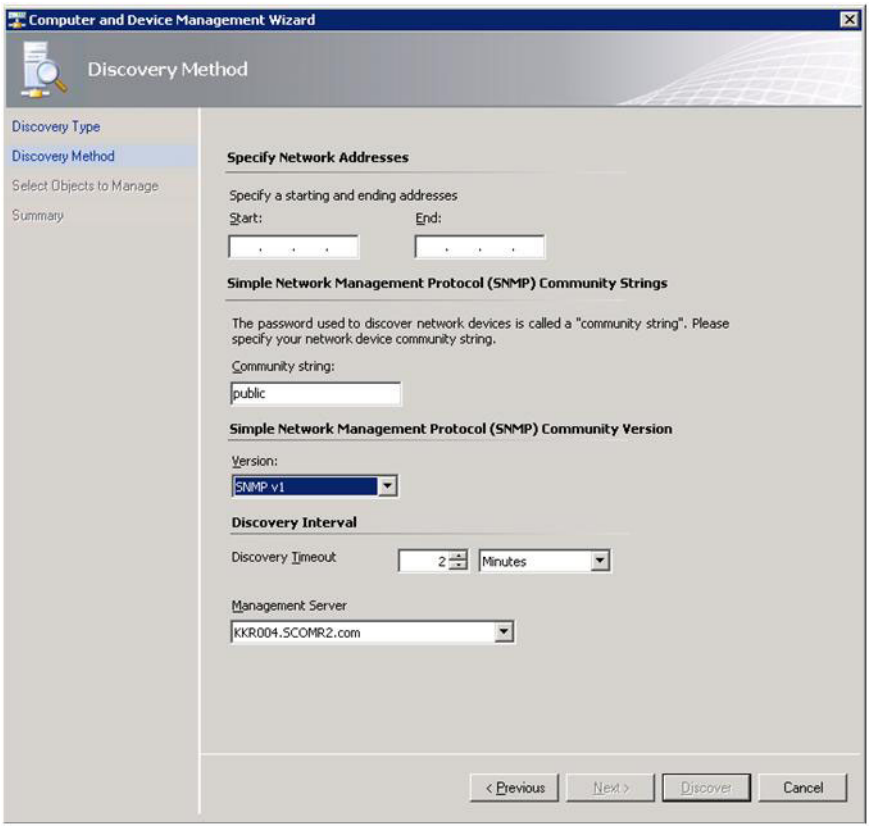

Figure 10. Discovery Method

3. On the Discovery Method page, enter the following information:
   a. An **IP address range** for discovery
   b. **Community String**: the name that you used on the chassis SNMP settings
   c. **Version**: select SNMP v1
   d. **Discovery interval**: discovery timeout in minutes
   e. **Management Server**: select the management server of Microsoft System Center Operations Manager that will discover and manage the target BladeCenter.

      Note: The management server should have the IBM Hardware Management Pack installed. It should also be setup to discover and manage the target chassis through its SNMP settings. See "Configuring BladeCenter SNMP settings" on page 28 and see "IBM Flex System Chassis SNMP settings" on page 42.
   f. Click **Discovery** to open the Select Objects to Manage page.

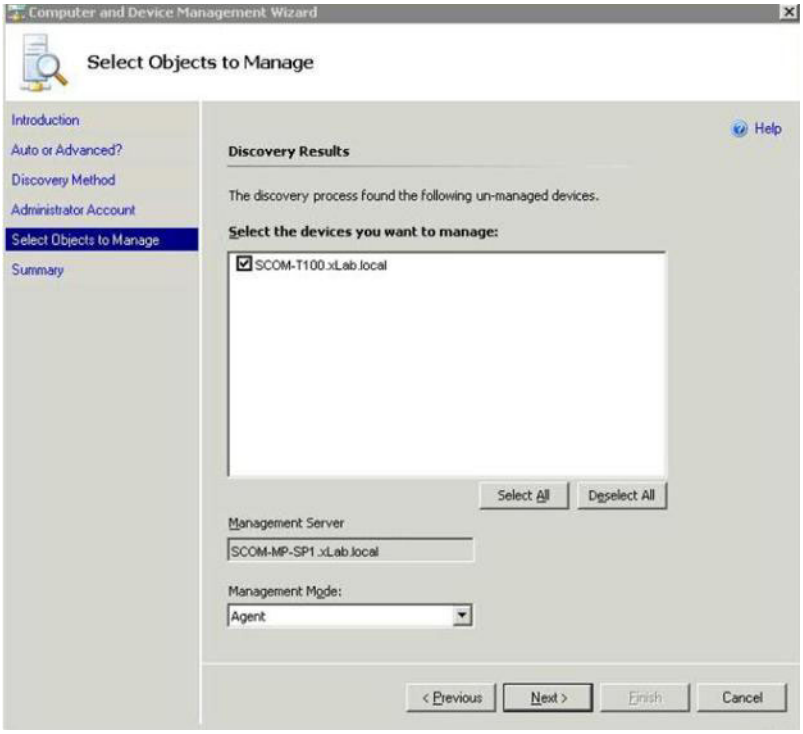

Figure 11. Select Objects to Manage

4. Select the IP address of the chassis unit to manage and click **Next**.

   Note: For Microsoft System Center Operations Manager 2007 SP1, enter the name of the Microsoft System Center Operations Manager management server that you entered in the Auto or Advanced page in the **Proxy Agent** field.

Discovering a BladeCenter in Operations Manager 2012

This topic describes how to discover a BladeCenter in Microsoft System Center Operations Manager 2012.

About this task

To discover a chassis and its components in Operations Manager 2012, complete the following steps on a management server:

Procedure

1. Start the **Discovery Wizard**.

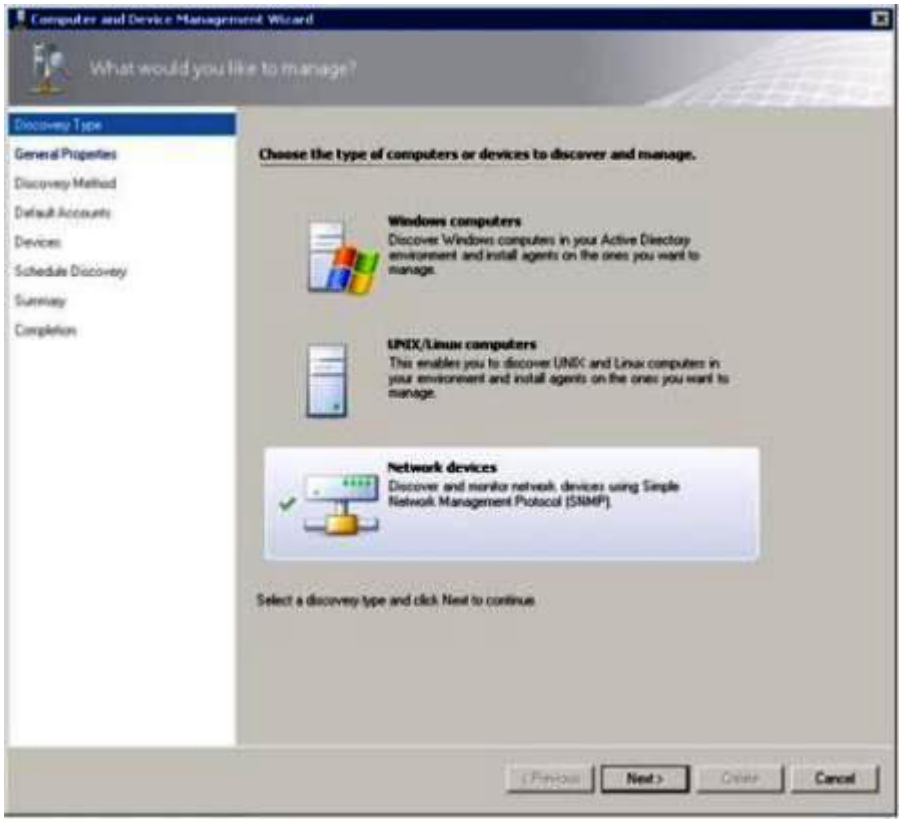

Figure 12. Discovery types

2. On the Discovery Wizard page, select **Network devices** and click **Next**, as shown in the figure above for Microsoft System Center Operations Manager 2012.

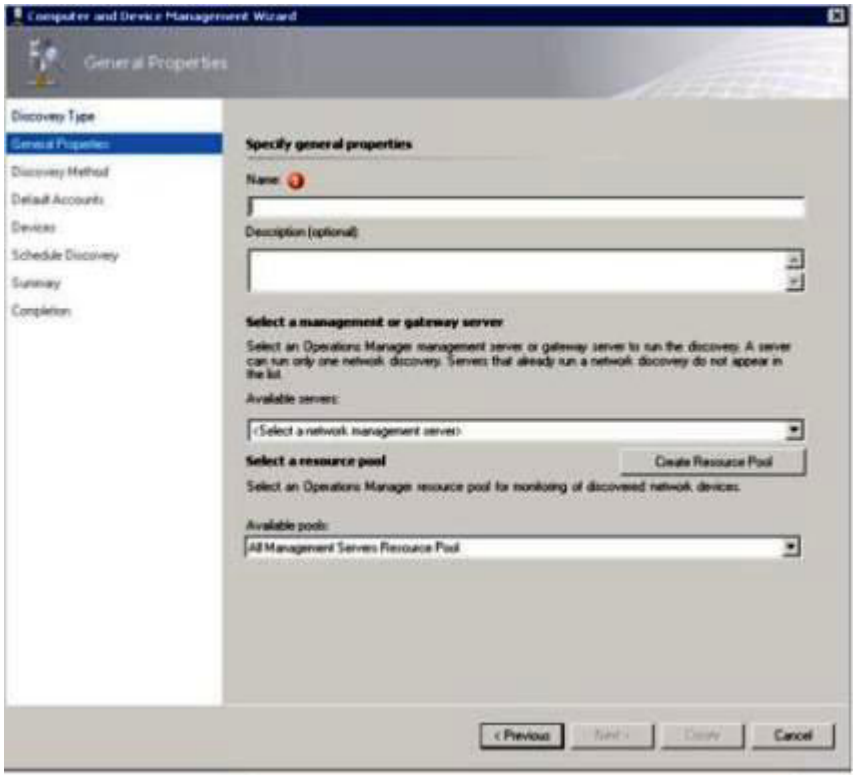

Figure 13. General Properties page

3. On the General Properties page, enter the discovery rule **Name** and select **Available management server and resource pool** and click **Next**.
4. On the Discovery Method page, select **Explicit Discovery** and click **Next**.
5. On the Default Accounts page, select **Create Account** and **Finish** to create the community string. The Introduction page is displayed.

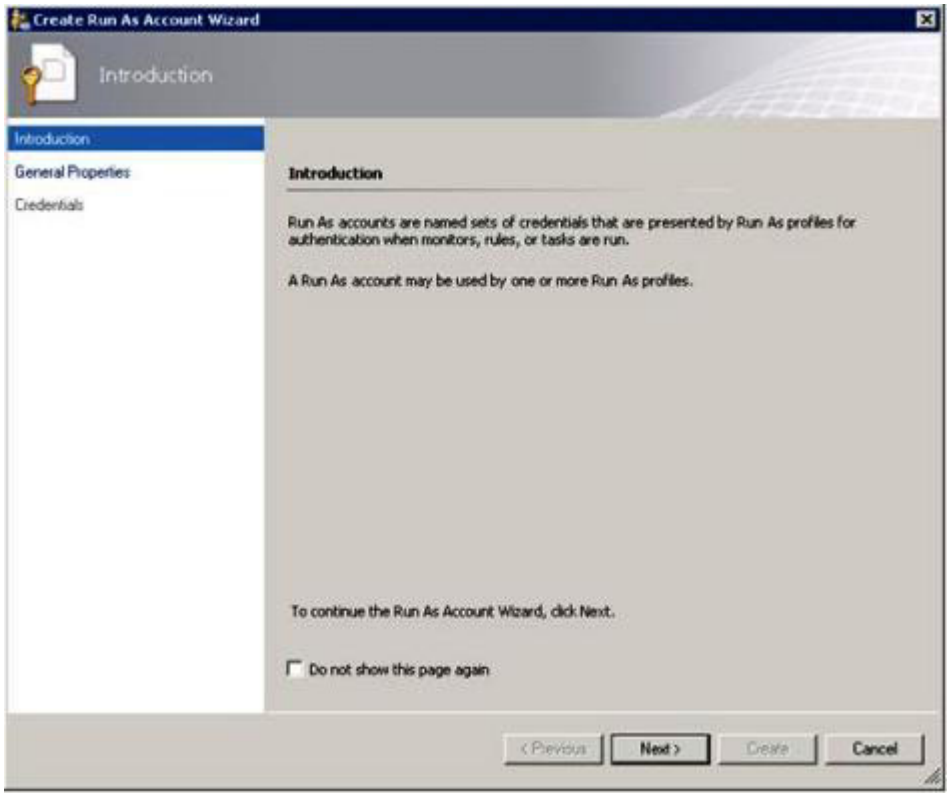

Figure 14. Introduction page

6. On the Introduction page, click **Next**. The Devices page is displayed.

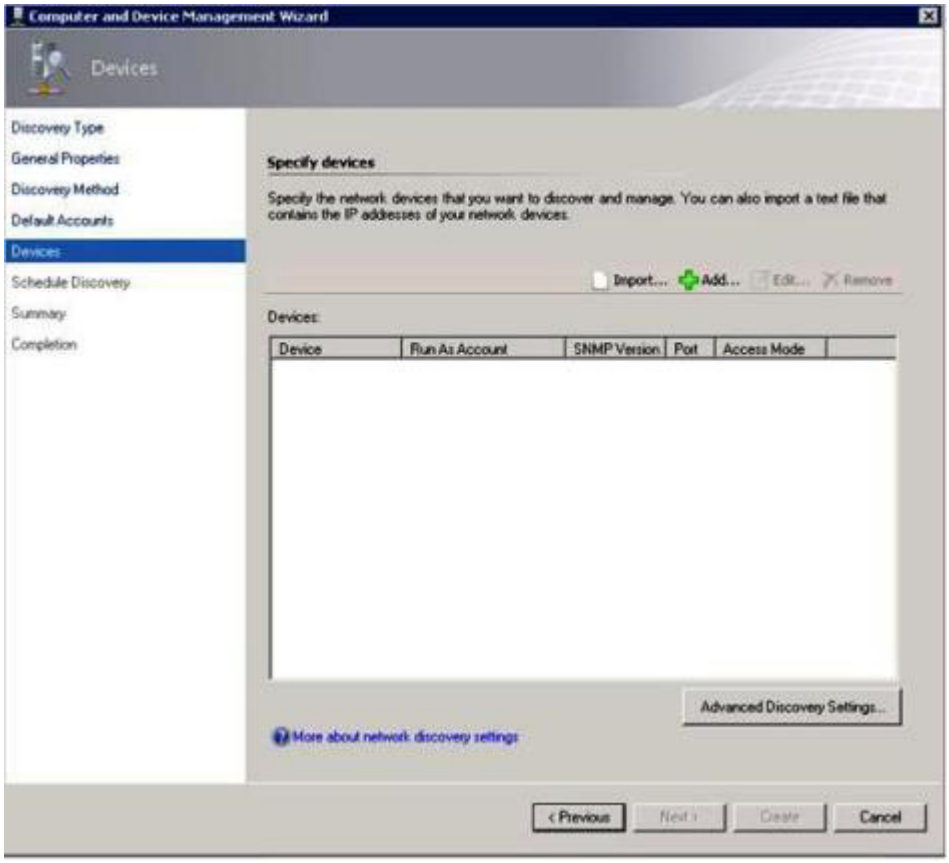

Figure 15. Devices page

7. On the Devices page, select **Add**. The **Add a Device** dialog box opens.
8. In the **Add a Device** dialog box, complete the following steps:
   a. Enter the **BladeCenter IP address**.
   b. Click to select **SNMP** for the Access mode.
   c. Change **SNMP V1 or V2 Run as account** to the one previously created.
   d. Click **OK** to return to the Discovery Wizard.

   If you have additional devices to add, repeat step 8.
9. Click **Next** to complete the Discovery Wizard.

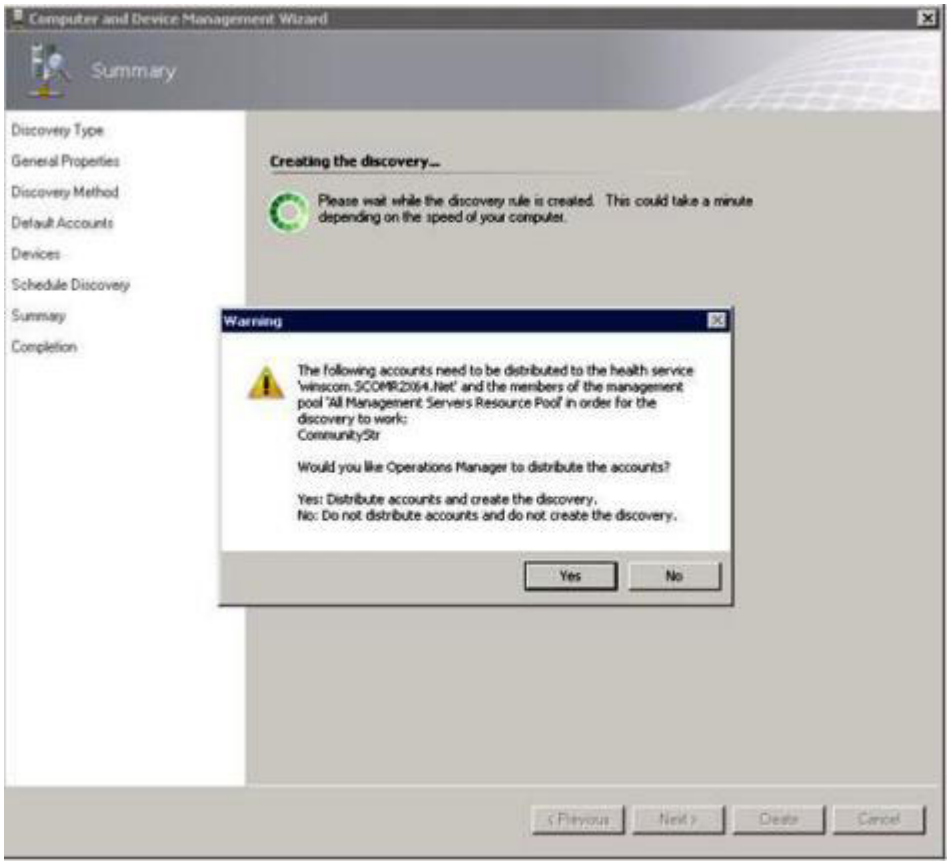

Figure 16. Distribute accounts warning

Note: If a Warning popup is displayed to distribute the accounts, select **Yes** to complete the Discovery Wizard.

The Completion page is displayed.

Figure 17. Discovery Wizard Completion page

10. On the Completion page, select one of the following options:
    - Click **Run the network discovery rule after the wizard is closed** and click **Close**. The progress of a network discovery rule running after the Discovery Wizard is closed is displayed.
    - Click **Close**, and go to the Discovery Rules page to select a Discovery Rule to run.

    The Discovery Rules page is displayed.

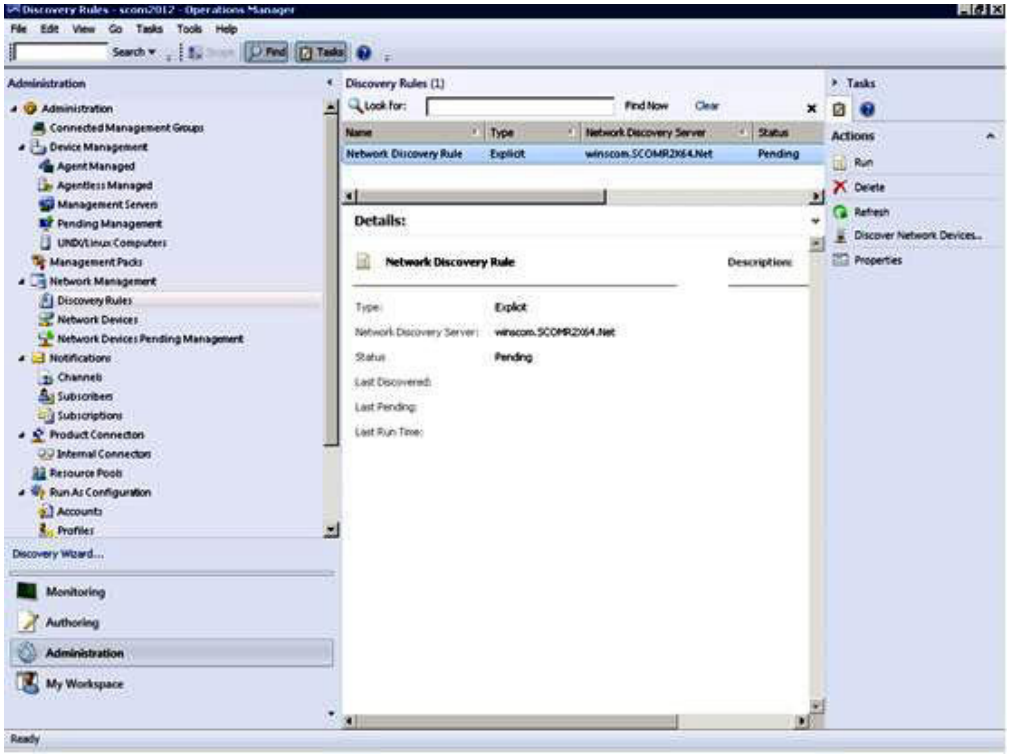

Figure 18. Discovery Rules page

11. Click to select a **Discovery Rule** and click **Run**.

Removing a discovered BladeCenter chassis

This topic describes how to remove a discovered BladeCenter chassis from the group of discovered systems.

Procedure

1. Log in to the Microsoft System Center Operations Manager operations console.
2. Select **Administration** > **Network Devices**.
3. Select the BladeCenter Chassis you want to delete in the middle pane.
4. Right-click and select **Delete** to start the delete task.

   When the chassis and its discovered components are removed from the group, the following components are no longer displayed:

   - IBM BladeCenter Blades
   - IBM BladeCenter Chassis
   - IBM BladeCenter Cooling Modules
   - IBM BladeCenter I/O Modules
   - IBM BladeCenter Management Modules
   - IBM BladeCenter Media Modules
   - IBM BladeCenter Power Modules
   - IBM BladeCenter Storage Modules

IBM Flex System Chassis SNMP settings

IBM Flex System Chassis that are correctly enabled for SNMP can be discovered automatically by Microsoft network device discovery. After installing the IBM Hardware Management Pack, you can verify whether the Flex chassis are discoverable.

Procedure

1. To view the Microsoft System Center Operations Manager consoles that discover Flex chassis, click **IBM Hardware** > **IBM Flex Systems and Modules** > **Windows Computers for managing IBM Flex Systems Chassis(s)**. Use this view to identify the health of computers that have the IBM Hardware Management Pack installed and is able to discover and manage the IBM Flex System Chassis and components.

   Note: Only the management server which has the activation license can manage the IBM Flex System Chassis and modules.
2. To monitor IBM Flex System Chassis and modules, click **Monitoring** > **IBM Hardware** > **IBM Flex System Chassis(s) and Modules**. Chassis units are displayed in the middle pane followed by a view of their components that is organized in the same way that the management modules present components:
   - IBM Flex System Compute Nodes/Storage
   - IBM Flex System Cooling Modules
   - IBM Flex System FanMux Modules
   - IBM Flex System I/O Modules
   - IBM Flex System Management Modules
   - IBM Flex System Power Modules
   - IBM Flex System RearLED Modules

   Each module type has a health state and the following properties:
   - Product name, and a logical name for the module
   - Physical location info
3. Log in to the IBM Flex System Chassis CMM web console. To set ports for SNMP communication for an IBM Flex System Chassis that has not been discovered automatically, click **Mgt Module Management** > **Network** > **Port Assignments on the Chassis management module web console**.

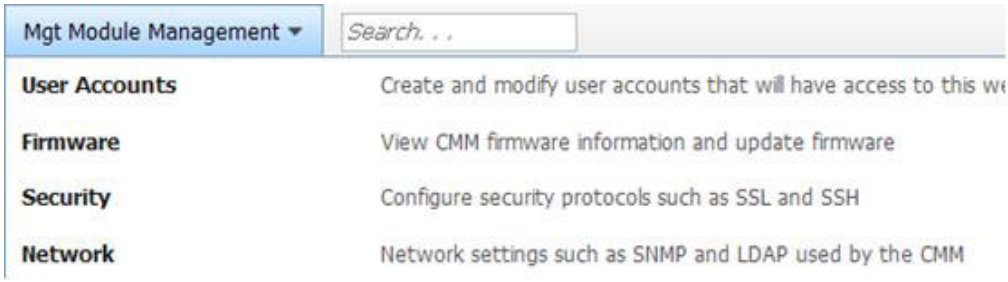

Figure 19. Default SNMP ports

Use the default SNMP ports of 161 for agent (queries/polling) and 162 for trapping. It is important for the SNMP port settings to be consistent. Otherwise, the Operations Manager cannot discover the Flex chassis.

Figure 20. Setting default SNMP ports

4. To change the SNMP settings, click **Mgt Module Management** > **Network** > **SNMP**. There are two SNMP agent versions that can be selected for the SCOM to manage the Flex chassis. Select one of the following methods:
   - Method 1: Enabled for SNMPv1 Agent
   - Method 2: Enabled for SNMPv3 Agent

   To receive events from the management modules, a network connection must exist between the management module and the Microsoft System Center Operations Manager, and you must also configure the management module to send events.
5. Using **SNMP over LAN**, click **Events** > **EventRecipients**.

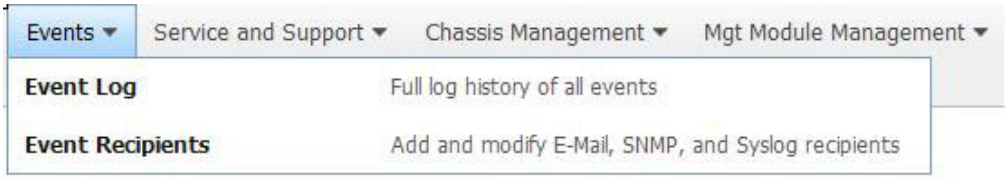

Figure 21. Selecting Event Recipients

6. Click **Create** > **Create SNMP Recipient**.

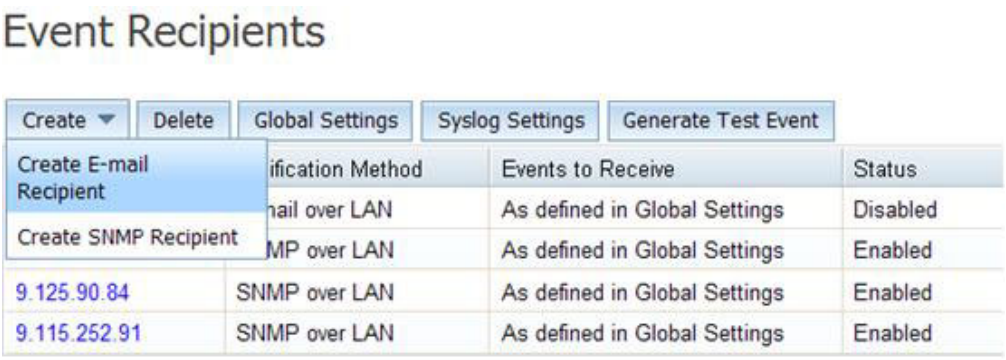

Figure 22. Create Event Recipients

7. In the **Create SNMP Recipient** dialog box, perform the following steps.
   - In the **Descriptive name** field, enter the name you want to use.
   - For Status, select **Enable this recipient** .
   - For **Events to Receive**, select **Use the global settings** or **Only receive critical alerts**
   - Click **OK** to return to the Event Recipients page.

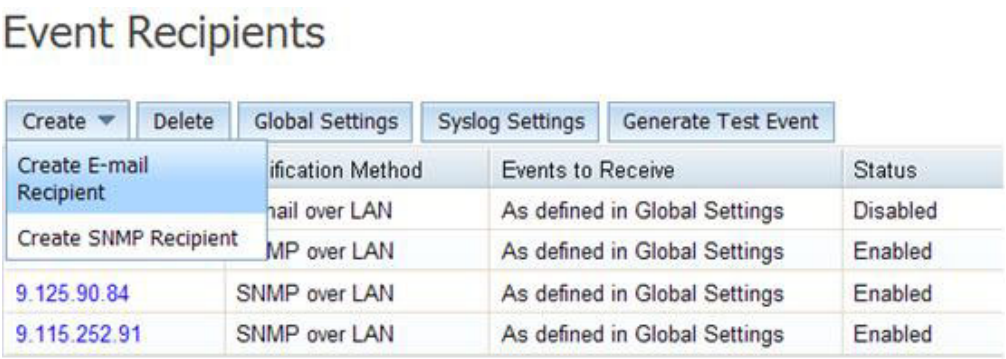

Figure 23. Create SNMP Recipient dialog box

8. If you selected, **Use the global settings**, the Event Recipient Global Settings dialog box is displayed.

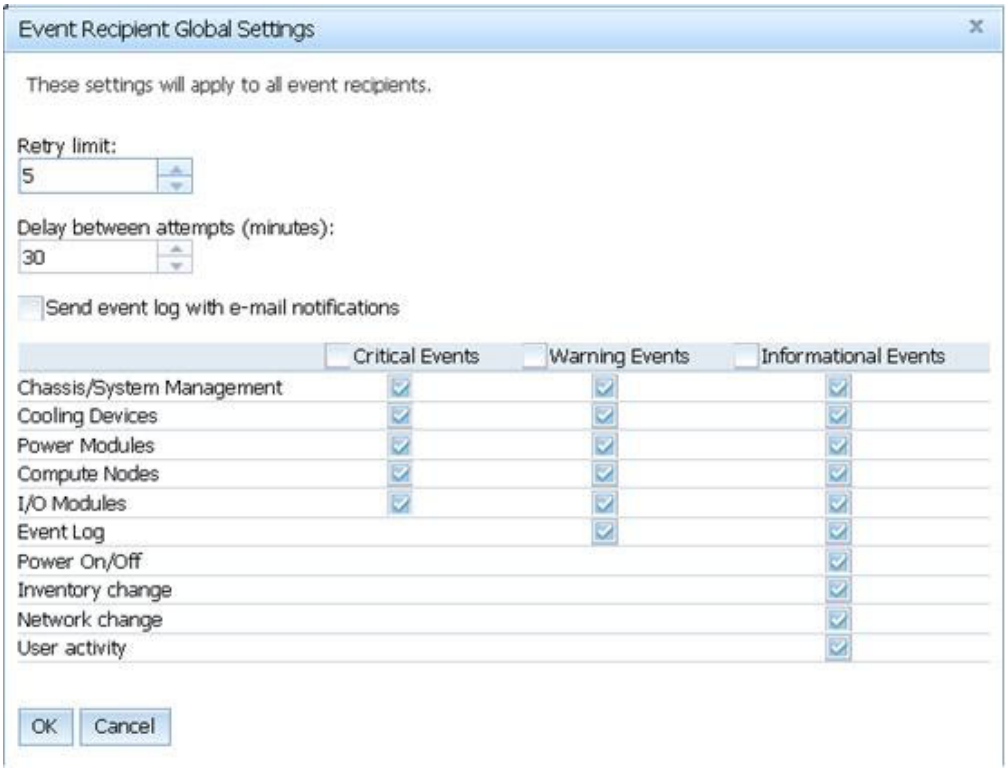

Figure 24. Event Recipient Global Settings dialog box

Enabled for SNMPv1 Agent

Procedure

1. Select **Enabled for SNMPv1 Agent**.
2. Click **Traps** Tab, and then click **Enable SNMP Traps**.
3. Click **Communities** Tab.
4. Enter the following information for every Microsoft System Center Operations Manager Management server that will manage the Flex System:
   - **Community name** is assigned to the Flex System through which SNMP will communicate.
   - **Fully Qualified Hostnames or the IP Addresses**
   - **Access type** is required for enabling the management tasks. If you do not intend to allow this type of task through the Operations Manager console, you can lower the access type to **Trap**. At a minimum, the Trap access type must be set so that the Operations Manager server can perform SNMP queries and receive SNMP traps from the Flex System.

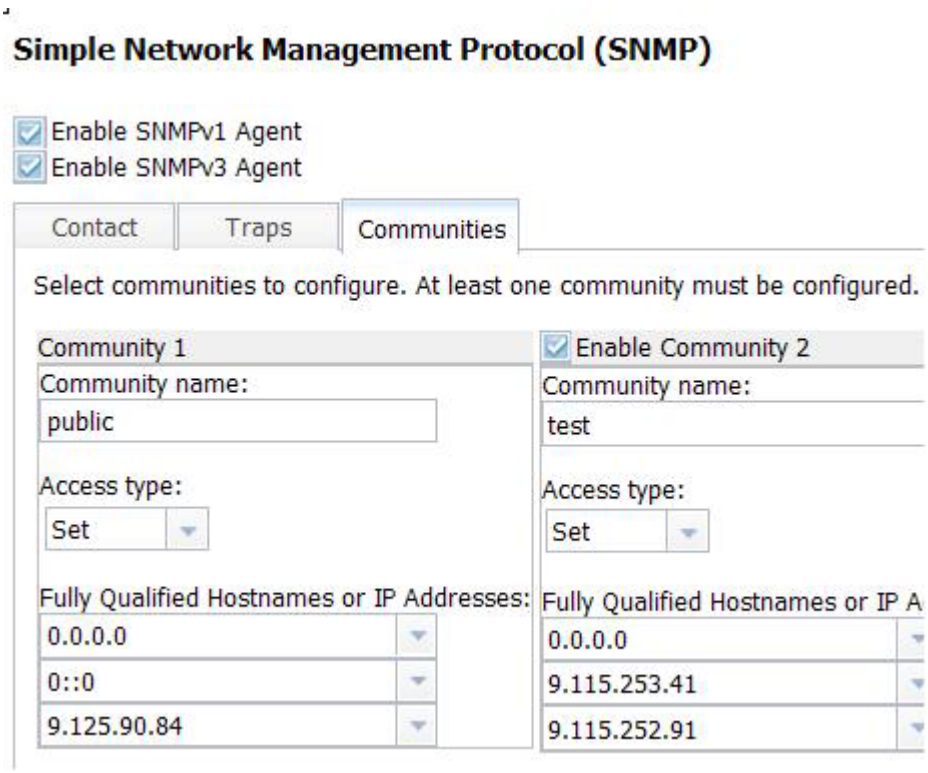

Figure 25. Simple Network Management Protocol (SNMP)

Note: By default, the Chassis module Security Policies level is **Secure**. At this level, SNMP v1 can not be enabled. To use SNMP v1, change the security level to **Legacy** using **Mgt Module Management** > **Security** > **Security Policies** > **Legacy**.

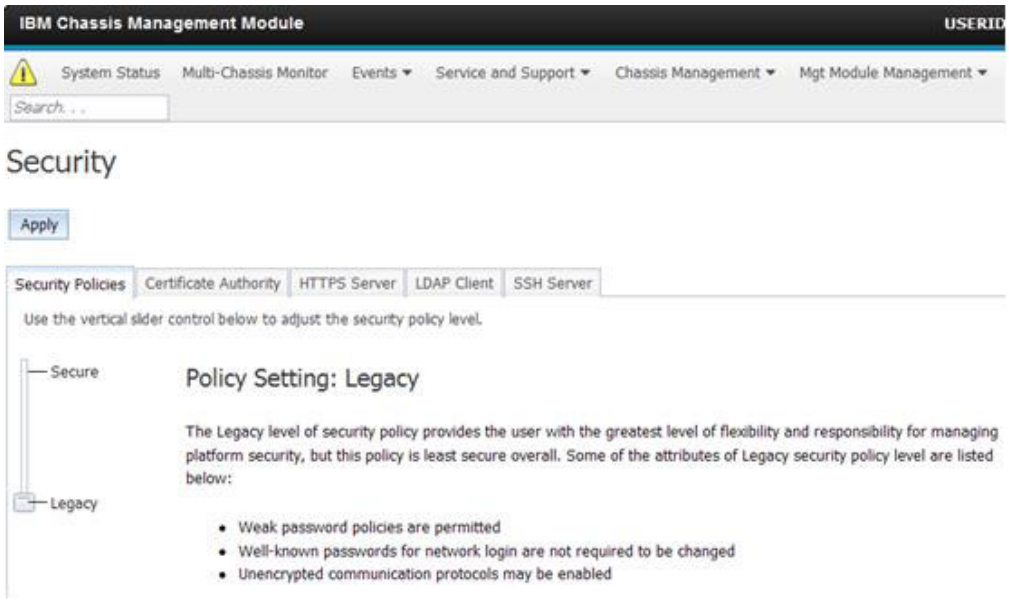

Figure 26. Security Policy setting

Enabled for SNMPv3 Agent

If you want use SNMPv3 agent to manage Flex Chassis by SCOM server, you need to create a SNMPv3 user account.

Before you begin

Create a new user using the **Create User** by selecting **Mgt Module Management** > **User Accounts**or use the default user.

Procedure

1. Click to select the new user you created from the list to open the User Properties page.
2. Click the **General** tab and set the user password.
3. Click the **SNMPv3** tab and configure the Authentication Protocol.
   a. Select **SHA** or **MD5**.
   b. Click to select **Use a privacy protocol** and enter a **Privacy password**. This is optional.
   c. Change the **Access type** to **Set**.
   d. In the **IP address or host name for traps**, enter the SCOM server IP address.
4. Click **OK**.

Discovering an IBM Flex System in Operations Manager 2007

This topic describes how to discover an IBM Flex System in Operations Manager 2007.

About this task

To discover a chassis and its components in Microsoft System Center Operations Manager 2007, refer to the “Discovering a BladeCenter in Operations Manager 2007” on page 31.

Note: For Microsoft System Center Operations Manager 2007, only SNMP v1 is supported for managing an IBM Flex System Chassis.

Discovering an IBM Flex System in Operations Manager 2012

This topic describes how to discover a IBM Flex System in Microsoft System Center Operations Manager 2012.

About this task

To discover a chassis and its components in Operations Manager 2012 via SNMPv1, refer to “Discovering an IBM Flex System in Operations Manager 2007.”

To discover a chassis and its components in Operations Manager 2012 via SNMPv3, complete the following steps on a management server.

Procedure

1. Start the Discovery Wizard.
2. On the Discovery Wizard page, select **Network devices** and click **Next**.
3. On the General Properties page, complete the following steps:
   a. Enter the **Discovery Rule Name**.
   b. Select **Available management server and resource pool** and click **Next**.
4. On the Discovery Method page, select **Explicit Discovery** and click **Next**.
5. On the Default Accounts page, click **Next**. The Devices page is displayed.
6. On the Devices page, select **Add**. The Add a Device dialog box opens.
7. In the **Add a Device** dialog box, complete the following steps.
   a. Enter the **Flex System IP address**.
   b. Click to select **SNMP** for the Access mode.
   c. Click to select **v3** for the SNMP version.
   d. Click **Add SNMP V3 Run As Account**.
   e. Perform the steps in the Create Run As Account Wizard to fill in the snmp v3 account you just created in Flex Management web console.
   f. Click**OK** to return to the Discovery Wizard.

   If you have additional devices to add, repeat step 7.

8. Click **Next** to complete the Discovery Wizard. The Completion page is displayed.
9. On the Completion page, select one of the following options:
   - Click **Run the network discovery rule after the wizard is closed** and click **Close**. The progress of a network discovery rule running after the Discovery Wizard is closed is displayed.
   - Click **Close**. The Discovery Rules page is displayed.
10. Click to select a Discovery Rule and click Run.

    Note: You can also modify the discovery rule by clicking the rule's Properties.

Removing a discovered IBM Flex System chassis

This topic describes how to remove a discovered IBM Flex System chassis from the group of discovered systems.

Procedure

1. Log in to the Microsoft System Center Operations Manager operations console.
2. Select **Administration** > **Network Devices**.
3. Select the IBM Flex System or BladeCenter chassis you want to delete in the middle pane.
4. Right-click and select **Delete** to start the delete task.

   When the chassis and its discovered components are removed from the group, the following components of a IBM Flex System chassis are no longer displayed:
   - IBM Flex System Chassis Compute Nodes/Storage
   - IBM Flex System Chassis Cooling Modules
   - IBM Flex System Chassis FanMux Modules
   - IBM Flex System Chassis I/O Modules
   - IBM Flex System Chassis Management Modules
   - IBM Flex System Chassis Power Modules
   - IBM Flex System Chassis RearLED Modules

Chapter 5. Working with the IBM Hardware Management Pack

The topics in this section describe how IBM Hardware Management Pack enhances the functionality of the Operations Manager by providing more detailed information about the managed IBM systems.

To learn more about using the Operations Manager when the IBM Hardware Management Pack is installed, perform the tasks in the "Using the Operations Manager Console" section.

The IBM Hardware Management Pack provides the following functions:

- Monitors the system using the Monitoring pane of the Operations Manager Console, as described in "Using the Operations Manager Console"
- Adds an IBM system to the managed systems, as described in "Adding an IBM system to be managed by the Operations Manager" on page 57
- Monitors the health of systems, components, and systems-management software, as described in "Monitoring the health of systems, hardware components, and other targets" on page 68
- Identifies and resolve errors, as described in "Using Health Explorer to identify and resolve problems" on page 71
- Accesses the IBM knowledge pages, as described in "Using knowledge pages to resolve problems" on page 73

Using the Operations Manager Console

This topic describes how to use the Operations Manager Console with the IBM Hardware Management Pack installed. After installing the IBM Hardware Management Pack, use the Monitoring pane of the Operations Manager Console for monitoring the system. The IBM Hardware Management Pack folders and views in the Monitoring pane provide a complete view of the health of your IBM BladeCenter chassis, Flex System Chassis and chassis components and your System x and x86/x64 blade servers.

About this task

Performing the following procedure will assist you in becoming familiar with the Monitoring pane of the Operations Manager Console and the features that the IBM Hardware Management Pack adds.

Procedure

1. Click the **Monitoring tab** in the left pane of the Operations Manager Console. The Monitoring pane displays the systems and hardware components that you can monitor with the IBM Hardware Management Pack. The following figure shows a portion of the Monitoring pane of the Operations Manager Console after you install the IBM Hardware Management Pack.

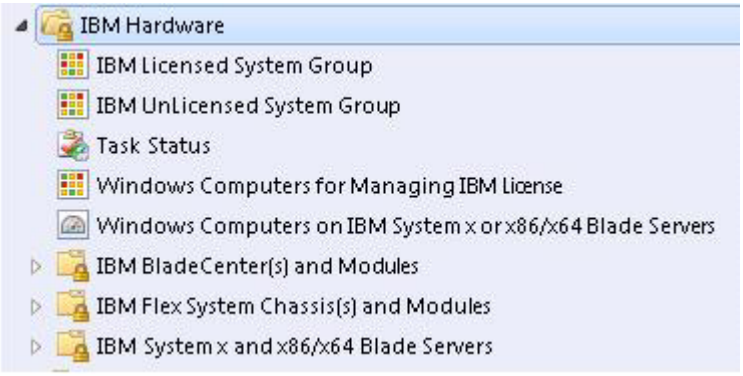

Figure 27. Monitoring pane

The IBM Hardware folder consists of several different views which monitor data that is collected from IBM systems. Windows Computers on IBM System x or x86/x64 Blade Servers provides a global view. The other folders provide additional views of the different types of monitoring data collected from IBM systems.

- **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.
  - **IBM Licensed System Group** (view): This group provides a status view of Windows computers on the IBM server when the premium features are enabled.
  - **IBM Unlicensed System Group** (view): This group provides a status view of Windows computers on the IBM server when the premium features are not enabled.
  - **Windows Computers for Managing IBM License** (view): This view provides a status view of the Operations Manager Management servers that are capable of managing the premium feature.
  - **Windows Computers on IBM System x or x86/x64 Blade Servers**(view): This view provides the status of IBM System x or x86/x64 Blade servers. Use this view as you would the **Monitoring** > **Computers** view. The difference is that this view contains only IBM System x or IBM BladeCenter x86/x64 blade servers.
  - **IBM BladeCenter(s) and Modules** (folder): This folder contains a summarized view of all IBM BladeCenters and Modules and personalized summary views of specific Alerts, Task Status, IBM BladeCenters, and Windows computers for Managing IBM BladeCenters.
  - **IBM Flex System Chassis(s) and Modules** (folder): This folder contains a summarized view of all IBM Flex System Chassis and Modules and personalized summary views of specific Alerts, Task Status, IBM Flex System Chassis, and Windows computers for Managing IBM Flex System Chassis.
  - **IBM System x and x86/x64 Blade Servers** (folder): This folder contains a summarized view of all IBM systems in "All IBMSystem x and BladeCenter x86/x64 Blade Systems" and personalized summary views of specific types of IBMSystem x and BladeCenter x86/x64 Blade servers that are grouped by the type of platform, which includes Tower, rack, Blade, Enterprise server, and unclassified.

Complete the following steps to view detailed information from the Windows Computers on IBM System x or x86/x64 Blade server.

2. Click the **Windows Computer on IBM System X or x86/x64 Blade Servers** icon to open this view.

   Only manageable hardware components are discovered and monitored; this does not include all components. For example, a system with one or more non-manageable fans does not have all of its fans discovered or monitored. In the following figure, the pane labeled IBM Hardware Components of IBMSystem x or x86/x64 Blade Servers shows various components.

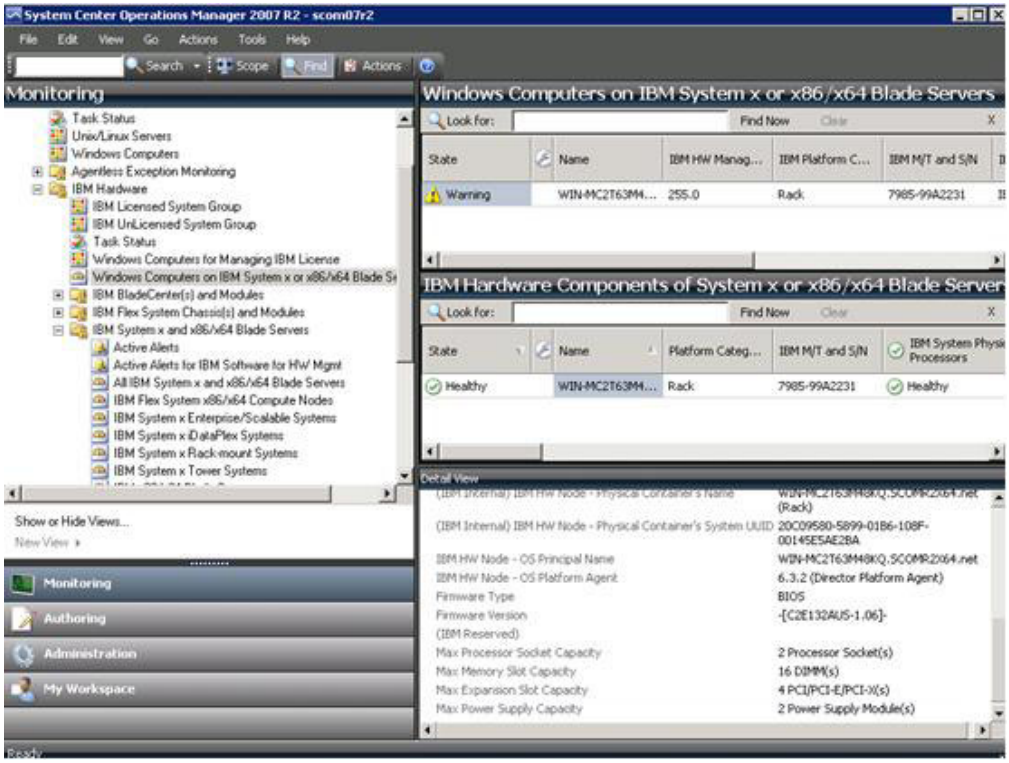

Figure 28. Windows Computers on IBM System x or x86/x64 Blade Server view

3. Click the **IBM BladeCenter(s) and Modules** folder to display detailed information.

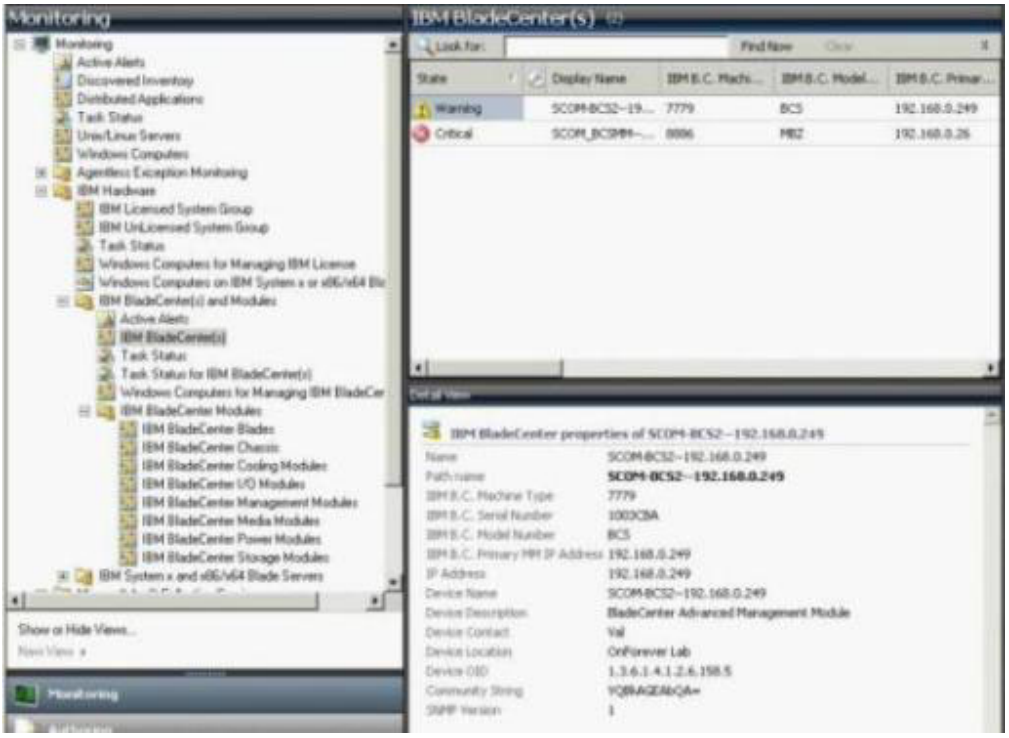

Figure 29. IBM BladeCenter(s) and Modules folder view

Under the **IBM BladeCenter(s) Modules** folder are five views and one folder:

- **Active Alerts** (view): This view provides the status of IBM BladeCenter alerts.
- **IBM BladeCenter(s)** (view): This view provides a summarized list of all IBM BladeCenter chassis and chassis components, such as Blades, Cooling, I/O, Storage, Power, Management Module, and other components.
- **Task Status** (view): This view provides the status of the IBM BladeCenters Modules and Chassis.
- **Task Status for IBM BladeCenter(s)** (view): This view provides the status of the IBM BladeCenters.
- **Windows Computers for Managing IBM BladeCenter(s)** (view): This view shows management modules that can communicate with IBM BladeCenter chassis.
- **IBM BladeCenter Modules** (folder): This folder contains all of the component information and status information for the BladeCenter chassis, chassis components, and blade servers. Categories include Blades, Chassis, Cooling, I/O, Management Module, Media Modules, Power, and Storage.

4. Click the **IBM Flex System Chassis(s) and Modules** folder to display detailed information.

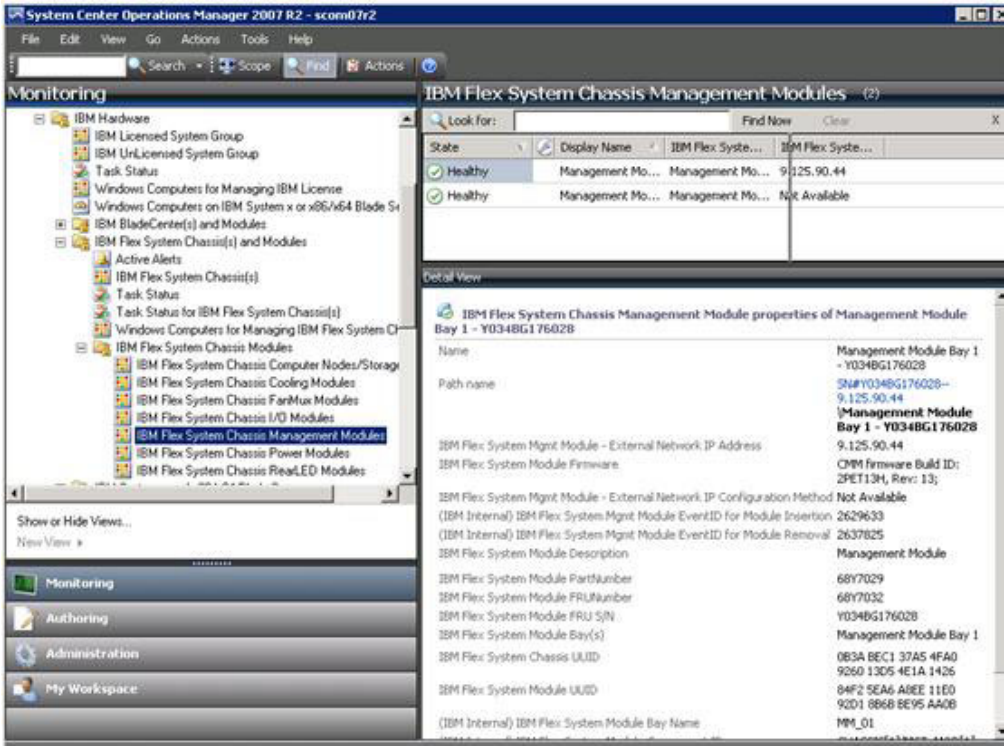

Figure 30. IBM Flex System Chassis folder view

Under the IBM Flex System Chassis(s) and Modules folder are five views and one folder:

- **Active Alerts (view)**: This view provides the status of IBM Flex system chassis alerts.
- **IBM Flex System Chassis(s) (view)**: This view provides a summarized list of all IBM Flex system chassis and chassis components, such as Compute Node, Cooling, I/O, Storage, Power, Management Module, and other components.
- **Task Status (view)**: This view provides the status of the IBM Flex system Modules and Chassis.
- **Task Status for IBM Flex System Chassis(s) (view)**: This view provides the status of the IBM Flex system chassis.
- **Windows Computers for Managing IBM Flex System Chassis(s) (view)**: This view shows management modules that can communicate with IBM Flex system chassis.
- **IBM Flex System Chassis Modules (folder)**: This folder contains all of the component information and status information for the Flex system chassis, chassis components, and compute nodes. Categories include Compute Node, Cooling, FanMux Modules, FSM, I/O Modules, Management Modules, Power Modules, RearLED Modules, and Storage.

5. Click the **IBM Flex System Chassis Modules** folder to display the views in this folder. After discovering an IBM Flex System chassis and the chassis modules, the IBM Hardware Management Pack classifies the chassis modules according to their module type and then adds each module to the applicable module view:
   - IBM Flex System Chassis Compute Nodes
   - IBM Flex System Chassis Cooling Modules
   - IBM Flex System Chassis FanMux Modules
   - IBM Flex System Chassis FSM
   - IBM Flex System Chassis I/O Modules
   - IBM Flex System Chassis Management Modules
   - IBM Flex System Chassis Power Modules
   - IBM Flex System Chassis RearLED Modules
   - IBM Flex System Chassis Storage

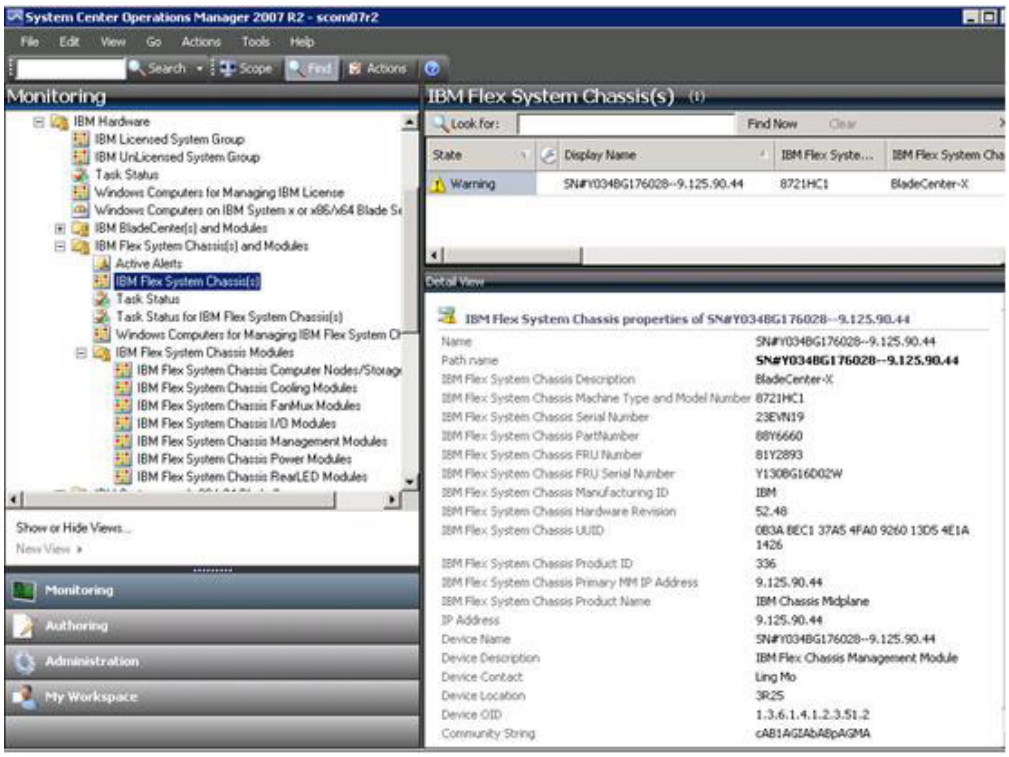

Figure 31. IBM Flex System Chassis Modules

6. Click the **IBM BladeCenter Modules** folder to display the views in this folder.

   After discovering an IBM BladeCenter chassis and its chassis modules, the IBM Hardware Management Pack classifies the modules according to their module type and then adds each module to the applicable module view:

   - IBM BladeCenter Blades
   - IBM BladeCenter Chassis
   - IBM BladeCenter Cooling Modules
   - IBM BladeCenter I/O Modules
   - IBM BladeCenter Management Modules
   - IBM BladeCenter Media Modules
   - IBM BladeCenter Power Modules
   - IBM BladeCenter Storage Modules

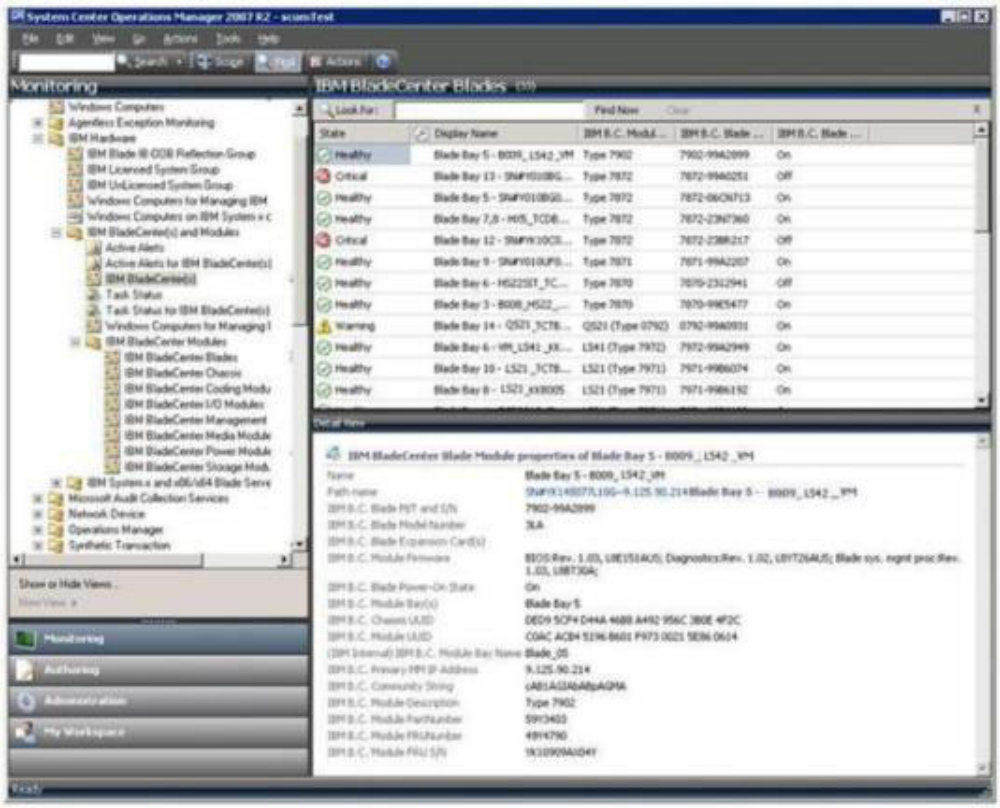

Figure 32. IBM BladeCenter Modules

7. Click the **IBM System x and x86/x64 Blade Servers** view to display the views in the folder.

   After discovering an IBM Windows Computer, the IBM Hardware Management Pack classifies the system according to its system type and then adds the system to the view of **All IBM System x and x86/x64 Blade Servers** and to one of the system group views, according to the system platform type:

   - Active Alerts for IBM Software for HW Mgmt
   - All IBM System x® and x86/x64 Blade Servers
   - IBM Flex System x86/x64 Compute Nodes
   - IBM System x Enterprise/Scalable Systems
   - IBM System x iDataPlex Systems
   - IBM System x Rack-mount Systems
   - IBM System x Tower Systems
   - IBM x86/x64 Blade Systems
   - **IBM Blade OOB-IB Reflection Group** (view): This Group provides a status view of Windows computers on IBM x86/x64 Blade servers. Use this view to find the relationship between IBM BladeCenter x86/x64 Blade server in the "IBM System x and BladeCenter x86/x64 Blade Servers" (monitored through Inband) and "BladeCenter(s) and Modules" (monitored through Out of band) folders.

     Note: This view is available only when the premium feature is enabled.
   - Task Status
   - Unclassified IBM System x and BladeCenter x86/x64 Blade Systems (systems that are either too old or too new to be classified correctly)
   - Hardware Components of IBM System x or x86/x64 Blade Servers (folder)

     Note: The **IBM x86/x64 Blade Systems OOB-IB Reflection Group** view is available only when the premium feature is enabled. This view provides a status view of Windows computers on IBM x86/x64 Blade servers. Use this view to find the relationship between IBM BladeCenter x86/x64 Blade server in the **IBM System x and BladeCenter x86/x64 Blade Servers** (monitored through Inband) and **BladeCenter(s) and Modules** (monitored through Out of band) folders.
8. Click the **All IBM System x and x86/x64 Blade Servers** view to display the dashboard views of its systems and hardware components.

   Each view within the **All IBM Systems x and x86/x64 Blade Servers** provides a dashboard view of health states and manageable hardware components for each system, as shown in the following figure.

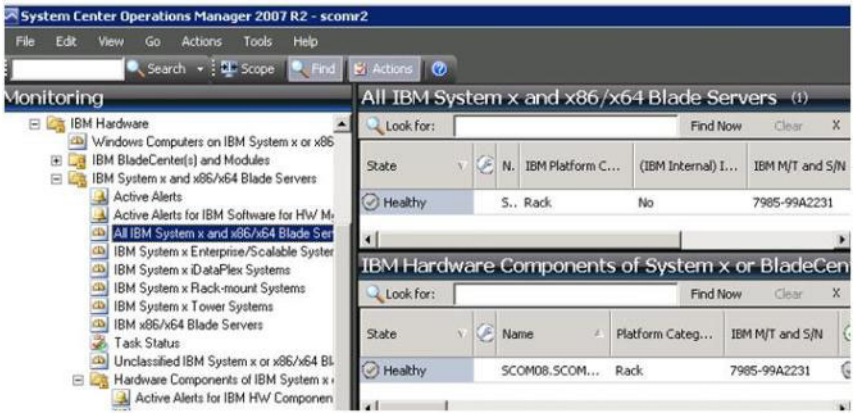

Figure 33. Dashboard view

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 that will be managed by the Operations Manager. The Discovery Wizard deploys the IBM Hardware Management Pack to the discovered system. The Discovery Wizard does not show systems that are already being monitored.

Optional steps before starting this task

When the IBM License Entitlement Pack is installed and the Root Management Server of Microsoft System Center Operations Manager is registered with the IBM License Entitlement Pack, the "Hardware Management Software Configuration Advisor for IBM Systems" (SW Configuration Advisor) program can analyze the software dependencies of the IBM Hardware Management Pack for Windows computers managed by Microsoft System Center Operations Manager.

For details about the IBM License Entitlement Pack, contact your IBM sales representative.

How to check software dependencies on the remote computer

This topic describes how to check for software dependencies using the Software Configuration Advisor program.

Procedure

1. Log into the Operations Manager server and open a command shell window, a DOS commands window, or a PowerShell command window.
2. Change the directory to the toolbox directory located under the installation directory of the IBM Hardware Management Pack for Microsoft System Center Operations Manager.

   By default, the toolbox directory path is: `%ProgramFiles%\IBM\IBM Hardware Management Pack\toolbox`. The program name of the Hardware Management Software Configuration Advisor forIBM Systems is `ibmSwConfigurationAdvisor.vbs`.

3. Start the Hardware Management Software Configuration Advisor for IBM Systems program. Enter the required account information: name, password, and the domain name of the account that is a member of the Administrators role for the Microsoft Windows computer.

   This program is in the format of a Microsoft Visual Basic Script. The targeting computer information is as shown in the following figure:

   - Computer Name: *IBMUIM004*
   - Domain name: *d205*
   - Username: *admind205*
   - Password: *aWd25$tg*

```
> cscript //nologo cscript //nologo ibmSwConfigurationAdvisor.vbs
/remote IBMUIM004 d205 admind205 aWd25$tg
============>>> Computer: IBMUIM004 <<<============
-------- Analysis Summary --------
 Computer Name           : IBMUIM004
 Manufacturer            : IBM                   MT-Model-S/N: 7870-AC1-
0XXX493
 Machine Summary         : BladeCenter HS22 -[7870AC1]-
-- Operating System --
 Detected : Microsoft Windows Server 2008 R2 Enterprise  (64-bit) - No
Service Pack Information
-- SMBIOS IPMI Support --
 Detected : Default System BIOS
       SMBIOS IPMI Support is installed
-- MS IPMI --
 Detected : Microsoft Generic IPMI Compliant Device
       Microsoft IPMI Driver is running
-- Systems Director --
 Detected : 6.2.1 (Director Platform Agent)
       Systems Director is running
-- ServeRAID-MR,MegaRAID,ServeRAID-BR/IR,Integrated RAID --
 Detected : ServeRAID-BR10i1
```

Figure 34. Hardware Management Software Configuration Advisor for IBM Systems program

4. You can use the following options when running this program:
   - **/help**: displays the syntax of the `ibmSwConfigurationAdvisor.vbs` program
   - **/opt detail**: provides additional detail information about the targeting computer
5. Check the Hardware Management Software Configuration Advisor for IBM Systems report. This report provides a summary of the analysis results. If there are any software dependency problems reported, examine the report body for the resolutions of the software dependencies.

Example

In many cases, multiple computers are the target of the software dependency analysis. Using a command shell pipeline increases the productivity of this analysis. The following is an example for using PowerShell to pipe a “net view” computer name list to `ibmSwConfigurationAdvisor.vbs` and save the program output in the file called “`OneShotServey4IbmHwMp.txt`”.

```
PS C:\Program Files\IBM\IBM Hardware Management Pack\toolbox>
net view | where {$_ -match "\\\\"} | % { $_.substring(2,21) } | %{
$_.trim(1," ")} | % { cscript //nologo ibmSwConfigurationAdvisor.vbs
/remote $_ d205 admind205 aWd25$tg >> OneShotServey4IbmHwMp.txt }
```

Figure 35. PowerShell example of net view

The sample shown in the figure above is dependent on the Microsoft Windows network setup and PowerShell environment. Adjustments for the network configuration and the PowerShell install may be required.

Procedure for adding an IBM system

This topic explains the procedure for adding an IBM system that will be managed by the Operations Manager.

Before you begin

Log into the Operations Manager server with an Administrators account to complete this task.

Procedure

1. Click **Administration**.
2. Click **Discovery Wizard** at the bottom of the navigation pane or select **Configure computers and devices to manage** in the Actions menu. You can also right-click the **Agent Managed** view to select the **Discovery Wizard** from a context menu, as shown in the following figure.

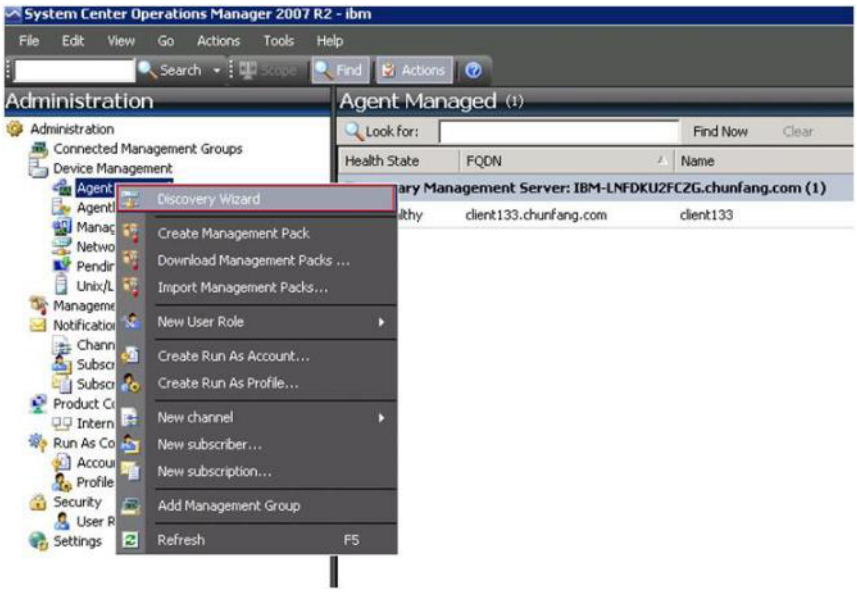

Figure 36. Using the context menu to select the Discovery Wizard

Note: For Microsoft System Center Operations Manager 2007 SP1, the interface is somewhat different as shown in the following figure.

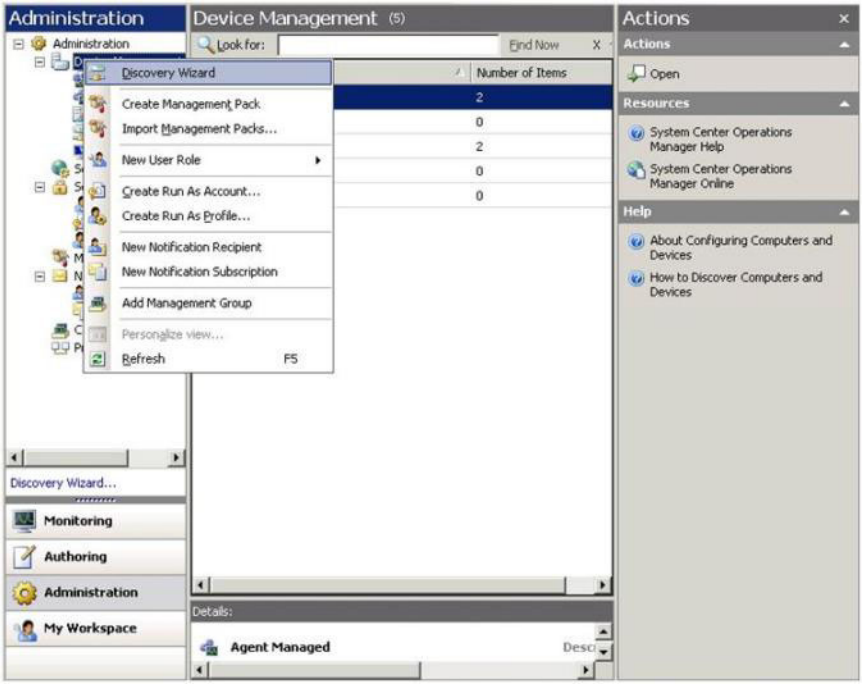

Figure 37. Using the context menu to select the Discovery Wizard (SP1)

3. Click **Next** if the Introduction page is displayed.

   Note: The Introduction page does not display if the Computer and Device Management Wizard has been run before and you selected "Do not show this page again". If you would prefer that the introduction page is not be displayed again, click the **Do not show this page again** checkbox, before clicking **Next**.

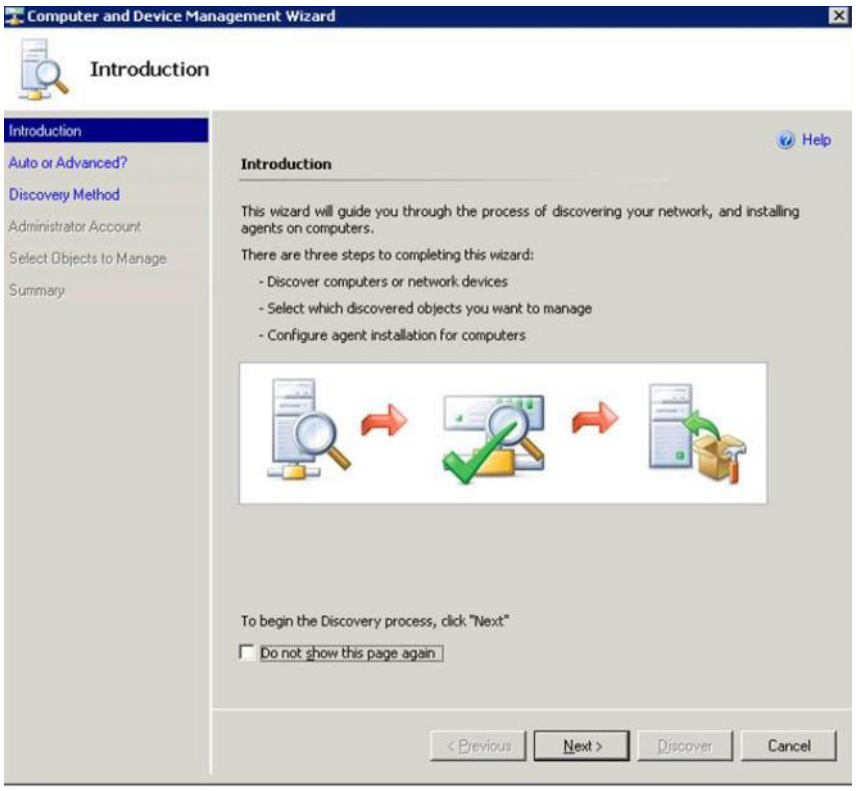

Figure 38. Computer and Device Manager Introduction

4. Click **Advanced discovery** on the Auto or Advanced page.

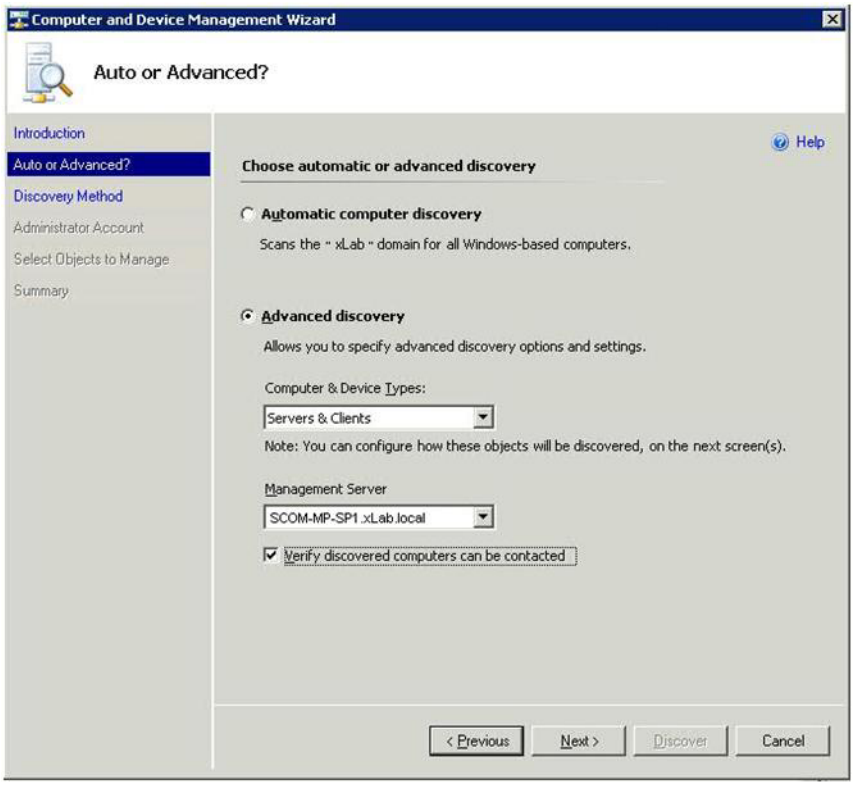

Figure 39. Selecting Auto or Advanced Discovery Method

5. Click **Servers & Clients** in the Computer & Device Types list.
6. Select the **Management Server** to be used to discover the computers in the Management Server list.
7. Click the **Verify discovered computers can be contacted** check box.
8. Click **Next** to open the Discovery Method page.

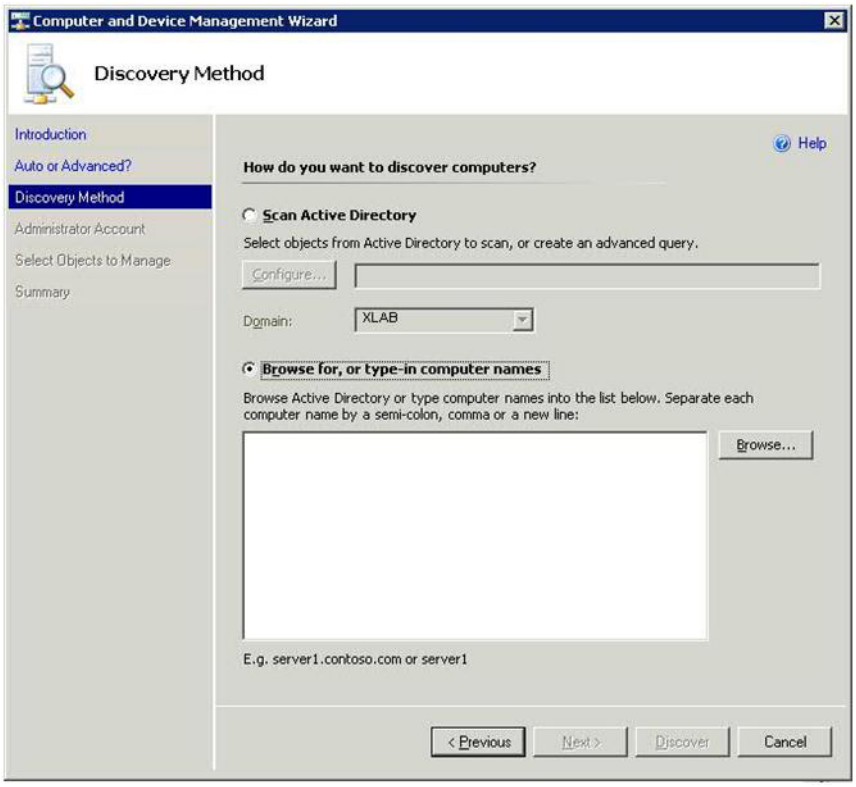

Figure 40. Discovery Method

9. Click **Browse for**, or enter the computer names of the IBM system and click **Next.**

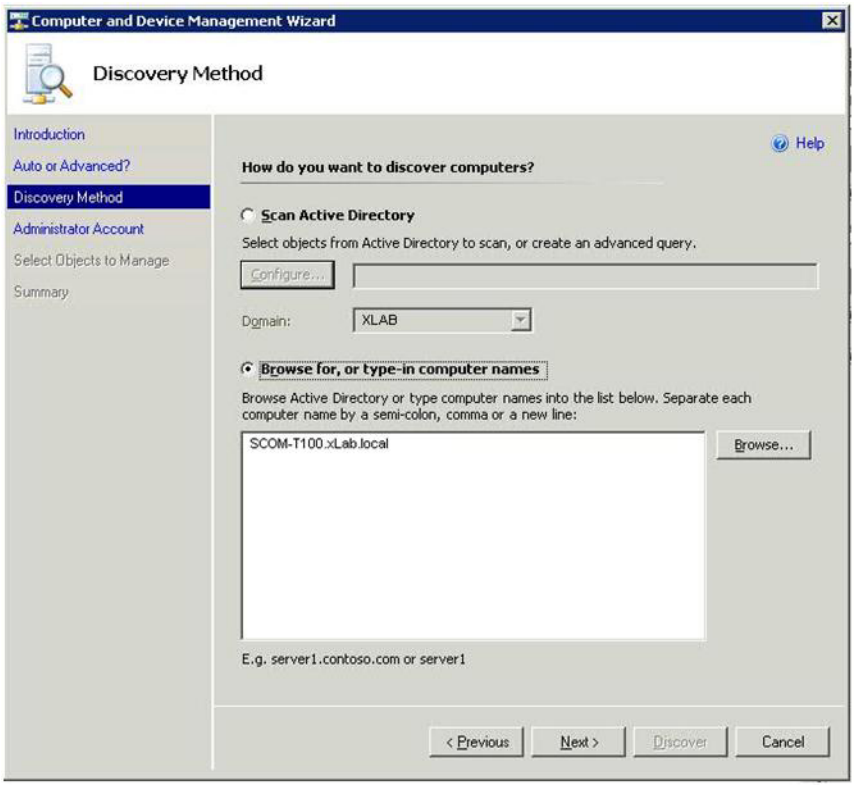

Figure 41. Discovery Method with sample information

10. On the Administrator Account page, select one of the following options:

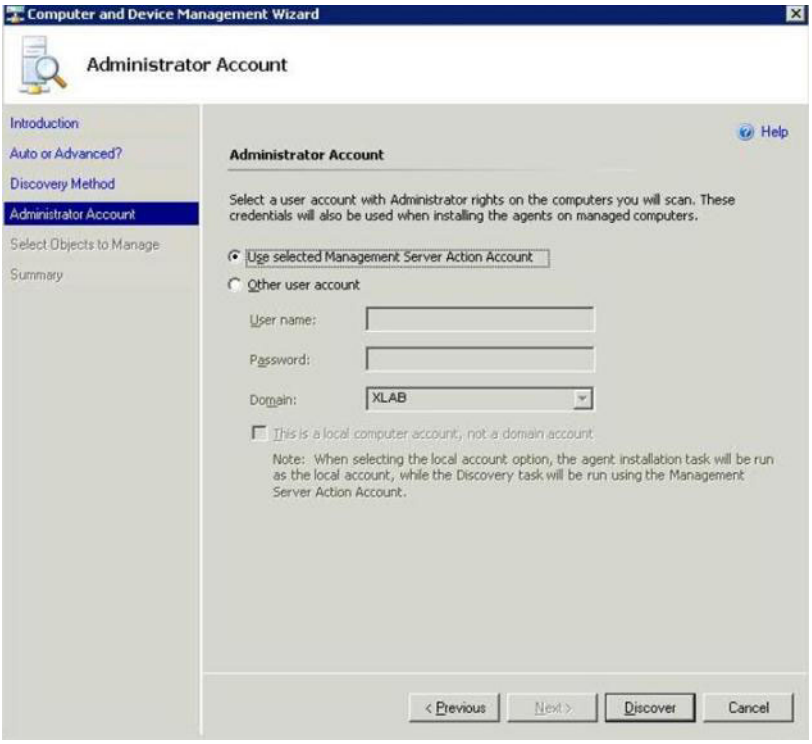

Figure 42. Administrator Account

- Click **Use selected management Server Action Account** and then click **Next**.
- Click **Other user account** and enter the following information:
  - User Name
  - Password
  - Domain Name of an account that is a member of the Administrator role

Note: 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 Microsoft System Center Operations Manager accounts, see Technet: Security Considerations in Operations Manager 2007.

When you run the Operations Manager Console on a computer that is not a Management Server, the Connect To Server dialog is displayed. Enter the **name of the Management Server** to connect to.

11. Click **Discover** to open the Discovery Progress page.

Note: Progress time depends on the number of computers in the network and other factors. The Discovery Wizard might return up to 4,000 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.

When the discovery is complete, the Discovery Results will be displayed as shown in the following figure.

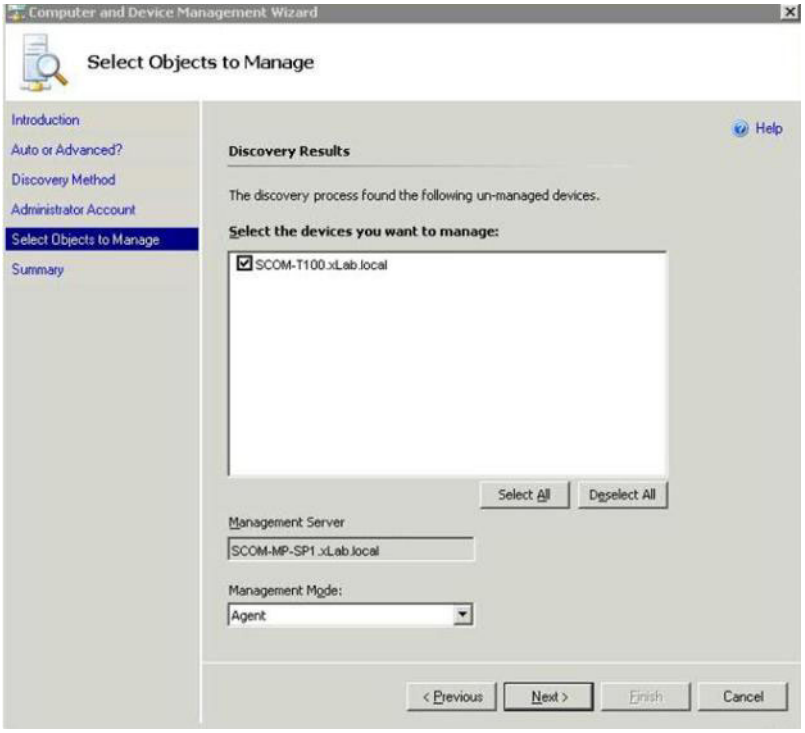

Figure 43. Select Objects to Manage

12. Select the devices you want to manage and click **Agent** in the Management Mode list, and then click **Next**.

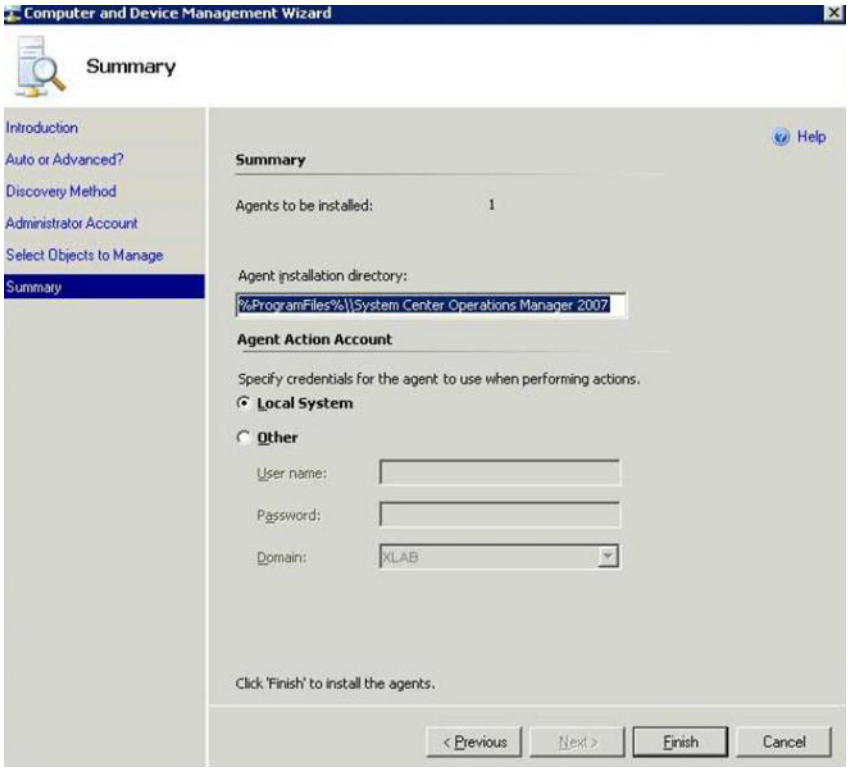

Figure 44. Computer and Device Management Wizard Summary page

13. On the Summary page, click **Finish**. The Agent Management Task Status page is displayed.

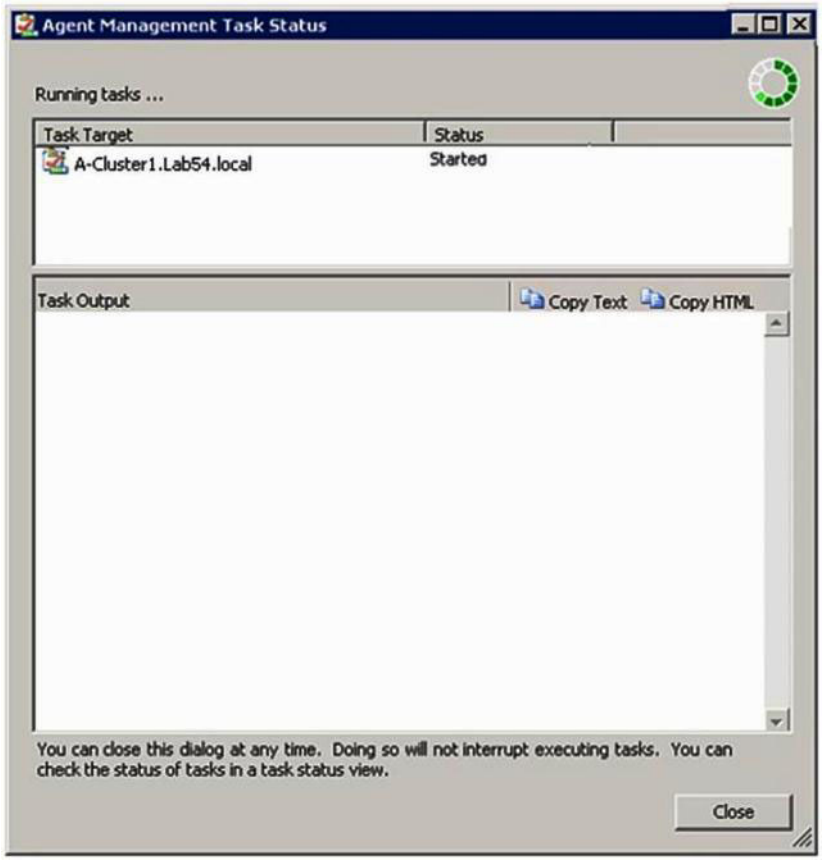

Figure 45. Agent Management Task Status

14. Check the Agent Management Task Status page to verify the agent installation task status. Optionally, you can check the Agent Management Task Status to verify that the status of selected computers, changed from Queued to Success by looking at the **Monitoring** > **Task Status** view. Click **Monitoring** and select **Task Status** view.

    Note: While this task is running, an indicator is displayed in the upper right side of the page. You can close the dialog of the Agent Management Task at any time without interrupting the task.
15. Click **Close** on the Agent Management Task Status page.

What to do next

For more information about using the Discovery Wizard, see Technet: Systems Center Operations Manager.

Viewing inventory

You can use the Microsoft System Center Operations Manager to view the inventory of configured management modules.

Procedure

1. In the Microsoft System Center Operations Manager Console window, in the Computer and Groups pane, click **Computers and Groups View** > **IBM Hardware** > **IBM BladeCenters and Modules** to view the IBM BladeCenters and their modules.
2. Click **Computers and Groups View** > **IBM Hardware** > **IBM System x and x86/x64 Blade Servers** to view the IBM System x servers, BladeCenter blade servers, and other individual systems that have been discovered.

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

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

About this task

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

Procedure

1. Click the **Monitoring** button in the navigation pane.
2. Expand the **IBM Hardware** folder to display the folders and views that the IBM Hardware Management Pack adds to the Operations Manager Console.
3. Expand either **IBM BladeCenter(s) and Modules** or **IBM System x and x86/x64 Blade Servers**.
4. Click **Active Alerts** to see if any Critical or Warning alerts are associated with your IBM Hardware. The following figure shows an example of how Active Alerts might be displayed:

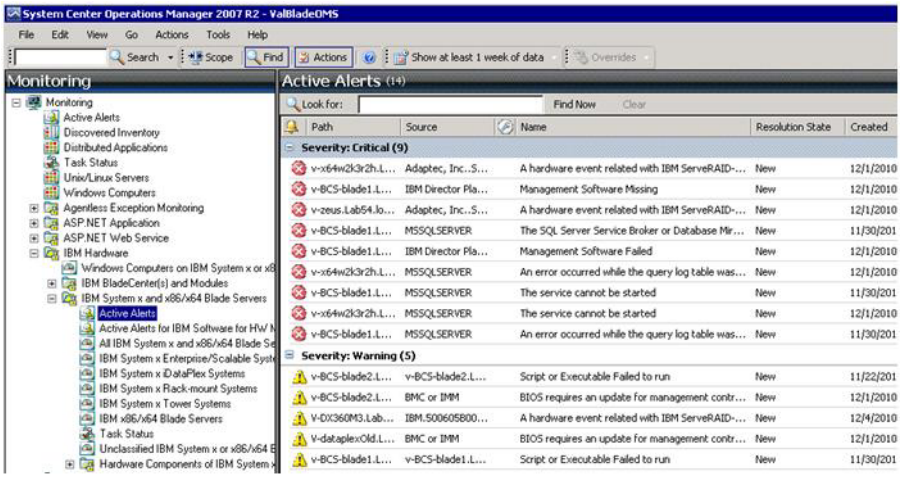

Figure 46. Active Alerts example

You can check the health of your systems, by using one or more of the following options:

- To check the status of the Windows platform on each system in the IBM Hardware folder, expand the **Windows Computer on IBM System x or x86/x64 Blade Servers** folder.
- To see the health information for all modules, expand the **IBM BladeCenter(s) and Modules** folder to check the status of all IBM BladeCenter chassis. Then expand the **IBM BladeCenter Modules** view.
- To check the hardware status on all IBM systems, expand the **IBM System x and x86/x64 Blade Servers** folder.
- To display the health indicators in the first column of the systems dashboard and the first column of the hardware components dashboard, expand **All IBM System x and x86/x64 Blade Servers**.
- To check the hardware status of those systems, expand any group view, such as **IBM System x Rack-mount Systems**.

What to do next

For more information on how to use the Health Explorer for analyzing a critical problem, see "Using Health Explorer to identify and resolve problems" on page 71.

Viewing alerts

You can use Microsoft System Center Operations Manager to view alerts that are sent from properly configured management modules and IBM System x systems and BladeCenter Blade servers.

Procedure

1. To view BladeCenter chassis alerts, click **Monitoring** > **IBM Hardware** > **IBM BladeCenters and Modules** > **Active Alerts**.

   In IBM BladeCenters and Modules, you can see the following components under each chassis.

   - IBM BladeCenter Blades
   - IBM BladeCenter Chassis
   - IBM BladeCenter Cooling Modules
   - IBM BladeCenter I/O Modules
   - IBM BladeCenter Management Modules
   - IBM BladeCenter Media Modules
   - IBM BladeCenter Power Modules
   - BladeCenter Storage Modules

   An alert from the BladeCenter creates an additional alert for IBM x86/x64 Blade servers that may be affected by this alert condition, when the Windows Operating system is installed on an IBM x86/x64 Blade server and when the premium feature is enabled.

   The IBMBlade OOB-IB Reflection group view displays the health of IBM x86/x64 Blade Server based on this additional alert from IBMIBM BladeCenters and Modules.

2. To view individual System x, xSeries, BladeCenter blade server, and other systems, click **Monitoring** > **IBM Hardware** > **IBM System x and x86/x64 Blade Servers** > **Active Alerts**.

   The IBM x86/x64 Blade alert reflecting BladeCenter chassis alerts is displayed in this Active Alerts view, when the Windows Operating system is installed on IBM x86/x64 Blade Server and when the premium feature is enabled.

   This IBM x86/x64 Blade alert displaying BladeCenter chassis alerts contains information about the malfunctioning component location in IBM BladeCenter. To review the details of the malfunctioning component, see the Active Alerts view for BladeCenter chassis alerts, by selecting **Monitoring** > **IBM Hardware** > **IBM BladeCenters and Modules** > **Active Alerts**.

   The IBM Hardware Management Pack has limited support for tools like `WinEvent.exe` that generate IBM Systems Director events and do not fully prescribe specific target instances.

   In some circumstances, the `WinEvent.exe` tool does not correctly support the event ID and the event description. This can cause the `WinEvent.exe` tool to be unreliable for displaying all events.

   Note: All WinEvents are reported under one monitor.

   Successfully simulated events are displayed in the Operations Manager Console under the Alerts view and the Events view.

   Monitored systems that have IBM Systems Director Agent 5.1.x installed and that use the `WinEvent.exe` tool can cause errors to reoccur even after you manually clear the alerts from the Health Explorer view.

To eliminate such event recurrence, delete the `IBM\director\cimom\data\health.dat` file and all `IBM\director\cimom\data\health.dat\*.evt` files from the client system and restart the system.

3. To open a monitoring view, right-click a BladeCenter chassis, a System x server, a BladeCenter Blade server, or any other system. You can monitor these systems by using the Alert View, Diagram View, Event View, and State View.

Locating and viewing hardware errors

You can locate and view hardware errors, by navigating to **All IBM System x and x86/x64 Blade Servers**.

Using Health Explorer to identify and resolve problems

You can use Health Explorer to identify and resolve error states that show up when monitoring IBM systems and hardware components.

About this task

For a quick check up, look at one of the following views. These views show any existing Alerts on your IBM hardware.

- Active Alerts
- Windows Computers on IBM System x or x86/x64 Blade Servers
- All IBM System x and x86/x64 Blade Servers

Use Health Explorer to view, learn, and take action on alerts, state changes, and other issues raised by a monitored object. Health Explorer can assist you in troubleshooting alerts.

For example, if you see a critical error when you are monitoring your systems and hardware components, as shown in the figure below, use the following procedure to identify and resolve the error.

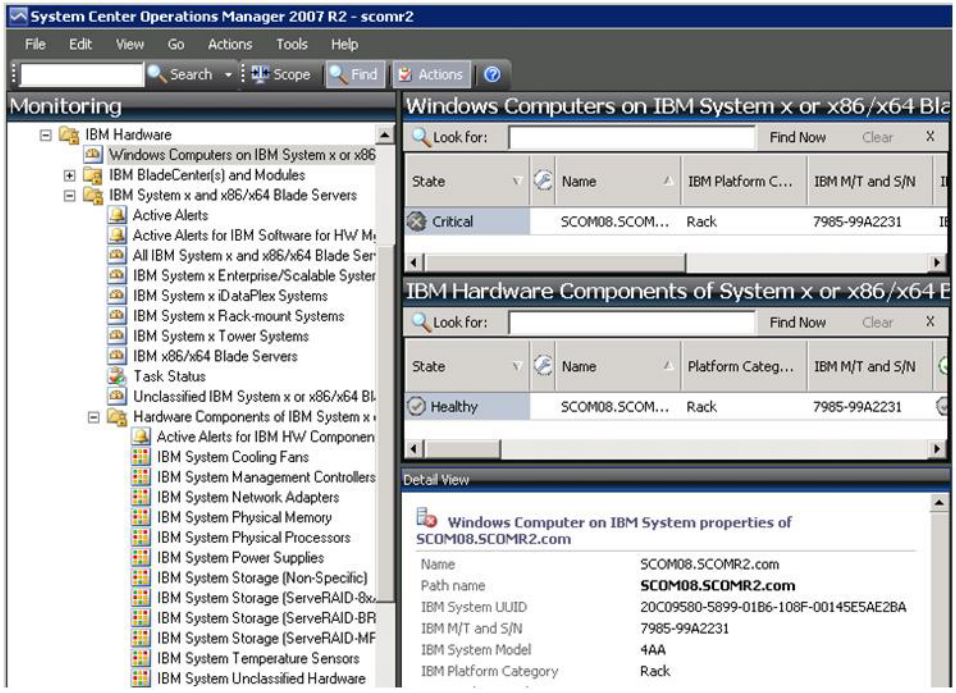

Figure 47. Example of a critical error showing up in a managed system

Procedure

1. When there is a warning or critical alert, open Health Explorer by clicking **All IBM System x and x86/x64 Blade Servers**, and then double-click **state**.

   Note: By default, Health Explorer opens with all failed monitors displaying in an expanded view.

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

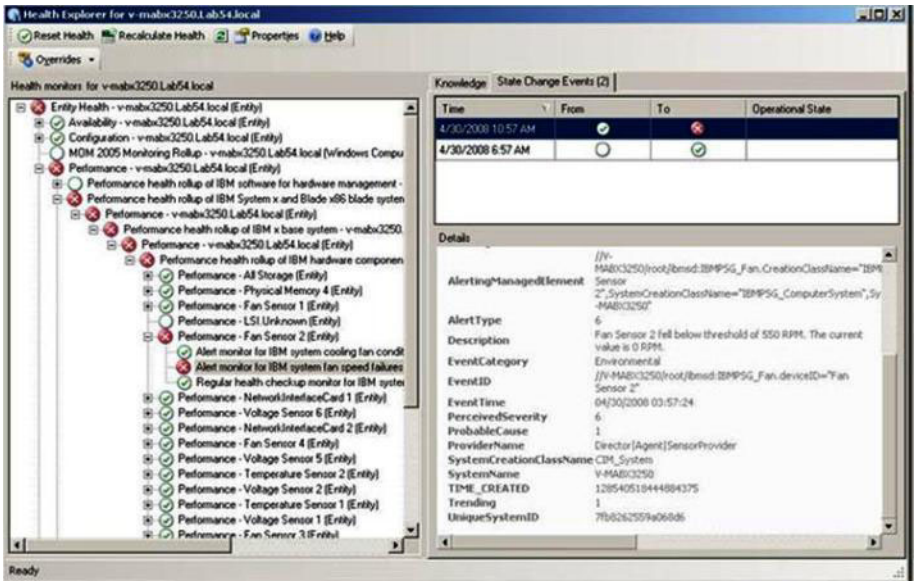

Figure 48. Example of hardware components causing a system to be in error

2. If there are no warnings or critical alerts visible:
   a. Highlight an **IBM system** in the **All IBM System x and x86/x64 Blade Servers** view.
   b. Right-click the **system** to show its context menu.
   c. Click **Open** and then click **Health Explorer** for the system_name.
3. Use Health Explorer to identify the basal level health monitor indicating an error. The indication should refer to a particular component instance. As shown in the figure above, the cause of the error is a faulty fan.
4. Click **State Change Events** in the right pane for details about the latest state change event.

   The date and the time that the fan failed is displayed. You can also read details about the nature of the error. When the premium feature is enabled, the IBM BladeCenter Blade Out of Band Health Reflection Rollup reflects the component health in the BladeCenter.

   Check the **IBM BladeCenters and Modules** folder view for further analysis when you see a warning or critical alert on IBM BladeCenter Blade Out of Band Health Reflection Rollup.

What to do next

To learn more about how knowledge pages can assist you in resolving an error state and to learn more about hardware components, see "Using knowledge pages to resolve problems."

Using knowledge pages to resolve problems

Knowledge pages provide information about errors, events, and components. To learn more about your systems and hardware components and how to resolve errors when they occur, refer to the knowledge pages. This topic builds on the Using Health Explorer to identify and resolve problems section.

About this task

The following figure shows an example of how an error might be displayed in the Heath Explorer:

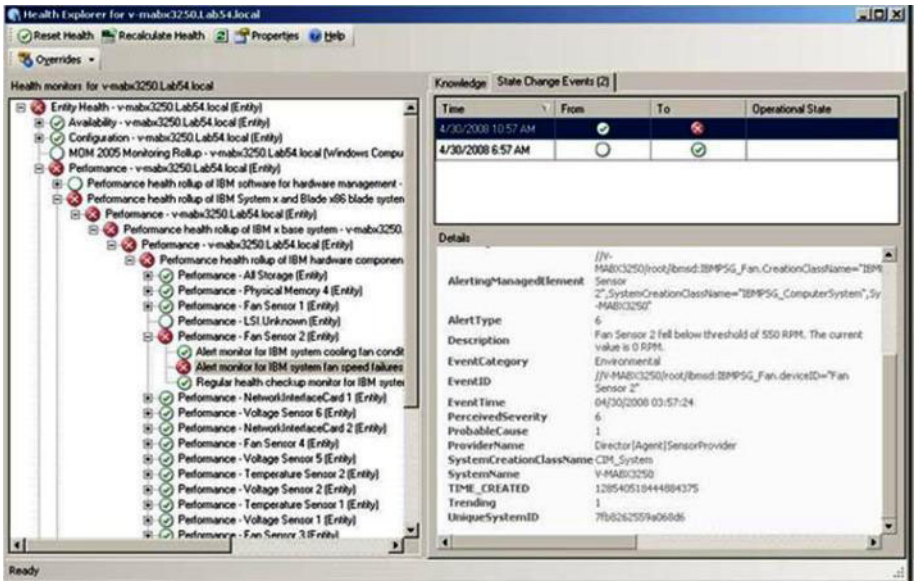

Figure 49. Example of hardware components causing a system to be in error

Knowledge pages written by IBM developers can help you understand more about IBM System x and x86/x64 Blade Servers 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.
- Use any links provided in the knowledge to access related hardware event knowledge.

Perform the following procedure to assist you in learning how to use the knowledge pages.

Procedure

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

   Read the information in the **Knowledge** tab for the Alert monitor highlighted in the left pane to check whether a manual **Reset Health** is required, and for information about how to resolve the error if extra steps are needed.

   The following figure provides an example of how this page is displayed:

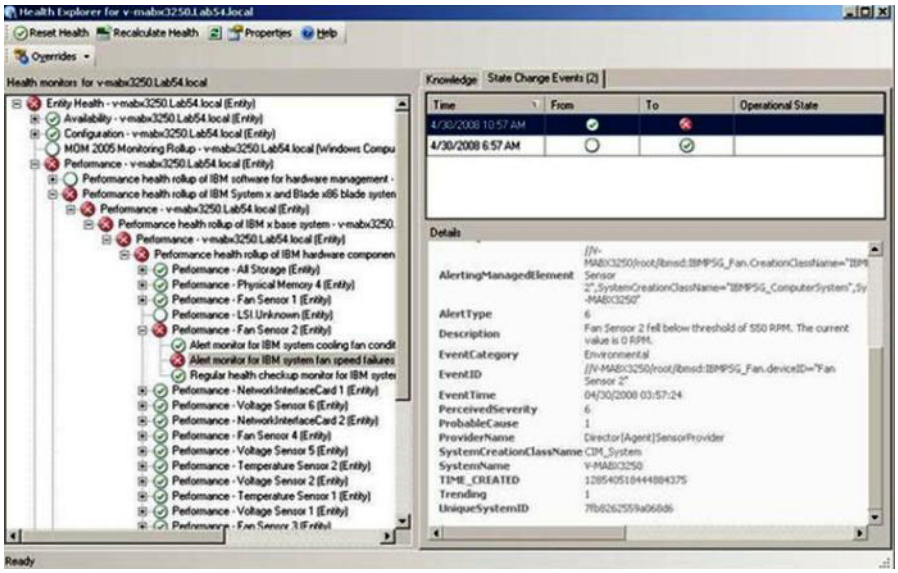

Figure 50. Example of a knowledge page that describes an error event

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 figure below.

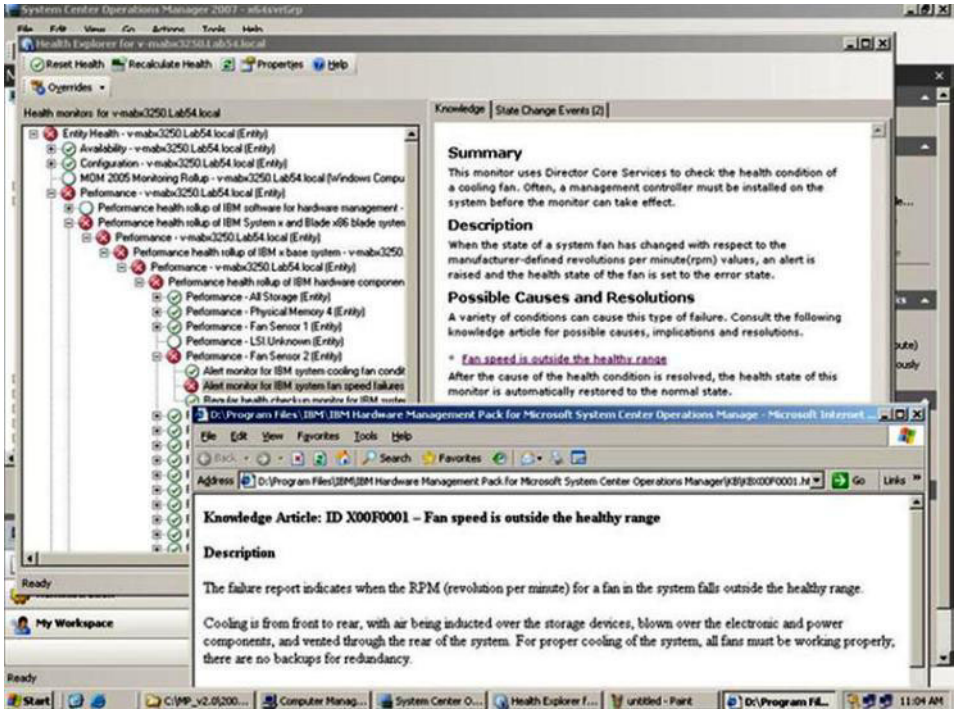

Figure 51. Example of one knowledge page linking to another

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

What to do next

The knowledge page is also accessible through the Active Alerts view.

To view the Alert Properties, double click an Alert. The Alert description is in the General tab. The Product Knowledge tab includes a link to the knowledge page. The figure below provides an example of the Alert Properties for an Alert.

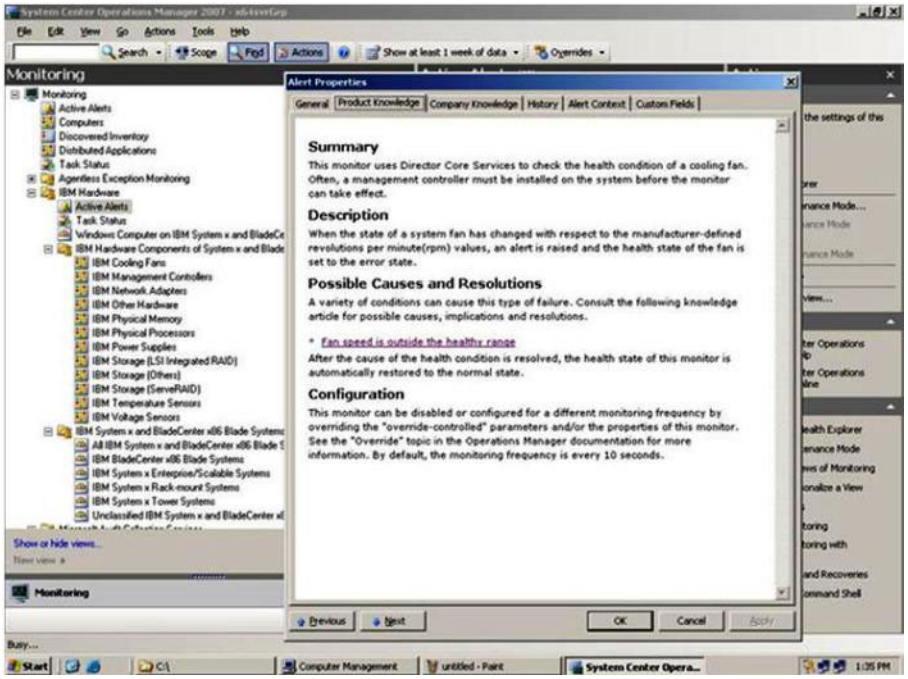

Figure 52. Example of Alert Properties

Using premium features

This section describes how to use the premium features. The premium features are available when the IBM Hardware Management Pack installation is registered with the IBM Upward Integration for Microsoft System Center Installer.

For more information about the Premium features, see “Premium features” on page 1.

Remote power on and off of BladeCenter x86/x64 Blade servers

When the premium feature for the remote power on and off is enabled, this task is available in the Action pane of the Operations Manager Console. This feature allows you to remotely control the IBM BladeCenter Blade module and select power on, off, or shutdown of the operating system.

Remote shutdown of the operating system

The following procedure provides instructions for an orderly shutdown of an operating system on the IBM BladeCenter x86/x64 Blade module using the physical location of the Blade.

About this task

This task is performed from the Operations Manager Console.

Procedure

1. Click **Monitoring** to open the Monitoring pane.
2. Select **IBM Hardware** > **IBM BladeCenter(s) and Modules** > **IBM BladeCenter Modules** > **IBM BladeCenter Blades**.
3. Click to select a Blade server listed in the **IBM BladeCenter Blades** view located in the top middle pane of the Operations Manager Console.
4. Select **IBM BladeCenter: Shutdown Operating System on this Blade** from the Actions pane located on the right side of Operations Manager Console.

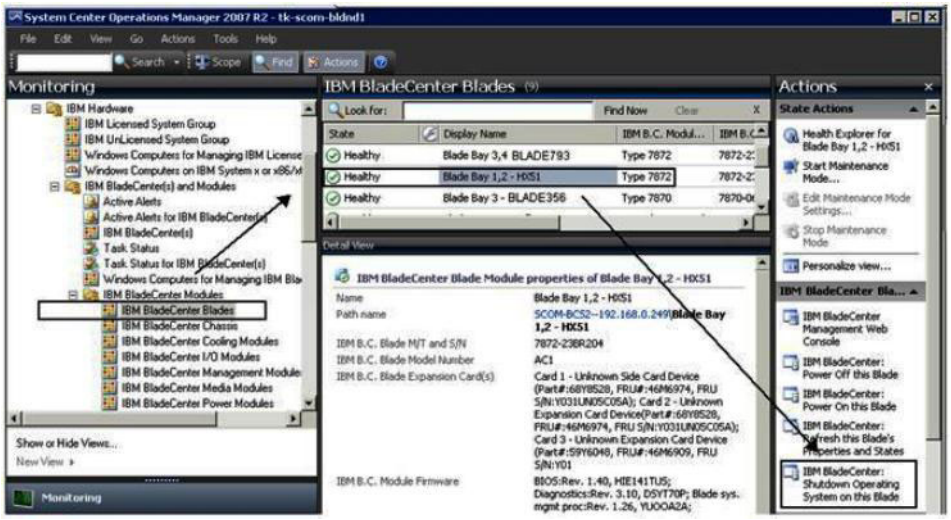

Figure 53. Operations Manager Console premium feature is enabled example

5. Verify the task targets are located in the top middle pane of the Operations Manager Console. Click **Run**.

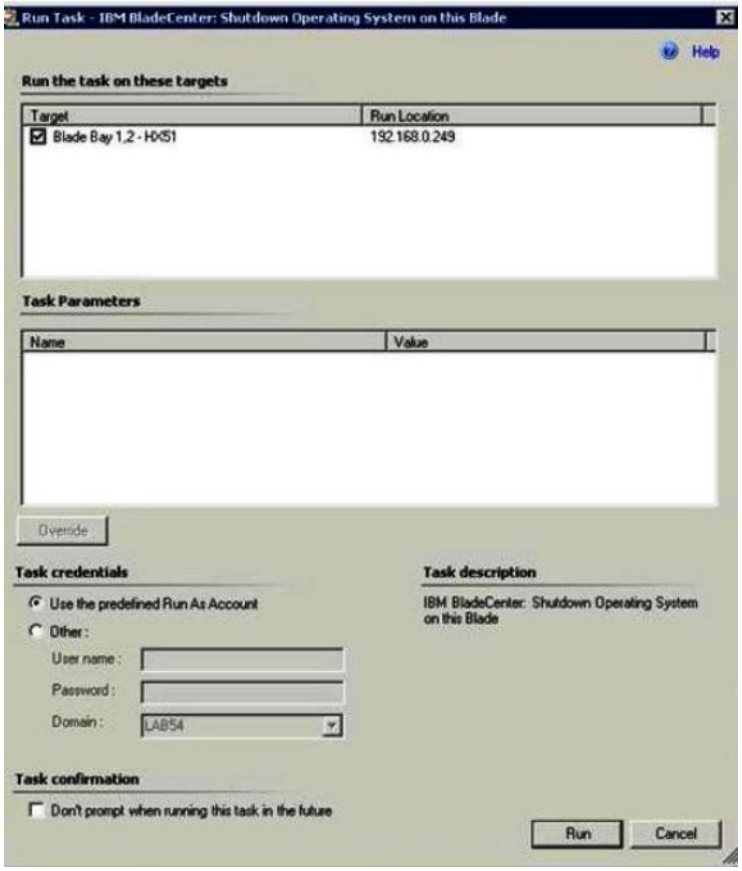

Figure 54. Task Status for Shutdown Operating System on this Blade

6. The task status window indicates the task has been sent to IBM BladeCenter for the target blade server. Click **Close**.

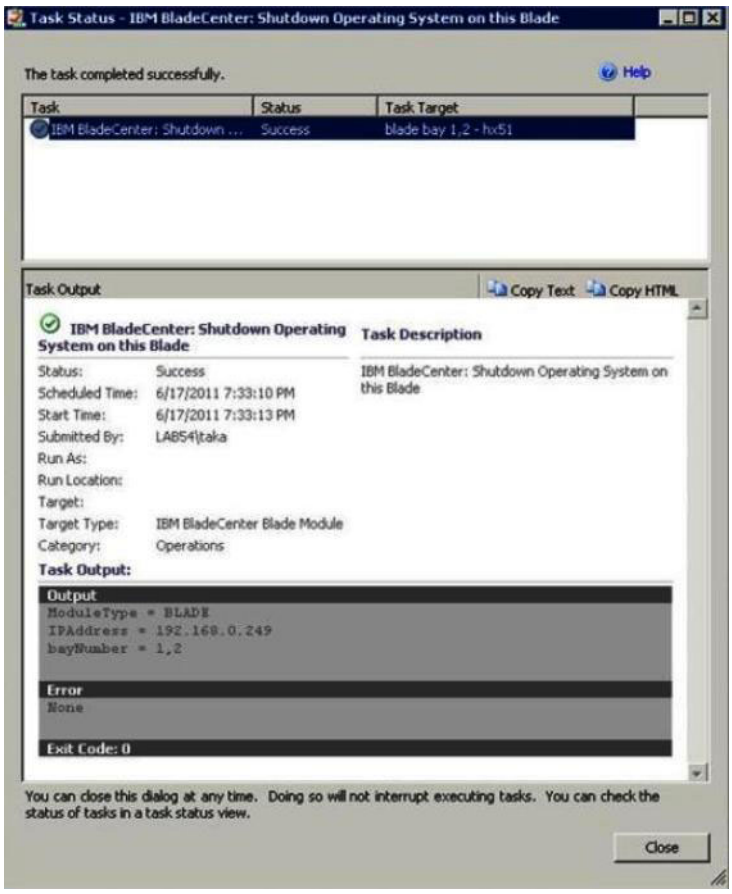

Figure 55. Task Status indicating the shutdown task has been sent to this Blade

When the premium feature is not enabled, the task fails. A message is displayed in the Task Output section indicating that the free version of the IBM Hardware Management Pack is being used.

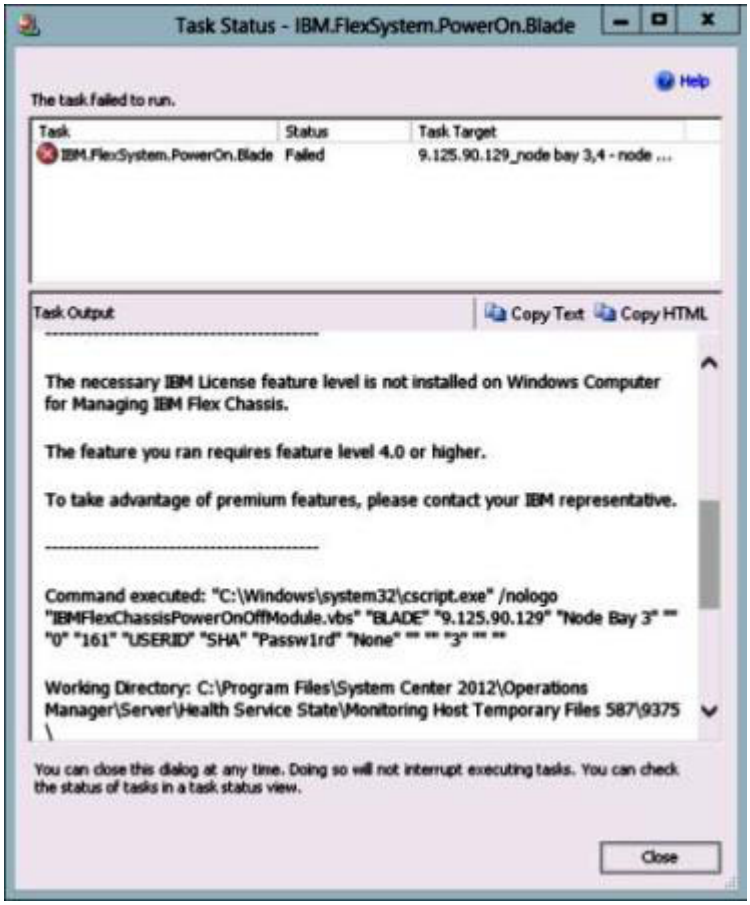

Figure 56. Example of a Task Output message

7. Select **IBM BladeCenter: Refresh this Blade's Properties and Status** in the Actions pane located on the right side of the Operations Manager Console for an immediate Blade power status check. Click **Close**.

Remote Power On using the server name

The following procedure provides an example and instructions for the remote Power On IBM BladeCenter x86/x64 Blade feature using the server name.

About this task

This task is performed from the Operations Manager Console.

Procedure

1. Click **Monitoring** to open the Monitoring pane.
2. Select **IBM Hardware** > **IBM System x and x86/x64 Blade Servers** > **IBM x86/x64 Blade Servers**.
3. Select a **Blade Server** in the IBM x86/x64 Blade Servers view located in the top middle pane of the Operations Manager Console.
4. Select **Blade Server Power On** from the Actions pane located on the right side of Operations Manager Console.

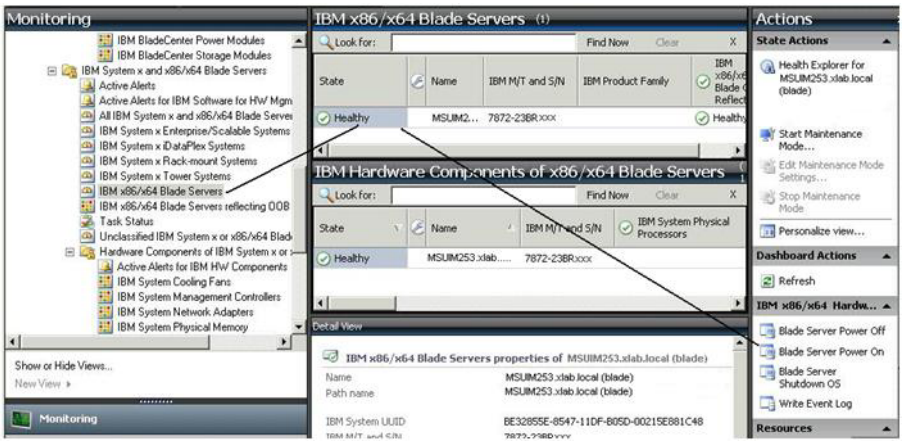

Figure 57. Example of Blade Server Power On task

5. After the Blade Server Power On task has been started, a pop-up window displays the task completion status. At the end of Task Output section, the message "<<--The task successfully completed. >>" is displayed when the Power On task request has been sent to the BladeCenter.

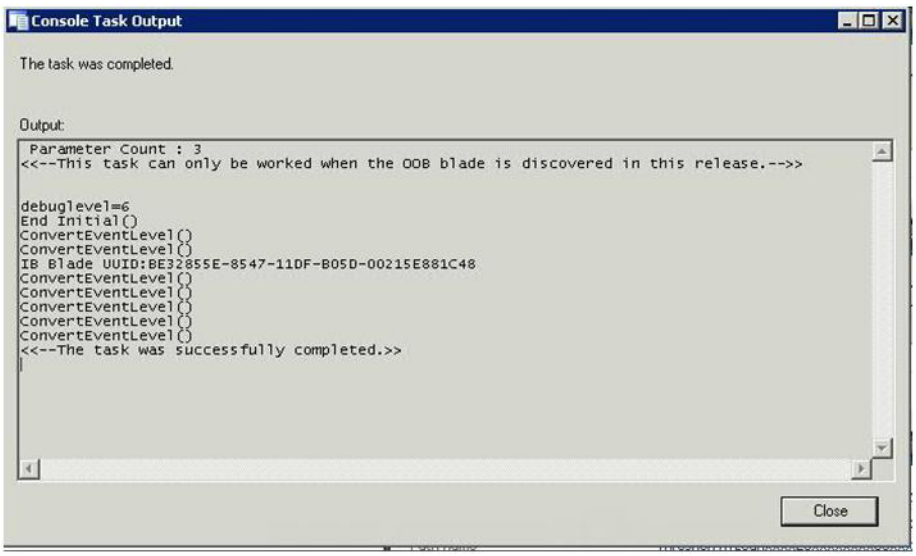

Figure 58. Task Output status for Power On task

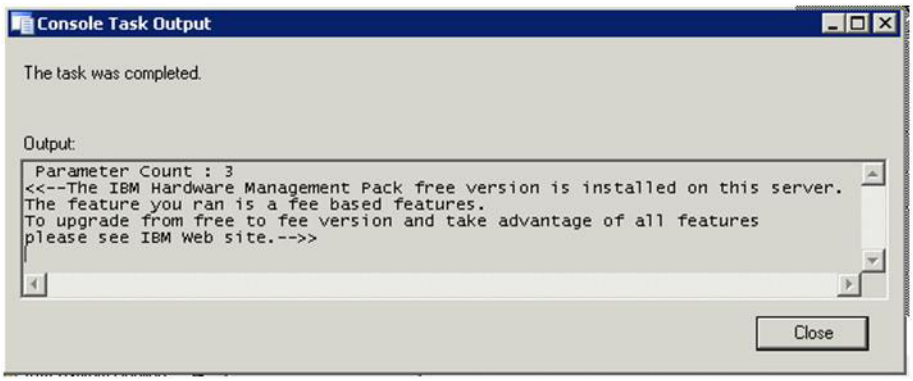

Figure 59. Task Output when premium feature is not enabled

6. Select **IBM BladeCenter: Refresh this Blade's Properties and Status** in the Actions pane located on the right side of the Operations Manager Console for an immediate blade power status check. Click **Close**.

Setting the power threshold

IBM Hardware Management Pack for Microsoft System Center Operations Manager, v4.5 offers the ability to customize power consumption thresholds for Power Monitoring alerts. The following procedure provides instructions and an example of how to set and unset the power threshold.

Before you begin

This task is performed from the Operations Manager Console.

About this task

This task is used to set or unset the warning or critical power threshold on a system. If you specify a blank or zero value for a particular threshold, that threshold will be reset to its default value. Refer to the Detail View of this system under the **IBM Licensed Systems Group** to see the current threshold values and the *MonitoringCapable* property.

Note: The target system must be capable of power monitoring to execute this task.

Procedure

1. Click **Monitoring** to open the Monitoring pane.
2. Select **IBM Hardware** > **IBM Licensed System Group**.
3. Select **Server** in the **IBM Licensed System Group** view located in the top middle pane of the Operations Manager Console.

4. Select **Set/Unset Power Threshold** in the right pane.

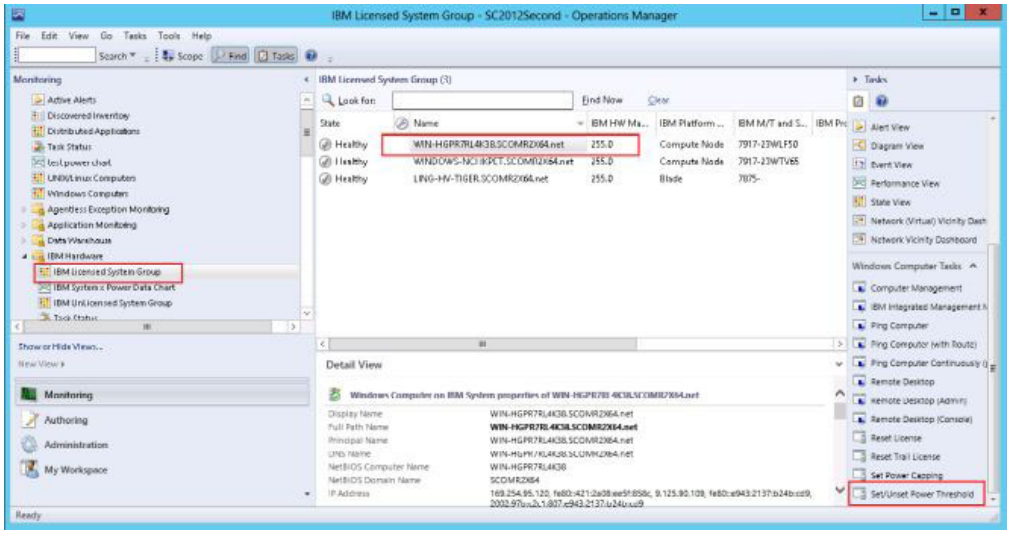

Figure 60. Example of Set/Unset Power Threshold task

5. Verify the task targets are located in the top pane of the Operations Manager Console.

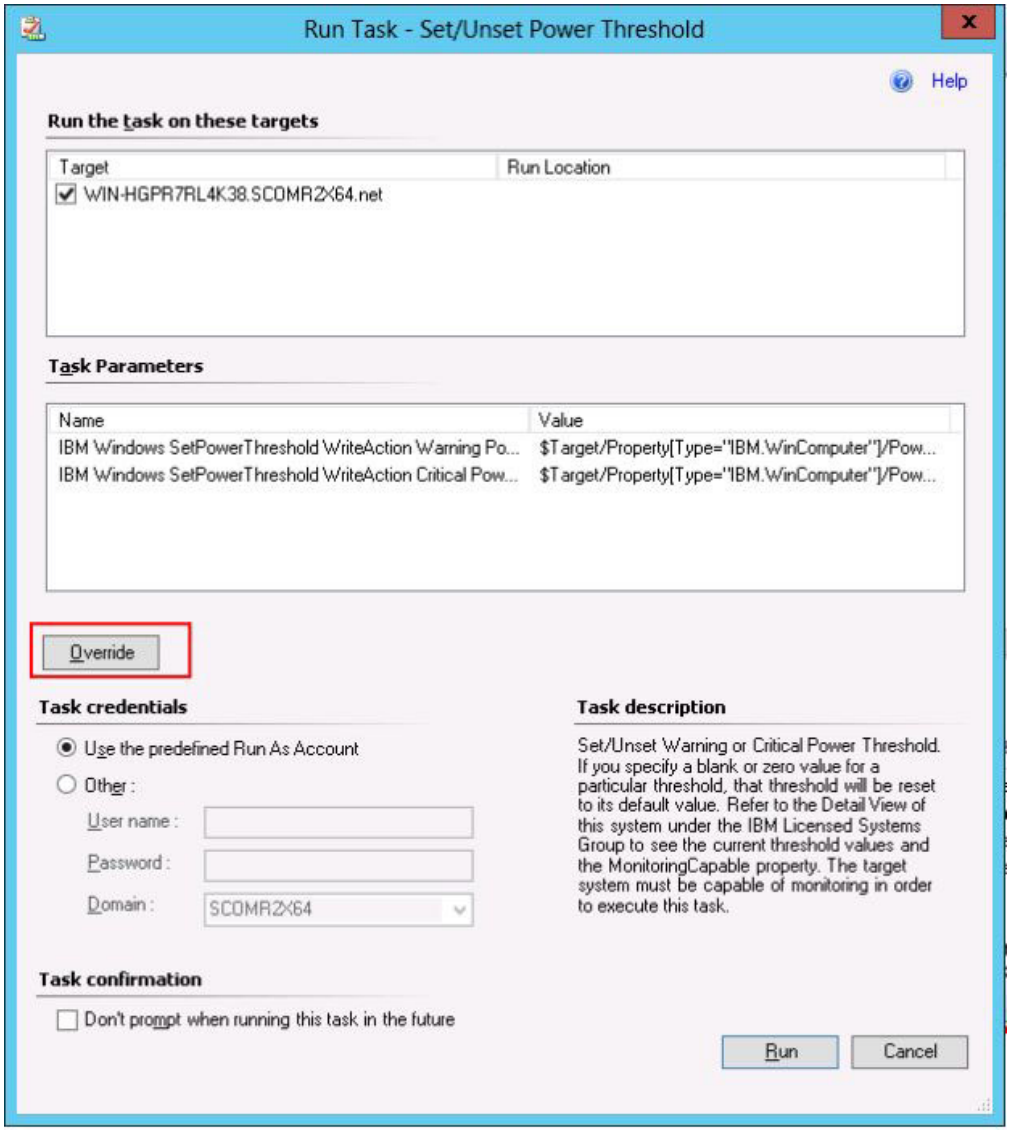

Figure 61. Target and task parameters of Set/Unset Power Threshold task

6. Click **Override** in the bottom of the middle pane to override the power threshold values.
7. Change the values of the threshold parameters and click **Override**.

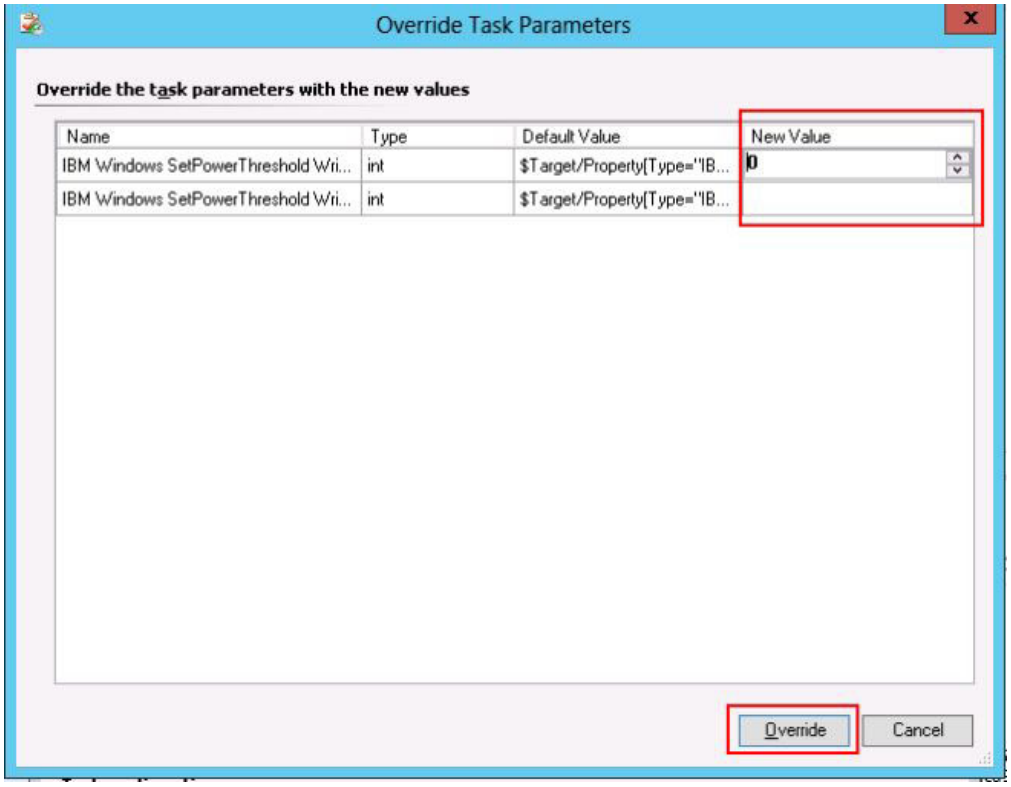

Figure 62. Override the task parameters of Set/Unset Power Threshold task

8. Verify the input values that you just set in the middle pane.

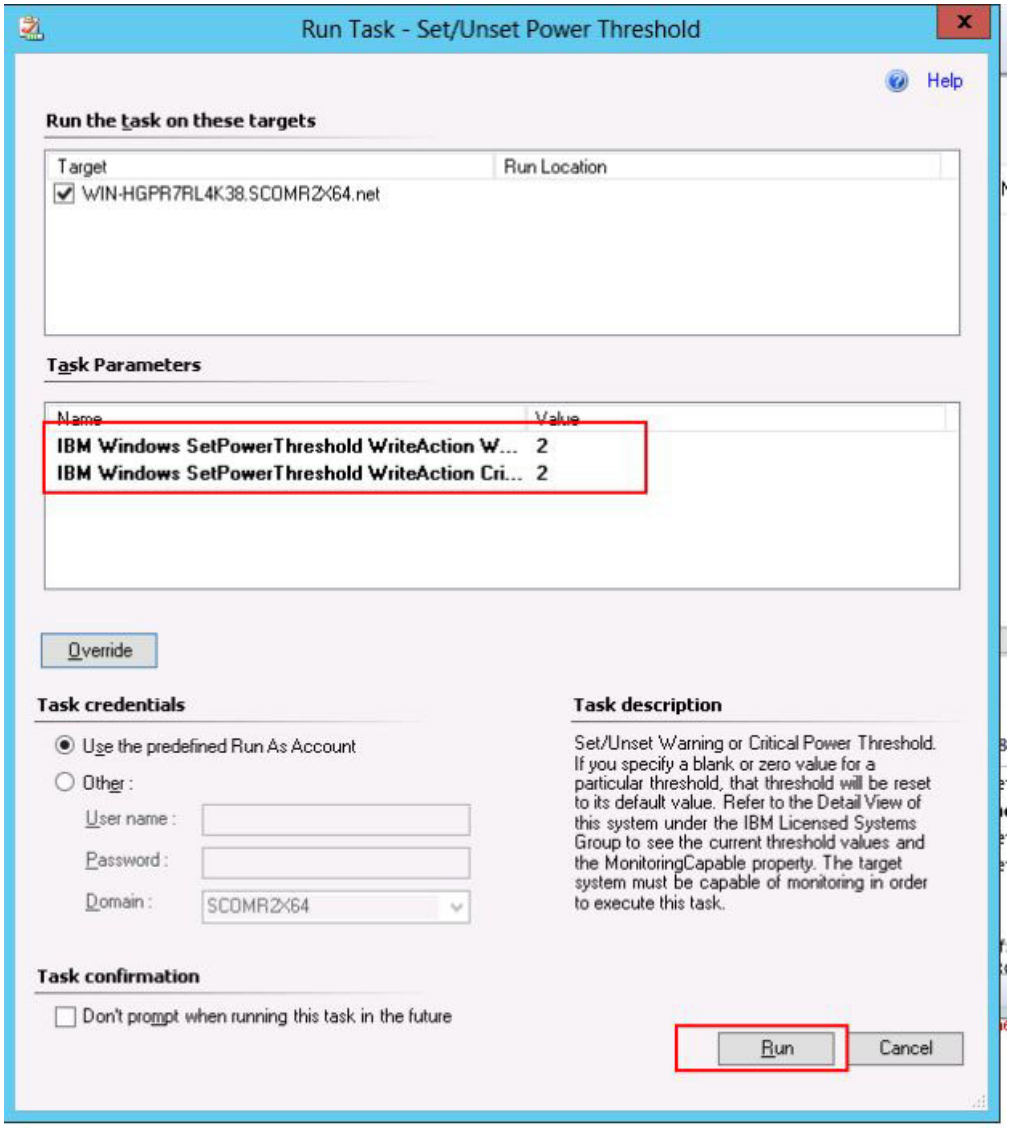

Figure 63. New values of the task parameters of Set/Unset Power Threshold task

9. Click **Override** again if you want to change the values.
10. After getting the expected input values, click **Run**. The task status window indicates the task has been sent to the target server.
11. Click **Close**. A message is displayed in the Task Output section indicating whether the task succeeded or failed.

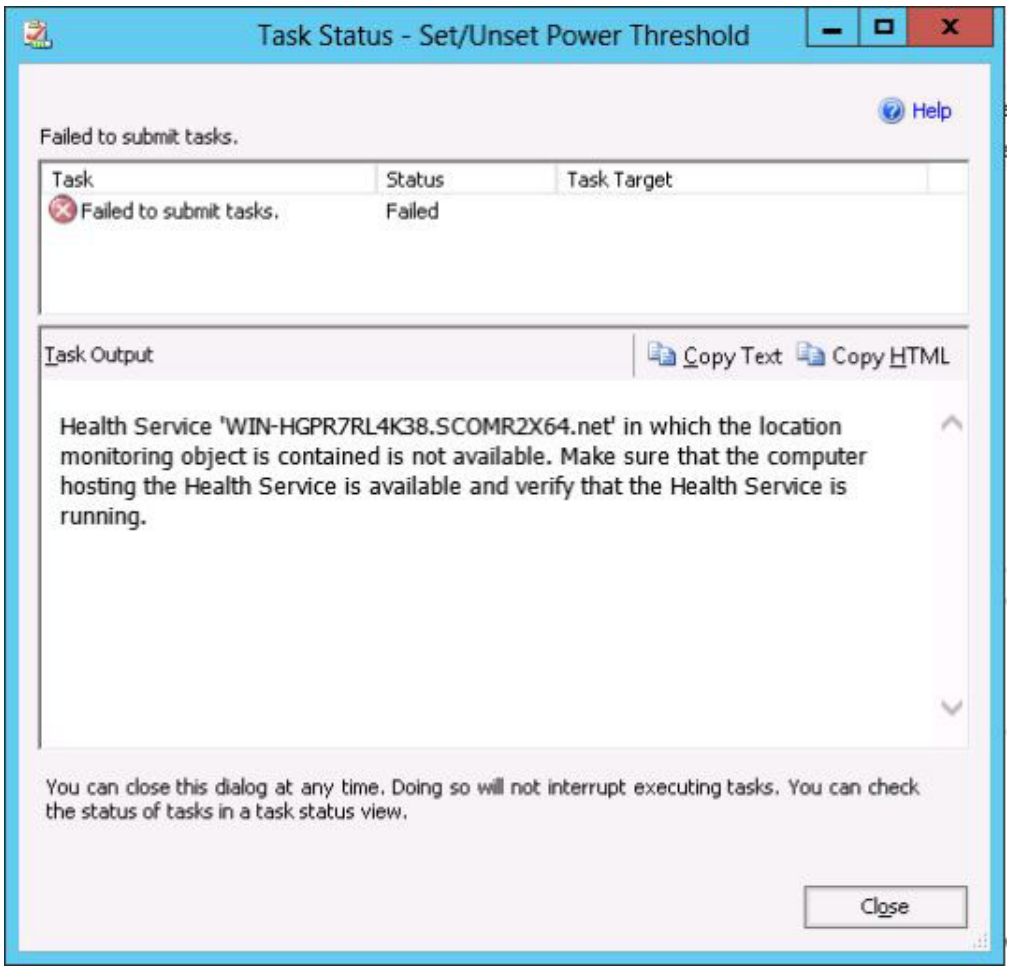

Figure 64. Task Status indicating the Set/Unset Power Threshold task has been sent to the target server

Setting power capping

IBM Hardware Management Pack for Microsoft System Center Operations Manager, v4.5 provides the ability to set and enable maximum power consumption wattage. The following procedure provides instructions and an example for setting power capping.

Before you begin

This task is performed from the Operations Manager Console.

About this task

This task sets or enables power capping on a system. You must specify a value for the power cap in the **PowerMin** and **PowerMax** range. Refer to the Detail View of this system under the **IBM Licensed Systems Group** to see the current *CappingCapable*, *CappingEnabled*, *PowerMax*, *PowerMin*, and *PowerCap* values.

Note: The target system must be capable of power capping to enable power capping or set a new power cap value. This task requires the User Access Control (UAC) to be turned off on the target system.

Procedure

1. Click **Monitoring** to open the Monitoring pane.
2. Select **IBM Hardware** > **IBM Licensed System Group**.
3. Select **Server** in the **IBM Licensed System Group** view located in the top middle pane of the Operations Manager Console.
4. Select **Set Power Capping**.

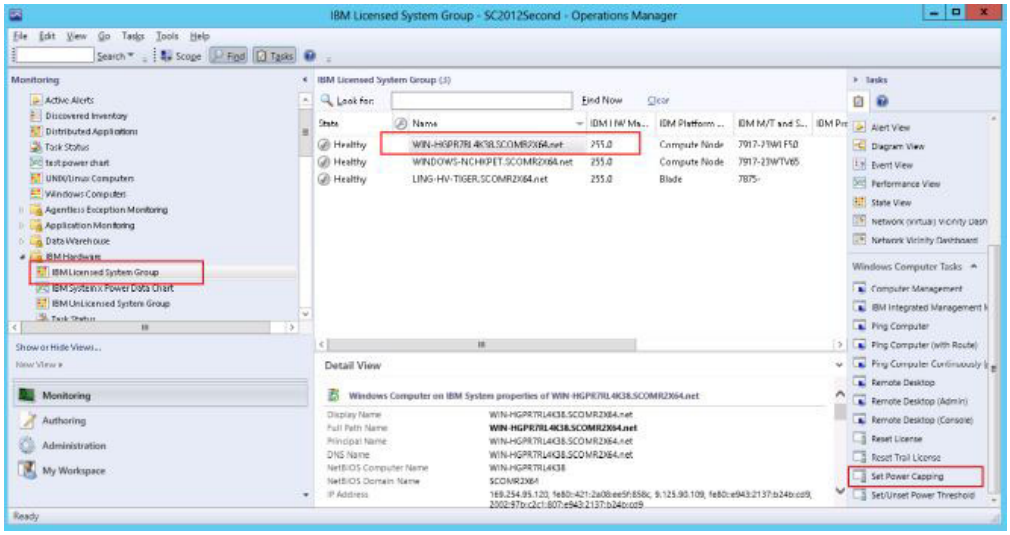

Figure 65. Example of Set Power Capping task

5. Verify the task targets are located in the top pane of the Operations Manager Console.

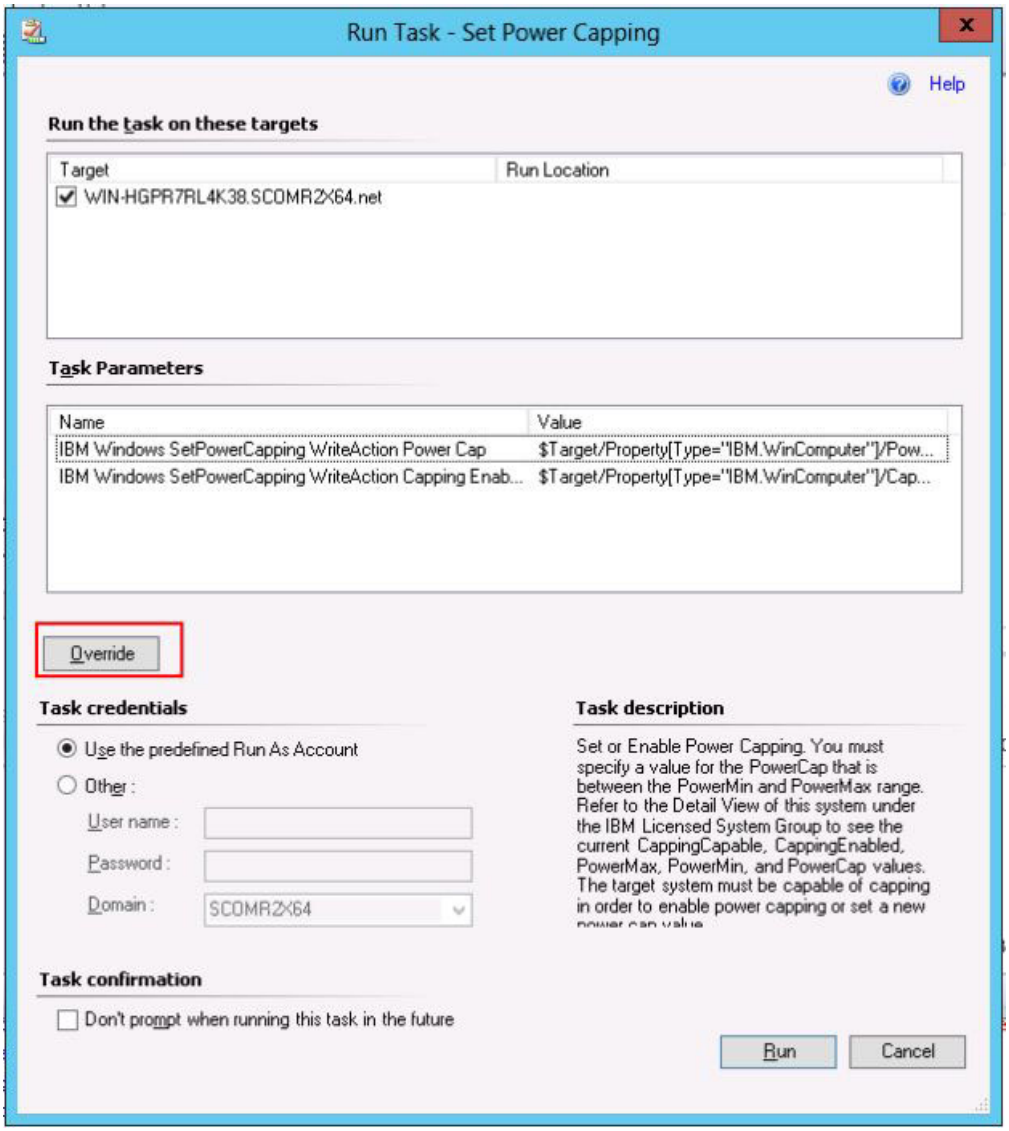

Figure 66. Target and task parameters of the Set Power Capping task

6. Click **Override** in the bottom of the middle pane to override the power threshold values.
7. Change the values of the power capping parameters and click **Override**.

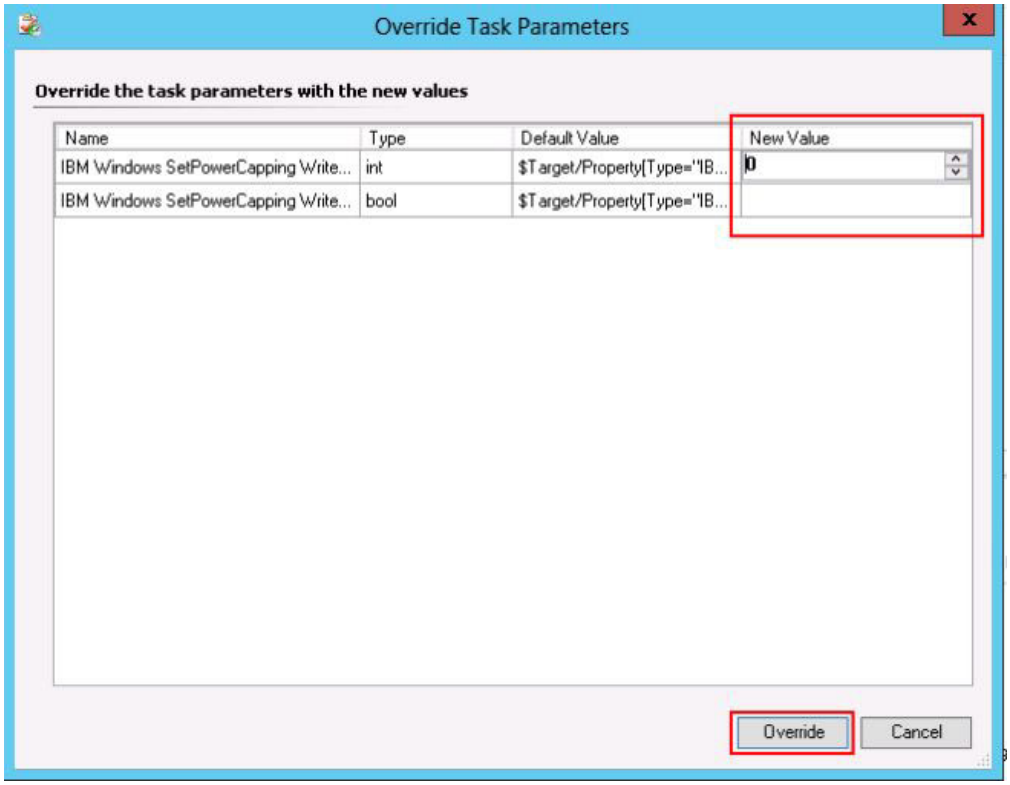

Figure 67. Override the Task Parameters of Set Power Capping task

8. Verify the input values that you just set in the middle pane.

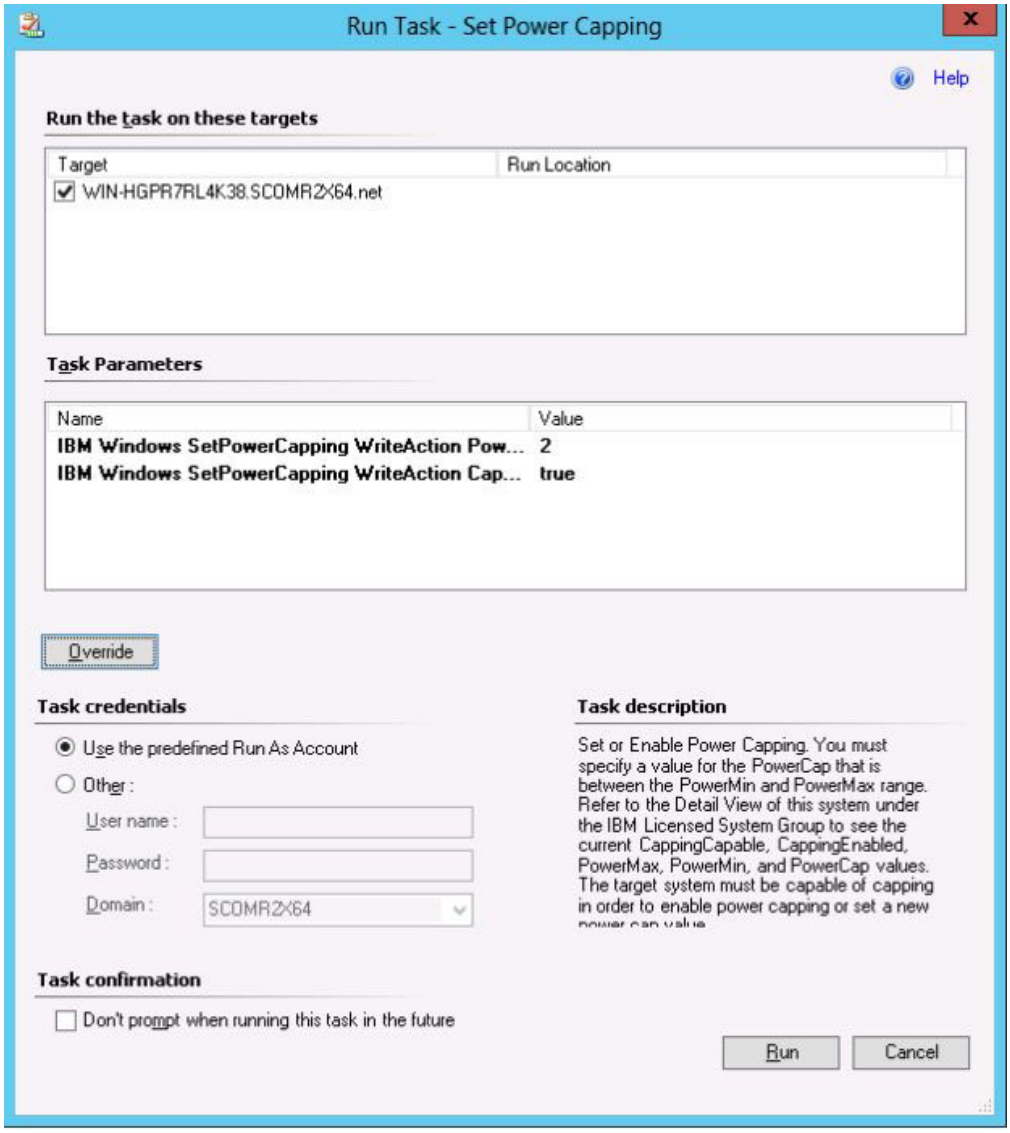

Figure 68. New values of the Task Parameters of Set Power Capping task

9. After getting the expected input values, click **Run**. The task status window indicates the task has been sent to the target server.
10. Click **Close**. A message is displayed in the Task Output section indicating whether the task succeeded or failed.

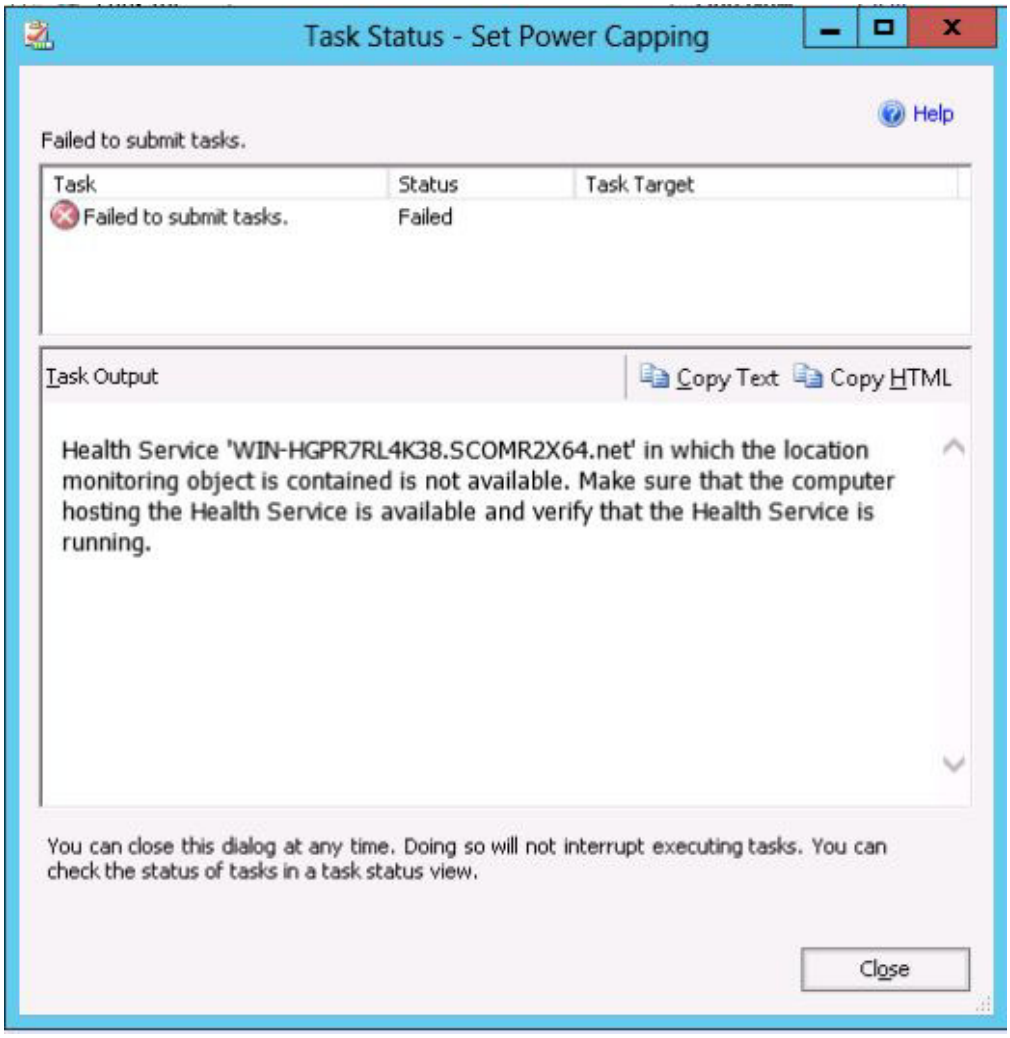

Figure 69. Task Status indicating the Set Power Capping task has been sent to the target server

Using the IBM System x Power Data Chart

The IBM System x Power Data Chart feature offers you the ability to view power data of client System x servers in a more intuitive chart.

Before you begin

This task is performed from the Operations Manager Console.

About this task

The power data chart feature is only available on IBM System x servers and is not available on Chassis and Flex systems. Before you view the data chart, you should have at least one managed System x server with the Windows operating system installed on it.

Procedure

1. Click **Monitoring** to open the Monitoring pane.
2. Select **IBM Hardware** > **IBM System x Power Data Chart**.
3. Click to select the check box for the server. The IBM System x Power Data Chart is displayed.

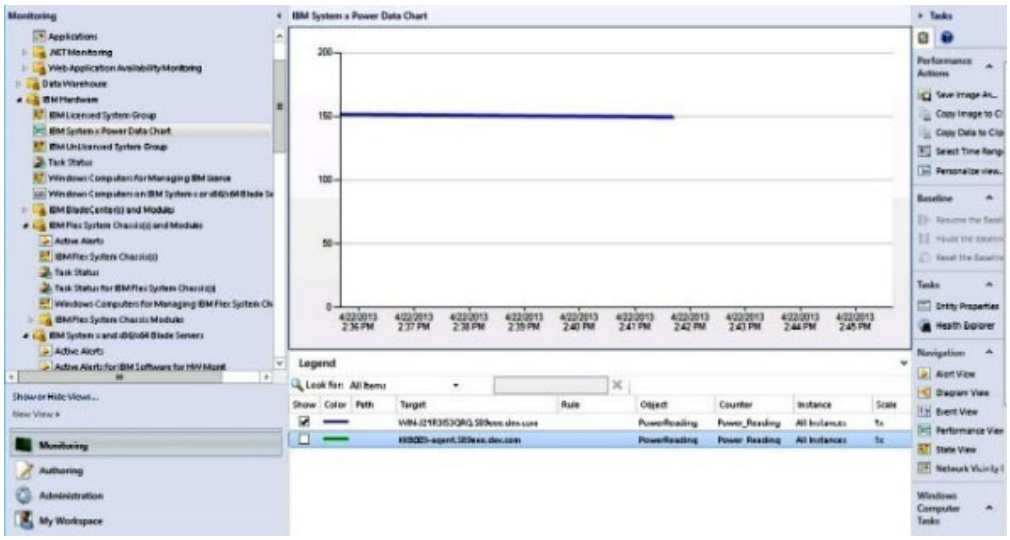

Figure 70. IBM System x Power Data Chart

Discovering the Flex System OOB-IB Reflection

If both the Flex chassis and Flex systems in a chassis (with Windows operating system installed on it) are managed by the Operations Manager, the IBM Hardware Management Pack offers you the ability to synchronize information you get from the Flex chassis and system operating system using this feature.

Before you begin

This task is performed from the Operations Manager Console.

About this task

To ensure that the OOB-IB Reflection information is available, the Flex chassis device and at least one Flex system within it should be discovered and managed by the Operations Manager with the IBM Hardware Management Pack.

Procedure

1. Click **Monitoring** > **IBM Hardware** > **IBM Flex System Chassis(s) and Modules** in the Operations Manager Console to verify the target Flex Chassis was discovered. If the target Flex Chassis was not discovered, refer to "Discovering an IBM Flex System in Operations Manager 2012" on page 47.

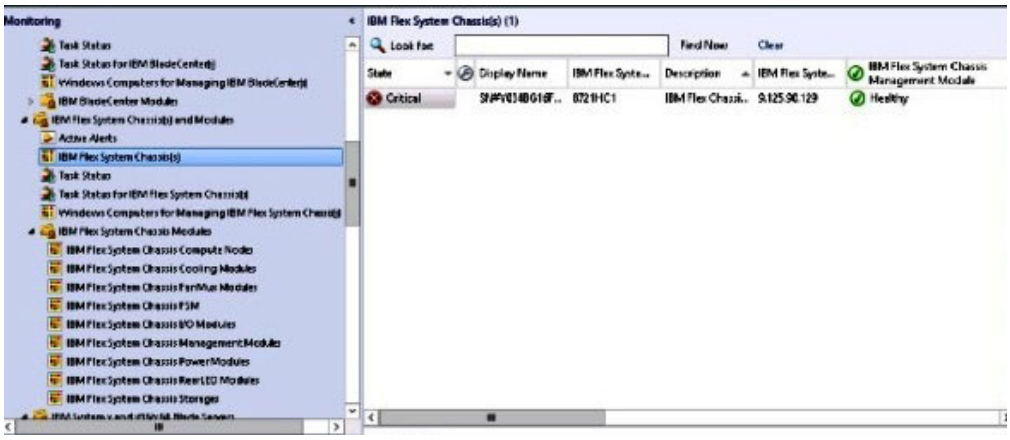

Figure 71. Check IBM Flex System Chassis

2. Click **Monitoring** > **IBM Hardware** > **IBM Flex System Chassis Modules** > **IBM Flex System Chassis Compute Nodes** to verify the nodes in the Flex system were successfully discovered by the Operations Manager.

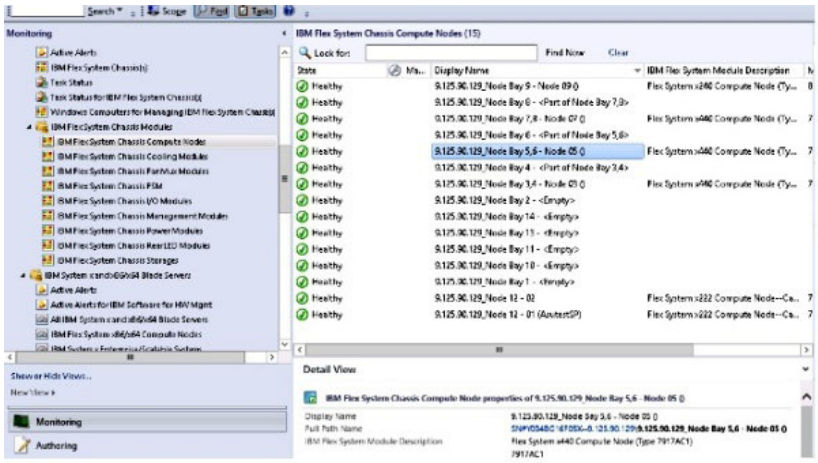

Figure 72. Checking IBM Flex System Chassis Compute Nodes

3. Click **Monitoring** > **IBM Hardware** > **IBM Licenses System Group** to verify the target Flex system was discovered by the Operations Manager. If the target Flex system was not discovered by the Operations Manager, refer to "Adding an IBM system to be managed by the Operations Manager" on page 57.

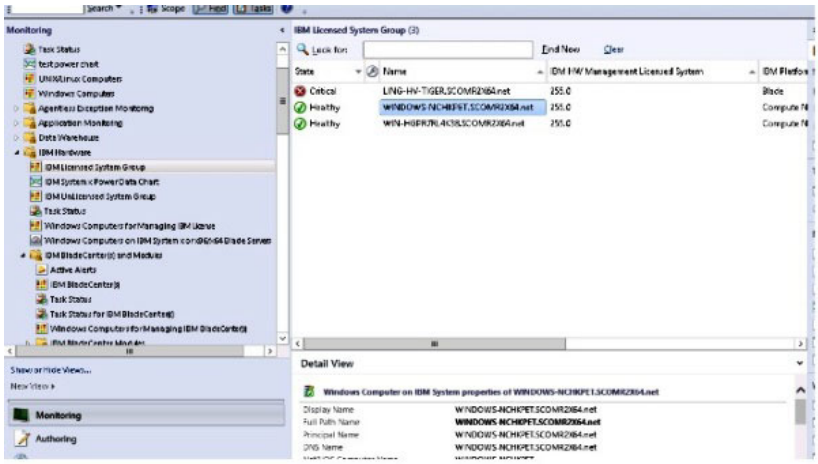

Figure 73. Example of an IBM Licensed System Group

4. Click **Monitoring** > **IBM Hardware** > **IBM System x and x86/64 Blade Servers** > **IBM x86/64 Flex OOB-IB Reflection Group**. The OOB-IB Reflection information is displayed.

   Note: It may take time to establish the OOB-IB Reflection after the Flex chassis and Flex system was discovered.

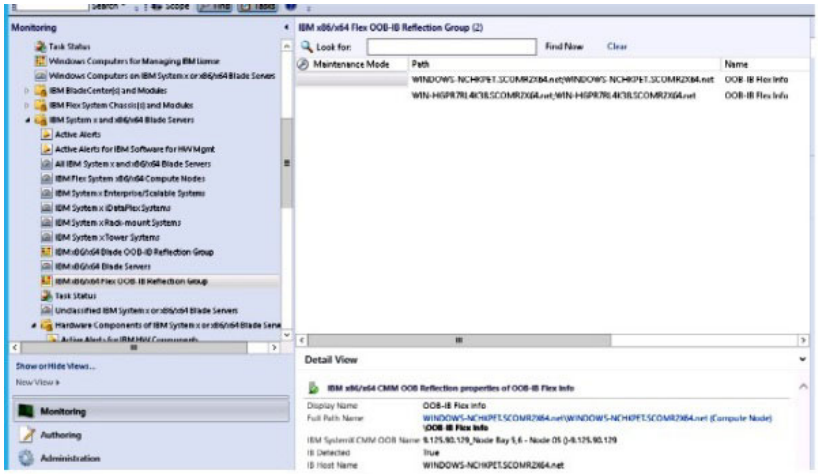

Figure 74. Example of an IBM x86/64 Flex OOB-IB Reflection Group

Using Flex system remote power on and off

When the premium feature for the Flex system remote power on and off is enabled, this task is available in the Action pane of the Operations Manager Console. This feature allows you to remotely control the IBM Flex system and select power on, off, or shutdown of the operating system.

Before you begin

This task is performed from the Operations Manager Console.

Procedure

1. Click **Monitoring** to open the Monitoring pane.
2. Select **IBM Hardware** > **IBM Flex System Chassis(s) and Modules** > **IBM Flex System Chassis Modules** > **IBM Flex System Chassis Compute Nodes**.
3. From the Actions pane, select one of the following options for the selected Flex system:
   - **IBM.FlexSystem.PowerOn.Blade**: to power on
   - **IBM.FlexSystem.PowerOff.Blade**: to power off
   - **IBM.FlexSystem.SoftPowerOff.Blade**: to soft power off

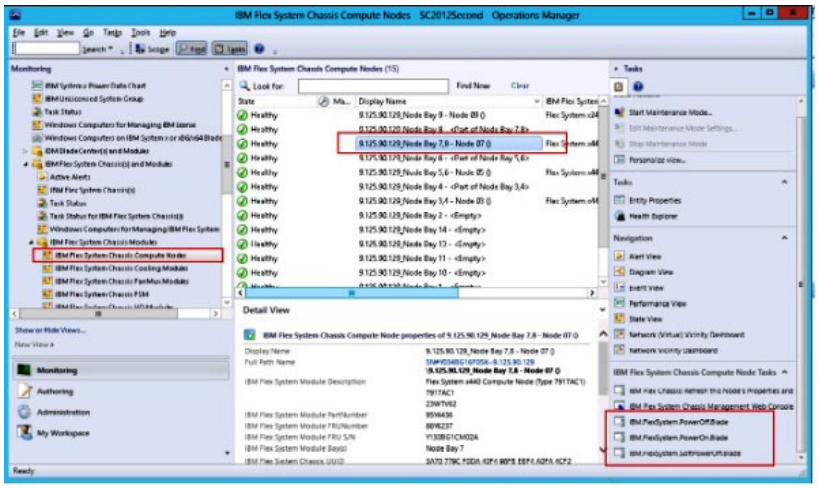

Figure 75. Example of remote power options for Flex systems

4. For example, to power on, click **IBM.FlexSystem.PowerOn.Blade**.

   The Run Task - IBM.FlexSystem.PowerOn.Blade window is displayed. The target server and account are selected by default.

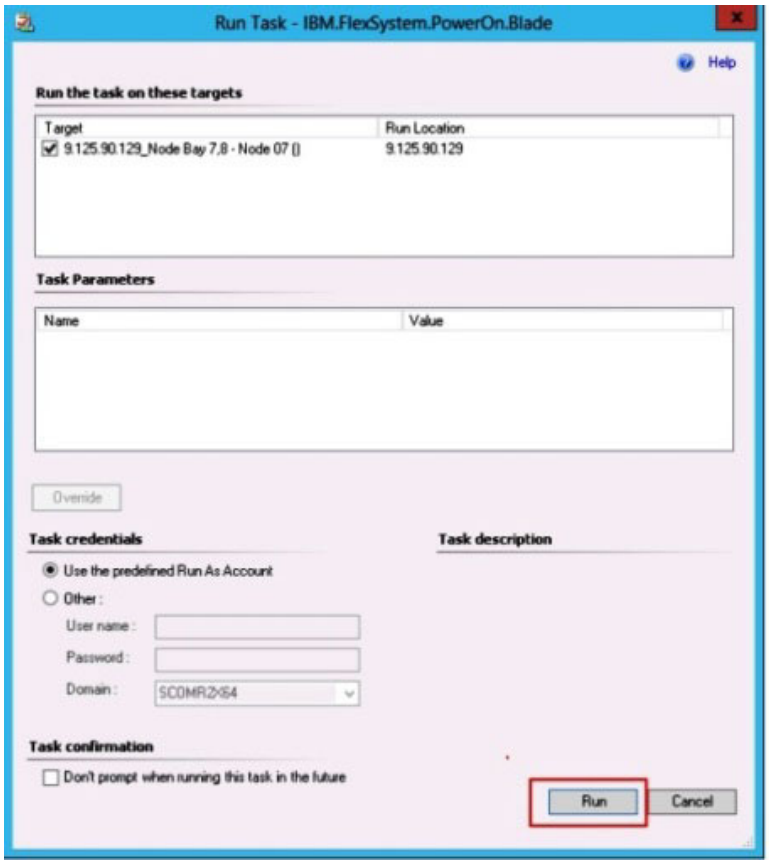

Figure 76. Pop-up window for remote power on task for Flex systems

5. Click **Run** to launch the task.
   After the power-on task has completed, the task status is displayed.

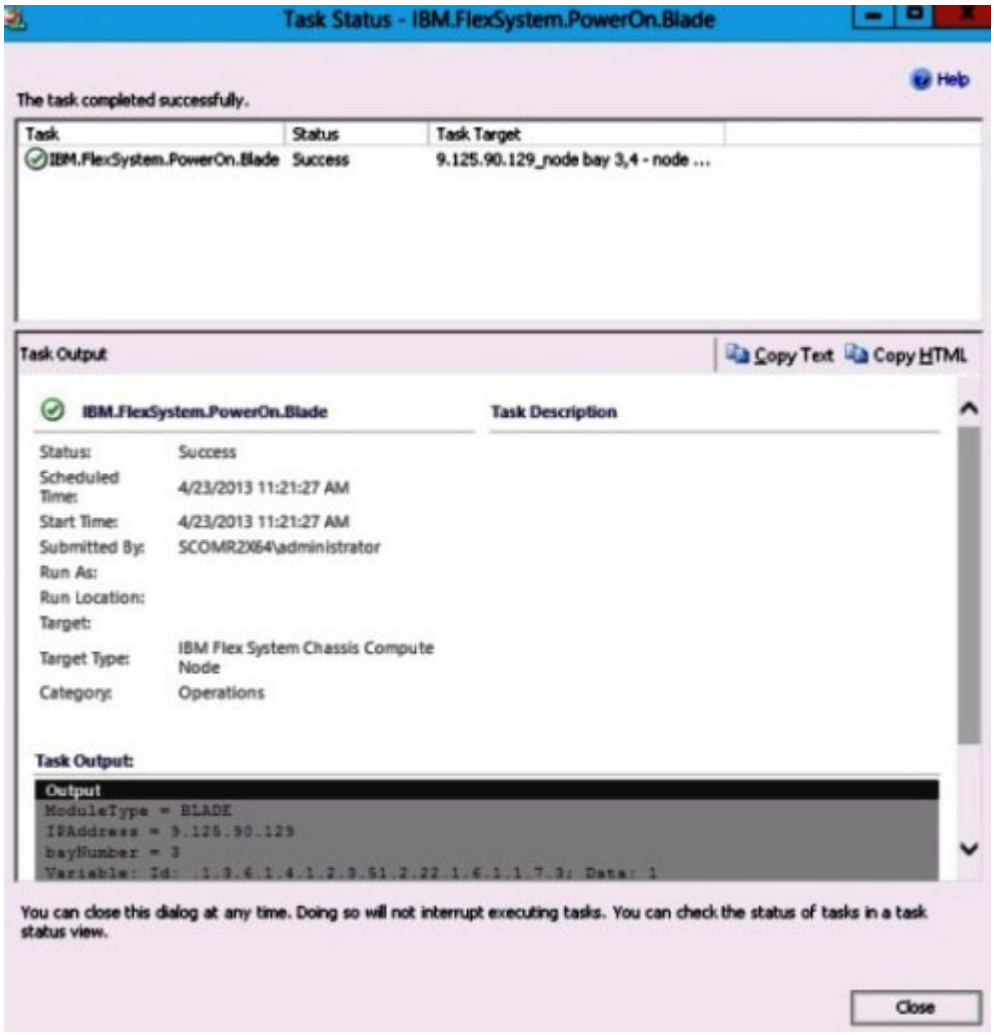

Figure 77. Task status for remote power on

Note: When the premium feature is not enabled, the task fails. A message is displayed in the Task Output section indicating that the free version of the IBM Hardware Management Pack is being used.

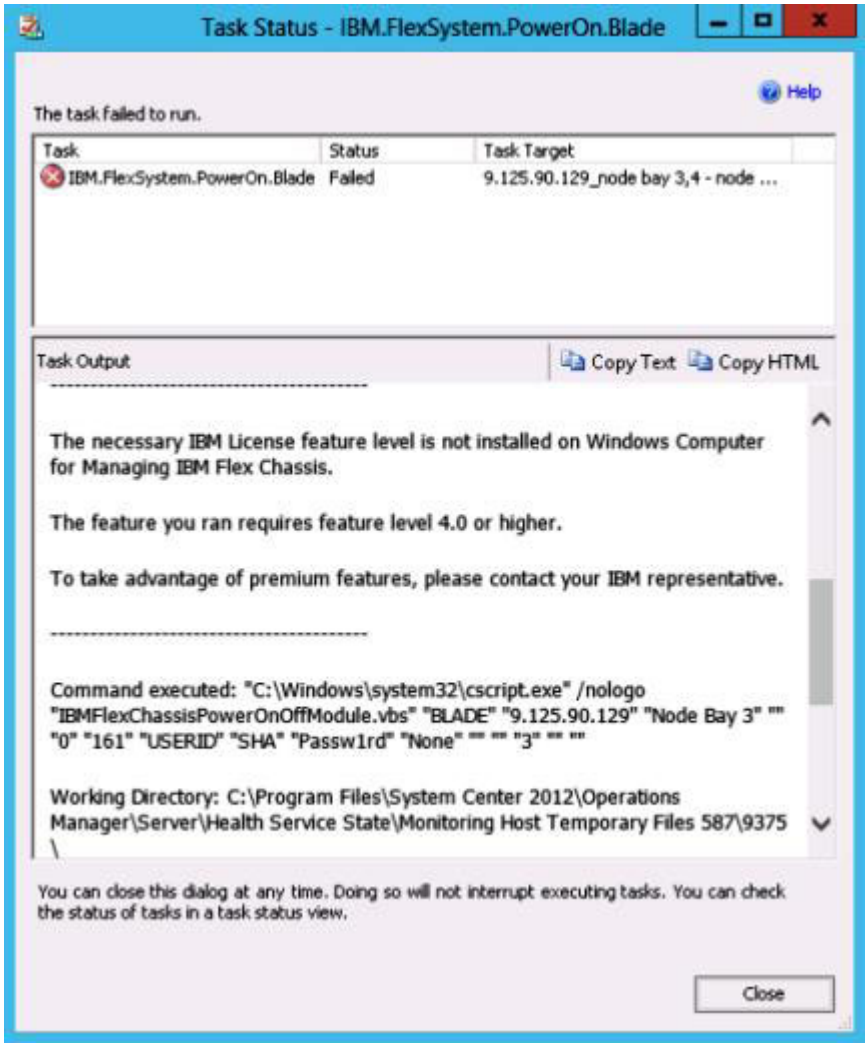

Figure 78. Task Status indicating power on failed because no license is installed

6. Click **Close** to exit the task status windows.

Launching the IBM Flex System Chassis Web Console

When the premium feature for launching the Flex System Web Console is enabled, this task is available in the Action pane of the Operations Manager Console. This feature allows you to launch the Flex System Chassis Web Console using links inside of the Operations Manager Console.

Before you begin

This task is performed from the Operations Manager Console.

Procedure

1. Click **Monitoring** to open the Monitoring pane.
2. Select **IBM Hardware** > **IBM Flex System Chassis(s) and Modules** > **IBM Flex System Chassis(s)**.
3. Select the target Flex System Chassis.
4. Select **IBM Flex System Chassis Management Web Console** from the Actions pane located on the right side of Operations Manager Console.

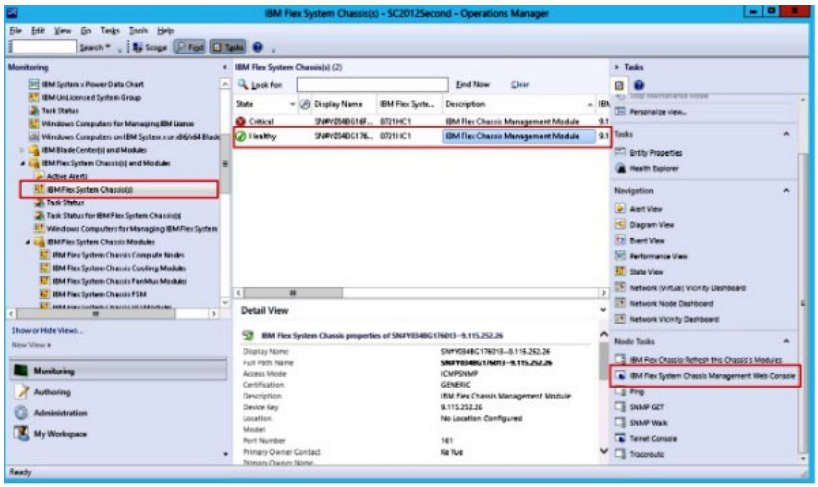

Figure 79. Example of launching the IBM Flex System Chassis Management Web Console

If the Flex System Chassis web page is not trusted by your browser, and if the CMM configuration is correct, this page will disappear. To continue, select **Continue to this website** and trust this website.

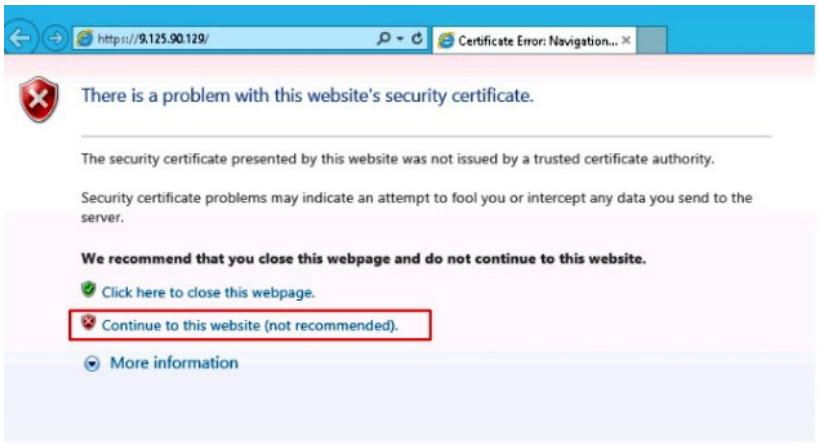

Figure 80. Certificate error when opening IBM Flex System Chassis Management Web Console

The CMM Web Console will open in your default browser.

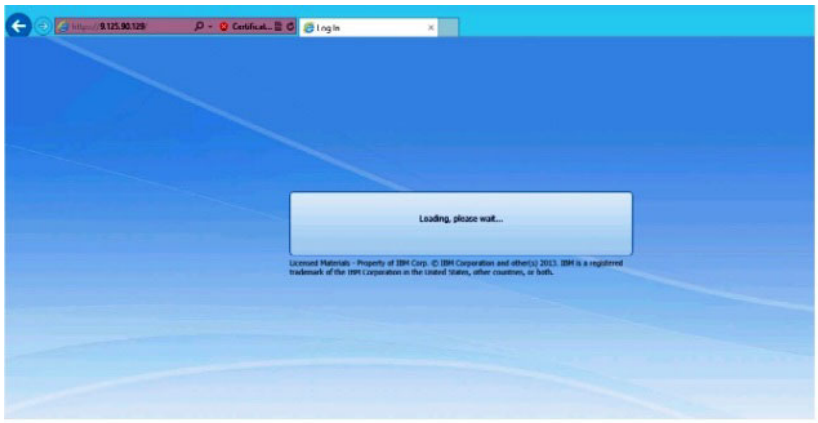

Figure 81. Loading CMM Web Console

When the CMM Web Console has successfully loaded, the following window is displayed.

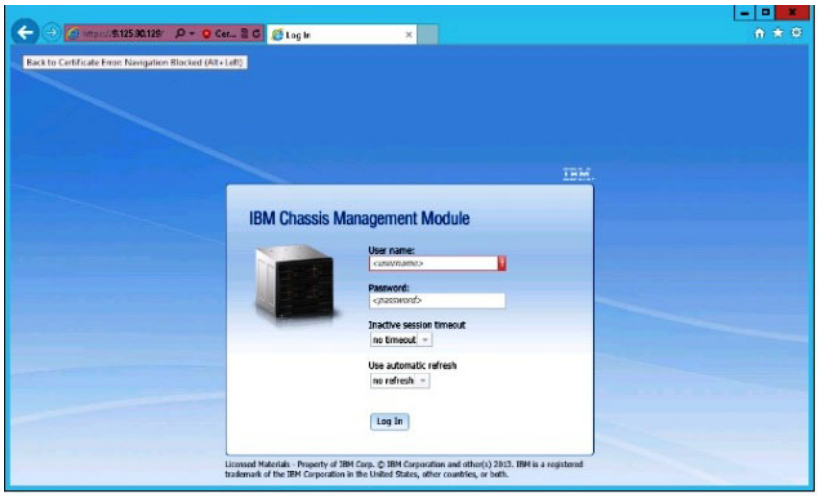

Figure 82. CMM Web Console

Discovering an IBM FSM system

When the premium feature for discovering an IBM FSM system is enabled, this task is available in the Action pane of the Operations Manager Console. This feature allows you to discover and manage an FSM system in the Operations Manager Console.

Before you begin

This task is performed from the Operations Manager Console.

Procedure

1. Click **Monitoring** to open the Monitoring pane.
2. Select **IBM Hardware** > **IBM Flex System Chassis(s) and Modules** > **IBM Flex System Chassis(s) Modules**.
3. Click **IBM Flex System Chassis FSM** to list all of the managed FSM systems.

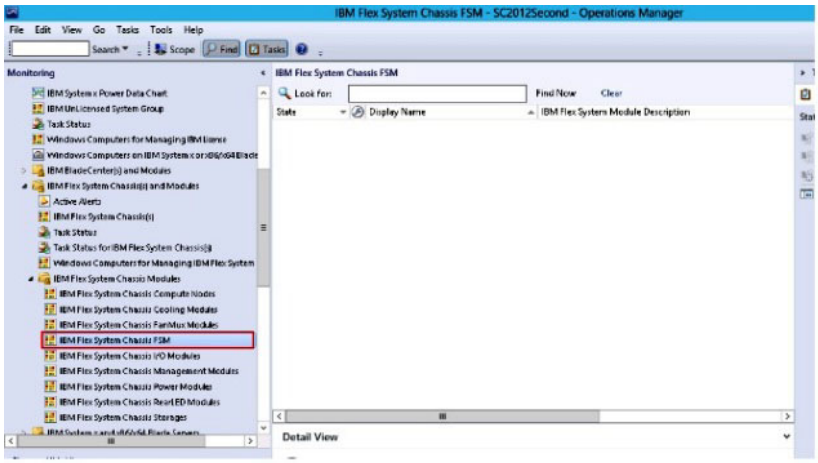

Figure 83. Example of an IBM Flex System Chassis FSM

4. Verify the target FSM is included in the list. If the target FSM is not included in the list, verify that the Flex system chassis containing the FSM has been discovered by completing the following steps.
   a. Select **Monitoring** > **IBM Hardware** > **IBM Flex System Chassis(s) and Modules** > **IBM Flex System Chassis(s)**.
   b. Select the Flex system chassis and run the **IBM Flex Chassis: Refresh this Chassis's Modules** task . The target FSM system will be discovered and listed in IBM Flex System Chassis FSM.

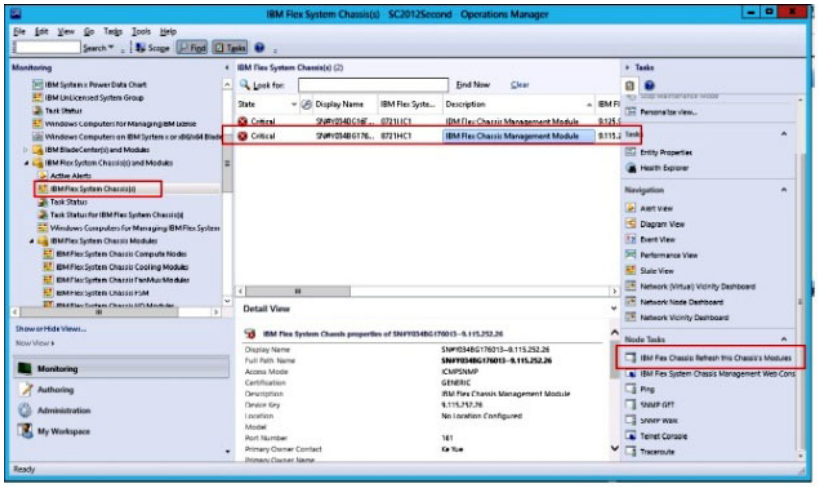

Figure 84. Refreshing the Chassis's Module

Launching the FSM Web Console

When the premium feature for launching the Flex chassis FSM Web Console is enabled, this task is available in the Action pane of the Operations Manager Console. This feature allows you to launch the Flex chassis FSM Web Console using links inside the Operations Manager Console.

Before you begin

This task is performed from the Operations Manager Console.

Procedure

1. Click **Monitoring** to open the Monitoring pane.
2. Select **IBM Hardware** > **IBM Flex System Chassis(s) and Modules** > **IBM Flex System Chassis Modules** > **IBM Flex System Chassis FSM**.
3. Select the target FSM and click **Set FSM IP Address** from the Actions pane located on the right side of Operations Manager Console.

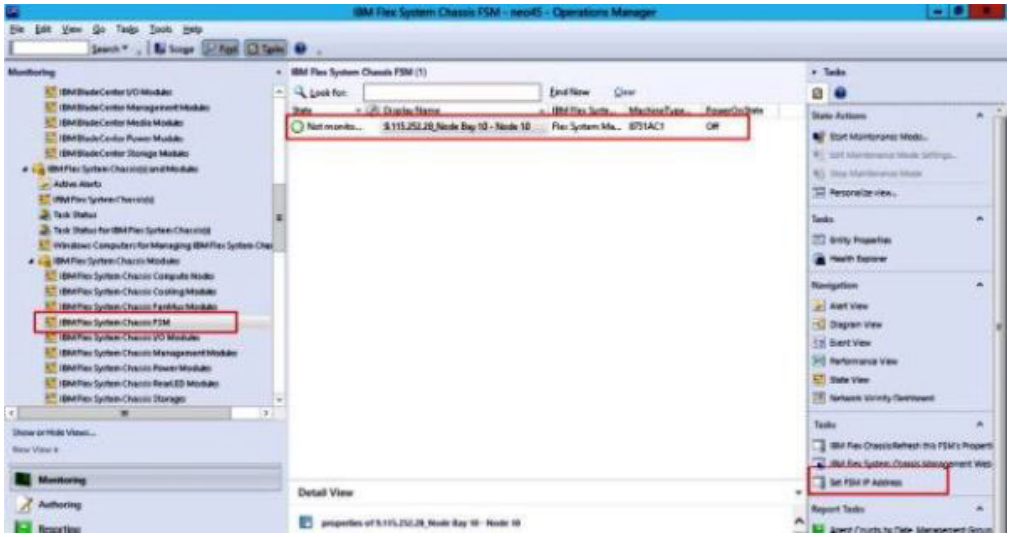

Figure 85. Example of an setting the FSM IP address from the SCOM console

4. In the Run Task - Set FSM IP Address window, click **Override**.

Figure 86. Run Task - Set FSM IP Address window

5. Enter the correct IP address of the target FSM. You can get the FSM IP address from the Flex System Chassis Web Console.

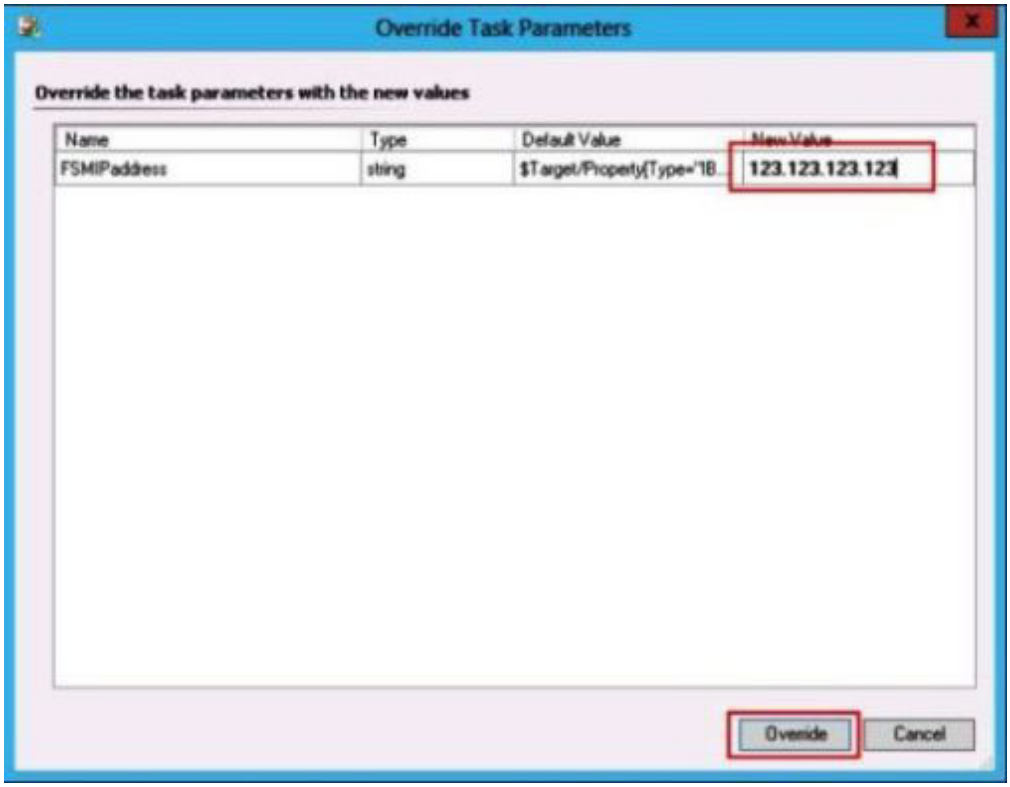

Figure 87. Example of overriding FSM IP address

6. In the Run Task - Set FSM IP Address window, click **Run**. The following window is displayed.

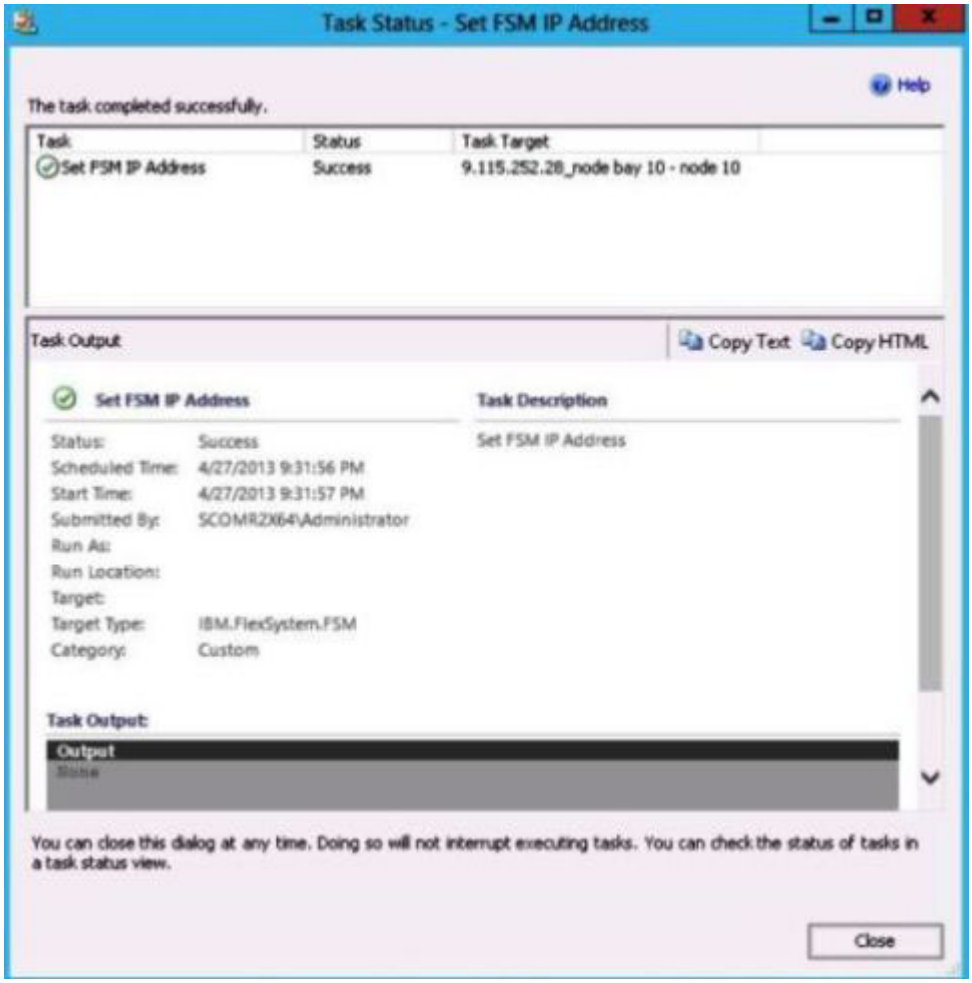

Figure 88. Task Status of Setting FSM IP Address indicating task completed successfully

7. Click **Close**.
8. Select **IBM Flex System Chassis Management Web Console** from the Actions pane.

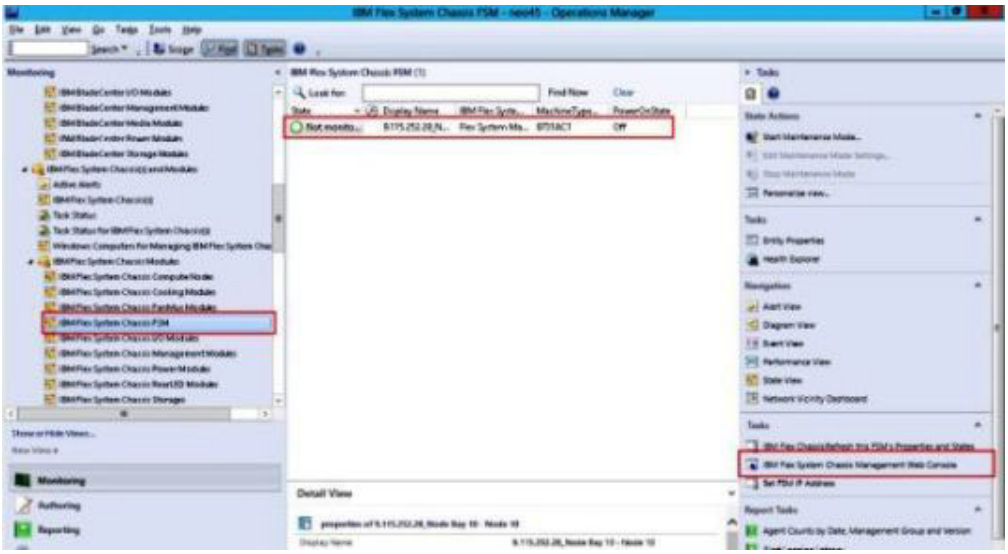

Figure 89. Example of launching an FSM Web Console from the SCOM console

The Operations Manager will open the FSM Web Console in your default browser.

Figure 90. FSM Web Console

Appendix A. Best Practices

The topics in this section provide suggested methods for completing best practice tasks.

Best practice: Determining the cause of an error

Use the following diagnostic procedure to identify and solve problems that might occur in a managed environment. This task is performed from the Operations Manager Console.

Procedure

1. Click **Monitoring** to open the Monitoring pane.
2. To quickly view the status of all of your managed IBM systems that have Windows operating systems, expand **IBM Hardware** and click **Windows Computers on IBM System x or x86/x64 Blade Servers**.
3. Check the health of the systems in the top middle pane. All newly discovered objects are in the healthy state by default. The Health check monitoring task updates the status of an object at regular intervals, according to the default interval setting. You can configure the monitoring frequency by overriding the "override-controlled" parameters. See the Microsoft System Center Operations Manager documentation about "Override" for more information.
4. Select a system that shows a Critical or Warning state.

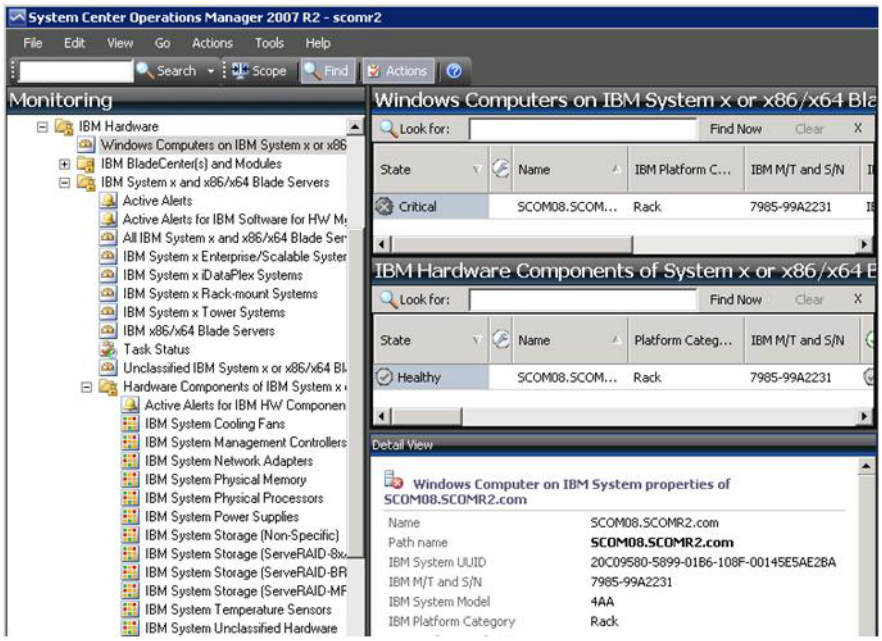

Figure 91. Selecting a system with a critical state

5. Determine whether the error is related to hardware or software.
   - **Hardware-related failures**: Check the IBM Hardware Components of IBM System x or x86/x64 Blade Servers pane to select the system. Scroll to the right to view all of the component status and data. You can personalize this view.

     This pane contains state views on a per-hardware-component-class basis. The purpose of this view is to provide access to detailed properties of each component instance. Look for additional system information in the Detail View pane.
   - **Software-related failures**: Check the Windows Computer on IBM System x or x86/x64 Blade Servers pane. This pane contains state views and information on a per-software-component-class basis. Select a system that has a Critical or Warning health state.

     The purpose of these views is to provide access to detailed properties of each component instance. The Detail View pane displays all instances of the system software with a health state for each of the four health aspects.
6. To obtain more information and details about the failure, access the hardware information of the desired BladeCenter module or hardware system component by clicking **IBM BladeCenter Modules**.
7. From a previous view, if you already know that a power supply component failed, select the related view, **IBM BladeCenter Power Modules**, to determine the problem with the power supply.
8. Select the **Critical** Power Module and review its related data.
9. Review the information and data presented in the Detailed View pane. Check all instances of the module type and each of its four health aspects.

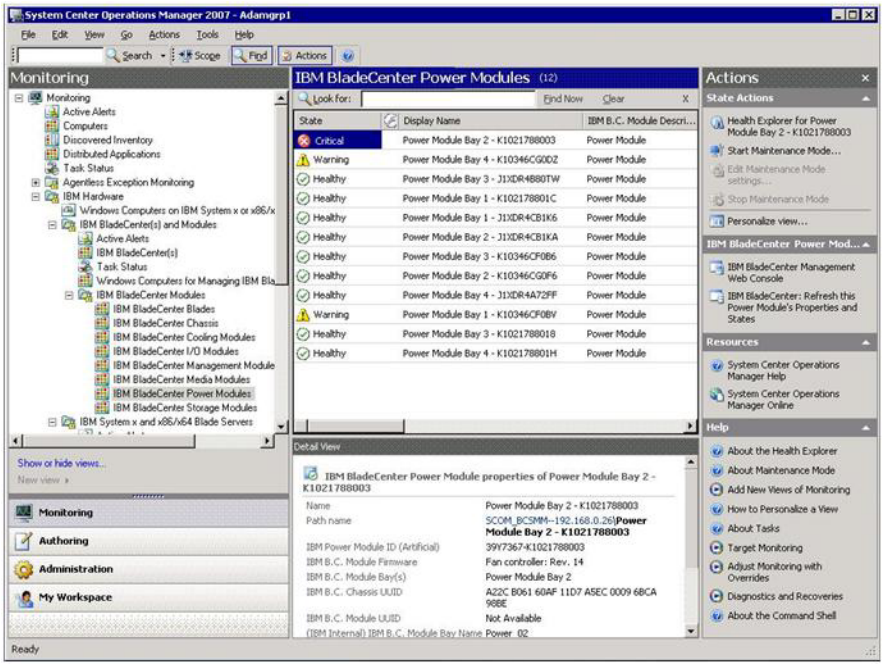

Figure 92. Detailed view of a power module in critical state

10. Right-click the **selected module** and select **open** > **Health Explorer**.
11. Select the Alert and look at the information on the State Change Events page.
12. Depending on the type of alert you have, you can click **View Alert** for more information.
13. Click the **Knowledge** tab to read the Knowledge Page and the one or more Knowledge Articles that relate to your alert.

    Important: In addition to the health information available for each object, related information might be available from other objects that are health-related from different perspectives. For example, a blade that is monitored in-band through its platform agent shows a health state, but the BladeCenter chassis management module also shows a health state for the blade.

    Other BladeCenter chassis modules might affect the blade health, such as a power supply that provides power to the blade server. Similarly, the health of a blade from the management module perspective might include the health and other information about the operating system running on the blade.

    For instance, the following BladeCenter simple network management protocol (SNMP) alert has an event description field of 1.3.6.1.4.1.2.6.158.3.1.1.8 and an event ID of 1.3.6.1.4.1.2.6.158.3.1.1.14. Convert the decimal event ID value to hexadecimal number to look up the message in the “Advanced Management Module Message Guide”.

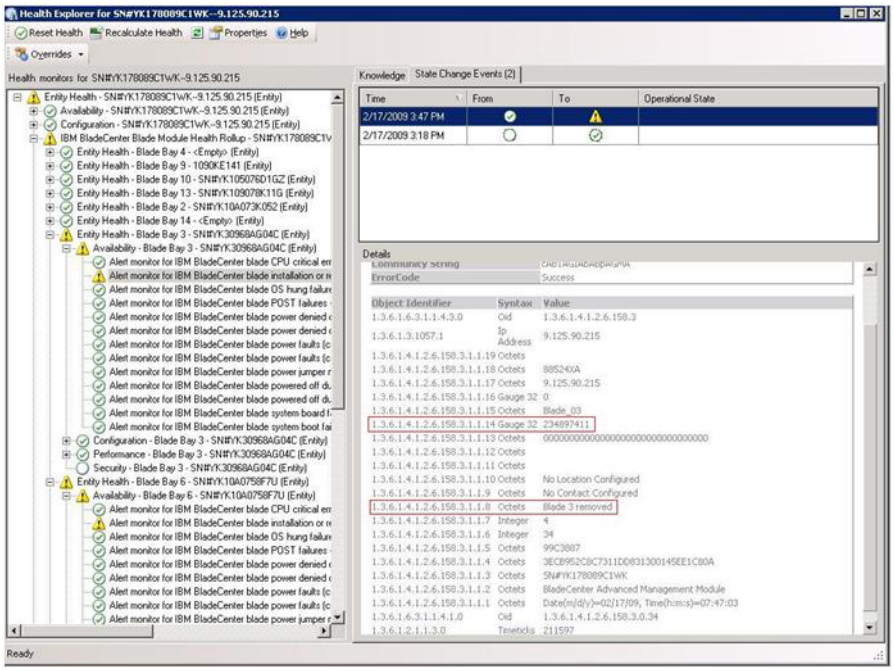

Figure 93. System x WMI event

14. For a System x WMI event, the Details pane includes the description and the event ID.

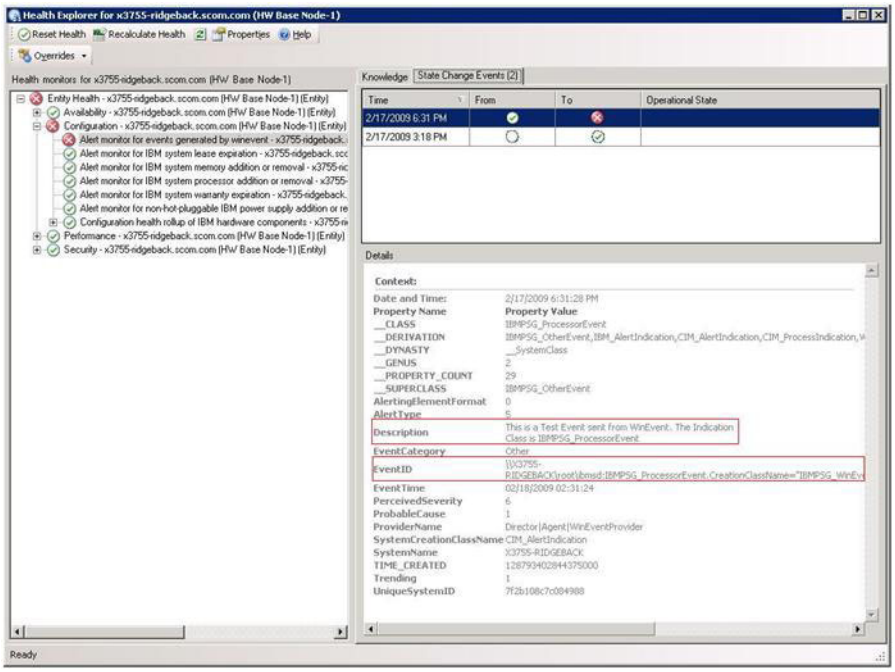

Figure 94. Example of the State Change Events tab detail information

Best practice: Rediscovering all BladeCenters

The BladeCenter monitor stalls when the same version of the IBM Hardware Management Pack is deleted and re-imported.

About this task

This task is performed from the Operations Manager Console.

Procedure

1. Click **Administration** on the left bottom pane (default location of Navigation pane) to open the Administration pane.
2. Select **Administration** > **Device Management** > **Network Devices**.

   In the middle pane, note the IP Addresses listed in Network Devices view. This information will be needed for the discovery network device information later.
3. Click to select the **IP Address** that you plan to rediscover, and then click **Delete** in Action pane located on the right side to delete the IP Address.

4. Refer to the “Discovering a BladeCenter in Operations Manager 2007” on page 31 section for more information. Follow the instructions and use the noted IP address to limit the scope of Network Devices.

Best practice: Rediscovering a renamed server

When the Windows server is renamed, the Windows server instance entry monitored by the Operations Manager becomes grayed out. This is an indication that the Windows server is no longer being monitored by the Operations Manager.

About this task

To monitor a renamed server, delete the renamed server name from the Operations Manager’s Agent Managed server list. Then rediscover the renamed server. Perform this task in the Operations Console.

Procedure

1. Click to select **Administration** in the left bottom pane. The Administration pane opens.
2. Click to select the **Administration** > **Device Management** > **Agent Managed** view.

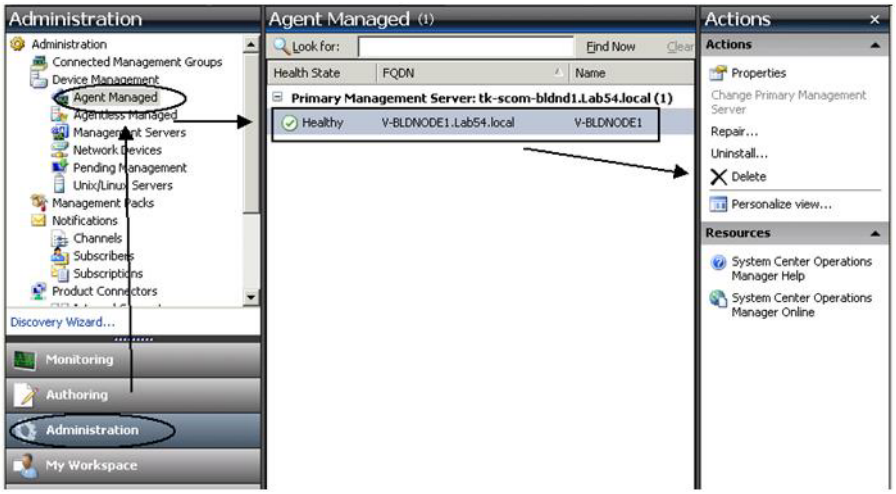

Figure 95. Operations Console Administration pane

3. Click to select the **renamed server** listed in the Agent Managed view in the middle pane. This entry has the original name before it was renamed.
4. Select the **Delete** in Actions pane located on the right. This action removes the renamed server from the view.

5. For information about adding the new server name, see the "Adding an IBM system to be managed by the Operations Manager" on page 57 section of this user's guide and follow the instructions.

Appendix B. Troubleshooting

The topics in this section provide information to assist you in troubleshooting possible issues you may have with the IBM Hardware Management Pack. This requires first verifying that you have performed certain tasks. The symptoms of a problem often provide a clue to the underlying issue.

Troubleshooting errors returned from the IBM Power CIM Provider

This topic describes how to troubleshoot errors returned from the IBM Power CIM Provider.

There are two possible reasons why Capping Capable might be reported as "False":

1. The system firmware is reporting that a platform or firmware subcomponent does not support power capping. A possible resolution would be to consult IBM power management guides to determine if there is a uEFI setting that can be set to activate the power capping capability.
2. The system type does not support the power capping feature.

For more information on IBM power management, see the IBM Systems Director Active Energy Manager Information Center.

Troubleshooting the installation of the IBM Power CIM Provider

This topic describes how to troubleshoot the installation of the IBM Power CIM Provider. The first step in troubleshooting the installation of the IBM Power CIM Provider is to verify that the install was successfully completed.

Verifying the installation successfully completed

This topic describes how to verify whether the installation of the IBM Power CIM Provider successfully completed. Perform the following procedure in an Administrator Command window.

Procedure

1. Execute the following commands:
   a. **`cimprovider -l -m IBMPowerCIM`** The result of this command should be a line with the provider name (IBMPowerCIM) and a status of **OK**.
   b. **`cimcli ei -n root/ibmsd IBMPSG_AveragePowerUsageValue`**
   c. **`cimcli ei -n root/ibmsd IBMPSG_AveragePowerUsageSensor`**
   d. **`cimcli ei -n root/ibmsd IBMPSG_PowerCappingInformation`**

2. Verify the ouput generated when the commands are run. When these commands are run, the output should indicate appropriate numbers for the sensor readings and lower threshold values, and Pmin/Pmax for the PowerCappingInformation class, rather than the command partially failed.
3. If you receive a timed out error, increase the timeout for the command.

   This is not actually the provider or the cimserver timing out, it is just the cimcli command itself.

   See the usage for cimcli for details on how to increase the timeout. For more information on the CIMCLI utility, see Using CIMCLI on Windows.

How to fix a failed IBM Power CIM Provider installation

This topic describes how to fix a failed IBM Power CIM Provider installation.

About this task

If any of the commands for verifying the IBM Power CIM Provider install failed or gave not completely proper values, complete the following steps:

Procedure

1. Verify that the registry key exists and contains the appropriate values.

   The key is located in `HKLM\SOFTWARE\IBM\Systems Management Integrations\IBM Power CIM Provider`. It should contain a **REG_SZ** named **Path**, which lists the install directory of the provider. This directory should be writeable.

   Note: On 64-bit machines this key will appear at `HKLM\SOFTWARE\Wow6432Node\IBM\Systems Management Integrations\IBM Power CIM Provider`.
2. In the installation directory, open the `IBMPowerCIMRegistration.mof` file and verify that the **`Location`** line lists the proper path: `\IBMPowerCIM`. The default install path is `%ProgramFiles%\IBM\IBM Power CIM Provider`. If all of the verification steps were successful and the IBM Power CIM Provider installation was successful, but the provider is still reporting failure or improper values, complete the following steps:
3. Review the log files located in the install directory. The file called `RegIBMPowerCIM.log` shows the results of the registration (and de-registration) scripts that are executed during the Windows Installer installation and uninstallation processes. If an error occurred while running these installation scripts, the results of that error will be shown in the `RegIBMPowerCIM.log` file

   There can be two possible causes:

   - **`Response length = 256`**

     The most common cause for this error is that SMBIOS Type 38 is not recognized on the system. This is because the system's firmware does not support SMBIOS Type 38 or the IPMI libraries are not properly recognizing it. Try restarting the cimserver (as noted below) or try restarting the computer.
   - **`cmdComplete = false`**

     The most common cause for this error is that the registry key path is incorrect.

4. Reinstall the IBM Power CIM Provider using the provided installer.
   a. Remove the IBM Power CIM Provider by selecting **Uninstall** in **Add/Remove Programs** (Windows 2003) or **Programs and Features** (Windows 2008 and later).
   b. Wait several minutes for the Director CIM server, *wmicimserver*, to come back online.
   c. Reinstall the IBM Power CIM Provider using the provided installation file.
5. To manually re-register the IBM Power CIM Provider with the Director CIM server, enter the following commands in an Administrator Command window:
   a. **cimprovider -r -m IBMPowerCIM**
   b. **net stop wmicimserver**
   c. **taskkill /F /IM wmicpa.exe**
   d. **net start wmicimserver**
   e. **mofcomp IBMPowerCIM.mof** (from the provider install directory)
   f. **mofcomp IBMPowerCIMRegistration.mof** (from the provider install directory)
   - For optimal results, wait a few minutes between the **net start wmicimserver** command and the **mofcomp** command.

   Note: *wmicimserver* sometimes takes a minute to become properly responsive to new providers being loaded in.
6. Verify the server's firmware supports **SMBIOS Type 38**. If it does not, update to a firmware version that does. Computers with a Unified Extensible Firmware Interface should not be a problem.
7. In the registry key path `HKLM\SOFTWARE\[Wow6432Node]\IBM\Systems Management Integrations\IBM Power CIM Provider`:
   a. Add a **REG_SZ** named **Debug** and set the value to **1**.
   b. Uninstall and reinstall the IBM Power CIM Provider as described above. The logs will now be more verbose, which may give you further insight into the issue.
8. Restart the server.

How to fix an IBM Chassis in the Network Devices Pending Management on Windows server 2012

This topic describes how to fix a problem when an IBM BladeCenter or Flex system chassis was discovered but displayed in the Network Devices Pending Management view.

About this task

If any of the IBM BladeCenter or Flex system chassis was displayed in the Network Devices Pending Management view, complete the following steps.

Procedure

1. On the Windows machine of your management server(s), open the firewall settings and find the rules for starting with Operations Manager in both the inbound and outbound rules. There are a few that seem to be default disabled.
2. Enable the appropriate rules and then re-run the discovery rule, or wait for it to occur as a scheduled task on the SCOM Console. The network devices will appear.

How to fix a failed task of an open IBM System Web Console on SCOM Console on Windows Server 2012

This topic describes how to fix a problem when you run the task of IBM IMM/AMM/CMM Web Console on a SCOM Console running on Windows Server 2012 failed. This is a windows server 2012 IE security configuration problem.

About this task

On a managed system, which has the SSL server for web console enabled, when you try to run the task of IBM IMM/AMM/CMM Web Console on a SCOM Console running on Windows server 2012 failed, you will need to complete the following steps to fix this problem.

Procedure

1. Change the Internet Explorer (IE) security configuration to allow IE to open the web console. To use Internet Explorer Enhanced Configuration when members of the local Administrators group are logged on, under Administrators click Off. Click OK to apply your changes.
2. Turn off Internet Explorer Enhanced Security Configuration.

   Perform the following steps.
3. Open Server Manager.
4. If your server is running Windows Server 2012, click **Configure this local server** to open the Local Server configuration page.
5. In the Properties area, next to IE Enhanced Security Configuration, click **On** to open the Internet Explorer Enhanced Security Configuration dialog box.
6. To use Internet Explorer Enhanced Configuration when members of the local Administrators group are logged on, under Administrators click **Off**.
7. Click **OK** to apply your changes.

Appendix C. Accessibility features

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.

The IBM Hardware Management Pack, version 4.5 supports the 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, version 4.5 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, version 4.5 in Adobe Portable Document Format (PDF) using the Adobe Acrobat Reader. You can access the PDFs from the IBM Hardware Management Pack, version 4.5download site.

IBM and accessibility

See Human Ability and Accessibility Center Website for more information about the commitment that IBM has to accessibility.

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View important assumptions about terminology and claims.

Processor speed indicates the internal clock speed of the microprocessor; other factors also affect application performance.

CD or DVD drive speed is the variable read rate. Actual speeds vary and are often less than the possible maximum.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for 1024 bytes, MB stands for 1•048•576 bytes, and GB stands for 1•073•741•824 bytes.

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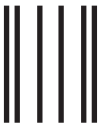

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