BMC SOFTWARE Certified MarketZone Product

BMC® Performance Manager for Hardware by Sentry Software™

Reference Guide

Supporting

Hardware Sentry KM for PATROL® version 1.4.00 by Sentry Software™

January 9, 2007

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  - system hardware configuration
  - serial numbers
  - related software (database, application, and communication) including type, version, and service pack or maintenance level
- sequence of events leading to the problem
- commands and options that you used
- messages received (and the time and date that you received them)
  - product error messages
  - messages from the operating system, such as file system full
  - messages from related software

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Section I - Overview

BMC® Performance Manager for Hardware is a KM for BMC Software® PATROL® that enables administrators to monitor the hardware of their diverse servers. This is a single KM that is able to monitor the hardware of different server brands: IBM®, HP®, DELL®, Sun Microsystems®, NEC®, Fujitsu-Siemens® and many others. Once installed on a PATROL Agent on a server, BMC Performance Manager for Hardware automatically detects the environment and starts monitoring the hardware: status of the disks and the RAID controllers, temperature of the system, speed of the fans, etc.

Important:

1. BMC Software is renaming their range of PATROL and PATROL-related products. As per the new convention, and depending on the product/architecture/framework etc, you may find that often, the words KM or PATROL disappear altogether, to be replaced by Performance Manager. The “migration” of names is still underway and you can find the former and current names of the products on the BMC Software A-Z product list.
2. “BMC Performance Manager for Hardware” is the name of the hardware monitoring offering of BMC Software. It includes: « Hardware Sentry KM for PATROL » - the PATROL agent-based solution, and « BMC Performance Manager Express for Hardware », the agent-less solution for BMC® Portal. The latter product is built on a new architecture and enables remote monitoring of your infrastructure on the Portal.
3. The purchase of a license for BMC Performance Manager for Hardware, gives you the right to use both Hardware Sentry KM for PATROL and BMC Performance Manager Express for Hardware.

   To avoid further confusion between the two products/technologies (especially for those clients who have migrated to the Portal framework, but continue to use the PATROL agent); we will refer to this product: the KM for PATROL as Hardware Sentry within the documentation but the title displays the official name: BMC® Performance Manager for Hardware by Sentry Software™.

Section II - Application Classes

This section familiarizes you with the Application classes used by Hardware Sentry to monitor the hardware of the servers installed with a PATROL Agent.

It gives a detailed view of each application class by describing its function, icon, parameters, infobox and menu commands used.

MS_HW_BLADE

Icon

PATROL Classic Console	PATROL Central
	

Parameters

Name	Description	Value set by
Status	Blade Status. Unit: 0 = Ok, 1 = Degraded, 2 = Failed	bladeColl every 2 minutes

InfoBox

Name	Description
ID	Blade PATROL internal identifier
Connector Display Name	Displays name of the Connector currently used to monitor the Fan
Connector File Name	File name of the Connector currently used to monitor the Fan

Menu Commands

Name	Description
Show Hardware Health Report	Displays a text box recapitulating miscellaneous information regarding the monitored blade (properties of the object, its parameters, thresholds, etc.)
Modify Alert Thresholds	Allows you to modify the thresholds of the Status parameter
Pause Monitoring	Pauses the Blade monitoring
Resume Monitoring	Resumes the Blade monitoring after it has been paused
Remove	Removes the Blade object from monitoring
Refresh Parameters	Refreshes all instance parameters of the MS_HW_BLADE application class

MS_HW_BLADE_CONT

This class is simply used to create a container for Blades for display purposes. It does not contain a parameter or Infobox but provides an easy way to interact with all Blades at the same time.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

None

InfoBox

None

Menu Commands

Name	Description
Pause Monitoring	Pauses the monitoring of all the dependent Blades of the selected container
Resume Monitoring	Resumes the monitoring of all the dependent Blades of the selected container
Remove	Removes the Blade container object as well as all its dependent Blade objects from monitoring
Refresh Parameters	Refreshes all the Blade container dependencies

MS_HW_CONNECTOR

Icon

PATROL Classic Console	PATROL Central
	

Parameters

Name	Description	Value set by
Status	Connector Status. Unit: 0 = Working, 2 = Failed (see Test Report)	connectorColl every 2 minutes
TestReport	Text describing the tests that have been performed to evaluate the status of the connector.	connectorColl every 2 minutes

InfoBox

Name	Description
ID	Connector internal identifier
Connector File Path	Path to the connector file (*.HDF)
Connector for	Hardware agent or information source the connector is intended for.
Description	Description of the connector, what it does and how.

Menu Commands

Name	Description
Pause Monitoring	Pauses the connector monitoring
Resume Monitoring	Resumes the connector monitoring after it has been paused
Remove	Removes the connector object from monitoring. May mean that the connector won't be used anymore to monitor the computer.
Refresh Parameters	Refreshes all instance parameters of the MS_HW_CONNECTOR application class

MS_HW_CONNECTOR_CONT

This class is simply used to create a container for Connector for display purposes. It does not contain a parameter or infobox but provides an easy way to interact with all Connectors at the same time.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

None

InfoBox

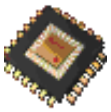
None

Menu Commands

Name	Description
Pause Monitoring	Pauses the monitoring of all dependent connectors of the selected container
Resume Monitoring	Resumes the monitoring of all dependent connectors of the selected container
Choose Connectors For This System	Gives you the options to either manually choose connectors suitable to the current system, or allow Hardware Sentry to automatically select the suitable connectors (by default)
Refresh Parameters	Refreshes all the connector container dependencies

MS_HW_CPU

Icon

PATROL Classic Console	PATROL Central
	

Parameters

Name	Description	Value set by
CorrectedErrorCount	Number of detected and corrected errors Unit: Error	cpuColl every 2 minutes
PredictedFailure	This parameter will trigger a warning if a CPU failure is predicted to happen Unit: 0 = Ok, 1 = A CPU failure is predicted	cpuColl every 2 minutes
Status	CPU Status Unit: 0 = Ok, 1 = Degraded, 2 = Failed	cpuColl every 2 minutes

Note: Depending on your system, all parameters may not be used. Only one of the parameters may be visible. This will not affect the proper monitoring of the device.

InfoBox

Name	Description
ID	CPU PATROL internal identifier
Connector Display Name	Displays name of the Connector currently used to monitor the CPU
Connector File Name	File name of the Connector currently used to monitor the CPU

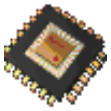
Menu Commands

Name	Description
Show Hardware Health Report	Displays a text box recapitulating miscellaneous information regarding the monitored CPU (properties of the object, its parameters, thresholds, etc.)
Modify Alert Thresholds	Allows you to modify the thresholds of the CorrectedErrorCount, PreductedFailure and Status parameters (platform-dependent)
Pause Monitoring	Pauses the CPU monitoring
Resume Monitoring	Resumes the CPU monitoring after it has been paused
Remove	Removes the CPU object from monitoring
Refresh Parameters	Refreshes all instance parameters of the MS_HW_CPU application class

MS_HW_CPU_CONT

This class is simply used to create a container for CPUs for display purposes. It does not contain a parameter or Infobox but provides an easy way to interact with all CPUs at the same time.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

None

InfoBox

None

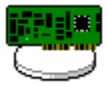
Menu Commands

Name	Description
Pause Monitoring	Pauses the monitoring of all the dependent CPUs of the selected container
Resume Monitoring	Resumes the monitoring of all the dependent CPUs of the selected container
Remove	Removes the CPU container object as well as all its dependent CPU objects from monitoring
Refresh Parameters	Refreshes all the CPU container dependencies

MS_HW_DISKCONTROLLER

The purpose of the Disk controller instance is to act as a container for Logical Disks and Physical Disks monitoring, and symbolize the way hard drives are setup on the platform. In addition, some information regarding the Disk Controllers, like their brand, model or driver version, is displayed in the Infobox.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

Name	Description	Value set by
BatteryStatus	This parameter triggers an alert to predict that the disk controller battery will be unable to support the controller in the event of a power failure. Unit: 0 = Ok, 1 = Degraded, 2 = Failed	diskcontrollerColl every 2 minutes
ControllerStatus	This parameter displays the status of the disk controller Unit: 0 = Ok, 1 = Degraded, 2 = Failed	diskcontrollerColl every 2 minutes

InfoBox

Name	Description
ID	Disk Controller PATROL internal identifier
Connector Display Name	Displays name of the Connector currently used to monitor the Disk Controller
Connector File Name	File name of the Connector currently used to monitor the Disk Controller
Bios Version	Disk Controller Bios version
Firmware Version	Disk Controller Firmware version
Driver Version	Disk Controller Driver version

Menu Commands

Function	Description
Show Hardware Health Report	Displays a text box recapitulating miscellaneous information regarding the monitored disk controller (properties of the object, etc.)
Modify Alert Thresholds	Allows you to modify the thresholds of the BatteryStatus and ControllerStatus parameters
Pause Monitoring	Pauses the monitoring of the Disk Controller as well as all its dependent objects
Resume Monitoring	Resumes the monitoring of the Disk Controller as well as all its dependent objects after it has been paused
Remove	Removes the Disk Controller as well as all its dependent objects from monitoring
Refresh Parameters	Refreshes all instance parameters of the MS_HW_DISKCONTROLLER application class

MS_HW_ENCLOSURE

Icon

PATROL Classic Console	PATROL Central
	

Parameters

Name	Description	Value set by
IntrusionStatus	This parameter will trigger an alarm if the enclosure has been opened Unit: 0 = No Intrusion, 2 = Intrusion Detected	enclosureColl every 2 minutes
Status	Enclosure Status Unit: 0 = Ok, 1 = Degraded, 2 = Failed	enclosureColl every 2 minutes

Note: Depending on your system, all parameters may not be used. Only one of the parameters may be visible. This will not affect the proper monitoring of the device.

InfoBox

Name	Description
ID	Enclosure PATROL internal identifier
Connector Display Name	Displays name of the Connector currently used to monitor the Enclosure
Connector File Name	File name of the Connector currently used to monitor the Enclosure

Menu Commands

Name	Description
Show Hardware Health Report	Displays a text box recapitulating miscellaneous information regarding the monitored enclosure (properties of the object, its parameters, thresholds, etc.)
Acknowledge IntrusionStatus Alert	Allows you to acknowledge and clear the alert triggered by the IntrusionStatus parameter
Modify Alert Thresholds	Allows you to modify the thresholds of the IntrusionStatus and Status parameters
Pause Monitoring	Pauses the enclosure monitoring
Resume Monitoring	Resumes the enclosure monitoring after it has been paused
Remove	Removes the enclosure object from monitoring
Refresh Parameters	Refreshes all instance parameters of the MS_HW_ENCLOSURE application class

MS_HW_FAN

This class creates fan monitoring objects for each cooling sensor that it can detect.Depending on the system and the data available, one or more parameters will be associated to the fan monitoring. Each fan created in the PATROL Console is placed under a container of the MS_HW_FAN_CONT class.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

Name	Description	Value set by
Speed	Fan Speed Unit: Rotation Per Minute (RPM)	fanColl every 2 minutes
SpeedPercent	Speed of the fan as a percentage of its maximal speed	fanColl every 2 minnutes
Status	Fan Status Unit: 0 = Ok, 1 = Degraded, 2 = Failed	fanColl every 2 minutes

Note: Depending on your system, all parameters may not be used. Only one of the parameters may be visible. This will not affect the proper monitoring of the device.

InfoBox

Name	Description
ID	Fan PATROL internal identifier
Connector Display Name	Displays name of the Connector currently used to monitor the Fan
Connector File Name	File name of the Connector currently used to monitor the Fan

Menu Commands

Name	Description
Show Hardware Health Report	Displays a text box recapitulating miscellaneous information regarding the monitored fan (properties of the object, its parameters, thresholds, etc.)
Modify Alert Thresholds	Allows you to modify the alert thresholds for the Fan Speed, Speedpercent and Status parameters
Pause Monitoring	Pauses the Fan monitoring
Resume Monitoring	Resumes the Fan monitoring after it has been paused
Remove	Removes the Fan object from monitoring
Refresh Parameters	Refreshes all instance parameters of the MS_HW_FAN application class

MS_HW_FAN_CONT

This class is simply used to create a container for Fans for display purposes. It does not contain a parameter or Infobox but provides an easy way to interact with all Fans at the same time.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

None

InfoBox

None

Menu Commands

Name	Description
Pause Monitoring	Pauses the monitoring of all the dependent Fans of the selected container
Resume Monitoring	Resumes the monitoring of all the dependent Fans of the selected container
Remove	Removes the Fan container object as well as all its dependent Fan objects from monitoring
Refresh Parameters	Refreshes all the Fan container dependencies

MS_HW_LOGICALDISK

This class creates instances for each logical disk discovered on and exposed by a disk controller. Logical disks are often a group of physical disks, configured as an array (RAID 0, 1, 5, etc.) and exposed to the operating system as a single physical volume.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

Name	Description	Value set by
Status	Logical Disk status Unit: 0 = Ok, 1 = Degraded, 2 = Failed	logicalDiskColl every 2 minutes
ErrorCount	Number of errors encountered by the physical disk. Unit: Errors	physicalDiskColl every 2 minutes

InfoBox

Name	Description
ID	Logical Disk PATROL internal identifier
Connector Display Name	Displays name of the Connector currently used to monitor the Logical Disk
Connector File Name	File name of the Connector currently used to monitor the Logical Disk
Disk Controller Label	Label of the Logical Disk's Disk Controller
Disk Controller ID	ID of the Logical Disk's Disk Controller

Menu Commands

Name	Description
Show Hardware Health Report	Displays a text box recapitulating miscellaneous information regarding the monitored logical disk (properties of the object, its parameters, thresholds, etc.)
Acknowledge Errorcount Alert and Reset	Resets the error counter to zero and therefore clears the current alert. Available only if the ErrorCount parameter is collected (platform-dependant).
Modify Alert Thresholds	Allows you to modify the alert thresholds for the ErrorCount and Status parameteres

Pause Monitoring	Pauses the Logical Disk monitoring
Resume Monitoring	Resumes the Logical Disk monitoring after it has been paused
Remove	Removes the Logical Disk object from monitoring
Refresh Parameters	Refreshes all instance parameters of the MS_HW_LOGICALDISK application class

MS_HW_LOGICALDISK_CONT

This class is simply used to create a container for Logical Disks for display purposes. It does not contain a parameter or Infobox but provides an easy way to interact with all Logical Disks at the same time.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

None

InfoBox

None

Menu Commands

Name	Description
Pause Monitoring	Pauses the monitoring of all the dependent Logical Disks of the selected container
Resume Monitoring	Resumes the monitoring of all the dependent Logical Disks of the selected container
Remove	Removes the Logical Disk container object as well as all its dependent Logical Disks from monitoring
Refresh Parameters	Refreshes all the Logical Disk container dependencies

MS_HW_MAIN

The MS_HW_MAIN class is responsible for the initialization of Hardware Sentry KM for PATROL and for all collecting jobs. Only one instance of this class is created.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

Name	Description	Default polling interval
bladeColl	Blade collector	2 minutes
cpuColl	CPU collector	2 minutes
connectorColl	Connector collector	2 minutes
diskcontrollerColl	Disk Controller collector	2 minutes
diskencoclusureColl	Disk Enclosure collector	2 minutes
enclosureColl	Enclosure collector	2 minutes
fanColl	Fan collector	2 minutes
logicalDiskColl	Logical Disk collector	2 minutes
memoryColl	Memory collector	2 minutes
networkColl	Network collector	2 minutes
otherdeviceColl	Other Device collector	2 minutes
physicalDiskColl	Physical Disk collector	2 minutes
powerSupplyColl	Power Supply collector	2 minutes
temperatureColl	Temperature collector	2 minutes
voltageColl	Voltage collector	2 minutes

InfoBox

Name	Description
ID	PATROL internal identifier of this object
Connector Display Name	Displays name of the Connector currently used to monitor the computer
Connector File Name	File name of the Connector currently used to monitor the computer
Product	Product name
Version	Hardware Sentry version number
Release Date	Release date of the version of Hardware Sentry currently in use
Copyright	Copyright information
Web Site	Web site address
Support	Support contact information

Menu Commands

Function	Description
Pause Monitoring	Pauses the Hardware Sentry KM for PATROL. No object monitoring will be performed while in this state
Resume Monitoring	Resumes the monitoring of all objects after it has been paused
Monitor Another System Remotely	Enables you to monitor another system remotely using either SNMP or WMI
Remove This System	Stops the hardware monitoring of this system
System Monitoring Settings	Allows you to set the system properties and credentials and connectors be used for monitoring
System Monitoring Settings >System Settings And Credentials	Allows you to set the properties and credentials or the security settings (SNMP string) or the account used by Hardware Sentry to launch external commands.
System Monitoring Settings >Choose Connectors For This System	Allows you to choose the suitable connectors that will permit monitoring the system
KM Settings	Displays all the command options for different monitoring settings
KM Settings > Edit Alert Actions	Modifies the alert actions executed by Hardware Sentry upon a hardware failure
KM Settings > Network Link Failure Alert	Allows you to choose the monitoring /alert settings for the network link status
KM Settings >Intrusion Detection Alert	Allows you to choose when an intrusion detection alert for the enclosure should be raised
KM Settings > Missing Device Detection	Enable/Disable Missing Device Detection
KM Settings > Threshold Management	Allows you to manage thresholds. You can modify the way Hardware Sentry manages alert thresholds on its parameters (automatic thresholds by “Override parameters”, or automatic thresholds through PCM/Event Management, or no automatic thresholds)
KM Settings > Internal Message Notification	Allows you to enable / disable and select the type of information messages displayed in the system output window of the PATROL Console.
KM Settings > Display Settings For Unix Consoles	Gives you the option to turn on the Unix console mode.
KM Settings > Restore Device Or Sensor Monitoring	Brings up the “Restore Device or Sensor Monitoring” wizard to restore one or several objects after their monitoring has been stopped
KM Settings >License	Enables you to enter your license key to activate the Hardware Sentry Knowledge Module once the trial period expires.
KM Settings > Debug	Activates or deactivates the Debug Mode. The Debug Mode displays debug messages in the PATROL System Output Window
Reinitialize	Triggers a complete re-initialization of Hardware Sentry. All the customizations made by the user are reset.
About	Sentry Software / BMC Software contact information

MS_HW_MEMORY

Icon

PATROL Classic Console	PATROL Central
	

Parameters

Name	Description	Value set by
ErrorCount	Number of detected (and possibly, corrected) errors Unit: Errors	memoryColl every 2 minutes
ErrorStatus	Units = 0 = No Errors, 1= Detected Errors, 2 = Too Many Errors	memoryColl every 2 minutes
PredictedFailure	This parameter will trigger a warning if a Memory failure is predicted Unit: 0 = Ok, 1 = A memory failure is predicted	memoryColl every 2 minutes
Status	Memory Status Unit: 0 = Ok, 1 = Degraded, 2 = Failed	memoryColl every 2 minutes

Note: Depending on your system, all parameters may not be used. Only one of the parameters may be visible. This will not affect the proper monitoring of the device.

InfoBox

Name	Description
ID	Memory module PATROL internal identifier
Connector Display Name	Displays name of the Connector currently used to monitor the Memory module
Connector File Name	File name of the Connector currently used to monitor the Memory module

Menu Commands

Name	Description
Show Hardware Health Report	Displays a text box recapitulating miscellaneous information regarding the monitored memory module (properties of the object, its parameters, thresholds, etc.)
Modify Alert Thresholds	Allows you to modify the thresholds of the ErrorCount, ErrorDetectionStatus, PredictedFailure and Status parameters (platform-dependent)
Pause Monitoring	Pauses the Memory monitoring
Resume Monitoring	Resumes the Memory monitoring after it has been paused
Remove This System	Removes the Memory object from monitoring
Refresh Parameters	Refreshes all instance parameters of the MS_HW_MEMORY application class

MS_HW_MEMORY_CONT

This class is simply used to create a container for Memory modules for display purposes. It does not contain a parameter or infobox but provides an easy way to interact with all Memory modules at the same time.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

None

InfoBox

None

Menu Commands

Name	Description
Pause Monitoring	Pauses the monitoring of all the dependent Memory modules of the selected container
Resume Monitoring	Resumes the monitoring of all the dependent Memory modules of the selected container
Remove	Removes the Memory module container object as well as all its dependent Memory objects from monitoring
Refresh Parameters	Refreshes all the Memory module container dependencies

MS_HW_NETWORK

Icon

PATROL Classic Console	PATROL Central
	

Parameters

Name	Description	Value set by
LinkStatus	This parameter will trigger a warning if the network interface is not connected (i.e. no cable plugged-in) Unit: 0 = Ok, 1 = Unplugged	networkColl every 2 minutes
Status	Network interface status Unit: 0 = Ok, 1 = Degraded, 2 = Failed	networkColl every 2 minutes
ErrorPercent	Percentage of transmitted and received packets in error between 2 collects. Unit: %	networkColl every 2 minutes

Note: Depending on your system, all parameters may not be used. Only one of the parameters may be visible. This will not affect the proper monitoring of the device.

InfoBox

Name	Description
ID	Network interface PATROL internal identifier
Connector Display Name	Displays name of the Connector currently used to monitor the Network interface
Connector File Name	File name of the Connector currently used to monitor the Network interface

Menu Commands

Name	Description
Show Hardware Health Report	Displays a text box recapitulating miscellaneous information regarding the monitored network interface (properties of the object, its parameters, thresholds, etc.)
Acknowledge LinkStatus Alert	Acknowledges and clears the alert
Modify Alert Thresholds	Allows you to modify the thresholds of the ErrorPercent, LinkStatus and Status parameters (platform-dependent)
Pause Monitoring	Pauses the Network interface monitoring
Resume Monitoring	Resumes the Network interface monitoring after it has been paused
Remove	Removes the Network object from monitoring
Refresh Parameters	Refreshes all instance parameters of the MS_HW_NETWORK application class

MS_HW_NETWORK_CONT

This class is simply used to create a container for network interfaces for display purposes. It does not contain a parameter or Infobox but provides an easy way to interact with all network interfaces at the same time.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

None

InfoBox

None

Menu Commands

Name	Description
Pause Monitoring	Pauses the monitoring of all the dependent Network interfaces of the selected container
Resume Monitoring	Resumes the monitoring of all the dependent Network interfaces of the selected container
Remove	Removes the Network interface container object as well as all its dependent Network objects from monitoring
Refresh Parameters	Refreshes all the Network interface container dependencies

MS_HW_OTHERDEVICE

This class is typically used to monitor devices that do not relate to the other classes and can rarely be monitored on servers. The device definition is given by the connector file and the device is monitored just as any other in any other class.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

Name	Description	Value set by
Status	Device status Unit: 0 = Ok, 1 = Degraded, 2 = Failed	otherDeviceColl every 2 minutes

InfoBox

Name	Description
ID	Other Device PATROL internal identifier
Connector Display Name	Displays name of the Connector currently used to monitor the Other Device
Connector File Name	File name of the Connector currently used to monitor the Other Device

Menu Commands

Name	Description
Show Hardware Health Report	Displays a text box recapitulating miscellaneous information regarding the monitored device (properties of the object, its parameters, thresholds, etc.)
Modify Alert Thresholds	Allows you to modify the thresholds of the Status parameter
Pause Monitoring	Pauses the Other Device monitoring
Resume Monitoring	Resumes the Other Device monitoring after it has been paused
Remove	Removes the Other Device object from monitoring
Refresh Parameters	Refreshes all instance parameters of the MS_HW_OTHERDEVICE application class

MS_HW_OTHERDEVICE_CONT

This class is simply used to create a container for display purposes. It does not contain a parameter or infobox but provides an easy way to interact with all other Devices at the same time.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

None

InfoBox

None

Menu Commands

Name	Description
Pause Monitoring	Pauses the monitoring of all the dependent Other Devices of the selected container
Resume Monitoring	Resumes the monitoring of all the dependent Other devices of the selected container
Remove	Removes the Other Devices container object as well as all its dependent Other Devices from monitoring
Refresh Parameters	Refreshes all the Other Device container dependencies

MS_HW_PHYSICALDISK

Each instance of this class represents a hard drive detected on the platform by Hardware Sentry. Its purpose is to monitor the status of each hard drive and possibly detect an incoming failure. All instances of this class are associated to a Disk Controller, representing the way the drives are setup on the platform.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

Name	Description	Value set by
PredictedFailure	Informs if a failure is predicted Unit: 0 = Ok, 1 = A Failure is predicted	physicalDiskColl every 2 minutes
Status	Physical Disk status Unit: 0 = Ok, 1 = Degraded, 2 = Failed	physicalDiskColl every 2 minutes
ErrorCount	Number of error encountered by the physical disk. Unit: Errors	physicalDiskColl every 2 minutes

InfoBox

Name	Description
ID	Physical Disk PATROL internal identifier
Connector Display Name	Displays name of the Connector currently used to monitor the Physical Disk
Connector File Name	File name of the Connector currently used to monitor the Physical Disk
Disk Controller Label	Label of the Physical Disk's Disk Controller
Disk Controller ID	ID of the Physical Disk's Disk Controller
Serial Number	Physical Disk's Serial Number

Menu Commands

Name	Description
Show Hardware Health Report	Displays a text box recapitulating miscellaneous information regarding the monitored physical disk (properties of the object, its parameters, thresholds, etc.)
Modify Alert Thresholds	Allows you to modify the thresholds of the PredictedFailure, ErrorCount and Status parameters (platform-dependent)
Pause Monitoring	Pauses the Physical Disk monitoring
Resume Monitoring	Resumes the Physical Disk monitoring after it has been paused
Remove	Removes the Physical Disk from monitoring
Refresh Parameters	Refreshes all instance parameters of the MS_HW_PHYSICALDISK application class
Acknowledge Errorcount Alert and Reset	Resets the error counter to zero and therefore clears the current alert. Available only if the ErrorCount parameter is collected (platform-dependant).

MS_HW_PHYSICALDISK_CONT

This class is simply used to create a container for Physical Disks for display purposes. It does not contain a parameter or Infobox but provides an easy way to interact with all Physical Disks at the same time.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

None

InfoBox

None

Menu Commands

Name	Description
Pause Monitoring	Pauses the monitoring of all the dependent Physical Disks of the selected container
Resume Monitoring	Resumes the monitoring of all the dependent Physical Disks of the selected container
Remove	Removes the Physical Disk container object as well as all its dependent Physical Disks from monitoring
Refresh Parameters	Refreshes all the Physical Disk container dependencies

MS_HW_POWERSUPPLY

Each instance of this class represents a power supply in the system. They are used to monitor their status and to let the PATROL operator know when a power supply is malfunctioning and needs attention.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

Name	Description	Value set by
Status	Power Supply status Unit: 0 = Ok, 1 = Warning, 2 = Alarm	powerSupplyColl every 2 minutes
UsedCapacity	Percentage of the Power Supply power currently in use if available Unit: Percentage (%)	powerSupplyColl every 2 minutes

Note: Depending on your system, all parameters may not be used. Only one of the parameters may be visible. This will not affect the proper monitoring of the device.

InfoBox

Name	Description
ID	Power Supply PATROL internal identifier
Connector Display Name	Displays name of the Connector currently used to monitor the Power Supply
Connector File Name	File name of the Connector currently used to monitor the Power Supply

Menu Commands

Name	Description
Show Hardware Health Report	Displays a text box recapitulating miscellaneous information regarding the monitored power supply (properties of the object, its parameters, thresholds, etc.)
Modify Alert Thresholds	Allows you to modify the thresholds of the Status and UsedCapacity parameters
Pause Monitoring	Pauses the Power Supply monitoring
Resume Monitoring	Resumes the Power Supply monitoring after it has been paused
Remove	Removes the Power Supply from monitoring
Refresh Parameters	Refreshes all instance parameters of the MS_HW_POWERSUPPLY application class

MS_HW_POWERSUPPLY_CONT

This class is used to create a container for Power Supplies for display purposes. It does not contain a parameter or infobox but provides an easy way to interact with all Power Supplies at the same time.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

None

InfoBox

None

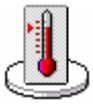
Menu Commands

Name	Description
Pause Monitoring	Pauses the monitoring of all the dependent Power Supplies of the selected container
Resume Monitoring	Resumes the monitoring of all the dependent Power Supplies of the selected container
Remove	Removes the Power Supply container object as well as all its dependent Power Supplies from monitoring
Refresh Parameters	Refreshes all the Power Supply container dependencies

MS_HW_TEMPERATURE

Hardware Sentry detects the temperature probes on the motherboard or devices and creates an instance of this class for each of them. Their location in the platform is described in the instance's label if it is available. When a temperature reading can be performed, temperature thresholds are automatically set and an alert will be triggered if the temperature rises to a dangerous level. Even in the case that no reading can made, the status parameter will display the condition of the temperature in the system.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

Name	Description	Value set by
Status	Temperature status Unit: 0 = Ok, 1 = Warning, 2 = Too Hot	temperatureColl every 2 minutes
Temperature	Temperature reading Unit: Celsius degrees (C°)	temperatureColl every 2 minutes

Note: Depending on your system, all parameters may not be used. Only one of the parameters may be visible. This will not affect the proper monitoring of the device.

InfoBox

Name	Description
ID	Temperature PATROL internal identifier
Connector Display Name	Displays name of the Connector currently used to monitor the Temperature
Connector File Name	File name of the Connector currently used to monitor the Temperature

Menu Commands

Name	Description
Show Hardware Health Report	Displays a text box recapitulating miscellaneous information regarding the monitored temperature sensor (properties of the object, its parameters, thresholds, etc.)
Modify Alert Thresholds	Allows you to modify the thresholds of the Temperature and Status parameters
Pause Monitoring	Pauses the Temperature monitoring
Resume Monitoring	Resumes the Temperature monitoring after it has been paused
Remove	Removes the Temperature from monitoring
Refresh Parameters	Refreshes all instance parameters of the MS_HW_TEMPERATURE application class

MS_HW_TEMPERATURE_CONT

This class is simply used to create a container for Temperatures for display purposes. It does not contain a parameter or infobox but provides an easy way to interact with all Temperatures at the same time.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

None

InfoBox

None

Menu Commands

Name	Description
Pause Monitoring	Pauses the monitoring of all the dependent Temperatures of the selected container
Resume Monitoring	Resumes the monitoring of all the dependent Temperatures of the selected container
Remove	Removes the Temperature container object as well as all its dependent Temperatures from monitoring
Refresh Parameters	Refreshes all the Temperature container dependencies

MS_HW_VOLTAGE

The purpose of this class is to monitor power supply voltages. For each voltage sensor (+5V, +12V, -5V, etc.), an instance is created in a container with a label describing its type. If the computer's configuration allows a reading of the voltages, their value will be available in the Voltage parameter and an alert will be triggered if they don't meet the automatically set thresholds. Otherwise, the Status parameter will inform you if a problem occurs with one of the voltages.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

Name	Description	Value set by
Status	Voltage status Unit: 0 = Ok, 1 = Degraded, 2 = Failed	voltageColl every 2 minutes
Voltage	Voltage reading Unit: millivolts (mV)	voltageColl every 2 minutes

Note: Depending on your system, all parameters may not be used. Only one of the parameters may be visible. This will not affect the proper monitoring of the device.

InfoBox

Name	Description
ID	Voltage PATROL internal identifier
Connector Display Name	Displays name of the Connector currently used to monitor the Voltage
Connector File Name	File name of the Connector currently used to monitor the Voltage

Menu Commands

Name	Description
Show Hardware Health Report	Displays a text box recapitulating miscellaneous information regarding the monitored voltage sensor (properties of the object, its parameters, thresholds, etc.)
Modify Alert Thresholds	Allows you to modify the alert thresholds of the Voltage and Status parameters
Pause Monitoring	Pauses the Voltage monitoring
Resume Monitoring	Resumes the Voltage monitoring after it has been paused
Remove	Removes the Voltage from monitoring
Refresh Parameters	Refreshes all instance parameters of the MS_HW_VOLTAGE application class

MS_HW_VOLTAGE_CONT

This class is simply used to create a container for Voltages for display purposes. It does not contain a parameter or infobox but provides an easy way to interact with all Voltages at the same time.

Icon

PATROL Classic Console	PATROL Central
	

Parameters

None

InfoBox

None

Menu Commands

Name	Description
Pause Monitoring	Pauses the monitoring of all the dependent Voltages of the selected container
Resume Monitoring	Resumes the monitoring of all the dependent Voltages of the selected container
Remove	Removes the Voltage container object as well as all its dependent Voltages from monitoring
Refresh Parameters	Refreshes all the Voltage container dependencies

Section III - Configuration Variables

This section lists the configuration variables used by Hardware Sentry KM for Patrol.

Configuration variables are stored in the PATROL Agent configuration and can be managed through:

- PATROL Configuration Manager (PCM)
- WPCONFIG.EXE (Windows)
- xpconfig (UNIX/Linux)

Global configuration variables are stored under the /SENTRY/HARDWARE folder in the configuration tree.

Host-specific variables are stored under the /SENTRY/HARDWARE/<hostname> folder in the configuration tree.

By default, host-specific variables for the local host are stored under /SENTRY/HARDWARE/localhost. This folder cannot be removed from the configuration tree of Hardware Sentry.

Global Configuration Variables Table

The following table recapitulates the configuration variables used by Hardware Sentry globally, i.e that apply to all of the monitored hosts. These configuration variables are stored under /SENTRY/HARDWARE in the PATROL Agent's configuration.

Variable	Description
AlertActions	List of alert actions to be executed by Hardware Sentry upon a hardware failure. Default: a PATROL event and an annotation on the parameter.
debugFile	File path for the debug output when the debug mode is enabled. Default: not set
debugMode	When set to '1', enables the debug mode of Hardware Sentry. Default: not set
dirCommand	OS Command used to list the files in a directory. This command is used to find the installed connectors in the "hdfPath" directory. Default: On Windows: dir /A:-D /B /O:-D /T:W /S %{FOLDERPATH} On UNIX/Linux: ls -atpR1 %{FOLDERPATH}
disableMissingDeviceDetection	When set to '1', disables the missing device detection mechanism of Hardware Sentry. By default, Hardware Sentry raises an alarm for devices that were discovered and that are no longer discovered. Default: not set
forceSnmpSerialization	When set to '1', forces the serialization of the SNMP requests made by Hardware Sentry. As Hardware Sentry is a multi-threaded program, it can send several SNMP requests at the same time on multi-processor computers. Some poorly written SNMP agents may not support this. Default: not set
hdfPath	Alternate path where the connector files (*.hdf) are stored. Default: $PATROL_HOME/lib/MS_HW_hdf
sowMessages	How much internal information should be displayed in the System Output Window in the PATROL Console. When set to 'all', all internal Hardware Sentry messages (problems and informational messages). When set to 'problems', only errors and problems. When set to 'none', no internal message at all. This doesn't affect the reporting of actual hardware problems. Default: all
pemMessages	How much internal information should be sent as PATROL events. When set to 'all', all internal Hardware Sentry messages (problems and informational messages). When set to 'problems', only errors and problems. When set to 'none', no internal message at all. This doesn't affect the reporting of actual hardware problems. Default: all
license4	License information (license key, key type and expiration date) Default: not set
snmpMaxWalkItems	Maximum number of variables that can be processed by a single SNMP walk operation. Default: 100
startupDelay	This variable allows the administrator to specify a number of seconds that Hardware Sentry will wait before starting its platform detection and discovery. This variable may be useful on fast computers where the hardware agent starts after Hardware Sentry and therefore is not detected. Default: not set (zero)

ThresholdManagementMode	Specifies how Hardware Sentry should manage the alert thresholds on parameters. Please refer to the Hardware Sentry User Guide for more details Possible values: 'AS' (through PATROL for Event Management) 'Tuning' (through the standard "Override parameter" mechanism) 'None' (No threshold is set by Hardware Sentry) Default: 'Tuning'
UNIXConsoleMode	When set to '1', makes Hardware Sentry use short display name for the icons in the PATROL Consoles. This can be useful for UNIX PATROL Classic Consoles but this flags affects every console connected to the agent. Default: not set

Host-Specific Configuration Variables Table

The following table recapitulates the configuration variables used by Hardware Sentry for each monitored system. These configuration variables are stored under /SENTRY/HARDWARE/<hostID> in the PATROL Agent's configuration.

Variable	Description
hostname	Real host name or IP address to be used to communicate with the remote host. Default: Same as hostID
operatingSystemType	Type (class) of the operating system of the monitored host: - set to "NT" for Windows systems (Windows NT, 2000, XP and 2003) - set to "Linux" for Linux systems - set to: VMS for HP OpenVMS systems - set to: Tru64 for HP Tru64 UNIX systems - set to: None for non-computer devices like tape libraries or management cards
osCommandPassword	PSL encrypted password for the user account used to launch external commands. Default: not set
osCommandUsername	User account used by Hardware Sentry to launch external commands. Default: not set (will use the PATROL Agent default account)
preselectedHDFFileList	Line-separated list of connectors that have been "pre-selected" by the administrator. It is recommended that you use the KM graphical user interface to modify this variable. Default: not set (means: do platform detection)
psCommand	Command used on UNIX/Linux systems to retrieve the list of the currently running processes. Default: ps -A -o pid,comm,ruser,ppid,arg
snmpCommunity	SNMP community string used by Hardware Sentry to make SNMP requests. Default: not set (let Hardware Sentry decide)
sudoCommand	Syntax of the sudo command (including its full path and optional arguments) that will be used by Hardware Sentry to launch the external commands specified in the useSudoCommandList variable. Default: path to the sudo utility if available in the $PATH
useSudoCommandList	Line-separated list of commands that will be launched by Hardware Sentry through the sudo utility. Please use the graphical user interface to set this variable properly. Default: not set

Section IV - Thresholds

Hardware Sentry dynamically sets the thresholds on all of its parameters, depending on the platform it is running on. This is why a table recapitulating the alert thresholds of Hardware Sentry cannot be provided.

In order to be fully compliant with PATROL Configuration Manager (PCM)/Event Management KM, Hardware Sentry dynamically sets the thresholds on even static parameters, like the Status parameter whose thresholds are such: 1 raises a WARNING, 2 raises an ALARM.

Depending on the threshold management method chosen, BPM for Hardware sets the thresholds either by setting the /___tuning___ variables, or through the PCM/Event Management KM mechanism (/AS/...).

It is strongly recommended to let Hardware Sentry decide which thresholds to set on its parameters and not to apply a global policy to a whole group of servers (e.g. by exporting the thresholds of a given server and applying these thresholds to the other servers).

Section V - Connectors

This section deals with connectors provided with 1.4.00 version of Hardware Sentry KM for PATROL. Since in most cases, Hardware Sentry works along with vendor-specific agents of the platforms to first collect information and then monitor hardware components, it provides brand-specific connectors for practically all platforms/environments.

A table gives you a quick overview of these connectors with their corresponding filenames and applicable environments (i.e. type of computers, servers, operating systems).

Next, the section deals with detailed information on each of these connectors - stating the target, typical platforms, the pre-requisites for Hardware Sentry to function optimally, technology used, and what it will discover (stating precise application class names) and then, most importantly, what it will monitor.

In order to know all about the connectors for your systems, just identify your platforms/environments in the reference table, and then read the corresponding details. Connectors Reference Table.

Connectors Reference Table

The following table shows all the connectors provided with the 1.4.00 version of Hardware Sentry. Each connector is a file with the .hdf extension stored in the $PATROL_HOME/lib/MS_HW_hdf directory.

Connector filename	Connector for	Applicable to
MS_HW_AAC.hdf	Adaptec Storage Manager Web Edition (AAC)	Computers with an Adaptec RAID controller
MS_HW_DptStorageManager.hdf	Adapetc Storage Manager (DPT)	Computers with an Adaptec RAIDcontroller
MS_HW_IOManager.hdf	Adpatec IOManager	Computers with an Adaptec RAID controller
MS_HW_DellArrayManager.hdf	Dell OpenManage Array Manager	Dell PowerEdge computers
MS_HW_DellOpenManage.hdf	Dell Open Manage Server Administrator	Dell PowerEdge computers
MS_HW_DellStorageManager.hdf	Dell OpenManage Storage Manager	Dell PowerEdge computers
MS_HW_FujitsuSiemensBlade.hdf	Fujitsu-Siemens Management Blade (FSC BX Blade Servers)	Fujitsu-Siemens Blade servers (remotely)
MS_HW_ServerviewNT.hdf	Fujitsu-Siemens Serverview	Fujitsu-Siemens Primergy computers
MS_HW_HPBladeSystem.hdf	HP BladeSystem Enclosures	HP Blade Systems
MS_HW_CpqDriveArrayNT.hdf	HP Insight Management Agent – Drive Array	HP ProLiant computers
MS_HW_CpqFCADriveArray.hdf	HP Insight Management Agent – Fiber Array	HP/Compaq ProLiant, AlphaServer, Integrity, rx2600, rx4600 and SuperDome servers
MS_HW_CpqIDEDriveArray.hdf	HP Insight Management Agent – IDE Storage	HP ProLiant computers
MS_HW_CpqSCSIDriveArray.hdf	HP Insight Management Agent – SCSI Storage	HP ProLiant computers running Linux and HP AlphaServer
MS_HW_HPiLO.hdf	HP Integrated Lights-Out Management Card	HP Integrity, HP 9000, HP 3000 and PA-RISC-based SuperDome systems running HP-UX
MS_HW_HpNetRaidController.hdf	HP TopTools NetRaid SNMP Sub-Agent	HP NetServer computers
MS_HW_HPTopToolsNT.hdf	HP TopTools Agent	HP NetServer computers
MS_HW_HPUXDisk.hdf	HP-UX – Disks	HP 9000 computers running HP-UX
MS_HW_HPUX.hdf	HP-UX–Common	HP 9000 computers running HP-UX
MS_HW_IBMAIXChrpMachstat.hdf	IBM AIX – CHRP Environment	IBM CHRP-based servers running AIX 5.x (IBM pSeries and IBM eServer p5 servers)
MS_HW_IBMAIX.hdf	IBM AIX – Common	IBM RS/6000, pSeries and eServer p5 computers running AIX
MS_HW_IBMAIXDisk.hdf	IBM AIX – SCSI Disks	IBM RS/6000, pSeries and eServer p5 computers running AIX
MS_HW_IBMAIXUeSensor.hdf	IBM AIX – Environment	IBM RS/6000, pSeries and eServer p5 computers running AIX
MS_HW_IBMBlade.hdf	IBM BladeCenter Management Module	IBM BladeCenter servers (remotely)

Connector filename	Connector for	Applicable to
MS_HW_Director4NT.hdf	IBM Director Agent 4.x – Windows	IBM xSeries and Netfinity computers running Windows
MS_HW_Director5Linux.hdf	IBM Director Agent 5.x – Linux	IBM xSeries and Netfinity computers running Linux
MS_HW_Director5NT.hdf	IBM Director Agent 5.x – Windows	IBM xSeries and Netfinity computers running Windows
MS_HW_IbmNetfinityManager.hdf	IBM Netfinity Manager 5.20.x – Normal	IBM Netfinity computers
MS_HW_IbmNetfinityManagerBASIC.hdf	IBM Netfinity Manager 5.20.x – Basic	IBM Netfinity computers
MS_HW_IbmNetfinityManagerRAID.hdf	IBM Netfinity Manager 5.20.x – Disks	IBM Netfinity computers
MS_HW_IpmiTool.hdf	IPMI in-band (ipmiTool)	IPMI-enabled servers running Linux or Sun Solaris.
MS_HW_LinuxNetwork.hdf	Linux – Network	Computers running Linux
MS_HW_LSI1030.hdf	LSI 1030-based Global Array Manager Server	Fujitsu-Siemens PRIMERGY servers with a LSI c1030-based disk controller
MS_HW_LSIUtilUNIX.hdf	LSILogic LsiUtil	Sun AMD Opteron-based servers running Linux or Sun Solaris (Sun Fire v20z, v40z, etc.)
MS_HW_MegaRaidPowerConsole.hdf	LSILogic MegaRAID PowerConsole	Computers with a LsiLogic RAID controller
MS_HW_MBMNT.hdf	Motherboard Monitor	Unbranded PC running Windows
MS_HW_MylexController.hdf	Mylex Global Array Manager Server	Computers with a Mylex RAID controller
MS_HW_NECEsmPro.hdf	NEC ESMPRO Agent	NEC Express5800 computers
MS_HW_PromiseFSC.hdf	Promise FastTrack SNMP Agent	Fujitsu-Siemens PRIMERGY with Promise FastTrack RAID controllers
MS_HW_SmartMonLinux	SmartMon Tools	Linux servers with non-RAID IDE, ATA or SCSI disks
MS_HW_StorageTekLSeries.hdf	StorageTEk LSeries Tape Library	StorageTek LSeries Tape Library devices
MS_HW_SunIostat.hdf	Sun Solaris – Disks	Sun computers running Solaris
MS_HW_SunPrtdiag.hdf	Sun Solaris –Environment	Sun computers running Solaris
MS_HW_SunCediag.hdf	Sun Solaris – Memory Modules	Sun SPARC-based computers running Solaris 8 or 9
MS_HW_SunNetwork.hdf	Sun Solaris –Network	Sun computers running Solaris
MS_HW_WBEMGenDiskNT.hdf	WBEM on Windows – Disks	Computers running Windows
MS_HW_WBEMGenNetwork.hdf	WBEM on Windows – Network	Computers running Windows

Connector Details

Adaptec IOManager

Target: Adaptec U320 HostRAID controllers

Typical platform: Fujitsu-Siemens Primergy servers

Requires: Adaptec IOManager

Technology: SNMP

Discovers:

- Adaptec U320 HostRAID disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the Adaptec controllers (MS_HW_PHYSICALDISK)
- Logical disks attached to the Adaptec controllers (MS_HW_LOGICALDISK)

Monitors:

- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)
- Physical disks failure prediction (MS_HW_PHYSICALDISK / PredictedFailure parameter)
- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter)

Adaptec Storage Manager Web Edition (AAC)

Target: Adaptec AAC-based RAID controllers

Typical platform: Fujitsu-Siemens Primergy servers

Requires: Adaptec Storage Manager Web Edition

Technology: SNMP

Discovers:

- Adaptec AAC-based RAID disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the Adaptec controllers (MS_HW_PHYSICALDISK)
- Logical disks attached to the Adaptec controllers (MS_HW_LOGICALDISK)

Monitors:

- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)
- Physical disks failure prediction (MS_HW_PHYSICALDISK / PredictedFailure parameter)
- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter)

Adaptec Storage Manager (DPT)

Target: Adaptec DPT-based RAID controllers

Typical platform: Fujitsu-Siemens Primergy servers

Requires: Adaptec Storage Manager

Technology: SNMP

Discovers:

- Adaptec DPT-based RAID disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the Adaptec controllers (MS_HW_PHYSICALDISK)
- Logical disks attached to the Adaptec controllers (MS_HW_LOGICALDISK)

Monitors:

- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)
- Physical disks failure prediction (MS_HW_PHYSICALDISK / PredictedFailure parameter)
- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter)

Dell OpenManage Array Manager

Target: DELL PERC RAID disk controllers

Typical platform: DELL PowerEdge

Requires: Dell OpenManage Array Manager (part of Dell OpenManage Server Administrator)

Technology: SNMP

Discovers:

- DELL PERC RAID disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the DELL PERC RAID controllers (MS_HW_PHYSICALDISK)
- Logical disks attached to the DELL PERC RAID controllers (MS_HW_LOGICALDISK)

Monitors:

- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)
- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter)

Dell OpenManage Server Administrator

Target: DELL PowerEdge environment, power supplies, memory modules and processors.

Typical platform: DELL PowerEdge

Requires: Dell OpenManage Server Administrator

Technology: SNMP

Discovers:

- Computer model (MS_HW_ENCLOSURE)
- Processors (MS_HW_CPU)
- Memory modules (MS_HW_MEMORY)
- Temperature sensors (MS_HW_TEMPERATURE)
- Fans (MS_HW_FAN)
- Power supplies (MS_HW_POWERSUPPLY)
- Voltage sensors (MS_HW_VOLTAGE)

Monitors:

- Status of the processors (MS_HW_CPU / Status parameter)
- Status of the memory modules (MS_HW_MEMORY / Status parameter)
- Temperature reported by temperature sensors (MS_HW_TEMPERATURE / Temperature parameter)
- Speed of the fans (MS_HW_FAN / Speed parameter)
- Status of the power supplies (MS_HW_POWERSUPPLY / Status parameter)
- Voltage levels and/or status reported by the sensors (MS_HW_VOLTAGE / Voltage and Status parameters)
- Opening of the main enclosure (MS_HW_ENCLOSURE / IntrusionStatus parameter)

Note: On recent Dell servers, only the Status parameter of the MS_HW_VOLTAGE instances is collected. The actual sensor reading is not available.

Dell OpenManage Storage Manager

Target: DELL PERC RAID disk controllers

Typical platform: DELL PowerEdge

Requires: Dell OpenManage Storage Manager (part of Dell OpenManage Server Administrator)

Technology: SNMP

Discovers:

- DELL PERC RAID disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the DELL PERC RAID controllers (MS_HW_PHYSICALDISK)
- Logical disks attached to the DELL PERC RAID controllers (MS_HW_LOGICALDISK)

Monitors:

- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)
- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter)

Fujitsu-Siemens Management Blade (FSC BX Blade Servers)

Target: Fujitsu-Siemens Blade main enclosure environment

Typical platform: Fujitsu-Siemens BX300, BX600 and newer blade systems

Requires: Fujitsu-Siemens Management Blade with SNMP enabled

Technology: SNMP

Discovers:

- Blade enclosure model (MS_HW_ENCLOSURE)
- Temperature sensors (MS_HW_TEMPERATURE)
- Fans (MS_HW_FAN)
- Power supplies (MS_HW_POWERSUPPLY)
- Blade servers within the main enclosure (MS_HW_BLADE)

Monitors:

- Overall status of each blade server (MS_HW_BLADE / Status)
- Temperature reported by temperature sensors (MS_HW_TEMPERATURE / Temperature parameter)
- Speed of the fans (MS_HW_FAN / Speed parameter)
- Status of the power supplies (MS_HW_POWERSUPPLY / Status parameter)

Note: Hardware Sentry cannot be installed on the Management Blade itself, the monitoring is therefore performed remotely. For further details see On Fujitsu-Siemens Management Blade in the *Installation Guide*

Fujitsu-Siemens Serverview

Target: Fujitsu-Siemens Primergy environment

Typical platform: Fujitsu-Siemens Primergy computers

Requires: Fujitsu-Siemens Serverview agent

Technology: SNMP

Discovers:

- Computer model (MS_HW_ENCLOSURE)
- Processors (MS_HW_CPU)
- Memory modules (MS_HW_MEMORY)
- Temperature sensors (MS_HW_TEMPERATURE)
- Fans (MS_HW_FAN)
- Power supplies (MS_HW_POWERSUPPLY)
- Voltage sensors (MS_HW_VOLTAGE)

Monitors:

- Status of the processors (MS_HW_CPU / Status parameter)
- Status and number of errors encountered by the memory modules (MS_HW_MEMORY / Status and ErrorCount parameters)
- Temperature reported by temperature sensors (MS_HW_TEMPERATURE / Temperature parameter)
- Speed of the fans (MS_HW_FAN / Speed parameter)
- Status of the power supplies (MS_HW_POWERSUPPLY / Status parameter)
- Voltage levels reported by the sensors (MS_HW_VOLTAGE / Voltage parameter)

HP BladeSystem

Target: HP BladeSystem enclosures

Typical platform: HP BladeSystem

Requires: HP Insight Management Agent

Discovers:

- Chassis (MS_HW_ENCLOSURE)
- Power supplies (MS_HW_POWERSUPPLY)
- Temperature sensors when available (MS_HW_TEMPERATURE)
- Fans when available (MS_HW_FAN)
- Fuses (MS_HW_OTHERDEVICE)

Monitors:

- Power supplies status and used capacity (MS_HW_POWERSUPPLY / Status and UsedCapacity parameters)
- Temperature when available (MS_HW_TEMPERATURE / Temperature and Status parameters)
- Fans status when available (MS_HW_FAN / Status parameter)
- Fuses state (MS_HW_OTHERDEVICE / Status parameter)

HP Insight Management Agent – Drive Array

Target: HP (Compaq) Smart Array disk controllers

Typical platform: HP ProLiant

Requires: HP Insight Management Agent

Technology: SNMP

Discovers:

- HP (Compaq) Smart Array disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the HP Smart Array controllers (MS_HW_PHYSICALDISK)

- Logical disks attached to the HP Smart Array controllers (MS_HW_LOGICALDISK)

Monitors:

- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)
- Physical disks failure prediction (MS_HW_PHYSICALDISK / PredictedFailure parameter)
- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter)

HP Insight Management Agent - Fiber Array

Target: Fibre-connected HP/Compaq StorageWorks Arrays

Typical platform: HP/Compaq ProLiant and AlphaServer servers

Requires: HP Insight Management Agent

Discovers:

- HP StorageWorks array model (MS_HW_ENCLOSURE)
- Physical disks (MS_HW_PHYSICALDISK)
- RAID Logical disks (MS_HW_LOGICALDISK)
- Array controllers (MS_HW_OTHERDEVICE)

Monitors:

- Physical disks status, failure prediction and number encountered errors (MS_HW_PHYSICALDISK / Status, PredictedFailure and ErrorCount parameters)
- RAID Logical disks status (MS_HW_LOGICALDISK / Status parameter)
- Array controllers status (MS_HW_LOGICALDISK / Status parameter)

HP Insight Management Agent - IDE Storage

Target: HP (Compaq) IDE and ATA.disk controllers

Typical platform: HP ProLiant

Requires: HP Insight Management Agent

Technology: SNMP

Discovers:

- HP (Compaq) IDE and ATA disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the IDE and ATA controllers (MS_HW_PHYSICALDISK)
- Logical disks attached to the IDE and ATA controllers (MS_HW_LOGICALDISK)

Monitors:

- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)
- Physical disks failure prediction (MS_HW_PHYSICALDISK / PredictedFailure parameter)

- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter)

HP Insight Management Agent - SCSI Storage

Target: HP (Compaq) SCSI.disk controllers (non-RAID)

Typical platform: HP ProLiant and AlphaServer

Requires: HP Insight Management Agent

Technology: SNMP

Discovers:

- HP (Compaq) SCSI disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the SCSI controllers (MS_HW_PHYSICALDISK)
- Logical disks attached to the SCSI controllers (MS_HW_LOGICALDISK)

Monitors:

- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)
- Physical disks failure prediction (MS_HW_PHYSICALDISK / PredictedFailure parameter)
- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter)

HP Insight Management Agent - Server

Target: Environment, power supplies, memory modules and processors on HP ProLiant, Integrity, rx2600, rx4600, SuperDome and AlphaServer.

Typical platform: HP ProLiant running Windows or Linux, HP AlphaServer running Tru64 UNIX, HP rx2600, rx4600, Integrity and SuperDome running Windows Server 2003 or Linux.

Requires: HP Insight Management Agent

Technology: SNMP

Discovers:

- Computer model (MS_HW_ENCLOSURE)
- Processors (MS_HW_CPU)
- Memory modules (MS_HW_MEMORY)
- Temperature sensors (MS_HW_TEMPERATURE)
- Fans (MS_HW_FAN)
- Power supplies (MS_HW_POWERSUPPLY)

Note: No voltage sensor is discovered.

Monitors:

- Status of the processors (MS_HW_CPU / Status parameter)
- Status of the memory modules regarding the number of encountered errors (MS_HW_MEMORY / ErrorStatus parameter)

- Temperature reported by temperature sensors (MS_HW_TEMPERATURE / Temperature parameter)
- Status of the fans (MS_HW_FAN / Status parameter)
- Status of the power supplies (MS_HW_POWERSUPPLY / Status parameter)
- Power delivered by the power supply (MS_HW_POWERUSPPLY / UsedCapacity parameter)

HP Insight Management Agent - Server (Tru64)

Target: HP AlphaServer fans, power supplies, and physical network cards.

Typical platform: HP AlphaServer running Tru64 UNIX

Requires: HP Insight Management Agent

Technology: SNMP

Discovers:

- Fans (MS_HW_FAN)
- Power supplies (MS_HW_POWERSUPPLY)
- Network cards (MS_HW_NETWORK)

Note: This complements the devices discovered by the HP Insight Management Agent – Server connector.

Monitors:

- Status of the fans (MS_HW_FAN / Status parameter)
- Status of the global power supply (MS_HW_POWERSUPPLY / Status parameter)
- Status of the network cards (MS_HW_NETWORK / Status parameter)
- Link status of the network card (MS_HW_NETWORK / LinkStatus parameter)

HP Integrated Lights-Out Management Card

Target: Environment and power supplies of HP Integrity, HP 9000, HP 3000 and PA-RISC-based SuperDome systems running HP-UX

Typical platform: HP Integrity, HP 9000, HP 3000 and PA-RISC-based SuperDome systems running HP-UX

Requires: HP Integrated Lights-Out Management Card (also known as “MP – Management Processor” or “GSP – Guardian Service Processor”) with TCP/IP network access

Technology: Telnet

Discovers:

- Computer model (MS_HW_ENCLOSURE)
- Temperature sensors (MS_HW_TEMPERATURE)
- Fans (MS_HW_FAN)

- Power supplies (MS_HW_POWERSUPPLY)

Note: No voltage sensor is discovered.

Monitors:

- Status of the machine (powered on or off, MS_HW_ENCLOSURE / Status parameter)
- General temperature status reported by temperature sensors (MS_HW_TEMPERATURE / Status parameter)
- Status of the fans (MS_HW_FAN / Status parameter)
- Status of the power supplies (MS_HW_POWERSUPPLY / Status parameter)

HP TopTools NetRaid SNMP Sub-Agent

Target: HP NetRAID controllers

Typical platform: HP NetServer running Windows or Linux

Requires: HP Instant TopTools with the HP NetRAID SNMP sub-agent

Technology: SNMP

Discovers:

- HP NetRAID disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the HP controllers (MS_HW_PHYSICALDISK)
- Logical disks attached to the HP controllers (MS_HW_LOGICALDISK)

Monitors:

- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)
- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter)

HP TopTools Agent

Target: HP NetServer environment

Typical platform: HP NetServer running Windows

Requires: HP Instant TopTools

Technology: Specific TopTools CGI and WBEM

Discovers:

- Computer model (MS_HW_ENCLOSURE)
- Processors (MS_HW_CPU)
- Memory modules (MS_HW_MEMORY)
- Temperature sensors (MS_HW_TEMPERATURE)
- Fans (MS_HW_FAN)
- Power supplies (MS_HW_POWERSUPPLY)
- Voltage sensors (MS_HW_VOLTAGE)

Monitors:

- Status of the processors (MS_HW_CPU / Status parameter)
- Status of the memory modules (MS_HW_MEMORY / Status parameter)
- Temperature reported by temperature sensors (MS_HW_TEMPERATURE / Temperature parameter)
- Speed and status of the fans (MS_HW_FAN / Status and Speed parameters)
- Status of the power supplies (MS_HW_POWERSUPPLY / Status parameter)
- Voltage levels reported by the sensors (MS_HW_VOLTAGE / Voltage parameter)

HP-UX – Common

Target: Network cards and processors on HP-UX systems (HP 9000 and HP Integrity)

Typical platform: HP 9000 and Integrity computers running HP-UX

Requires: Nothing

Technology: HP-UX command-line tools

Discovers:

- Computer model (MS_HW_ENCLOSURE)
- Processors (MS_HW_CPU)
- Network cards (MS_HW_NETWORK)

Monitors:

- Status of the processors (MS_HW_CPU / Status parameter)
- Status and percentage of errors of the network cards (MS_HW_NETWORK / Status and ErrorPercent parameters)

HP-UX – Disks

Target: Standard SCSI disks monitoring on HP-UX systems (HP 9000 and HP Integrity)

Typical platform: HP 9000 and Integrity computers running HP-UX

Requires: Root privileges to run the /usr/sbin/diskinfo utility (may use “sudo”)

Technology: HP-UX command-line tools

Discovers:

- Standard SCSI disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the SCSI controllers (MS_HW_PHYSICALDISK)

Monitors:

- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)

IBM AIX – Common

Target: IBM RS/6000, pSeries and eServer p5 servers' network cards and processors

Typical platform: IBM RS/6000, pSeries and eServer p5 computers running IBM AIX 4.3 and 5.x

Requires: Nothing

Technology: IBM AIX command-line tools

Discovers:

- Computer model (MS_HW_ENCLOSURE)
- Processors (MS_HW_CPU)
- Network cards (MS_HW_NETWORK)

Monitors:

- Status of the processors (MS_HW_CPU / Status parameter)
- Status and percentage of errors of the network cards as well as the network link status (MS_HW_NETWORK / Status, ErrorPercent and LinkStatus parameters)

IBM AIX – CHRP Environment

Typical platform: IBM CHRP-based servers running AIX 5.x (IBM pSeries and IBM eServer p5 servers)

Requires: nothing

Discovers:

- System Cooling (a single global MS_HW_FAN instance)
- System Power (a single global MS_HW_POWERSUPPLY instance)

Monitors:

- The status of the system cooling (MS_HW_FAN / Status parameter)
- The power status of the system (MS_HW_POWERSUPPLY / Status parameter)

IBM AIX – SCSI disks

Target: Standard SCSI disks monitoring on IBM AIX computers

Typical platform: IBM RS/6000, pSeries and eServer p5 computers running IBM AIX 4.3 and 5.x

Requires: Nothing

Technology: IBM AIX command-line tools

Discovers:

- Standard SCSI disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the SCSI controllers (MS_HW_PHYSICALDISK)

Monitors:

- Status and reported errors of the physical disks (MS_HW_PHYSICALDISK / Status and ErrorCount parameters)

IBM AIX – Environment

Target: IBM RS/6000, pSeries and eServer p5 servers' environment

Typical platform: IBM RS/6000, pSeries and eServer p5 computers running IBM AIX 4.3 and 5.x

Requires: The /usr/lpp/diagnostics/bin/uesensor command to provide environment information

Technology: IBM AIX command-line tools

Discovers:

- Temperature sensors (MS_HW_TEMPERATURE)
- Fans (MS_HW_FAN)
- Power supplies (MS_HW_POWERSUPPLY)
- Voltage sensors (MS_HW_VOLTAGE)

Monitors:

- Temperature reported by temperature sensors (MS_HW_TEMPERATURE / Temperature parameter)
- Speed of the fans (MS_HW_FAN / Speed parameters)
- Status of the power supplies (MS_HW_POWERSUPPLY / Status parameter)
- Voltage levels and status reported by the voltage sensors (MS_HW_VOLTAGE / Voltage and Status parameters)

IBM BladeCenter Management Module

Target: IBM BladeCenter main enclosure environment

Typical platform: IBM BladeCenter

Requires: IBM BladeCenter Management Module with SNMP enabled

Technology: SNMP

Discovers:

- Blade enclosure model (MS_HW_ENCLOSURE)
- Temperature sensors (MS_HW_TEMPERATURE)
- Blowers (MS_HW_FAN)
- Power supplies (MS_HW_POWERSUPPLY)
- Voltage sensors (MS_HW_VOLTAGE)
- Blade servers within the main enclosure (MS_HW_BLADE)

Monitors:

- Overall status of each blade server (MS_HW_BLADE / Status)
- Temperature reported by temperature sensors (MS_HW_TEMPERATURE / Temperature parameter)
- Speed of the blowers as a percentage of the maximum speed (MS_HW_FAN / SpeedPercent parameter)
- Status of the power supplies (MS_HW_POWERSUPPLY / Status parameter)
- Voltage level reported by sensors (MS_HW_VOLTAGE / Voltage parameter)

Note: Hardware Sentry cannot be installed on the Management Module itself, the monitoring is therefore performed remotely. The PATROL Agent and Hardware Sentry need to be installed on a separate computer. Configure Hardware Sentry to monitor a remote computer. To do this set the /SENTRY/HARDWARE/remoteMonitor configuration variable to the host name or IP address of the Management Module.

IBM Director Agent 3.x – Windows

Target: IBM xSeries and Netfinity servers.

Typical platform: IBM xSeries and Netfinity servers running Windows

Requires: IBM Director Agent version 3.x

Technology: WBEM

Discovers:

- Computer model (MS_HW_ENCLOSURE)
- Temperature sensors (MS_HW_TEMPERATURE)
- Fans (MS_HW_FAN)
- Power supplies (MS_HW_POWERSUPPLY)
- Voltage sensors (MS_HW_VOLTAGE)
- IBM ServeRAID disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the IBM ServeRAID controllers (MS_HW_PHYSICALDISK)
- Logical disks attached to the IBM ServeRAID controllers (MS_HW_LOGICALDISK)

Monitors:

- Temperature reported by temperature sensors (MS_HW_TEMPERATURE / Temperature parameter)
- Speed of the fans (MS_HW_FAN / Status parameter)
- Status of the power supplies (MS_HW_POWERSUPPLY / Status parameter)
- Voltage levels reported by the sensors (MS_HW_VOLTAGE / Voltage parameter)
- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)
- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter)

Note: Version 3 of IBM Director Agent is no longer supported by IBM.

IBM Director Agent 4.x – Linux

Target: IBM xSeries servers.

Typical platform: IBM xSeries servers running Linux

Requires: IBM Director Agent version 4.21 or greater

Technology: WBEM

Discovers:

- Computer model (MS_HW_ENCLOSURE)
- Processors (MS_HW_CPU)
- Memory modules (MS_HW_MEMORY)
- Temperature sensors (MS_HW_TEMPERATURE)
- Fans (MS_HW_FAN)
- Power supplies (MS_HW_POWERSUPPLY)
- Voltage sensors (MS_HW_VOLTAGE)
- IBM ServeRAID disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the IBM ServeRAID controllers (MS_HW_PHYSICALDISK)
- Logical disks attached to the IBM ServeRAID controllers (MS_HW_LOGICALDISK)

Monitors:

- Status of the processors (MS_HW_CPU / Status parameter)
- Status of the memory modules (MS_HW_MEMORY / Status parameter)
- Temperature reported by temperature sensors (MS_HW_TEMPERATURE / Temperature parameter)
- Speed of the fans (MS_HW_FAN / Status parameter)
- Status of the power supplies (MS_HW_POWERSUPPLY / Status parameter)
- Voltage levels reported by the sensors (MS_HW_VOLTAGE / Voltage parameter)
- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)
- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter)

IBM Director Agent 4.x – Windows

Target: IBM xSeries and Netfinity servers.

Typical platform: IBM xSeries and Netfinity servers running Windows

Requires: IBM Director Agent version 4.x

Technology: WBEM

Discovers:

- Computer model (MS_HW_ENCLOSURE)
- Processors (MS_HW_CPU)

- Memory modules (MS_HW_MEMORY)
- Temperature sensors (MS_HW_TEMPERATURE)
- Fans (MS_HW_FAN)
- Power supplies (MS_HW_POWERSUPPLY)
- Voltage sensors (MS_HW_VOLTAGE)
- IBM ServeRAID disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the IBM ServeRAID controllers (MS_HW_PHYSICALDISK)
- Logical disks attached to the IBM ServeRAID controllers (MS_HW_LOGICALDISK)

Monitors:

- Status of the processors (MS_HW_CPU / Status parameter)
- Status of the memory modules (MS_HW_MEMORY / Status parameter)
- Temperature reported by temperature sensors (MS_HW_TEMPERATURE / Temperature parameter)
- Speed of the fans (MS_HW_FAN / Status parameter)
- Status of the power supplies (MS_HW_POWERSUPPLY / Status parameter)
- Voltage levels reported by the sensors (MS_HW_VOLTAGE / Voltage parameter)
- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)
- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter)

IBM Director Agent 5.x – Linux

Target: IBM xSeries servers.

Typical platform: IBM xSeries servers running Linux

Requires: IBM Director Agent version 5.10 Update 3 or greater

Technology: WBEM

Discovers:

- Computer model (MS_HW_ENCLOSURE)
- Processors (MS_HW_CPU)
- Memory modules (MS_HW_MEMORY)
- Temperature sensors (MS_HW_TEMPERATURE)
- Fans (MS_HW_FAN)
- Power supplies (MS_HW_POWERSUPPLY)
- Voltage sensors (MS_HW_VOLTAGE)
- IBM ServeRAID disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the IBM ServeRAID controllers (MS_HW_PHYSICALDISK)
- Logical disks attached to the IBM ServeRAID controllers (MS_HW_LOGICALDISK)

Monitors:

- Status of the processors (MS_HW_CPU / Status parameter)
- Status of the memory modules (MS_HW_MEMORY / Status parameter)
- Temperature reported by temperature sensors (MS_HW_TEMPERATURE / Temperature parameter)
- Speed of the fans (MS_HW_FAN / Status parameter)
- Status of the power supplies (MS_HW_POWERSUPPLY / Status parameter)
- Voltage levels reported by the sensors (MS_HW_VOLTAGE / Voltage parameter)
- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)
- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter)

Note: This connector works with version 5.10 Update 2 and greater of the IBM Director Agent. It does not support versions 5.10 and 5.10 Update 1 of the IBM Director Agent due to serious bugs in these versions.

IBM Director Agent 5.x – Windows

Target: IBM xSeries and Netfinity servers.

Typical platform: IBM xSeries and Netfinity servers running Windows

Requires: IBM Director Agent version 5.10 Update 3 or greater

Technology: WBEM

Discovers:

- Computer model (MS_HW_ENCLOSURE)
- Processors (MS_HW_CPU)
- Memory modules (MS_HW_MEMORY)
- Temperature sensors (MS_HW_TEMPERATURE)
- Fans (MS_HW_FAN)
- Power supplies (MS_HW_POWERSUPPLY)
- Voltage sensors (MS_HW_VOLTAGE)
- IBM ServeRAID disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the IBM ServeRAID controllers (MS_HW_PHYSICALDISK)
- Logical disks attached to the IBM ServeRAID controllers (MS_HW_LOGICALDISK)

Monitors:

- Status of the processors (MS_HW_CPU / Status parameter)
- Status of the memory modules (MS_HW_MEMORY / Status parameter)
- Temperature reported by temperature sensors (MS_HW_TEMPERATURE / Temperature parameter)
- Speed of the fans (MS_HW_FAN / Status parameter)

- Status of the power supplies (MS_HW_POWERSUPPLY / Status parameter)
- Voltage levels reported by the sensors (MS_HW_VOLTAGE / Voltage parameter)
- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)
- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter)

Note: This connector works with version 5.10 Update 2 and greater of the IBM Director Agent. It does not support versions 5.10 and 5.10 Update 1 of the IBM Director Agent due to serious bugs in these versions.

IPMI – In-band (IpmiTool)

Target: Environment (temperatures, fans and voltages) of IPMI-enabled servers.

Typical platform: Sun AMD Opteron-based servers (Sun Fire v20z, v40z, etc.) running Linux or Sun Solaris.

Technology: IPMI (in-band through the IpmiTool utility)

Requires: ipmitool 1.8.7 or greater with the OpenIPMI driver or Sun-provided IPMI driver on Solaris.

Discovers:

- computer model (MS_HW_ENCLOSURE)
- temperature sensors (MS_HW_TEMPERATURE)
- voltage sensors (MS_HW_VOLTAGES)
- fans (MS_HW_FANS)

Monitors:

- temperatures (MS_HW_TEMPERATURE / Temperature parameter)
- voltages (MS_HW_VOLTAGE / Voltage parameter)
- fan speed (MS_HW_FAN / Speed parameter)

Linux – Network

Target: Network cards of computers running Linux

Typical platform: HP ProLiant, Dell PowerEdge, Fujitsu-Siemens Primergy, IBM xSeries running RedHat Linux

Requires: Nothing

Technology: Linux command-line tools

Discovers:

- Network cards (MS_HW_NETWORK)

Monitors:

- Link status of the network cards (MS_HW_NETWORK / LinkStatus parameter)

- Percentage of errors of the network cards (MS_HW_NETWORK / ErrorPercent parameters)

LSI 1030-based Global Array Manager Server

Target: LSI c1030-based disk controllers

Typical platform: Fujitsu-Siemens PRIMERGY servers

Requires: LSI1030 SNMP sub-agent (provided by Fujitsu-Siemens)

Discovers:

- disk controllers (MS_HW_DISKCONTROLLER)
- physical disks (MS_HW_PHYSICALDISK)
- logical disks (MS_HW_LOGICALDISK)

Monitors:

- physical disk status (MS_HW_PHYSICALDISK / Status parameter)
- logical disk status (MS_HW_LOGICALDISK / Status parameter)

LSI Logic LsiUtil

Target: LSI c1030-based disk controllers

Typical platform: Sun AMD Opteron-based servers (Sun Fire v20z, v40z, etc.) running Sun Solaris or Linux

Technology: Based on the lsiutil command-line utility

Requires: LsiUtil 1.4 or greater (provided by LSI Logic)

Discovers:

- disk controllers (MS_HW_DISKCONTROLLER)
- physical disks (MS_HW_PHYSICALDISK)

Monitors:

- physical disks status (MS_HW_PHYSICALDISK / Status parameter)

LsiLogic MegaRAID PowerConsole

Target: LsiLogic SCSI RAID controllers

Typical platform: Various

Requires: LsiLogic PowerConsole Plus

Technology: SNMP

Discovers:

- LsiLogic SCSI RAID disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the LsiLogic controllers (MS_HW_PHYSICALDISK)

- Logical disks attached to the LsiLogic controllers (MS_HW_LOGICALDISK)

Monitors:

- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)
- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter)

Mylex Global Array Manager Server

Target: Mylex RAID controllers

Typical platform: Fujitsu-Siemens Primergy computers

Requires: Mylex GAM Server

Technology: SNMP

Discovers:

- Mylex RAID disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the Mylex controllers (MS_HW_PHYSICALDISK)
- Logical disks attached to the Mylex controllers (MS_HW_LOGICALDISK)

Monitors:

- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)
- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter)

Motherboard Monitor

Target: Generic x86 PC environment

Typical platform: Generic x86 PC (no-brand)

Requires: Motherboard Monitor

Technology: Motherboard Monitor-specific

Discovers:

- Temperature sensors (MS_HW_TEMPERATURE)
- Fans (MS_HW_FAN)
- Voltage sensors (MS_HW_VOLTAGE)

Monitors:

- Temperature reported by temperature sensors (MS_HW_TEMPERATURE / Temperature parameter)
- Speed of the fans (MS_HW_FAN / Speed parameter)
- Voltage levels reported by the sensors (MS_HW_VOLTAGE / Voltage parameter)

NEC ESMPRO Agent

Target: NEC Express5800 environment.

Typical platform: NEC Express5800 computers running Windows and Linux

Requires: NEC ESMPRO agent

Technology: SNMP

Discovers:

- Computer model (MS_HW_ENCLOSURE)
- Processors (MS_HW_CPU)
- Memory modules (MS_HW_MEMORY)
- Temperature sensors (MS_HW_TEMPERATURE)
- Fans (MS_HW_FAN)
- Power supplies (MS_HW_POWERSUPPLY)
- Voltage sensors (MS_HW_VOLTAGE)

Monitors:

- Status of the processors (MS_HW_CPU / Status parameter)
- Status of the memory modules (MS_HW_MEMORY / Status parameter)
- Temperature reported by temperature sensors (MS_HW_TEMPERATURE / Temperature parameter)
- Speed of the fans (MS_HW_FAN / Status parameter)
- Status of the power supplies (MS_HW_POWERSUPPLY / Status parameter)
- Voltage levels reported by the sensors (MS_HW_VOLTAGE / Voltage parameter)

Promise FastTrack

Target: Promise FastTrack RAID controllers

Typical platform: Fujitsu-Siemens Primergy servers

Requires: Promise FastTrack SNMP agent

Technology: SNMP

Discovers:

- Promise FastTrack disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the Promise controllers (MS_HW_PHYSICALDISK)
- Logical disks attached to the Promise controllers (MS_HW_LOGICALDISK)

Monitors:

- Status of the battery of the disk controller (MS_HW_DISKCONTROLLER / BatteryStatus parameter)
- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameter)

- Physical disks failure prediction (MS_HW_PHYSICALDISK / PredictedFailure parameter)
- Status of the logical disks (MS_HW_LOGICALDISK / Status parameter

SmartMon Tools

Target: S.M.A.R.T-enabled non-RAID physical disks in Linux servers

Typical platform: Any Linux server with simple (non-RAID) IDE, ATA or SCSI disks

Technology: S.M.A.R.T through the smartd and smartctl commands

Requires: SmartMon Tools (included in most Linux distributions)

Discovers:

- S.M.A.R.T.-enabled physical disks (MS_HW_PHYSICALDISK)
- Temperature sensors within previously discovered disks (MS_HW_TEMPERATURE)

Monitors:

- Physical disks failure prediction (MS_HW_PHYSICALDISK / PredictedFailure parameter)
- Disks temperature (MS_HW_TEMPERATURE / Temperature parameter)

StorageTek LSeries Tape Library

Target: StorageTek LSeries Tape Library devices

Requires: Access to the StorageTek Library SNMP agent
The /SENTRY/HARDWARE/remoteMonitor needs to be set with the IP address of the StorageTek LSeries library.

Discovers:

- Tape library model (MS_HW_ENCLOSURE)
- Temperature sensors (MS_HW_TEMPERATURE)
- Fans (MS_HW_FAN)
- Power supplies (MS_HW_POWERSUPPLY)
- Tape drives (MS_HW_OTHERDEVICE)
- Cartridge access ports (MS_HW_OTHERDEVICE)

Monitors:

- Temperature (MS_HW_TEMPERATURE / Temperature parameter)
- Fan status (MS_HW_FAN / Status parameter)
- Power supplies status (MS_HW_POWERSUPPLY / Status parameter)
- Drives status (MS_HW_OTHERDEVICE / Status parameter)
- Cartridge access ports status (MS_HW_OTHERDEVICE / Status parameter)

Sun Solaris – Disks

Target: Standard SCSI disks monitoring on Sun computers

Typical platform: Sun computers running Solaris

Requires: Nothing

Technology: Sun Solaris command-line tools (iostat)

Discovers:

- Standard SCSI disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the SCSI controllers (MS_HW_PHYSICALDISK)
- **Monitors**:
- Reported errors on each physical disks (MS_HW_PHYSICALDISK / ErrorCount parameter)
- Physical disks failure prediction (MS_HW_PHYSICALDISK / PredictedFailure parameter)

Sun Solaris – Environment

Target: Environment of Sun SPARC-based computers running Solaris

Typical platform: Sun SPARC-based computers running Solaris (no support for partitionable servers like Sun Fire E10000, F12K, F15K, etc.)

Requires: Nothing

Technology: Sun Solaris command-line tools (prtdiag, lom)

Discovers:

- Computer model (MS_HW_ENCLOSURE)
- Temperature sensors (MS_HW_TEMPERATURE)
- Fans (MS_HW_FAN)
- Power supplies (MS_HW_POWERSUPPLY)
- Voltage sensors (MS_HW_VOLTAGE)
- Processors (MS_HW_CPU)

Monitors:

- Temperature reported by temperature sensors (MS_HW_TEMPERATURE / Temperature parameter)
- Status of the fans (MS_HW_FAN / Status parameters)
- Status of the power supplies (MS_HW_POWERSUPPLY / Status parameter)
- Voltage levels and status reported by the voltage sensors (MS_HW_VOLTAGE / Voltage and Status parameters)
- Status of the processors (MS_HW_CPU / Status parameter)

Sun Solaris – Memory modules

Target: Memory modules of Sun computers running Solaris

Typical platform: Sun SPARC-based computers running Solaris 8 or 9

Requires: The cediag package available from Sun: http://sunsolve.sun.com/pub-cgi/show.pl?target=cediag. Also, root privileges to execute /usr/SUNWcest/bin/cestat and /usr/SUNWcest/bin/cediag (may use sudo)

Technology: Sun Solaris command-line tools (cestat, cediag)

Discovers:

- Memory modules (MS_HW_MEMORY)
- An "Overall" instance is also created to report errors encountered by the whole memory subsystem

Monitors:

- Status of the memory module (MS_HW_MEMORY / Status parameter)
- Whether a failure is imminent or not on memory modules (MS_HW_MEMORY / PredictedFailure parameter)

Sun Solaris – Network

Target: Network cards of Sun computers running Solaris

Typical platform: Sun computers running Solaris

Requires: In some cases, root privileges to execute /usr/sbin/ndd (may use sudo)

Technology: Sun Solaris command-line tools (ndd, kstat)

Discovers:

- Network cards (MS_HW_NETWORK)

Monitors:

- Link status of the network cards (MS_HW_NETWORK / LinkStatus parameter)
- Percentage of errors of the network cards (MS_HW_NETWORK / ErrorPercent parameter)
- Overall status of the network cards (MS_HW_NETWORK / Status parameter)

WBEM on Windows – Disks

Target: Standard SCSI, IDE and ATA disks monitoring on computers running Windows

Typical platform: Computers running Windows

Requires: Windows Management Instrumentation (WMI**)**

Technology: WBEM

Discovers:

- Standard SCSI, IDE and ATA (non-RAID) disk controllers (MS_HW_DISKCONTROLLER)
- Physical disks attached to the SCSI, IDE and ATA controllers (MS_HW_PHYSICALDISK)

Monitors:

- Status of the physical disks (MS_HW_PHYSICALDISK / Status parameters)
- Physical disks failure prediction (MS_HW_PHYSICALDISK / PredictedFailure parameter)

WBEM on Windows – Network

Target: Network cards of computers running Windows

Typical platform: Computers running Windows

Requires: Windows Management Instrumentation (WMI)

Technology: WBEM

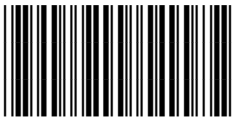
Discovers:

- Network cards (MS_HW_NETWORK)

Monitors:

- Link status of the network cards (MS_HW_NETWORK / LinkStatus parameter)
- Percentage of errors of the network cards (MS_HW_NETWORK / ErrorPercent parameter)
- Overall status of the network cards (MS_HW_NETWORK / Status parameter)

Notes



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