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BMC® Performance Manager Express for Hardware

Reference Guide

Supporting

BMC Performance Manager Express for Hardware

Version 2.5.00

July 09, 2008

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Before Contacting BMC Software

Before you contact Sentry Software, please ensure you have the following information available so that Customer Support can begin working on your problem immediately:

Product information

- product name
- product version (release number)
- license number and password (trial or permanent)

Operating system and environment information

- machine type
- operating system type, version, and service pack or other maintenance level such as PUT or PTF
- 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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Overview

BMC Performance Manager Express for Hardware for enables administrators to monitor the hardware of all their diverse servers. This is a single performance manager (PM) that is able to monitor the hardware of different server brands: IBM®, HP®, DELL®, Sun Microsystems®, NEC®, Fujitsu-Siemens® and many others.

As this performance manager is specifically designed for the BPM Portal environment, it uses the Portal's web-based interface and features for installing, managing and monitoring your IT infrastructure. The full integration with BMC Portal provides a single customizable entry point for data from multiple sources and a single view that enables you to monitor the health and performance of your infrastructure.

Once installed, BPM Express for Hardware requires no configuration and 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, power supplies, and network interfaces etc.

As the solution connects to vendor-specific instrumentation agents on the servers to collect hardware information, it is vital to install these "agents" on your systems prior to installing the PM.

This Reference Guide describes the application classes and their parameters in detail. It explains the system of thresholds and gives you in-depth information about connectors and platform-specific instrumentation agents/tools – vital for the functioning of BMC Performance Manager Express for Hardware.

The product documentation consists of:

1. Installation Guide – for details on how to install the product
2. User Guide – for details on how to use the product
3. Reference Guide – current document
4. Release Notes – tells you about the enhancements in this version.

   For convenience, the product is called BPM Express for Hardware.

   Platform-specific guides – for details on required vendor-specific instrumentation agents / system tools

   For convenience the product is called BPM Express for Hardware within the documentation

Application Classes

This section gives you details on all the application classes and their parameters.

SEN_HW_BLADE

Each instance of the SEN_HW_BLADE class represents a blade server inside a blade enclosure. The *Status* parameter of SEN_HW_BLADE objects represents the overall status of the blade.

Parameters

Parameter Name	Type	Description
Status	Text	Displays overall blade status Values: OK; WARNING; ALARM Example: "ALARM!! The blade is missing"

Status is a text parameter that gives the overall status of the corresponding device or sensor. An alert condition describes in symbolic terms what occurs in the *Status* parameter when thresholds are breached: one exclamation mark triggers a warning; two exclamation marks raise an alarm.

Important

Depending on your system, all parameters may not be used and only one of the parameters may be visible. This does not affect the proper monitoring of the device.

SEN_HW_CONNECTOR

Each instance of the SEN_HW_CONNECTOR class represents a connector currently used by BPM Express for Hardware in order to discover and monitor the hardware components of the server.

Connectors are continuously monitored to ensure that the underlying technology used by BPM Express for Hardware to discover and monitor the hardware functions properly. If something goes wrong with the hardware instrumentation layer (but not with the hardware itself), an alert is raised by the *Status* parameter of the corresponding SEN_HW_CONNECTOR instance. In this case, hardware components that were discovered and monitored through this connector will no longer be monitored. Check the *Test Report* parameter to have more details about the connector failure.

Parameters

Parameter Name	Type	Description
Status	Text	Displays overall status of the connector Values: OK; WARNING; ALARM Example: “ALARM!! The connector is missing”
Test Report	Text	Describes the tests performed to evaluate the status of the connector
Collection Information	Text	Describes the objects discovered and the parameters collected by this connector for the element.

Important

Depending on your system, all parameters may not be used and only one of the parameters may be visible. This does not affect the proper monitoring of the device.

SEN_HW_CPU

Each instance of the SEN_HW_CPU class represents a physical processor of the server. On high-range servers, the *Status* parameter triggers an alert as soon as a processor fails. On most servers however, a failed processor causes a server crash. Upon reboot, the processor is likely to be automatically disabled by the BIOS which will then raise an alert in BPM Express for Hardware because the processor is missing.

The *Corrected Error Count* and *Predicted Failure* parameters (available only for a few high-end processors) will help administrators intervene immediately and prevent such a crash.

The *Status* parameter reports an ALARM if the *Corrected Error Cou*nt parameter is greater than zero (that is: if the disk encountered some errors). Since the counter is reset every 24th hour, the corresponding alert on the Status parameter will be automatically cleared after 24 hours. This mechanism has been implemented to let BPM Express for Hardware/Portal report pure event-driven alerts with no need for manual acknowledgement from the operators.

Parameters

Parameter Name	Type	Description
Status	Text	Displays overall status of the CPU Values: OK; WARNING; ALARM Example: “WARNING. A CPU failure is predicted”
Predicted Failure	Text	Triggers a warning of an expected CPU failure Values: OK; Predicted Failure
Corrected Error Count	Integer	Displays the number of detected and corrected errors Unit: Errors

Important

Depending on your system, all parameters may not be used and only one of the parameters may be visible. This does not affect the proper monitoring of the device.

SEN_HW_DISKCONTROLLER

The purpose of the disk controller instance is to display the status of the disk controller battery and the status of the disk controller. In addition, some information regarding the disk controllers, like its brand, model or driver version, may be displayed.

Parameters

Parameter Name	Type	Description
Battery Status	Text	Triggers an alert to predict that the disk controller battery will be unable to support the controller in the event of a power failure. Values: OK; WARNING; ALARM Example: "WARNING. The battery is weak"
Controller Status	Integer	Displays the status of the disk controller Values: OK; WARNING; ALARM

Important

Depending on your system, all parameters may not be used and only one of the parameters may be visible. This does not affect the proper monitoring of the device.

SEN_HW_ENCLOSURE

Each SEN_HW_ENCLOSURE instance represents a box with some hardware components inside. This class is used to represents the computer's main chassis.

Parameters

Parameter Name	Type	Description
Intrusion Status	Text	Triggers an alert if the enclosure is opened Values: OK; Intrusion detected Example: "ALARM!! The enclosure is open or has been removed"
Power Consumption	Integer	Displays the total power consumption of the box in watts Unit: W (watts)
Status	Integer	Displays the overall status of all the objects monitored in the enclosure Values: OK; WARNING; ALARM

Important

Depending on your system, all parameters may not be used and only one of the parameters may be visible. This does not affect the proper monitoring of the device.

SEN_HW_FAN

This class creates monitoring objects for each cooling sensor it discovers. Depending on the system and the data available, one or more parameters will be associated to the fan monitoring. Critical devices like processors, power supplies etc, have fans to avoid over-heating. Monitoring fans is important because they ensure a proper temperature for the system to work efficiently.

The *Speed* parameter represents the speed of the corresponding fan (in rotations/minute). An alert is raised through *Status* if the fan speed is too low for proper functioning.

The *Speed Percent* parameter represents the speed of the corresponding fan in percentage of its maximal speed.

The *Status* parameter represents the overall status of the fan. An alert is triggered if the fan stops spinning or does not spin fast enough.

Parameters

Parameter Name	Type	Description
Speed	Integer	Displays the fan speed Unit: Rotation Per Minute (RPM)
Speed Percent	Text	Displays the speed of the fan as a percentage of its maximal speed Unit: Percent of maximal speed
Status	Text	Displays the overall status of the fan Values: OK; WARNING; ALARM

Important

Depending on your system, all parameters may not be used and only one of the parameters may be visible. This does not affect the proper monitoring of the device.

SEN_HW_LOGICALDISK

This class creates instances for each logical disk discovered. 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.

The status of a logical disk typically corresponds to the status of a RAID array (on-line, degraded, rebuilding, etc.). For each logical disk discovered, the *Status* parameter is displayed.

Note

For non-RAID disk controllers (as most of IDE controllers, for example), no logical disk will be displayed.

Parameters

Parameter Name	Type	Description
Error Count	Integer	Displays the number of errors encountered by the logical disk since last counter reset (every 24hrs by default) Unit: Errors
Attached to	Integer	States which disk controller the logical disk is attached to Example: "Attached to: Disk Controller PERC 4/SC # 1 etc."
Status	Text	Displays the overall status of the logical disk Values: OK; WARNING; ALARM Example: "ALARM!! This logical disk is no longer detected"

Important

Depending on your system, all parameters may not be used and only one of the parameters may be visible. This does not affect the proper monitoring of the device.

The *Error Count* parameter represents number of errors encountered by the logical disk since the last counter reset. The error count is automatically reset every 24th hour (by default; this setting is configurable).

The *Status* parameter represents the overall status of the logical disk. An alert is triggered when the logical disk is not fully operational (degraded, rebuilding, etc.) or not available at all. It triggers an alert if the logical disk missing or if any of the other parameters have breached their thresholds. It is only *Status* that displays the alerts.

Note

The Status parameter will report an ALARM if the *Error Count* parameter is greater than zero (that is: the disk encountered some errors). Since the counter is reset every 24th hour, the corresponding alert on the *Status* parameter will be automatically cleared after 24 hours. This mechanism has been implemented to let BPM Express for Hardware/Portal report pure event-driven alerts with no need for manual acknowledgement from the operators.

SEN_HW_MAIN

The SEN_HW_MAIN class is responsible for the initialization of all the subclasses (i.e SEN_HW_Fan, SEN_HW_LOGICALDISK, SEN_HW_CPU etc). This class has just one parameter called *Machine Status*.

Machine Status is a text parameter that reports whether BPM Express for Hardware on the RSM is able to communicate with the targeted remote element. It detects whether or not the remote element is accessible for monitoring i.e. whether or not the remote element is up and running and can be monitored. Values for this parameter are: "OK" and "WARNING".

Example for OK: "<hostname> is alive. Detected as <OS>. Available protocols: (SNMP/WBEM/ Telnet/SSH)

If this parameter reports that BPM Express for Hardware cannot communicate with this host, it could be due to any of the following reasons:

- A firewall prevents communication between the RSM and the managed server
- The WMI layer has not been installed or is disabled (Windows only)
- Neither SSH nor telnet connections are allowed on the managed server (UNIX and Linux only)
- The supplied credentials are incorrect
- The SNMP community string is wrong
- None of the connectors match the platform of the remote element

Some examples of possible "Warning!" alerts:

- The remote element is down.

  Example: "<hostname> is down. Problem: Either the remote element is not currently running or the firewall is preventing access to the element."

- The remote element is up and running, but none of the connectors match the platform of the remote element.

  Example: "<hostname> is alive. Problem: None of the connectors match this platform."

- The remote element is up and running, but the host platform cannot be detected.

  Example: "<hostname> is alive. Problem: Host platform cannot be detected."

On clicking on the History icon, you can see the details about the problem, its consequences and the recommended actions.

Important

The warning *Machine Status* triggers in case of problem, is not related to any hardware issue; BPM Express for Hardware cannot perform the detection, discovery or collection processes on this remote element.

Note

If one or several connectors are not detected as valid for the targeted server, you need to enable the debug mode of BPM Express for Hardware and check the debug output for the reason that led BPM Express for Hardware to exclude those connectors. Also, see the *Connectors and Platforms Reference Table* for list of connectors.

SEN_HW_MEMORY

Each instance of the SEN_HW_MEMORY module represents a memory module in the server.

The *Status* parameter triggers an on the fly alert on servers that can dynamically handle failed memory modules or, often, for modules that have been disabled by the BIOS upon reboot (the module is then flagged as missing).

The *Error Count* parameter represents the number of errors that have been fixed by ECC-enabled memory modules.

In some cases, the *Predicted Failure* parameter is used to alert administrators that the memory module is about to fail.

The use of the *Error Count* or *Predicted Failure* parameter depends on the technology being used to report the health of memory modules.

Parameters

Parameter Name	Type	Description
Error Count	Integer	Displays the number of errors encountered by the logical disk since last counter reset (every 24hrs by default) Unit: Errors
Predicted Failure	Text	Triggers a warning if a memory module is expected It is the Status parameter that displays the alert
Status	Text	Displays the overall status of the memory module Values: OK; WARNING; ALARM Example: “ALARM!! This memory module encountered an abnormally high number of errors.”

Important

Depending on your system, all parameters may not be used and only one of the parameters may be visible. This does not affect the proper monitoring of the device.

SEN_HW_NETWORK

Each SEN_HW_NETWORK instance represents a network adapter in the server.

The *Link Status* reports whether or not the adapter is properly linked to the network from a pure hardware cable perspective (it will not report a bad IP configuration for example). By default, the *Link Status* parameter raises an alert (through *Status*) only for previously connected network adapters that are no longer linked to the network.

The *Error Percent* parameter represents the percentage of sent and received network packets that were in error. A high percentage of errors often means that the network link is improperly configured or that the network card is functioning erratically and thus needs to be replaced.

The *Status* parameter displays the overall status of the instance. It raises an alert if any of the other parameters breach their thresholds. Alerts are triggered only through the *Status* parameter.

Parameters

Parameter Name	Type	Description
Link Status	Text	Triggers an alert if the network interface is no longer connected i.e. the cable in unplugged etc. This break in the link is reported only for a link previously detected which is no longer detected.
Error Percent	Integer	Percentage of transmitted and received packets in error between 2 collects Unit: % 10 – 30 = WARNING; 30 – 100 = ALARM
Status	Text	Displays the overall status of the network interface Values: OK; WARNING; ALARM Example: “ALARM!! This network interface is not detected anymore.”

Important

Depending on your system, all parameters may not be used and only one of the parameters may be visible. This does not affect the proper monitoring of the device.

SEN_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.

This represents hardware components that do not fall into other predefined categories i.e. other than processors, memory modules, temperature sensors, fans, voltage sensors, power supplies, network cards, disk controllers, physical disks and logical disks. Examples could be that of event logs or certain management cards on some systems.

Parameters

Parameter Name	Type	Description
Status	Text	Displays the overall status of the “other device” Values: OK; WARNING; ALARM Example: “ALARM!! This network interface is not detected anymore.”

Important

Depending on your system, all parameters may not be used and only one of the parameters may be visible. This does not affect the proper monitoring of the device.

SEN_HW_PHYSICALDISK

Each instance of this class represents a hard drive detected by BPM Express for Hardware. Its purpose is to monitor the status of each hard drive and possibly detect an incoming failure. Physical disks must be monitored to avoid loss of data, un-availabilities and performance degradation.

When available, S.M.A.R.T. technology will be used to predict disk failure. Depending on the available information, the *Predicted Failure* and/or *Status* parameters will be displayed for each discovered physical disk:

The *Predicted Failure* parameter uses S.M.A.R.T. technology to predict physical disk failures. An alert will be triggered if it is predicted that the Physical Disk will soon break down. The *Status* parameter represents the current status of the physical disk and it triggers an alert if the physical disk is not available for proper operation.

The *Error Count* parameter value increases each time an error occurs on this physical disk. An alert is raised by the *Status* parameter from the first detected error.

The *Status* parameter represents the overall status of the physical disk. It triggers an alert if the physical disk missing or if any of the other parameters have breached their thresholds. It is only *Status* that will trigger and display the alerts. When all is fine, *Status* shows “OK”, and when there is a problem, it shows “WARNING!” or “ALARM!!” with a detailed description of the issue, its consequences and recommended actions. The alert conditions for *Status* are: “!”=WARNING; “!!”=ALARM

Parameters

Parameter Name	Type	Description
Error Count	Integer	Displays the number of errors encountered by the logical disk since last counter reset (every 24hrs by default) Unit: Errors
Predicted Failure	Text	Triggers a warning if a failure is expected. It is the Status parameter that displays the alert
Attached to	Text	States which disk controller the physical disk is attached to: PERC 4/SC # 1 etc.
Status	Text	Displays the overall status of the memory module Values: OK; WARNING; ALARM Example: “ALARM!! This memory module encountered an abnormally high number of errors.”

Important

Depending on your system, all parameters may not be used and only one of the parameters may be visible. This does not affect the proper monitoring of the device.

SEN_HW_POWERSUPPLY

Each instance of this class represents a power supply in the system. It is used to monitor their status and to indicate when a power supply is malfunctioning and needs attention.

Power supply is critical and should never fail, which is why servers often have redundant power supplies. Monitoring power supplies allows the operators to be alerted when a power supply fails, or in some cases when a power supply is overloaded.

Depending on the information available, the *Used Capacity* and/or *Status* parameters will be displayed for each power supply or power unit device:

The *Used Capacity* parameter represents the power supply's power currently in use in percentage. An alert is triggered if the computer uses too much power than it can be supplied.

The *Status* parameter represents the current status of the power supply. An alert is triggered if an error occurs with the power supply.

Parameters

Parameter Name	Type	Description
Used Capacity	Integer	Displays the percentage of power supply currently in use. Unit: Percentage
Predicted Failure	Text	Triggers a warning if a memory module is expected. It is the Status parameter that displays the alert
Status	Text	Displays the overall status of the memory module Values: OK; WARNING; ALARM Example: "ALARM!! This memory module encountered an abnormally high number of errors."

Important

Depending on your system, all parameters may not be used and only one of the parameters may be visible. This does not affect the proper monitoring of the device.

SEN_HW_TEMPERATURE

BPM Express for Hardware detects the temperature probes on the motherboard or devices and creates an instance of this class for each of them. Their location on the platform is described in the instance's label if it is available.

When a temperature reading is performed, temperature thresholds are automatically set and an alert is triggered if the temperature rises to a dangerous level. The *Status* parameter displays the condition of the temperature in the system.

Parameters

Parameter Name	Type	Description
Temperature	Integer	Displays the temperature reading Unit: Celsius degrees (C°)
Status	Text	Displays the overall temperature status Values: OK; WARNING; ALARM Example: "ALARM!! The temperature is critically high."

Important

Depending on your system, all parameters may not be used and only one of the parameters may be visible. This does not affect the proper monitoring of the device.

SEN_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, the values will be available in the *Voltage* parameter and an alert will be triggered by the *Status* parameter if they do not meet the automatically set thresholds.

Parameters

Parameter Name	Type	Description
Voltage	Integer	Displays the voltage reading Unit: Millivolts (mV)
Status	Text	Displays the overall voltage status Values: OK; WARNING; ALARM Example: "ALARM!! The voltage level is out of range and abnormal voltages could cause a system crash."

Important

Depending on your system, all parameters may not be used and only one of the parameters may be visible. This does not affect the proper monitoring of the device.

Special Note on Application Collection

This parameter is created by default by BMC Portal for every application class that is added and hence it appears when you add BPM Express for Hardware on an element. It represents the working status of the entire application class.

- The Application Collection parameter has Boolean values: *True* or *False*
- *True* indicates that BPM Express for Hardware is functioning; *False* indicates that it is not.

Thresholds

BPM Express for Hardware dynamically sets the thresholds on all of its parameters depending on the platform it is running on. This is why a recapitulative table of the alert thresholds of BPM Express for Hardware cannot be provided. It takes the manufacturer-set thresholds for each component and sets alert rules accordingly.

As you have seen in the previous section, it is *Status*, the text parameter that displays alert conditions. BPM Express for Hardware assigns the pre-set thresholds to its symbolic conditions of exclamation marks.

For instance, when a manufacturer-set threshold reaches warning levels, BPM Express for Hardware translates it to “Warning!” with one exclamation mark, which triggers a Warning alert in the Portal; and for an alarm-level breach, the *Status* parameter is set to “Alarm!!” with two exclamation marks, which triggers an Alarm alert in the Portal. When a problem occurs, it is the *Status* parameter that reports “WARNING!” or “ALARM!!” followed by a full description of the encountered problem, the possible consequences and the recommended action. Nevertheless, it is possible to modify these pre-set thresholds via the **Configure** tab.

Important

If you wish to modify pre-set thresholds of individual parameters, you must deactivate the thresholds for the *Status* parameter (which will otherwise continue to consider pre-set thresholds and trigger alerts accordingly), and instead, directly assign threshold values against individual parameters of the class. See the User Guide for details.

Connectors and Platforms

This section deals with connectors provided with this version of BPM Express for Hardware. In most cases, BPM Express for Hardware works in tandem with vendor-specific agents of the platforms to collect information on the detected hardware components.

This chapter provides details on the specific connectors used for each of the supported platforms.

First, 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 BPM Express for Hardware to function optimally, the technology used, and what it will monitor, along with precise application class names and the parameters discovered.

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

Connectors and Platforms Reference Table

The following table shows all the connectors provided with this version of BPM Express for Hardware. Each connector is a file with the .hdf extension and they are stored in: %RSM_HOME%\RSMxx\thirdparty**SEN_HW_HDF** directory.

Connector File	Connector Name	Typical platform	Operating System
SEN_HW_IOManager.hdf	*Adaptec IOManager*	Fujitsu-Siemens PRIMERGY	Microsoft Windows, Linux
SEN_HW_AAC.hdf	*Adaptec Storage Manager Web Edition (AAC)*	Fujitsu-Siemens PRIMERGY	Microsoft Windows, Linux
SEN_HW_DptStorageManager.hdf	*Adaptec Storage Manager*	Fujitsu-Siemens PRIMERGY	Microsoft Windows, Linux
SEN_HW_DellArrayManager.hdf	*Dell OpenManage Array Manager*	Dell PowerEdge	Microsoft Windows, Linux
SEN_HW_DellDRACMC.hdf	*Dell DRAC/MC (Dell Remote Access Controller/Modular Chassis)*	Dell PowerEdge	Not applicable
SEN_HW_DellOpenManage.hdf	*Dell OpenManage Server Administrator*	Dell PowerEdge	Microsoft Windows, Linux
SEN_HW_DellStorageManager.hdf	*Dell OpenManage Storage Manager*	Dell PowerEdge	Microsoft Windows, Linux
SEN_HW_FujitsuSiemensBlade.hdf	*Fujitsu-Siemens Management Blade (FSC BX Blade Servers)*	Fujitsu-Siemens BX Blade Servers	N/A
SEN_HW_ServerView NT.hdf	*Fujitsu-Siemens ServerView*	Fujitsu-Siemens PRIMERGY	Microsoft Windows, Linux
SEN_HW_FscRaid.hdf	*Fujitsu-Siemens ServerView RAID Agent*	Fujitsu-Siemens PRIMERGY	Microsoft Windows, Linux
SEN_HW_HPBladeSystem.hdf	*HP BladeSystem*	HP BladeSystem	Microsoft Windows, Linux
SEN_HW_CpqDriveArrayNT.hdf	*HP Insight Management Agent - Drive Array*	HP ProLiant	Microsoft Windows, Linux, HP OpenVMS, HP Tru64

Connector File	Connector Name	Typical platform	Operating System
SEN_HW_CpqFCADriveArray.hdf	*HP Insight Management Agent - Fiber Array*	HP ProLiant	Microsoft Windows, Linux, HP Tru64, HP OpenVMS
SEN_HW_CpqIDEDriveArray.hdf	*HP Insight Management Agent - IDE Storage*	HP ProLiant	Microsoft Windows, Linux, HP Tru64, HP OpenVMS
SEN_HW_CpMgSm2.hdf	*HP Insight Management Agent - iLO*	HP ProLiant	Microsoft Windows, Linux, HP OpenVMS, HP Tru64
SEN_HW_CpqSCSIDriveArray.hdf	*HP Insight Management Agent- SCSI Storage Agent*	HP ProLiant	Microsoft Windows, Linux, HP Tru64, HP OpenVMS
SEN_HW_CpMgServNT.hdf	*HP Insight Management Agent - Server*	HP ProLiant	Microsoft Windows, Linux, HP Tru64, HP OpenVMS
SEN_HW_CpMgServTru64.hdf	*HP Insight Management Agent - Server (Tru64)*	HP ProLiant	HP Tru64, HP OpenVMS
SEN_HW_HPiLO.hdf	*HP MP/GSP card (iLO)*	HP 9000, Integrity, SuperDome	N/A
SEN_HW_HpNetRaidController.hdf	*HP TopTools NetRaid Agent*	HP NetServer	Linux, Microsoft Windows
SEN_HW_HPTopToolsNT.hdf	*HP TopTools Agent*	HP NetServer	Microsoft Windows
SEN_HW_HPUX.hdf	*HP-UX - Common*	HP 9000, HP Integrity, HP SuperDome	HP-UX

Connector File	Connector Name	Typical platform	Operating System
SEN_HW_HPUXDisk.hdf	*HP-UX - Disks*	HP 9000, HP Integrity, HP SuperDome	HP-UX
SEN_HW_HPUXStm.hdf	*HP-UX - STM*	HP 9000, HP Integrity, HP SuperDome	HP-UX
SEN_HW_IBMBlade.hdf	*IBM BladeCenter Management Module*	IBM BladeCenter	N/A
MS_HX_IBMAIX.hdf	*IBM AIX - Common*	IBM RS/6000, IBM pSeries, IBM eServer p5	IBM AIX
SEN_HW_IBMAIXChrpMachstat.hdf	*IBM AIX - CHRP Environment*	IBM RS/6000, IBM pSeries, IBM eServer p5	IBM AIX
SEN_HW_IBMAIXUeSensor.hdf	*IBM AIX - Environment*	IBM RS/6000, IBM pSeries, IBM eServer p5	IBM AIX
SEN_HW_IBMAIXDisk.hdf	*IBM AIX - SCSI disks*	IBM RS/6000, IBM pSeries, IBM eServer p5	IBM AIX
SEN_HW_Director3NT.hdf	*IBM Director Agent 3.x - Windows*	IBM xSeries, IBM Netfinity	Microsoft Windows
SEN_HW_Director4Linux.hdf	*IBM Director Agent 4.x - Linux*	IBM xSeries, IBM Netfinity	Linux
SEN_HW_Director4NT.hdf	*IBM Director Agent 4.x - Windows*	IBM xSeries, IBM Netfinity	Microsoft Windows
SEN_HW_Director5Linux.hdf	*IBM Director Agent 5.10.x - Linux*	IBM xSeries, IBM Netfinity	Linux
SEN_HW_Director5NT.hdf	*IBM Director Agent 5.10.x - Windows*	IBM xSeries, IBM Netfinity	Microsoft Windows

Connector File	Connector Name	Typical platform	Operating System
SEN_HW_Director52Linux.hdf	*IBM Director Agent 5.20.x - Linux*	IBM xSeries, IBM Netfinity	Linux
SEN_HW_Director52NT.hdf	*IBM Director Agent 5.20.x - Windows*	IBM xSeries, IBM Netfinity	Microsoft Windows
SEN_HW_Director52ServeRAIDLinux.hdf	*IBM Director Agent 5.20.x - ServeRAID - Linux*	IBM xSeries, IBM Netfinity	Microsoft Windows
SEN_HW_Director52ServeRAIDNT.hdf	*IBM Director Agent 5.20.x - ServeRAID - Windows*	IBM xSeries, IBM Netfinity	Microsoft Windows
SEN_HW_IbmNetfinityManagerBASIC.hdf	*IBM Netfinity Manager 5.20.x - Basic*	IBM Netfinity	Microsoft Windows
SEN_HW_IbmNetfinityManagerRAID.hdf	*IBM Netfinity Manager 5.20.x - Disks*	IBM Netfinity	Microsoft Windows
SEN_HW_IbmNetfinityManager.hdf	*IBM Netfinity Manager 5.20.x - Normal*	IBM Netfinity	Microsoft Windows
SEN_HW_IpmiTool.hdf	*IPMI – In-band (IpmiTool)*	Sun Fire (x64)	Linux, Sun Solaris
SEN_HW_LSI1030.hdf	*LSI 1030-based GAM Server*	Fujitsu-Siemens PRIMERGY	Microsoft Windows, Linux
SEN_HW_LSI1030Alt.hdf	*LSI 1030-based GAM Server (Alternate MIB)*	Fujitsu-Siemens PRIMERGY	Microsoft Windows, Linux
SEN_HW_LSIMegaRaidSAS.hdf	*LsiLogic MegaRAID SAS*	Fujitsu-Siemens PRIMERGY	Microsoft Windows, Linux
SEN_HW_LSIUtilUNIX.hdf	*LSI Logic – LsiUtil – RAID*	Sun Fire (x64)	Linux, Sun Solaris
SEN_HW_MegaRaidPowerConsole.hdf	*LsiLogic MegaRAID PowerConsole*	Fujitsu-Siemens PRIMERGY	Microsoft Windows, Linux
SEN_HW_MylexController.hdf	*LSI/Mylex GAM Server*	Fujitsu-Siemens PRIMERGY	Microsoft Windows, Linux

Connector File	Connector Name	Typical platform	Operating System
SEN_HW_LinuxNetwork.hdf	*Linux - Network*	Dell PowerEdge, HP ProLiant, Fujitsu-Siemens PRIMERGY, IBM xSeries, Sun Fire	Linux
SEN_HW_MBMNT.hdf	*Motherboard Monitor*	No-name PC	Microsoft Windows
SEN_HW_NECEsmPro.hdf	*NEC ESMPRO Agent*	NEC Express5800	Microsoft Windows, Linux
SEN_HW_PromiseFSC.hdf	*Promise FastTrack*	Fujitsu-Siemens PRIMERGY	Microsoft Windows, Linux
SEN_HW_SmartMonLinux.hdf	*SmartMon Tools*	Dell PowerEdge, Fujitsu-Siemens PRIMERGY, HP ProLiant, IBM xSeries, Sun Fire (x64)	Linux
SEN_HW_SunAlom.hdf	*Sun Advanced Lights-Out Management (ALOM) card*	Sun Fire (SPARC)	N/A
SEN_HW_SunPrtdiag.hdf	*Sun Solaris – Environment (prtdiag, lom)*	Sun Fire (SPARC)	Sun Solaris
SEN_HW_SunPrtpicl.hdf	*Sun Solaris - Environment (prtpicl)*	Sun Fire (SPARC)	Sun Solaris
SEN_HW_SunScSnapshot.hdf	*Sun Solaris - Environment (ALOM-CMT Snapshot)*	Sun Fire (SPARC T1/T2)	Sun Solaris
SEN_HW_SunCediag.hdf	*Sun Solaris - Memory Modules*	Sun Fire (SPARC)	Sun Solaris
SEN_HW_SunF15K.hdf	*Sun Fire F12K/F15K/F20K/F25K (SMS)*	Sun Fire (SPARC)	Sun Solaris
SEN_HW_SunIostat.hdf	*Sun Solaris – Sun Disks*	Sun Fire (SPARC)	Sun Solaris
SEN_HW_SunIostatNonSun.hdf	*Sun Solaris - Non-Sun Disks*	Sun Fire (SPARC)	Sun Solaris

Connector File	Connector Name	Typical platform	Operating System
SEN_HW_SunNetwork.hdf	*Sun Solaris - Network*	Sun Fire (SPARC)	Sun Solaris
SEN_HW_SunPsrinfo.hdf	*Sun Solaris - Processors (psrinfo)*	Sun Fire (SPARC)	Sun Solaris
SEN_HW_WBEMGenDiskNT.hdf	*WMI - Disks*	Dell PowerEdge, Fujitsu-Siemens PRIMERGY, HP ProLiant, IBM xSeries, NEC Express5800, Sun Fire (x64)	Microsoft Windows
SEN_HW_WBEMGenNetwork.hdf	*WMI - Network*	Dell PowerEdge, Fujitsu-Siemens PRIMERGY, HP ProLiant, IBM xSeries, NEC Express5800, Sun Fire (x64)	Microsoft Windows

Connectors and Platform-specific Details

Adaptec IOManager

This connector provides disk monitoring through the Adaptec IO Manager SNMP sub-agent which supports a few AAC-based Adaptec RAID controllers.

Target

Typical platform: Fujitsu-Siemens PRIMERGY

Operating systems: Microsoft Windows, Linux

Instrumentation layer: Adaptec IOManager

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status
- SEN_HW_PHYSICALDISK / Predicted Failure

Adaptec Storage Manager Web Edition (AAC)

This connector provides disk monitoring through the Adaptec Storage Manager Web Edition SNMP sub-agent which supports all AAC-based Adaptec RAID controllers.

Target

Typical platform: Fujitsu-Siemens PRIMERGY

Operating system: Microsoft Windows, Linux

Instrumentation layer: Adaptec Storage Manager Web Edition

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status
- SEN_HW_PHYSICALDISK / Predicted Failure

Adaptec Storage Manager (DPT)

This connector provides disk monitoring through the Adaptec Storage Manager SNMP sub-agent which supports all DPT-based Adaptec RAID controllers.

Target

Typical platform: Fujitsu-Siemens PRIMERGY

Operating systems: Microsoft Windows, Linux

Instrumentation layer: Adaptec Storage Manager

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status
- SEN_HW_PHYSICALDISK / Predicted Failure

Dell OpenManage Array Manager

This connector provides disks monitoring through the Dell OpenManage Array Manager SNMP agent (not to be confused with Storage Manager).

Target

Typical platform: Dell PowerEdge

Operating systems: Microsoft Windows, Linux

Instrumentation layer: Dell OpenManage Server Administrator

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)

- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status

Dell DRAC/MC (Dell Remote Access Controller/Modular Chassis)

Provides environmental information: temperatures, fans and power supplies on Dell Blade servers through the Dell Remote Access Controller/Modular Chassis (DRAC/MC)

Target

Typical platform: Dell PowerEdge

Operating system: N/A

Instrumentation layer: Dell Remote Access Controller/Modular Chassis (DRAC/MC)

Technology used: Telnet/SSH

Discovered objects

- Blades (SEN_HW_BLADE)
- Enclosure model (SEN_HW_ENCLOSURE)
- Fans (SEN_HW_FAN)
- Power supplies (SEN_HW_POWERSUPPLY)
- Other devices (SEN_HW_OTHERDEVICE)
- Temperature sensors (SEN_HW_TEMPERATURE)

Collected parameters

- SEN_HW_FAN / Speed
- SEN_HW_FAN / Status
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_TEMPERATURE / Status
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_BLADE / Status
- SEN_HW_OTHERDEVICE / Status
- SEN_HW_ENCLOSURE / Status
- SEN_HW_ENCLOSURE / Power Consumption

Dell OpenManage Server Administrator

This connector provides hardware monitoring through the Dell OpenManage Server Administrator SNMP agent which supports almost all DELL PowerEdge servers.

Target

Typical platform: Dell PowerEdge

Operating systems: Microsoft Windows, Linux

Instrumentation layer: Dell OpenManage Server Administrator

Technology used: SNMP

Discovered objects

- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Other devices (SEN_HW_OTHERDEVICE)
- Memory modules (SEN_HW_MEMORY)
- Processors (SEN_HW_CPU)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_FAN / Status
- SEN_HW_FAN / Speed
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_VOLTAGE / Status
- SEN_HW_TEMPERATURE / Status
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_OTHERDEVICE / Status
- SEN_HW_MEMORY / Status
- SEN_HW_CPU / Status
- SEN_HW_ENCLOSURE / Status
- SEN_HW_ENCLOSURE / Intrusion Status

Dell OpenManage Storage Manager

This connector provides DELL disk array monitoring through the Dell Storage Manager Agent which supports almost all DELL disk arrays.

Target

Typical platform: Dell PowerEdge

Operating systems: Microsoft Windows, Linux

Instrumentation layer: Dell OpenManage Server Administrator

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_DISKCONTROLLER / Controller Status
- SEN_HW_DISKCONTROLLER / Battery Status
- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status

Fujitsu-Siemens Management Blade (FSC BX Blade Servers)

This connector provides hardware monitoring through the Fujitsu-Siemens Management Blade SNMP Agent which supports the Fujitsu-Siemens Blade servers (BX300, BX600, etc.). Needs to run remotely

Target

Typical platform: Fujitsu-Siemens BX Blade Servers

Operating systems: N/A

Instrumentation layer: Fujitsu-Siemens Management Blade

Technology used: SNMP

Discovered objects

- Fans (SEN_HW_FAN)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Blades (SEN_HW_BLADE)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_FAN / Status
- SEN_HW_FAN / Speed
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_BLADE / Status

Fujitsu-Siemens ServerView

This connector provides hardware monitoring through the Fujitsu-Siemens ServerView Agent which supports almost all Fujitsu-Siemens PRIMERGY servers.

Target

Typical platform: Fujitsu-Siemens PRIMERGY

Operating systems: Microsoft Windows, Linux

Instrumentation layer: Fujitsu-Siemens ServerView Agent

Technology used: SNMP

Discovered objects

- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Memory modules (SEN_HW_MEMORY)
- Processors (SEN_HW_CPU)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_FAN / Status
- SEN_HW_FAN / Speed
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_MEMORY / Status
- SEN_HW_MEMORY / Error Count
- SEN_HW_CPU / Status

- SEN_HW_ENCLOSURE / Intrusion Status

Fujitsu-Siemens ServerView RAID Agent

This connector provides disk monitoring through the Fujitsu-Siemens ServerView RAID SNMP sub-agent which supports many RAID controllers in Primergy servers.

Target

Typical platform: Fujitsu-Siemens PRIMERGY

Operating systems: Microsoft Windows, Linux

Instrumentation layer: Fujitsu-Siemens ServerView RAID Agent

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_DISKCONTROLLER / Battery Status
- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status
- SEN_HW_PHYSICALDISK / Error Count
- SEN_HW_PHYSICALDISK / Predicted Failure

HP BladeSystem

This connector provides hardware monitoring for the HP BladeSystem racks through the HP Insight Management Agents.

Target

Typical platform: HP BladeSystem

Operating systems: Microsoft Windows, Linux

Instrumentation layer: HP iLO / HP Insight Management Agents

Technology used: SNMP

Discovered objects

- Fans (SEN_HW_FAN)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)

- Other devices (SEN_HW_OTHERDEVICE)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_FAN / Status
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_TEMPERATURE / Status
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_OTHERDEVICE / Status
- SEN_HW_ENCLOSURE / Status

HP Insight Management Agent - Drive Array

This connector monitors the HP/Compaq Drive Arrays by connecting to the Storage Management SNMP sub-agent of the HP Insight Manager agent.

Target

Typical platform: HP ProLiant

Operating systems: Microsoft Windows, Linux, HP OpenVMS, HP Tru64

Instrumentation layer: HP Insight Management Agents

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_DISKCONTROLLER / Controller Status
- SEN_HW_DISKCONTROLLER / Battery Status
- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status
- SEN_HW_PHYSICALDISK / Predicted Failure

HP Insight Management Agent - Fiber Array

This connector monitors the fiber-connected HP/Compaq Storage Works Arrays by connecting to the Fiber Array Management SNMP sub-agent of the HP Insight Manager agent.

Target

Typical platform: HP ProLiant

Operating systems: Microsoft Windows, Linux, HP Tru64, HP OpenVMS

Instrumentation layer: HP Insight Management Agents

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)
- Other devices (SEN_HW_OTHERDEVICE)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_DISKCONTROLLER / Controller Status
- SEN_HW_DISKCONTROLLER / Battery Status
- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status
- SEN_HW_PHYSICALDISK / Predicted Failure
- SEN_HW_PHYSICALDISK / Error Count
- SEN_HW_OTHERDEVICE / Status

HP Insight Management Agent - IDE Storage

This connector monitors the HP/Compaq IDE Drive Arrays by connecting to the Storage Management SNMP sub-agent of the HP Insight Manager agent.

Target

Typical platform: HP ProLiant

Operating systems: Microsoft Windows, Linux, HP Tru64, HP OpenVMS

Instrumentation layer: HP Insight Management Agents

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status
- SEN_HW_PHYSICALDISK / Predicted Failure

HP Insight Management Agent - iLO

This connector provides hardware monitoring of the HP iLO card in HP ProLiant servers through the HP Insight Manager (Server Agent) which supports almost all HP ProLiant and Integrity servers under Windows and Linux, as well as Tru64 servers.

Target

Typical platform: HP ProLiant

Operating systems: Microsoft Windows, Linux, HP OpenVMS, HP Tru64

Instrumentation layer: HP Insight Management Agents

Technology used: SNMP

Discovered objects

- Other devices (SEN_HW_OTHERDEVICE)
- Network cards (SEN_HW_NETWORK)

Collected parameters

- SEN_HW_OTHERDEVICE / Status
- SEN_HW_NETWORK / Status

HP Insight Management Agent - Server

This connector provides hardware monitoring through the HP Insight Manager (Server Agent) which supports almost all HP ProLiant and Integrity servers under Windows and Linux, as well as Tru64 servers.

Target

Typical platform: HP ProLiant

Operating systems: Microsoft Windows, Linux, HP Tru64, HP OpenVMS

Instrumentation layer: HP Insight Management Agents

Technology used: SNMP

Discovered objects

- Fans (SEN_HW_FAN)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Memory modules (SEN_HW_MEMORY)
- Processors (SEN_HW_CPU)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_FAN / Status
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_POWERSUPPLY / Used Watts
- SEN_HW_MEMORY / Status
- SEN_HW_CPU / Status
- SEN_HW_CPU / Predicted Failure

HP Insight Management Agent - Server (Tru64)

This connector adds HP Tru64-specific hardware monitoring through the HP Insight Manager (Server Agent).

Target

Typical platform: HP ProLiant

Operating systems: HP Tru64, HP OpenVMS

Instrumentation layer: HP Insight Management Agents

Technology used: SNMP

Discovered objects

- Fans (SEN_HW_FAN)
- Power supplies (SEN_HW_POWERSUPPLY)
- Network cards (SEN_HW_NETWORK)

Collected parameters

- SEN_HW_FAN / Status
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_NETWORK / Status
- SEN_HW_NETWORK / Link Status

HP Insight Management Agent-SCSI Storage Agent

This connector monitors the HP/Compaq SCSI disk by connecting to the Storage Management SNMP sub-agent of the HP Insight Manager agent.

Target

Typical platform: HP ProLiant

Operating systems: Microsoft Windows, Linux, HP Tru64, HP OpenVMS

Instrumentation layer: HP Insight Management Agents

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_DISKCONTROLLER / Controller Status

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status
- SEN_HW_PHYSICALDISK / Predicted Failure

HP MP/GSP card (iLO)

Gives environmental information (temperatures, fans, etc.) on HP 9000 and Integrity servers through HP Integrated Lights-Out Management Card

Target

Typical platforms: HP 9000, Integrity, SuperDome

Operating system: N/A

Instrumentation layer: HP MP/GSP card (iLO)

Technology used: Telnet/SSH

Discovered objects

- Fans (SEN_HW_FAN)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_FAN / Status
- SEN_HW_TEMPERATURE / Status
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_ENCLOSURE / Status

HP TopTools Agent

This connector provides hardware monitoring through the HP TopTools Agent version 5.x which supports almost all HP NetServer servers under Windows.

Target

Typical platform: HP NetServer

Operating system: Microsoft Windows

Instrumentation layer: HP TopTools Agent

Technology used: System commands, WMI

Discovered objects

- Fans (SEN_HW_FAN)

- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Memory modules (SEN_HW_MEMORY)
- Processors (SEN_HW_CPU)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_FAN / Speed
- SEN_HW_FAN / Status
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_VOLTAGE / Status
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_MEMORY / Status
- SEN_HW_CPU / Status

HP TopTools NetRaid Agent

This connector monitors the RAID disks (physical and logical) attached to a HP NetRAID controller. It uses the information provided by the HP NetRAID SNMP Sub-Agent, installed with the HP TopTools Server Agent.

Target

Typical platform: HP NetServer

Operating systems: Linux, Microsoft Windows

Instrumentation layer: HP TopTools NetRaid Agent

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status

HP-UX - Common

This connector provides hardware status information (processors, network interfaces) on HP-UX systems. Requires root privileges for disk monitoring.

Target

Typical platforms: HP 9000, HP Integrity, HP SuperDome

Operating system: HP-UX

Instrumentation layer: HP-UX system commands (ioscan, lanscan, etc.)

Technology used: System commands

Discovered objects

- Processors (SEN_HW_CPU)
- Network cards (SEN_HW_NETWORK)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_CPU / Status
- SEN_HW_NETWORK / Status
- SEN_HW_NETWORK / Link Status
- SEN_HW_NETWORK / Error Count

Important

This connector probably requires root privileges for its proper operation. You therefore will need to configure the product to use the root login/password to execute external commands. Alternatively, you can configure the product to use the *sudo* utility for the following command: **/usr/bin/adb**

HP-UX - Disks

This connector provides SCSI disks status information on HP-UX systems. It requires root privileges.

Target

Typical platforms: HP 9000, HP Integrity, HP SuperDome

Operating system: HP-UX

Instrumentation layer: HP-UX system commands (pvdisplay, ioscan, etc.)

Technology used: System commands

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_PHYSICALDISK / Status

Important

This connector probably requires root privileges for its proper operation. You therefore will need to configure the product to use the root login/password to execute external commands. Alternatively, you can configure the product to use the *sudo* utility for the following command: **/usr/sbin/diskinfo**

HP-UX - STM

This connector provides physical disks and memory monitoring on HP-UX systems through the Support Tools Manager utilities (STM).

Target

Typical platforms: HP 9000, HP Integrity, HP SuperDome

Operating system: HP-UX

Instrumentation layer: HP-UX Support Tools Manager (STM)

Technology used: System commands

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Physical disks (SEN_HW_PHYSICALDISK)
- Memory modules (SEN_HW_MEMORY)

Collected parameters

- SEN_HW_PHYSICALDISK / Status
- SEN_HW_PHYSICALDISK / Error Count
- SEN_HW_MEMORY / Status
- SEN_HW_MEMORY / Error Count

IBM BladeCenter Management Module

This connector provides hardware monitoring of the IBM BladeCenter chassis through the IBM BladeCenter Management Module (SNMP-based). This connector is used for remote monitoring.

Target

Typical platform: IBM BladeCenter

Operating system: Not applicable

Instrumentation layer: IBM BladeCenter Management Module

Technology used: SNMP

Discovered objects

- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Blades (SEN_HW_BLADE)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_FAN / Speed Percent
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_BLADE / Status

IBM AIX - CHRP Environment

This connector provides hardware environment information (temperatures, voltages, fans, power supplies) on IBM CHRP-based AIX systems.

Target

Typical platforms: IBM RS/6000, IBM pSeries, IBM eServer p5

Operating system: IBM AIX

Instrumentation layer: IBM AIX system commands (machstat)

Technology used: System commands

Discovered objects

- Fans (SEN_HW_FAN)
- Power supplies (SEN_HW_POWERSUPPLY)

Collected parameters

- SEN_HW_FAN / Status
- SEN_HW_POWERSUPPLY / Status

Important

This connector probably requires root privileges for its proper operation. You therefore will need to configure the product to use the root login/password to execute external commands. Alternatively, you can configure the product to use the sudo utility for the following commands:**/usr/sbin/bootinfo**; **/usr/sbin/machstat**

IBM AIX - Common

This connector provides hardware status information (processors, network interfaces) on IBM AIX systems

Target

Typical platforms: IBM RS/6000, IBM pSeries, IBM eServer p5

Operating system: IBM AIX

Instrumentation layer: IBM AIX system commands (lsdev, entstat, etc.)

Technology used: System commands

Discovered objects

- Processors (SEN_HW_CPU)
- Network cards (SEN_HW_NETWORK)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_CPU / Status
- SEN_HW_NETWORK / Status
- SEN_HW_NETWORK / Link Status
- SEN_HW_NETWORK / Error Count

IBM AIX - Environment

This connector provides hardware environment information: temperatures, voltages, fans, power supplies on IBM AIX systems

Target

Typical platforms: IBM RS/6000, IBM pSeries, IBM eServer p5

Operating system: IBM AIX

Instrumentation layer: IBM AIX system commands (uesensor)

Technology used: System commands

Discovered objects

- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)

Collected parameters

- SEN_HW_FAN / Speed
- SEN_HW_VOLTAGE / Status
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status

IBM AIX - SCSI disks

This connector provides hardware status information of the non-RAID SCSI physical disks on IBM AIX systems

Target

Typical platforms: IBM RS/6000, IBM pSeries, IBM eServer p5

Operating systems: IBM AIX

Instrumentation layer: IBM AIX system commands (lsdev, pvdisplay, etc.)

Technology used: System commands

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_PHYSICALDISK / Status
- SEN_HW_PHYSICALDISK / Error Count

IBM Director Agent 3.x - Windows

This connector provides hardware monitoring through the IBM Director Agent version 3.x which supports almost all IBM Netfinity and xSeries servers. This connector is WBEM-based.

Target

Typical platforms: IBM xSeries, IBM Netfinity

Operating system: Microsoft Windows

Instrumentation layer: IBM Director Agent 3.x

Technology used: WMI

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)

- Physical disks (SEN_HW_PHYSICALDISK)
- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status
- SEN_HW_FAN / Speed
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_TEMPERATURE / Temperature

IBM Director Agent 4.x - Linux

This connector provides hardware monitoring through the IBM Director Agent version 4.x which supports some (not all) xSeries servers.

Target

Typical platforms: IBM xSeries, IBM Netfinity

Operating system: Linux

Instrumentation layer: IBM Director Agent 4.x

Technology used: WBEM

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)
- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Memory modules (SEN_HW_MEMORY)
- Processors (SEN_HW_CPU)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status
- SEN_HW_FAN / Speed
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_MEMORY / Status
- SEN_HW_CPU / Status
- SEN_HW_ENCLOSURE / Intrusion Status

Important

This connector probably requires root privileges for its proper operation. You therefore will need to configure the product to use the root login/password to execute external commands. Alternatively, you can configure the product to use the sudo utility for the following command: **/opt/IBM/director/CIMOM/bin/cimcli**

IBM Director Agent 4.x - Windows

This connector provides hardware monitoring through the IBM Director Agent version 4.x which supports almost all IBM Netfinity and xSeries servers.

Target

Typical platforms: IBM xSeries, IBM Netfinity

Operating system: Microsoft Windows

Instrumentation layer: IBM Director Agent 4.x

Technology used: WMI

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)
- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Memory modules (SEN_HW_MEMORY)
- Processors (SEN_HW_CPU)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status
- SEN_HW_FAN / Speed
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_MEMORY / Status
- SEN_HW_CPU / Status
- SEN_HW_ENCLOSURE / Intrusion Status

IBM Director Agent 5.10.x - Linux

This connector provides hardware monitoring through the IBM Director Agent version 5.x which supports some (not all) xSeries servers.

Target

Typical platforms: IBM xSeries, IBM Netfinity

Operating system: Linux

Instrumentation layer: IBM Director Agent 5.10.x

Technology used: WBEM

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)
- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Memory modules (SEN_HW_MEMORY)
- Processors (SEN_HW_CPU)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_LOGICALDISK / Status

- SEN_HW_PHYSICALDISK / Status
- SEN_HW_FAN / Speed
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_MEMORY / Status
- SEN_HW_CPU / Status
- SEN_HW_ENCLOSURE / Intrusion Status

Important

This connector probably requires root privileges for its proper operation. You therefore will need to configure the product to use the root login/password to execute external commands. Alternatively, you can configure the product to use the sudo utility for the following command: **/opt/ibm/director/cimom/bin/CLI**

IBM Director Agent 5.10.x - Windows

This connector provides hardware monitoring through the IBM Director Agent version 5.x which supports almost all IBM Netfinity and xSeries servers.

Target

Typical platforms: IBM xSeries, IBM Netfinity

Operating system: Microsoft Windows

Instrumentation layer: IBM Director Agent 5.10.x

Technology used: WMI

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)
- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Memory modules (SEN_HW_MEMORY)
- Processors (SEN_HW_CPU)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_LOGICALDISK / Status

- SEN_HW_PHYSICALDISK / Status
- SEN_HW_FAN / Speed
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_MEMORY / Status
- SEN_HW_CPU / Status
- SEN_HW_ENCLOSURE / Intrusion Status

IBM Director Agent 5.20.x - Linux

This connector provides hardware monitoring through the IBM Director Agent version 5.20.x which supports some (not all) xSeries servers.

Target

Typical platforms: IBM xSeries, IBM Netfinity

Operating system: Linux

Instrumentation layer: IBM Director Agent 5.20.x

Technology used: WBEM

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)
- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Memory modules (SEN_HW_MEMORY)
- Processors (SEN_HW_CPU)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status
- SEN_HW_FAN / Speed

- SEN_HW_VOLTAGE / Voltage
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_MEMORY / Status
- SEN_HW_CPU / Status
- SEN_HW_ENCLOSURE / Intrusion Status

Important

This connector probably requires root privileges for its proper operation. You therefore will need to configure the product to use the root login/password to execute external commands. Alternatively, you can configure the product to use the sudo utility for the command: **/opt/ibm/icc/cimom/bin/CLI**

IBM Director Agent 5.20.x - Windows

This connector provides hardware monitoring through the IBM Director Agent version 5.20.x which supports almost all IBM Netfinity and xSeries servers.

Target

Typical platforms: IBM xSeries, IBM Netfinity

Operating system: Microsoft Windows

Instrumentation layer: IBM Director Agent 5.20.x

Technology used: WMI

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)
- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Memory modules (SEN_HW_MEMORY)
- Processors (SEN_HW_CPU)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status

- SEN_HW_FAN / Speed
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_MEMORY / Status
- SEN_HW_CPU / Status
- SEN_HW_ENCLOSURE / Intrusion Status

IBM Director Agent 5.20.x - ServeRAID - Linux

This connector provides IBM ServeRAID disks monitoring through the IBM ServeRAID Manager Agent component of the IBM Director Agent version 5.20.x which supports almost all IBM Netfinity and xSeries servers.

Target

Typical platforms: IBM xSeries, IBM Netfinity

Operating system: Linux

Instrumentation layer: IBM Director Agent 5.20.x

Technology used: WBEM

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_DISKCONTROLLER / Controller Status
- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status

IBM Director Agent 5.20.x - ServeRAID - Windows

This connector provides IBM ServeRAID disks monitoring through the IBM ServeRAID Manager Agent component of the IBM Director Agent version 5.20.x which supports almost all IBM Netfinity and xSeries servers.

Target

Typical platforms: IBM xSeries, IBM Netfinity

Operating system: Microsoft Windows

Instrumentation layer: IBM Director Agent 5.20.x

Technology used: WMI

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_DISKCONTROLLER / Controller Status
- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status

IBM Netfinity Manager 5.20.x - Basic

This connector provides basic environment monitoring through the IBM Netfinity Manager Services SNMP sub-agent which supports almost all old IBM servers (Netfinity) under Windows.

Target

Typical platform: IBM Netfinity

Operating system: Microsoft Windows

Instrumentation layer: IBM Netfinity Manager 5.20.x

Technology used: SNMP

Discovered objects

- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)

Collected parameters

- SEN_HW_FAN / Status

- SEN_HW_VOLTAGE / Status
- SEN_HW_TEMPERATURE / Status

IBM Netfinity Manager 5.20.x - Normal

This connector provides environment monitoring through the IBM Netfinity Manager Services SNMP sub-agent which supports almost all old IBM servers (Netfinity) under Windows.

Target

Typical platform: IBM Netfinity

Operating systems: Microsoft Windows

Instrumentation layer: IBM Netfinity Manager 5.20.x

Technology used: SNMP

Discovered objects

- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_VOLTAGE / Voltage
- SEN_HW_TEMPERATURE / Temperature

IBM Netfinity Manager 5.20.x - Disks

This connector provides IBM ServerRAID monitoring through the IBM Netfinity Manager Services SNMP sub-agent which supports almost all old IBM servers (Netfinity) under Windows.

Target

Typical platform: IBM Netfinity

Operating system: Microsoft Windows

Instrumentation layer: IBM Netfinity Manager 5.20.x

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status

IPMI – In-band (IpmiTool)

This connector provides environmental information (temperatures, fans, etc.) on several IPMI-enabled servers through the ipmitool utility and OpenIPMI driver

Target

Typical platform: Sun Fire (x64)

Operating systems: Linux, Sun Solaris

Instrumentation layer: ipmitool

Technology used: System commands

Discovered objects

- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_FAN / Speed
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status

Important

This connector probably requires root privileges for its proper operation. You therefore will need to configure the product to use the root login/password to execute external commands. Alternatively, you can configure the product to use the sudo utility for the command: **ipmitool**

LSI 1030-based GAM Server

This connector provides disk monitoring for LSI c1030-based disk controllers (also known as LSI Integrated Mirroring) through the LSI1030 SNMP sub-agent.

Target

Typical platforms: Fujitsu-Siemens PRIMERGY

Operating systems: Microsoft Windows, Linux

Instrumentation layer: LSI GAM Server

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status

LSI 1030-based GAM Server (Alternate MIB)

This connector provides disk monitoring for LSI c1030-based disk controllers (also known as LSI Integrated Mirroring) through the LSI1030 SNMP sub-agent (based on the 1.3.6.1.4.1.3582.2 MIB).

Target

Typical platform: Fujitsu-Siemens PRIMERGY

Operating system: Microsoft Windows, Linux

Instrumentation layer: LSI GAM Server

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status

LsiLogic MegaRAID SAS

This connector provides disk monitoring through the LsiLogic MegaRAID SAS SNMP sub-agent which supports all LSI MegaRaid SAS RAID controllers.

Target

Typical platform: Fujitsu-Siemens PRIMERGY

Operating systems: Microsoft Windows, Linux

Instrumentation layer: LSI MegaRAID SAS SNMP Agent

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status
- SEN_HW_PHYSICALDISK / Error Count

LSI Logic – LsiUtil – RAID

This connector provides physical disk information through the lsiutil utility

Target

Typical platforms: Sun Fire (x64)

Operating systems: Linux, Sun Solaris

Instrumentation layer: lsiutil

Technology used: System commands

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_PHYSICALDISK / Status
- SEN_HW_LOGICALDISK / Status

Important

This connector probably requires root privileges for its proper operation. You therefore will need to configure the product to use the root login/password to execute external commands. Alternatively, you can configure the product to use the *sudo* utility for the following command: **lsiutil**

LsiLogic MegaRAID PowerConsole

This connector provides disk monitoring through the LsiLogic MegaRAID PowerConsole SNMP sub-agent which supports all MegaRAID-based RAID controllers.

Target

Typical platforms: Fujitsu-Siemens PRIMERGY

Operating systems: Microsoft Windows, Linux

Instrumentation layer: LSI MegaRAID PowerConsole

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status

LSI/Mylex GAM Server

This connector provides disk monitoring through the Mylex SNMP sub-agent which supports all Mylex disk controllers.

Target

Typical platforms: Fujitsu-Siemens PRIMERGY

Operating systems: Microsoft Windows, Linux

Instrumentation layer: Mylex GAM Server

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status

Linux - Network

This connector provides the monitoring of network cards on all Linux systems.

Target

Typical platforms: Dell PowerEdge, HP ProLiant, Fujitsu-Siemens PRIMERGY, IBM xSeries, Sun Fire

Operating system: Linux

Instrumentation layer: Linux system commands (ethtool, mii-tool)

Technology used: System commands

Discovered objects

- Network cards (SEN_HW_NETWORK)

Collected parameters

- SEN_HW_NETWORK / Error Count
- SEN_HW_NETWORK / Link Status

Important

This connector probably requires root privileges for its proper operation. You therefore will need to configure the product to use the root login/password to execute external commands. Alternatively, you can configure the product to use the sudo utility for the commands: **ethtool**; **mii-tool**

Motherboard Monitor

This connector provides hardware monitoring through Motherboard Monitor version 5.x which supports almost all non-branded PCs under Windows.

Target

Typical platform: Unbranded PC

Operating system: Microsoft Windows

Instrumentation layer: Motherboard Monitor

Technology used: System commands

Discovered objects

- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)

- Power supplies (SEN_HW_POWERSUPPLY)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_FAN / Speed
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_TEMPERATURE / Temperature

NEC ESMPRO Agent

This connector provides hardware monitoring through the NEC ESMPRO Agent which supports almost all NEC Express5800 and some BULL NovaScale servers running Windows and Linux.

Target

Typical platform: NEC Express5800

Operating systems: Microsoft Windows, Linux

Instrumentation layer: NEC ESMPRO Agent

Technology used: SNMP

Discovered objects

- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Memory modules (SEN_HW_MEMORY)
- Processors (SEN_HW_CPU)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_FAN / Status
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_MEMORY / Status
- SEN_HW_CPU / Status

Promise FastTrack

This connector provides disk monitoring through the Promise FastTrack SNMP agent.

Target

Typical platform: Fujitsu-Siemens PRIMERGY

Operating systems: Microsoft Windows, Linux

Instrumentation layer: Promise FastTrack SNMP Agent

Technology used: SNMP

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Logical disks, RAIDs (SEN_HW_LOGICALDISK)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_DISKCONTROLLER / Battery Status
- SEN_HW_LOGICALDISK / Status
- SEN_HW_PHYSICALDISK / Status
- SEN_HW_PHYSICALDISK / Predicted Failure

SmartMon Tools

Provides S.M.A.R.T.-enabled physical disk information through the smartd/smartctl utility under Linux

Target

Typical platforms: Dell PowerEdge, Fujitsu-Siemens PRIMERGY, HP ProLiant, IBM xSeries, Sun Fire (x64)

Operating system: Linux

Instrumentation layer: SmartMon Tools

Technology used: System commands

Discovered objects

- Physical disks (SEN_HW_PHYSICALDISK)
- Temperature sensors (SEN_HW_TEMPERATURE)

Collected parameters

- SEN_HW_PHYSICALDISK / Predicted Failure
- SEN_HW_PHYSICALDISK / Status
- SEN_HW_TEMPERATURE / Temperature

Important

This connector probably requires root privileges for its proper operation. You therefore will need to configure the product to use the root login/password to execute external commands. Alternatively, you can configure the product to use the sudo utility for the command: **/usr/sbin/smartctl**; **/bin/dd**

Sun Advanced Lights-Out Management (ALOM) card

This connector provides environmental and disk information (temperatures, fans, etc.) on Sun SPARC servers equipped with an ALOM card. Telnet must be enabled on the ALOM card.

Target

Typical platform: Sun Fire (SPARC)

Operating system: N/A

Instrumentation layer: Sun Advanced Lights-Out Management (ALOM) card

Technology used: Telnet/SSH

Discovered objects

- Physical disks (SEN_HW_PHYSICALDISK)
- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Other devices (SEN_HW_OTHERDEVICE)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_PHYSICALDISK / Status
- SEN_HW_FAN / Status
- SEN_HW_FAN / Speed
- SEN_HW_VOLTAGE / Status
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_TEMPERATURE / Status
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_OTHERDEVICE / Status

Sun Fire F12K/F15K/F20K/F25K (SMS)

This connector provides environmental information (temperatures, fans, etc.) and status on Sun Fire F12K, F15K, F20K and F25K servers.

Target

Typical platform: Sun Fire (SPARC)

Operating system: Sun Solaris

Instrumentation layer: Sun SMS utilities installed on the System Controller (SC on F15K, etc.)

Technology used: System commands

Discovered objects

- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)
- Other devices (SEN_HW_OTHERDEVICE)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_FAN / Status
- SEN_HW_VOLTAGE / Status
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_TEMPERATURE / Status
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_OTHERDEVICE / Status

Sun Solaris – Sun Disks

This connector provides physical disk information (status and error count) on Sun Solaris systems through the iostat -En utility. Supports only official Sun disks

Target

Typical platform: Sun Fire (SPARC)

Operating system: Sun Solaris

Instrumentation layer: Sun Solaris system commands (iostat, dd)

Technology used: System commands

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_PHYSICALDISK / Error Count
- SEN_HW_PHYSICALDISK / Status

Important

This connector probably requires root privileges for its proper operation. You therefore will need to configure the product to use the root login/password to execute external commands. Alternatively, you can configure the product to use the *sudo* utility for the command: **/usr/bin/dd**

Sun Solaris - Non-Sun Disks

This connector provides physical disk information (status and error count) on Sun Solaris platforms through the iostat -En utility. It supports only non-Sun disks in Sun systems

This connector needs to be manually activated and will never be picked up automatically during the platform detection and components discovery.

Target

Typical platforms: Sun Fire (SPARC)

Operating systems: Sun Solaris

Instrumentation layer: Sun Solaris system commands (iostat, dd)

Technology used: System commands

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_PHYSICALDISK / Error Count
- SEN_HW_PHYSICALDISK / Status

Important

This connector probably requires root privileges for its proper operation. You therefore will need to configure the product to use the root login/password to execute external commands. Alternatively, you can configure the product to use the 'sudo' utility for the following commands: **/usr/bin/dd**

Sun Solaris – Environment (prtdiag, lom)

This connector provides environmental information (temperatures, fans, etc.) on several Sun platforms through the prtdiag or lom utility

Target

Typical platform: Sun Fire (SPARC)

Operating system: Sun Solaris

Instrumentation layer: Sun Solaris system commands (prtdiag, lom, psrinfo, etc.)

Technology used: System commands

Discovered objects

- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)
- Power supplies (SEN_HW_POWERSUPPLY)

- Memory modules (SEN_HW_MEMORY)
- Processors (SEN_HW_CPU)
- Enclosure model (SEN_HW_ENCLOSURE)

Collected parameters

- SEN_HW_FAN / Status
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_VOLTAGE / Status
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_TEMPERATURE / Status
- SEN_HW_POWERSUPPLY / Status
- SEN_HW_MEMORY / Status

Important

This connector probably requires root privileges for its proper operation. You therefore will need to configure the product to use the root login/password to execute external commands. Alternatively, you can configure the product to use the 'sudo' utility for the following command: **/usr/sbin/lom**

Sun Solaris - Environment (prtpicl)

This connector provides environmental information (temperatures, fans, etc.) on several Sun platforms through the prtpicl utility. This connector is mainly to be used on Solaris 10 systems.

Target

Typical platforms: Sun Fire (SPARC)

Operating system: Sun Solaris

Instrumentation layer: Sun Solaris system commands (prtpicl, etc.)

Technology used: System commands

Discovered objects

- Fans (SEN_HW_FAN)
- Voltage sensors (SEN_HW_VOLTAGE)
- Temperature sensors (SEN_HW_TEMPERATURE)

Collected parameters

- SEN_HW_FAN / Speed
- SEN_HW_FAN / Speed Percent
- SEN_HW_FAN / Status
- SEN_HW_TEMPERATURE / Temperature

- SEN_HW_TEMPERATURE / Status
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_VOLTAGE / Status

Sun Solaris - Environment (ALOM-CMT Snapshot)

This connector provides environmental and disk information (temperatures, fans, etc.) on Sun SPARC T1/T2 servers equipped with an ALOM card. It gathers the hardware information from the ALOM card in-band (no Telnet or SSH connection over the network). The connector requires the SUNWexplo (Sun Explorer) package.

Target

Typical platforms: Sun Fire (SPARC T1/T2))

Operating system: Sun Solaris

Instrumentation layer: Sun Explorer and the ALOM-CMT card

Technology used: System commands

Discovered objects

- Enclosure model (SEN_HW_ENCLOSURE)
- Fans (SEN_HW_FAN)
- Other devices (SEN_HW_OTHERDEVICE)
- Physical disks (SEN_HW_PHYSICALDISK)
- Power supplies (SEN_HW_POWERSUPPLY
- Temperature sensors (SEN_HW_TEMPERATURE)
- Voltage sensors (SEN_HW_VOLTAGE)

Collected parameters

- SEN_HW_FAN / Speed
- SEN_HW_FAN / Status
- SEN_HW_OTHERDEVICE / Status
- SEN_HW_PHYSICALDISK / Status
- SEN_HW_TEMPERATURE / Temperature
- SEN_HW_TEMPERATURE / Status
- SEN_HW_VOLTAGE / Voltage
- SEN_HW_VOLTAGE / Status

Important

This connector probably requires root privileges for its proper operation. You therefore will need to configure the product to use the root login/password to execute external commands. Alternatively, you can configure the product to use the **sudo** utility for the following command: **/opt/SUNWexplo/bin/snapshot**

Sun Solaris - Memory Modules

This connector provides memory modules monitoring on Sun Solaris 8 and 9 SPARC systems. Requires root privileges

Target

Typical platform: Sun Fire (SPARC)

Operating system: Sun Solaris

Instrumentation layer: Sun Solaris system commands (cediag, cestat)

Technology used: System commands

Discovered objects

- Memory modules (SEN_HW_MEMORY)

Collected parameters

- SEN_HW_MEMORY / Predicted Failure
- SEN_HW_MEMORY / Status

Important

This connector probably requires root privileges for proper operation. You therefore will need to configure the product to use the root login/password to execute external commands. Alternatively, you can configure the product to use the sudo utility for the command: **/opt/SUNWcest/bin/cediag**

Sun Solaris - Network

This connector provides the monitoring of network cards on all Sun Solaris systems.

Target

Typical platform: Sun Fire (SPARC)

Operating system: Sun Solaris

Instrumentation layer: Sun Solaris system commands (kstat, ndd, ifconfig, etc.)

Technology used: System commands

Discovered objects

- Network cards (SEN_HW_NETWORK)

Collected parameters

- SEN_HW_NETWORK / Status

- SEN_HW_NETWORK / Error Count
- SEN_HW_NETWORK / Link Status

Important

This connector probably requires root privileges for its proper operation. You therefore will need to configure the product to use the root login/password to execute external commands. Alternatively, you can configure the product to use the sudo utility for the following commands: **/usr/bin/kstat**; **/usr/sbin/ndd**

Sun Solaris - Processors (psrinfo)

This connector discovers and monitors the processor in any Sun SPARC-based Solaris machine through the psrinfo system command.

Target

Typical platforms: Sun Fire (SPARC)

Operating system: Sun Solaris

Instrumentation layer: Sun Solaris system commands (psrinfo, etc.)

Technology used: System commands

Discovered objects

- Processors (SEN_HW_CPU)

Collected parameters

- SEN_HW_CPU / Status

WMI - Disks

This connector provides monitoring of the S.M.A.R.T.-enabled disks that are directly handled by Windows (and WBEM through the WMI service). It tries to exclude disks that are actually logical disks exposed by some RAID controllers.

Target

Typical platforms: Dell PowerEdge, Fujitsu-Siemens PRIMERGY, HP ProLiant, IBM xSeries, NEC Express5800, Sun Fire (x64)

Operating system: Microsoft Windows

Instrumentation layer: WMI

Technology used: WMI

Discovered objects

- Disk controllers (SEN_HW_DISKCONTROLLER)
- Physical disks (SEN_HW_PHYSICALDISK)

Collected parameters

- SEN_HW_PHYSICALDISK / Status
- SEN_HW_PHYSICALDISK / Predicted Failure

WMI - Network

This connector provides the monitoring of network cards on all Windows-based systems through the WMI layer (root/WMI namespace).

Target

Typical platforms: Dell PowerEdge, Fujitsu-Siemens PRIMERGY, HP ProLiant, IBM xSeries, NEC Express5800, Sun Fire (x64)

Operating system: Microsoft Windows

Instrumentation layer: WMI

Technology used: WMI

Discovered objects

- Network cards (SEN_HW_NETWORK)

Collected parameters

- SEN_HW_NETWORK / Status
- SEN_HW_NETWORK / Link Status
- SEN_HW_NETWORK / Error Count

Notes

About BMC® Software

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