

Hardware Sentry KM for PATROL[®]

Version 1.6.00 Release Notes



Supporting

Hardware Sentry KM for PATROL[®]
Version 1.6.00

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What's New

New Supported Platforms

Platforms	Description
SAN Monitoring	<p>Starting with version 1.6.00, Hardware Sentry KM for PATROL is able to monitor external disk arrays, fiber switches and tape libraries in a SAN (Storage Area Network).</p> <p>The storage-dedicated “connectors” that were previously in a separate package named “Storage Add-on for Hardware Sentry KM for PATROL” are now bundled with the KM. There is no need to install a separate add-on in order to monitor storage devices with Hardware Sentry KM 1.6.00.</p> <p>The purchase of a separate "Storage Monitoring" license is however still required in order to monitor a storage device with this version of Hardware Sentry KM.</p>
Cisco MDS9000 Series SAN switches	<p>Discovers and monitors the enclosure and fiber-channel ports of Cisco SAN switches as well as the various environment sensors (temperatures, fans, power supplies, etc.) through the telnet or SSH interface.</p>
Brocade and McData SAN switches	<p>Discovers and monitors the enclosure and fiber-channel ports of SAN switches as well as the various environment sensors (temperatures, fans, power supplies, etc.). It relies on the SNMP protocol and supports the Fibre Alliance MIB (FCMGMT-MIB).</p> <p>Support for Brocade and McData SAN switches was available in the Storage Add-on for Hardware Sentry KM for PATROL version 1.0.00.</p>
SMI-S Compliant SAN Switches	<p>Discovers the enclosure and fiber-channel ports of SAN switches as well as the various environment sensors (temperatures, fans, power supplies, etc.). It relies on the WBEM technology and supports SMI-S compliant switches only.</p> <p>Support for SMI-S compliant SAN switches was available in the Storage Add-on for Hardware Sentry KM for PATROL version 1.0.00.</p>
IBM DS3000 and DS4000 series disk arrays	<p>Discovers and monitors the physical disks, disk arrays, logical drives, batteries and fiber ports of IBM DS3000 and DS4000 series disk arrays, as well as the various environment sensors (temperatures, fans and power supplies). The solution requires the SMcli utility.</p>
SMI-S Compliant disk arrays (HP, EMC, Hitachi, IBM)	<p>Discovers the enclosure and the disks of SAN disk arrays, as well as the storage pools and storage volumes. It will also discovery and monitor the FC ports of the array and the various</p>

Platforms	Description
	<p>environment sensors when available (temperatures, fans, power supplies, etc.). It relies on the WBEM technology and supports SMI-S compliant disk arrays only.</p> <p>Support for SMI-S compliant disk arrays was available in the Storage Add-on for Hardware Sentry KM for PATROL version 1.0.00.</p>
<p>NetApp Filers</p>	<p>Discovers and monitors the enclosure, the disks, aggregates, fiber and Ethernet ports of NetApp disk arrays (filers) as well as the various environment sensors (temperatures, fans, power supplies, etc.). It relies on the SNMP protocol.</p> <p>Support for NetApp Filers was available in the Storage Add-on for Hardware Sentry KM for PATROL version 1.0.00.</p> <p><i>Note: Additional performance and statistics information is provided with the new NetApp Filers KM for PATROL released at the same time as Hardware Sentry KM for PATROL 1.6.00.</i></p>
<p>DataDirect Networks (DDN) disk arrays</p>	<p>Discovers and monitors the physical disks of a DDN disk array as well as the various environment sensors (temperatures, fans, power supplies) based on the disk array SNMP Agent.</p>
<p>SMI-S Compliant Tape Libraries</p>	<p>Discovers the enclosure of a storage library as well as its specialized devices: tape drives, cartridges, media changers, etc.. It will also discovery and monitor the FC ports of the array and the various environment sensors when available (temperatures, fans, power supplies, etc.). It relies on the WBEM technology and supports SMI-S compliant tape libraries only.</p> <p>Support for SMI-S compliant tape libraries was available in the Storage Add-on for Hardware Sentry KM for PATROL version 1.0.00.</p>
<p>Quantum and ADIC tape libraries</p>	<p>Discovers and monitors the status of tape drives, media changers, fiber ports and environment sensors in Quantum and ADIC tape libraries through the Quantum/ADIC SNMP agent.</p>
<p>StorageTek LSeries and StreamLine Tape Libraries</p>	<p>Discovers and monitors the status of tape drives, media changers, fiber ports and environment sensors in StorageTek LSeries and StreamLine (SL) tape libraries through their SNMP agent.</p> <p>This new version adds the tape library serial number, IP Address, Ethernet Address as well as robotics and cleaning cartridge monitoring to the LSeries tape libraries.</p> <p>Support for StorageTek LSeries and StreamLine tape libraries was available in the Storage Add-on for Hardware Sentry KM for PATROL version 1.0.00.</p>
<p>IBM 3584 (TotalStorage 3xxx) Tape Libraries</p>	<p>Discovers and monitors the status of tape drives, media changers, fiber ports and environment sensors in IBM 3584 (TotalStorage 3xxx) tape libraries through their SNMP Agent.</p>

Platforms	Description
IBM Director 6.10 Agent	Updated connectors to support the IBM Director 6.10 agent.
SMI-S Compliant HBA cards (Emulex, QLogic)	Discovers the HBA adapters in a server. It relies on the WBEM technology and supports SMI-S compliant HBAs only. Support for SMI-S compliant HBA cards was available in the Storage Add-on for Hardware Sentry KM for PATROL version 1.0.00.
HBA cards in IBM AIX systems	Provides hardware status information for the fiber channel HBA cards on IBM AIX systems.
Sun Blade Chassis (6000 and 8000 series)	Discovers and monitors the hardware components in Sun blade shared enclosures through the CMM SNMP Agent or SSH interface.
Sun Blade servers	Discovers and monitors the hardware components in Sun blade servers through their ILOM out-of-band management card (SNMP or SSH).
HP BladeSystem	Discovers and monitors the HP BladeSystem shared enclosure, the environment sensors, the integrated switches and the status of the installed blades. It relies on the telnet or SSH interface of the HP On-board Administrator management card. Support for HP BladeSystem was already available in previous version based on the SNMP agent of the HP BladeSystem. The telnet/SSH-based solution provides more detailed information about the hardware components.
Sun servers running Windows	Gives environmental information (temperatures, fans, etc.) on several IPMI-enabled Sun servers through the ipmitool utility and the Microsoft IPMI driver.
Sun servers running pre-2003R2 Windows versions	Gives environmental information (temperatures, fans, etc.) on several IPMI-enabled Sun servers through the ipmitool utility and the ISM IPMI driver.
SAS RAID controllers in HP-UX systems	Monitors the SAS disks behind a hardware RAID controller on HP-UX systems.
LSI SAS MegaRAID disk controllers	Provides disk monitoring through the LsiLogic MegaRAID SAS SNMP sub-agent which supports older and newer LSI MegaRaid SAS RAID controllers.
LSI Util (Windows)	Provides information about physical disks and volumes of LSI Logic SAS RAID controllers through the lsiutil utility on Windows Systems.
Hardware RAID Controllers in Sun Servers	Discovers and monitors the physical disks behind a hardware RAID controller in a Sun Solaris system.
Tape Drives in Sun Servers	Discovers and monitors the errors encountered by the tape drives on Sun Solaris systems.

Platforms	Description
Memory Modules in IBM AIX systems	Discovers and monitors each memory module in IBM RS/6000, pSeries, eServer p5 and p6 servers. Also monitors the memory errors as reported by the memory controller.
IBM Director Agent version 6.10.x	All 6.10.x versions of the IBM Director Agent are now fully supported. Note: the internal version number of IBM Director Agent 6.10 is actually 5.20.31.
HP ProLiant	<p>The WMI interface of the HP Insight Management Agents is now supported. Hardware Sentry KM no longer requires the SNMP layer to communicate with the HP Insight Management Agents in order to monitor an HP ProLiant system.</p> <p>When both the WMI and SNMP interfaces are available, Hardware Sentry KM automatically selects the SNMP interface as it consumes less system resources and is more firewall-friendly.</p>
Sun Solaris Processors	The psrinfo-based connector (MS_HW_SunPsrinfo.hdf) discovers and monitors the processors on Sun Solaris systems.
Sun Solaris Servers	On Sun Solaris servers able to report this information, Hardware Sentry KM discovers the LEDs of the server (seen outside but also inside the chassis) and reports their status (on, off or blinking). An alert is triggered if a LED reports an internal failure.

New Features

New Classes

To better represent the hardware components of servers and storage devices, new classes have been created:

- MS_HW_TAPEDRIVE, representing tape drives
- MS_HW_LED, representing LEDs
- MS_HW_CPUCORE, representing individual cores in a physical CPU package
- MS_HW_ROBOTICS, representing robotic mechanisms, like media changers in a tape library
- MS_HW_BATTERY, representing batteries in disk controllers and on motherboards.

Some hardware components that used to be presented with the MS_HW_OTHERDEVICE generic class in previous versions of Hardware Sentry KM now use the appropriate class.

Network and Fiber Traffic Monitoring

New parameters have been added to the MS_HW_NETWORK class to monitor the traffic on Ethernet and fiber ports:

- ReceivedBytesRate
- TransmittedBytesRate
- ReceivedPacketsRate
- TransmittedPacketsRate

- BandwidthUtilization

Network and Fiber Traffic Report

A new report is available on demand through the KM Commands to visualize the traffic on the different ports of a system (server or fiber switch). The report is displayed as a multi-parameter graph in the PATROL Console and it shows the total amount of data in gigabytes that were received and transmitted by each port on an hourly or daily basis.

Energy Usage Report

The electricity consumption monitoring, already present in version 1.5.01, has been greatly improved in two ways:

- When the managed system is not able to report its power consumption, Hardware Sentry KM evaluates it based on the type of the discovered internal parts of the system and their activity.
- A new report is available on demand through the KM Commands to visualize the energy usage of the system in kWh (kilowatts hour) over several days, on an hourly or daily basis.

Unallocated Disk Space Monitoring

A new “UnallocatedSpace” parameter has been added to the MS_HW_LOGICALDISK class to represent the disk space in storage pool available for allocation for a server. This parameter is available only when monitoring a disk array.

Capacity Report

A new class has been added to report various capacity and sizing metrics of the managed system:

- CPUCount, reports the number of physical processors (not counting cores)
- MemorySize, reports the total size of physical memory
- PhysicalDiskSize, reports the total size of all physical disks
- LogicalDiskSize, reports the total size of volumes handled by the disk controllers
- UnallocatedDiskSpace, reports the total amount of free space available on the disks (only on disk arrays)
- PowerConsumption, reports the power consumption (in Watts) of the system
- ConnectedPorts, reports the number of Ethernet and fiber connected ports

E-mailing Alerts

A new “Alert Action” type has been added which lets you alert administrators of a hardware failure by email. The content of the email contains details about the encountered problem and is fully customizable.

What's Changed

Monitoring of a SMI-S Compliant Device through a “Proxy” Agent

Some SMI-S compliant devices actually require the installation of an SMI-S Agent on a separate server or workstation. This SMI-S Agent connects to the managed disk arrays or fiber switches and reports the status of these devices to SMI-S client, as Hardware Sentry KM for PATROL. Such SMI-S Agent, installed on a separate system, is sometimes called a “proxy” agent.

In version 1.5.01 of Hardware Sentry KM for PATROL with version 1.0.00 of the former Storage Add-on, the monitoring of a disk array or fiber switch through an SMI-S “proxy” agent was performed as if the hardware components of the managed device were actually located on the “proxy” system.

This is no longer the case. Starting with version 1.6.00, the monitoring of an external disk array or fiber switch through an SMI-S “proxy” agent requires a manual configuration of the KM.

By default, Hardware Sentry KM for PATROL 1.6.00 will discover and monitor the hardware components of the local system it is running on only.

Use the “Add a Remote System or an External Device” wizard to make Hardware Sentry KM leverage the local SMI-S “proxy” agent and monitor the external devices as reported by the “proxy” agent. Please refer to the User Guide for more information about this procedure.

IBM ServeRAID Controllers

The connector dedicated to the monitoring of IBM ServeRAID controllers in IBM xSeries servers through the IBM ServeRAID Manager Agent has been renamed to “SMI-S Compliant RAID Controller”. It covers all IBM ServeRAID controllers (from LSI and Adaptec) as well as the HP SmartArray controllers through the WMI interface of the HP Insight Management Agents.

Monitoring Network Interfaces through SNMP MIB-2

When available, Hardware Sentry KM now leverages the SNMP MIB-2 layer of the system in order to gather the status and traffic information about the network cards. Depending on the platform the advantages are diverse. On Windows systems, this avoids the use of WMI which is more resource-intensive and much more demanding at the firewall level. It also provides more information on the network traffic. On Solaris and Linux systems, it avoids the need for the root account in order to gather all of the network-related information.

Illegal Requests on Sun Solaris

On Sun Solaris servers, “Illegal Requests” are no longer reported by the ErrorCount parameter of the physical disk class. Illegal requests were often triggered by the regular use of Sun Solaris utilities like sysinfo and Sun Explorer and actually caused by a bug in a Sun driver. As “Illegal Requests” are part of the “Soft Errors” category reported by the Solaris kernel and to avoid false alerts being triggered, choice has been made to stop reporting about these errors.

Sun “Cool Threads” (SPARC T1/T2-based servers, CMT, sun4v)

On “sun4v” systems (Sun SPARC T1/T2-based servers) with the appropriate firmware level, the monitoring is done with the “prtpicl”-based connector and no longer requires the root privileges to execute Sun Explorer’s snapshot command.

Enhancements and Corrected Problems

The following problems were reported in earlier releases and have been corrected in this release:

Enhancements	Description
Network and Fiber Link Monitoring	<p>In order to better monitoring the link state of an Ethernet or fiber card, two parameters have been added to the MS_HW_NETWORK class:</p> <ul style="list-style-type: none">• LinkSpeed• DuplexMode <p>The LinkSpeed parameter reports the speed of the link in Megabits per second and triggers a warning when the link gets slower than previously negotiated.</p> <p>In the same way, the DuplexMode parameter triggers a warning when a full-duplex link switches to half-duplex mode.</p> <p>The behavior of the LinkStatus, LinkSpeed and DuplexMode can be altered in the KM settings.</p>
Processor Clock Speed Monitoring	<p>As the processor clock speed can vary over time, a new “CurrentSpeed” parameter has been added to the MS_HW_CPU, representing the current clock speed of the processor in megahertz.</p> <p>The CurrentSpeed parameter can often be directly linked to the processor time usage and power consumption of the system.</p>
Dell PowerEdge servers	<p>The actual location of processors and memory modules is much better exposed to the administrator, which will greatly help the replacement in case of a failure.</p> <p>Physical disks and volumes provides more information that help the administrator understand which component of part of the system is impacted in case of a failure (which disk belongs to which volume, name of the volumes as exposed to the operating system, etc.).</p> <p>The DELL Service Tag number is exposed at the level of the enclosure object, as well as the URL where to download drivers and updates for the system. This greatly facilitates the update of the servers.</p> <p>The power consumption of most recent DELL servers (starting</p>

Enhancements	Description
	with the "x9xx" series) is properly reported.
Automatic ErrorCount Acknowledgement and Reset	It is now possible to configure the KM to automatically reset to zero and acknowledge the alerts on the ErrorCount parameters (which kept increasing otherwise and stayed in alarm). Alert auto-acknowledgment can be configured to be executed after 1 minute, 1, 6 or 24 hours after the alert is triggered.
Non-Sun Disks in Sun servers	There is no longer the need to manually pre-select the "Sun Solaris - Non-Sun Disks" connector on Sun Solaris systems where there are no Sun-labeled disks.
Locating Disks in an HP EVA Disk Array	Physical disks in the HP EVA disk arrays can now be easily identified (either in the "Hardware Health Report" which is generated when a failure is detected, or in the "Identifying Information" field of the Infobox of the corresponding physical disk instance in the PATROL Console).
Corrected Problems	Description
Network cards on Windows systems	Non-real Ethernet adapters are now properly excluded from the monitoring (WAN instances, Packet Scheduler Miniport, etc.).
IBM ServeRAID Controllers	The monitoring of IBM ServeRAID controllers has been optimized and made more robust.
Fiber-attached disks in Sun Solaris systems	Internal fiber-attached disks marked as <code>ssd0</code> , <code>ssd1</code> , etc. were not properly discovered and monitored on Sun Solaris systems.
Disks in IBM AIX systems	On IBM AIX systems, the removal of a disk wasn't properly detected and the Status parameter of the corresponding physical disk instance stayed in OK. The detection of the actual availability of the physical disks is performed through a read test, which requires root privileges. Therefore, in order to have full monitoring of the disks on IBM AIX systems, root credentials are now required, or <code>sudo</code> needs to be configured to allow the PATROL Agent account to run the <code>/usr/bin/dd</code> command.
HP StorageWorks SCSI-attached External Disk Arrays	In some cases, HP/Compaq StorageWorks SCSI-attached external disk arrays were not discovered.
EMC Clariion and Symmetrix Disk Arrays	Status of devices in EMC Clariion and Symmetrix disk arrays is no longer reported as "Unknown".
Disk Failure Prediction in HP ProLiant Servers	On HP machines, predicted failure alerts for disks were sometimes either not reported, or incorrectly reported on the status parameter.
Sun X86 servers	"ASPEED"-labeled enclosures are now be ignored when using <code>ipmitool</code> in favor of the machine's true enclosure name.
Dell OpenManage Storage Manager	In some cases, the status of physical and logical disks was not properly reported. The Hardware Sentry connector has been

Corrected Problems	Description
	fixed.
HP-UX servers	Updated connectors improves the monitoring of all types of HP-UX servers: <ul style="list-style-type: none">• Adds support for a broader range of MP and GSP cards• Adds information collection for disks and volumes of SASMGR managed disks• Fixes connection and disconnection issues with MP and GSP cards• Fixes an issue where devices were wrongly reported as missing• Fixes performance issues with disk monitoring• Fixes processor discovery on some Itanium systems
PATROL Agent 3.7.xx	A bug in the PATROL Agent version 3.7.10, 3.7.20, 3.7.30 and 3.7.40 prevented Hardware Sentry KM from working when PATROL Consoles were connecting to the agent with a restricted privilege account. Depending on the connection account used by the PATROL Consoles, several symptoms could be observed: Hardware Sentry KM failed to use sudo to execute commands that require root privileges, Hardware Sentry KM failed to initialize and couldn't load the connector files, Hardware Sentry KM couldn't write a debug file, etc.
Images in the GUI in PATROL Central	Pictures and illustrations were not properly displayed in certain wizards and configuration windows in PATROL Central (both Windows and Web Editions).



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