

BMC® Performance Manager Express for Hardware

Installation Guide



Supporting

BMC Performance Manager Express for Hardware
Version 2.5.00

July 09, 2008

Contacting BMC Software

You can access the BMC Software Web site at <http://www.bmc.com/>. From this Web site, you can obtain information about the company, its products, corporate offices, special events, and career opportunities.

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- read overviews about support services and programs that BMC Software offers
- find the most current information about BMC Software products
- search a database for problems similar to yours and possible solutions
- order or download product documentation
- report a problem or ask a question
- subscribe to receive e-mail notices when new product versions are released
- find worldwide BMC Software support center locations and contact information, including e-mail addresses, fax numbers, and telephone numbers

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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 enables administrators to monitor the hardware of all their diverse servers within the BMC Performance Manager Portal environment. 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 BMC Portal environment, it uses the Portal's web-based interface and features for installing, managing and monitoring your Information Technology (IT) infrastructure. The full integration with BMC Performance Manager 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.

This document explains how to install and run BMC Performance Manager Express for Hardware.

This Installation Guide gives details on the supported platforms and requirements, the packages to be installed, and how to install the solution and start using it.

The product documentation consists of:

1. [Installation Guide](#) – current document
2. [User Guide](#) – for details on how to use the product
3. [Reference Guide](#) – for details on application classes, parameters, and connectors and platform details
4. [Release Notes](#) – for details on the enhancements in this version.
5. [Platform-specific guides](#) – for details on installing the required vendor-specific instrumentation agents or system management tools

For convenience the product is called BPM Express within the product documentation.

Important

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. See [Requirements for managed elements](#)

Installation procedure in a nutshell

1. BPM Express for Hardware is a PM (Performance Manager) for the Portal and needs to be installed within the BMC Performance Manager Portal environment.
2. As this is an agent-less performance manager for the web-based Portal, it can be installed on just one managed element equipped with the Portal.
3. Minimum version of BMC Portal should be 2.5.00.
4. The RSM program should be installed on a Windows system (it can be the same as the Portal)
5. Install the vendor-specific instrumentation agents or system management tools on the managed elements to be monitored *prior* to installing the PM.
6. Download the product package i.e. a PAR file from BMC EPD or the [Sentry Software Web site](#).

Getting Started

This section gives you details to help you get ready to install BPM Express for Hardware. It tells you where to obtain the product package, and helps you understand all the prerequisites to be met before installation in order to ensure an optimal functioning of the PM.

Targeted Computers

BPM Express for Hardware is to be installed within the web-based BMC Portal environment:

- On just one element equipped with BPM Portal version 2.5.00
- It should have access to the RSM program (installed on a Windows system). The RSM program can be installed on the same system as the Portal if it is a Windows system.

The Product Package

The package for BMC Performance Manager Express for Hardware consists of a PAR file and is available on the [BMC Software](#) EPD site, as well as on the [Sentry Software Web site](#).

- BPM-Express-for-Hardware-2.5.00.par

This file is valid for installation on Windows and UNIX/Linux systems

Supported Platforms and Requirements

Requirements for managed elements

For BPM Express for Hardware to collect information from a managed system, it requires specific instrumentation agents or system management tools to be present on the managed system.

| Typical Platform | Operating System | Required Instrumentation Agent/System Tools |
|----------------------------------|-------------------|---|
| Dell PowerEdge | Microsoft Windows | Dell OpenManage Server Administrator, WMI |
| Dell PowerEdge | Linux | Dell OpenManage Server Administrator, Linux system commands, SmartMonTools |
| Fujitsu-Siemens BX Blade servers | N/A | Fujitsu-Siemens Management Blade |
| Fujitsu-Siemens PRIMERGY | Microsoft Windows | Fujitsu-Siemens ServerView / Fujitsu-Siemens ServerView RAID Agent / Promise FastTrack SNMP Agent / LSI GAM Server / LSI MegaRAID SAS SNMP Agent / LSI MegaRAID PowerConsole / Mylex GAM Server , WMI |
| Fujitsu-Siemens PRIMERGY | Linux | Fujitsu-Siemens ServerView / Fujitsu-Siemens ServerView RAID Agent / Promise FastTrack SNMP Agent / LSI GAM Server / LSI MegaRAID SAS SNMP Agent / LSI MegaRAID PowerConsole / Mylex GAM Server, Linux system commands, SmartMonTools |
| HP C-Class BladeSystem | Windows | HP Insight Management Agent |
| HP C-Class BladeSystem | Linux | HP Insight Management Agent |
| HP P-Class BladeSystem | N/A | iLO |
| HP AlphaServer | Tru64 | HP Insight Management Agent |
| HP 9000 | HP-UX | HPU system tools |
| HP Integrity | Windows | HP Insight Management Agent |
| HP Integrity | Linux | HP Insight Management Agent |
| HP Integrity | HP-UX | HPUX system commands + MP/GSP |
| HP Proliant | Windows | HP Insight Management Agent, WMI |

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| Typical Platform | Operating System | Required Instrumentation Agent/System Tools |
|--|-------------------|--|
| HP Proliant | Linux | HP Insight Management Agent, Linux system commands, SmartMonTools |
| HP NetServer | Windows | TopTools |
| HP SuperDome (Itanium) | Windows | HP Insight Management Agent |
| HP SuperDome (Itanium) | Linux | HP Insight Management Agent |
| HP SuperDome (Itanium) | HP-UX | HP-UX system commands + MP/GSP |
| HP SuperDome (PA-RISC) | HP-UX | HP-UX system commands + MP/GSP |
| IBM RS/6000, IBM pSeries, IBM eServer p5 | IBM AIX | IBM AIX system commands |
| IBM xSeries, IBM NetFinity | Microsoft Windows | IBM Director Agent ,WMI |
| IBM xSeries, IBM NetFinity | Linux | IBM Director Agent , Linux system commands, SmartMonTools |
| NEC Express5800 | Microsoft Windows | NEC ESMPRO Agent, WMI |
| NEC Express5800 | Linux | NEC ESMPRO Agent |
| Sun Fire (SPARC) | Solaris | Solaris system commands |
| Sun Fire (SPARC, T1, T2) | Solaris | Solaris system commands + Sun ALOM card (Sun Advanced Lights-Out Management) |
| Sun Fire F12K, F15K, F20K, F25K | Solaris | Solaris system commands + SMS utilities installed on the system controller |
| Sun Fire X64 | Solaris | Ipmitool, lsiutil |
| Sun Fire X64 | Linux | Ipmitool, lsiutil |

Important

The vendor-specific instrumentation agents and system tools are generally provided with the servers and are available on the manufacturer website. Unless mentioned otherwise, these “agents” must be installed on the managed server for BPM Express for Hardware to function properly. For installation details of these agents, please refer to the [platform-specific guides](#) available on the BPM Express for Hardware page of the Sentry Software website.

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Please check our web site www.sentrysoftware.net to find the latest updates. Updates are in the form of patches for BPM Express for Hardware are free and do not need an upgrade of the PM itself, unless there are structural changes.

Hardware components monitored

Depending on the managed system, BPM Express for Hardware monitors:

- Disks (RAID and non-RAID disks)
- Disk enclosures
- Fans
- Memory modules
- Network interfaces
- Power supplies
- Processors
- Temperature
- Voltage

Note

For details on what hardware components are detected on each system, please see the *Connectors & Platforms Reference Table* in the [Reference Guide](#) and click on the *Connector Name* applicable to your system/typical platform.

Installing producer-specific hardware agents on the managed elements

In most cases, BPM Express for Hardware requires a third-party hardware instrumentation agent to collect information from the monitored computer. Each manufacturer develops platform-specific system management tools that collect hardware data and these tools are generally provided along with the server and are also available on the manufacturer Website.

Important

Unless mentioned otherwise, the platform-specific instrumentation layer or system management tool must be installed on the managed systems for the BPM Express for Hardware to function properly.

Certain servers or systems could have more than one applicable “hardware agent”. Please refer to the *Connectors & Platforms Reference Table* in the [Reference Guide](#) to see which system tools/agents are required for your servers.

Note

The installation of the platform-specific “hardware agents” is to be done *prior* to the installation of BPM Express for Hardware. Additional information on the instrumentation agents for certain platforms may be found in platform-specific guides on the Sentry Software Website.

Note on RSMs

In general, an RSM is said to support the monitoring of 10,000 parameters. In the case of BPM Express for Hardware, it is difficult to calculate a precise number of parameters collected since this depends entirely on the element itself and the number of hardware objects discovered: disks, fans, memory modules etc.

On an average, between two to five parameters are collected for each discovered object. The number of hardware objects discovered and the hence number of parameters collected, greatly varies from one managed element to another. The total number of parameters collected directly depends on the number of objects discovered on each element. The number of RSMs required also depends on whether an RSM is dedicated to BPM Express for Hardware alone, or whether there are other PMs on the same RSM.

It should be safe to assume that an RSM dedicated entirely to BPM Express for Hardware should be able to support approximately 150 elements, and an RSM shared by two or more PMs should, on an average, be able to support the monitoring of 60-80 elements.

Note

The above mentioned figures are just an approximation based on certain client studies and laboratory tests. The number will vary as per actual usage patterns in each environment.

Migration

BPM Express for Hardware v2.5.00 functions only on BMC Portal v2.5.00 and upwards.

Structural changes in version 2.5.00 render it impossible to enable an automatic migration of previous versions of the BPM Express for Hardware to v2.5.00. The previous version of BPM Express for Hardware needs to be uninstalled and removed, and only then should v2.5.00 be installed as the new version will not overwrite nor merge with the old one.

Users of previous versions should remove the PM from all elements and completely uninstall the v2.3.xx of the PM before uploading and installing v2.5.00.

Important

Before installing v2.5.00, uninstall the previous version's **Hardware** class from every element, and then uninstall the previous version entirely from the Portal.

If the previous version is not removed, and the new BPM Express for Hardware v2.5.00 class is installed and added to the elements, both classes will be visible: old: **Hardware** and new: **Hardware (<platform>)**. The old version will continue to monitor the elements.

Getting Started

You need:

1. The solution file: BPM-Express-for-Hardware-2.5.00.par
2. BMC Portal v2.5
3. Remote Service Monitor program (RSM). See BMC Portal Management and Monitoring Guide for more details.
4. An account to logon to the Portal with sufficient credentials

Uninstall the previous version of the PM

Owing to structural changes in the PM, no migration is possible from previous versions to v 2.5.00.

Once you install v2.5.00, the BPM Express for Hardware application class will not overwrite or merge with its previous versions, but will instead appear in the list in addition to it, just like any other PM, and the previous version will continue to function.

If you wish to use only v2.5.00 on all your elements, you need to completely uninstall and remove the previous version before installing v2.5.00.

Installing the BPM Express for Hardware

1. Place the **BPM-Express-for Hardware-2.5.00.par** file in a known location on your file system.
2. Log on to BMC Portal with super-administrator credentials.

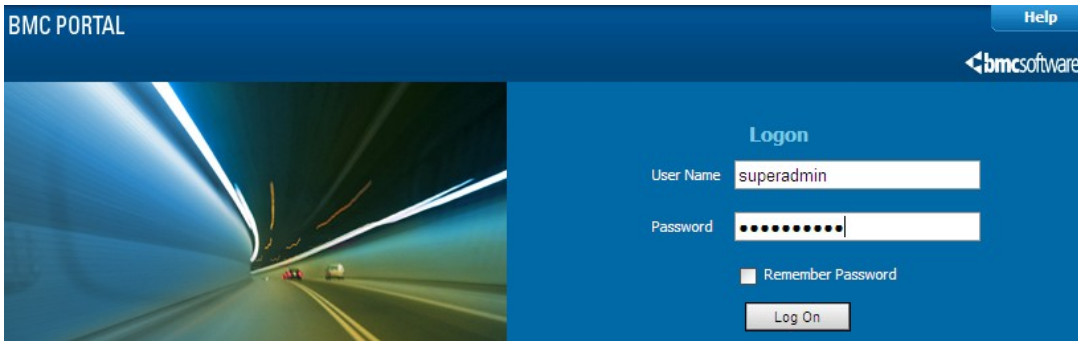


Figure 1: Logon with super-admin credentials

3. Click the **Portal** tab. Under **Tasks** in the left pane, select **Performance Managers** to open the Performance Managers page and then click **Upload**.

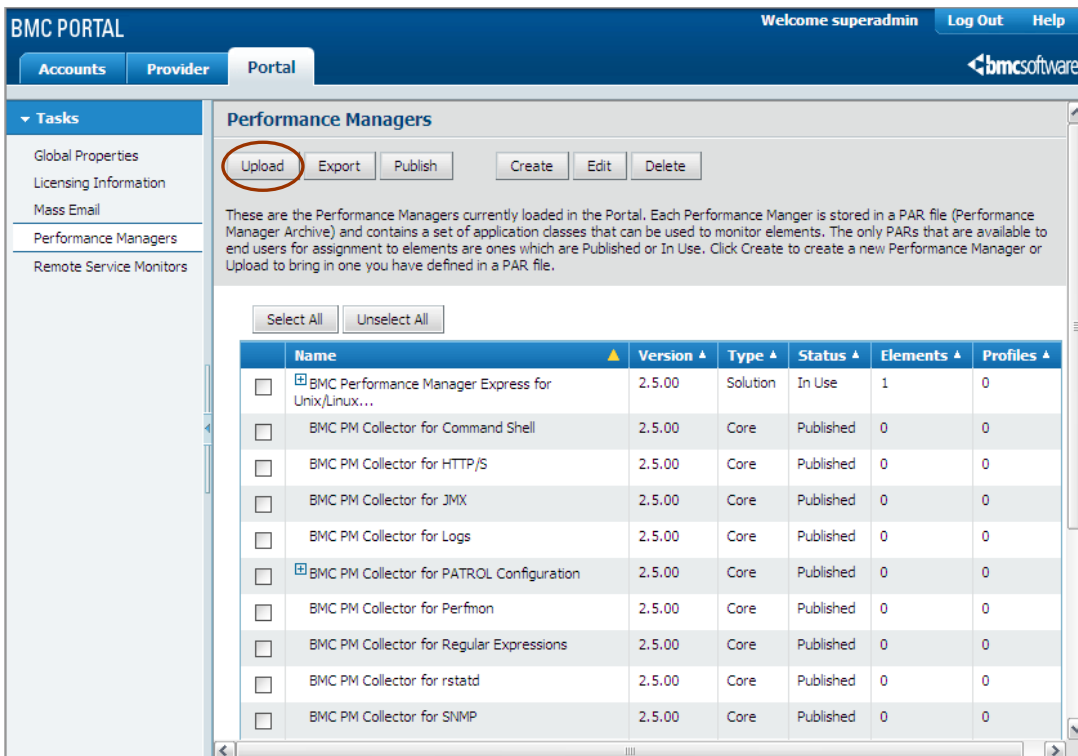


Figure 2: Click on Upload

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4. **Browse** to open a file selection dialogue box, select **BPM-Express-for Hardware-2.5.00.par** and click **Upload**.

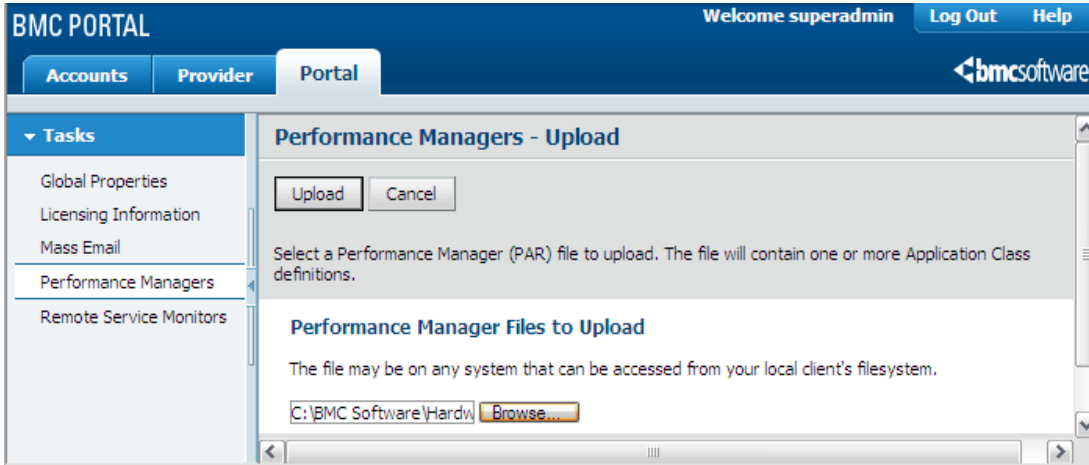


Figure 3: Browse for the BPM Express for Hardware PAR file & Upload

5. The Portal uploads the PAR file to the database, and **BMC PM Express for Hardware by Sentry Software** now appears in the list of **Performance Managers** as **Published**, which means it is installed.

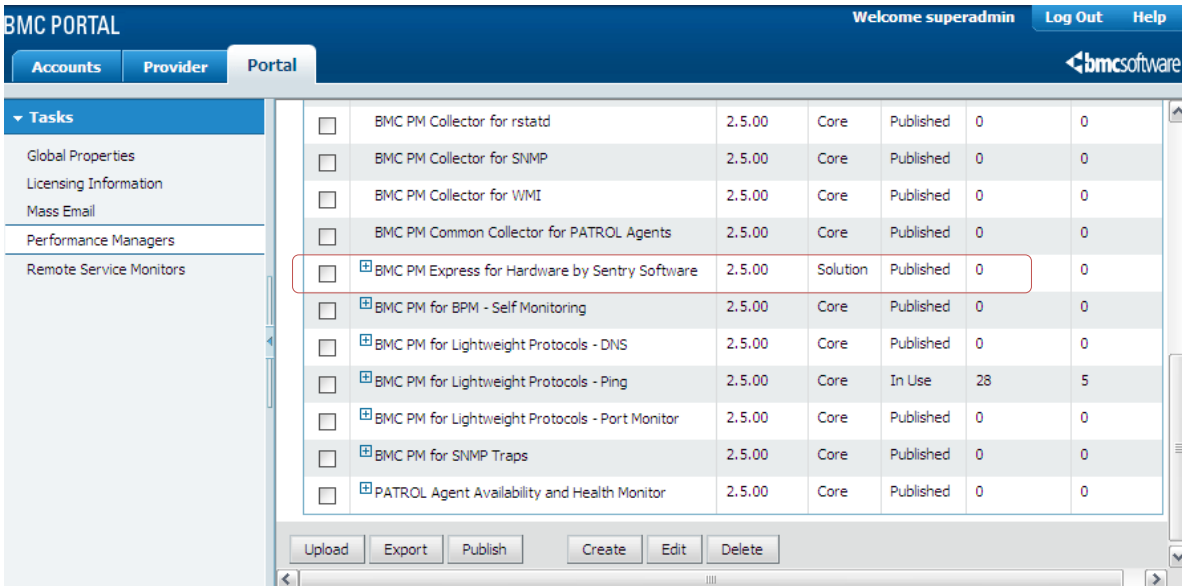


Figure 4: BMC PM Express for Hardware is installed on the Portal

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- The “+” symbol next to **BMC PM Express for Hardware by Sentry Software** indicates that there are several application classes within the main PM (Performance Manager). Expand the tree to see the platform-specific application classes of BPM Express for Hardware.

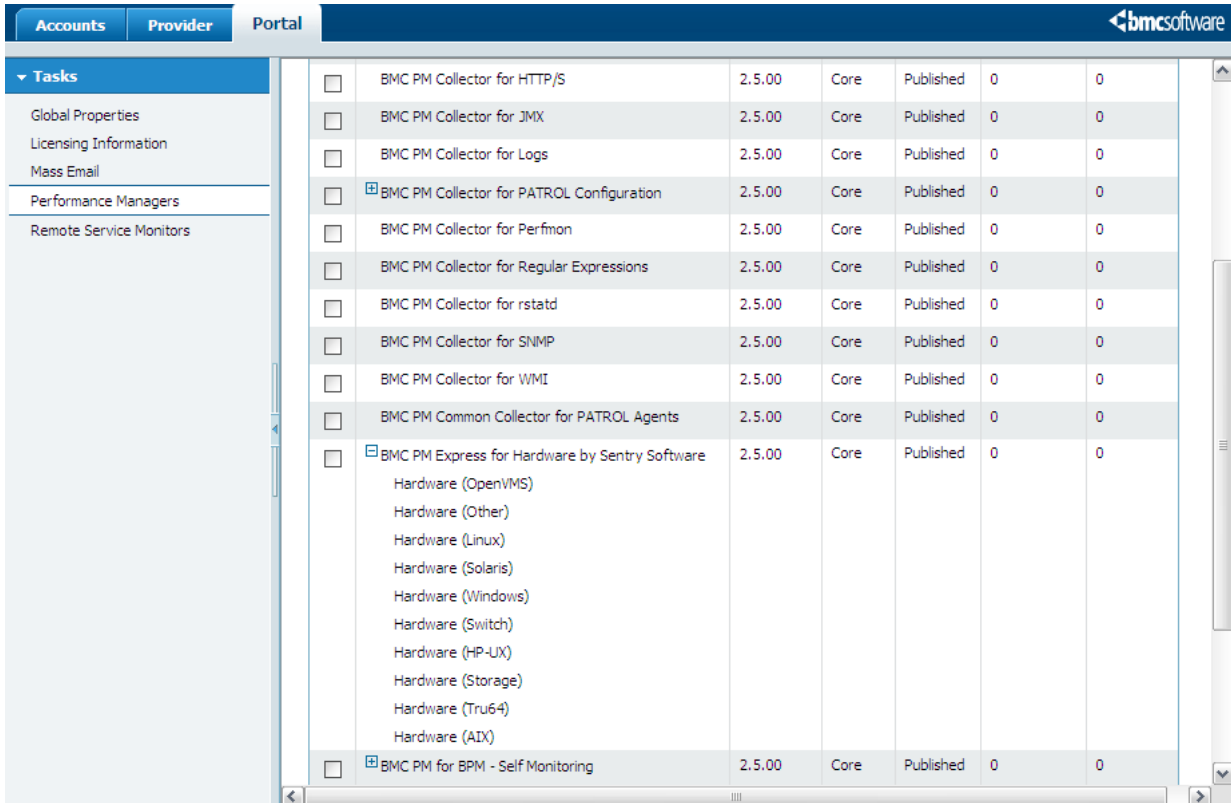


Figure 5: The BPM Express for Hardware application classes are platform-specific: Hardware (<platform>)

- The BPM Express for Hardware has been built with several separate platform-specific classes since the input properties required to add and activate the class vary from one platform to another. The details are shown in the next section.

Important

Please note that although the expanded list shows **Hardware (Switch)** and **Hardware (Storage)** amongst other classes. The two classes are meant for monitoring storage devices, but will not be activated unless the add-on component for storage: *Storage Add-on for BMC Performance Manager Express for Hardware* is installed. The storage solution is a separate product that is built as an add-on component for BPM Express for Hardware.

- The installation of BMC Performance Manager Express for Hardware is now complete. To begin using the PM, logout and then log in again, this time, with user credentials.

You are ready to [Begin using BPM Express for Hardware!](#)

License Keys

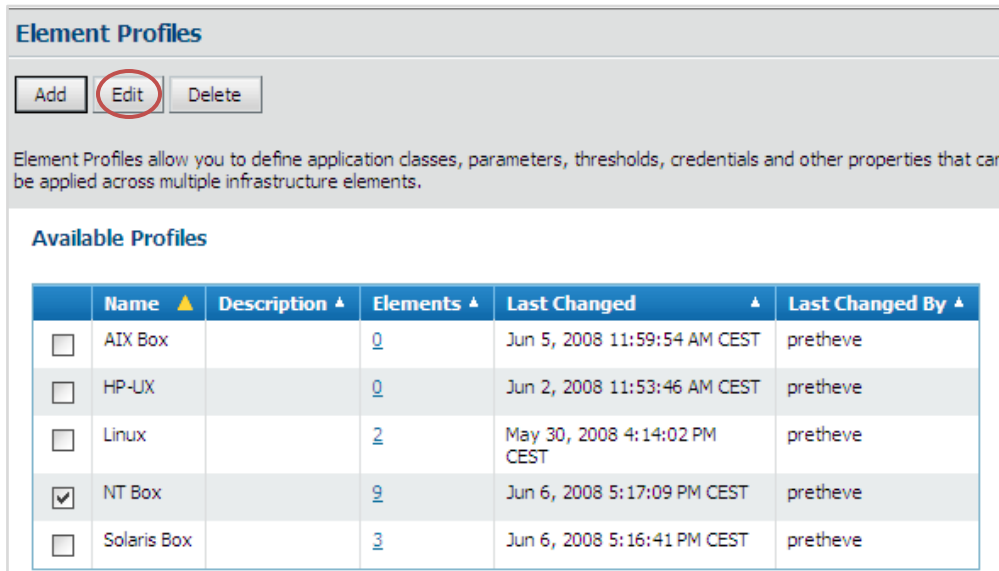
Once the product is purchased, there is no need for any license keys to activate the solution.

Begin using BPM Express for Hardware

This section deals with how to start using the BPM Express for Hardware. It explains in detail how to install the PM on an element profile and on individual elements.

Adding the Hardware Application Class to an Element Profile

1. Click on **Configure** tab > **Element Profiles**. The **Available Profiles** page appears. Select the **Profile** to which you wish to add the Hardware class > **Edit**.



Element Profiles

Add Edit Delete

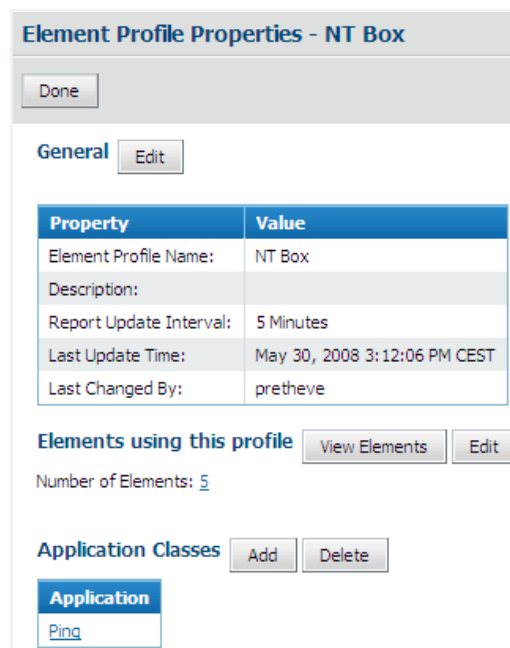
Element Profiles allow you to define application classes, parameters, thresholds, credentials and other properties that can be applied across multiple infrastructure elements.

Available Profiles

| | Name ▲ | Description ▲ | Elements ▲ | Last Changed ▲ | Last Changed By ▲ |
|-------------------------------------|-------------|---------------|------------|------------------------------|-------------------|
| <input type="checkbox"/> | AIX Box | | 0 | Jun 5, 2008 11:59:54 AM CEST | pretheve |
| <input type="checkbox"/> | HP-LX | | 0 | Jun 2, 2008 11:53:46 AM CEST | pretheve |
| <input type="checkbox"/> | Linux | | 2 | May 30, 2008 4:14:02 PM CEST | pretheve |
| <input checked="" type="checkbox"/> | NT Box | | 9 | Jun 6, 2008 5:17:09 PM CEST | pretheve |
| <input type="checkbox"/> | Solaris Box | | 3 | Jun 6, 2008 5:16:41 PM CEST | pretheve |

Figure 6: Select the element profile and click Edit

2. The selected **Element Profile's Properties** page appears. Go to **Application Classes** > **Add**.



Element Profile Properties - NT Box

Done

General Edit

| Property | Value |
|-------------------------|------------------------------|
| Element Profile Name: | NT Box |
| Description: | |
| Report Update Interval: | 5 Minutes |
| Last Update Time: | May 30, 2008 3:12:06 PM CEST |
| Last Changed By: | pretheve |

Elements using this profile View Elements Edit

Number of Elements: 9

Application Classes Add Delete

Application

Ping

Figure 7: Add application class to the element profile

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3. The **Element Profile Properties – Add Application Classes** page appears. Select **Hardware** in the **Select Category** dropdown list.
4. On selection of **Hardware** in the list, the **Available Classes** section displays the BPM Express for Hardware application classes which are platform-specific:

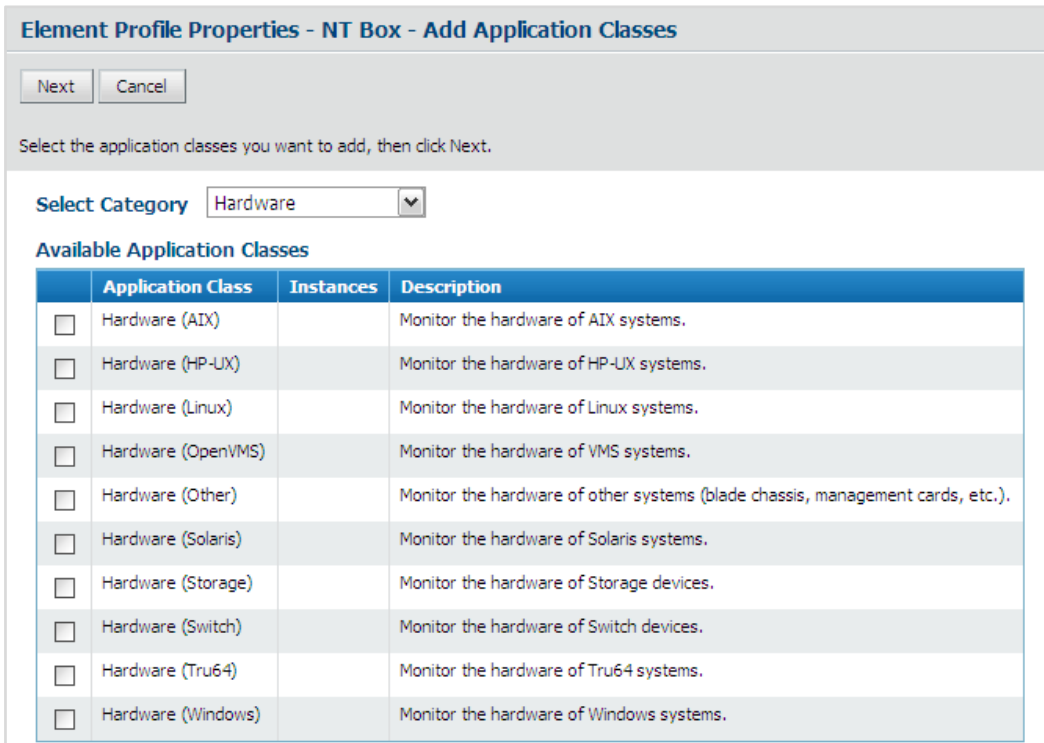


Figure 8: BPM Express for Hardware platform-specific application classes

5. Select the Hardware application class applicable to your system and the **Properties and Credentials** page appears asking for the information required for monitoring for **Hardware (<platform>)**. Enter the required information.
 - Click on the link for [Information required to monitor Windows systems](#)
 - Click on the link for [Information required to monitor AIX, HP-UX, Linux, Solaris and Tru64 systems](#)
 - Click on the link for [Information required for monitoring “Other” platforms i.e. blade chassis, management cards etc.](#)

Information required to monitor Windows systems

Table of input properties and credentials

| Name | Description/Instruction |
|--|--|
| Collection Interval | Select the polling interval from the dropdown list. Default: 5. Unit: Minutes |
| Connection Credentials WMI Username WMI Password Or Shared Credentials | Enter the credentials used to connect to the element using WMI. Or Select shared credentials from the drop down list if you wish to use pre-defined credentials for the connection/administration/execution... |
| WBEM Credentials WBEM Username WBEM Password Or Shared Credentials | <i>Optional:</i> Enter the WBEM credentials if required for connection to the element. Or Select shared credentials from the drop down list if you wish to use pre-defined login and password for the connection/administration/execution... |
| WBEM Transport Protocol | Select the transport protocol: HTTP or HTTPS to be used for connecting to the CIM server. |
| WBEM Port | Enter the WBEM port number on which runs the CIM server. |
| Hostname | Enter the hostname or IP address of the element to be monitored. |
| SNMP version | Specify the SNMP version to be used by BPM Express for Hardware to retrieve information from the elements: SNMP v1; SNMP v2c; SNMP v3. |
| SNMP Community | Enter the SNMP community string required for SNMP v1/SNMP v2c. |
| SNMP v3 Username | Enter the username required for SNMP v3. |
| SNMP v3 Authentication Protocol | Enter the protocol required for SNMP v3 authentication. |
| SNMP v3 Authentication Password | Enter the password required for SNMP v3 authentication. |
| SNMP v3 Privacy Protocol | Enter the privacy protocol required for SNMP v3. |

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| Name | Description/Instruction |
|-------------------------------------|---|
| SNMP v3 Privacy Password | Enter the privacy password required for SNMP v3. |
| Error Count Auto-reset After | Specify the interval in hours for a reset of the <i>Error Count</i> parameter. Certain devices are monitored by counting the number of encountered errors. The <i>Error Count</i> parameter triggers an alert as soon as an error is detected. The <i>Error Count</i> parameter and its alerts are automatically reset at the specified interval to prevent a single error from continuously raising alerts. |
| Debug Mode | Select Yes to enable the debug mode or No disable it. Default: No The debug output is stored in a file on the RSM server. The debug file is located at: %RSM_HOME%/RSMxx/SEN_HW/sen_hw_debug_hostname.log |

Information required to monitor AIX, HP-UX, Linux, Solaris and Tru64 systems

Table of input properties and credentials

| Name | Description/Instruction |
|--|---|
| Collection Interval | Select the polling interval from the dropdown list. Default: 5. Unit: Minutes |
| Connection Credentials Telnet/SSH Username Telnet/SSH Password Or Shared Credentials | Enter the credentials used to connect to the element through Telnet or SSH. Or Select shared credentials from the drop down list if you wish to use pre-defined credentials for the connection/administration/execution... |
| Execution Credentials Execution Username Execution Password Or Shared Credentials | <i>Optional:</i> Execution credentials used to execute commands through Telnet or SSH. Enter the execution username and password only if you need to use a login different from the connection login above. Or Select shared credentials from the drop down list if you wish to use pre-defined credentials for the connection/administration/execution... |

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| Name | Description/Instruction |
|---|---|
| <p>Root Credentials</p> <p>Root Username Root Password</p> <p>Or</p> <p>Shared Credentials</p> | <p><i>Optional:</i> Enter the root login. These credentials will only be used to execute commands requiring root privileges.</p> <p>Or</p> <p>Select shared credentials from the drop down list if you wish to use pre-defined credentials for the connection/administration/execution...</p> |
| <p>WBEM Credentials</p> <p>WBEM Username WBEM Password</p> <p>Or</p> <p>Shared Credentials</p> | <p><i>Optional:</i> Enter the WBEM credentials if required for connection to the element.</p> <p>Or</p> <p>Select shared credentials from the drop down list if you wish to use pre-defined login and password for the connection/administration/execution...</p> |
| <p>WBEM Transport Protocol</p> | <p>Select the transport protocol: HTTP or HTTPS to be used for connecting to the CIM server.</p> |
| <p>WBEM Port</p> | <p>Enter the WBEM port number on which runs the CIM server.</p> |
| <p>Hostname</p> | <p>Enter the hostname or IP address of the element to be monitored.</p> |
| <p>Credential Options</p> | <p>Selection of type of credentials: root or sudo, from the dropdown list determines whether BPM Express for Hardware will use the root credentials specified above or the sudo utility for commands requiring root privileges.</p> |
| <p>SNMP version</p> | <p>Specify the SNMP version to be used by BPM Express for Hardware to retrieve information from the elements: SNMP v1; SNMP v2c; SNMP v3.</p> |
| <p>SNMP Community</p> | <p>Enter the SNMP community string required for SNMP v1/SNMP v2c.</p> |
| <p>SNMP v3 Username</p> | <p>Enter the username required for SNMP v3.</p> |
| <p>SNMP v3 Authentication Protocol</p> | <p>Enter the protocol required for SNMP v3 authentication.</p> |
| <p>SNMP v3 Authentication Password</p> | <p>Enter the password required for SNMP v3 authentication.</p> |
| <p>SNMP v3 Privacy Protocol</p> | <p>Enter the privacy protocol required for SNMP v3.</p> |

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| Name | Description/Instruction |
|-------------------------------------|---|
| SNMP v3 Privacy Password | Enter the privacy password required for SNMP v3. |
| Error Count Auto-reset After | Specify the interval in hours for a reset of the <i>Error Count</i> parameter. Certain devices are monitored by counting the number of encountered errors. The <i>Error Count</i> parameter triggers an alert as soon as an error is detected. The <i>Error Count</i> parameter and its alerts are automatically reset at the specified interval to prevent a single error from continuously raising alerts. |
| Debug Mode | Select Yes to enable the debug mode or No disable it. Default: No The debug output is stored in a file on the RSM server. The debug file is located at: %RSM_HOME%/RSMxx/SEN_HW/sen_hw_debug_hostname.log |

Information required for monitoring “Other” platforms i.e. blade chassis, management cards etc.

Table of input properties and credentials for monitoring with Hardware (Other) class

| Name | Description/Instruction |
|--|--|
| Collection Interval | Select the polling interval from the dropdown list. Default: 5. Unit: Minutes |
| Connection Credentials Telnet/SSH Username Telnet/SSH Password Or Shared Credentials | Enter the credentials used to connect to the element through Telnet or SSH. Or Select shared credentials from the drop down list if you wish to use pre-defined credentials for the connection/administration/execution... |
| Hostname | Enter the hostname or IP address of the element to be monitored. |
| SNMP version | Specify the SNMP version to be used by BPM Express for Hardware to retrieve information from the elements: SNMP v1; SNMP v2c; SNMP v3. |
| SNMP Community | Enter the SNMP community string required for SNMP v1/SNMP v2c. |
| SNMP v3 Username | Enter the username required for SNMP v3. |
| SNMP v3 Authentication Protocol | Enter the protocol required for SNMP v3 authentication. |

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| Name | Description/Instruction |
|--|--|
| SNMP v3 Authentication Password | Enter the password required for SNMP v3 authentication. |
| SNMP v3 Privacy Protocol | Enter the privacy protocol required for SNMP v3. |
| SNMP v3 Privacy Password | Enter the privacy password required for SNMP v3. |
| Error Count Auto-reset After | <p>Specify the interval in hours for a reset of the <i>Error Count</i> parameter.</p> <p>Certain devices are monitored by counting the number of encountered errors. The <i>Error Count</i> parameter triggers an alert as soon as an error is detected. The <i>Error Count</i> parameter and its alerts are automatically reset at the specified interval to prevent a single error from continuously raising alerts.</p> |
| Debug Mode | <p>Select “Yes” to enable the debug mode or “No” disable it. Default: “No”</p> <p>The debug output is stored in a file on the RSM server. The debug file is located at: %RSM_HOME%/RSMxx/SEN_HW/sen_hw_debug_hostname.log</p> |

6. After entering the element properties and credentials, you arrive at the final step for adding the Hardware application class: **Thresholds, Properties and Credentials**.

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Thresholds, Properties and Credentials

Hardware (Windows)

Thresholds

| Parameter | Regex | Warning | | Alarm | | Alert After | |
|---|-------------------|-------------------------------------|--------------|---------------------------------|---|-------------|------------------|
| | | On? | Threshold | On? | Threshold | # Times | Type |
| Application Collection Status | n/a | <input type="radio"/> = false | | <input type="radio"/> No Alerts | <input type="radio"/> = false | 1 | Alarm or Warning |
| Machine Status | Problem | <input checked="" type="checkbox"/> | ≥ 1 | Larger → | <input type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Enclosure Default thresholds for new instances | | | | | | | |
| IntrusionStatus | | <input type="checkbox"/> | ≥ 1 | Larger → | <input checked="" type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| PowerConsumption | n/a | <input type="checkbox"/> | ≥ 1 watts | Larger → | <input type="checkbox"/> ≥ 2 watts | 1 | Alarm or Warning |
| Status | | <input checked="" type="checkbox"/> | ≥ 1 | Larger → | <input checked="" type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Temperature Default thresholds for new instances | | | | | | | |
| Status | | <input checked="" type="checkbox"/> | ≥ 1 | Larger → | <input checked="" type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Temperature | n/a | <input type="checkbox"/> | ≥ 1 degree C | Larger → | <input type="checkbox"/> ≥ 2 degree C | 1 | Alarm or Warning |
| Voltage Default thresholds for new instances | | | | | | | |
| Status | | <input checked="" type="checkbox"/> | ≥ 1 | Larger → | <input checked="" type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Voltage | n/a | <input type="checkbox"/> | ≥ 1 mV | Larger → | <input type="checkbox"/> ≥ 2 mV | 1 | Alarm or Warning |
| Power Supply Default thresholds for new instances | | | | | | | |
| Status | | <input checked="" type="checkbox"/> | ≥ 1 | Larger → | <input checked="" type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| UsedCapacity | n/a | <input type="checkbox"/> | ≥ 1 % | Larger → | <input type="checkbox"/> ≥ 2 % | 1 | Alarm or Warning |
| Fan Default thresholds for new instances | | | | | | | |
| Speed | n/a | <input type="checkbox"/> | ≥ 1 rpm | Larger → | <input type="checkbox"/> ≥ 2 rpm | 1 | Alarm or Warning |
| SpeedPercent | n/a | <input type="checkbox"/> | ≥ 50 % | Larger → | <input type="checkbox"/> ≥ 70 % | 1 | Alarm or Warning |
| Status | | <input checked="" type="checkbox"/> | ≥ 1 | Larger → | <input checked="" type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Disk Controller Default thresholds for new instances | | | | | | | |
| BatteryStatus | | <input checked="" type="checkbox"/> | ≥ 1 | Larger → | <input checked="" type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| ControllerStatus | | <input checked="" type="checkbox"/> | ≥ 1 | Larger → | <input checked="" type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Physical Disk Default thresholds for new instances | | | | | | | |
| Attached to | | <input type="checkbox"/> | ≥ 1 | Larger → | <input type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| ErrorCount | n/a | <input type="checkbox"/> | ≥ 1 error(s) | Larger → | <input type="checkbox"/> ≥ 2 error(s) | 1 | Alarm or Warning |
| PredictedFailure | Failure Predicted | <input type="checkbox"/> | ≥ 1 | Larger → | <input type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Serial Number | | <input type="checkbox"/> | ≥ 1 | Larger → | <input type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Status | | <input checked="" type="checkbox"/> | ≥ 1 | Larger → | <input checked="" type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Logical Disk Default thresholds for new instances | | | | | | | |
| Attached to | | <input type="checkbox"/> | ≥ 1 | Larger → | <input type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| ErrorCount | n/a | <input type="checkbox"/> | ≥ 1 error(s) | Larger → | <input type="checkbox"/> ≥ 2 error(s) | 1 | Alarm or Warning |
| Status | | <input checked="" type="checkbox"/> | ≥ 1 | Larger → | <input checked="" type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Blade Default thresholds for new instances | | | | | | | |
| Status | | <input checked="" type="checkbox"/> | ≥ 1 | Larger → | <input checked="" type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Memory Default thresholds for new instances | | | | | | | |
| ErrorCount | n/a | <input type="checkbox"/> | ≥ 1 error(s) | Larger → | <input type="checkbox"/> ≥ 2 error(s) | 1 | Alarm or Warning |
| PredictedFailure | Failure Predicted | <input type="checkbox"/> | ≥ 1 | Larger → | <input type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Status | | <input checked="" type="checkbox"/> | ≥ 1 | Larger → | <input checked="" type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Network interface Default thresholds for new instances | | | | | | | |
| ErrorPercent | n/a | <input type="checkbox"/> | ≥ 10 % | Larger → | <input type="checkbox"/> ≥ 30 % | 1 | Alarm or Warning |
| LinkStatus | Unplugged | <input type="checkbox"/> | ≥ 1 | Larger → | <input type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Status | | <input checked="" type="checkbox"/> | ≥ 1 | Larger → | <input checked="" type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Other Device Default thresholds for new instances | | | | | | | |
| Status | | <input checked="" type="checkbox"/> | ≥ 1 | Larger → | <input checked="" type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| CPU Default thresholds for new instances | | | | | | | |
| CorrectedErrorCount | n/a | <input type="checkbox"/> | ≥ 1 error(s) | Larger → | <input type="checkbox"/> ≥ 2 error(s) | 1 | Alarm or Warning |
| PredictedFailure | Failure Predicted | <input type="checkbox"/> | ≥ 1 | Larger → | <input type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Status | | <input checked="" type="checkbox"/> | ≥ 1 | Larger → | <input checked="" type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Connector Name Default thresholds for new instances | | | | | | | |
| Collection Information | | <input type="checkbox"/> | ≥ 1 | Larger → | <input type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Status | | <input type="checkbox"/> | ≥ 1 | Larger → | <input checked="" type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |
| Test Report | | <input type="checkbox"/> | ≥ 1 | Larger → | <input type="checkbox"/> ≥ 2 | 1 | Alarm or Warning |

Back Finish Cancel

Figure 9: Alert thresholds set by default by BPM Express for Hardware

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7. Thresholds are automatically set by BPM Express for Hardware. It is recommended that you leave the default thresholds as they are. Click **Finish**

Note

Details on how to modify the alert thresholds if required are given in the [User Guide](#).

8. **Hardware (<platform>)** appears in the list of **Application Classes** for the profile.

Element Profile Properties - NT Box

Done

General Edit

| Property | Value |
|-------------------------|------------------------------|
| Element Profile Name: | NT Box |
| Description: | |
| Report Update Interval: | 5 Minutes |
| Last Update Time: | Jun 15, 2008 4:42:49 PM CEST |
| Last Changed By: | pretheve |

Elements using this profile View Elements Edit

Number of Elements: 3

Application Classes Add Delete

| Application |
|--------------------|
| Hardware (Windows) |
| Ping |

Figure 10: Hardware class added to the Element Profile

9. Click on **Done** to save the changes made. The BPM Express for Hardware application class is now added to all the elements in the selected Element Profile.

Adding the Hardware Application Class to an Existing Element

In the **Configure** tab:

1. Click on the **Element** to which you wish to the hardware solution and the element **Properties** page appears. Scroll down to **Application Classes > Add**

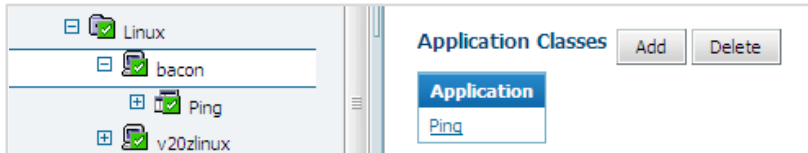


Figure 11: Add the Hardware application class to an existing element

Important

If the element was added using the **Element Profile** feature, any modification or addition of classes needs to be done through the **Element Profile** route, or dissociating the element from its profile.

2. On the **Properties – <Element> – Add Application Classes** page, select **Hardware** from the **Select Category** drop down list. In the **Available Application Classes**, the Hardware application class applicable to your system appears automatically. Select and click **Next**.

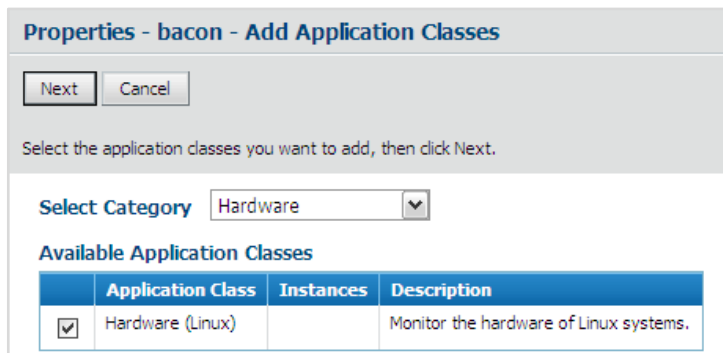


Figure 12: Select “Hardware” category and the apt Hardware class appears

3. The **Properties and Credentials** page asks for the information required for monitoring for **Hardware (<platform>)**. Enter the required information.
 - Click on the link for [Information required to monitor Windows systems](#)
 - Click on the link for [Information required to monitor AIX, HP-UX, Linux, Solaris and Tru64 systems](#)
 - Click on the link for [Information required for monitoring “Other” platforms i.e. blade chassis, management cards etc.](#)
4. After entering the element properties and credentials, you arrive at the final step for adding the Hardware application class: **Thresholds**
5. Thresholds are automatically set by BPM Express for Hardware. It is recommended that you leave the default thresholds as they are. Click **Finish**.

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Note

Details on how to modify the alert thresholds if required are given in the [User Guide](#).

6. The message: *"Success! Changed have been saved"* appears and **Hardware (<platform>)** appears in list of **Application Classes** for the element.
7. You can now return to the **Status** tab to view the monitoring of the element by BPM Express for Hardware.

Uninstalling BPM Express for Hardware

This section describes the procedure to remove or permanently delete BPM Express for Hardware from your Portal environment.

You cannot delete the hardware solution (or any other) if any of its application classes are currently monitoring infrastructure elements.

Uninstall Procedure

Uninstalling or “removing” the BPM Express for Hardware from your BMC Portal environment requires:

1. Deletion of the **Hardware (<platform>)** application class from all managed elements
2. Removal of BMC PM Express for Hardware from the Portal

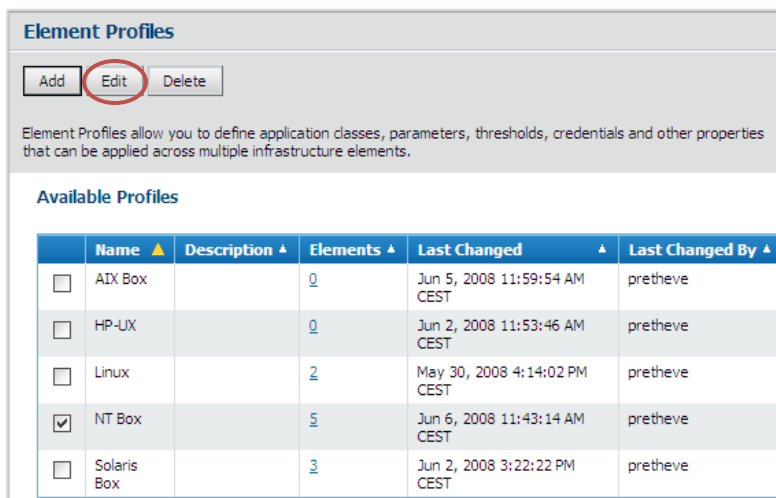
Important

The Hardware solution cannot be uninstalled from your Portal environment unless its application classes have first been removed from all elements.

Deleting the **Hardware (<platform>)** application class from managed elements

To remove an application class from an Element Profile:

1. In the **Configure** tab, click on **Element Profile > Available Profiles** > select the **Profile** from which you wish to delete the Hardware application class > **Edit**



Element Profiles

Add Edit Delete

Element Profiles allow you to define application classes, parameters, thresholds, credentials and other properties that can be applied across multiple infrastructure elements.

Available Profiles

| <input type="checkbox"/> | Name ▲ | Description ▲ | Elements ▲ | Last Changed ▲ | Last Changed By ▲ |
|-------------------------------------|-------------|---------------|-------------------|------------------------------|-------------------|
| <input type="checkbox"/> | AIX Box | | 0 | Jun 5, 2008 11:59:54 AM CEST | pretheve |
| <input type="checkbox"/> | HP-LIX | | 0 | Jun 2, 2008 11:53:46 AM CEST | pretheve |
| <input type="checkbox"/> | Linux | | 2 | May 30, 2008 4:14:02 PM CEST | pretheve |
| <input checked="" type="checkbox"/> | NT Box | | 5 | Jun 6, 2008 11:43:14 AM CEST | pretheve |
| <input type="checkbox"/> | Solaris Box | | 3 | Jun 2, 2008 3:22:22 PM CEST | pretheve |

Figure 13: Select the profile and click on Edit

2. The **Element Profile Properties** page appears. Scroll to **Application Classes** > click **Delete**.

Element Profile Properties - NT Box

Done

General Edit

| Property | Value |
|-------------------------|------------------------------|
| Element Profile Name: | NT Box |
| Description: | |
| Report Update Interval: | 5 Minutes |
| Last Update Time: | Jun 15, 2008 4:42:49 PM CEST |
| Last Changed By: | pretheve |

View Elements Edit

Number of Elements: 8

Application Classes Add Delete

| Application |
|--------------------|
| Hardware (Windows) |
| Ping |

Figure 14: Click on Delete

3. The next page displays the application classes available for removal. Select **Hardware (<platform>)** and click **Next**.

Element Profile Properties - NT Box - Delete Application Classes

Next Cancel

Select the application class(es) to delete, then click 'Next'.

Available Application Class(es) for Removal

| | Application Class |
|-------------------------------------|--------------------|
| <input checked="" type="checkbox"/> | Hardware (Windows) |
| <input type="checkbox"/> | Ping |

Figure 15: Select the Hardware class and click Next

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- The next page asks for confirmation of the deletion requested. Click on **Delete**.

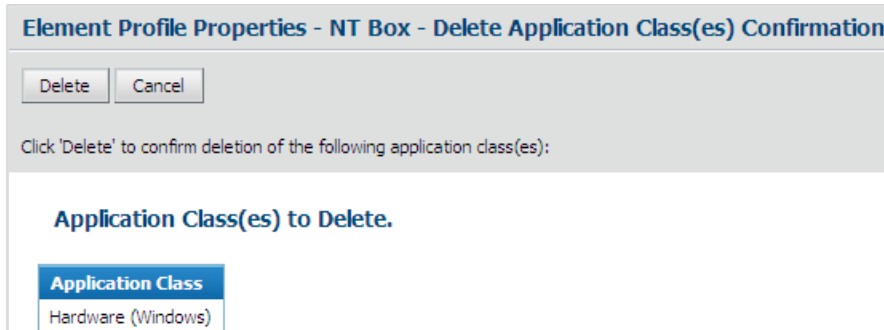


Figure 16: Click Delete to confirm the deletion

- The message: *“Success! Changes have been saved”* indicates that the deletion is now complete. The Hardware application class has been successfully removed from all the elements in the selected element profile.

To remove an application class from an Element

The procedure is the same for deleting the Hardware application class from an individual element. To begin, just click on the **Element > Properties > Application Classes > Delete...**

- In the **Configure** tab, click on the **Element > Properties** page > **Application Classes > Delete**
- The next page displays the application classes available for removal. Select **Hardware (<platform>)** and click **Next**.
- Confirm the deletion on the following page by clicking on **Delete**.
- The message *“Success! Changes have been saved”* indicates that the deletion is complete and the element is no longer monitored by Hardware application class.

Once the application class is removed from all elements/element profiles; the super-administrator can proceed to completely remove the PM from the Portal environment.

Removing the hardware monitoring solution from the Portal

Just as for installation, to uninstall BPM Express for Hardware from the Portal environment, you need to use the super-administrator credentials:

1. In the **Portal** tab, expand **Tasks** > and click on **Performance Managers**.
2. In the Performance Managers list, scroll down to **BPM Express for Hardware**.
3. Ensure that it shows “0” for the number of elements monitored. The PM that you wish to delete should not have any elements assigned to it.

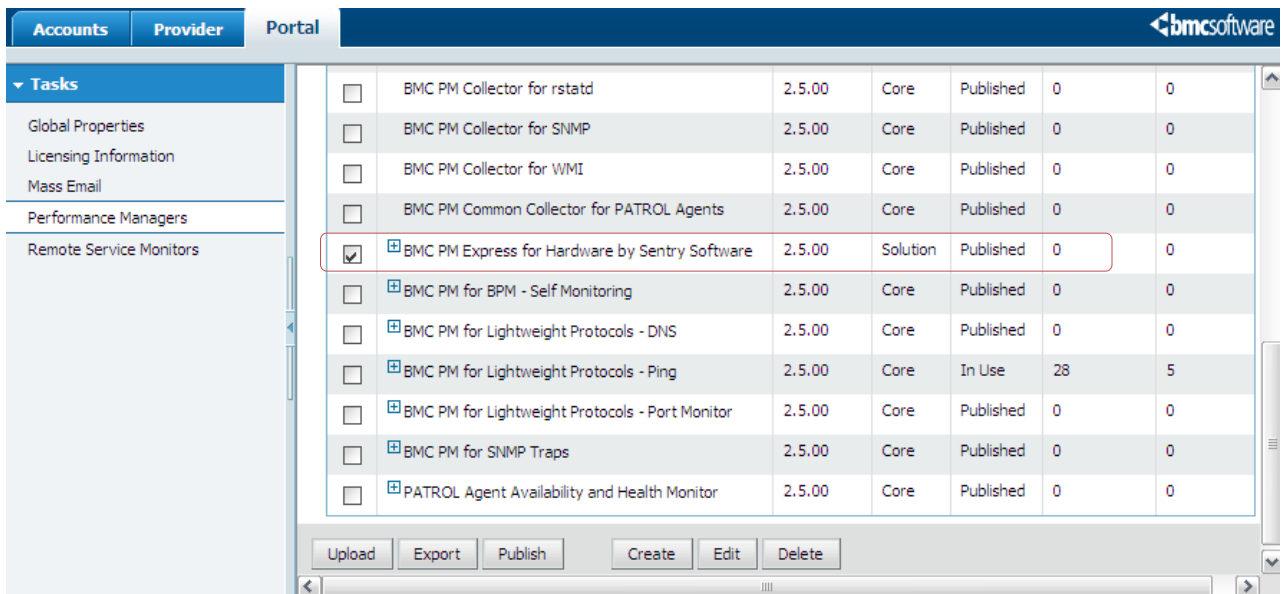


Figure 17: Ensure “0” elements monitored by BMC Express for Hardware and click Delete

4. Select **BMC PM Express for Hardware** and click on **Delete**.
5. On the next **Performance Managers - Delete** page, click **Delete** to confirm.

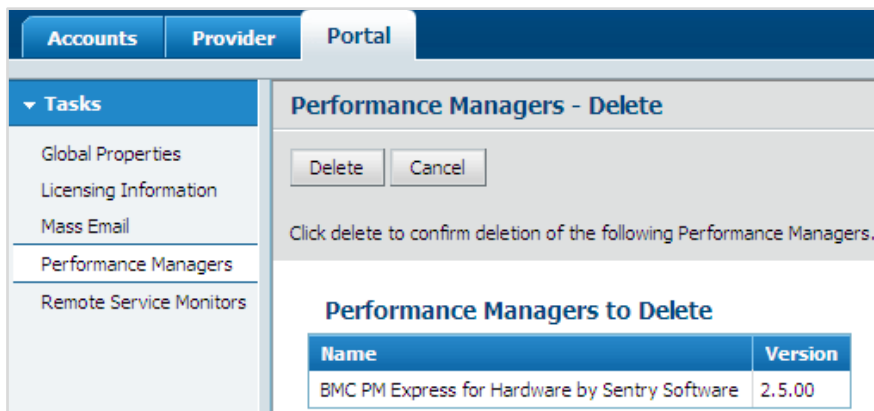


Figure 18: Delete BMC PM Express for Hardware

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6. The “Success” message indicates that the BPM Express for Hardware for BMC Portal is now removed from the Portal.

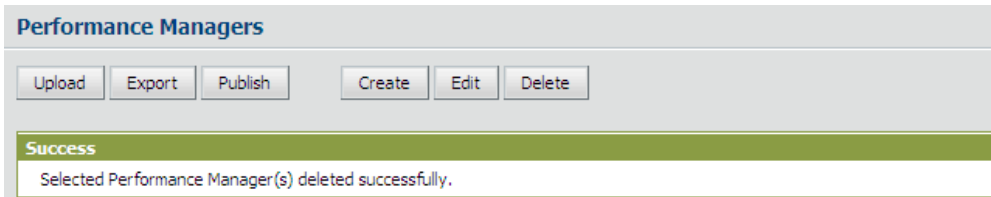


Figure 19: "Success" indicates the PM is deleted

Important

For a complete un-installation, it is recommended to remove all traces of the performance manager from the Portal. Delete the BPM Express for Hardware PAR file from each RSM used by the solution. To do so:

- Stop the RSM service
- Go to %RSM_HOME%\RSMxx\server\rsm\solutions
- Delete the file: SentrySoftware-HardwareSentry-solution-2.5.00.par
- Restart the RSM service

The BMC Performance Manager Express for Hardware is now completely removed from your BMC Portal environment.

About BMC® Software

BMC Software, Inc. NYSE:BMC is a leading provider of enterprise management solutions that empower companies to manage their IT infrastructure from a business perspective. Delivering Business Service Management, BMC Software solutions span enterprise systems, applications, databases, and service management. Founded in 1980, BMC Software has offices worldwide and fiscal 2004 revenues of more than \$1.4 billion. For more information about BMC Software, visit www.bmc.com.

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