IBM Systems Director Active Energy Manager for Power Systems, V4.3 helps you monitor and manage the power and thermal usage of your IT environment

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At a glance

IBM Systems Director Active Energy Manager™ (AEM) V4.3 software, an IBM® Systems Director plug-in, is available on the AIX® and Linux® operating systems to help you monitor and manage the power and thermal usage of your IT environment. AEM is a unique energy management software tool that can provide a single view of the actual power usage across systems in your infrastructure as opposed to the benchmarked power consumption.

The main new features in this release are:

• IBM POWER7™ technology-based servers can be monitored for energy consumption and can be energy-managed from AEM. This includes the ability to set power capping and set static power savings mode.
• PDUs from Server Technologies and Geist can now be monitored. By adding these popular products, AEM continues to increase its scope.
• AEM supports integration with the latest releases of APC's InfraStruXure Central V5.1 and V6.0 and Eaton's Power Xpert V2.0 for monitoring power and cooling infrastructure.

For ordering, contact your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL (Reference: YE001).

Overview

IBM Systems Director Active Energy Manager (AEM) V4.3 is an energy management solution designed to effectively manage the energy usage in data centers. Monitoring a wide range of equipment, AEM retrieves thermal and power information via external sensors and collects alerts, events, and data from facility providers related to power and cooling equipment. AEM is also designed to measure, monitor, and manage the energy management components built into IBM servers at the system, chassis, or rack level. As it exploits the energy-saving capabilities on IBM equipment, AEM can help in the analysis of data center efficiency and be used as a tool for implementing data center efficiency changes which may result in monetary savings.

AEM V4.3 continues to provide energy monitoring and management for Power Systems™ and System x® servers, as well as energy monitoring of IBM System z10® servers. AEM also delivers a source of energy management data that can be
exploited by Tivoli® enterprise solutions such as IBM Tivoli Monitoring for Energy Management.

AEM V4.3 integrates with the latest releases of American Power Conversion Corporation's (APC) InfraStruXure Central V5.1 and V6.0 and Eaton Corporation’s Power Xpert V2.0 and Power Xpert Reporting V2.0 for monitoring power and cooling infrastructure. With an increased knowledge of what is occurring with their power and cooling devices, users can take corrective actions if problems with those devices arise. AEM users can be notified and create automation plans to protect their servers.

AEM V4.3 builds upon AEM V4.2 and offers the following new features and enhancements:

- Energy monitoring and management of new POWER7 servers
- Monitoring energy data provided by PDUs from Server Technologies and Geist
- Monitoring equipment via an IPv6 connection

AEM V4.3 is positioned as a key component of energy-efficient IBM technologies and services as part of the Dynamic Infrastructure® strategy in support of Smarter Planet™. AEM is also part of the New Enterprise Data Center strategy and is delivered as a plug-in to IBM Systems Director.

**Key prerequisites**

IBM Systems Director Active Energy Manager for Power Systems, V4.3 has the following prerequisites:

- IBM Systems Director V6.2 and updates required for IBM Systems Director Active Energy Manager V4.3
- One of these operating systems:
  - AIX V5.3 with Technology Level 06 Service Pack 4, or later
  - AIX V6.1 with Technology Level 01 Service Pack 1, or later
  - Red Hat Enterprise Linux AS 4 for POWER®
  - Red Hat Enterprise Linux AP 5 for POWER
  - Novell SUSE Linux Enterprise Server 10 for POWER
  - Novell SUSE Linux Enterprise Server 11 for POWER

**Planned availability date**

June 25, 2010

**Description**

AEM V4.3, is designed to simplify the management of energy consumption across multiple IBM and non-IBM systems. AEM tracks energy use over time and can assist you in determining how to reallocate energy to additional servers without adding additional energy or cooling equipment. When energy is constrained, AEM is designed to allow energy to be allocated on a server to server basis.

AEM is also designed to track and allocate energy consumption in a manner intended not to affect performance. Sensors and alerts can warn you if limiting energy to a server could affect performance.

AEM is designed to increase your capability to control energy consumption and improve energy use efficiency, which can potentially result in savings and cost reductions.
AEM is intended to help you:

- Increase energy use efficiency by controlling energy use across the data center
- Negotiate competitive utility rates based on accurate energy use trend assessments
- Limit server energy consumption by capping maximum energy consumption
- Perform server-to-server energy consumption comparisons

By enabling you to meter energy use and trend historical data, AEM is designed to help reduce energy costs in the data center. AEM is also designed to complement and integrate with higher-level management software such as Tivoli. AEM interfaces with the IBM Tivoli Monitoring for Energy Management.

AEM V4.3 can help protect your IT investment through its open design and support for industry standards which enables heterogeneous physical and virtual management with support for multiple platforms and operating systems.

AEM V4.3 supports the following endpoints:

- IBM BladeCenter®
- Power Systems, including POWER7 servers
- System x
- System z® servers

Certain non-IBM, legacy IBM, and IBM Storage Systems can be monitored through PDU support. In addition, AEM can collect information from select facility providers including Liebert’s SiteScan from Emerson Network Power, InfraStruXure Central from APC, and Power Xpert and Foreseer from Eaton. Sensors from SynapSense, iButton, Sensatronics, SmartWorks, and Arch Rock are also supported, in order to provide a view of data center environmental data, and for equipment that does not have its own built-in sensors. AEM V4.3 can perform monitoring and management functions for all supported systems from a single console.

AEM V4.3 provides no-charge monitoring functions and a set of optional chargeable (fee-based) management functions.

**AEM monitoring functions (no-charge)**

AEM V4.3 is designed to provide monitoring functions for devices that can connect to select Power Distribution Units (PDUs). This enables monitoring functions for systems that do not have support for AEM; for example, older servers and low- and midrange storage devices. By plugging these systems into an intelligent PDU (a smart power strip), AEM is designed to be able to collect energy information from I/O drawers plugged into the PDU, providing a more complete view of energy used in the data center. Additionally, AEM provides users power management functions for intelligent PDUs. Through AEM, users can turn off individual outlets on the PDUs. This allows administrators to prevent the plugging in of unauthorized equipment in a rack. It also provides a way to quick cut power usage in case of emergencies. New in this release is support for PDUs from Server Technologies and Geist.

*Power trending* is a monitoring function that displays energy use for individual systems or groups of systems over time (in a graph or table format) to help enable you to understand energy use trends within and across your systems.

*Thermal trending* is a monitoring function that displays information on the inlet and exhaust temperatures for individual systems one at a time to help you understand thermal characteristics of your systems. Incorporating this data into one centralized software-based energy use offering allows finite and localized temperature adjustments within the IT shop to help reduce energy costs for cooling.

Support for facility providers is a function that retrieves information from Emerson Network Power’s SiteScan application, APC’s InfraStruXure Central, and Eaton’s Power Xpert and Foreseer. Numerous attributes associated with the energy usage
of power and cooling equipment can be collected, and made available through AEM. This provides a broader scope of energy information within the data center while including a view of facilities equipment. New in this release is the ability to integrate with the newest releases of these products.

Support for sensors is a function that retrieves temperature and power information via sensors. Supported vendors include SynapSense, iButton, Sensatronics, and Arch Rock. In AEM V4.3, this sensor data can now be associated with Systems Director-managed resources. This provides a broader scope of energy information across systems within the data center, while including a view of facilities equipment.

In addition, power and cooling relationships can be configured to servers for all of the above PDUs, sensors, and equipment discovered from the infrastructure management providers. This allows energy data and events to be associated with the servers that use them.

**AEM management functions (priced)**

*Power capping* is included in the set of optional chargeable (fee-based) management functions. It is designed to allow you to set a maximum energy level per system. If the system starts to consume more than the maximum level set, AEM is designed to throttle the processor to use less energy, which slows down the server. This feature is designed to come into play if it gets too warm in the data center. Setting the cap will ensure that the system will not use more than the cap value, thus allowing the user to allocate less power for that system.

New in AEM V4.3 is the ability to set a power limit on POWER7 servers using AC power. Previous versions of AEM only supported limiting DC power.

*Power saver mode* is included in the set of optional chargeable (fee-based) management functions. It is designed to allow you to manage your energy use as work activity shifts across various demands. Static power saving mode is enabled via an on/off switch, which you can schedule during times of low utilization, or a script can be written so that it can be switched automatically, based on processor utilization.

**Evaluation software**

If you download from the Web, you are offered the product to evaluate the AEM management functions for up to 60 days under the terms of the IBM International License Agreement for Evaluation of Programs (ILAE). During the evaluation period, an option to purchase a permanent license will be offered.

If a permanent license is purchased, a keyfile will be shipped on a CD-ROM to enable AEM management functions to remain active. When installing the keyfile, no changes are made to AEM and everything will continue to work as it did. If a permanent license is not purchased and installed, then the AEM management functions will be disabled when the evaluation period ends; however, AEM monitoring functions will continue to work after the evaluation period ends. Otherwise, the AEM management functions will be disabled.

The AEM keyfile is designed to operate with all release levels of AEM V4, and does not need to be reordered or reinstalled for customers migrating from a prior release of AEM V4 to AEM V4.3.

AEM monitor functions do not require the keyfile to remain enabled. AEM monitoring functions and the key-enabled management functions are licensed under the terms of the IBM International Program License Agreement (IPLA).

**IBM Systems Director V6.2 Information Center availability**

On or before June 25, 2010, the IBM Systems Director V6.2 Information Center Web site is planned to be updated with information pertinent to IBM Systems Director V6.2 and its associated plug-ins.
Product positioning

IBM Systems Director Active Energy Manager V4.3 is an IBM Systems Director V6.2 plug-in. It is an energy management solution building block that returns control of energy costs to the client. Active Energy Manager is a cornerstone of the IBM energy management framework.

Active Energy Manager advances the IBM initiative to deliver price/performance per square foot. This offering enables monitoring and management of power usage across systems equipment within the IT and facility infrastructures, which can decrease the cost of computing through improved power utilization and reduced labor cost. Active Energy Manager provides a broader scope of energy information across systems within the data center while including a view of facilities equipment.

By enabling you to meter energy use and trend data, AEM is designed to help reduce energy costs in the data center. AEM is also designed to complement and integrate with higher-level management software such as Tivoli. AEM interfaces with IBM Tivoli Monitoring for Energy Management.

AEM V4.3 focuses on multisystem resource management of energy across IBM servers and provides heterogeneous monitoring support for systems and IT facilities, enabling clients to manage actual energy consumption.

Reference information


For information on IBM Systems Director Active Energy Manager for X86, V4.3. refer to Software Announcement A10-0250, dated April 13, 2010.

For information on IBM Systems Director Active Energy Manager for System z, V4.3, refer to Software Announcement A10-0253, dated April 13, 2010.

For information on Enhancements to Power Systems Software™ refer to Software Announcement A10-0015, dated February 09, 2010.

Availability of national languages

IBM Systems Director Active Energy Manager V4.3 includes support for the following languages.

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<th>Language</th>
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Program number

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<td>4.3</td>
<td>IBM Systems Director Active Energy Manager for Power® Systems</td>
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Note: All program numbers have been previously announced.

Product identification number

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Offering Information

Product information is available via the Offering Information Web site

http://www.ibm.com/common/ssi

Publications

No licensed hardcopy publications are shipped with this program.

Publications are available in U.S. English versions from the IBM Systems Director Information Center.

The IBM Systems Director Information Center provides you with a single information center where you can access product documentation for IBM systems hardware, operating systems, and server software. Through a consistent framework, you can efficiently find information and personalize your access. The IBM Systems Director Information Center is at

http://publib.boulder.ibm.com/infocenter/director/v6r2x/index.jsp

To find information, you can search, browse the contents, follow links from one topic to related topics, and print the topics you want to read offline.

Technical information

Specified operating environment

Hardware requirements

IBM Systems Director Active Energy Manager is dependent on IBM Systems Director and has the same hardware requirements as the IBM Systems Director V6.2. These hardware requirements are available from the software announcement for IBM Systems Director V6.2 and from the IBM Systems Director Information Center at
http://publib.boulder.ibm.com/infocenter/director/v6r2x/topic/com.ibm.director.plan.helps.doc/fqm0_r_hardware_requirements.html


IBM DPI® PDU+s may require firmware updates. The firmware version can be found on the Active Energy Manager Web site


Software requirements
AEM V4.3 is dependent on IBM Systems Director and has the same software requirements as the IBM Systems Director V6.2 server.

AEM V4.3 requires:

- IBM Systems Director for Power Systems, V6.2 and updates required for IBM Systems Director Active Energy Manager V4.3
- One of the following operating systems:
  - AIX V5.3 with Technology Level 06 Service Pack 4, or later
  - AIX V6.1 with Technology Level 01 Service Pack 1, or later
  - Red Hat Enterprise Linux AS 4 for POWER
  - Red Hat Enterprise Linux AP 5 for POWER
  - Novell SUSE Linux Enterprise Server 10 for POWER
  - Novell SUSE Linux Enterprise Server 11 for POWER

More detailed software requirements are available from documents accompanying the program and from the IBM Systems Director V6.2 Information Center at

http://publib.boulder.ibm.com/infocenter/director/v6r2x/topic/com.ibm.director.plan.helps.doc/fqm0_r_operating_system_and_software_requirements.html

The program’s specifications and specified operating environment information may be found in documentation accompanying the program, if available, such as a README file, or other information published by IBM, such as an announcement letter. Documentation and other program content may be supplied only in the English language.

Limitations
AEM can monitor but not manage power data (that is, power savings and power capping) on servers that do not have native support.

Platform or operating-system-specific capabilities:

- Power Systems servers are supported for monitoring, power saving, and capping.
- System z servers are supported for monitoring functions only.
- System x servers are supported for monitoring and capping but not power saving.
- Storage devices are enabled for monitoring only when utilizing PDUs.

Performance considerations
Performance considerations are available from the IBM Systems Director Information Center

http://publib.boulder.ibm.com/infocenter/director/v6r2x/index.jsp
Planning information

Refer to the planning Web site for additional information


Packaging

The IBM Systems Director Active Energy Manager package contains one CD-ROM that includes product installation documentation and files.

Your Proof of Entitlement for this program is a copy of a paid sales receipt, purchase order, invoice, or other sales record from IBM or its authorized reseller from whom you acquired the program, provided that it states the license charge unit (the characteristics of intended use of the program; for example, number of processors, number of users) and quantity acquired.

Information about how you may obtain program services will be provided by the party (either IBM or its authorized reseller) from whom you acquired the program.

AEM will be available on or before June 25, 2010, for electronic download from


This program, when downloaded from a Web site, contains the applicable IBM license agreement and License Information, if appropriate, and will be presented for acceptance at the time of installation of the program. For future reference, the license and License Information will be stored in a directory such as LICENSE.TXT.

Security, auditability, and control

AEM V4.3 installed on systems with Linux uses the security and auditability features of the Linux operating system. The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

Software Services

IBM Software Services has the breadth, depth, and reach to manage your services needs. You can leverage the deep technical skills of our lab-based, software services team and the business consulting, project management, and infrastructure expertise of our IBM Global Services team. Also, we extend our IBM Software Services reach through IBM Business Partners to provide an extensive portfolio of capabilities. Together, we provide the global reach, intellectual capital, industry insight, and technology leadership to support a wide range of critical business needs.

To learn more about IBM Software Services or to contact a Software Services sales specialist, visit

http://www.ibm.com/software/sw-services/

Ordering information

Charge metric

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</table>
Processor

Processor is a unit of measure by which the program can be licensed. Processor (commonly called a processor core or CPU) is a functional unit within a computing device that interprets and executes instructions. A processor consists of at least an instruction control unit and one or more arithmetic or logic unit. With multicore technology, each core is considered a processor.

A Proof of Entitlement (PoE) must be acquired for all activated processor cores available for use on the server. In addition to the entitlements required for the program directly, licensee must obtain entitlements for this program sufficient to cover the processor cores managed by the program.

IBM Systems Director Active Energy Manager uses a per processor charging metric. A license is required for each processor on each server being managed by AEM, based on the size of the server. As of this announcement, servers are categorized as small, medium, or large, based on the following categories.

- Small server
  - IBM Power Systems, System p® models in Processor Groups C5, D5, and E5, or the Power Systems small server tier
  - IBM Power Systems, System i® models in Processor Groups P05, P10, and P20, or the Power Systems small server tier
- Medium server
  - IBM Power Systems, System p models in Processor Group F5, or the Power Systems medium server tier
  - IBM Power Systems, System i models in Processor Groups P30 and P40, or the Power Systems medium server tier
- Large server
  - IBM Power Systems, System p models in Processor Groups G5 and H5, or the Power Systems large server tier
  - IBM Power Systems, System i models in Processor Groups P50 and P60, or the Power Systems large server tier

AEM requires a keyfile to make the management component of the product operational after the 60-day evaluation period. This keyfile is sent on a CD-ROM after placing an order for the 5765-AEP product. This software license includes one year of Software Maintenance. AEM monitor functions do not require the keyfile. Download of AEM V4.3 is required before the keyfile can be applied.

Orders may be placed beginning with configurator availability.

5765-AEP IBM Systems Director Active Energy Manager V4.3

<table>
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<th>Description</th>
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<td>Per processor Small P7 with 1 year SW Maint</td>
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<td>Per processor Medium with 1 year SW Maint</td>
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Software Maintenance

IBM will provide Software Maintenance (SWMA), which may also be referred to as Software Subscription and Technical Support, for the free monitoring functions of
Active Energy Manager if you have acquired an entitlement to receive Software Maintenance for IBM Systems Director V6.2 or Active Energy Manager V4.3.

Extending coverage for a total of three years from the date of acquisition may be elected. Order the program number, feature number, and quantity to extend coverage for your software licenses. If maintenance has expired, specify the after license feature number.

SWMA for Active Energy Manager may be obtained by ordering the following previously announced and priced program and feature numbers:

<table>
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<th>Feature description</th>
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<td>SW Maintenance After License 3 Year</td>
<td>5664-PE3</td>
<td>A1TA</td>
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Program number | Program/Function name | Feature number  
--- | --- | ---  
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