IBM DS8870 offers exceptional performance with new processors, microcode, drive options, and advanced functions to enhance data protection

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At a glance

New features for IBM® DS8870 offer a greater choice in price and performance, including:

- IBM POWER7+™ processor technology
- Flash optimization
- Capacity scalability with 1.2 TB 10K rpm SAS and 4 TB 7.2K rpm nearline SAS encryption drives
- Security

Overview

IBM DS8870 systems (machine types 2421, 2422, 2423, and 2424) are designed to offer better performance with new processors, microcode, drive options, and advanced functions to enhance data protection.

IBM POWER7+ processor technology

The DS8870 high-performance Model 961 features IBM POWER7+ server technology to help support higher performance. DS8870 can help deliver up to 15% performance improvement in maximum IOPS in transaction processing workload environments over the prior POWER® processor for Model 961.

Flash optimization

With the introduction of the 7.2 microcode, the system with the POWER7+ processor and all-flash drive configuration helps the DS8870 to deliver up to 20% improvement in maximum IOPS in random I/O workload environments.

Enhanced business class configuration

The entry system, IBM DS8870 business class, is now scalable to 1,056 drives and up to 16-core processors.

Scalable capacity

DS8870 offers new disk drives that help improve capacity and price-performance options for transaction processing workloads. New drives are:

- 1.2 TB 10,000 rpm SAS encryption drive

- 4 TB 7,200 rpm nearline SAS encryption drive

Security

In this release, IBM DS8870 supports the National Institute of Standards and Technology (NIST) *SP 800-131A,* a US standard that provides guidance for protecting sensitive data by using cryptographic algorithms that have key strengths of 112 bits.

NIST *SP 800-131A* requires the use of cryptographic algorithms that have security strengths of 112 bits to provide data security and data integrity for secure data created in the cryptoperiod starting in 2014. This release provides enablement for NIST *SP 800-131A* on DS8870. Conformance with NIST *SP 800-131A* is dependent on use of appropriate prerequisite management software versions and appropriate configuration of the DS8870 and other network related entities. IBM remote service connections are not compliant with NIST *800-131A* at this time.

Key prerequisites

All announced features and functions are supported on the IBM System Storage® DS8000® series and require DS8000 Licensed Machine Code (LMC) 7.7.20.xx.xx (bundle version 87.20.xxx.xx), or later.

Planned availability date

- December 6, 2013: General availability
- March 6, 2014: Field (MES) availability date for 1.2 TB 10K rpm FDE and 4 TB 7.2K rpm nearline SAS encryption drives (feature numbers #5768, #5868, #5769, and #5869)
- June 6, 2014: Field (MES) availability date for P7+ processor (feature numbers #4411, #4412, #4413, and #4414)

Refer to the Description section for further information.

Description

IBM delivers functional enhancements to the DS8870. This release offers new capabilities, better performance, more drive options, and enhances existing functions.

IBM POWER7+ processor technology

The DS8870 features IBM POWER7+ server technology to help deliver high performance. The DS8870 can help deliver up to 15% performance improvement in maximum IOPS in transaction processing workload environments over the prior processor.

The DS8870 offers a 2-core 4.228 GHz P7+ processor complex and up to a 16-core 4.228 GHz P7+ processor complex per controller.

All-flash system and flash optimization

The DS8870 now supports an all-flash configuration. The all-flash indicator, feature number 0600, allows the customer to specify systems comprised solely of flash drives. For customers using small capacity disk drives in RAID-10 configurations to minimize I/O response times, using an all-flash configuration instead can help improve I/O response times while also reducing floor space and power requirements, as well as help improve the economics of IT infrastructure.

For the DS8870 POWER7+ systems, this release has been flash optimized to improve overall performance of flash drives. Compared to a similar DS8870

POWER7® system, transactional customers can see improvements up to 20% when using a DS8870 POWER7+ 16-core all-flash system and the new *flash accelerator RPQ #08S1364* . The flash accelerator RPQ is only offered on all-flash (feature number 0600) DS8870 POWER7+ 16-core (feature number 4414) systems.

Enhanced business class configuration

IBM DS8870 business class supports a dual two-core processor with up to 144 drives and is scalable to dual 16 cores with up to 1,056 drives. The business class configuration is capable of achieving similar system performance to the standard offering when in large configurations.

The advanced license functions offered for the business class configuration, can be usage based through a subcapacity license RPQ.

Refer to the following table for more details on supported memory size and device adapters required with the business class configuration option.

```
Business class
```

Processors/ controller	System memory	Device adapter pairs/ drives (max)	Host adapters (max)	Expansion frames
2-core	16/32	1/144	4	N/A
4-core	64	2/240	8	N/A
8-core	128/256	6/1056	16	0-2
16-core	512/1024	6/1056	16	0-2

Capacity scalability

The DS8870 now offers 1.2 TB 10,000 rpm and 4 TB 7,200 rpm disk drive sets to provide additional price and performance options with the capacity flexibility to address application and business requirements. This support is in addition to the already supported 146 GB (15,000 rpm), 300 GB (15,000 rpm), 600 GB (10,000 rpm), and 900 GB (10,000 rpm) SAS disk drive sets, 3 TB (7,200 rpm) nearline SAS disk drive sets, and 400 GB SSD drive sets. The 4 TB 7,200 rpm disk drives provide 33% more physical capacity than 3 TB drives, increasing the maximum capacity supported in a DS8870 system.

The 1.2 TB 10,000 rpm SAS disk drives and 4 TB 7,200 rpm nearline SAS disk drives are also offered with full disk encryption (FDE) and Standby Capacity on Demand (CoD).

For additional flexibility, feature conversions are available for the 1.2 TB (10,000 rpm) and 4 TB (7,200 rpm) disk drive sets to exchange existing drive sets when purchasing new drive sets with higher capacity. The 1.2 TB 10,000 rpm and 4 TB 7,200 rpm disk drive sets are optional to the DS8870 and are available with feature numbers 5xx8.

Security

In addition to the existing DS8870 security features, to further help protect sensitive information stored in the DS8870 from unauthorized access or fraudulent changes, DS8870 supports NIST *SP 800-131A* .

For more information on how to configure the storage system to support the NIST *SP 800-131A* standard, refer to the *IBM DS8870 Introduction and Planning Guide (GC27-4209)* .

All new functions in this release require Licensed Machine Code level 7.7.20.xx.xx, or later (feature numbers 1733 and 1833).

- **Plant availability:** December 6, 2013
  - IBM POWER7+ processor technology

- Flash optimization
- Capacity scalability with 1.2 TB 10K rpm SAS and 4 TB 7.2K rpm nearline SAS encryption drives
- **Field availability:** March 6, 2014
  - Capacity scalability with 1.2 TB 10K rpm SAS and 4 TB 7.2K rpm nearline SAS encryption drives
- **Field availability:** June 6, 2014
  - IBM POWER7+ processor technology and POWER7+ memory cache

Accessibility by people with disabilities

A US Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at

  http://www.ibm.com/able/product_accessibility/index.html

Reference information

For more information, refer to the following announcements:

- Hardware Announcement AG12-0166, dated October 03, 2012 , IBM System Storage DS8870 (Machine type 2421) high-performance flagship high-end disk, one-year warranty model addresses your business and financial needs
- Hardware Announcement AG12-0190, dated October 03, 2012 , IBM System Storage DS8870 (Machine type 2422) high-performance flagship high-end disk, two-year warranty model addresses your business and financial needs
- Hardware Announcement AG12-0188, dated October 03, 2012 , IBM System Storage DS8870 (Machine type 2423) high-performance flagship high-end disk, three-year warranty model addresses your business and financial needs
- Hardware Announcement AG12-0189, dated October 03, 2012 , IBM System Storage DS8870 (Machine type 2424) high-performance flagship high-end disk, four-year warranty model addresses your business and financial needs
- Hardware Announcement AG12-0169, dated October 03, 2012 , IBM System Storage DS8000 series high-performance flagship - Function Authorizations for machine type 239x

For the IBM statement on compliance with the European Union Directive on Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment (2002/95/EC) (RoHS), visit

  http://www.ibm.com/ibm/environment/products/rohs.shtml

Product number

```
                                     Machine
        Description                  type      Model    Feature

        DS8870                       2421      961

        DS8000 Licensed Machine Code:
        - DS8000 LMC R7.2                                1733

        Processor license indicators:
        - 2-core P7+ processor indicator                 4411
        - 4-core P7+ processor indicator                 4412
        - 8-core P7+ processor indicator                 4413
        - 16-core P7+ processor indicator                4414

        Encryption disk drive sets:
        - 1.2 TB 10K FDE drive set                       5768
        - 4 TB 7.2K FDE half drive set                   5868

        Encryption Standby CoD disk drive sets:
```

```
- 1.2 TB 10K FDE CoD drive set                                 5769
- 4 TB 7.2K FDE CoD half drive set                             5869

                                         Machine
Description                              type     Model    Feature

DS8870                                   2421     96E

DS8000 Licensed Machine Code:
- DS8000 LMC R7.2                                             1833

Encryption disk drive sets:
- 1.2 TB 10K FDE drive set                                   5768
- 4 TB 7.2K FDE half drive set                               5868

Encryption Standby CoD disk drive sets:
- 1.2 TB 10K FDE CoD drive set                               5769
- 4 TB 7.2K FDE CoD half drive set                           5869

                                         Machine
Description                              type     Model    Feature

DS8870                                   2422     961

DS8000 Licensed Machine Code:
- DS8000 LMC R7.2                                            1733

Processor license indicators:
- 2-core P7+ processor indicator                            4411
- 4-core P7+ processor indicator                            4412
- 8-core P7+ processor indicator                            4413
- 16-core P7+ processor indicator                           4414

Encryption disk drive sets:
- 1.2 TB 10K FDE drive set                                  5768
- 4 TB 7.2K FDE half drive set                              5868

Encryption Standby CoD disk drive sets:
- 1.2 TB 10K FDE CoD drive set                              5769
- 4 TB 7.2K FDE CoD half drive set                          5869

                                         Machine
Description                              type     Model    Feature

DS8870                                   2422     96E

DS8000 Licensed Machine Code:
- DS8000 LMC R7.2                                           1833

Encryption disk drive sets:
- 1.2 TB 10K FDE drive set                                  5768
- 4 TB 7.2K FDE half drive set                              5868

Encryption Standby CoD disk drive sets:
- 1.2 TB 10K FDE CoD drive set                             5769
- 4 TB 7.2K FDE CoD half drive set                         5869

                                         Machine
Description                              type     Model    Feature

DS8870                                   2423     961

DS8000 Licensed Machine Code:
- DS8000 LMC R7.2                                          1733

Processor license indicators:
- 2-core P7+ processor indicator                          4411
- 4-core P7+ processor indicator                          4412
- 8-core P7+ processor indicator                          4413
- 16-core P7+ processor indicator                         4414

Encryption disk drive sets:
- 1.2 TB 10K FDE drive set                                5768
- 4 TB 7.2K FDE half drive set                            5868
```

```
Encryption Standby CoD disk drive sets:
- 1.2 TB 10K FDE CoD drive set                              5769
- 4 TB 7.2K FDE CoD half drive set                          5869


                                           Machine
Description                                type    Model   Feature

DS8870                                     2423    96E

DS8000 Licensed Machine Code:
- DS8000 LMC R7.2                                          1833

Encryption disk drive sets:
- 1.2 TB 10K FDE drive set                                 5768
- 4 TB 7.2K FDE half drive set                             5868

Encryption Standby CoD disk drive sets:
- 1.2 TB 10K FDE CoD drive set                             5769
- 4 TB 7.2K FDE CoD half drive set                         5869


                                           Machine
Description                                type    Model   Feature

DS8870                                     2424    961

DS8000 Licensed Machine Code:
- DS8000 LMC R7.2                                          1733

Processor license indicators:
- 2-core P7+ processor indicator                          4411
- 4-core P7+ processor indicator                          4412
- 8-core P7+ processor indicator                          4413
- 16-core P7+ processor indicator                         4414

Encryption disk drive sets:
- 1.2 TB 10K FDE drive set                                 5768
- 4 TB 7.2K FDE half drive set                             5868

Encryption Standby CoD disk drive sets:
- 1.2 TB 10K FDE CoD drive set                             5769
- 4 TB 7.2K FDE CoD half drive set                         5869


                                           Machine
Description                                type    Model   Feature

DS8870                                     2424    96E

DS8000 Licensed Machine Code:
- DS8000 LMC R7.2                                          1833

Encryption disk drive sets:
- 1.2 TB 10K FDE drive set                                 5768
- 4 TB 7.2K FDE half drive set                             5868

Encryption Standby CoD disk drive sets:
- 1.2 TB 10K FDE CoD drive set                             5769
- 4 TB 7.2K FDE CoD half drive set                         5869
```

Model conversions

Not applicable

Note: This is a reminder that model conversions are disruptive. In addition, data may not be preserved during the model conversion.

Feature conversions

```
Feature conversions (machine types 2421, 2422, 2423, and 2424
for Model 961):
```

```
Processor cards:

Feature     Returned
From  To    parts*      Description

4401  4413  Yes         2-core to 8-core P7+ processor indicator
4402  4413  Yes         4-core to 8-core P7+ processor indicator
4403  4413  Yes         8-core to 8-core P7+ processor indicator
4403  4414  Yes         8-core to 16 core P7+ processor indicator
4404  4414  Yes         16-core to 16-core P7+ processor indicator

4411  4412  Yes         2-core P7+ to 4-core P7+ processor indicator
4411  4413  Yes         2-core P7+ to 8-core P7+ processor indicator
4412  4413  Yes         4 core P7+ to 8-core P7+ processor indicator
4412  4414  Yes         4 core P7+ to 16-core P7+ processor indicator
4413  4414  Yes         8 core P7+ to 16-core P7+ processor indicator

Encryption disk drive sets:

Feature     Returned
From  To    parts*      Description

5108  5768  Yes         Encryption disk drive set conversion
5108  5868  Yes         Encryption disk drive set conversion
5308  5768  Yes         Encryption disk drive set conversion
5308  5868  Yes         Encryption disk drive set conversion
5708  5768  Yes         Encryption disk drive set conversion
5708  5868  Yes         Encryption disk drive set conversion
5758  5768  Yes         Encryption disk drive set conversion
5758  5868  Yes         Encryption disk drive set conversion
5858  5868  Yes         Encryption disk drive set conversion

Encryption Standby CoD disk drive sets:

Feature     Returned
From  To    parts*      Description

5769  5768  No          Encryption CoD disk drive conversion
5869  5868  No          Encryption CoD disk drive conversion


Feature conversions (machine types 2421, 2422, 2423, and 2424
for Model 96E):

Encryption disk drive sets:

Feature     Returned
From  To    parts*      Description

5108  5768  Yes         Encryption disk drive set conversion
5108  5868  Yes         Encryption disk drive set conversion
5308  5768  Yes         Encryption disk drive set conversion
5308  5868  Yes         Encryption disk drive set conversion
5708  5768  Yes         Encryption disk drive set conversion
5708  5868  Yes         Encryption disk drive set conversion
5758  5768  Yes         Encryption disk drive set conversion
5758  5868  Yes         Encryption disk drive set conversion
5858  5868  Yes         Encryption disk drive set conversion

Encryption Standby CoD disk drive sets:

Feature     Returned
From  To    parts*      Description

5769  5768  No          Encryption CoD disk drive conversion
5869  5868  No          Encryption CoD disk drive conversion


* Parts removed or replaced become the property of IBM and must be
  returned.
```

Publications

The following publication has been updated to reflect this announcement and will be available by November 19, 2013.

Title	Order number
IBM DS8870 Introduction and Planning Guide	GC27-4209

The following publications are shipped with the DS8000 series:

Title	Order number
IBM DS8000 Series Publications CDROM	98Y5678
IBM DS8000 Series License Documentation CDROM	98Y5818

The publications CD contains the following documents:

Title	Order number
License Agreement for Machine Code	SC28-6872
IBM DS8870 Introduction and Planning Guide	GC27-4209
IBM DS8000 Host Systems Attachment Guide	GC27-4210
IBM DS Command-Line Interface User's for DS8000 series	GC53-4212
IBM System Storage Multipath Subsystem Device Driver User's Guide	GC52-1309
IBM DS Open Application Programming Interface Installation and Reference	GC27-4211
IBM DS8000 series Non-IBM_Licenses_and_Notices-Rel 5.x-6.0, 6.1, 6.2, 6.3, 7.0, 7.1, 7.2	GA32-2204
IBM Warranty Information	GC26-7919
READ ME FIRST for IBM Products	GA32-1061
IBM System Storage Notice Regarding Storage Encryption	45W6389

The license CD contains the following documentation:

Title	Order number
IBM System Storage DS® Storage Mgr R7.2 & CIM Agent for DS Open Application Programming Interface 5.7.2	GC27-3907
IBM International License Agreement for Non-Warranted Programs (ILAN)	98Y2827
Global Mirroring Utilities for ICKDSF Users and Open Systems Environments License Information	GC26-7644

DS8000 publications are available at

http://www.ibm.com/shop/publications/order/

The DS8000 information center is designed to provide comprehensive, browser-based information. It can help provide easy access to tasks, concepts, reference information, tutorials, code samples, scenarios, and other product information. It

contains assistance for the tasks that users must perform and links to additional information. To find information, users can search, browse the contents, use the index, follow links from one topic to related topics, and print the topics they want to read offline.

The information center is available at

http://www.ibm.com/support/publications/us/library/

Services

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http://www.ibm.com/services/

For details on available IBM Business Continuity and Recovery Services, contact your IBM representative or visit

http://www.ibm.com/services/continuity

For details on education offerings related to specific products, visit

http://www.ibm.com/services/learning/index.html

Select your country, and then select the product as the category.

Technical information

EMC conformance

- Taiwan BSMI CNS13438 (Taiwan EMC Standard)
- ACA C-Tick (Australia and New Zealand)

Specified operating environment

Yes

Homologation

This product is certified for connection to interfaces of public telecommunications networks in all countries **except** in the following:

- Haiti
- Honduras
- Moldavia
- Mozambique
- Oman

And the embargoed countries:

- Iraq

- Sudan
- North Korea
- Syria

Hardware requirements

Licensed Machine Code

All features and functions in this announcement are supported on the IBM DS8870 and require DS8000 Licensed Machine Code - level 7.7.20.xx.xx (bundle version 87.20.xxx.xx), or later.

Some DS8000 series features and functions may not be available or supported in all environments. Current information on supported environments, prerequisites, and minimum operating system levels is available at

http://www-03.ibm.com/systems/support/storage/config/ssic

Planning information

Customer responsibilities

Physical configuration planning

Physical configuration planning is a customer responsibility. A marketing specialist can help plan and select the DS8000 series physical configuration and features. Introductory information, including required and optional features, can be found in the *IBM DS8870 Introduction and Planning Guide* (GC27-4209).

Capacity and performance planning assistance is also available. Through the use of Disk Magic, a disk marketing specialist can help plan and anticipate performance characteristics for specific workloads by modeling proposed configurations.

Installation planning

Installation planning is a customer responsibility. Information about planning the installation of a DS8000 series, including equipment, site, and power requirements, can be found in the *IBM DS8870 Introduction and Planning Guide* (GC27-4209).

Logical configuration planning and application

Logical configuration planning is a customer responsibility. Logical configuration refers to the creation of RAID ranks, volumes, and LUNs, and the assignment of the configured capacity to servers.

Application of the initial logical configuration and all subsequent modifications to the logical configuration is a customer responsibility. The logical configuration can be created, applied, and modified using the DS Storage Manager, DS CLI, or DS Open API.

IBM Global Services will also apply or modify the logical configuration (fee-based service).

Licensed Machine Code planning and application

IBM may release changes to the DS8000 series Licensed Machine Code. IBM plans to make the most current DS8000 series Licensed Machine Code changes available for download by the DS8000 series system from the IBM System Storage technical support website. Not all Licensed Machine Code changes may be available through the support website. If the machine does not function as warranted and a problem can be resolved through the application of downloadable Licensed Machine Code, the customer is responsible for downloading and installing these designated Licensed Machine Code changes as IBM specifies. IBM has responsibility for installing changes that IBM does not make available for you to download. The DS8000 series includes many enhancements to make the Licensed Machine Code change process simpler, quicker, and more automated. A request can be made for IBM to install

downloadable Licensed Machine Code changes, however there may be a charge for that service.

Calculating physical and effective capacity

Refer to the *IBM DS8870 Introduction and Planning Guide* (GC27-4209) for capacity calculation guidelines.

Encryption planning

Encryption planning is a customer responsibility. There are three major planning components to the implementation of an encryption environment. Review all planning requirements and include them in the installation considerations.

- Key server planning
- Tivoli® Key Lifecycle Manager (TKLM) planning
- FDE Activation review planning

Key server planning

Key server planning is a customer responsibility. Introductory information, including required and optional features, can be found in the *IBM DS8870 Introduction and Planning Guide* (GC27-4209).

DS8870 requires at least two key servers and associated software for each site which has one or more encryption-enabled DS8000 systems, according to encryption best practices. One server must be isolated and the others can be of any supported key server configuration. Any site that operates independently of other sites must have key servers for the encryption-enabled DS8000 systems at that site.

- DS8000 encryption environments are recommended to configure external Laptop HMC for high availability (feature number 1130).
- It is the customer's responsibility to replicate any key labels and their associated key material across all key servers attached to a given encryption-enabled DS8000 before configuring that key label on the DS8000 .

Dual platform key server planning

DS8000 supports the ability to configure two independent key labels for each encryption-enabled DS8000 . This capability allows the use of two independent key server platforms when one or both key server platforms are using secure-key mode key stores, allowing the isolated key server platform to be used in conjunction with a second key server platform that is operating with a secure-key mode key store.

For customers needing dual platform key server support on the DS8000 system, the installation of TKLM IFIX 2 (TKLM Version 1.0.0.2, or later) is recommended to support displaying both key labels in the GUI. Additionally, for customers who intend to replicate keys between separate z Series Sysplexes using ICSF with the JCECCARACFKS key store in secure key mode and with the secure key configuration flag set in TKLM, TKLM Fix Pack 3 (TKLM Version 1.0.0.3, or later) is required.

Tivoli Key Lifecycle Manager planning

The DS8000 series supports IBM Tivoli Key Lifecycle Manager V2.0 and IBM Security Key Lifecycle Manager V1.1.

```
Program
number      VRM     Program name

5724-T60    2.0.0   IBM Tivoli Key Lifecycle Manager

5608-A99    2.0.0   IBM Tivoli Key Lifecycle Manager (distributed
                      for non-Passport Advantage)
                    IBM Tivoli Key Lifecycle Manager for z/OS® V1.0
```

```
Program
number      VRM      Program name

5698-B35    1.0.0    IBM Security Key Lifecycle Manager for z/OS
5698-B42    1.1.0    IBM Security Key Lifecycle Manager for Storage
```

To support enterprise-wide encryption-key management, a new set of pricing metrics is now available. These pricing metrics are simpler and more comprehensive for devices, users, and server capacity.

For self-encrypting disk drives, the metric is per client device with the disk drive feature number.

For more information on the licensing requirements and pricing of the metric, refer to Software Announcement AP11-0292, dated August 30, 2011 .

Isolated key server ordering options:

- **TKLM isolated key server - feature number 1760:** Isolated key servers ordered with feature number 1760 will have a Linux™ operating system and TKLM software preinstalled.
- **Customer acquired isolated key server:** Refer to the *IBM Tivoli Key Lifecycle Manager Installation and Configuration Guide* (SC27-2741) for hardware and operating system requirements.

Note: Regardless of the ordering method, customers will need to acquire a TKLM license for use of the TKLM software ordered separately from the stand-alone server hardware.

Note: The licensing for TKLM includes both an install license for the TKLM management software as well as licensing for the encrypting drives.

Refer to the following publications:

- *IBM Tivoli Key Lifecycle Manager Quick Start Guide (GI11-8738)*
- *IBM Tivoli Key Lifecycle Manager Installation and Configuration Guide (SC27-2741)*
- IBM Tivoli Key Lifecycle Manager Program Directory (for z/OS) (GI11-4300)

FDE activation review planning

FDE activation is a customer responsibility. IBM FDE offerings must be activated prior to use. This activation is part of the installation and configuration steps required for use of the technology. This installation and activation review is performed by the IBM Systems and Technology Lab Services group.

Send email to

storsvcs@us.ibm.com

Visit the website below and click on "Contact now" to submit your inquiry or request.

http://www-03.ibm.com/systems/services/labservices/platforms/labservices_storage.html

You are responsible for downloading or obtaining from IBM , and installing designated Machine Code (microcode, basic input/output system code (called BIOS), utility programs, device drivers, and diagnostics delivered with an IBM machine) and other software updates in a timely manner from an IBM Internet website or from other electronic media, and following the instructions that IBM provides. You may request IBM to install Machine Code changes; however, you may be charged for that service.

Cable orders

No cables required.

Security, auditability, and control

This product uses the security and auditability features of the host hardware, host software, and application software to which it is attached.

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communications facilities.

IBM Electronic Services

Electronic Service Agent™ and the IBM Electronic Support web portal are dedicated to providing fast, exceptional support to IBM Systems customers. The IBM Electronic Service Agent tool is a no-additional-charge tool that proactively monitors and reports hardware events, such as system errors, performance issues, and inventory. The Electronic Service Agent tool can help you stay focused on your company's strategic business initiatives, save time, and spend less effort managing day-to-day IT maintenance issues. Servers enabled with this tool can be monitored remotely around the clock by IBM Support all at no additional cost to you.

Now integrated into the base operating system of AIX® 5.3, AIX 6.1, and AIX 7.1, Electronic Service Agent is designed to automatically and electronically report system failures and utilization issues to IBM , which can result in faster problem resolution and increased availability. System configuration and inventory information collected by the Electronic Service Agent tool also can be viewed on the secure Electronic Support web portal, and used to improve problem determination and resolution by you and the IBM support team. To access the tool main menu, simply type "smitty esa_main", and select "Configure Electronic Service Agent ." In addition, ESA now includes a powerful Web user interface, giving the administrator easy access to status, tool settings, problem information, and filters. For more information and documentation on how to configure and use Electronic Service Agent , refer to

   http://www.ibm.com/support/electronic

The IBM Electronic Support portal is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. This portal enables you to gain easier access to IBM resources for assistance in resolving technical problems. The My Systems and Premium Search functions make it even easier for Electronic Service Agent tool-enabled customers to track system inventory and find pertinent fixes.

Benefits

Increased uptime: The Electronic Service Agent tool is designed to enhance the Warranty or Maintenance Agreement by providing faster hardware error reporting and uploading system information to IBM Support. This can translate to less wasted time monitoring the "symptoms," diagnosing the error, and manually calling IBM Support to open a problem record. Its 24 x 7 monitoring and reporting mean no more dependence on human intervention or off-hours customer personnel when errors are encountered in the middle of the night.

Security: The Electronic Service Agent tool is designed to be secure in monitoring, reporting, and storing the data at IBM . The Electronic Service Agent tool securely transmits either via the Internet (HTTPS or VPN) or modem, and can be configured to communicate securely through gateways to provide customers a single point of exit from their site. Communication is one way. Activating Electronic Service Agent does not enable IBM to call into a customer's system. System inventory information is stored in a secure database, which is protected behind IBM firewalls. It is viewable only by the customer and IBM . The customer's business applications or business data is never transmitted to IBM .

More accurate reporting: Since system information and error logs are automatically uploaded to the IBM Support center in conjunction with the service request, customers are not required to find and send system information, decreasing the risk of misreported or misdiagnosed errors. Once inside IBM , problem error data is run through a data knowledge management system and knowledge articles are appended to the problem record.

Customized support: Using the IBM ID entered during activation, customers can view system and support information in the "My Systems" and "Premium Search" sections of the Electronic Support Web site at

   http://www.ibm.com/support/electronic

My Systems provides valuable reports of installed hardware and software using information collected from the systems by Electronic Service Agent . Reports are available for any system associated with the customer's IBM ID. Premium Search combines the function of search and the value of Electronic Service Agent information, providing advanced search of the technical support knowledge base. Using Premium Search and the Electronic Service Agent information that has been collected from your system, customers are able to see search results that apply specifically to their systems.

For more information on how to utilize the power of IBM Electronic Services, contact your IBM Systems Services Representative, or visit

   http://www.ibm.com/support/electronic

Terms and conditions

MES Discount Applicable

No

Field Installable Feature

Yes

Warranty period

Machine type 2421: One year

Machine type 2422: Two years

Machine type 2423: Three years

Machine type 2424: Four years

This product is provided with 1 year of standard warranty and additional years of extended warranty services to make these offerings.

Customers should consult with their financial personnel on the appropriate financial treatment for this offering.

Customer setup

No

Licensed Internal Code

Same license terms and conditions as designated machine.

Prices

For all local charges, contact your IBM representative.

AP distribution

```
Country/region            Announce

AP IOT
 ASEAN*                    Yes
 India/South Asia**        Yes
 Australia                 Yes
 People's Republic of China  Yes
 Hong Kong S.A.R of the PRC  Yes
 Macao S.A.R of the PRC    Yes
 Taiwan                    Yes
 Korea                     Yes
 New Zealand               Yes
Japan IOT
 Japan                     Yes
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 *  Brunei Darussalam, Indonesia, Cambodia, Lao People's Democratic
    Republic, Malaysia, Philippines, Singapore, Thailand, and Vietnam
 ** Bangladesh, Bhutan, India, Sri Lanka, Maldives, Nepal, and
    Afghanistan
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