



IBM System Storage DS8000 series (Machine types 2421, 2422, 2423, and 2424) increases data security and flexibility with new self-encrypting drive options

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At a glance

New capabilities for the IBM® System Storage® DS8000® series (Machine types 2421, 2422, 2423, and 2424) include:

- **Storage scalability:** 400 GB Solid State Disk (SSD) drives
- **Data protection:** Additional encryption drive options with easy tier support
- **Thin Provisioning enhancement:** Thin provisioning support for Metro Mirror, Global Mirror, and Metro Global Mirror (open systems only)

Overview

IBM System Storage DS8000 series increases data security and flexibility with new self-encrypting drive options that can support advanced easy tier implementations for multi-tier and single-tier environments.

New options include:

Storage scalability: DS8800 provides 400 GB Solid State Disk (SSD) drives to address application performance requirements.

Data protection:

- DS8800 provides 400 GB SSD encryption drives and 3 TB nearline SAS encryption drives to provide additional capacity option for data protection.
- Easy Tier™ fourth generation can support any type of encryption drives in addition to non-encryption drives.

Thin Provisioning enhancement: Metro Mirror, Global Mirror, and Metro Global Mirror services are now supported on thin provision volumes (open systems).

Key prerequisites

All features and functions in this announcement are supported on the IBM System Storage DS8700 and DS8800, and require a DS8000 licensed machine code as follows:

- IBM System Storage DS8700 - level 7.6.3.xx.xx (bundle version 76.30.xxx.xx), or later.

- IBM System Storage DS8800 - level 7.6.3.xx.xx (bundle version 86.30.xxx.xx), or later.

Planned availability date

April 20, 2012

Description

IBM System Storage DS8000 series is the storage leader in providing high levels of performance, flexibility, scalability, resiliency and total overall value to the most demanding, heterogeneous storage environments.

The DS8800 offers new encryption capable SSD and nearline 7.2K drives. In addition, IBM offers new fourth generation of Easy Tier algorithms, which supports three tiers of either non-encryption or encryption SSD drives, 10K or 15K SAS drives or nearline 7.2K drives in a single system. These features are designed to enhance security and help prevent loss or unauthorized access to business critical data, while maintaining high performance, by intelligently balancing performance requirements for mixed workloads.

Along with enhancements to the DS8000 thin provisioning support for copy services, these technologies are designed to manage resources effectively even during disaster recovery. These improvements are the latest in a series of enhancements delivered by the DS8000 product.

400 GB disk drives offer additional price and performance

IBM System Storage DS8800 now offers 400 GB SSD drive sets which support the eight drive install group of SSD (half disk drive sets) and the sixteen drive install group of SSD (drive sets). The DS8800 400 GB disk drive sets provide additional price, performance, and capacity flexibility to help address specific application and business requirements. 400 GB SSD drives provide more raw capacity than the previously supported 300 GB SSD drives, increasing the total capacity of high-performance drives supported in a DS8800 system.

Feature conversions are available for 400 GB SSD drive sets to exchange existing disk drive sets when purchasing new sets with higher capacity. 400 GB SSD drive sets are optional to the DS8800 and are available with feature numbers 61xx.

Support for 400 GB SSD drives is an included feature of the DS8800 Models 951 and 95E.

Encryption drive options

DS8800 can help address the requirement for data protection for all drive types, not only offering SAS disk drives, but also SSD drives and nearline SAS disk drives. Full Disk Encryption (FDE) drive sets let you encrypt data at rest on a DS8800 series storage controller, helping to mitigate the threat of theft or unauthorized access to business critical data.

The DS8800 series has the capability to allow you to install 400 GB SSD drives and 3 TB 7,200 rpm nearline SAS drives with encryption capability and with key management services supported by Tivoli® Key Lifecycle Manager software (TKLM). The FDE drive sets are optional to the DS8000 series and are available with feature numbers 5xxx and 6x5x. Encryption drive set support must also be ordered via feature number 1751.

The FDE support feature is available only as plant order. Plant-configured encryption-supporting systems will be allowed to increase the number of drive sets installed at the installed location. Intermixing of drives is not supported, thus the entire subsystem is encrypted SAS, nearline SAS, and SSD drives (feature numbers 5xxx or 6x5x).

Additionally, you must complete an environment verification process to confirm best practice configuration of the encryption solution. This verification can be requested from IBM Lab Based Services (recommended), or completed by you, but is a prerequisite of the encryption solution activation process.

z/OS® support of disk encryption will be available on z/OS V1.8, or later.

IBM System Storage Easy Tier fourth generation

IBM System Storage Easy Tier has now enhanced the support of FDE drives. Easy Tier can perform volume migration, auto performance rebalancing in both homogenous and hybrid pools, hot spot management, rank depopulation, and thin provisioning (ESE volumes only) on encrypted drives in addition to the non-encrypted drives.

This enhancement is designed to help increase data security for customers who have single tier or multiple tier systems and still achieve system performance.

Thin provisioning support for Remote Metro Mirror, Global Mirror, and Metro Global Mirror for open systems

The remote mirror function is designed to provide greater protection against planned and unplanned outages. With this enhancement, existing customers that have thin provision volumes on the system and want to use Metro Mirror, Global Mirror, and Metro Global Mirror functions do not need any reconfiguration.

Metro Mirror offers a synchronous, long-distance copy option that constantly updates a secondary copy of a volume to match changes made to a source volume. Global Mirror provides a long-distance remote copy solution across two sites using asynchronous technology. Metro Global Mirror is a three-site, high-availability disaster recovery solution, which uses synchronous replication to mirror data between a local site and an intermediate site, and asynchronous replication to mirror data from an intermediate site to a remote site. The Metro Mirror, Global Mirror, and Metro Global Mirror functions have extended the support of mixing thin provision volumes and logical volumes.

All the new functions introduced in this release will require Licensed Machine Code level 7.6.3.xx.xx, or later, for DS8700 and DS8800.

Release R6.3 LMC supports both DS8700 and DS8800.

Accessibility by people with disabilities

A U.S. 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

Section 508 of the US Rehabilitation Act

The IBM System Storage DS8800 and IBM System Storage DS8800 Expansion Unit are capable, as of October 22, 2010, when used in accordance with IBM's associated documentation, of satisfying the applicable requirements of Section 508 of the Rehabilitation Act, provided that any assistive technology used with the product properly interoperates with it. A U.S. Section 508 Voluntary Product Accessibility Template (VPAT) 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 [110-213](#), dated October 07, 2010 , IBM System Storage DS8800 (Machine type 2421) high-performance flagship high-end disk, one-year warranty model addresses your business and financial needs.
- Hardware Announcement [110-214](#), dated October 07, 2010 , IBM System Storage DS8800 (Machine type 2422) high-performance flagship high-end disk, two-year warranty model addresses your business and financial needs.
- Hardware Announcement [110-218](#), dated October 07, 2010 , IBM System Storage DS8800 (Machine type 2423) high-performance flagship high-end disk, three-year warranty model addresses your business and financial needs.
- Hardware Announcement [110-215](#), dated October 07, 2010 , IBM System Storage DS8800 (Machine type 2424) high-performance flagship high-end disk, four-year warranty model addresses your business and financial needs.

For IBM statement on compliance with 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

Description	Machine type	Model	Feature
DS8700	2421	941	
DS8000 Licensed Machine Code: - DS8000 LMC R6.3			1724
DS8700	2421	94E	
DS8000 Licensed Machine Code: - DS8000 LMC R6.3 indicator			1824

Description	Machine type	Model	Feature
DS8700	2422	941	
DS8000 Licensed Machine Code: - DS8000 LMC R6.3			1724
DS8700	2422	94E	
DS8000 Licensed Machine Code: - DS8000 LMC R6.3 indicator			1824

Description	Machine type	Model	Feature
DS8700	2423	941	
DS8000 Licensed Machine Code: - DS8000 LMC R6.3			1724
DS8700	2423	94E	
DS8000 Licensed Machine Code: - DS8000 LMC R6.3 indicator			1824

Description	Machine type	Model	Feature
DS8700	2424	941	
DS8000 Licensed Machine Code: - DS8000 LMC R6.3			1724
DS8700	2424	94E	

DS8000 Licensed Machine Code:
 - DS8000 LMC R6.3 indicator 1824

Description	Machine type	Model	Feature
DS8800	2421	951	

Disk Enclosure:
 - HD 400 GB SSD enclosure indicator 1245

DS8000 Licensed Machine Code:
 - DS8000 LMC R6.3 1724

Encryption Disk Drive Sets:
 - 3 TB 7.2K FDE half drive set 5858

Encryption Standby CoD Disk Drive Sets:
 - 3 TB 7.2K FDE CoD half drive set 5859

SSD Half Drive Sets:
 - 400 GB SSD half drive set 6106

SSD Drive Sets:
 - 400 GB SSD drive set 6108

Encryption SSD Half Drive Sets:
 - 400 GB SSD FDE half drive set 6156

Encryption SSD Drive Sets:
 - 400 GB SSD FDE drive set 6158

Description	Machine type	Model	Feature
DS8800	2421	95E	

Disk Enclosure:
 - HD 400 GB SSD enclosure indicator 1245

Disk Cables:
 - HD disk drive cable group 5 1249

DS8000 Licensed Machine Code:
 - DS8000 LMC R6.3 indicator 1824

Encryption Disk Drive Sets:
 - 3 TB 7.2K FDE half drive set 5858

Encryption Standby CoD Disk Drive Sets:
 - 3 TB 7.2K FDE CoD half drive set 5859

SSD Half Drive Sets:
 - 400 GB SSD half drive set 6106

SSD Drive Sets:
 - 400 GB SSD drive set 6108

Encryption SSD Half Drive Sets:
 - 400 GB SSD FDE half drive set 6156

Encryption SSD Drive Sets:
 - 400 GB SSD FDE drive set 6158

Description	Machine type	Model	Feature
DS8800	2422	951	

Disk Enclosure:
 - HD 400 GB SSD enclosure indicator 1245

DS8000 Licensed Machine Code:

- DS8000 LMC R6.3	1724
Encryption Disk Drive Sets:	
- 3 TB 7.2K FDE half drive set	5858
Encryption Standby CoD Disk Drive Sets:	
- 3 TB 7.2K FDE CoD half drive set	5859
SSD Half Drive Sets:	
- 400 GB SSD half drive set	6106
SSD Drive Sets:	
- 400 GB SSD drive set	6108
Encryption SSD Half Drive Sets:	
- 400 GB SSD FDE half drive set	6156
Encryption SSD Drive Sets:	
- 400 GB SSD FDE drive set	6158

Description	Machine type	Model	Feature
DS8800	2422	95E	
Disk Enclosure:			
- HD 400 GB SSD enclosure indicator			1245
Disk Cables:			
- HD disk drive cable group 5			1249
DS8000 Licensed Machine Code:			
- DS8000 LMC R6.3 indicator			1824
Encryption Disk Drive Sets:			
- 3 TB 7.2K FDE half drive set			5858
Encryption Standby CoD Disk Drive Sets:			
- 3 TB 7.2K FDE CoD half drive set			5859
SSD Half Drive Sets:			
- 400 GB SSD half drive set			6106
SSD Drive Sets:			
- 400 GB SSD drive set			6108
Encryption SSD Half Drive Sets:			
- 400 GB SSD FDE half drive set			6156
Encryption SSD Drive Sets:			
- 400 GB SSD FDE drive set			6158

Description	Machine type	Model	Feature
DS8800	2423	951	
Disk Enclosure:			
- HD 400 GB SSD enclosure indicator			1245
DS8000 Licensed Machine Code:			
- DS8000 LMC R6.3			1724
Encryption Disk Drive Sets:			
- 3 TB 7.2K FDE half drive set			5858
Encryption Standby CoD Disk Drive Sets:			
- 3 TB 7.2K FDE CoD half drive set			5859
SSD Half Drive Sets:			
- 400 GB SSD half drive set			6106
SSD Drive Sets:			
- 400 GB SSD drive set			6108

Encryption SSD Half Drive Sets:
 - 400 GB SSD FDE half drive set 6156

Encryption SSD Drive Sets:
 - 400 GB SSD FDE drive set 6158

Description	Machine type	Model	Feature
DS8800	2423	95E	

Disk Enclosure:
 - HD 400 GB SSD enclosure indicator 1245

Disk Cables:
 - HD disk drive cable group 5 1249

DS8000 Licensed Machine Code:
 - DS8000 LMC R6.3 indicator 1824

Encryption Disk Drive Sets:
 - 3 TB 7.2K FDE half drive set 5858

Encryption Standby CoD Disk Drive Sets:
 - 3 TB 7.2K FDE CoD half drive set 5859

SSD Half Drive Sets:
 - 400 GB SSD half drive set 6106

SSD Drive Sets:
 - 400 GB SSD drive set 6108

Encryption SSD Half Drive Sets:
 - 400 GB SSD FDE half drive set 6156

Encryption SSD Drive Sets:
 - 400 GB SSD FDE drive set 6158

Description	Machine type	Model	Feature
DS8800	2424	951	

Disk Enclosure:
 - HD 400 GB SSD enclosure indicator 1245

DS8000 Licensed Machine Code:
 - DS8000 LMC R6.3 1724

Encryption Disk Drive Sets:
 - 3 TB 7.2K FDE half drive set 5858

Encryption Standby CoD Disk Drive Sets:
 - 3 TB 7.2K FDE CoD half drive set 5859

SSD Half Drive Sets:
 - 400 GB SSD half drive set 6106

SSD Drive Sets:
 - 400 GB SSD drive set 6108

Encryption SSD Half Drive Sets:
 - 400 GB SSD FDE half drive set 6156

Encryption SSD Drive Sets:
 - 400 GB SSD FDE drive set 6158

Description	Machine type	Model	Feature
DS8800	2424	95E	

Disk Enclosure:

- HD 400 GB SSD enclosure indicator	1245
Disk Cables:	
- HD disk drive cable group 5	1249
DS8000 Licensed Machine Code:	
- DS8000 LMC R6.3 indicator	1824
Encryption Disk Drive Sets:	
- 3 TB 7.2K FDE half drive set	5858
Encryption Standby CoD Disk Drive Sets:	
- 3 TB 7.2K FDE CoD half drive set	5859
SSD Half Drive Sets:	
- 400 GB SSD half drive set	6106
SSD Drive Sets:	
- 400 GB SSD drive set	6108
Encryption SSD Half Drive Sets:	
- 400 GB SSD FDE half drive set	6156
Encryption SSD Drive Sets:	
- 400 GB SSD FDE drive set	6158

Model conversions

There are no new model conversions with this announcement. This is a reminder that model conversions are disruptive. In addition, data may not be preserved during the model conversion.

DS8300 and DS8700 to DS8800 model conversions can only be done using IBM Global Financing. IBM Global Financing can assist with alternatives to convert installed DS8300 and DS8700 to DS8800. Contact IBM Global Services for model conversion upgrade planning solutions. With this program, disruptive upgrades are avoidable. Data migration can be done side by side to reduce implementation time and cost. Returned hardware will be assigned value according to condition.

For more information on IBM Global Financing offerings, visit

<http://www-03.ibm.com/financing/us/lifecycle/acquire/diskx.html>

Feature conversions

Feature conversions (Machine types 2421, 2422, 2423, and 2424 Model 951 and 95E):

SAS to SSD Drive Sets:

Feature From	To	Returned Parts *	Description
2208	6006	Yes	SAS to SSD drive conversion
2208	6008	Yes	SAS to SSD drive conversion
2308	6006	Yes	SAS to SSD drive conversion
2308	6008	Yes	SAS to SSD drive conversion
2608	6006	Yes	SAS to SSD drive conversion
2608	6008	Yes	SAS to SSD drive conversion
2708	6006	Yes	SAS to SSD drive conversion
2708	6008	Yes	SAS to SSD drive conversion
2758	6006	Yes	SAS to SSD drive conversion
2758	6008	Yes	SAS to SSD drive conversion
2208	6106	Yes	SAS to SSD drive conversion

2208	6108	Yes	SAS to SSD drive conversion
2308	6106	Yes	SAS to SSD drive conversion
2308	6108	Yes	SAS to SSD drive conversion
2608	6106	Yes	SAS to SSD drive conversion
2608	6108	Yes	SAS to SSD drive conversion
2708	6106	Yes	SAS to SSD drive conversion
2708	6108	Yes	SAS to SSD drive conversion
2758	6106	Yes	SAS to SSD drive conversion
2758	6108	Yes	SAS to SSD drive conversion

Encryption Standby CoD Disk Drive Sets:

Feature From	To	Returned Parts *	Description
5859	5858	No	Encryption CoD disk drive conversion

SSD Drive Sets:

Feature From	To	Returned Parts *	Description
6006	6106	Yes	SSD drive conversion
6008	6108	Yes	SSD drive conversion
6106	6108	No	SSD drive conversion

Encryption SSD Drive Sets:

Feature From	To	Returned Parts *	Description
6156	6158	No	Encryption SSD drive conversion

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

Business Partner information

If you are a Direct Reseller - System Reseller acquiring products from IBM, you may link directly to Business Partner information for this announcement. A PartnerWorld ID and password are required (use IBM ID).

<https://www.ibm.com/partnerworld/mem/sla.jsp?num=112-010>

Publications

The *IBM System Storage DS8800 and DS8700 Introduction and Planning Guide (GC27-2297)* has been updated to reflect this announcement and will be available by April 10, 2012.

The following CD is included with the DS8000 series:

Title	Order number
IBM System Storage DS8000 Series Documentation CD	P/N 98Y2697

The following documents are on the CD but are not included hardcopy:

Title	Order number
IBM System Storage DS8700 and DS8800 Introduction and Planning Guide	GC27-2297
IBM System Storage DS8000 Host Systems Attachment Guide	GC27-2298

IBM System Storage DS® Command-Line Interface User's Guide for the DS6000 series and DS8000 series	GC53-1127
IBM System Storage DS Open Application Programming Interface Referee	GC35-0516
IBM System Storage Multipath Subsystem Device driver User's Guide	GC52-1309

The following documents are on the CD and are also included hardcopy:

Title	Order number
IBM System Storage DS Storage Mgr R6.2 & CIM Agent for DS Open Application Programming Interface 5.6.2	GC27-3907
IBM Warranty Information	GC26-7919
IBM System Storage DS8000 Licensed Machine Code Agreement	GC26-7918
IBM System Storage Notice Regarding Storage Encryption	GA32-0642
IBM System Storage DS8000 series Non-IBM Licenses_and_Notices-Rel_5.x-6.x	P/N 98Y2826

For DS8000 publications, visit

<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, referee 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

Global Technology Services

IBM services include business consulting, outsourcing, hosting services, applications, and other technology management.

These services help you learn about, plan, install, manage, or optimize your IT infrastructure to be an On Demand Business. They can help you integrate your high-speed networks, storage systems, application servers, wireless protocols, and an array of platforms, middleware, and communications software for IBM and many non-IBM offerings. IBM is your one-stop shop for IT support needs.

For details on available services, contact your IBM representative or visit

<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

Specified operating environment

Hardware requirements

Licensed Machine Code

All features and functions in this announcement are supported on the IBM System Storage DS8000 series and require DS8000 licensed machine code as follows:

- IBM System Storage DS8700 - level 7.6.3.xx.xx (bundle version 76.30.xxx.xx), or later.
- IBM System Storage DS8800 - level 7.6.3.xx.xx (bundle version 86.30.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 online 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. Your disk marketing specialist can help you plan and select the DS8000 series physical configuration and features. Introductory information, including required and optional features, can be found in the *IBM System Storage DS8800 and DS8700 Introduction and Planning Guide (GC27-2297)*.

Capacity and performance planning assistance is also available. Through the use of Disk Magic, your disk marketing specialist can help you 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 your DS8000 series, including equipment, site, and power requirements, can be found in the *IBM System Storage DS8800 and DS8700 Introduction and Planning Guide (GC27-2297)*.

Logical configuration planning and application

Logical configuration planning is a customer responsibility. Logical configuration refers to the creation of RAID ranks, volumes, or 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 your logical configuration (fee-based services).

Licensed Machine Code planning and application

IBM may release changes to the DS8000 series Licensed Machine Code. IBM plans to make most DS8000 series Licensed Machine Code changes available for download by the DS8000 series system from the IBM System Storage technical support website.

Note: Not all Licensed Machine Code changes may be available via the support website. If the machine does not function as warranted and your problem can be resolved through your application of downloadable Licensed Machine Code, you are 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. If you would prefer, you may request IBM to install downloadable Licensed Machine Code changes; however, you may be charged for that service.

Calculating physical and effective capacity

Refer to the *IBM System Storage DS8800 and DS8700 Introduction and Planning Guide (GC27-2297)* 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 your installation considerations.

- Key Server Planning
- Tivoli Key Lifecycle Manager Planning
- Full Disk Encryption 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 System Storage DS8800 and DS8700 Introduction and Planning Guide (GC27-2297)*.

DS8800 requires at least two key servers and associated software for each site which has one or more encryption-enabled DS8000 systems, according to the 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 #1130).

It is the customer's responsibility to replicate any key labels 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 DS8000 , the installation of TKLM IFIX 2 (TKLM Version 1.0.0.2) is recommended to support displaying both key labels in the GUI. Additionally, for customers who intend to replicate keys between separate 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) is required.

Tivoli Key Lifecycle Manager planning

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

Program number	VRM	Program name
5724-T60	1.0.0/ 2.0.0	IBM Tivoli Key Lifecycle Manager
5608-A91	1.0.0	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	1.1.0	IBM Security Key Lifecycle Manager for z/OS
5698-B42	1.1.0	IBM Security Key Lifecycle Manager for Storage

IBM Security Key Lifecycle Manager Version 1.1 is a replacement for Encryption Key Manager for V1.0, V2.0, and V2.1. It supports all of the latest z/OS-enabled (or attached) IBM storage - tape and disk. It is designed to be easier to install and upgrade from Encryption Key Manager.

Isolated key servers ordered with feature number 1760 will have a Linux™ operating system and TKLM software preinstalled. Customers will need to acquire a TKLM license for use of the TKLM software, ordered separately from the standalone server hardware.

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)

Full Disk Encryption Activation review planning

Full Disk Encryption Activation is a customer responsibility. IBM Full Disk Encryption 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/>

Model conversions

DS8300 and DS8700 to DS8800 model conversions are disruptive. In addition, data may not be preserved during the conversion. Data migration or backup/restore is a customer responsibility. Fee-based data migration services are available from IBM Global Services.

For more information on the IBM Global Financing offering, visit

<http://www-03.ibm.com/financing/us/lifecycle/acquire/diskx.html>

IBM Global Finance can assist with alternatives to convert installed DS8300 and DS8700 to DS8800. Contact IBM Global Financing for Model Conversion Upgrade Planning solutions.

Cable orders

Cables are required to connect DS8000 series 8 Gb FCP/FICON host adapters ports to server or fabric ports.

Cables can be purchased using DS8000 series feature numbers. Additional cable options, along with product support services such as installation, are offered by IBM Global Services' Networking Services.

Fibre Channel/FICON (shortwave): Shortwave Fibre Channel and FICON® ports on the DS8000 series require a 50-micron (multimode) fiber optic cable terminated with an LC connector.

Fibre Channel cables can be purchased using feature numbers 141x for 50-micron cables.

Fibre Channel/FICON (longwave): Longwave Fibre Channel and FICON ports on the DS8000 series require either a 9-micron (single mode) or 50-micron (multimode) fiber optic cable terminated with an LC connector. A 50-micron cable is required when the longwave port is operating at a 4 Gb per second transfer rate.

Fibre Channel cables can be purchased using feature numbers 141x for 50-micron cables and numbers 142x for 9-micron cables.

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.

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.

Direct customer support

Direct customer support for the DS8000 series is provided by IBM Operational Support Services - Support Line. This fee service can enhance your productivity by providing voice and electronic access into the IBM support organization. IBM Operational Support Services - Support Line will help answer questions pertaining to product and feature usage (how to), configuration, and product compatibility for eligible products. For a list of the products supported via Support Line, visit the following website

<http://www.ibm.com/services/sl/products/>

For more information on services, call 800-IBM-4YOU (426-4968).

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

IBM has transformed its delivery of hardware and software support services to help you achieve higher system availability. Electronic Services is a Web-enabled solution that offers an exclusive, no-additional-charge enhancement to the service and support available for IBM servers. These services are designed to provide the opportunity for greater system availability with faster problem resolution and preemptive monitoring. Electronic Services comprises two separate, but complementary, elements: Electronic Services news page and Electronic Services Agent.

The Electronic Services news page is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. The news page enables you to gain easier access to IBM resources for assistance in resolving technical problems.

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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.

Pricing

Description	Machine Type	Model	Feature Number
System Storage DS8700	2421	941	
DS8000 Licensed Machine Code: - DS8000 LMC R6.3			1724

Description	Machine Type	Model	Feature Number
System Storage DS8700	2421	94E	
DS8000 Licensed Machine Code: - DS8000 LMC R6.3			1824

Description	Machine Type	Model	Feature Number
System Storage DS8700	2422	941	
DS8000 Licensed Machine Code: - DS8000 LMC R6.3			1724

Description	Machine Type	Model	Feature Number
System Storage DS8700	2422	94E	
DS8000 Licensed Machine Code: - DS8000 LMC R6.3			1824

Description	Machine Type	Model	Feature Number
System Storage DS8700	2423	941	
DS8000 Licensed Machine Code: - DS8000 LMC R6.3			1724

Description	Machine Type	Model	Feature Number
System Storage DS8700	2423	94E	
DS8000 Licensed Machine Code: - DS8000 LMC R6.3			1824

Description	Machine Type	Model	Feature Number
System Storage DS8700	2424	941	
DS8000 Licensed Machine Code: - DS8000 LMC R6.3			1724

Description	Machine Type	Model	Feature Number
System Storage DS8700	2424	94E	

DS8000 Licensed Machine Code:			
- DS8000 LMC R6.3			1824
Description	Machine Type	Model	Feature Number
System Storage DS8800	2421	951	
Disk Enclosure:			
- HD 400 GB SSD enclosure indicator			1245
DS8000 Licensed Machine Code:			
- DS8000 LMC R6.3			1724
Encryption Disk Drive Sets:			
- 3 TB 7.2K FDE half drive set			5858
Encryption Standby CoD Disk Drive Sets:			
- 3 TB 7.2K FDE CoD half drive set			5859
SSD Half Drive Sets:			
- 400 GB SSD half drive set			6106
SSD Drive Sets:			
- 400 GB SSD drive set			6108
Encryption SSD Half Drive Sets:			
- 400 GB SSD FDE half drive set			6156
Encryption SSD Drive Sets:			
- 400 GB SSD FDE drive set			6158

Description	Machine Type	Model	Feature Number
System Storage DS8800	2421	95E	
Disk Enclosure:			
- HD 400 GB SSD enclosure indicator			1245
Disk Cables:			
- HD disk drive cable group 5			1249
DS8000 Licensed Machine Code:			
- DS8000 LMC R6.3 indicator			1824
Encryption Disk Drive Sets:			
- 3 TB 7.2K FDE half drive set			5858
Encryption Standby CoD Disk Drive Sets:			
- 3 TB 7.2K FDE CoD half drive set			5859
SSD Half Drive Sets:			
- 400 GB SSD half drive set			6106
SSD Drive Sets:			
- 400 GB SSD drive set			6108
Encryption SSD Half Drive Sets:			
- 400 GB SSD FDE half drive set			6156
Encryption SSD Drive Sets:			
- 400 GB SSD FDE drive set			6158

Description	Machine Type	Model	Feature Number
System Storage DS8800	2422	951	
Disk Enclosure:			
- HD 400 GB SSD enclosure indicator			1245

DS8000 Licensed Machine Code:
 - DS8000 LMC R6.3 1724

Encryption Disk Drive Sets:
 - 3 TB 7.2K FDE half drive set 5858

Encryption Standby CoD Disk Drive Sets:
 - 3 TB 7.2K FDE CoD half drive set 5859

SSD Half Drive Sets:
 - 400 GB SSD half drive set 6106

SSD Drive Sets:
 - 400 GB SSD drive set 6108

Encryption SSD Half Drive Sets:
 - 400 GB SSD FDE half drive set 6156

Encryption SSD Drive Sets:
 - 400 GB SSD FDE drive set 6158

Description	Machine Type	Model	Feature Number
System Storage DS8800	2422	95E	
Disk Enclosure: - HD 400 GB SSD enclosure indicator			1245
Disk Cables: - HD disk drive cable group 5			1249
DS8000 Licensed Machine Code: - DS8000 LMC R6.3 indicator			1824
Encryption Disk Drive Sets: - 3 TB 7.2K FDE half drive set			5858
Encryption Standby CoD Disk Drive Sets: - 3 TB 7.2K FDE CoD half drive set			5859
SSD Half Drive Sets: - 400 GB SSD half drive set			6106
SSD Drive Sets: - 400 GB SSD drive set			6108
Encryption SSD Half Drive Sets: - 400 GB SSD FDE half drive set			6156
Encryption SSD Drive Sets: - 400 GB SSD FDE drive set			6158

Description	Machine Type	Model	Feature Number
System Storage DS8800	2423	951	
Disk Enclosure: - HD 400 GB SSD enclosure indicator			1245
DS8000 Licensed Machine Code: - DS8000 LMC R6.3			1724
Encryption Disk Drive Sets: - 3 TB 7.2K FDE half drive set			5858
Encryption Standby CoD Disk Drive Sets: - 3 TB 7.2K FDE CoD half drive set			5859
SSD Half Drive Sets: - 400 GB SSD half drive set			6106

SSD Drive Sets:
 - 400 GB SSD drive set 6108

Encryption SSD Half Drive Sets:
 - 400 GB SSD FDE half drive set 6156

Encryption SSD Drive Sets:
 - 400 GB SSD FDE drive set 6158

Description	Machine Type	Model	Feature Number
System Storage DS8800	2423	95E	
Disk Enclosure: - HD 400 GB SSD enclosure indicator			1245
Disk Cables: - HD disk drive cable group 5			1249
DS8000 Licensed Machine Code: - DS8000 LMC R6.3 indicator			1824
Encryption Disk Drive Sets: - 3 TB 7.2K FDE half drive set			5858
Encryption Standby CoD Disk Drive Sets: - 3 TB 7.2K FDE CoD half drive set			5859
SSD Half Drive Sets: - 400 GB SSD half drive set			6106
SSD Drive Sets: - 400 GB SSD drive set			6108
Encryption SSD Half Drive Sets: - 400 GB SSD FDE half drive set			6156
Encryption SSD Drive Sets: - 400 GB SSD FDE drive set			6158

Description	Machine Type	Model	Feature Number
System Storage DS8800	2424	951	
Disk Enclosure: - HD 400 GB SSD enclosure indicator			1245
DS8000 Licensed Machine Code: - DS8000 LMC R6.3			1724
Encryption Disk Drive Sets: - 3 TB 7.2K FDE half drive set			5858
Encryption Standby CoD Disk Drive Sets: - 3 TB 7.2K FDE CoD half drive set			5859
SSD Half Drive Sets: - 400 GB SSD half drive set			6106
SSD Drive Sets: - 400 GB SSD drive set			6108
Encryption SSD Half Drive Sets: - 400 GB SSD FDE half drive set			6156
Encryption SSD Drive Sets: - 400 GB SSD FDE drive set			6158

Description	Machine Type	Model	Feature Number
System Storage DS8800	2424	95E	
Disk Enclosure:			
- HD 400 GB SSD enclosure indicator			1245
Disk Cables:			
- HD disk drive cable group 5			1249
DS8000 Licensed Machine Code:			
- DS8000 LMC R6.3 indicator			1824
Encryption Disk Drive Sets:			
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- 400 GB SSD drive set			6108
Encryption SSD Half Drive Sets:			
- 400 GB SSD FDE half drive set			6156
Encryption SSD Drive Sets:			
- 400 GB SSD FDE drive set			6158

Feature Change Options

Description	Feature number	Install* type	Feature conversion	Feature exchange	Feature Remove
Disk Enclosure:					
- HD 400 GB SSD enclosure indicator	1245	Both	No	No	Yes
Disk Cables:					
- HD disk drive cable group 5	1249	Both	No	No	Yes
DS8000 Licensed Machine Code:					
- DS8000 LMC R6.3	1724	Both	No	No	Yes
- DS8000 LMC R6.3 indicator	1824	Both	No	No	Yes
Encryption Disk Drive Sets:					
- 3 TB 7.2K FDE half drive set	5858	Both	Yes	Yes	No
Encryption Standby CoD Disk Drive Sets:					
- 3 TB 7.2K FDE CoD half drive set	5859	Both	Yes	Yes	No
SSD Half Drive Sets:					
- 400 GB SSD half drive set	6106	Both	Yes	Yes	No
SSD Drive Sets:					
- 400 GB SSD drive set	6108	Both	Yes	Yes	No
Encryption SSD Drive Sets:					
- 400 GB SSD FDE half drive set	6156	Both	Yes	Yes	Yes
- 400 GB SSD FDE drive set	6158	Both	Yes	Yes	No

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

- Feature Conversion: As necessary, IBM service personnel will remove components from the machine and/or install additional components required to complete the conversion.
- Feature Remove: This is an administrative transaction and only updates IBM machine and inventory records, except under the following condition:
 - IBM will remove components from the machine if the Feature Remove is ordered in conjunction with a Feature Add transaction.

Feature conversion purchase price

Feature Conversions (Machine Types 2421, 2422, 2423, and 2424 Models 951 and 95E):

Feature From	To	Returned Parts *	Description	Continuous maintenance
SAS to SSD Drive Sets:				
2208	6006	Yes	SAS to SSD drive conversion	Yes
2208	6008	Yes	SAS to SSD drive conversion	Yes
2308	6006	Yes	SAS to SSD drive conversion	Yes
2308	6008	Yes	SAS to SSD drive conversion	Yes
2608	6006	Yes	SAS to SSD drive conversion	Yes
2608	6008	Yes	SAS to SSD drive conversion	Yes
2708	6006	Yes	SAS to SSD drive conversion	Yes
2708	6008	Yes	SAS to SSD drive conversion	Yes
2758	6006	Yes	SAS to SSD drive conversion	Yes
2758	6008	Yes	SAS to SSD drive conversion	Yes
2208	6106	Yes	SAS to SSD drive conversion	Yes
2208	6108	Yes	SAS to SSD drive conversion	Yes
2308	6106	Yes	SAS to SSD drive conversion	Yes
2308	6108	Yes	SAS to SSD drive conversion	Yes
2608	6106	Yes	SAS to SSD drive conversion	Yes
2608	6108	Yes	SAS to SSD drive conversion	Yes
2708	6106	Yes	SAS to SSD drive conversion	Yes
2708	6108	Yes	SAS to SSD drive conversion	Yes
2758	6106	Yes	SAS to SSD drive conversion	Yes
2758	6108	Yes	SAS to SSD drive conversion	Yes
Feature From	To	Returned Parts *	Description	Continuous maintenance
SSD Drive Sets:				
6006	6106	Yes	SSD drive conversion	Yes

6008	6108	Yes	SSD drive conversion	Yes
6106	6108	No	SSD drive conversion	Yes
Feature From	To	Returned Parts *	Description	Continuous maintenance
Encryption 5859	Standby 5858	No	CoD Disk Drive Sets: Encryption CoD disk drive conversion	Yes
Feature From	To	Returned Parts *	Description	Continuous maintenance
Encryption 6156	SSD Drive 6158	No	Sets: Encryption SSD drive conversion	Yes

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

Pricing terms

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