Overview

HPE Secure Encryption

HPE Secure Encryption is a Smart Array controller-based data encryption solution for ProLiant Gen 8 and Gen9 servers that protects sensitive, mission critical data. HPE Secure Encryption is an enterprise-class encryption solution for data at rest on any bulk storage attached (with the exception of tape or external arrays such as P2000 and P2040) to the supported HPE Smart Array Px3x and Px4x family of controllers. The H24x family of smart Host Bus Adapters (smart HBAs) also supports Secure Encryption when running in RAID mode only. The solution is available for both local and remote key management methodologies. The remote key management mode requires Integrated Lights Out (iLO) Advanced or Scale Out editions v 1.40 or later, and HPE Enterprise Secure Key Manager (ESKM) 3.1 or later release.

Many companies, especially those under government regulations require that sensitive data must be secured and not compromised. HPE Secure Encryption provides encryption for data at rest an important component for complying with government regulations, such as HIPAA and Sarbanes-Oxley, which both have data privacy requirements. HPE Secure Encryption is just one of the solutions in the Hewlett Packard Enterprise data privacy portfolio that includes Data Sanitization and Defective Media Retention (DMR) services.

Models

HPE Secure Encryption	HP Secure Encryption per Svr Entitlement	C9A82AAE

NOTE: HPE Secure Encryption licensing is based on the number of servers requiring encryption enablement. Remote Key Management Mode requires a license for Integrated Lights Out Advanced or Scale Out editions v 1.40 or later, a physical Enterprise Secure Key Manager 3.1 or later appliance (typically sold in a clustered pair), and a client license per HPE ProLiant server connected to the ESKM. See HPE ESKM information for more details.

http://hpe.com/software/eskm

Standard Features

Key Features

Broad Encryption Coverage

- HPE Secure Encryption encrypts the data on both the attached bulk storage and the cache memory of the HPE Smart Array Px3x and Px4x controllers, and H24x smart HBAs running in RAID mode.
- Any Hard Disk Drive or Solid State Drive in the Smart Drive portfolio for HPE ProLiant Gen8 Server or Gen9 Servers, or the Supported Storage Enclosure is supported.

High Availability and Scalability

- Easily scales with the amount of data volume to support privacy requirements.
- Local Key Management Mode provides a simple key management solution, using just HPE SSA, Smart Array Px3x and Px4x controllers, or H24x smart HBAs when running in RAID mode, and Smart Array firmware v 1.50 or later. Remote Key Management mode allows for the central management and secure key storage for all HPE Secure Encryption keys. The HPE Enterprise Secure Key Manager scales to support over 25,000 attached devices and millions of encryption keys.

Simplified Deployment and Management

- Easy management using iLO of the HPE Smart Array Px3x and Px4x controllers, and other direct-attached storage devices, via HPE Smart Storage Administrator.
- The single interface of the HPE Smart Storage Administrator also configures the cryptographic features of HPE Secure Encryption associated with the HPE Smart Array Px3x and Px4x controllers, and H24x smart HBAs.

Helps Users Meet Compliance Regulations such as HIPAA and Sarbanes-Oxley

- Hewlett Packard Enterprise is helping enterprises comply with the data privacy and protection requirements associated with the U.S. Health Insurance Portability and Accountability Act (HIPAA) and the Sarbanes-Oxley Act.
- HPE ESKM 3.1 has completed FIPS 140-2 Level 2 validation, Certificate #1922, and ESKM 4.0 and 4.1 are in process of completion.
- The HPE Smart Array Px3x and Px4x family of controllers has completed FIPS 140-2 Level 1 validation, Certificate #2506 (Px4x).

Automatic Key Management

Encryption keys are automatically created, saved and deleted by the HPE Smart Array Px3x and Px4x controllers, and H24x smart HBAs, without user intervention or knowledge when logical drives are created or deleted.

Compliance

HPE Secure Encryption is designed to meet NIST-approved standards. By example, HPE Secure Encryption utilizes the XTS AES 256 bit algorithm for data encryption specified by NIST. Hewlett Packard Enterprise is in the process of applying for FIPS 140-2 Level 2 validation.

HPE Secure Encryption enables enterprises to comply with the data privacy and protection requirements associated with the U.S. Health Insurance Portability and Accountability Act (HIPAA) and the Sarbanes-Oxley Act.

HPE Data Sanitation and DMR Services are additional compliancy methods offered by HPE Services.

Standard Features

Controller Key Cache (Remote Mode)	HPE Smart Array Px3x and Px4x controllers can optionally store all keys local to the controller required at boot time enabling the server to survive a variety of network outages.
Controller password	Protects the server in the event of theft by applying a secondary password upon boot to prevent unauthorized data access.
Dynamic Encryption	Dynamic encryption allows for a variety of non-disruptive features • The transition between local and remote modes seamlessly • The conversion of non-encrypted logical drives into encrypted logical drives • Rekey services for both data and key wraps
Encryption keys	Data is protected using a series of keys that provide layered protection at the volume and drive levels. The solution utilizes AES 256-bit encryption keys. A master key stored either at the controller level or on the HPE ESKM, is required to "unwrap" each successive layer.
Restrict Data in the Clear	Crypto officer control for the creation of non-encrypted volumes on a secured controller prevents the accidental creation of non-encrypted volumes by unauthorized personnel.
ESKM Key Search (Remote Mode)	Individual Drive Keys are visible by serial number identification on the HPE ESKM to allow for unique tracking and management from a central location. The HPE ESKM supports query by master key name, serial number, server name, bay number, PCI slot, and date.
Firmware Lock	Prevents controller firmware from being modified unintentionally or by unauthorized personnel.
Hardware Based Encryption	Utilizes the HPE Smart Array Px3x and Px4x controller, and H24x smart HBA hardware to accelerate all cryptographic algorithms to secure all data and keys.
HPE ESKM (Remote Mode Only)	HPE Enterprise Secure Key Manager (ESKM) 3.1 or later provides a complete solution for unifying and automating an organization's encryption controls by securely creating, protecting, serving, and auditing access to encryption keys. **NOTE:** For more information on HPE ESKM, visit **http://www.hp.com/go/eskm**
HPE Smart Storage Administrator	HPE Smart Storage Administrator (HPE SSA) v1.60.xx.0 and later provides the configuration and management of the cryptographic features of HPE Secure Encryption associated with the HPE Smart Array Px3x and Px4x controllers, and H24x smart HBA.
Integrated Lights Out	HPE iLO Management is a comprehensive set of embedded management features supporting the complete lifecycle of the server, from initial deployment, through ongoing management, to service alerting and remote support. HPE iLO Management comes standard on all HPE ProLiant Gen8 and Gen9 servers. HPE iLO Advanced or Scale Out editions v 1.40 or later connect and auto register with the HPE ESKM. HPE iLO provides key exchange support between the HPE Smart Array Px3x and Px4x controllers, and the HPE ESKM to enable pre-boot support for OS disk encryption. Audit support is provided for all key management transactions. **NOTE:** For more information on iLO, visit: **http://www.hpe.com/info/ilo**
Instant Volume Erase	Ability to instantly cryptographically erase volumes
Key Rotation Support	Supports the rekeying of all keys utilized by the controller to enable a robust key rotation strategy
Local Key Management Mode	Local Mode is focused on single server deployments where there is one Master Key per controller that is managed by the user. All volumes still have their own unique key(s) for data encryption. **WARNING: Hewlett Packard Enterprise recommends that you keep a record of the Master Keys**

Standard Features

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when encryption is configured in Local Mode. The Local Master Key is never displayed by any available tool or firmware because it is considered a cryptographic secret and should be protected as such. HPE Secure Encryption design follows NIST architecture requirements and does not allow Hewlett Packard Enterprise to assist in the recovery of the Master Key.

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One-way encryption	The HPE Secure Encryption design is such that after a data-at-rest volume is encrypted, it cannot be converted back to plaintext. Restoration of data is required to revert back to plaintext.
Pre-deployment Support	Supports the ability to preconfigure all cryptographic security settings for HPE Smart Array Px3x and Px4x controllers, and H24x smart HBAs, then store the powered off controller for later use while retaining the security settings.
Two Encryption Roles	HPE Secure Encryption supports two roles for managing encryption services, a crypto officer role and a user role that has reduced privileges.
Volume Level Encryption	HPE Secure Encryption provides flexibility in allowing the user to selectively encrypt at the volume level, regardless of RAID level.

Additional Features

Warranty

HPE Secure Encryption has a 90 day media replacement from date of customer purchase. Services and support, beyond the 90 day warranty, is covered through the supported HPE Smart Array controllers. For more information, please reference HPE ProLiant Global Limited Warranty and Technical Support Terms: **http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html**

Service and Support - HPE Technology Services
Capitalizing on HPE ProLiant server and HPE BladeSystem capabilities requires a service partner who understands your increasingly complex business technology environment. That's why it makes sense to team up with the people who know Hewlett Packard Enterprise infrastructure hardware and software best—the experienced professionals at HPE Services.

Protect your business beyond warranty with HPE Care Pack Services
When you buy HPE Options, it's also a good time to think about what level of service you may need. HPE CarePack services provide total care and support expertise with committed response choices designed to meet your IT and business need.

HPE Foundation Care services offer scalable reactive support-packages for Hewlett Packard Enterprise servers and software. You can choose the type and level of service that is most suitable for your IT and business needs. HPE Proactive Care delivers high levels of system availability through proactive service management and advanced technical response.

Recommended HPE Care Pack Services for your HPE product

Optimized Care 3-Year HPE 6-hour Call to Repair Response, Proactive Care
Combined reactive and proactive support for hardware and software helps optimize your systems and delivers high levels of availability through proactive service management and advanced technical response. This includes hardware problem resolution to return the hardware in operating condition within 6 hours of the initial service request. A Technical Account Manager, as your single point of contact, will own your case end-to-end until resolved.
http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855EEE.pdf

HPE Installation of ProLiant Add-On Options Service
This easy-to-buy, easy-to-use HPE Care Pack service helps ensure that your new Hewlett Packard Enterprise hardware or software is installed smoothly, efficiently, and with minimal disruption of your IT and business operations.

Standard Care 3-Year HPE 24x7 4-hour Response, Proactive Care
This service gives you combined reactive and proactive support including rapid access to our Advanced Solution Center to manage and prevent problems, and a Technical Support Specialist with a broad level of technical knowledge that will engage with additional technical expertise as needed from The HPE vast global resources.
http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855EEE.pdf

Related Services HPE Proactive Care Personalized Support - Environmental Option
The Personalized Support option provides an assigned Account Support Manager who can bring best practices from across the industry plus extra technical skills to your IT team. This option is only available as an add-on to HPE Proactive Care Support.

HPE Proactive Select Service

Additional Features

Provides a flexible way to purchase Hewlett Packard Enterprise best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months.
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENN.pdf

Insight Online/Insight Remote Support
HPE Insight Remote Support provides 24 X 7 remote monitoring, proactive notifications, and problem resolution. This comes at no additional cost with your Hewlett Packard Enterprise solution. Learn more about Insight Remote Support **http://www.hpe.com/info/insightremotesupport** and Insight Online
http://h18013.www1.hp.com/products/servers/management/insight-online/index.html

HPE Support Center Personalized online support portal with access to information, tools and experts to support Hewlett Packard Enterprise business products. Submit support cases online, chat with Hewlett Packard Enterprise experts, access support resources or collaborate with peers. Learn more
http://www.hp.com/go/hpsc

The HPE Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now you can get access to personalized IT support anywhere, anytime. HPE Insight Remote Support and HPE Support Center are available at no additional cost with a Hewlett Packard Enterprise warranty, HPE Care Pack or Hewlett Packard Enterprise contractual support agreement.
* The HPE Support Center Mobile App is subject to local availability

Parts and materials Hewlett Packard Enterprise will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services. The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.
For more information To learn more on HPE BladeSystem services, please contact your Hewlett Packard Enterprise sales representative.
http://www.hpe.com/info/services

Related Options

Models

HPE Smart Array Controllers	HPE Smart Array P240nr/1GB FBWC 12Gb 1-port Internal SAS Controller	758801-B21
	HP Smart Array P244br/1GB FBWC 12Gb 2-ports Int SAS Controller	749680-B21
	HP Smart Array P246br/1GB FBWC 12Gb 4-ports Int SAS Controller	726793-B21
	HP Smart Array P430/2GB FBWC 12Gb 1-port Int SAS Controller	698529-B21
	HP Smart Array P430/4GB FBWC 12Gb 1-port Int SAS Controller	698530-B21
	HP Smart Array P431/2GB FBWC 12Gb 2-ports Ext SAS Controller	698531-B21
	HP Smart Array P431/4GB FBWC 12Gb 2-ports Ext SAS Controller	698532-B21
	HP Smart Array P440ar/2GB FBWC 12Gb 2-ports Int SAS Controller	726736-B21
	HP Smart Array P440/4GB FBWC 12Gb 1-port Int SAS Controller	726821-B21
	HP Smart Array P441/4GB FBWC 12Gb 2-ports Ext SAS Controller	726825-B21
	HPE Compute Module Smart Array P542D SAS Cable	815173-B21
	HP Smart Array P731m/2GB FBWC 6Gb 4-ports Ext Mezzanine SAS Controller	698535-B21
	HP Smart Array P741m/4GB FBWC 12Gb 4-ports Ext Mezzanine SAS Controller	726782-B21
	HP Smart Array P830/4GB FBWC 12Gb 2-ports Int SAS Controller	698533-B21
	HP Smart Array P840/4GB FBWC 12Gb 2-ports Int SAS Controller	726897-B21
	HPE Smart Array P840ar/2GB FBWC 12Gb 2-port Internal SAS Controller	843199-B21
	HP Smart Array P841/4GB FBWC 12Gb 4-ports Ext SAS Controller	726903-B21
HPE Smart Host Bus Adapters	HP H240 12Gb 2-ports Int Smart Host Bus Adapter	726907-B21
	HPE H240nr 12Gb 1-port Internal Smart Host Bus Adapter	759553-B21
	HP H241 12Gb 2-ports Ext Smart Host Bus Adapter	726911-B21
	HP H240ar 12Gb 2-ports Int Smart Host Bus Adapter	726757-B21
	HP H244br 12Gb 2-ports Int Smart Host Bus Adapter	726809-B21

HPE Disk Storage Systems

Disk Enclosures

HP D2600 Disk Enclosure	AJ940A

NOTE: Supports 12 LFF drives, and SAS 6Gb/s and SATA 3Gb/s.

HP D2700 Disk Enclosure	AJ941A

NOTE: Supports 25 SFF drives, and SAS 6Gb/s and SATA 3Gb/s.

NOTE: Please see the QuickSpecs for additional information and a list of compatible hard drives:
http://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111697

HPE D6000 Disk Enclosure

HP D6000 Dual I/O Module Disk Enclosure	QQ695A

NOTE: Please see the QuickSpecs for additional information and a list of compatible hard drives:
http://www.hpe.com/h20195/v2/GetHTML.aspx?docname=c04111505

Technical Specifications

HPE Secure Encryption	**Interfaces**	HPE Smart Storage Administrator v1.60.xx.0 HPE iLO4 Advanced or Scale Out Edition HPE ESKM 3.1 or later
	Firmware Requirements	System ROM must be version 1.50 HPE Service Pack for ProLiant must be Version 2014.02.0
	Licensing Requirements	HPE Secure Encryption is a per server license to use (E-LTU) with local mode or remote mode key management. For remote mode using ESKM 3.1 or later appliances, the HPE Secure Encryption license is required per server along with iLO4 (Advanced or Scale Out Edition) and an ESKM ProLiant client license.
	Operating System Support	Please reference this URL: **http://www.hpe.com/info/ossupport** to see compatibility of HPE ProLiant Gen8 and Gen9 to OS supported
	Hardware Requirements:	HPE Secure Encryption supports HPE ProLiant Gen8 and Gen9 servers, HPE Smart Array Px3x and Px4x controllers, HPE 24x smart Host Bus Adapters and HPE ESKM 3.1 or later.
Environment-friendly Products and Approach	**End-of-life Management and Recycling**	Hewlett Packard Enterprise offers end-of-life Hewlett Packard Enterprise product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: **http://www.hp.com/go/green**. To recycle your product, please go to: **http://www.hp.com/go/green** or contact your nearest Hewlett Packard Enterprise sales office. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard Enterprise web site at: **http://www.hp.com/go/green**. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.

Summary of Changes

Date	Version History	Action	Description of Change
29-Apr-2016	From Version 5 to 6	Added	HPE Smart Array P240nr, P542D, P840ar SAS Controllers and HPE Smart HBA H240nr in the Related Options section.
16-Feb-2016	From Version 4 to 5	Changed	Changes made throughout the QuickSpecs.
11-Dec-2015	From Version 3 to 4	Removed	HPE Secure Encryption No Media E-LTU per Drive and HPE Secure Encryption No Media Flexible License per Drive were removed from the QuickSpecs.
08-Jun-2015	From Version 2 to 3	Added	Added HPE Secure Encryption per Server Entitlement.
09-Sep-2014	From Version 1 to 2	Added	HPE Smart Array P244br, P440ar, P440, P441, P840 SAS Controllers were added to Models in the Related Options section. HPE Smart Host Bus Adapters were added to the Related Options section.
		Changed	Changes made throughout the QuickSpecs.

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