

Overview

HPE Smart Array SR Secure Encryption

Do you need a secure encryption for drives on your HPE Gen9 or Gen10 server without a lot of cost or complexity? HPE Smart Array SR Secure Encryption is a controller-based data-at-rest encryption solution for any SAS/SATA drive (with the exception of tape drives) connected to the HPE Smart Array Controller or HPE Smart Host Bus Adapter (see compatibility below). HPE Smart Array SR Secure Encryption is a FIPS 140-2 Level 1 enterprise-class encryption solution that complies with regulations for sensitive data, such as HIPPA and Sarbanes-Oxley. HPE Smart Array SR Secure Encryption is available for HPE ProLiant Gen8, Gen9, and Gen10 servers and for HPE Synergy Gen9 and Gen10 compute modules. Encryption is only supported on RAID volumes when using a controller that supports encryption. Secure Encryption 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 v1.40 or later, and supported remote secure key manager..

What's New!

- See iLO QuickSpecs for new supported remote secure key managers.
 - Additional controllers have completed FIPS 140-2 validation. See below for details.
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Models

HPE Smart Array SR Secure Encryption (Data at Rest Encryption/per Server Entitlement) E-LTU

Q2F26AAE

HPE Smart Array SR Secure Encryption

Notes: HPE Smart Array SR 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 (see QuickSpecs for more information), and requires supported remote secure key manager (typically sold in a clustered pair), and a client license per HPE ProLiant server connected to the remote secure key manager. See supported remote secure key manager options in this document.

HPE Special Reminder: Before enabling encryption on the Smart Array controller module on this system, you must ensure that your intended use of the encryption complies with relevant local laws, regulations and policies, and approvals or licenses must be obtained if applicable.

For any compliance issues arising from your operation/usage of encryption within the Smart Array controller module which violates the above mentioned requirement, you shall bear all the liabilities wholly and solely. HPE will not be responsible for any related liabilities.

Overview

Key Features

- Encryption supported on logical volumes only
- Automatic key management
- Broad encryption coverage
 - Encrypts SAS/SATA drive and controller cache memory
- Compliance with regulations such as HIPAA and Sarbanes-Oxley
- FIPS 140-2 Level 1 validated (see list of validated controllers below)
- High Availability and Scalability
 - Local Key Management Mode
 - Remote Key Management Mode
- Instant volume erase
- Security reset function
- Simplified Deployment and Management

Easy management using via HPE Smart Storage Administrator

Compatibility

Supported Controllers

HPE Smart Array Performance RAID P-class Controllers

HPE Smart Array P816i-a SR Gen10 (16 Int Lanes/4GB Cache/SmartCache) 12G SAS Modular LH Controller	869083-B21
HPE Smart Array P816i-a SR Gen10 (16 Internal Lanes/4GB Cache/SmartCache) 12G SAS Modular Controller	804338-B21
HPE Smart Array P416ie-m SR Gen10 (8 Int 8 Ext Lanes/2GB Cache) 12G SAS Mezzanine Controller	804428-B21
HPE Smart Array P408i-p SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS PCIe Plug-in Controller	830824-B21
HPE Smart Array P408i-c SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS Modular Controller	823856-B21
HPE Smart Array P408i-a SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS Modular LH Controller	869081-B21
HPE Smart Array P408i-a SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS Modular Controller	804331-B21
HPE Smart Array P408e-p SR Gen10 (8 External Lanes/4GB Cache) 12G SAS PCIe Plug-in Controller	804405-B21
HPE Smart Array P408e-m SR Gen10 (8 External Lanes/2GB Cache) 12G SAS Mezzanine Controller	804381-B21
HPE Smart Array P204i-c SR Gen10 (4 Internal Lanes/1GB Cache) 12G SAS Modular Controller	804424-B21
HPE Smart Array P204i-b SR Gen10 (4 Internal Lanes/1GB Cache) 12G SAS Modular Controller	804367-B21

HPE Smart Host Bus Adapters and Smart Array Essential RAID E-class Controllers

HPE Smart Array E208i-p SR Gen10 (8 Internal Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804394-B21
HPE Smart Array E208i-c SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular Controller	823852-B21
HPE Smart Array E208i-a SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular LH Controller	869079-B21
HPE Smart Array E208i-a SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular Controller	804326-B21
HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804398-B21
HPE H240 12Gb 2-ports Int Smart Host Bus Adapter	726907-B21



Standard Features

Automatic key management

Encryption keys are automatically created, saved and deleted by the controller without user intervention or knowledge when logical drives are created or deleted.

Controller key cache (Remote Mode)

HPE Smart Array Performance RAID Controllers (e.g. P408i-a, P816i-a) 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

- Transition between local and remote modes seamlessly
 - Conversion of non-encrypted logical drives into encrypted logical drives
 - Rekey services for both data and key wraps
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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 primary key stored either at the controller level or on the remote secure key manager, is required to "unwrap" each successive layer.

FIPS Validation

HPE Smart Array SR Secure Encryption has been designed to meet National Institute of Standards and Technology (NIST) approved standards. See below for controllers that have completed FIPS 140-2 validation.

FIPS 140-2 Level 1 – Validation Complete (Link)

- HPE Smart Array P816i-a Controller
- HPE Smart Array P416ie-m Controller
- HPE Smart Array P408i-p Controller
- HPE Smart Array P408i-a Controller
- HPE Smart Array P408e-p Controller
- HPE Smart Array P408e-m Controller
- HPE Smart Array P204i-c Controller
- HPE Smart Array P204i-b Controller

FIPS 140-2 Level 1 - Validation Complete (Link)

- HPE Smart Array P840 Controller
- HPE Smart Array P542D Controller
- HPE Smart Array P440ar Controller
- HPE Smart Array P440 Controller
- HPE Smart Array P240nr Controller
- HPE H240nr Smart HBA

FIPS 140-2 Level 1 – Validation Complete (Link)

The validation certificate for these controllers has been moved to the Historical List. HPE is actively engaged in activities to return these controllers to the Validated Modules List.

- HPE Smart Array P741m Controller
- HPE Smart Array P440 Controller
- HPE Smart Array P441 Controller
- HPE Smart Array P246br Controller
- HPE Smart Array P244br Controller



Standard Features

FIPS 140-2 Level 2 – Validation Complete (Link)

The validation for these controllers has been moved to the Historical List. HPE is actively engaged in activities to return these controllers to the Validated Modules List.

- HPE Smart Array P830i Controller
- HPE Smart Array P830 Controller
- HPE Smart Array P731m Controller
- HPE Smart Array P431 Controller
- HPE Smart Array P430 Controller
- HPE Smart Array 230i Controller

Firmware Lock

Prevents controller firmware from being modified unintentionally or by unauthorized personnel.

Supported remote secure key managers (Remote Mode Only)

See the iLO QuickSpecs document for details on supported remote secure key managers.

Notes: For more information on Utimaco ESKM, visit <https://hsm.utimaco.com/products-hardware-security-modules/key-management/eskm/>

For more information on SafeNet AT KeySecure for Government visit: <https://www.safenetat.com/Solutions/Enterprise-Security/crypto-key-management/keysecure-for-government-overview/index.html>

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 Smart Array SR Secure Encryption associated with the controller.

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, Gen9, and Gen10 servers.

HPE iLO Advanced or Scale Out editions v 1.40 or later connect and auto register with the supported remote secure key manager. HPE iLO provides key exchange support between the controllers and the remote secure key manager to enable pre-boot support for OS disk encryption. Audit support is provided for all key management transactions.

Notes: For more information on iLO, visit: <http://www.hpe.com/info/ilo>

Instant Volume Erase

Ability to instantly cryptographically erase volumes



Standard Features

Key Management Modes

Local Key Management Mode provides a simple key management solution, using just HPE SSA. Local Mode is focused on single server deployments where there is one Primary 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 Primary Keys when encryption is configured in Local Mode. The Local Primary Key is never displayed by any available tool or firmware because it is considered a cryptographic secret and should be protected as such. HPE Smart Array SR Secure Encryption design follows NIST architecture requirements and does not allow Hewlett Packard Enterprise to assist in the recovery of the Primary Key.

Remote Key Management Mode allows for the central management and secure key storage for all HPE Smart Array SR Secure Encryption keys. The remote secure key manager scales to support over 25,000 attached devices and millions of encryption keys. Remote Key Management Mode requires Integrated Lights Out (iLO) Advanced or Scale Out editions v1.40 or later, and supported remote secure key manager.

Key Rotation

Supports rekeying of all keys utilized by the controller to enable a robust key rotation strategy.

One-way Encryption

The HPE Smart Array SR 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 while in a server, then store the powered off controller for later use while retaining the security settings.

Security Reset Function

The feature clears all keys and passwords from the controller and places the controller's encryption configuration in a factory new state.

Two Encryption Roles

HPE Smart Array SR 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 Smart Array SR Secure Encryption provides flexibility in allowing the user to selectively encrypt at the volume level, regardless of RAID level.

Warranty

HPE Smart Array SR 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.

HPE Smart Array Secure Encryption Supporting Document

For additional information, see the [HPE Smart Array SR Secure Encryption Installation and User Guide](#).



Service and Support

HPE Support Services

Protect your business beyond warranty with HPE Support Services

HPE Pointnext provides a comprehensive portfolio including Advisory and Transformational, Professional, and Operational Services to help accelerate your digital transformation. From the onset of your transformation journey, Advisory and Transformational Services focus on designing the transformation and creating a solution roadmap. Professional Services specializes in creative configurations with flawless and on-time implementation, and on-budget execution. Finally, operational services provides innovative new approaches like Flexible Capacity and Datacenter Care, to keep your business at peak performance. HPE is ready to bring together all the pieces of the puzzle for you, with an eye on the future, and make the complex simple.

Recommended Support

HPE Proactive Care* with 24x7 coverage, three year Support Service

HPE Proactive Care gives customers an enhanced call experience. When your products are connected to HPE, Proactive Care helps prevent problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice. This Service combines three years proactive reporting and advice with our 24x7 coverage, four hour hardware response time when there is a problem. This service also includes collaborative software support for Independent Software Vendors (ISVs), (Red Hat, VMWare, Microsoft, etc.) running on your HPE servers.

<https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf>

HPE Proactive Care* with 6 hour call-to-repair commitment, three year Support Service

HPE Proactive Care gives customers an enhanced call experience. When your products are connected to HPE, Proactive Care helps prevent problems and maintains IT stability by utilizing personalized proactive reports with recommendations and advice. This Service combines three years' proactive reporting and advice with our highest level of hardware support - HPE's 24x7, six hour hardware call-to-repair. HPE is the only leading manufacturer who makes this level of coverage available as a standard service offering for your most valuable servers. This service also includes collaborative software support for Independent Software Vendors (ISVs), (Red Hat, VMWare, Microsoft, etc.) running on your HPE servers.

<https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA3-8855ENW.pdf>

Notes: HPE Proactive Care and HPE Proactive Care Advanced require that the customer connect their devices to make the most of these services and receive all the deliverables.

HPE Education Services

Keep your IT staff trained making sure they have the right skills to deliver on your business outcomes. Book on a class today and learn how to get the most from your technology investment. <http://www.hpe.com/ww/learn>

HPE Support Center

The HPE Support Center is a personalized online support portal with access to information, tools and experts to support HPE business products. Submit support cases online, chat with HPE experts, access support resources or collaborate with peers.

Learn more <https://support.hpe.com/hpesc/public/home>

HPE's 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 HPE warranty, HPE Support Service or HPE contractual support agreement.

Notes: HPE Support Center Mobile App is subject to local availability



Service and Support

Related Services

HPE Server Hardware Installation

Provides for the basic hardware installation of HPE branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.

<https://www.hpe.com/h20195/V2/GetPDF.aspx/5981-9356EN.pdf>

HPE Installation and Startup Service provides for the installation and startup of HPE technology including BladeSystems, C-Class enclosure, HPE ProLiant c-Class and Integrity server blades, storage blades, SAN switch blades, HPE Virtual Connect modules (Ethernet and Fibre Channel), Ethernet network interconnects, and InfiniBand, as well as the installation of one supported operating system type (Windows® or Linux).

- Warranty and Support Services will extend to include HPE options configured with your server or storage device. The price of support service is not impacted by configuration details. HPE sourced options that are compatible with your product will be covered under your server support at the same level of coverage allowing you to upgrade freely. Installation for HPE options is available as needed. To keep support costs low for everyone, some high value options will require additional support. Additional support is only required on select high value workload accelerators, fibre switches, InfiniBand and UPS batteries over 12KVA. See the specific high value options that require additional support [HERE](#)

Additional Service Information

<http://www.hpe.com/services>

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 quick-specs, 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.



Summary of Changes

Date	Version History	Action	Description of Change
18-Jan-2021	Version 16	Changed	Standard Features Section was updated
03-Feb-2020	Version 15	Changed	Compatibility Section was updated
13-May-2019	Version 14	Changed	Standard Features and Compatibility Sections were updated
15-Oct-2018	Version 13	Changed	Obsolete SKUs were removed
04-Jun-2018	Version 12	Changed	SKU description were updated.
07-May-2018	Version 11	Changed	Overview, Standard Features, Compatibility, and Service and Support sections were updated: Updated Compatibility and FIPS Validation.
		Removed	Obsolete SKUs were deleted: 786087-B21, 698531-B21, 698529-B21, and 698530-B21.
05-Feb-2018	Version 10	Changed	Updated Service and Support
23-Oct-2017	Version 9	Changed	Care Pack naming and Service and Support- Parts and Materials updated.
25-Sep-2017	Version 8	Added	Added compatibility with HPE Smart Array Gen10 Controllers.
		Changed	Overview, Standard Features, Service and Support were revised.
27-Mar-2017	Version 7	Changed	Overview, Standard Features, Additional Features, Related Options, and Technical Specifications sections were updated.
		Added	New SKUs added in Overview and Related Options Sections: Q2F26AAE, 759557-B21, 851508-B21
		Removed	Obsolete SKUs were deleted: C9A82AAE, 815173-B21, 698535-B21, AJ940A, AJ941A, and QQ695A.
29-Apr-2016	Version 6	Added	HPE Smart Array P240nr, P542D, P840ar SAS Controllers and HPE Smart HBA H240nr in the Related Options section.
16-Feb-2016	Version 5	Changed	Changes made throughout the QuickSpecs.
11-Dec-2015	Version 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	Version 3	Added	Added HPE Secure Encryption per Server Entitlement.
09-Sep-2014	Version 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.
18-Feb-2014	Version 1	New	Initial version



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