

Overview

HPE Smart Array SR Secure Encryption

Do you need a secure encryption for drives on your HPE Gen9 and Newer servers 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.

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 P204i-c SR Gen10 (4 Internal Lanes/1GB Cache) 12G SAS Modular Controller	804424-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



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

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.safenet-at.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

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



Standard Features

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 Services

No matter where you are in your digital transformation journey, you can count on HPE Services to deliver the expertise you need when, where and how you need it. From planning to deployment, ongoing operations and beyond, our experts can help you realize your digital ambitions.

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

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No matter where you are in your journey to hybrid cloud, experts can help you map out your next steps. From determining what workloads should live where, to handling governance and compliance, to managing costs, our experts can help you optimize your operations.

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<https://www.hpe.com/services/operational>

HPE Complete Care Service

HPE Complete Care Service is a modular, edge-to-cloud IT environment service designed to help optimize your entire IT environment and achieve agreed upon IT outcomes and business goals through a personalized experience. All delivered by an assigned team of HPE Services experts. HPE Complete Care Service provides:

- A complete coverage approach -- edge to cloud
- An assigned HPE team
- Modular and fully personalized engagement
- Enhanced Incident Management experience with priority access
- Digitally enabled and AI driven customer experience

<https://www.hpe.com/services/completecure>

HPE Tech Care Service

HPE Tech Care Service is the operational support service experience for HPE products. The service goes beyond traditional support by providing access to product specific experts, an AI driven digital experience, and general technical guidance to not only reduce risk but constantly search for ways to do things better. HPE Tech Care Service delivers a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Tech Care Service is available in three response levels. Basic, which provides 9x5 business hour availability and a 2-hour response time. Essential which provides a 15-minute response time 24x7 for most enterprise level customers, and Critical which includes a 6-hour repair commitment where available and outage management response for severity 1 incidents.

<https://www.hpe.com/services/techcare>



Service and Support

HPE Lifecycle Services

HPE Lifecycle Services provide a variety of options to help maintain your HPE systems and solutions at all stages of the product lifecycle. A few popular examples include:

- Lifecycle Install and Startup Services: Various levels for physical installation and power on, remote access setup, installation and startup, and enhanced installation services with the operating system.
- HPE Firmware Update Analysis Service: Recommendations for firmware revision levels for selected HPE products, taking into account the relevant revision dependencies within your IT environment.
- HPE Firmware Update Implementation Service: Implementation of firmware updates for selected HPE server, storage, and solution products, taking into account the relevant revision dependencies within your IT environment.
- Implementation assistance services: Highly trained technical service specialists to assist you with a variety of activities, ranging from design, implementation, and platform deployment to consolidation, migration, project management, and onsite technical forums.
- HPE Service Credits: Access to prepaid services for flexibility to choose from a variety of specialized service activities, including assessments, performance maintenance reviews, firmware management, professional services, and operational best practices.

Notes: To review the list of Lifecycle Services available for your product go to:

<https://www.hpe.com/services/lifecycle>

For a list of the most frequently purchased services using service credits, see the [HPE Service Credits Menu](#)

Other Related Services from HPE Services:

HPE Education Services

Training and certification designed for IT and business professionals across all industries. Broad catalogue of course offerings to expand skills and proficiencies in topics ranging from cloud and cybersecurity to AI and DevOps. Create learning paths to expand proficiency in a specific subject. Schedule training in a way that works best for your business with flexible continuous learning options.

<https://www.hpe.com/services/training>

Defective Media Retention

An option available with HPE Complete Care Service and HPE Tech Care Service and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and services options.

Parts and Materials

HPE 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.

How to Purchase Services

Services are sold by Hewlett Packard Enterprise and Hewlett Packard Enterprise Authorized Service Partners:

- Services for customers purchasing from HPE or an enterprise reseller are quoted using HPE order configuration tools.
- Customers purchasing from a commercial reseller can find services at <https://ssc.hpe.com/portal/site/ssc/>



Service and Support

AI Powered and Digitally Enabled Support Experience

Achieve faster time to resolution with access to product-specific resources and expertise through a digital and data driven customer experience

Sign into the HPE Support Center experience, featuring streamlined self-serve case creation and management capabilities with inline knowledge recommendations. You will also find personalized task alerts and powerful troubleshooting support through an intelligent virtual agent with seamless transition when needed to a live support agent.

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

Consume IT On Your Terms

HPE GreenLake edge-to-cloud platform brings the cloud experience directly to your apps and data wherever they are—the edge, colocations, or your data center. It delivers cloud services for on-premises IT infrastructure specifically tailored to your most demanding workloads. With a pay-per-use, scalable, point-and-click self-service experience that is managed for you, HPE GreenLake edge-to-cloud platform accelerates digital transformation in a distributed, edge-to-cloud world.

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To learn more about HPE Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Contact information for a representative in your area can be found at "Contact HPE"

<https://www.hpe.com/us/en/contact-hpe.html>

For more information

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



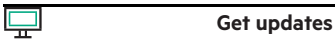
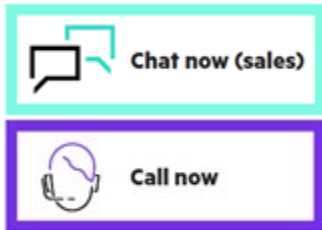
Summary of Changes

Date	Version History	Action	Description of Change
04-Dec-2023	Version 20	Changed	Standard Features Section was updated
11-Sep-2023	Version 19	Changed	Standard Features Section was updated
01-May-2023	Version 18	Changed	Service and Support, Standard Features Sections were updated
15-Nov-2021	Version 17	Changed	Service and Support Section was updated
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 descriptions 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.
27-Mar-2017	Version 7	Changed	Overview, Standard Features, Service and Support were revised.
		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.
		Added	HPE Smart Host Bus Adapters were added to the Related Options section.
18-Feb-2014	Version 1	Changed	Changes made throughout the QuickSpecs.
		New	Initial version



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