

Overview

HPE 3PAR Software Products

HPE 3PAR Software offerings include both the operating system and additional software products that run on the HPE 3PAR Storage System and on Microsoft Windows®, Linux, or UNIX® hosts.

HPE 3PAR All-inclusive Single System Software

HPE 3PAR All-inclusive single system software is bundled with all new 8000, 9000, and 20000 HPE 3PAR arrays. The details of the software titles included with the array are indicated below.

HPE 3PAR All-inclusive Multi-System Software Suite

HPE 3PAR All-inclusive single system software offers enhanced capabilities including remote copy capabilities and storage federation on 8000, 9000, and 20000 arrays.

HPE 3PAR StoreServ Software Suites

HPE 3PAR 7000 and 10000 series arrays provides the opportunity to purchase software bundled into a series of suites designed to be affordable and simple to purchase. Select software titles can also be purchased separately, as indicated below.

Additional HPE 3PAR Software

Additional HPE 3PAR Software Additional software products available for HPE 3PAR 7000 and 10000 Systems offer enhanced capabilities including thin storage technologies, secure partitioning for virtual private arrays, and virtual and remote copy capabilities.

HPE 3PAR Host Software

Host-based software products from HPE 3PAR enable the next-generation HPE 3PAR platform to address the needs of specific application environments, multipathing, and historical performance and capacity management.

What's New

- Refreshed URL links
-

Standard Features

HPE 3PAR All Inclusive Single System Software

HPE 3PAR All Inclusive Single System Software is the foundation software of HPE 3PAR StoreServ 8000, 9000, and 20000 Storage, combining advanced virtualization capabilities with simple storage management, high efficiency, and world class performance. The included comprehensive thin provisioning capabilities allow your storage to start thin, get thin and stay thin. System Tuner, Dynamic Optimization and Autonomic Rebalance help maintain high performance over time. Migrating your existing data from HPE EVA, third party arrays and 3PAR systems to HPE 3PAR StoreServ Storage is easy with the included Online Import license. The included Virtual Copy software enables rapid application recovery-while containing costs with a "thin-aware" implementation that minimizes the amount of physical capacity that is actually being consumed by your data-and without sacrificing performance, availability, or versatility. HPE 3PAR All Inclusive Single System Software is bundled with the HPE 3PAR StoreServ 8000, 9000, and 20000 controllers and is not available for purchase separately.

The HPE 3PAR All Inclusive Single System Software includes the following functionality and features:

- HPE 3PAR Operating System Software
- HPE 3PAR StoreServ Management Console
- HPE 3PAR Virtual Copy
- HPE 3PAR Dynamic Optimization
- HPE 3PAR Adaptive Optimization
- HPE 3PAR Priority Optimization
- HPE 3PAR Virtual Domains
- HPE 3PAR Virtual Lock
- HPE 3PAR File Persona
- HPE 3PAR Smart SAN
- HPE 3PAR Online Import
- HPE 3PAR Host Explorer
- HPE 3PAR System Reporter
- HPE 3PAR Virtual Service Processor (not included in HPE 3PAR StoreServ 20000)
- HPE 3PAR Recovery Manager Central
- HPE 3PAR Recovery Manager Central Application Suite
- HPE 3PAR Host Software

HPE 3PAR All Inclusive Multi-System Software

The HPE 3PAR All Inclusive Multi-System Software optional software package for HPE 3PAR StoreServ 8000, 9000, and 20000 Storage that includes automatic replication and transparent failover enabling seamless disaster recovery for critical data. These features provide an agile, efficient and simple solution to protect against the unpredictable. This software is ideal for virtualized data centers demanding data availability and business continuity 24x7. This package also allows you to federate multiple HPE 3PAR Arrays and non-disruptively move data across the federated arrays. Remote Copy Software dramatically reduces the cost of remote data replication and disaster recovery by leveraging thin copy technology, enabling multi-site and multi-mode replication with both midrange and high-end arrays, and reducing the need for professional services. HPE 3PAR Peer Persistence software enables HPE 3PAR StoreServ systems located at metropolitan distances to act as peers to each other, presenting a nearly continuous storage system to hosts connected to them.

The HPE 3PAR All Inclusive Multi-System Software includes the following functionality and features: Federation

- HPE 3PAR Remote Copy
 - HPE 3PAR Peer Persistence
 - HPE 3PAR Cluster Extension (CLX)
 - HPE 3PAR Peer Motion / Federation
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Standard Features

HPE 3PAR StoreServ Software Suites

The HPE 3PAR StoreServ 7000 and 10000 Storage family provides the opportunity for you to purchase software bundled into a series of suites designed to be affordable and simple to purchase. Select software titles can also be purchased separately, as indicated below.

HPE 3PAR Operating System Software Suite

HPE 3PAR Operating System Software Suite is the foundation software of HPE 3PAR StoreServ 7000 and 10000 Storage, combining advanced virtualization capabilities with simple storage management, high efficiency, and world class performance. The included comprehensive thin provisioning capabilities allow your storage to start thin, get thin and stay thin. System Tuner and Autonomic Rebalance help maintain high performance over time. Migrating your existing data from HPE EVA and 3PAR systems to HPE 3PAR StoreServ Storage is easy with the included 1 year Online Import license. HPE 3PAR SmartStart Software, included in the suite for HPE 3PAR StoreServ 7xxx series, guides you through the configuration of the service processor, StoreServ Storage and the application hosts - making storage setup virtually effortless. HPE 3PAR Operating System Software Suite is a required purchase. The Operating System Suite includes the following functionality and features:

- HPE 3PAR Operating System Software
- HPE 3PAR StoreServ Management Console
- HPE 3PAR 3PAR Online Import (1 year)
- HPE 3PAR Host Explorer
- HPE 3PAR SmartStart (not included in HPE 3PAR StoreServ 10000)
- HPE 3PAR Virtual Service Processor (not included in HPE 3PAR StoreServ 10000)

For more information see <https://www.hpe.com/us/en/product-catalog/storage/storage-software/pip.hpe-3par-operating-system-software-suite.5335612.html>

HPE 3PAR Operating System Software

The software foundation of 3PAR® Utility Storage is the HPE 3PAR Operating System, which utilizes advanced internal virtualization capabilities to increase administrative efficiency, system utilization, and storage performance.

The HPE 3PAR OS includes the following functionality and features:

- HPE 3PAR Web Services API
- HPE 3PAR OS Administration Tools
- HPE 3PAR Rapid Provisioning
- HPE 3PAR Autonomic Groups
- HPE 3PAR Scheduler
- HPE 3PAR Persistent Cache
- HPE 3PAR Persistent Ports
- HPE 3PAR Persistent Checksum*
- HPE 3PAR RAID MP (Multi-Parity)
- HPE 3PAR Full Copy
- HPE 3PAR Access Guard
- HPE 3PAR LDAP Support
- HPE 3PAR Adaptive Flash Cache
- HPE 3PAR Thin Technologies

Notes: *Available on HPE 3PAR StoreServ 8000, 9000, and 20000 platforms only



Standard Features

Product Highlights

HPE 3PAR Access Guard

Access Guard is an HPE 3PAR OS feature that delivers user-configurable volume security at logical and physical levels by enabling you to secure hosts and ports to specific virtual volumes.

HPE 3PAR Autonomic Groups

HPE 3PAR Autonomic Groups is an HPE 3PAR OS software feature that brings a new provisioning paradigm to clustered and virtual server environments by building on the same innovation featured by HPE 3PAR Rapid Provisioning.

Autonomic Groups is designed to reduce room for human error by eliminating manual repetition of tedious commands, thereby making the provisioning process more reliable. This software feature also simplifies reporting by enabling users to pull boot and data disk utilization statistics from different clusters with just a single command.

In addition, when used together with HPE 3PAR Virtual Domains, Autonomic Groups allows multiple independent virtual domains to be grouped as a single logical entity to simplify storage administration while maintaining the integrity of individual virtual domains. For example, backing up an autonomic domain group actually backs up all virtual domains in the group to a single backup server while still maintaining the security and isolation associated with each individual domain.

HPE 3PAR Full Copy

Full Copy is an HPE 3PAR OS feature that allows you to create point-in-time clones with independent service level parameters. Full Copy offers online operations so that the destination clone can be immediately exported, rapid resynchronizations and thin provisioning-awareness.

HPE 3PAR Persistent Cache

HPE 3PAR Persistent Cache is a resiliency feature built into the HPE 3PAR OS that allows "always on" application and virtual server environments to gracefully handle an unplanned controller failure. Persistent Cache eliminates the substantial performance penalties associated with traditional arrays and "write-through" mode so that 3PAR StoreServ Storage Servers can maintain required service levels even in the event of a cache or controller node failure. HPE 3PAR Persistent Cache leverages the clustered HPE 3PAR Architecture with its unique Mesh-Active design to preserve write-caching by rapidly re-mirroring cache to the other nodes in the cluster in the event of a failure. Persistent Cache is supported on all quad-node and larger HPE 3PAR arrays, including StoreServ 7400 and the InServ F400-making 3PAR HPE the only vendor to incorporate this industry-leading service level protection capability into midrange as well as high-end arrays.

HPE 3PAR Persistent Ports

HPE 3PAR Persistent Ports is a Tier 1 resiliency feature that allows for non-disruptive online software upgrades on HPE 3PAR StoreServ Storage systems without relying on multipathing software. This feature, available on all HPE 3PAR StoreServ models, brings increased Tier 1 resiliency, across the StoreServ product line including the midrange platform by ensuring that host paths remain online throughout the software upgrade process. The use of standard NPIV (N_Port ID Virtualization) technology as defined by the Technical Committee T11 in the Fibre Channel -Link Services (FC-LS) specification enables a single host-facing StoreServ port to assume the identity of additional pre-designated partner ports, thus enabling transparent switchover of host path connections. Persistent Port Technology is also designed to work with iSCSI and FcoE connectivity.

Starting from HPE 3PAR OS 3.1.3 Persistent Ports also autonomically fails over a front-end controller node port that experiences physical connection loss from a cable pull or a failed switch; this unique capability, for now is available for FC connectivity only.



Standard Features

HPE 3PAR Persistent Checksum

HPE 3PAR Persistent Checksum: Persistent Checksum is a data integrity feature built in to the HPE 3PAR OS that ensures data integrity to ensure end to end data protection via a T10 Data Integrity Field (DIF). Persistent Checksum addresses media and transmission errors that can be caused by any component in the I/O stack and provides additional protection above FC/Iscsi/ CRC transmissions. With supported HBA's on hosts T10- DIF tags are added and verified on the HPE 3PAR StoreServ Storage system and when host HBA's are not supported T10-DIF tags are added and verified on the array target ports and backend HBA's before data is written to the array drives. This technology is available on systems with GEN5 ASIC only.

HPE 3PAR Autonomic Rebalance

HPE 3PAR Autonomic Rebalance provides the ability to analyze how volumes on the HPE 3PAR Storage System are using physical disk space and makes intelligent, autonomic adjustments to ensure optimal volume distribution when new hardware is added to the system. The best practice is to run the Autonomic Rebalance (Also known as tunesys) after new hardware is added to the system.

HPE 3PAR Web Services API

HPE 3PAR Web Services API delivers a programming interface for implementing durable automation of storage management tasks with HPE 3PAR StoreServ Storage systems. Web Services API provides a well-defined application programming interface that customers can use for incorporating the storage infrastructure into their platform for end-to-end automation of their service delivery and management. The Web Services API implementation is based on RESTful Web API service using HTTPS, principles of REST, and data structures represented with JSON (JavaScript Object Notation).

HPE 3PAR OS Administration Tools

The HPE 3PAR Operating System offers industry-leading ease of use through a simple, unified InForm Management Console and an extremely powerful, scriptable InForm Command Line Interface (CLI). Manage your entire utility storage deployment from a single window, including remote replication to disaster recovery sites. The 3PAR Remote CLI gives you powerful customization capabilities that are simple to configure, eliminating the need for extra tools and consulting. Open administration support is provided via SNMP and the Storage Management Initiative Specification (SMI-S).

HPE 3PAR LDAP

Support Native support for lightweight directory access protocol (LDAP) within the HPE 3PAR OS delivers centralized user authentication and authorization using a standard protocol for managing access to IT resources. With support for LDAP, you can now integrate HPE 3PAR Utility StoreServ Storage with standard, open enterprise directory services. The result is simplified security administration with centralized access control and identity management.

HPE 3PAR RAID MP (Multi-Parity)

HPE 3PAR RAID MP (Multi-Parity) introduces Fast RAID 6 technology backed by the accelerated performance and Rapid RAID Rebuild capabilities of the 3PAR ASIC. 3PAR RAID MP is supported on all HPE 3PAR StoreServ models and delivers extra RAID protection that prevents data loss as a result of double disk failures. RAID MP delivers this enhanced protection while maintaining performance levels within 15% of RAID 10 and with capacity overheads comparable to popular RAID 5 modes. For this reason, 3PAR RAID MP is ideal for large disk drive configurations-for example, Serial ATA (SATA) drives above 1 TB in capacity.

HPE 3PAR Rapid Provisioning

The HPE 3PAR OS eliminates array planning by delivering instant, application-tailored provisioning through the fine-grained virtualization of lower-level components. Provisioning is managed intelligently and autonomically. Massively parallel and fine-grained striping of data across internal resources assures high and predictable service levels for all workload types. Service conditions remain high and predictable as the use of the system grows or in the event of a component failure while traditional storage planning, change management, and array-specific professional services are eliminated.

HPE 3PAR Scheduler

HPE 3PAR Scheduler also helps automate storage management, reduce administration time, and decrease the chance of administrative error. Scheduler does this by giving users full control over creation and deletion of virtual copy snapshots-a process that is now completely automated with HPE 3PAR Utility StoreServ Storage. When used in conjunction with Autonomic Groups, HPE 3PAR Scheduler automates virtual copy snapshots across multiple boot and data volumes with full write consistency across all these different volumes.



Standard Features

HPE 3PAR Adaptive Flash Cache

Adaptive Flash Cache provides DRAM cache extension by leveraging HPE 3PAR first in class virtualization technologies. This functionality allows dedicating a portion of SSDs capacity as an augmentation of the HPE 3PAR Array primary cache, reducing application response time for read-intensive I/O workloads and improving write throughput in mixed workload environments.

HPE 3PAR Thin Technologies

HPE 3PAR Thin Suite is the most comprehensive thin software suite available. With the Thin Suite, virtual and cloud data centers can:

- **Start Thin:** HPE 3PAR Thin Provisioning is the most comprehensive thin provisioning software solution available. Since its introduction in 2002, 3PAR Thin Provisioning has become widely considered the gold standard in thin provisioning. It leverages HPE 3PAR's dedicate-on-write capabilities to make organizations more efficient and more green, allowing them to purchase only the disk capacity they actually need and only as they actually need it.
- **Get Thin:** With HPE 3PAR Thin Conversion, a technology refresh no longer requires a terabyte-for-terabyte replacement, but instead offers the opportunity to eliminate up to 75% of your legacy capacity, simply and rapidly. This savings alone can save up to 60% on the cost of a technology refresh. HPE 3PAR Thin Conversion software makes this possible by leveraging the zero-detection capabilities within the HPE 3PAR ASIC and Thin Engine - HPE 3PAR's unique virtualization mapping engine for space reclamation - to power the simple and rapid conversion of inefficient, "fat" volumes on legacy arrays to more efficient, higher-utilization "thin" volumes on any HPE 3PAR Storage System featuring Thin Built In™.
- **Stay Thin:** With 3PAR Thin Persistence, customers can now leverage next-generation space reclamation technology to minimize storage TCO and maintain environmental responsibility targets they have worked so hard to achieve.

HPE 3PAR Thin Technologies includes the following features:

- Thin Provisioning
- Thin Conversion
- Thin Persistence
- Thin Copy Reclamation
- Thin Deduplication
- Thin Clones
- Thin Copy Reclamation
- Thin Compression

More details about HPE 3PAR Thin Technologies can be found in the HPE 3PAR Thin Technologies White paper available [here](#)



Standard Features

HPE 3PAR File Persona Software

The HPE 3PAR File Persona Software is a feature of the 3PAR OS that enables a rich set of file protocols and core file data services on a converged 3PAR StoreServ system. As a feature of the 3PAR OS, the File Persona inherits the industry leading architecture and Block Persona benefits of 3PAR StoreServ. It extends the spectrum of primary storage workloads natively addressed by 3PAR StoreServ from virtualization, databases, and applications via the Block Persona to also include such as home directory consolidation and user shares, content management and collaboration, data preservation/governance and custom cloud applications via the File Persona – all with one converged controller architecture, one agile capacity group, and one truly unified management GUI and CLI.

The File Persona is supported on the HPE 3PAR StoreServ 7000c, 8000, 9000, and 20000 series systems. It requires the installation of 1GbE or 10GbE network cards for File Persona.

Product Highlights

- Rich file protocols including SMB 3.1.1, 3.0, 2.1, 2.0, and 1.0, NFSv4.0, v3.0 and FTP/FTPS to support a broad range of client operating systems.
- NTFS security mode for near native Windows permission experience with cross-protocol locking complemented with static and dynamic user mapping.
- Object Access API that enables programmatic data access via a REST API for select custom cloud applications from virtually any device anywhere.
- Transparent failover for clients via SMB 3.0 and NFS to allow for non-disruptive 3PAR OS upgrades or in the event of a controller failure.
- Support for native ACLs format with native user/group IDs on disk.
- File Access Auditing framework with integration into 3rd party ISV applications for rich analytics, monitoring and reporting for secured file sharing and meet security regulations for enterprises.
- File Lock for policy-based and ad hoc file level retention and immutability
- Performance acceleration leveraging Adaptive Flash Cache for read intensive workloads.
- Data compaction via Thin Built-In Zero Detect, Thin Provisioning and Thin Persistence, plus data optimization via the separately licensed Adaptive Optimization and Dynamic Optimization.
- Comprehensive data protection with point-in-time File Store snapshots for in place data protection and for user driven file recovery, StoreOnce Recovery Manager Central Express Protect for high-speed protection of entire File Provisioning Groups, support for third party antivirus and data protection software, and disaster recovery replication via Remote Copy from 3PAR Multi-System Software Suite.
- Security of FIPS 140-2 validated Data At Rest Encryption as an optional additional measure to prevent unauthorized data access.
- Seamless integration with a broad range of IT infrastructure. This includes Active Directory, Folder Redirection, Offline Files, Roaming User Profiles, DFS-Namespaces, and Microsoft Management Console for Microsoft-based IT infrastructure. It also includes LDAP and local user authentication for Linux-based IT infrastructure.
- Single management interface for file and block through the 3PAR StoreServ Management Console (SSMC) GUI with a performance dashboard, custom reports capability, scriptable 3PAR OS CLI and management automation via 3PAR WSAPI.



Standard Features

HPE 3PAR Data Optimization Software Suite

The HPE 3PAR Data Optimization Software Suite v2 combines capabilities that provide autonomic storage tiering and dynamic data mobility with assured quality of service. Adaptive Optimization provides highly reliable, non-disruptive, cost-optimized storage tiering at the sub-volume level to deliver the right QoS to the right data at the right time on a large scale and Dynamic Optimization delivers it at the volume level. Peer Motion software enables seamless technology refresh and cost-optimized asset lifecycle management, and lowers technology refresh capital expenditure. Priority Optimization software allows customers to ensure quality of service on HPE 3PAR StoreServ Storage Systems. With Priority Optimization, customers can protect their tenants and environments from unpredictable burst of I/O and maintain predictable SLA for multiple tenants. The Data Optimization Suite v2 bundles the following products:

The Data Optimization Suite v2 bundles the following products:

- HPE 3PAR Adaptive Optimization
- HPE 3PAR Dynamic Optimization
- HPE 3PAR Priority Optimization
- HPE 3PAR Peer Motion

The Data Optimization Software Suite is offered on HPE 3PAR StoreServ 7000, 7450 and 10000 Storage Systems.

HPE 3PAR Replication Software Suite

The HPE 3PAR Replication Software Suite offers automatic replication, transparent failover and Point-in-Time (PIT) copies enabling seamless disaster recovery for critical data. These features provide an agile, efficient and simple solution to protect against the unpredictable. This suite is ideal for virtualized data centers demanding data availability and business continuity 24x7. Remote Copy Software dramatically reduces the cost of remote data replication and disaster recovery by leveraging thin copy technology, enabling multi-site and multi-mode replication with both midrange and high-end arrays, and reducing the need for professional services. Virtual Copy enables rapid application recovery-while containing costs with a "thin-aware" implementation that minimizes the amount of physical capacity that is actually being consumed by your data-and without sacrificing performance, availability, or versatility. HPE 3PAR Peer Persistence software enables HPE 3PAR StoreServ systems located at metropolitan distances to act as peers to each other, presenting a nearly continuous storage system to hosts connected to them.

The Replication Suite includes the following functionality and features:

- HPE 3PAR Virtual Copy
- HPE 3PAR Remote Copy
- HPE 3PAR Peer Persistence

For more information see

<https://www.hpe.com/us/en/product-catalog/storage/storage-software/pip.hpe-3par-replication-software-suite.5335711.html>

HPE 3PAR Security Software Suite

HPE 3PAR Security Software Suite provides secure administrative segregation of users and hosts, allowing individual user groups and applications to confidently share a HPE 3PAR StoreServ Storage system. It also allows you to secure volumes and copies so they cannot be deleted, even by a HPE 3PAR StoreServ Storage user with the highest level privileges. When coupled with reservationless, non-duplicative, read-only virtual copies (snapshots), the Virtual Lock feature enables you to retain frozen, point-in-time copies of your data to assist internal data retention and simplify compliance with internal governance procedures.

The Security Suite includes the following products:

- HPE 3PAR Virtual Domains
- HPE 3PAR Virtual Lock

For more information see

<https://www.hpe.com/us/en/product-catalog/storage/storage-software/pip.hpe-3par-security-software-suite.5335614.html>



Standard Features

HPE 3PAR Reporting Software Suite

HPE 3PAR Reporting Suite provides flexible, simple-to-use performance and capacity management tools that aggregate fine-grained, performance and capacity usage data. It also provides useful information on the volume mapping between the HPE 3PAR StoreServ Storage and the application host.

The Reporting Suite includes the following products:

- HPE 3PAR System Reporter
- HPE 3PARinfo ([electronic download](#))

For more information see

<https://www.hpe.com/us/en/product-catalog/storage/storage-software/pip.hpe-3par-reporting-software-suite.5335619.html>

Individual HPE 3PAR StoreServ Software

- HPE 3PAR OS Additional Software is also offered as individual titles :
- Data at Rest Encryption
- Smart SAN for 3PAR *
- Virtual Copy *
- Remote Copy *
- Peer Persistence *
- Adaptive Optimization *
- Dynamic Optimization *
- Priority Optimization *
- Virtual Domains *
- Virtual Lock *
- Peer Motion *
- Online Import *
- System Reporter *

Notes: *These individual titles are not available a-la-carte for HPE 3PAR StoreServ 8000, 9000, and 20000 platforms as they are part of HPE 3PAR All Inclusive Software.

HPE Smart SAN for 3PAR Software

HPE Smart SAN for HPE 3PAR makes end-to-end SAN configuration and management simple and autonomic, reducing the probability of errors through SAN automation. It is an application embedded in the SAN that leverages components with intelligence from the array (hosts and switches), which enables the 3PAR to automate configuration for settings and policies across the SAN. Smart SAN is only supported on HPE 3PAR storage, HPE B-series Switches, and HPE Q and E 16Gb FC adapters (HBAs). HPE Smart SAN for 3PAR leverages Industry Standards based Peer zoning, called Target Driven Peer Zoning (TDPZ) to automate SAN zoning. Smart SAN features enable customers to automate peer zoning, resulting in the creation of fewer zones, and enables configuration of zones in minutes, not hours, which is the case with traditional manual SAN zoning. Additional information can be found here: <https://www.hpe.com/us/en/product-catalog/storage/storage-software/pip.hpe-smart-san-for-3par.8295863.html>.

Product Highlights

- Protocol agnostic end-to-end SAN management and orchestration from 3PAR StoreServ array enabled via in-band metadata collection
- Standards based— leverages Fibre Channel Standards Technical Committee T11 Peer Zoning
- Automated Target Driven Peer Zoning (TDPZ) makes zoning simple for a HPE 3PAR SAN and hosts and switches
- SAN intelligence automatically collected from HPE B-series and HPE Networking Comware 5900CP Series switches, HPE Networking Comware 5930 Series switches with 24-port CP 2QSFP option, and HPE 16Gb FC adapters: SN1000Q 2P (QW972A), SN1000Q 1P (QW971A) and QLE2560 - 81q (AK344A), QLE2562 - 82q (AJ764A).
- Automatic discovery using FC in-band FC-CT/FDMI access
- From a single point in the fabric, display meaningful information for any device to ease network troubleshooting



Standard Features

- Control through 3PAR CLI Embedded in the firmware and StoreServ Management Console - No additional software needed

HPE 3PAR StoreServ Data at Rest Encryption Software

HPE 3PAR StoreServ Data at Rest Encryption protects data from security breaches. If your application or environment requires data protection from loss of a drive or unauthorized exposure of the data on a drive, then consider this solution. This solution is configured with self-encrypting drives (SEDs) and a secure encryption key. A single array-based Local Key Manager (LKM) authenticates access to the data being read or written to the drives, with no performance impact. An optional External Key Manager (EKM) provides a complete security solution for unifying and automating an organization's encryption controls by securely creating, protecting, serving, controlling, and auditing the encryption keys, both locally and remotely. All HPE 3PAR StoreServ models are available with self-encrypting drives where data is encrypted as it is written to the drive. All data contained on these drives is protected against unauthorized access, including media or hardware theft, tampering, and more.

Product Highlights

- Secure Sensitive Personal Information According to Regulatory Mandates
- Encrypt electronic medical records for HIPAA compliance to provide patient confidentiality from unauthorized or inadvertent disclosure.
- Comply with payment card industry regulations that define requirements for protection of card holder data.
- Protect intellectual property or other sensitive business data by encrypting data.
- Encrypt Data Easily and with no Performance Impact
- All data on the HPE 3PAR StoreServ System is encrypted as it is written to the drives. In the event of a drive failure, the data is protected from unauthorized access.
- The encryption process happens inside the drive architecture without any user intervention.
- Local key manager included with HPE 3PAR StoreServ unlocks all drives in the array for reads and writes. Each encrypted array uses only one authentication key.
- Mitigate Internal and External Risk with Data-At-Rest Encryption
- HPE 3PAR StoreServ system provides proper key management that is critical to maintain separation of duties and protection against improperly cared for disks, or malicious intent from remote office employees.
- Encryption protects against disk drive theft and un-scrubbed disk drives that repurposed.
- Secure your data with Self Encrypting Drives (SED)
- All SEDs are certified by the U.S. National Institute of Standards and Technology (NIST) and Canadian Communications Security Establishment (CSE) as meeting Level 2 security requirements for cryptographic modules as defined in the Federal Information Processing Standards (FIPS) 140-2 Publication.

HPE 3PAR Virtual Copy Software

Built on thin copy technology, HPE 3PAR Virtual Copy is a reservation less, non-duplicative, copy-on-write software product that allows you to protect and share data from any application, affordably. Snapshots are available on demand, instantly, in read-only and/or read-write form. With Virtual Copy, snapshots are reservationless because capacity is never reserved up-front and non-duplicative since changed data is never duplicated within the snapshot tree.

Coupled with consistency groups and support for hundreds of snapshots per base volume, Virtual Copy efficiency delivers affordable, CDP-like rapid application recovery from multiple points in time. With a single command, you can revert a base volume to any selected snapshot-without impacting other snapshots in the tree. And when you delete a snapshot, this never affects peer snapshots.

Virtual Copy also integrates with HPE 3PAR Autonomic Groups and HPE 3PAR Scheduler-both features which are built into the HPE 3PAR Operating System-to automate the creation and deletion of virtual copy snapshots while giving users fine-grained control over the process. When used in conjunction with Autonomic Groups, Scheduler automates the creation of virtual copy snapshots across multiple boot and data volumes with full write consistency across all these different volumes. In combining these software capabilities, storage management is automated to reduce administration time and decrease the chance of human error.



Standard Features

Product Highlights

- Snapshots available instantly, in read-only and/or read-write form.
- Developer-controlled mySnapshot functionality securely replaces/refreshes selected snapshots to speed development without burdening storage administrators.
- Support for consistency groups assures data integrity across volumes.
- Reservationless snapshots. Fine-grained capacity consumed only for changed data.
- Thin copy-on-writes. Changed data is never duplicated within a snapshot tree.
- Snapshots of snapshots for fast, flexible sharing of data sets without the need for additional base volumes.
- Revert to any snapshot with a single command, at any time.
- 256 read/write and 500 read-only snapshots per virtual volume. Affordable CDP-like rapid application recovery from multiple points in time.
- Thin copy-on-write technology and massive parallelism mean little to no performance impact.
- Freely delete snapshots without affecting peer snapshots.

HPE 3PAR Remote Copy Software

HPE 3PAR Remote Copy is a unique replication technology that allows you to protect and share data from any application more simply, efficiently, and affordably. Remote Copy dramatically reduces the cost of remote data replication and DR on several fronts by leveraging HPE 3PAR's unique thin copy technologies, enabling the use of both mid-range and high-end arrays, and eliminating the need for professional services. In addition, HPE 3PAR is the first storage vendor to offer autonomic DR configuration that enables you to set up and test your entire DR deployment—including multi-site replication using both mid-range and high-end arrays—in just minutes, from a single window.

Product Highlights

- **Autonomic Configuration:** With the HPE 3PAR StoreServ Management Console, even multi-site DR can be set up and tested in just minutes, and from a single window. Built-in, autonomic configuration capabilities unique to 3PAR Remote Copy enable DR to configure itself automatically and intelligently. With just a few clicks, you can set up and test remote replication with HPE 3PAR StoreServ, or a combination of arrays at multiple sites.
- **Multi-Protocol Support:** With Native IP as well as Fibre Channel (FC) support, 3PAR Remote Copy delivers out-of-the-box connectivity over your IP network, enabling you to replicate data more cost-effectively by leveraging your existing infrastructure. Achieve robust DR without the expensive converters and management of a separate, special-purpose infrastructure.
- **Host-Independent Replication:** HPE 3PAR Remote Copy is a host-independent, array-based data mirroring solution that boosts performance by offloading host servers of replication tasks. HPE 3PAR Virtual Volumes (VVs) are mirrored from one HPE 3PAR array to another over variable distances using the mode of operation that best fits your needs.
- **Flexible, Modular Architecture:** HPE 3PAR Remote Copy is supported on all StoreServ arrays (both high-end and mid-range), all of which are scalable to meet your precise requirements. This flexibility gives you the ability to implement right-sized systems that meet the unique needs of each location. No more purchasing and managing high-end arrays even in DR configurations where smaller mid-range arrays could suffice. HPE 3PAR Remote Copy also allows you to configure remote mirrors with different RAID properties from their source volumes so you can more precisely tailor protection levels and cost.
- **Balanced Performance:** HPE 3PAR Remote Copy's line-trunking capability simplifies data transmission by making the most efficient use of all configured network links. Data transfers are autonomically balanced across all links, thus avoiding bottlenecks. Line-trunking also increases availability by automatically rebalancing the load in case of a link failure.
- **Long Distance Replication with Zero Data Loss:** HPE 3PAR Remote Copy offers a unique Synchronous Long Distance mode that allows you to meet low RTOs and zero-data loss RPOs with complete distance flexibility while saving on hardware.
- **Thin Provisioning Awareness:** HPE 3PAR Remote Copy is "thin provisioning-aware", so target volumes provide the same cost and ease-of-use benefits as thin source volumes. With the combination of HPE 3PAR Thin Provisioning and HPE 3PAR Remote Copy, both primary and remote sites can share in the benefits of allocating volumes just once while consuming only necessary physical capacity. The result is unprecedented efficiency in data replication.



Standard Features

HPE 3PAR Peer Persistence

HPE 3PAR Peer Persistence software allows companies to federate their 3PAR StoreServ Storage systems across geographically separated data centers. This inter-site federation of storage allows customers to use their data centers more effectively by allowing them to move applications from one site to another as per their business need, and more importantly, without any application downtime.

Peer Persistence leverages the robust high availability solutions already available on HPE 3PAR StoreServ systems, and extends it even further by enabling a peer relationship between two 3PAR StoreServ Storage systems located at geographically separated sites. Peer Persistence enables failover/failback between two sites/data centers to be transparent to hosts and without any disruption to applications running on them. Peer Persistence is deployed with Remote Copy without the need for any additional hardware or appliance

HPE 3PAR Adaptive Optimization

HPE 3PAR Adaptive Optimization Software gives enterprise and cloud datacenters the ability to optimize service levels autonomically, on a large scale, and for a lower total cost than any other solution available today.

Adaptive Optimization takes a fine-grained approach to autonomic storage tiering that optimizes service levels by pairing data at the sub-volume level with the most cost-efficient resource capable of meeting its particular service level requirement. Policy-driven, granular data movement takes place autonomically, on an ongoing basis-so the right Quality of Service (QoS) is delivered to the right data at the right time, at all times.

Adaptive Optimization is also included in the Optimization Suite on HPE 3PAR StoreServ 10000 Storage Systems and in the Data Optimization Software Suite v2 on HPE 3PAR StoreServ 7000 and 7450 Storage.

Product Highlights

- **Reduce Cost by:**
 - Delivering sub-volume level, bi-directional data optimization.
 - Enabling broad deployments with application-specific controls.
- **Gain Agility by:**
 - Offering application prioritization modes with QoS gradients.
 - Autonomically delivering policy-driven data optimization.
- **Minimize Risk by:**
 - Leveraging a proven, fine-grained data movement engine.
 - Controlling data movement timing.

HPE 3PAR Dynamic Optimization

HPE 3PAR Dynamic Optimization is an autonomic storage tiering tool that give your organization the ability to react quickly to changing application and infrastructure requirements. Used together, these unique 3PAR utilities alleviate the problem of costly and time-consuming quality of service (QoS) level optimization-even in the largest and most demanding environments.

Dynamic Optimization is also included in the Optimization Suite on HPE 3PAR StoreServ 10000 Storage Systems and in the Data Optimization Software Suite v2 on HPE 3PAR StoreServ 7000 and 7450 Storage.



Standard Features

Product Highlights

Dynamic Optimization:

- Autonomically applies the right storage resources to the right volume at the right time without scheduling, planning, or impacting application performance.
 - Eliminates the cost of over-provisioning to accommodate usage spikes and manual migration of data to lower-cost storage resources.
 - Enables service level change orders on demand.
 - Aligns appropriate storage resources as needed with the changing value of data.
 - Autonomically, intelligently and non-disruptively rebalances the entire system with a single button.
 - Allows for large-scale performance optimizations after adding new resources to the system or moving a large number of volumes between tiers.
-

HPE 3PAR Virtual Domains

HPE 3PAR Virtual Domains is virtual machine software that delivers secure access and robust storage services for different applications and user groups, also known as virtual private arrays. By providing secure, administrative segregation of users and hosts within a consolidated, massively parallel HPE 3PAR StoreServ, Virtual Domains allows individual user groups and applications to affordably achieve greater storage service levels (performance, availability, and functionality) than previously possible.

HPE 3PAR Virtual Domains is ideal for enterprises or service providers looking to leverage the benefits of consolidation and deploy a purpose-built infrastructure for their private or public cloud.

Product Highlights

- Provides secure, isolated storage (virtual private arrays) to multiple applications, departments, and customers
 - Delivers the robust service levels available from a wide-striped, massively parallel array without sacrificing security
 - Retains the economic benefits of a virtualized storage infrastructure and storage consolidation
 - Enables users or departments to securely and independently administer their own individual virtual private arrays
 - Integrates fully with all HPE 3PAR OS software products and features including 3PAR Remote Copy, System Reporter, LDAF support, and Autonomic Groups
-

HPE 3PAR Virtual Lock Software

The need for secure data retention is a fact of doing business in the information age. HPE 3PAR Virtual Lock gives you an efficient and cost-effective way to comply with internal governance and provides a foundation for performing electronic discovery (eDiscovery).

HPE 3PAR Virtual Lock prevents deletion of virtual volumes (including thin volumes created with HPE 3PAR Thin Provisioning software) and volume copies (such as those created with HPE 3PAR Virtual Copy or HPE 3PAR Full Copy software) for a specified period of time. Applying a user-configurable retention period, Virtual Lock secures volumes and copies so they cannot be deleted, even by a HPE 3PAR Store Serv user with the highest level privileges.

When coupled with reservationless, non-duplicative, read-only virtual copies (snapshots), Virtual Lock enables you to retain frozen, point-in-time copies of your data to assist internal data retention and simplify compliance with internal governance procedures.



Standard Features

HPE 3PAR Peer Motion

HPE 3PAR Peer Motion Software is the first non-disruptive, do-it-yourself data migration tool for enterprise Storage Area Networks. With Peer Motion, HPE 3PAR StoreServ Storage System customers can load balance I/O workloads across systems at will, perform technology refresh seamlessly, cost-optimize asset lifecycle management, and lower technology refresh capital expenditure. Unlike traditional block migration approaches, Peer Motion enables customers to migrate storage volumes between any HPE 3PAR StoreServ Storage Systems online, non-disruptively, and without complex planning or dependency on extra tools. Peer Motion leverages HPE 3PAR Thin Built In™ technology to power the simple and rapid conversion of inefficient, "fat" volumes on source arrays to more efficient, higher utilization "thin" volumes on the destination HPE 3PAR StoreServ Storage System. To ensure a simple and fool-proof data migration and data mobility for workload balancing experience, orchestration of all stages of data mobility is available via either 3PAR Management Console or 3PAR Peer Motion CLI, which is an easy to use, scriptable command line interface tool.

HPE 3PAR Online Import Software

HPE 3PAR Online Import Software is the first do-it-yourself data migration tool for enterprise Storage Area Networks. Unlike traditional block migration approaches, Online Import Software enables customers to migrate storage volumes from either HPE EVA Storage, EMC CX4 or EMC VNX Storage to HPE 3PAR StoreServ Storage systems online and without complex planning or dependency on extra tools.

HPE 3PAR Priority Optimization

HPE 3PAR Priority Optimization Software enables service levels for applications and workloads as business requirements dictate. HPE 3PAR Priority Optimization enables customer to provision storage performance as they can provision storage capacity; this allows them to create SLAs to protect mission critical applications in enterprise environments by assigning a minimum goal for I/O per second, bandwidth and latency so performance for that specific tenant or application is assured. Or assign performance max limits on workloads with lower service level requirements. Provide high priority applications with all the resources they need to meet service levels. Enable certainty and predictability for all applications and tenants. Configure service level objectives-I/O per Seconds limit and I/O Bandwidth limit, on a Virtual Volume Set (VVset) or between different Virtual Domains. A Virtual Volume Set may contain a single volume or multiple volumes. A Virtual Volume may also belong to multiple Virtual Volume Sets allowing user to create hierarchical rules. All host I/O on the VVset is monitored and measured against the Service Level objective. HPE 3PAR Priority Optimization control is implemented within the HPE 3PAR StoreServ Storage System and can be modified in real time. No host agents are required. Further, no physical partitioning of resources within the storage array is required.

HPE 3PAR Service Processor

HPE 3PAR Service Processor is an administrative device available as an appliance or as a physical server. Service Processor collects data from a managed HPE 3PAR StoreServ Storage system in predefined intervals as well as on an on-demand basis. It sends the collected data to Hewlett Packard Enterprise Remote Support, if call home option is configured. The SP also allows service functions to be performed by a company admin, HPE support, or an authorized service provider. The following are the key features:

- Allows user to initialize, restore, update, and configure a service processor.
- Allows user to initialize and configure a storage system.
- Allows monitoring and upgrading of attached storage system, runs pre upgrade checks, post upgrade checks etc.
- Allows monitoring and managing hardware components such as controller nodes, ports, drive enclosures, and physical drives.

It transfers the storage system configuration files, events and logs as well as performance related data back to the HPE headquarters. This will help HPE to remotely monitor the system and provide diagnostic information about potential problems that may occur on the system. HPE alerts the user through email notifications and automatically created support cases so that the user can avert such issues.

For more information see

https://support.hpe.com/hpsc/doc/public/display?docId=emr_na-a00006416de_de



Standard Features

HPE StoreServ Management Console (SSMC)

SSMC is the HPE 3PAR management and reporting console that offers converged management of both File and Block on HPE 3PAR StoreServ Storage systems.

HPE 3PAR SSMC offers a modern look and consistent feel and a common interface and language with HPE Management tools such as HPE OneView. Designed to use the latest API (Application Program Interface) and UI (User Interface) technologies, HPE 3PAR SSMC centralizes all HPE 3PAR StoreServ management under a single pane of glass and offers converged management and reporting for both file and block. Accessible through web-based UI, you can run your operations as HPE 3PAR SSMC tasks with an improved user experience and better responsiveness. All the information you need from HPE 3PAR StoreServ is available at a glance with customizable reporting capabilities, eliminating the need for add-on software tools or diagnostics and troubleshooting. Assess what's happening across the entire data center in seconds via a simple dashboard and you are just one click away from collecting configuration and health information on any resource. HPE 3PAR System Reporter is also fully integrated in SSMC and offers reporting templates, scheduled reports and threshold alerts.

SSMC 3.4 introduces HPE 3PAR **Performance Insights** powered by HPE Infosight for HPE 3PAR StoreServ. These new performance analytics eliminate the guessing and time-consuming work involved with diagnosing bottlenecks and optimizing application performance. Instead of spending time tuning infrastructure with painful trial-and-error, customers are provided automated details that show the root cause of complex anomalies with application-aware insights.

HPE 3PAR Performance Insights offers machine-learned algorithms that are trained in the cloud and deployed on-premises. This capability enables a fast time-to-response and extends HPE Infosight support for dark sites. Following are additional capabilities of HPE 3PAR Performance Insights that helps:

- Identify when performance issue is due to saturation
- Plan workloads better with knowledge of available headroom
- Identify root cause to complex anomalies with application-aware insights automatically

SSMC 3.4 introduces 5 new dashboard panels:

- **Performance & Saturation panel:** This panel shows performance and saturation scores for a single system at a 5-minute granularity over the past 24 hours or the user-selected period.
- **Top Systems by Saturation panel:** This panel lists the top storage systems ranked by their saturation levels over the past 24 hours or the user-selected period.
- **Top Performance Outlier:** This panel lists the top storage systems ranked according to their performance severity scores over the past 24 hours or the user-selected period.
- **Top Volume Hotspots by IOPS:** This panel gives a listing of volumes ranked by IOPS at each 5-minute granularity. Volumes are ranked by weighted average based on number of times they experience high IOPS. This average is calculated over the past 24-hour period or the user-selected period.
- **Top Volume Hotspots by Latency:** This panel gives a listing of volumes ranked by latency at each 5-minute granularity. Volumes are ranked by weighted average based on number of times they experience high latency. This average is calculated over the past 24-hour period or the user-selected period.

For more information see

https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=SSMC_CONSOLE



Standard Features

HPE Recovery Manager Central

Protect your business-critical application data on your HPE 3PAR StoreServ Storage without impacting performance using HPE RMC software. With this automated, non-intrusive software, the simplicity and performance of local and remote snapshots can be combined with the reliability and cost-effective retention of deduplicated backups to protect any application data stored on 3PAR arrays. Based on your RTO objectives, retain multiple space-efficient snapshots on the 3PAR array itself or offload them to a StoreOnce Backup system using fast, efficient, Express Protect Backups. Based on your RPO objectives, generate as many application-consistent recovery points as desired for VMware VMs, MS SQL and Oracle databases or automate the protection workflow for any application data on 3PAR using the RMC REST API SDK. Administrators can be assured of recovery from application-consistent snapshots on the 3PAR StoreServ Storage array as well as application-consistent backups on the StoreOnce system. RMC software is installed as a VMware virtual appliance on a virtual machine.

RMC is very easy to deploy and set up using just a few simple clicks. The RMC installer can be downloaded from the HPE Software Depot (<http://www.hpe.com/storage/rmc/swdepot>) and installed on any Windows server with a connection to a VMware ESXi host, supported primary storage arrays and StoreOnce systems. This one-time installer wizard guides the user to go through a set of pre-flight checks to evaluate environmental readiness and helps the user deploy RMC as a Virtual Appliance on a VMware Virtual Machine (VM).

RMC at its basic level, leverages 3PAR Virtual Copy Software to create crash-consistent snapshots on the 3PAR StoreServ storage array to protect any application data with point-in-time copies. In addition, RMC comes with application-specific plug-ins for VMware, MS SQL and Oracle to quiesce those applications and enable creation of application-consistent snapshots. Furthermore, with the RMC “Express Protect” technology, backups are carried out directly between 3PAR and StoreOnce systems through the RMC VM. Express Protect Backups to StoreOnce using RMC and the StoreOnce Catalyst interface are fast and efficient compared to traditional methods because only the changed blocks are moved over the wire. With average deduplication ratios of 20:1, StoreOnce ensures efficient use of backup storage space. Recovery is also fast and reliable, because all backups stored on StoreOnce are “synthetic fulls” or self-contained volumes and available for recovery instantly – back to the original or different storage array, even if the original base volume is lost. Furthermore, keeping your backups on a separate platform such as StoreOnce ensures fault isolation from data loss risks that array-based snapshots and replication technologies are susceptible to. For additional disaster recovery needs, RMC also supports StoreOnce Catalyst Copy for copying Express Protect Backups to one or more remote StoreOnce appliances.

RMC also provides a programmable interface via a REST API SDK

(<http://www.hpe.com/storage/rmc-sdk>) for scripting purposes, which can be used to integrate the snapshot and backup management capabilities on supported platforms with your business applications. As long as the users know how to script quiescence for their particular application, they can use those scripts along with RMC API-based scripts to ensure snapshots and backups are application-consistent. This can be done for any application, for which there is a way to quiesce the application or put it in a backup mode, before triggering the RMC APIs to create the snapshots and initiate Express Protect Backups.

VMware administrators can access all of this functionality from within the familiar VMware vCenter management console. Oracle and MS SQL Server administrators can access all of this functionality from the user-friendly RMC GUI, which can also be launched directly from a link within the MS SQL Studio management interface.

For more information see <http://www.hpe.com/storage/rmc>



Standard Features

HPE Recovery Manager Central – Application plug-ins

HPE Recovery Manager Central provides integration with specific hypervisor/application environments through the following plug-ins.

HPE Recovery Manager Central for VMware (RMC-V): allows VMware administrators to create hundreds of application consistent snapshots and initiate rapid online recovery of VMs directly from within the VMware vCenter™ Server virtualization management console using a few simple clicks. Individual VMs or files within a VM can be recovered granularly from within a snapshot. Additionally, using the StoreOnce RMC Express Protect feature, customers can also backup to and recover from StoreOnce directly. Element Recovery Technology (ERT) enables granular recovery of an individual VM or files within a VM from an Express Protect backup on StoreOnce, thus providing the same recovery experience from both snapshots and backups, depending on Recovery Point Objectives (RPO) / Recovery Time Objectives (RTO).

HPE Recovery Manager Central for SQL (RMC-S): allows SQL database administrators to create, schedule and manage SQL-application consistent snapshots on a 3PAR array. Recovery of SQL databases and instances is simple, fast and efficient. Additionally, the RMC Express Protect feature enables automatic flat backup of SQL data volumes from HPE 3PAR to StoreOnce. The backups are self-contained volumes that can be restored back to the original or different 3PAR StoreServ array in the event of a disaster.

HPE Recovery Manager Central for Oracle (RMC-O): allows Oracle database administrators to create, schedule and manage Oracle-application consistent snapshots on a 3PAR array. Recovery of Oracle single-instance databases and Real Application Clusters (RAC) configurations are simple, fast and efficient. Additionally, the RMC Express Protect feature enables automatic flat backup of Oracle data volumes from HPE 3PAR to StoreOnce. The backups are self-contained volumes that can be restored back to the original or different 3PAR StoreServ array in the event of a disaster. Currently supported for Oracle running on RHEL or Oracle Linux environments. For Oracle running on Solaris, HP-UX or IBM AIX environments, check out the section on 3PAR Recovery Manager for Oracle.

HPE 3PAR Application Software Suite for Exchange

HPE 3PAR Application Suite for Exchange provides administrators the power of seamless, rapid online recovery of Microsoft Exchange application. It is an extension to Virtual Copy which enables creation of application consistent snapshots without sacrificing performance, availability or versatility.

The Application Suite for Exchange includes the following functionality and features:

- HPE 3PAR Recovery Manager for Exchange
- HPE 3PAR VSS hardware provider

For more information see

<https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=HP3PARRME>

HPE 3PAR Application Software Suite for Microsoft Hyper-V

HPE 3PAR Application Suite for Hyper-V provides administrators the power of seamless, rapid online recovery of Microsoft Hyper-V VMs. It is an extension to Virtual Copy which enables creation of application consistent snapshots without sacrificing performance, availability or versatility.

The Application Suite for Hyper-V includes the following functionality and features:

- HPE 3PAR Recovery Manager for Hyper-V
- HPE 3PAR VSS hardware provider

For more information see

<https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=HP3PARRMHV>



Standard Features

HPE 3PAR Integrations with VMware EcoSystems

HPE Storage Plug-Ins for VMware provide value added management, monitoring, and automation integration for VMware environments through VMware® vCenter™ and VMware vRealize plug-ins that manage HPE Storage systems. When deployed together, VMware vSphere and HPE 3PAR StoreServ Storage deliver a compelling virtual data center solution that increases overall resource utilization, provisioning agility, application availability, administrative efficiency, and reduces both capital and operating costs. A tightly integrated experience includes:

- **HPE OneView for VMware vCenter** enables vSphere administrators to quickly obtain context-aware information and manage supported HPE storage devices in their VMware vSphere environment directly from within vCenter. HPE 3PAR Management Software Plug-In for VMware vCenter, VMware® administrators can provision and monitor HPE 3PAR volumes from within the vSphere console for increased productivity.
- **HPE 3PAR Plug-In for VMware vRealize Orchestrator** provides support for HPE 3PAR arrays in VMware vRealize Orchestrator (vRO) to automate simple or very complex tasks to support day-to-day management, decrease time-to-rollout of new services, and decrease human error when performing large numbers of operations.
- **HPE 3PAR Plug-In for VMware vRealize Operations Manager and Log Insight** support for vROPS enables HPE 3PAR StoreServ performance monitoring from an integrated VMware console.
- **HPE 3PAR Storage Replication Adapter for VMware Site Recovery Manager** provides a foundation for disaster recovery and business continuity solutions. VMware SRM offers centralized management of recovery plans, non-disruptive testing, and automated site recovery, failback and migration processes. HPE 3PAR SRA software orchestrates storage replication provided by HPE 3PAR Remote Copy to ensure the highest performing and most reliable disaster protection for virtualized applications.

For more information see

<https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=HPEVMW>

HPE 3PAR Integrations with Microsoft System Center and PowerShell:

HPE OneView for Microsoft System Center

HPE OneView for Microsoft System Center provides you with a single-pane-of-glass monitoring view of physical, virtual and cloud environments. Detailed information on virtual storage infrastructures such as volumes, LUNs, and hosts as well as HPE 3PAR StoreServ Storage array properties and capacity utilization is made possible through the HPE Fabric Management Add-in for System Center Virtual Machine Manager (SCVMM). The HPE Storage Management Pack for Microsoft System Center Operations Manager (SCOM) provides automated installation and discovery, as well as event monitoring and HPE 3PAR StoreServ Storage alerts without ever leaving SCOM. HPE OneView for Microsoft System Center provides comprehensive integration with Microsoft System Center (SCOM and SCVMM) to enable management and monitoring of HPE 3PAR Storage running in Microsoft Hyper-V environments. It includes:

- **HPE 3PAR Management Pack for SCOM** (to discover and monitor pre-defined rules to display events/alerts, capacity & health dashboards)
- **HPE Fabric Management Add-in for SCVMM** software (integrated view of VMs, Hosts, LUNs, CPGs and associated storage resources on HPE 3PAR Storage)
- **HPE 3PAR Storage** also enables all Storage Management functionality provided by Microsoft System Center Virtual Machine Manager (SCVMM) via SMI-S providers.

For more information see

https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=System_Center



Standard Features

HPE 3PAR StoreServ Storage PowerShell Toolkit

HPE 3PAR StoreServ Storage PowerShell Toolkit provides storage administrators the convenience of managing HPE 3PAR StoreServ Storage Systems from a Microsoft Windows PowerShell environment.

For more information see

<https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=3PARPSToolkit>

HPE 3PAR Integrations with Community EcoSystems – OpenStack, Containers, Ansible, Puppet and Chef

HPE 3PAR Volume Plug-in for Docker Containers

HPE 3PAR Volume Plug-in for Docker Containers enables portability, agility, and accelerated application delivery. As enterprises transition into deploying stateful mission-critical applications, persistent data storage, performance, availability, and protection of application data becomes critical. The integration of HPE 3PAR with Docker, Kubernetes, Red Hat® OpenShift, Mesosphere DC/OS, and SUSE CaaS platforms enables dynamic provisioning of storage, Quality of Service (QoS), snapshots, clones, replication of data volumes along with high performance delivered by the underlying storage platform with guaranteed six 9s availability. The integration also enables migrating legacy data volumes into containers paving way for modernizing traditional workloads with containers. The integration is made possible with HPE 3PAR Volume Plug-in for Docker, HPE FlexVolume driver and Dynamic Provisioner for Kubernetes. HPE 3PAR is Docker certified and is also a Red Hat OpenShift Primed partner.

For more information see

<https://www.hpe.com/us/en/product-catalog/storage/storage-software/pip.hpe-persistent-storage-for-containers.1010431028.html>

HPE 3PAR Cinder and Manila Drivers for OpenStack

HPE 3PAR Cinder and Manila Drivers for OpenStack provides the flexibility and cost-effectiveness of a highly resilient cloud-based open-source platform that meets the requirements of your mission-critical applications. With OpenStack support, HPE 3PAR StoreServ Storage enables:

- High performance to meet peak demands
- Non-disruptive scalability to easily support storage growth
- Increased efficiency and extended flash media lifespan
- Effortless storage administration to lower operational costs and reduce time to value

For more information see

<https://www.hpe.com/us/en/product-catalog/storage/storage-software/pip.openstack-device-management-software.1008537377.html>

HPE 3PAR Configuration Management Tools

HPE 3PAR Configuration Management Tools enabling developer-friendly tools to consume Infrastructure as Code in delivering cloud-like automation benefits on-premises. The SDKs in Ruby and Python enable DevOps teams to programmatically manage HPE 3PAR storage using their language of choice. In addition, the **HPE 3PAR cookbook for Chef**, **HPE 3PAR modules for Puppet** and **HPE 3PAR module and playbook for Ansible** provide IT Ops teams to automate storage provisioning and storage management tasks on HPE 3PAR with configuration management tools eliminating manual error-prone process.

For more information see

<https://www.hpe.com/us/en/product-catalog/storage/storage-software/pip.hpe-storage-toolkits-for-configuration-management.1010454285.html>



Standard Features

HPE 3PAR Application Software Suite for Oracle

HPE 3PAR Recovery Manager for Oracle is an extension to Virtual Copy which enables creation of application consistent snapshots without sacrificing performance, availability or versatility. Recovery Manager for Oracle supports Oracle environments running on Solaris, HP-UX and IBM AIX platforms. For Oracle running on RHEL or Oracle Linux, check out HPE Recovery Manager Central (RMC) for Oracle.

The Application Suite for Oracle database includes the following functionality and features:

- HPE 3PAR Recovery Manager for Oracle

For more information see

<https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=HP3PARRMO>

HPE Storage plug-in for SAP LVM

HPE Storage plug-in for SAP Landscape Virtualization Manager (LVM) is a high-performance and easy-to-use software to manage SAP landscapes in physical, virtual and cloud environments using HPE 3PAR Storage. It enables customers to Clone/Refresh SAP Systems and relocate them across physical and virtual infrastructure reducing the administrative effort to manage the SAP landscape and improve productivity. It enhances the flexibility in making development and test data consistent with the production data and provides simple visualization to monitor and manage SAP Systems running on HPE 3PAR Storage.

For more information see:

https://h20392.www2.hpe.com/portal/swdepot/displayProductInfo.do?productNumber=SAP_LVM

HPE StoreFront Remote SaaS Portal

The HPE StoreFront Remote SaaS Portal provides proactive tools and integrated data collection from the HPE 3PAR StoreServ Storage arrays that call home to deliver unique insights and analytics all in one dashboard. Identify capacity and performance issues early through intuitive capacity and performance trend analysis and forecasting. These valuable analytics help maximize asset utilization and optimize the datacenter with recommendations and remedial actions when issues arise.

HPE 3PAR Host Software

The following are host-based software products from HPE 3PAR.

HPE 3PAR Host Explorer: Running as an agent on the server, 3PAR Host Explorer automates host discovery and collection of detailed host configuration information critical to speeding provisioning and simplifying maintenance. Host Explorer automatically and securely communicates host information such as Fibre Channel Worldwide Name (WWN) and host multipath data to the array to reduce manual administration.

HPE 3PAR Multipath I/O for IBM AIX: 3PAR MPIO for IBM AIX provides multipathing for IBM®AIX® hosts featuring multiple active/active paths, load balancing, and automatic failover and recovery.

HPE 3PAR Multipath I/O for Microsoft Windows 2003: 3PAR MPIO for Microsoft Windows 2003 provides multipathing for Microsoft Windows® hosts featuring multiple active/active paths, load balancing, and automatic failover and recovery.

HPE 3PAR Cluster Extension Software: HPE 3PAR Cluster Extension Software offers rapid automated protection against application downtime from fault, failure, or site disaster. CLX integrates with the Windows OS clustering software and HPE 3PAR Remote Copy to automate failover and failback between sites. The HPE 3PAR Cluster Extension Software is part of the HPE 3PAR Replication Suite for 8000 and 20000 models, however host-based license is needed for the 7000 and 10000 models.

HPE 3PAR Policy Server

HPE 3PAR Policy Server works to implement customer-configurable remote service access policies. Installed on a customer-provided host, Policy Server provides the customer with ultimate flexibility and control to allow or deny outbound communication or remote service connections to and from an HPE 3PAR StoreServ Storage system. Policy Server also serves as the centralized point for collecting and storing audit logs of all diagnostic data transfers and authorized remote service connections to and from all configured HPE 3PAR Storage systems.



Standard Features

HPE 3PAR Policy Server provides the following benefits:

- The customer has complete control over policy administration.
- A centralized policy administration for all HPE 3PAR Storage systems is provided.
- A centralized audit log to facilitate security audits is provided.

HPE 3PAR StoreServ Software Media

The part numbers below are media kits for all 3PAR Software products. Electronic and physical media kits options are available.

HPE 3PAR Software Licensing Schemes

HPE 3PAR follows multiple licensing schemes for different software offerings. There are Five different licensing schemes those are largely employed across the HPE 3PAR software portfolio. They are the spindle based licensing, simplified spindle based licensing, capacity based licensing, frame based licensing and All Inclusive. The frame based licensing approach requires that the HPE 3PAR software offering is licensed only once for the system. The following list shows the HPE 3PAR software products which follow the frame based licensing approach:

- HPE 3PAR Online Import Software
- HPE 3PAR Reporting Software Suite
- HPE 3PAR Recovery Manager for VMware vSphere
- HPE 3PAR Recovery Manager for Microsoft Exchange
- HPE 3PAR Recovery Manager for Oracle
- HPE 3PAR Recovery Manager for Microsoft SQL Server
- HPE 3PAR Application Software Suite for VMware
- HPE 3PAR Application Software Suite for Exchange
- HPE 3PAR Application Software Suite for SQL
- HPE 3PAR Application Software Suite for Microsoft Hyper-V
- HPE 3PAR Application Software Suite for Oracle

The spindle based licensing approach requires a HPE 3PAR software offering to be licensed based on each drive or drive magazine installed on the HPE 3PAR Storage system. There are two different models followed based on this licensing mechanism - the spindle based licensing and the simplified spindle based licensing.

In the spindle based licensing approach, there is a different SKU available for each combination of drive capacity and drive type. Based on the specific drives being purchased for a HPE 3PAR Storage system, the corresponding software SKU needs to be purchased. This purchase should be done for all the drives on the system irrespective of the number of drives or nodes or capacity of the system.

In the simplified spindle based licensing approach, every software title has a Base LTU which needs to be purchased once for a system. For every drive or drive magazine added to the system thereon, a drive LTU (for 7000) or a drive magazine LTU (for 10000) must be purchased for the system respectively. The drive LTU or the drive magazine LTU for a particular platform is a single SKU irrespective of the drive type or drive capacity. Furthermore, based on the type of HPE 3PAR Storage system, there is a specific number of drives beyond which any software title is not required to be purchased for that system.

The All-Inclusive licensing approach bundles all software titles that work on a single array as part of the array controller. Software titles that need more than one array to function are in the optional multi-system All-Inclusive license.



Standard Features

HPE 3PAR StoreServ 10000 Software Suites Upgrade Options

The HPE 3PAR StoreServ 10000 Storage now provides the opportunity for you to upgrade your individual software title(s) to an appropriate lower priced and simpler to use software suite. The upgrade can be done by the purchase of upgrade LTUs corresponding to the software titles already available in your system, as indicated below

HPE 3PAR StoreServ 8000 and 20000 Transition Enablement for All-Inclusive Software

The HPE 3PAR StoreServ 8000 and 20000 Storage now provides the opportunity for you to upgrade your individual software title(s) to a simpler to use All Inclusive Software scheme. The upgrade can be done by the purchase of transition enablement LTUs corresponding to the array model as indicated below



Service and Support

HPE Services - Service and Support

Get the most from your HPE Products. Get the expertise you need at every step of your IT journey with **HPE Services Services**. We help you lower your risks and overall costs using automation and methodologies that have been tested and refined by HPE experts through thousands of deployments globally. HPE Services **Advisory Services** focus on your business outcomes and goals, partnering with you to design your transformation and build a roadmap tuned to your unique challenges. Our **Professional** and **Operational Services** can be leveraged to speed up time-to-production, boost performance and accelerate your business. HPE Services specializes in flawless and on-time implementation, on-budget execution, and creative configurations that get the most out of software and hardware alike.

Consume IT on your terms

HPE GreenLake 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 accelerates digital transformation in a distributed, edge-to-cloud world.

- Get faster time to market
- Save on TCO, align costs to business
- Scale quickly, meet unpredictable demand
- Simplify IT operations across your data centers and clouds

Managed services to run your IT operations

HPE GreenLake Management Services provides services that monitor, operate, and optimize your infrastructure and applications, delivered consistently and globally to give you unified control and let you focus on innovation.

Free up resources with Operational Services from HPE Services

HPE delivers services for IT by using proven best practices as well as automation and methodologies that have been tested and refined by HPE experts and artificial intelligence through thousands of deployments globally. Choose from the recommended services for customers purchasing from Hewlett Packard Enterprise or an authorized reseller. Services are quoted using Hewlett Packard Enterprise order configuration tools.

Recommended Services

HPE Tech Care Service.

HPE Tech Care Service is the new operational service experience for HPE products. Tech Care 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 has been reimagined from the ground up to support 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>

HPE Complete Care Service

HPE Complete Care Service is a modular, edge-to-cloud IT environment service that provides a holistic approach to optimizing your entire IT environment and achieving agreed upon IT outcomes and business goals through a personalized and customer-centric 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/completechcare>



Service and Support

Related Services

HPE Storage Efficiency Analysis - HPE Storage Efficiency Analysis (SEA) combine tool-based fact gathering and The Hewlett Packard Enterprise expertise for a quick path to identify immediate issues and their resolution, and helps customer realize the benefits of HPE Storage Technology

<https://h20195.www2.hpe.com/V2/GetPDF.aspx/4aa3-9475enw.pdf>

HPE Storage Impact Analysis - This service provides an assessment service to analyze your current storage and evaluate the impact of change to the infrastructure. It is ideal for customers looking to achieving top utilization of your storage technology and assessing the likely impact of data growth and future projects that require storage.

HPE Storage Modernization service: Storage Modernization helps customers seamlessly position themselves to integrate the latest technological advancements in storage effectively. It helps clients modernize, reduce costs, and improve quality of service through the execution of process and technology changes to achieve demand management.

<https://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA5-8498ENW.pdf>

HPE 3PAR StoreServ Storage Installation and Startup Service - Onsite deployment of your HPE 3PAR StoreServ Storage, helping to ensure proper installation into your storage environment.

<https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=4AA5-8035ENW> HPE 3PAR

All-inclusive Single-system Software Installation and Startup Service - Deployment of your licensed HPE 3PAR software products into operation (note HPE Online Import, Recovery Manager Central, and Smart SAN are excluded from this service, separate services are available to deploy these features)

<https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=4AA6-6549ENW>

HPE 3PAR All-inclusive Multi-system Software Installation and Startup Service - Provides a limited implementation of your licensed HPE 3PAR software products into operation, more advanced implementation is available via the HPE Data Replication Solution Service (note HPE Cluster Extension is excluded from this service, a separate service is available to deploy this feature)

<https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=4AA6-6385ENW>

HPE 3PAR Software Installation and Startup Service - Support for deployment of licensed HPE 3PAR software products into operation <https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=4AA5-8036ENW>

HPE StoreServ Data Migration Service - End-to-end data migration service providing seamless discovery, assessment, planning, and design, completely customizable to your organization's storage area network (SAN) or network attached storage (NAS) environment and using innovative software to help you migrate to HPE storage quickly and efficiently

HPE Data Replication Solution Service - Advanced configuration of real-time data mirroring or snapshot capabilities of 3PAR Remote Copy and 3PAR Virtual Copy to safeguard your critical business information.

Remote Copy: <https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=4AA3-8627ENW>

Virtual Copy: <https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=4AA3-8107ENW>

HPE SAN Deployment Service - Complete design and implementation service for Fibre Channel, FCoE, FCIP, SAS, and iSCSI SAN connectivity components <https://www.hpe.com/psnow/doc/5981-8527enw>

HPE 3PAR Adaptive Optimization Policy Implementation Service - Analysis, recommendations, and implementation of HPE 3PAR Adaptive Optimization policies to enable storage tiering using data collected from your HPE 3PAR storage over time

<https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=4AA6-4611ENW>



Service and Support

HPE Storage Virtual Volume Design and Implementation Service - Activities your organization needs to design and implement a new LUN, virtual volume, or virtual disk (Vdisk) configuration.

<https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=4AA2-3764ENW>

HPE Thin Volume Conversion Service - Evaluation and execution of conversion from standard to thin provisioned volumes for HPE 3PAR StoreServ Storage for when you are looking to optimize the utilization of HPE 3PAR StoreServ Storage by improving capacity utilization and performance <https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=4AA6-4611ENW>

HPE 3PAR StoreServ Health Check - Assessment of the overall health and supportability of your HPE 3PAR StoreServ Storage <https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=4AA4-3404ENW>

HPE Performance Analysis Service - Data collection, detailed input/output (I/O) analysis, and enhancement recommendations to improve HPE 3PAR StoreServ Storage disk array performance, stability, and availability by identifying potential problems and understanding the possible solutions that will help avoid them <https://www.hpe.com/psnow/doc/5982-6668enw>

HPE 3PAR Rebalance Service - Planning and coordinating activities led by HPE Storage Services professionals to deliver a successful disk array rebalance, including creation and implementation of a rebalance service plan, verification tests to confirm product functionality, and an orientation session to review changes made to the system.

<https://h20195.www2.hpe.com/v2/Getdocument.aspx?docname=4AA4-0280ENW>

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

For more information

- Operational Support Services: <http://www.hpe.com/services/support>
- Professional Services: <http://www.hpe.com/services/lifecycleevent>
- Consulting Services: <http://www.hpe.com/services/storage>

To learn more about HPE Storage Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner.

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

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

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.



Configuration Information

Description

SKU

The HPE 3PAR All Inclusive Multi-System Software Models

HPE 3PAR 8200 All-in Multi-system SW LTU	L7E69A
HPE 3PAR 8400 All-inclusive Multi-system Software LTU	L7E70A
HPE 3PAR 8440 All-in Multi-system SW LTU	L7E71A
HPE 3PAR 8450 All-inclusive Multi-system Software LTU	L7E72A
HPE 3PAR 9450 All-inclusive Multi-system Software LTU	L7F04A

Notes: Insert AE at the end of a part number above for an electronic LTU (e.g. XXXXBAE). E-Delivery should be ordered with any Standalone or Upgrade software order.

HPE 3PAR StoreServ Data at Rest Encryption Software Models

HPE 3PAR 8200 Data Encryption LTU	L7B67A
HPE 3PAR 8400 Data Encryption LTU	L7B91A
HPE 3PAR 8440 Data Encryption LTU	L7C15A
HPE 3PAR 8450 Data Encryption LTU	L7C39A
HPE 3PAR 9450 Data Encryption LTU	L7F18A

Notes:

- Insert AE at the end of a part number above for an electronic LTU (e.g. XXXXBAE). E-Delivery should be ordered with any Standalone or Upgrade software order.
- Data at Rest Encryption Software is not available as part of the HPE 3PAR All Inclusive Single System Software or HPE 3PAR All Inclusive Multi-System Software and has to be ordered independently.

HPE 3PAR StoreServ 8000 and 20000 Transition Enablement for All-inclusive Software

HPE 3PAR 8200 Transition Enablement for All-inclusive Software	L7E73A
HPE 3PAR 8400 Transition Enablement for All-inclusive Software	L7E74A
HPE 3PAR 8440 Transition Enablement for All-inclusive Software	L7E75A
HPE 3PAR 8450 Transition Enablement for All-inclusive Software	L7E76A

Notes: Insert AE at the end of a part number above for an electronic LTU (e.g. XXXXBAE). E-Delivery should be ordered with any Standalone or Upgrade software order.



Technical Specifications

The following table shows the maximum drive limits for each of the HPE 3PAR Storage systems that support the simplified spindle based licensing approach:

HPE 3PAR StoreServ Storage	Maximum number of drives for licensing*	Comments
HPE 3PAR StoreServ 7200 Storage	48 drives	-
HPE 3PAR StoreServ 7200c Storage	48 drives	-
HPE 3PAR StoreServ 7400 Storage	168 drives	-
HPE 3PAR StoreServ 7400c Storage	168 drives	-
HPE 3PAR StoreServ 7440c Storage	320 drives	-
HPE 3PAR StoreServ 7450 Storage	no limit	-
HPE 3PAR StoreServ 7450c Storage	168 drives	-
HPE 3PAR StoreServ 10400 Storage	320 drives	80 drive magazines
HPE 3PAR StoreServ 10800 Storage	640 drives	160 drive magazines

Notes: For a simplified spindle based software offering no further licensing is required for a system beyond these drive counts. HPE 3PAR StoreServ 8000, 9000, and 20000 arrays with All-inclusive licensing does not require licenses for each drive and hence does not have maximum drive limit.

The capacity based licensing approach is limited to specific software titles and restricted to specific 3PAR StoreServ model. For the replication software titles available on 3PAR StoreServ 10000, the capacity based licensing approach involves licensing the software product based on the provisioned usable capacity in the system that is marked for any of the replication functions. For example, if a customer plans to use HPE 3PAR Remote Copy for replication of a 16TB volume (Fully provisioned) to a DR site, then 16TB of HPE 3PAR Remote Copy licenses need to be purchased for that particular system. Please note that the provisioned usable capacity of volume allocated as target of replication on the DR site, should also be licensed in the same way. Capacity based licensing is also available for the HPE 3PAR File Persona Software Suite. The software title has a 1TB software LTU for HPE 3PAR StoreServ 7000c series models. The 1TB software LTU for a particular platform is a single SKU irrespective of the drive type or drive capacity. Specific number of 1TB LTUs need to be purchased for every TB used by that software title.

The following table shows the licensing models used in the various HPE 3PAR Storage platforms:

Licensing Scheme	Spindle Based Licensing	Simplified Spindle Based Licensing	Capacity Based Licensing	All Inclusive Licensing
HPE 3PAR StoreServ 7000 Storage	No	Yes	No	No
HPE 3PAR StoreServ 7000c Storage	No	Yes	Yes**	No
HPE 3PAR StoreServ 8000 Storage	No	Yes****	Yes****	Yes
HPE 3PAR StoreServ 9000 Storage	No	No	No	Yes
HPE 3PAR StoreServ 10000 Storage	Yes*	Yes	Yes***	No
HPE 3PAR StoreServ 20000 Storage	No	Yes****	Yes****	Yes

Notes:

- Discontinued in favor of Simplified Spindle Based Licensing.
- **Only for the HPE 3PAR File Persona Software Suite
- *** Only for replication related titles – Peer Persistence, Remote Copy, Virtual Copy & Replication Suite
- **** Discontinued in favor of All-Inclusive Licensing.
- Please note that HPE 3PAR Software suites are available only for HPE 3PAR StoreServ 7000, 7000c and 10000 arrays and are available only in the form of simplified spindle based licensing and capacity based licensing.

Technical Specifications

The list below shows the software titles available in the form of spindle based licensing, simplified spindle based licensing and capacity based licensing:

HPE 3PAR Software Title	Spindle Based Licensing	Simplified Spindle Based Licensing	Capacity Based Licensing
HPE 3PAR Operating System Software	Yes	No	No
HPE 3PAR Thin Provisioning	Yes	No	No
HPE 3PAR Thin Conversion	Yes	No	No
HPE 3PAR Thin Persistence	Yes	No	No
HPE 3PAR Virtual Copy	Yes	Yes	Yes (10000)
HPE 3PAR Remote Copy	Yes	Yes	Yes (10000)
HPE 3PAR Peer Persistence	Yes	Yes	Yes (10000)
HPE 3PAR Adaptive Optimization	Yes	Yes	No
HPE 3PAR Dynamic Optimization	Yes	Yes	No
HPE 3PAR Priority Optimization	Yes	Yes	No
HPE 3PAR System Turner	Yes	Yes	No
HPE 3PAR Virtual Domains	Yes	Yes	No
HPE 3PAR Virtual Lock	Yes	Yes	No
HPE 3PAR Peer Motion	Yes	Yes	No
HPE 3PAR Operating System Software Suite	No	Yes	No
HPE 3PAR Replication Software Suite	No	Yes	Yes(10000)
HPE 3PAR Optimization Software Suite*	Yes	Yes	No
HPE 3PAR Data Optimization Software Suite V2	No	Yes	No
HPE 3PAR Security Software Suite	No	Yes	No
HPE 3PAR File Persona Software Suite	No	No	Yes (7000c)

Notes: Optimization Software Suite is available only on HPE 3PAR StoreServ 10000 Storage



Summary of Changes

Date	Version History	Action	Description of Change
19-Feb-2024	Version 45	Changed	Networking product names were updated.
01-Aug-2022	Version 44	Changed	Service and Support and Configuration Information sections were updated. Obsolete SKUs were removed.
04-Oct-2021	Version 43	Changed	Service and Support and Configuration Information sections were updated.
03-Aug-2020	Version 42	Changed	QuickSpecs layout was updated and Branding Refresh was applied.
04-Apr-2020	Version 41	Changed	QuickSpecs layout was updated and Obso SKUs were removed
04-Feb-2019	Version 40	Changed	Technical Specifications section was updated
02-Apr-2018	Version 39	Changed	Updated URL Links; Updated Services and Support Products
25-Sep-2017	Version 38	Changed	Changed SKUs descriptions to reflect the correct one
07-Aug-2017	Version 37	Changed	Updated File Persona section for SMB 3.1.1, Native ACLs with native IDs, File Access Auditing framework support
11-Jul-2017	Version 36	Changed	Added SW SKUs for 9450 model
13-Feb-2017	Version 35	Changed	Added description for All Inclusive and removed Suites and Software title SKUs for 8000 and 20000 Updated What's new and File Persona section for the new features Removed the statement for RCIP port usage for File Persona
07-Jun-2016	Version 34	Changed	Updated File Persona section for the new features and use cases
31-Mar-2016	Version 33	Changed	Changes made to the Service and Support Section
16-Feb-2016	Version 32	Changed	Changes made throughout the entire QuickSpecs
02-Oct-2015	Version 31	Added	Added The HPE StoreFront Remote SaaS Portal
26-Aug-2015	Version 30	Changed	Added SW SKUs for 8000 and 20000 models in all sections.
05-Jun-2015	Version 29	Changed	Changes made throughout the entire QuickSpecs.
30-Mar-2015	Version 28	Changed	Entered the File Persona SW SKUs. Updated the limited availability comments. Updated Models on the Technical Specifications Section.
20-Feb-2015	Version 27	Changed	Added HPE 3PAR 10400 Peer Persistence Software 1TB Provisioned LTU - BD188A
12-Dec-2014	Version 26	Changed	Change the control release statement on pg 30.
01-Dec-2014	Version 25	Added	Added section about HPE 3PAR File Persona Software Suite
10-Nov-2014	Version 24	Changed	Changes made throughout the entire QuickSpecs.
20-Aug-2014	Version 23	Changed	Changes made to the Overview section.
18-Aug-2014	Version 22	Changed	Changes made throughout the entire QuickSpecs
18-Jul-2014	Version 21	Changed	Removed NOTE regarding physical licenses for F-Class and T-Class platforms for Virtual Copy Software, Remote Copy Software, Peer Persistence Software, Adaptive Optimization Software, Dynamic Optimization Software, System Tuner Software, Virtual Domain Software, Virtual Lock Software, Peer Motion Software, Priority Optimization Software, Recovery Manager Software, 3PAR Multipath I/O for Microsoft Windows 2003, 3PAR Inform Software
27-Jun-2014	Version 20	Changed	Changes made throughout the entire QuickSpecs
10-Jun-2014	Version 19	Changed	Product descriptions were revised throughout.
18-Apr-2014	Version 18	Changed	Removed a note.
14-Apr-2014	Version 17	Changed	Product Specifications was revised.
31-Mar-2014	Version 16	Changed	Product Specifications was revised.
17-Jan-2014	Version 15	Changed	Product Specifications and Technical Specifications were revised.
09-Dec-2013	Version 14	Changed	Product Specifications and Technical Specifications were revised.
04-Oct-2013	Version 13	Added	Added Note on HPE 3PAR Software Licensing Schemes to the Technical Specification section.
26-Aug-2013	Version 11	Added	Added HPE 3PAR StoreServ 10000 Software Suites Upgrade Options.
11-Jun-2013	Version 10	Added	Added a new part number BC959A to the HPE 3PAR Operating System Software section.

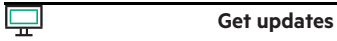
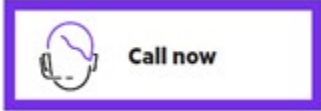
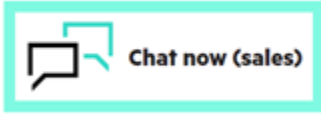
Summary of Changes

Date	Version History	Action	Description of Change
10-Jun-2013	Version 9	Changed	Changes made throughout the entire QuickSpecs.
08-Mar-2013	Version 8	Changed	Updated the following: Overview - added branding to Host Software; Inform OS Highlights - added HPE; Additional 3PAR Software - added Virtual Lock, Peer Motion and Peer Persistence; Product Specifications - replaced Vrt Cpy with Virtual Copy; 3PAR Remote Copy - added HPE branding; 3PAR Dynamic Optimization and Policy Advisor - added HPE branding, replaced V-Class with StoreServe 10000; 3PAR System Tuner - added HPE branding, replaced V-Class with StoreServe 10000; 3PAR Virtual Domains - replaced InServ with StoreServ and added HPE branding; 3PAR Virtual Lock - replaced InServ with StoreServ and added HPE branding; Peer Motion - added HPE branding; 3PAR Host Software; removed "Inform" and changed into paragraph; Added Models - System Reporter, Host Explorer, MPIO; Models - Cluster Extension SW changes made to the entire document.
19-Feb-2013	Version 7	Added	Added the Service and Support section.
		Changed	Changes made throughout the Product Specifications sections.
04-Dec-2012	Version 6	Changed	Changes made throughout the entire QuickSpecs.
30-Aug-2011	Version 5	Changed	Changes made throughout the entire QuickSpecs.
21-Apr-2011	Version 4	Changed	Part numbers were revised and added.
05-Apr-2011	Version 3	Changed	Part numbers were revised and Insert AE at the end of a part number for an electronic LTU note was added.
23-Feb-2011	Version 2	Changed	Changed the Overview information for the HPE 3PAR Adaptive Optimization section.
14-Feb-2011	Version 1	New	New QuickSpecs.



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