

Overview

HP StoreOnce Backup

Does data growth leave you struggling with complex, distributed, and costly data protection? Is some of your data not being protected because backup windows aren't long enough or backup jobs are failing? Keep pace with HP StoreOnce Backup; disk-based, deduplicating, backup systems. Use StoreOnce deduplication, available in a range of scalable dedicated appliances and flexible virtual appliances, with your choice of backup and recovery software to deliver robust enterprise-wide data protection. HP StoreOnce Backup systems reduce the amount of backup data you need to store by up to 95% and with our scale-out architecture you can pay-as-you-grow to retain up to 34 petabytes of data in a single pool. HP StoreOnce Backup systems provide automated backup and DR operations with all the features you'd expect from disk backup, together with secure data retention with built-in data encryption for Data at Rest and Data in Flight**.

HP StoreOnce Catalyst delivers industry-leading backup speeds of up to 139 TB/hr* enabling you to meet shrinking backup windows, plus Federated Deduplication across the enterprise so you choose where to deduplicate data. Federated Catalyst allows Catalyst stores to span nodes simplifying backup management and optimizing available storage in large environments

Choose between powerful dedicated appliances for larger offices and data centers, flexible virtual appliances for highly virtualized or smaller and remote offices and Data Protector software with StoreOnce Federated Deduplication and StoreOnce Catalyst when you don't want to use a dedicated deduplication appliance. With HP's single StoreOnce deduplication technology, managing the movement of data across the enterprise has never been easier.

Protect data from unauthorized access through Data at Rest encryption, Data in Flight** encryption and secure erase functionality for disks that are lost, stolen or discarded.

Seamlessly integrating with your current backup applications, StoreOnce Backup provides flexible integration into both Fibre Channel (FC) and iSCSI SAN, GbE, 10GbE or virtualized and other environments. Catalyst over Fibre Channel provides all the ISV control and source side deduplication benefits of current StoreOnce Catalyst but via your Fibre Channel fabric.

*Actual performance is dependent upon configuration data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication.

** At this point, Data in Flight encryption via IPsec is supported on StoreOnce Catalyst only. In addition, write performance may be impacted, however performance improvements should be seen after first ingest.

What's New

The HP StoreOnce Backup family will include:

- A new StoreOnce 2900 24TB backup system
 - The StoreOnce 2900 delivers a scalable 2U solution from 15.5 to 31.5TB of usable*** capacity (24 to 48 TB RAW)
 - With speeds of up to 5.8 TB/hour* using HP StoreOnce Catalyst.

The HP StoreOnce Backup family features:

- Federated Catalyst to allow Catalyst stores to span nodes simplifying backup management and optimizing available storage in larger environments
- Catalyst over Fibre Channel, providing all the ISV control and source side deduplication benefits of current StoreOnce Catalyst but via your Fibre Channel fabric.
- A larger 50TB StoreOnce VSA license and licenses to upgrade the smaller StoreOnce VSA licenses to 50TB
- StoreOnce VSA support for Ubuntu KVM in addition to ongoing ESXi and Hyper-V support.

Overview

- New VSA 5yr licenses as well as existing 3yr licenses.
- VSA licenses to expand usable*** capacity from 4TB to 10TB and 10TB to 50TB.
- A free 1TB StoreOnce VSA license for extended evaluation or use in non-critical deployments.
- HP StoreOnce Recovery Manager Central which combines the simplicity and performance of snapshots with reliability and cost effective data protection, through HP 3PAR StoreServ and HP StoreOnce integration.
- Enhanced support for Symantec NBU advanced features Accelerator and Targeted AIR offering improved performance and faster restore.
- Further enhancements to HP StoreOnce Catalyst via new SQL Server Catalyst plug-in for SQL environments.
- IPv6 support which provides customers with the flexibility to configure their devices with either IPv6 or IPv4 as their networking requirements demand.
- ***Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

HP StoreOnce Backup Models

HP StoreOnce Backup Models

Target deployment	Product options	Usable *** capacity (before dedupe)
Enterprise data center	HP StoreOnce 6500 HP StoreOnce 4900	Scale from 72 to 1728 TB usable *** Scale from 36 to 216 TB usable ***
Mid-size data center or large regional office	HP StoreOnce 4700 HP StoreOnce 4500	Scale from 20 to 160 TB usable *** Scale from 16 to 124 TB usable***
Small data center or remote office	HP StoreOnce 2900 HP StoreOnce 2700 HP StoreOnce VSA	Scale from 15.5 to 31.5TB usable *** 5.5 TB usable *** 4, 10 or 50 TB usable*** depending on product

For help with choosing the most appropriate StoreOnce Backup systems for your specific environment, we recommend you talk to your HP partner or sales advisor about using the HP Storage Sizing Tool which can be downloaded from the Downloads section of www.hp.com/go/storeoncesizer

For previous versions of HP StoreOnce Backup models please refer to:

http://h18004.www1.hp.com/products/quickspecs/13218_div/13218_div.html

NOTE: In all cases, actual performance is dependent upon configuration, data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication.

To optimize capacity utilization and in accordance with performance requirements, your capacity requirements should be planned following Recommended Configuration guidelines:

<http://h20565.www2.hp.com/portal/site/hpsc/public/psi/manualsResults/?sp4ts.oid=5196525>

***Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

Common Features and Benefits

Common Features and Benefits

The following features and benefits apply to all HP StoreOnce Backup products. Where differences exist between models, they are explained in the description of the benefit.

Scaling out capacity across the enterprise

Keeping pace with data growth, HP StoreOnce Backup offers scale-out architecture that allows you to pay as you grow.

Choose from dedicated backup appliances to match the capacity and performance requirements of larger offices and data center deployments. For virtualized environments and smaller and remote offices, HP StoreOnce is also available as a virtual appliance for virtualized data protection that utilizes existing infrastructure.

Whatever the HP StoreOnce solution that meets your needs, you can choose capacity points that start small and scale-out - just configure for a higher capacity (with StoreOnce VSA), or use upgrade kits with expansion shelves (4500, 4700) or simply add more disks (4900, 6500) or additional nodes (StoreOnce 6500 only).

**To optimize capacity utilization and in accordance with performance requirements, your capacity requirements should be planned following Recommended Configuration Guidelines*

Please refer to the latest Concepts and Configuration Guide for more information:
<http://h20565.www2.hp.com/portal/site/hpsc/public/psi/manualsResults/?sp4ts.oid=5196525>

Reducing your backup data storage needs

HP StoreOnce deduplication reduces the disk space required to store backup data sets by typically 20x without impacting backup performance. Retaining more backup data on disk for longer, enables greater backup data accessibility for rapid restore of lost or corrupt files and reduces impact on business productivity while providing cost savings in disk storage, IT resource, physical space, and power requirements.

For example, using HP StoreOnce deduplication with a fully configured HP StoreOnce 6500 can provide extended data retention on the same disk footprint for up to 34 PBs of backup data.

Meeting shrinking backup windows

Industry leading performance - protect large amounts of data within short backup windows with HP StoreOnce high performance multi-streaming capability. Choose Ethernet (to Catalyst, iSCSI VTL or NAS targets) or Fibre Channel (To Catalyst or VTL targets) to integrate into your network environment. Catalyst over Fibre Channel provides all the ISV control and source side deduplication benefits of current StoreOnce Catalyst but via your Fibre Channel fabric.

Consolidate multiple parallel backup streams via standard Ethernet or Fibre Channel network to a single disk-based system to achieve industry-leading aggregate backup speeds of up to 139 TB* per hour with the top of the range HP StoreOnce 6500 and HP StoreOnce Catalyst.

You can enhance performance by deduplicating anywhere; at the application source or at the backup server or at the target HP StoreOnce Backup appliance. Federated Deduplication means you can deduplicate where it makes sense for your business, not where technology vendor limitations mandate. Federated Deduplication is available across all new HP StoreOnce Backup systems, in conjunction with all applications that support StoreOnce Catalyst.

**Actual performance is dependent upon configuration data set type, compression levels, number of*

Common Features and Benefits

	<p>data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication.</p>
Reducing the time to restore data	<p>HP offers industry-leading restore speeds with its StoreOnce product line; up to 119% of ingest performance in the high end appliance. This ensures when you have a system failure you can restore your data in the shortest time possible and minimize downtime</p>
Freeing up your IT resources	<p>HP StoreOnce Backup allows you to reduce the complexity of your backup environment by consolidating and automating all of your backup processes using a single HP StoreOnce Backup system, reducing the time spent managing multiple data protection devices and processes, reducing cost and simplifying your data protection environment. What's more, for organizations that have branch and sales offices, HP StoreOnce Backup with supported backup software helps you automatically protect the data at these sites without the need for trained staff, or dedicated hardware if you use StoreOnce VSA, reducing the risk of important data loss.</p> <p>With HP StoreOnce Catalyst, movement of deduplicated data across the enterprise is even easier. There's no need to deduplicate and rehydrate at each step, data can be replicated from these sites to a central data center or disaster recovery site in deduplicated form, reducing network bandwidth requirements. All backup and replication jobs may be seamlessly managed by the backup application at your central data center.</p>
Lowering the cost of data protection	<p>StoreOnce Federated Catalyst allows Catalyst stores to span nodes simplifying backup management and optimizing available storage in large environments yet continuing to provide failover and autonomic restart to ensure your backups do not fail.</p> <p>With a typical deduplication ratio of 20:1, more backup data can be stored in a smaller footprint meaning less capacity needs to be purchased.</p> <p>HP StoreOnce deduplication also enables network efficient offsite data replication. All HP StoreOnce Backup systems use StoreOnce Federated data deduplication to significantly reduce the amount of data that needs to be replicated, enabling the use of lower bandwidth, lower cost links to transmit data offsite.</p>
Protecting your remote offices	<p>StoreOnce enabled replication opens the way to cost-effective centralized backup from remote sites or branch offices, and delivers a consolidated disaster recovery solution for the data center.</p> <p>HP StoreOnce Backup is ideal for remote offices - providing a local backup target and an efficient deduplicated local data repository. If you are running a virtual server environment you can use the flexibility and simplicity of the HP StoreOnce VSA, or choose dedicated appliances such as the StoreOnce 2700 depending on the infrastructure, performance and management requirements of your remote office deployments.</p> <p>HP StoreOnce also enables a Federated Deduplication solution for replication of backup to other sites, including the consolidation of backup and DR from multiple remote offices to the data center. Multiple StoreOnce appliances and virtual machines can replicate to a single central StoreOnce appliance with for example 384 remote offices replicating to a single HP StoreOnce 6500 target at the data center.</p> <p>For very small remote offices which don't need a local store for fast recovery StoreOnce Catalyst may be installed on a local server at no cost. This performs deduplication of new or changed data and sends the data over the WAN for disaster recovery.</p>

Common Features and Benefits

With HP StoreOnce Catalyst the movement of data between sites is configured and controlled using your backup application as a single interface for the data protection solution. StoreOnce Catalyst supports a range of flexible configurations that enable the concurrent movement of data from one site to multiple sites, and the ability to cascade data around the enterprise (sometimes referred to as multi-hop).

Reducing the risk to Data at Rest and Data in Flight** With high-profile reports of data loss, and increasing levels of government legislation concerning data security, companies are seeking to encrypt their data. The HP StoreOnce Security Pack provides for Data at Rest and Data in Flight encryption which prevents unauthorized access to data on disk that has been lost, stolen, or discarded, as well as, data being transmitted between devices. It also offers secure erase functionality. These functions can be configured on an application or store basis and are not restricted to the whole appliance. HP StoreOnce Security pack is available for all HP StoreOnce Backup products.

** At this point, Data in Flight encryption via IPsec is supported on StoreOnce Catalyst only. In addition, write performance may be impacted, however performance improvements should be seen after first ingest.

Seamlessly integrating into your environment The HP StoreOnce Backup systems offer flexibility with NAS (NFS, CIFS), iSCSI and FC virtual tape libraries (VTL) and StoreOnce Catalyst targets for backup applications. This means that you can easily integrate StoreOnce Backup into your existing IT environment with minimum disruption. Supported by all leading backup applications, this allows each StoreOnce Backup system to be installed and used without additional investment in software.

The HP StoreOnce Backup systems are easily rack-mounted in standard racks, while the performance leading HP StoreOnce 6500 is pre-integrated into an HP 42U rack for efficient use of space in the data center.

Delivering reliable backup and restore HP StoreOnce Backup systems can enhance reliability by automating and consolidating backup to reduce operator intervention and consequently user-generated errors.

HP understands the need for highly reliable, highly available data protection. Consequently HP StoreOnce Backup systems feature hardware RAID 6 (RAID 5 on StoreOnce 2700) to reduce the risk of data loss due to disk failure. The high performance HP StoreOnce 6500 extends this reliability with autonomic restart and no single point of failure in your backup process by offering redundancy at every level.

In any storage system it is essential to ensure that the integrity of the data stored is maintained so data can be recovered exactly as it was written and Storage Administrators live in fear of corrupted backups only discovered when they need to restore their data. StoreOnce appliances have been designed with the necessary technology which delivers this essential high degree of data protection. HP has unique intellectual property which protects data throughout its lifecycle when stored on the HP StoreOnce appliance. HP StoreOnce Integrity Plus is a market leader in data integrity. HP StoreOnce Backup technology has inbuilt protection which not only checks data at many stages both in the backup process and when recovered but also continually checks the data when at rest, correcting errors if necessary.

Protecting your primary storage directly HP StoreOnce Recovery Manager Central facilitates automated, efficient, non-intrusive backup and disaster recovery and provides converged data protection by integrating 3PAR StoreServ primary

Common Features and Benefits

storage and StoreOnce Backup storage directly without the need for third-party ISVs. Customers get the simplicity and performance of snapshot-based protection to generate application-consistent recovery points as well as the reliability and efficiency of deduplicated backups for guaranteed recovery.

HP StoreOnce VSA Backup

HP StoreOnce VSA Backup



The HP StoreOnce VSA extends the deployment options for StoreOnce with the agility and flexibility of a virtual appliance, removing the need to install dedicated hardware. This provides a flexible and a cost effective backup target for virtualized server environments. StoreOnce VSA can be used as part of a pure software defined data protection solution or in conjunction with StoreOnce purpose built appliances. Operation and integration with backup software is the same for the StoreOnce VSA and the purpose built appliances.

Overview product specifications

	VSA 4TB	VSA 10TB	VSA 50TB
Max usable configurable capacity	4TB	10TB	50TB
Catalyst write performance (max)	1TB/hour	2TB/hour	6TB/hour
NAS, VT write performance (max)	400GB/hour	800GB/hour	2.4TB/hour
Replication fan-in/fan-out (appliance)	8/2	8/2	8/2
Max backup targets	4	12	16
Backup targets supported	Catalyst, VTL, NFS, CIFS over Ethernet		
Hypervisor support	VMware ESXi, Microsoft Hyper-V, Ubuntu KVM - for details see www.hp.com/go/ebs		
License to use term	3 or 5 years		
Technical support	Business hours phone technical support included for license to use term		
Care Packs	Available to upgrade included technical support		

Freeware: A 1TB StoreOnce VSA is also available for extended evaluation or non-critical deployments. This offers the same features as the larger products. This freeware product comes without entitlement to HP support or the ability to buy Care Packs for HP support. This freeware version can be upgraded to any of the products in the table above by purchasing and applying the appropriate license. www.hp.com/go/FreeStoreOnceVSA

Key features and benefits of the StoreOnce VSA

- Flexibility – fast deployment, fast expansion and leverage of the hypervisor features for mobility and availability
- Easy to manage - the same well proven management interfaces as the purpose built StoreOnce appliances
- Exceptional value – one license includes all product features (Catalyst, Replication, Security) and access to HP support for the duration of the licensed term
- Scalability – capacity upgrade licenses to scale from 4TB to 50TB

Configuration notes

Backup data capacity is added to the StoreOnce VSA using 1TB, 5TB or 10TB virtual disks up to the licensed capacity. Attempts to add virtual disk of other sizes will fail. It is recommended that at least one virtual disk is added before the StoreOnce VSA is powered-on. To ensure that the StoreOnce VSA runs with acceptable performance, it is recommended that it is configured with the following minimum resources:

Configured capacity	1TB to 4TB	5TB to 10TB	10TB to 50TB
Memory (min)	16GB	24GB	32GB
Processor (min @ 2.2GHz)	2 vCPU	4 vCPU	12 vCPU
IOPs (typical)	450	900	2,700

HP StoreOnce VSA Backup

For VMware

- It is recommended that the virtual disks used to provide capacity for StoreOnce VSA are in a .vmdk format from a VMFS3 or VMFS5 data store. NFS data stores are supported but careful consideration of the performance implications should be made before deployment. RAW disks are not supported. Virtual disks should be thick provisioned.
- Typical Installation will take 20 minutes depending on the installation method used and the environment. Other factors that determine the installation time are the storage used, the host platform and the storage capacity configured.
- If the VMware host has AMD CPUs some configuration is needed to run the StoreOnce VSA. It is necessary to create a single host cluster with the EVC (Enhanced vMotion Compatibility) mode set to AMD generation 3 or earlier.
- StoreOnce VSA is supported for use with VMware vMotion and VMware Storage vMotion. It is not supported for use with the following VMware features: VMware High Availability (HA), VMware Fault Tolerance (FT), VMware Distributed Resource Scheduler (DRS), VMware Distributer Power Manager (DPM) and VMware Site Recovery Manager (SRM).

For Hyper-V

- StoreOnce VSA requires NTFS storage. There is no support for NFS data stores or pass-through disks. StoreOnce VSA can run on all processors supported for Windows Server Hyper-V provided the performance and quantity meets the minimum requirements for the capacity of StoreOnce VSA configured.
- Unzipping the virtual machine file can take up to 15 minutes. Installation time depends upon how heavily the Hyper-V Server is being used and how much capacity is configured.
- StoreOnce VSA supports thick provisioned virtual hard disks (.VHDX or .VHD).
- StoreOnce VSA supports use of Hyper-V Live Migration during backup and recovery operations.

For Ubuntu KVM

- The base or system disk type should always be presented as a VirtIO device type (disk bus) and 'qcow2' storage format for StoreOnce VSA on KVM.
- For data disks StoreOnce VSA supports both SCSI and VirtIO device type with either raw or qcow2 storage formats.
- For optimal performance, HP recommends a device type of VirtIO and 'raw' storage format.
- It is recommended to use Virtual Network Interface device model as VirtIO for optimal performance with StoreOnce VSA.

For all hypervisors

- Capacity upgrade licenses are available – see table below. Adding a capacity upgrade license is non-disruptive. Once the new license is added increased backup data capacity can be configured. The larger usable capacity will require adding more memory and processor resources to meet stated performance. Adding resources requires the StoreOnce VSA to be restarted so these upgrades should be done outside backup times.
- The StoreOnce VSA requires significant disk I/O for backup and recovery operations as shown in the table above. The number, type and configuration of hard disks that provide capacity for the virtual disks is an important choice. The number of disks and the type of disk will significantly affect the I/O potential and consequently backup and recovery performance.
- To be resilient to hard disk failure it is recommended that RAID protection is used. To further reduce risk from physical hard disk failure, the disks used for StoreOnce VSA backup data storage should not be shared with hard drives that provide storage for the protected data and virtual machines particularly if backup data copy/replication is not used.
- It is recommended that the effect of the resource consumption of the StoreOnce VSA on other virtual applications running on the same pool of resources is assessed. This impact assessment should consider any backup software components, running in virtual machines, which will require resources to execute backup and recovery jobs.

HP StoreOnce VSA Backup

Purchasing information

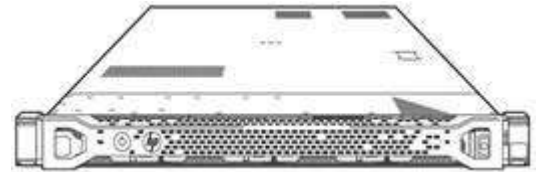
Description	3 year license to use	5 year license to use
StoreOnce VSA 4TB	DT477AAE, DT477A	D4U49AAE, D4U49A
StoreOnce VSA 10TB	TC458AAE, TC458A	D4U62AAE, D4U62A
StoreOnce VSA 4TB to 10TB Capacity Upgrade	D4U56AAE, D4U56A	D4U58AAE, D4U58A
StoreOnce VSA 50TB	D4U47AAE, D4U47A	D4U48AAE, D4U48A
StoreOnce VSA 10TB to 50TB Capacity Upgrade	D4U57AAE, D4U57A	D4U59AAE, D4U59A

Licensing notes

- All products ending in AAE (xxxxxAAE) are for eDelivery. These are delivered via an email that will contain a link to download the software and the Entitlement Order Number (EON) that is used to acquire the license key.
- All products ending in A (xxxxxA) are for physical delivery. Delivery takes several days. A paper letter is delivered with a link to download the software and the license key Entitlement Order Number (EON) that is used to acquire the license key. A DVD is also delivered containing the software.
- The StoreOnce VSA is fully functional from its first installation with a 60-day instant-on period. If no license key is added within 60 days of start up all backup targets become read-only. Once a license key is added full functionality is returned.
- If a license to use (LTU) reaches the end of its term all backup targets become read-only. Once a valid license key is added full functionality is returned.
- The StoreOnce VSA license enables use as a replication target and does not require an additional Replication license. If you intend to replicate to VTL and/or NAS targets on StoreOnce purpose built appliances a Replication license will need to be installed on the target appliance.
- The StoreOnce VSA license enables creation of Catalyst Stores and execution of Catalyst Copy operations and does not require an additional Catalyst license. If you intend to use Catalyst Copy between a StoreOnce VSA and a purpose built StoreOnce appliance, the purpose built StoreOnce appliance will need a Catalyst license installed.
- The StoreOnce VSA license enables users to create Catalyst Stores and act as a replication target, configuration of the Catalyst Stores and Replication Targets is covered in the optional configuration services.
 - Data Replication Service: http://dccappshares01.austin.hp.com/SALES_LIBRARY-PRO/CONCENTRA/Autofed%20Content/UCM/UCM-Concentra/Pub/ucm4AA4-3945ENW/4AA4-3945ENW.pdf
 - Catalyst Solution service: http://dccappshares01.austin.hp.com/SALES_LIBRARY-PRO/CONCENTRA/Autofed%20Content/UCM/UCM-Concentra/Pub/ucm4AA4-4489ENW/4AA4-4489ENW.pdf
- The StoreOnce VSA license enables on data at rest encryption, data in flight encryption and secure erase and does not require an additional Security Pack license.
- A capacity upgrade license can be added only if there is a valid license installed on the StoreOnce VSA.
 - For example, a 4TB to 10TB capacity upgrade license can be applied only if a 4TB base license is installed on the StoreOnce VSA.
 - For example, a 10TB to 50TB capacity upgrade license can be applied only if a 10TB base license is installed on the StoreOnce VSA.
- There is no license to upgrade directly from 4TB to 50TB. This is accomplished by upgrading first to 10TB, then to 50TB.
- Once the capacity upgrade license is added, the licensed term of the StoreOnce VSA will be 3 or 5 years, depending on license purchased, regardless of the remaining term of the previous smaller capacity license.
- The license to use term starts from the day the license is redeemed from the HP licensing portal.

HP StoreOnce 2700 Backup

HP StoreOnce 2700 Backup



HP StoreOnce 2700 delivers entry-level disk-based backup and disaster recovery that's ideal for smaller remote or branch offices and data centers. This 1U Backup system offers 5.5 TB of usable capacity (8 TB RAW) and speeds of up to 3.7 TB/hour* with StoreOnce Catalyst, allowing a full 11 TB* of backup to be completed in just 4 hours.

Overview Product Specifications

	StoreOnce 2700
Form Factor	1U Rack
Total capacity (raw)	8 TB
Total capacity (usable***)	5.5 TB
Write performance (max)	1.3 TB/hour
Catalyst performance (max)	3.7 TB/hour
Max fan-in/backup targets	8

*See [Detailed Technical Specifications](#) and [Physical Dimensions](#) later in this document for more detail

NOTE: *Actual performance is dependent upon configuration, data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication.

***Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

Compatibility:

HP extensive compatibility testing program assures that your HP Backup Systems work with leading servers, operating systems, and backup applications, including those not manufactured by HP.

Compatibility details on specific servers and the latest hardware compatibility information, can be found [HERE](#)

Warranty

The StoreOnce 2700 includes a 1-year, next-day, parts exchange, limited warranty for the HP plus 9x5 phone support for the duration of the warranty.

Purchasing information:

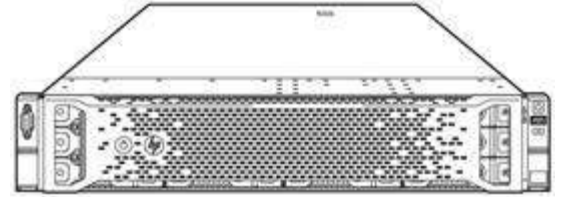
Also refer to [Software Options](#)

HP StoreOnce 2700 Backup

Product name	Part-number	Description	Includes
HP StoreOnce 2700	BB877A	HP StoreOnce 2700 Backup with 8 TB of RAW disk storage	<ul style="list-style-type: none">• HP 2700 Backup system• 4x 2 TB Hot swap hard drives• Ethernet cable(Cat 5e) 3m (x2)• Power cable (IEC 320 C13 Connector for Rack PDU)• Installation poster• HP StoreOnce Documentation CD (contains installation wizard, device drivers, and documentation, all localized in multiple languages)

HP StoreOnce 2900 Backup

HP StoreOnce 2900 Backup



HP StoreOnce 2900 is designed for small to mid-sized data centers and as a replication target device for up to 24 remote and branch offices. The StoreOnce 2900 delivers a scalable 2U solution from 15.5 to 31.5TB of usable*** capacity (24 to 48 TB RAW) using a simple and cost effective capacity upgrade. Meet backup windows with speeds of up to 5.8 TB/hour* using HP StoreOnce Catalyst for protection of up to 23.2TB* of data in a 4-hour window.

Overview Product Specifications

	StoreOnce 2900
Form Factor	2U Scalable Rack
Total capacity (raw)	Up to 48 TB
Total capacity (usable***)	Up to 31.5 TB
Write performance (max)	4.6 TB/hour
Catalyst performance (max)	5.8 TB/hour
Max fan-in/backup targets	24

See [Detailed Technical Specifications](#) and [Physical Dimensions](#) later in this document for more details

NOTE: *Actual performance is dependent upon configuration, data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication.

Scalability

Start out with the HP StoreOnce base unit at 2U with 24 TB of RAW capacity (15.5 TB usable***). When you're ready, simply purchase an additional storage expansion/capacity upgrade kit to increase available capacity to a total of 48TB RAW (31.5 TB usable***). A fully configured StoreOnce 2900 is 2U.

Compatibility:

HP extensive compatibility testing program assures that your HP Backup Systems work with leading servers, operating systems, and backup applications, including those not manufactured by HP.

Compatibility details on specific servers and the latest hardware compatibility information, can be found [HERE](#)

Configuration notes:

- HP StoreOnce 2900 Backup systems can be connected to the servers they protect via a 10Gb Ethernet network.
- They are supported on all 10Gb Ethernet network interface cards (NICs) and switches, dependent on product. 1Gb Ethernet network connections are also supported for sites without 10Gb Ethernet networks (with reduced performance)
- HP StoreOnce Backup systems are also supported on 100 base-T Ethernet networks, for connection for the Web GUI and CLI access, such as a management network in a Data Centre.
- This product is not supported on networks using slower Ethernet technology

HP StoreOnce 2900 Backup

Warranty

Hewlett-Packard provides a 1 year parts exchange, 1 year labor, 1 year on site, normal business hours, next business day response for StoreOnce 2900, StoreOnce 4500, StoreOnce 4700, StoreOnce 4900 and StoreOnce 6500 Backup systems, plus 9x5 phone support for the duration of the warranty.

Purchasing information:

Product name	Part-number	Description	Includes
HP StoreOnce 2900 24TB Backup	BB910A	HP StoreOnce 2900 Backup with 24 TB of RAW disk storage	<ul style="list-style-type: none">• HP StoreOnce 2900 Backup system (6 x 4 TB disks)• Ethernet cable(Cat 5e) 3m (x2)• 2 x Power cords (with IEC 320 C13 plug for Rack PDU)• Installation poster• HP StoreOnce Information card
HP StoreOnce 2900 24 TB Capacity Upgrade Kit	BB911A	HP StoreOnce 2900 24 TB Capacity Upgrade Kit	<ul style="list-style-type: none">• 6 x 4 TB disks and entitlement certificate

Also refer to [Software Options](#) to add licenses for:

- HP StoreOnce Replication
- HP StoreOnce Catalyst
- HP StoreOnce Enterprise Manager
- HP StoreOnce Security Pack

HP StoreOnce 4500 Backup

HP StoreOnce 4500 Backup



HP StoreOnce 4500 is designed for small to mid-sized data centers and as a replication target device for up to 24 remote and branch offices. The StoreOnce 4500 delivers a scalable 2U to 8U solution from 16 to 124 TB of usable*** capacity (24 to 168 TB RAW) using a simple and cost-effective capacity upgrade. Meet backup windows with speeds of up to 14 TB/hour* using HP StoreOnce Catalyst for protection of up to 56TB* of data in a 4-hour window.

Overview Product Specifications

	StoreOnce 4500
Form Factor	2U to 8U Scalable Rack
Total capacity (raw)	Up to 168 TB
Total capacity (usable***)	Up to 124 TB
Write performance (max)	5.4 TB/hour
Catalyst performance (max)	14 TB/hour
Max fan-in/backup targets	24

See [Detailed Technical Specifications](#) and [Physical Dimensions](#) later in this document for more details

NOTE: *Actual performance is dependent upon configuration, data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication.

***Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

Scalability

Start out with the HP StoreOnce base unit at 2U with 24 TB of RAW capacity (16 TB usable***). When you're ready, simply purchase up to 3 additional storage expansion/capacity upgrade kits to increase available capacity to a total of 168TB RAW (124 TB usable***). You can add 24 or 48TB storage expansions and it is possible to add a mixture of both. A fully configured StoreOnce 4500 is 8U.

Compatibility:

HP extensive compatibility testing program assures that your HP Backup Systems work with leading servers, operating systems, and backup applications, including those not manufactured by HP.

Compatibility details on specific servers and the latest hardware compatibility information, can be found [HERE](#)

Configuration notes:

- HP StoreOnce 4500 Backup systems can be connected to the servers they protect via a 10Gb Ethernet network or 8Gb Fibre Channel.
- They are supported on all 10Gb Ethernet network interface cards (NICs) and switches, dependent on product. 1Gb Ethernet network connections are also supported for sites without 10Gb Ethernet networks (with reduced performance)
- HP StoreOnce Backup systems are also supported on 100 base-T Ethernet networks, for connection for the Web GUI and

HP StoreOnce 4500 Backup

CLI access, such as a management network in a Data Centre.

- This product is not supported on networks using slower Ethernet technology

Warranty

Hewlett-Packard provides a 1 year parts exchange, 1 year labor, 1 year on site, normal business hours, next business day response for StoreOnce 4500, StoreOnce 4700, StoreOnce 4900 and StoreOnce 6500 Backup systems, plus 9x5 phone support for the duration of the warranty.

Purchasing information:

Product name	Part-number	Description	Includes
HP StoreOnce 4500 Backup	BB878A	HP StoreOnce 4500 Backup with 24 TB of RAW disk storage	<ul style="list-style-type: none"> • HP StoreOnce 4500 Backup system (12 x 2 TB disks) • Ethernet cable(Cat 5e) 3m (x2) • 2 x Power cords (with IEC 320 C13 plug for Rack PDU) • Installation poster • HP StoreOnce Documentation CD (contains installation wizard, device drivers, and documentation, all localized in multiple languages)
HP StoreOnce 4500/4700 24 TB Upgrade Kit	BB881A	HP StoreOnce 4500/4700 Backup upgrade kit - a D2600 base enclosure offering additional 24 TB of RAW disk storage	<ul style="list-style-type: none"> • D2600 storage enclosure with 12 x 2 TB discs, redundant power supplies and fan modules. • Rack-mounting hardware kit • 0.5m mini-SAS cable + 2m mini-SAS cable • Two AC power cords and two PDU interconnect cords • Entitlement certificate • Installation instructions
HP StoreOnce 4500 48 TB Upgrade Kit	BB909A	HP StoreOnce 4500 Backup upgrade kit - a D2600 base enclosure offering additional 48 TB of RAW disk storage	<ul style="list-style-type: none"> • D2600 storage enclosure with 12 x 4 TB discs, redundant power supplies and fan modules. • Rack-mounting hardware kit • 0.5m mini-SAS cable + 2m mini-SAS DH cable • Two AC power cords and two PDU interconnect cords • Entitlement certificate • Installation instructions

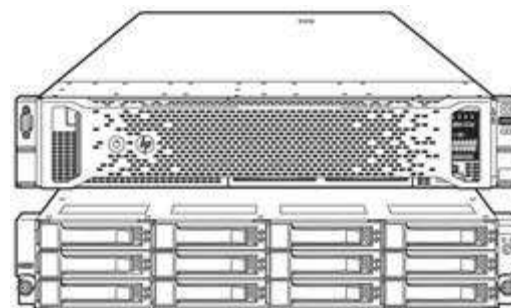
HP StoreOnce 4500 Backup

Also refer to [Software Options](#) to add licenses for:

- HP StoreOnce Replication
- HP StoreOnce Catalyst
- HP StoreOnce Enterprise Manager
- HP StoreOnce Security Pack

HP StoreOnce 4700 Backup

HP StoreOnce 4700 Backup



HP StoreOnce 4700 delivers cost-effective, scalable disk-based backup with deduplication for longer term on-site data retention and off-site disaster recovery for larger data centers or regional offices. It also provides a replication target device for up to 50 remote or branch offices. StoreOnce 4700 delivers a scalable 4U to 18U solution from 20 TB to 160 TB of usable*** capacity (24 TB to 192 TB RAW) and speeds of up to 22TB/hour* with HP StoreOnce Catalyst for protection of over 60 TB* of data in a 4-hour window

Overview Product Specifications

	StoreOnce 4700
Form Factor	4U Scalable Rack
Total capacity (raw)	Up 192 TB
Total capacity (usable***)	Up to 160 TB
Write performance (max)	7.6 TB/hour
Catalyst performance (max)	22 TB/hour
Max fan-in/backup targets	50

See [Detailed Technical Specifications](#) and [Physical Dimensions](#) later in this document for more details

NOTE: *Actual performance is dependent upon configuration, data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication.

***Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

Scalability

Start out with the HP StoreOnce base unit at 4U with 24TB RAW (20 TB usable) capacity. When you're ready, simply purchase up to 7 additional shelves using the corresponding storage expansion/capacity upgrade kit for up to 192 TB RAW (160 TB) of total usable storage. A fully configured StoreOnce 4700 is 18U.

Compatibility:

HP extensive compatibility testing program assures that your HP Backup systems work with leading servers, operating systems, and backup applications, including those not manufactured by HP.

Compatibility details on specific servers and the latest hardware compatibility information, can be found [HERE](#)

Configuration notes:

- HP StoreOnce 4700 Backup systems can be connected to the servers they protect via a 10Gb Ethernet network or 8Gb

HP StoreOnce 4700 Backup

Fibre Channel.

- They are supported on all 10Gb Ethernet network interface cards (NICs) and switches, dependent on product. 1Gb Ethernet network connections are also supported for sites without 10Gb Ethernet networks (with reduced performance)
- HP StoreOnce Backup systems are also supported on 100 base-T Ethernet networks, for connection for the Web GUI and CLI access, such as a management network in a Data Centre.
- This product is not supported on networks using slower Ethernet technology.

Warranty

Hewlett-Packard provides a 1 year parts exchange, 1 year labor, 1 year on site, normal business hours, next business day response for StoreOnce 4500, StoreOnce 4700, StoreOnce 4900 and StoreOnce 6500 Backup systems, plus 9x5 phone support for the duration of the warranty.

Purchasing information:

Product name	Part-number	Description	Includes
HP StoreOnce 4700 Backup	BB879A	HP StoreOnce 4700 Backup with 24 TB of RAW disk storage	<ul style="list-style-type: none"> • HP 4700 Backup (includes 2 x 1TB OS disks) • HP 4700 Backup Storage Enclosure (12 x 2TB disks) (with 2m SAS Cable) • Ethernet cable(Cat 5e) 3m (x2) • 4 x Power cords (with IEC 320 C13 plug for Rack PDU) • Installation poster • HP StoreOnce Documentation CD (contains installation wizard, device drivers, and documentation, all localized in multiple languages)
HP StoreOnce 4500/4700 24 TB Upgrade Kit	BB881A	HP StoreOnce 4500/4700 Backup upgrade kit - a D2600 base enclosure offering additional 24 TB of RAW disk storage	<ul style="list-style-type: none"> • D2600 storage enclosure with 12 x 2 TB discs, redundant power supplies and fan modules. • Rack-mounting hardware kit • 0.5m mini-SAS cable + 2m mini-SAS cable • Two AC power cords and two PDU interconnect cords • Entitlement certificate • Installation instructions

Also refer to [Software Options](#) to add licenses for:

- HP StoreOnce Replication
- HP StoreOnce Catalyst
- HP StoreOnce Enterprise Manager
- HP StoreOnce Security Pack

HP StoreOnce 4900 Backup

HP StoreOnce 4900 Backup



HP StoreOnce 4900 delivers cost-effective, scalable disk-based backup with deduplication for longer term on-site data retention and off-site disaster recovery for large data centers or regional offices. It also provides a replication target device for up to 50 remote or branch offices. The StoreOnce 4900 delivers a scalable 7U to 12U solution from 36 TB to 432 TB of usable*** capacity (60 to 560 TB RAW) and speeds of up to 22TB/hour* with HP StoreOnce Catalyst for protection of 74 TBs* of data in a 4-hour window.

Overview Product Specifications

	StoreOnce 4900
Form Factor	7 to 12U Scalable Rack (plus 1U support shelf- not shown)
Total capacity (raw)	Up 560 TB
Total capacity (usable***)	Up to 432 TB
Write performance (max)	8.5 TB/hour
Catalyst performance (max)	22 TB/hour
Max fan-in/backup targets	50

See [Detailed Technical Specifications](#) and [Physical Dimensions](#) later in this document for more details

NOTE: *Actual performance is dependent upon configuration, data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication.

***Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

Scalability

Start out with the 7U HP StoreOnce base unit with 60TB RAW (36 TB usable***) capacity. When you're ready, simply purchase up to 5x 44 TB (36 TB usable***) capacity upgrade kits to complete the first two storage drawers for up to 280 TB RAW (216 TB usable***).

If more storage is needed, simply purchase an additional expansion kit containing 60 TB RAW (36 TB usable***) capacity and again add up to 5 additional 44 TB (36 TB usable***) capacity upgrade kits to complete the second set of drawers for a total capacity of up to 560 TB RAW (432 TB usable***). Note that fully expanded the HP StoreOnce 4900 includes 4 drawers of disk (2 drawers in each unit). A fully configured HP StoreOnce 4900 is 12U (or 36 TB per U in terms of density).

HP StoreOnce 4900 Backup

Compatibility:

HP extensive compatibility testing program assures that your HP Backup Systems work with leading servers, operating systems, and backup applications, including those not manufactured by HP.

Compatibility details on specific servers and the latest hardware compatibility information, can be found [HERE](#)

Configuration notes:

- The StoreOnce 4900 can only be installed in racks which provide a distance from the front mounting-rail of the rack to the rear rack-face (the vertical rack surface onto which the rear doors close, the depth of the doors themselves should not be included) of at least 920mm to allow sufficient clearance at the rear for cabling and to allow the hot-swapping of fan modules, PSU modules and I/O modules. Additionally, 35mm of space is required between the front mounting-rail and the nearest point on the inside surface of the front door of the rack to provide sufficient space for the front panels of the system components when the front door is closed.
- HP StoreOnce 4900 Backup systems can be connected to the servers they protect via a 10Gb Ethernet or 8Gb Fibre Channel.
- They are supported on all 10Gb Ethernet network interface cards (NICs) and switches, dependent on product. 1Gb Ethernet network connections are also supported for sites without 10Gb Ethernet networks (with reduced performance)
- HP StoreOnce Backup systems are also supported on 100 base-T Ethernet networks, for connection for the Web GUI and CLI access, such as a management network in a Data Centre.
- This product is not supported on networks using slower Ethernet technology.
- If a second disk enclosure is to be installed, HP recommends installing the second disk enclosure below the head server unit. If the second disk enclosure is installed above the head server unit, a 1U support shelf supplied with the disk enclosure, should be installed immediately above the head server unit to protect it from the weight of the disk enclosure.

Warranty

Hewlett-Packard provides a 1 year parts exchange, 1 year labor, 1 year on site, normal business hours, next business day response for StoreOnce 4500, StoreOnce 4700, StoreOnce 4900 and StoreOnce 6500 Backup systems, plus 9x5 phone support for the duration of the warranty.

Purchasing information:

Product name	Part-number	Description	Includes
HP StoreOnce 4900 Backup	BB903A	HP StoreOnce 4900 Backup with 60 TB of RAW disk storage	<ul style="list-style-type: none"> • HP 4900 Backup (15 x 4 TB disks) • Ethernet cable(Cat 5e) 3m (x2) • 2 x Power cords (with IEC 320 C13 plug for Rack PDU) • Installation poster • HP StoreOnce Backup CD (contains installation wizard, device drivers, and documentation, all localized in multiple languages)
HP StoreOnce 4900 60TB Drawer/Capacity Upgrade Kit	BB904A	HP 4900 Backup additional drawers and capacity upgrade kit, D6000 base enclosure including additional	<ul style="list-style-type: none"> • 1 storage enclosure with 15 x 4 TB discs, redundant power supplied and fan modules.

HP StoreOnce 4900 Backup

		60 TB of RAW disk storage	<ul style="list-style-type: none">• Rack-mounting hardware kit• 0.5m mini-SAS cable + 2m mini-SAS cable• Two AC power cords and two PDU interconnect cords• Entitlement certificate
HP StoreOnce 4900 44TB Capacity Upgrade Kit	BB908A	HP 4900 Backup 44 TB Capacity Upgrade Kit	<ul style="list-style-type: none">• 11 x 4 TB disks and entitlement certificate

Also refer to [Software Options](#) to add licenses for:

- HP StoreOnce Replication
- HP StoreOnce Catalyst
- HP StoreOnce Enterprise Manager
- HP StoreOnce Security Pack

HP StoreOnce 6500 Backup

HP StoreOnce 6500 Backup

*shown with initial 120 TB 6500 Backup system
with 88 TB Capacity Upgrade Kit in a 42U rack*



HP StoreOnce 6500 takes HP StoreOnce to the enterprise, providing disk based backup with deduplication for cost effective, longer term on site data retention and off site disaster recovery. The highest performance HP StoreOnce Backup system, these highly scale-out solutions offer from 72 TB to 1728 TB of usable*** capacity (120 to 2240 TB RAW) and industry-leading aggregate speeds of up to 139 TB/hr* with StoreOnce Catalyst to match enterprise performance requirements and meet ever shrinking backup windows.

Overview Product Specifications

	StoreOnce 6500
Form Factor	Provided in a 42U rack
Total capacity (raw)	Up to 2240 TB
Total capacity (usable***)	Up to 1728 TB
Write performance (max)	63.2 TB/hour
Catalyst performance (max)	139 TB/hour
Max fan-in/backup targets	384

See [Performance Specifications](#), [Detailed Technical Specifications](#) and [Physical Dimensions](#) later in this document

***Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

Special feature: Highly Resilient

HP StoreOnce 6500 is designed with no single point of hardware failure. The hardware of the HP StoreOnce 6500's couplet is resilient to any one component failing. This means the following high availability features:

- Autonomic Restart and node failover
- RAID storage, with RAID6 as the minimum redundancy level (so each RAID set can survive a double disk failure)
- The front-end controllers (nodes) within a couplet are configured in failover mode so that if one controller fails all critical non-replaceable aspects of that controller are transparently moved to another controller and the failed controller is disabled.
- Dual storage controllers (RAID and JBOD), with cache mirroring between the RAID controllers (so that if a controller fails the data is preserved and is still written to media by the other controller)

HP StoreOnce 6500 Backup

- Dual paths to the disk drives
- 8 hot spare drives included within each couplet in the event of a disk failure
- Power failure protection for all caching within the storage
- Dual power supplies, such that the hardware will continue operating at full performance if one power supply is offline.
- Redundant fans, such that the hardware will continue operating at full performance if one fan is offline
- Mirrored system disks in each controller (node) to store the device operating system and software
- Front-end high availability (dual fabric support): each controller will have at least two front-end ports per port type to support the customer's external LAN/SAN fabrics. Thus if any fail there is still full access to every node in the device.
- Hot add additional storage or server nodes without scheduled downtime.
- A single GUI/CLI interface is presented from any one node in the system, if that controller fails then the GUI will automatically move to a different controller whilst still being presented at the same network address.

Scalability

Upgrading with HP StoreOnce 6500:

- Start out with the HP StoreOnce 6500 120 TB system consisting of two nodes connected in failover configuration as a couplet. This is delivered pre-integrated into HP's 42U racks which also contain the necessary networking capabilities for future expansion within the entire rack using an HP StoreOnce 6500 switch assembly.
- To scale-out in terms of capacity, simply add up to 5 capacity upgrade kits to each couplet. Each upgrade kit comprises 22 disks which are added symmetrically. Each upgrade kit contains 22x 4 TB disks, giving 88 TB RAW capacity (72TB usable***), allowing up to a maximum of 560 TB RAW capacity (432 TB usable***) associated with the original couplet. Capacity upgrade kits can be added to the couplet while the Backup System is online in order to reduce unnecessary downtime.

A fully configured couplet with 5 capacity upgrade kits, can be managed as a single file system of up to 560 TB RAW capacity (432TB usable***), however to optimize performance within a couplet, capacity usage should be balanced across both nodes within a couplet. To scale-out in terms of performance, add in one more HP StoreOnce 6500 120TB system and again scale up by adding capacity upgrade kits. This gives you a maximum configuration of two fully configured HP StoreOnce 6500 120 TB systems of two couplets with a total capacity of 1120 TB RAW capacity (864 TB usable***) in a single rack.

To scale-out to 2240TB RAW (1728 TB usable***) purchase the HP StoreOnce 6500 120TB Backup for extra Racks (contains additional base couplet, switch, cables and pulls in another 42U rack), and populate as before.

Upgrading an existing HP StoreOnce B6200:

Customers who have already invested in the HP StoreOnce B6200 are still able to expand their storage to its full capacity of 768 TB RAW (512 TB usable***) by purchasing additional capacity upgrade kits or utilizing mixed couplet support to scale up.

- To scale out in terms of capacity, simply add up to 3 capacity upgrade kits to each couplet for a maximum of 192 TB RAW capacity (128 TB usable***) per couplet. A fully configured couplet with 3 capacity upgrade kits, can be managed as a single file system of up to 192 TB RAW capacity (128 TB usable***), however to optimize performance within a couplet, capacity usage should be balanced across both nodes within a couplet.

***Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

HP StoreOnce 6500 Backup

Expanding an existing StoreOnce B6200 by adding StoreOnce 6500 couplet(s) via mixed couplet support:

- Facilitates expanding an existing 1 to 3 couplet B6200 configuration
- Existing B6200 does not have to be fully populated with capacity upgrades
- Existing configuration can be expanded to currently supported maximum of 4 couplets
- Existing B6200 system needs to be on 3.11.3 firmware as a minimum
- Use the table below to determine what components are necessary to complete the expansion (note that the 6500 couplets can be expanded beyond their initial capacity as usual by ordering the 6500 capacity upgrade kit – BB899A 88TB Capacity Upgrade Kit).

Existing Configuration		Upgrade	SKUs Required				
B6200 Couplet(s)	6500 Couplet(s)		BB897A For existing racks	BB897A#0D1 For existing racks, factory integrated	BB900A For extra racks	BB902A Mixed couplet interlink cable kit	BB912A Mixed couplet SFP kit
1	0	1	1	0	0	0	1
1	0	2	1	0	1	1	0
1	0	3	1	1	1	1	0
2	0	1	0	0	1	1	0
2	0	2	0	1	1	1	0
3	0	1	1	0	0	0	1
1	1	1	0	0	1	1	0
1	1	2	0	1	1	1	0
1	2	1	1	0	0	0	0
2	1	1	1	0	0	0	0

See [purchasing information](#) and [configuration notes](#) for more detail.

Compatibility:

HP StoreOnce 6500 Backup

HP's extensive compatibility testing program assures that your HP Backup Systems work with leading servers, operating systems, and backup applications, including those not manufactured by HP.

Compatibility details on specific servers and the latest hardware compatibility information, can be found [HERE](#)

Warranty

Hewlett-Packard provides a 1 year parts exchange, 1 year labor, 1 year on site, normal business hours, next business day response for StoreOnce 4500, StoreOnce 4700, StoreOnce 4900 and StoreOnce 6500 Backup systems, plus 9x5 phone support for the duration of the warranty.

Purchasing information:

Product name	Part-number	Description	Includes
HP StoreOnce 6500 120TB for Initial Rack	BB896A	HP StoreOnce 6500 Backup with 120 TB of RAW disk storage	<ul style="list-style-type: none"> HP 6500 Processing Nodes (2) HP 6500 Switch kit HP 6500 Storage Drawers (2)(each with 15* 4 TB HDDs) 4 x 0.5m Mini SAS cables 16 x 2m SAS-HD to Mini SAS cables 16 x Power cords (with IEC 320 C13 plug for Rack PDU) Provided in a 42U rack
HP StoreOnce 6500 88TB Capacity Upgrade Kit	BB899A	HP StoreOnce 6500 88 TB upgrade kit, offering additional 88 TB of RAW disk storage	<ul style="list-style-type: none"> 22 * 4 TB HDDs HP 6500 88TB Capacity Upgrade License Entitlement Certificate
HP StoreOnce 6500 120TB for Existing Rack (Note: for use in existing StoreOnce B6200/6500 systems only)	BB897A	HP StoreOnce 6500 Backup with 120 TB of RAW disk storage	<ul style="list-style-type: none"> HP 6500 Processing Nodes (2) HP 6500 Storage Drawers (2)(each with 15* 4 TB HDDs) 4 x 0.5m Mini SAS cables 12 x Power cords (with IEC 320 C13 plug for Rack PDU)
HP StoreOnce 6500 120TB for Second Rack	BB900A	HP StoreOnce 6500 Backup with 120 TB of RAW disk storage	<ul style="list-style-type: none"> HP 6500 Processing Nodes (2) HP 6500 Switch kit HP 6500 Storage Drawers (2)(each with 15* 4 TB HDDs) 4 x 0.5m Mini SAS cables 16 x 2m SAS-HD to Mini SAS cables 16 x Power cords (with IEC 320 C13 plug for Rack PDU) Provided in a 42U rack
HP StoreOnce B6200 to 6500 Interlink Kit	BB902A	Cables required to implement mixed couplet support between	<ul style="list-style-type: none"> 8 x 15m optical cables

HP StoreOnce 6500 Backup

		currently installed B6200 and 6500	<ul style="list-style-type: none"> 4 x 10GbE SFP+ transceivers
HP StoreOnce 6500 Mixed Couplet SFP Kit	BB912A	SFPs required to connect an HP StoreOnce 6500 Couplet (BB897A) into an existing HP StoreOnce B6200 installation to create a Mixed Couplet.	<ul style="list-style-type: none"> 4 x 10GbE SFP+ transceivers 8 x 2m SAS HD to Mini SAS cables

Also refer to [Software Options](#)

HP StoreOnce 6500 Detailed Performance Specifications

StoreOnce 6500 maximum RAW capacity TB				
	1 couplet	2 couplet	3 couplet	4 couplet
Base storage	120	240	360	480
1 * 88 TB expansion kit	208	416	624	832
2 * 88 TB expansion kit	296	592	888	1184
3 * 88 TB expansion kit	384	768	1152	1536
4 * 88 TB expansion kit	472	944	1416	1888
5 * 88 TB expansion kit	560	1120	1680	2240

NOTE: A maximum of 5 expansion kits can be used per couplet.

StoreOnce 6500 maximum usable*** capacity TB				
	1 couplet	2 couplet	3 couplet	4 couplet
Base storage	72	144	216	288
1 * 88 TB expansion kit	144	288	432	576
2 * 88 TB expansion kit	216	432	648	864
3 * 88 TB expansion kit	288	576	864	1152
4 * 88 TB expansion kit	360	720	1080	1440
5 * 88 TB expansion kit	432	864	1296	1728

StoreOnce 6500 with Data Deduplication (usable*** capacity using data deduplication at 20:1*)

	1 couplet	2 couplet	3 couplet	4 couplet
Base storage	1440	2880	4320	5760
1 * 88 TB expansion kit	2880	5760	8640	11520
2 * 88 TB expansion kit	4320	8640	12960	17280
3 * 88 TB expansion kit	5760	11520	17280	23040
4 * 88 TB expansion kit	7200	14400	21600	28800
5 * 88 TB expansion kit	8640	17280	25920	34560

NOTE: Actual results of data deduplication will vary with data type, change rates over time and backup methodologies used.

A maximum of 5 expansion kits can be used per couplet.

StoreOnce 6500 Performance*(maximum aggregated data transfer rate using VTL)

	1 couplet	2 couplet	3 couplet	4 couplet
Write Performance	15.8 TB/hr	31.6 TB /hr	47.4 TB /hr	63.2 TB /hr
Read Performance	18.8 TB/hr	37.6 TB /hr	56.4 TB /hr	75.2 TB /hr

StoreOnce 6500 with StoreOnce Catalyst Performance*(maximum aggregated data transfer rate using Catalyst)

	1 couplet	2 couplet	3 couplet	4 couplet

HP StoreOnce 6500 Backup

Write Performance	34.8 TB/hr	69.6 TB /hr	104.4 TB /hr	139.2 TB /hr
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NOTE: *Actual performance is dependent upon configuration, data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication.

***Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

Configuration notes:

Sizing the StoreOnce 6500:

- The HP Storage Sizer tool must be used to correctly size a deduplication and replication enabled system
- To optimize capacity utilization and in accordance with performance requirements, your capacity requirements should be planned following Recommended Configuration Guidelines. Please refer to the latest Concepts and Configuration Guide for more information: <http://h20565.www2.hp.com/portal/site/hpsc/public/psi/manualsResults/?sp4ts.oid=5196525>

Rack-configuring the StoreOnce 6500:

- The StoreOnce 6500 is mandatory factory integrated and shipped in a 42U rack
 - It can be re-racked, subject to a number of constraints.
 - Splitting the switch, server and/or storage of a 6500, between racks is not supported.
 - A minimum contiguous space of 18U is required to house a couplet and its associated switches.
 - If a customer does choose to re-rack, then future storage and/or couplet expansion must be taken into account and additional contiguous rack space allowed.
 - Full details of the re-racking constraints and process are available - please ask your sales representative or partner for details.
- To configure the StoreOnce 6500 use the steps below as a guide, but to place actual orders use Watson and CLIC to configure a system.
 - This is especially true for the customers 1st or 3rd 6500 which require mandatory factory express integration of the 6500 couplet and required switch kit into the 42U rack that does not need to be ordered separately, but is automatically added to the order configuration when the associated BB896A or BB900A SKU's are ordered.
 - When wishing to expand an existing system, the customers 2nd or 4th 6500 couplet (BB897A) is not factory integrated and can be ordered without the #OD1 option, as the 1st and 3rd 6500 couplets are already housed in the 42U racks and have been factory integrated with switch kits
- It is NOT possible to order BB897A or BB900A without first ordering BB896A. It is NOT possible to order BB896A without the factory integrated rack (BW904A)
- Option #OD1 must be added to products listed for essential factory integration, i.e. BB896A HP StoreOnce 6500 120TB for Initial Rack and/or BB900A HP StoreOnce 6500 120TB for Extra Racks

Factory Integrated Cluster:

	Couplet 1	Couplet 2	Couplet 3	Couplet 4
	HP StoreOnce 6500 120TB for Initial Rack BB896A		HP StoreOnce 6500 120TB for Extra Racks BB900A	
Rack	Automatically added to Config when BB896A ordered	If required, order BB897A HP StoreOnce 6500 120TB for Existing Rack	Automatically added to Config when BB900A ordered	If required, order BB897A HP StoreOnce 6500 120TB for Existing Rack
Add capacity	BB899A	BB899A	BB899A	BB899A

HP StoreOnce 6500 Backup

Add capacity	BB899A	BB899A	BB899A	BB899A
Add capacity	BB899A	BB899A	BB899A	BB899A
Add capacity	BB899A	BB899A	BB899A	BB899A
Add capacity	BB899A	BB899A	BB899A	BB899A
HP 6000 StoreOnce Replication License	Qty 1 - EJ026A\AAE	Qty 1 - EJ026A\AAE	Qty 1 - EJ026A\AAE	Qty 1 - EJ026A\AAE
HP 6000 StoreOnce Encryption License	Qty 1 - BB894A\AAE	Qty 1 - BB894A\AAE	Qty 1 - BB894A\AAE	Qty 1 - BB894A\AAE
HP 6000 StoreOnce Catalyst License	Qty 1 - BB895A\AAE	Qty 1 - BB895A\AAE	Qty 1 - BB895A\AAE	Qty 1 - BB895A\AAE

Factory Integrated Cluster - Additional Form Factors

	Couplet 1	Couplet 2	Couplet 3	Couplet 4
	HP StoreOnce 6500 120TB for Initial Rack BB896A		HP StoreOnce 6500 120TB for Extra Racks BB900A	
Couplet	18U	16U	18U	16U
Add capacity	N/A	N/A	N/A	N/A
Add capacity	N/A	N/A	N/A	N/A
Add capacity	N/A	N/A	N/A	N/A
Add capacity	N/A	N/A	N/A	N/A
Add capacity	N/A	N/A	N/A	N/A
NOTE: Capacity additions are housed within the existing Couplet footprint thus require no additional rack space				
HP 642 1075mm Shock Intelligent Series Rack	42U		42U	

Software Options

HP StoreOnce Catalyst

HP StoreOnce Catalyst brings to fruition the HP StoreOnce vision of seamless movement of deduplicated data across the enterprise. This is enabled by the single, integrated enterprise-wide deduplication algorithm. This means that you can benefit from:

- Federated Catalyst is a new feature for the StoreOnce multi-node products.
- StoreOnce Federated Catalyst allows Catalyst stores to span nodes simplifying backup management and optimizing available storage in large environments yet continues to provide high resiliency and optimize performance
- Catalyst over Fibre Channel provides all the ISV control and source side deduplication benefits of current StoreOnce Catalyst but via your Fibre Channel fabric meaning you don't have to invest in additional infrastructure
- Simplified management of data movement from a single pane of glass: tighter integration with your backup application to centrally manage file replication across the enterprise.
- Seamless control across complex environments: supporting a range of flexible configurations that enable the concurrent movement of data from one site to multiple sites, and the ability to cascade data around the enterprise (sometimes referred to as multi-hop).
- Enhance performance: distributed deduplication processing using StoreOnce Catalyst stores on the StoreOnce Backup systems and on multiple servers can optimize loading and utilization of backup hardware, network links and backup servers for faster deduplication and backup performance.
- Faster time to backup to meet shrinking backup windows: up to 139 TB/hour* aggregate throughput.

*Actual performance is dependent upon configuration data set type, compression levels, number of data streams, number of devices emulated and number of concurrent tasks, such as housekeeping or replication.

Ordering Information

HP StoreOnce Catalyst is available by electronic license for customers of any of the latest HP StoreOnce Backup systems with a wide range of backup applications via <http://www.webware.hp.com>.

Model / license for	StoreOnce License/E-LTU	Part number
HP StoreOnce 6500 and B6200	E-LTU	BB895AAE
	LTU	BB895A
HP StoreOnce 4900	E-LTU	BB906AAE
	LTU	BB906A
HP StoreOnce 4700	E-LTU	BB889AAE
	LTU	BB889
HP StoreOnce 4500	E-LTU	BB888AAE
	LTU	BB888A
HP StoreOnce 2000 series	E-LTU	BB887AAE
	LTU	BB887A

NOTE: HP StoreOnce VSA license already includes StoreOnce Catalyst. No additional license required.

Software Options

Configuration notes

- A StoreOnce Catalyst license is required for each appliance that will host Catalyst Stores. The license enables backup and copy to Catalyst Stores on the appliance.
- There is no need to purchase a replication license when using StoreOnce Catalyst Copy. However, if VTL or NAS replication is configured on the same appliance, a replication license will be required for each target appliance.
- Every StoreOnce Backup system (and 6500 couplet) that uses StoreOnce Catalyst requires a license
- StoreOnce Catalyst also provides seamless control of data movement across the organization and better utilization of servers, network bandwidth.
- StoreOnce Catalyst is supported by:
 - HP Data Protector
 - Symantec NetBackup (via an HP OST plugin)
 - Symantec Backup Exec (via an HP OST plugin)
 - Oracle RMAN (via an HP plugin)
 - BridgeHead Software.

HP StoreOnce Replication

- HP's data replication feature includes replication bandwidth limiting functionality, constraining the amount of bandwidth being used when replicating data for even more network-efficient replication. Without replication bandwidth limiting, a replication job could use as much bandwidth as is available, potentially making other network activities unresponsive. Replication bandwidth limiting is customer configurable at the appliance level via the graphical user interface and is set as a percentage of the available network bandwidth.

Ordering Information

HP delivers replication by license, either as a standalone replication solution, or as part of the [HP StoreOnce Catalyst licensing](#). With HP StoreOnce Backup, replication is licensed by VTL/NAS target, this means that with one replication license:

Model / license for	Max number of targets supported	Replication License/E-LTU	Part number
HP StoreOnce 6500 and B6200	384	E-LTU	EJ026AAE
		LTU	EJ0206A
HP StoreOnce 4900	50	E-LTU	BB905AAE
		LTU	BB905A
HP StoreOnce 4700	50	E-LTU	BB886AAE
		LTU	BB886A
HP StoreOnce 4500	24	E-LTU	BB885AAE
		LTU	BB885A
HP StoreOnce 2000 series	8	E-LTU	BB884AAE
		LTU	BB884A

NOTE: HP StoreOnce VSA license already includes replication. No additional license required.

Software Options

- Replication licenses enable an appliance to host replication target libraries. (No license is required for appliances which only act as replication sources)
- Licensing is "per appliance" i.e. a single license is required to enable an appliance to host as many replication target libraries as it is capable of.
- For the 6500 a separate license is required per couplet (EJ026A or EJ026AAE)
- No license is required for StoreOnce VSA to act as a replication target
- Licenses are delivered via www.webware.hp.com and are node-locked by appliance serial number (and are not transferable)
- This account license also provides authorization to download the HP OST Plug-in which enables NetBackup to manage deduplicated replication between appliances. Two replication licenses are required to use the OST Plug-in.

HP StoreOnce Enterprise Manager

HP StoreOnce Enterprise Manager (SEM) is a centralized management console to analyze up to 400 physical and virtual StoreOnce devices across multiple sites. It provides advanced monitoring, reporting, and forecasting and trend analysis in NAS, VTL, and StoreOnce Catalyst environments and integrates with the StoreOnce GUI for single pane-of-glass management - for both physical appliances and the StoreOnce VSA.

Specifically, SEM provides granular reporting and trends analysis of vital parameters such as disk capacity utilization, deduplication ratios, and performance and helps customers plan ahead by providing forecasts of disk usage and replication duration. All reports and graphs can be exported in CSV or PNG formats for further analysis. Users can also schedule e-mail reports for alerts and notifications, such as when pre-set capacity thresholds are crossed. SEM is supported on 64 bit machines only. StoreOnce Enterprise Manager software is available as a free download from www.hp.com/go/HPStoreOnce/FreeSoftware

In order to benefit from StoreOnce Enterprise Manager, StoreOnce Backup systems require the latest firmware, which can be obtained via a free firmware upgrade by following the "Support & Drivers" link on www.hp.com/go/storeonce or by following the "HP Support & Drivers" link from: www.hp.com

StoreOnce Enterprise Manager can be obtained free of charge from www.hp.com/go/HPStoreOnce/FreeSoftware

HP StoreOnce Security Package

The HP StoreOnce Security Package delivers a Data at Rest and Data in Flight encryption solution and secure Data Shredding features for data privacy, confidentiality, and integrity of your critical business data while supporting compliance requirements. These are configurable on a by application or by store basis ensuring that you have maximum control over the data you are protecting.

- HP StoreOnce Data at Rest encryption feature is a software-based solution which provides protection against unauthorized access to data through a stolen, discarded or replaced disk.
- Encryption occurs after data has been deduplicated and prior to writing the data onto disk
- Encryption is enabled on a per store basis (StoreOnce Catalyst, VTL, and NAS targets)
- Meets compliance needs using industry standard Advanced Encryption Standard (AES)-256 encryption algorithm
- Standard FIPS 140-2 level 1 capable

Software Options

- Local Key Management is included with 1 key per store and the ability to backup and restore keys
- HP StoreOnce Data in Flight encryption feature protects against unauthorized access of data being transferred over the wire between devices.
- Encryption is enabled via the operating system utilizing IPsec. At this point, Data in Flight encryption via IPsec is supported on StoreOnce Catalyst only. In addition, write performance may be impacted, however performance improvements should be seen after first ingest.
- Works between client and StoreOnce device or between StoreOnce devices
- HP StoreOnce Secure Erase feature protects against unauthorized recovery of deleted data by allowing customers to securely and permanently shred confidential data.
- Secure Erase can be carried out on all data backed up to a VTL, NAS or StoreOnce Catalyst Store
- The HP StoreOnce Secure Erase feature meets industry standards of NIST SP 800-88
- Secure Erase can erase with 1 pass or multiple random overwrites of 3, 5 or 7 passes

Ordering Information

An HP StoreOnce Security Pack license (2600, 2700, 2900, 4200, 4400, 4500, 4700, 4900, B6200, 6500) is required for each appliance. The StoreOnce Security Pack license for the 6000 is required per couplet. A 90 day trial license is available. Each license includes HP StoreOnce Data at Rest, Data in Flight Encryption and Secure Erase.

Model / license for	Security Pack License/E-LTU	Part number
HP StoreOnce 6500 and B6200	E-LTU	BB894AAE
	LTU	BB894A
HP StoreOnce 4900	E-LTU	BB907AAE
	LTU	BB907A
HP StoreOnce 4700	E-LTU	BB893AAE
	LTU	BB893A
HP StoreOnce 4500	E-LTU	BB892AAE
	LTU	BB892A
HP StoreOnce 2000 series	E-LTU	BB891AAE
	LTU	BB891A

How to Acquire StoreOnce Enterprise Manager, HP StoreOnce OST Plug-ins for Symantec NetBackup and Symantec Backup Exec and HP StoreOnce Plug-ins for Direct Backup to Catalyst Targets

HP StoreOnce Enterprise Manager, HP StoreOnce OST Plug-ins for Symantec NetBackup and Symantec Backup Exec and HP StoreOnce Plug-ins for Direct Backup to Catalyst Targets are acquired at zero cost using the following process:

- Go to www.hp.com/go/HPStoreOnce/FreeSoftware
- Read the information on the software you wish to acquire.
- Sign in using HP Passport credentials.
 - If you do not have a HP Passport account you need to create one. HP Passport is a single logon to access multiple HP resources. Sign-up is fast and free.

Software Options

- Read and accept the terms and conditions
- On the 'Software downloads and licenses' page select the software you wish to download.
- Follow instructions to complete download

Cabling and other options

Optional second PSU for StoreOnce 2700	HP 460W Common Slot Platinum Plus Hot Plug Power Supply Kit	656362-B21
HP 10GbE Connectivity	The following cables are recommended for HP 10GbE connectivity.	
	<i>NOTE: 10GbE SFPs are included in 4500, 4700, 4900 and 6500 but should be purchased separately for the B6200 or previous version of StoreOnce products.</i>	
10GbE Fibre Optic Modules	HP BladeSystem c-Class 10Gb SFP+ SR Transceiver	455883-B21
	<i>NOTE: Fibre transceivers and cables must be purchased separately for B6200 fibre-optic environments - 4 transceivers are required for each couplet.</i>	
HP ProCurve 10GbE Connectivity	The following cables are recommended for 10GbE connectivity with HP ProCurve network switches.	
Direct Attach Copper Cables	HP X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable	J9281B
	HP X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	J9283B
	HP X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable	J9285B
	HP X244 10G XFP to SFP+ 1m Direct Attach Copper Cable	J9300A
	HP 10G X244 XFP to SFP+ 3m Direct Attach Copper Cable	J9301A
	<i>NOTE: Direct Attach Cable (DAC) must be purchased separately for copper environments.</i>	
Fiber Optic Cables	PremierFlex OM4 FC cables	
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable	QK732A
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	QK733A
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable	QK734A
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable	QK735A
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable	QK736A
	HP Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable	QK737A
	OM3 FC cables	
	HP LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ833A
	HP LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ834A
	HP LC to LC Multi-mode OM3 2-Fiber 2.0m 1-Pack Fiber Optic Cable	AJ835A
	HP LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	AJ836A
	HP LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	AJ837A
	HP LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	AJ838A
	HP LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable	AJ839A
	<i>NOTE: Fibre transceivers and cables must be purchased separately for Fibre-optic environments. For additional information on 10Gb cable specifications go to: http://www.hewlett-packard.com/rnd/pdfs/10gig_cabling_technical_brief.pdf</i>	
Fiber Optic Cables	The following cables are available for connectivity with other 10GbE switch environments	
	HP LC to LC Multi-mode OM3 2-Fiber 0.5m 1-Pack Fiber Optic Cable	AJ833A
	HP LC to LC Multi-mode OM3 2-Fiber 1.0m 1-Pack Fiber Optic Cable	AJ834A

Cabling and other options

HP LC to LC Multi-mode OM3 2-Fiber 5.0m 1-Pack Fiber Optic Cable	AJ836A
HP LC to LC Multi-mode OM3 2-Fiber 15.0m 1-Pack Fiber Optic Cable	AJ837A
HP LC to LC Multi-mode OM3 2-Fiber 30.0m 1-Pack Fiber Optic Cable	AJ838A
HP LC to LC Multi-mode OM3 2-Fiber 50.0m 1-Pack Fiber Optic Cable	AJ839A

NOTE: Fibre transceivers and cables must be purchased separately for fiber-optic environments.

Detailed Technical Specifications

	StoreOnce VSA 4 TB	StoreOnce VSA 10 TB	StoreOnce VSA 50 TB	StoreOnce 2700	StoreOnce 2900	StoreOnce 4500	StoreOnce 4700	StoreOnce 4900	StoreOnce 6500
Form Factor	Virtual appliance	Virtual appliance	Virtual appliance	1U Rack	2U scalable rack	2U to 8U scalable rack	4U scalable rack	7 to 12U scalable rack	Provided in 42U 1075mm rack
Total Capacity (RAW)				8 TB	Up to 48 TB	Up to 168 TB	Up to 192 TB	Up to 560 TB	Up to 2240 TB
Total Capacity (Usable***)	up to 4 TB	up to 10 TB	1 to 50 TB	5.5 TB	Up to 31.5 TB	Up to 124 TB	Up to 160 TB	Up to 432TB	Up to 1728TB
Data retention with deduplication	80 TB	200 TB	1000 TB	110 TB	630 TB	2.48 PB	3.2 PB	8.6 PB	34 PB
Fan-in Max	8	8	8	8	24	24	50	50	384
Write Performance	400 GB/hr	800 GB/hr	2.4TB/hr	1.3 TB/hr	4.6 TB/hr	5.4 TB/hr	7.6 TB/hr	8.5 TB/hr	63.2 TB/hr
	<i>(max aggregated data transfer rate using VTL)</i>								
Read Performance	225 GB/hr	600 GB/hr	1.8TB/hr	700 GB/hr	3.4 TB/hr	3.5TB/hr	9.0 TB/hr	10.1 TB/hr	75.2 TB/hr
	<i>(max aggregated data transfer rate using VTL)</i>								
StoreOnce Catalyst Performance	1 TB/hr	2TB/hr	6 TB/hr	3.7 TB/hr	5.8 TB/hr	14TB/hr	22 TB/hr	22 TB/hr	139.0 TB/hr
	<i>(max aggregated data transfer rate)</i>								
Targets for backup applications	Catalyst, VTL, CIFS, NFS				2700, 2900, 4500, 4700: HP StoreOnce Catalyst, Virtual Tape Library (VTL) CIF			4900, 6500 HP StoreOnce Catalyst, Virtual Tape Library (VTL) NAS	
Device Interfaces	Up to 2 x 1GbE vNICs	Up to 2 x 1GbE vNICs	2 x 1GbE vNICs (min)	4 x 1 Gb Ethernet	2 x 10 Gb Ethernet, 4 x 1 Gb Ethernet	2 x 8 Gb Fibre Channel, 2 x 10 Gb Ethernet, 4 x 1 Gb Ethernet	4x 8 Gb Fibre Channel, 2 x 10 Gb Ethernet, 4 x 1 Gb Ethernet	4x 8Gb Fibre Channel, 4x 1Gb Ethernet, 4x10Gb Ethernet	8x 8Gb Fibre Channel, 8 x 1Gb Ethernet, 4 x10Gb Ethernet Per Couplet
Disk drives	n/a	n/a	n/a	2 TB, SAS 7200rpm, 3.5-inch	4TB, SAS 7200rpm, 3.5-inch	2 TB, SAS 7200rpm, 3.5-inch	2 TB, SAS 7200rpm, 3.5-inch	4TB, SAS 7200rpm, 3.5-inch	4TB, SAS 7200rpm, 3.5-inch
Number of Disk Drives	n/a	n/a	n/a	4	6 (min), 12 (max)	12 (min), 12x2 (max)	12 (min), 12x 8 (max)	15 (min), 140 (max)	30 (min), 560 (max)

***Actual usable capacity for customer data storage is dependent upon drive formatting, log file and meta data size, housekeeping backlog.

Detailed Technical Specifications

RAID Support	n/a	n/a	n/a	Hardware RAID 5	Hardware RAID 6	Hardware RAID 6	Hardware RAID 6	Hardware RAID 6	Hardware RAID 6
Total number of backup targets	4	12	16	8	24	24	50	50	384
<i>StoreOnce Catalyst, Virtual Tape Libraries and NAS backup targets combined</i>									
Max Number of Cartridges Emulated	2048	6144	8192	768	24,576	24,576	204,800	819,200	6,553,600
Power Requirements per power supply	n/a	n/a	n/a	100 to 120 VAC	100 to 120 VAC	100 to 120 VAC	100 to 120 VAC	<i>See table below</i>	<i>See table below</i>
<ul style="list-style-type: none"> • Range input voltage • Rated input frequency • Rated input current 	n/a	n/a	n/a	200 to 240 VAC	200 to 240 VAC	200 to 240 VAC	200 to 240 VAC		
	n/a	n/a	n/a	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz		
	n/a	n/a	n/a	4.5 A (at 120VAC)	4.5 A (at 120VAC)	4.5 A (at 120VAC)	10 A (at 100 VAC)		
				2.2 A (at 240 VAC)	2.2 A (at 240 VAC)	2.2 A (at 240 VAC)	4.9 A (at 200 VAC)		
Heat dissipated BTU	n/a	n/a	n/a	1773 BTU/hr (at 120 VAC)	2925 BTU/hr (at 100 VAC)	2925 BTU/hr (at 100 VAC)	3530 BTU/hr (at 100 VAC)	<i>See table below</i>	<i>See table below</i>
				1715 BTU/hr (at 240 VAC)	2812 BTU/hr (at 200 VAC)	2812 BTU/hr (at 200 VAC)	4600 BTU/hr (at 200 VAC)		
Rated steady-state power and max peak power	n/a	n/a	n/a	460 W (at 100 to 120 VAC)	750 W (at 100 to 120 VAC)	750 W (at 100 to 120 VAC)	800 W (at 100 VAC)		
				460 W (at 200 to 240 VAC)	750 W (at 200 to 240 VAC)	750 W (at 200 to 240 VAC)	900 W (at 120 VAC)		
							1200 W (at 200 to 240 VAC)		
Idle (disks spinning)	n/a	n/a	n/a	LWAd 5.9B LpAm	LWAd 5.1B LpAm	LWAd 5.1B LpAm	LWAd 5.1B LpAm		
				41.6dBA	35dBA	35dBA	35dBA		
Operating (random seeks to disks)	n/a	n/a	n/a	LWAd 5.9B LpAm	LWAd 5.1B LpAm	LWAd 5.1B LpAm	LWAd 5.1B LpAm		
				41.6dBA	35dBA	35dBA	35dBA		

Power requirements for StoreOnce 4900

Input Voltage	208V	220V	240V
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Detailed Technical Specifications

	<i>A</i>	<i>W</i>	<i>VA</i>	<i>BTU/hr</i>	<i>A</i>	<i>W</i>	<i>VA</i>	<i>BTU/hr</i>	<i>A</i>	<i>W</i>	<i>VA</i>	<i>BTU/hr</i>
Base configuration (1 drive enclosure) (total 15 drives)	6.7	1374	1384	4989	6.3	1373	1385	4987	5.8	1373	1387	4987
Expansion 1 (total 26 drives)	7.2	1490	1504	5427	6.8	1490	1503	5425	6.3	1490	1505	5425
Expansion 2 (total 37 drives)	7.8	1607	1619	5866	7.4	1606	1621	5863	6.8	1606	1623	5863
Expansion 3 (total 48 drives)	8.3	1724	1737	6304	7.9	1723	1739	6302	7.3	1723	1741	6302
Expansion 4 (total 59 drives)	8.9	1841	1854	6743	8.4	1840	1857	6740	7.7	1840	1859	6740
Expansion 5 (total 70 drives) (Max)	9.5	1957	1972	6683	9	1957	1975	6680	8.2	1957	1977	6680
Expansion 6 (additional drive enclosure) (total 85 drives)	13.8	2844	2866	10010	13	2843	2869	10008	12	2843	2872	10008
Expansion 7 (total 96 drives)	14.3	2960	2983	10448	13.6	2956	2987	10446	12.5	2956	2990	10446
Expansion 8 (total 107 drives)	14.9	3077	3100	10887	14.1	3076	3105	10884	13	3076	3108	10884
Expansion 9 (total 118 drives)	15.5	3194	3218	11325	14.6	3193	3222	11323	13.4	3193	3226	11323
Expansion 10 (total 129 drives)	16	331	3336	11764	15.2	3310	3340	11761	13.9	3310	3344	11761
Expansion 11 - Maximum Capacity (total 140 drives)	16.6	3427	3453	11704	15.7	3427	3458	11701	14.4	3427	3462	11701

Power requirements for StoreOnce 6500

Input Voltage	208V				220V				240V			
	<i>A</i>	<i>W</i>	<i>VA</i>	<i>BTU/hr</i>	<i>A</i>	<i>W</i>	<i>VA</i>	<i>BTU/hr</i>	<i>A</i>	<i>W</i>	<i>VA</i>	<i>BTU/hr</i>
1st-couplet base configuration (total 30 drives)	16.9	3479	3505	1247	15.9	3478	3510	12471	14.6	3478	3513	12471
Expansion 1 (total 52 drives)	18.0	3713	3741	13353	17.0	3711	3745	13348	15.6	3711	3750	13348
Expansion 2 (total 74 drives)	19.1	3946	3976	14230	18.1	3945	3981	14225	16.6	3945	3985	14225
Expansion 3 (total 96 drives)	20.2	4180	4211	15106	19.2	4178	4217	15101	17.6	4178	4221	15102
Expansion 4 (total 118 drives)	21.4	4413	4446	15983	20.2	4412	4452	15978	18.6	4412	4457	15978

Detailed Technical Specifications

Expansion 5 (total 140 drives) (Max)	22.5	4647	4682	16860	21.3	4645	4688	16855	19.6	4645	4693	16855
2nd-couplet base configuration (assuming 1st couplet at full capacity) (total 30 drives)	35.8	7394	7449	25841	33.9	7391	7459	25831	31.1	7391	7467	25832
Expansion 1 (total 52 drives)	36.9	7627	7685	26718	35.0	7624	7694	26708	32.1	7624	7703	26708
Expansion 2 (total 74 drives)	38.1	7861	7920	27595	36.0	7858	7930	27585	33.1	7858	7939	27585
Expansion 3 (total 96 drives)	39.2	8094	8155	28472	37.1	8091	8166	28462	34.1	8091	8175	28462
Expansion 4 (total 118 drives)	40.3	8328	8390	29349	38.2	8325	8401	29338	35.1	8325	8411	29339
Expansion 5 (total 140 drives) (Max)	41.5	8561	8626	30225	39.3	8558	8637	30215	36.0	8558	8647	30216

Physical Dimensions

Please refer to refer to the latest Concepts and Configuration Guide for more information:

<http://h20565.www2.hp.com/portal/site/hpsc/public/psi/manualsResults/?sp4ts.oid=5196525>

StoreOnce Backup system:		2700	2900	4500	4700	4900	6500 120TB for Initial Rack
Dimensions	Form factor	1U	2U	2U	4U	7U	42U
	Out of box	17.1 x 29.5 x 1.7 in (43.47 x 74.67 x 4.32 cm)	17.54 x 29.50 x 3.44 in (44.55 x 74.93 x 8.73 cm)	17.54 x 29.50 x 3.44 in (44.55 x 74.93 x 8.73 cm)	17.54 x 27.50 x 6.91 in (44.55 x 69.85 x 17.53 cm)	17.6 x 35.1 x 12.2 in (44.7 x 89.12 x 30.83 cm)	23.54 x 44.30 x 79.00 in (59.78 x 112.52 x 200.66 cm)
	Shipping	23.6 x 35.4 x 10.2 in (60 x 90 x 26 cm)	23.6 x 37.8 x 10.2 in (60 x 96 26 cm)	23.6 x 37.8 x 10.2 in (60 x 96 26 cm)	23.6 x 38.6 x 20.3 in (60 x 98 x 51.4 cm)	24.1 x 43 x 31.9 in (61 x 109 x 81 cm)	35.43 x 50.87 x 85.35 in (90 x 129.20 x 216.80 cm)
Weight	Out of box	45.6 lb (20.7 kg)	61.00 lb (27.7 kg)	61.00 lb (27.7 kg)	91.0 lb (41.2 kg)	249.28 lb (113 kg)	953 lb (433 kg)
	Shipping	70.1 lb (31.8 kg)	85.5 lb (38.8 kg)	85.5 lb (38.8 kg)	134 lb (60.9 kg)	297.62 lb (135 kg)	1162 lb (528 kg)
Environmental	Operating temperature	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 304.8 m (1.8°F per every 1000 ft) above sea level to a maximum of 3048 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). System performance may be reduced if operating with a fan fault or above 30°C (86°F).					

Detailed Technical Specifications

Shipping temperature -30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).

Operating humidity 10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, noncondensing.

StoreOnce Backup Upgrade Kits:		HP StoreOnce 2900 24TB Upgrade Kit	HP StoreOnce 4700 and 4500 24TB Upgrade Kit	HP StoreOnce 4500 48TB Upgrade Kit	HP StoreOnce 4900 44TB Drawer/Cap Upgrade Kit	HP StoreOnce 4900 60TB Drawer/Cap Upgrade Kit	6500 120TB for Existing Rack	6500 120TB for Extra Racks	6500 88TB Capacity Upgrade Kit
	Form factor	2U	2U	2U		5U	14U	42U	N/A
Dimensions	Out of box	17.99 x 22.3 x 3.47 in (45.0 x 56.7 x 8.8 cm)	17.99 x 22.3 x 3.47 in (45.0 x 56.7 x 8.8 cm)	17.99 x 22.3 x 3.47 in (45.0 x 56.7 x 8.8 cm)	n/a	17.6 x 35.1 x 89.12 x 22.1 cm	17.6 x 35.1 x 24.3 in (44.7 x 89.12 x 61.66 cm)	23.54 x 44.30 x 79.00 in (59.78 x 112.52 x 200.66 cm)	N/A
	Shipping	23.4 x 32.2 x 11.2 in (59.4 x 81.8 x 28.4 cm)	23.4 x 32.2 x 11.2 in (59.4 x 81.8 x 28.4 cm)	23.4 x 32.2 x 11.2 in (59.4 x 81.8 x 28.4 cm)	35.5 x 23 x 9.5 in / 90.2 x 54.4 x 24.1 cm	24.1 x 43 x 21.3 in (61 x 109 x 54 cm)	24.1 x 43 x 63.8 in (61 x 162 cm)	35.43 x 50.87 x 85.35 in (90 x 129.20 x 216.80 cm)	21.5 x 12.5 x 19.3 in (54.5 x 31.5 x 49 cm)
Weight	Out of box	52 lb (23.3 kg)	50 lb (22.6 kg)	52 lb (23.3 kg)		198.68 lb (90.31 kg)	556.87 lb (253.12 kg)	953 lb (433 kg)	43.56 lb (19.8 kg)
	Shipping	71lb (32 kg)	69 lb (31.3 kg)	71lb (32 kg)		238.78 lb (108.31 kg)	615.35 lb (279.12 kg)	1162 lb (528 kg)	50.16 lb (22.8 kg)

Service and Support, HP Care Pack, and Warranty Information

Service and Support, HP Care Pack, and Warranty Information

Service and Support, HP Care Pack, and Warranty Information

Services to accelerate time to results

HP Storage Services bring you a rich portfolio of consulting and support services designed to add value to our core storage products and solutions. We have the know-how and experience to put storage technology to work for you. We work closely with you as your strategic partner, leveraging our full services portfolio to make sure that everything works to optimize your enterprise.

Choose from services aligned to our storage product offerings and lifecycle. From mission-critical onsite services to innovative web-based remote support, you choose the precise level of attention and support your business demands.

Discover, plan, and design

Choose from a rich portfolio of services to make the most of HP StoreOnce Storage, so you can efficiently and affordably consolidate, manage, and extract value from unstructured data.

Start here to understand your data protection options. Next, develop a methodical plan and design the optimal HP StoreOnce Storage solution that addresses your unique technology requirements.

HP Backup Recovery Efficiency Analysis - Assessment of how efficiently backup components are being used as the amount of data to be backed up continues to grow exponentially via analysis intelligence and a snapshot of your current backup environment. <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8490ENW.pdf>

HP Backup Recovery Impact Analysis - Focus placed on service requirements and design as the key to success for gaining a clear understanding of the role of increasingly diverse data protection strategies. <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA4-1175ENW.pdf>

HP Backup Recovery Modernization - Initial discovery, interviews, reference architecture design, proposal content development, vendor grading, and final recommendations carried out so as to require minimal resources and locations on your part. <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA4-1199ENW.pdf>

Deploy and integrate

Implement HP StoreOnce Storage correctly-right from the start-so you can count on reduced risk and accelerated deployment, while implementing a best-practice configuration from day one. Then move on to proactively leverage products, tools, and technology to avoid problems and optimize performance. In this way, you get the most out of your HP StoreOnce Storage investment, as you keep your staff certified through project-based or residency services.

Installation of StoreOnce VSA and all aspects of the Virtual environment and are a customer responsibility. To configure StoreOnce VSA to act as a replication target or to host Catalyst Stores the appropriate service is required. The HP StoreOnce Data Replication Solution Service is required if the StoreOnce VSA is to act as a replication target. The HP StoreOnce Catalyst Solution Service is required if the StoreOnce VSA is to host Catalyst Stores and use Catalyst Copies.

HP StoreOnce Data Replication Solution Service - Three levels of service to deliver the right level of business continuity that enables you to easily manage disaster recovery while providing data replication across distances with HP StoreOnce Storage. <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA4-3945ENW.pdf>

HP StoreOnce Catalyst Solution Service - Configuration of the best possible performance for HP StoreOnce Catalyst software environments with your choice of three levels of service, based on the complexity of the environment and the level of service

Service and Support, HP Care Pack, and Warranty Information

desired. <http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA4-4489ENN.pdf>

HP StoreOnce Recovery Manager Central (RMC) Software Installation and Startup Service—Provides deployment of HP StoreOnce RMC software with features designed to help enable proper installation in the customer's storage environment and increase the benefit from the storage investment

HP StoreOnce Health Check - Proactive review of your HP StoreOnce Storage solution or other HP deduplication systems, including a review of operational, capacity, and performance data so you can rest assured that everything is operating effectively. <http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA4-3821ENN.pdf>

HP Storage Data Migration Services - End-to-end data migration service providing seamless discovery, assessment, planning, and design, completely customizable to your organization's storage area network or network attached storage environment and using innovative software to help you migrate to HP storage quickly and efficiently. <http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-0774ENW.pdf>

HP Storage and Data Consultant Residency Service - Strategic augmentation of your current environment with HP resources who become your trusted advisor to provide answers that are right for your storage and backup environment. <http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-9481ENW.pdf>

HP Proactive Select - A flexible way to purchase services to fit your environment with an extensive menu of HP Proactive Select event and technical services, such as onsite firmware upgrades, health checks, assessments, and education. <http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENW.pdf>

Operate and support

Choose the right support to maximize uptime, free up your resources, and achieve improved value-as you get the most out of the existing IT assets while accelerating time-to-revenue. HP Care Pack Services are sold by HP and HP Authorized Service Partners: Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools. Customers purchasing from a commercial reseller can find HP Care Pack Services at: www.hp.com/go/lookuptool

HP Proactive Care 24x7 - Hardware and software support services designed specifically for your technology with rapid access to Advanced Solution Center Specialists plus firmware and software management and best practice advice <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855ENW.pdf>

HP Proactive Care Advanced builds and incorporates on Proactive Care and also gives customers personalized technical and operational advice from an assigned, local Account Support Manager for personalized technical collaboration, flexible access to specialist skills to help optimize business critical IT, and enhanced Critical Incident Management to help so the business is not affected if there is a system or device outage. <http://h20195.www2.hp.com/v2/GetDocument.aspx?docname=4aa5-3259enw&404m=secure-erc>

HP Foundation Care - HP Foundation Care connects you to HP 24 hours a day, seven days a week for assistance on resolving issues - hardware onsite response within four hours and software call back within two hours after opening your case. Three years' coverage recommended with HP Care Pack Service.

HP Education Services - Comprehensive training for new, as well as experienced, storage administrators designed to expand your skills and keep you up to speed with the latest storage and virtualization technology from HP Storage. <http://education.hp.com/curr-storsan.htm>

Service and Support, HP Care Pack, and Warranty Information

Optimized Care - delivers best performance and stability through deployment and proactive management practices
 HP 24 X 7 Proactive Care Advanced Service , 70 HP Proactive Select Credits /first year

Standard Care-maintains high level of uptime, along with expert help to cut the cost and complexity of implementation and support
 HP 24 X 7 Proactive Care Service, 80 HP Proactive Select Credits /first year

Basic Care-Minimum recommended support
 HP 24 X 7 Proactive Care Service,, 10 HP Proactive Select credits/ year

Get connected and get back to business – HP Storage Technology Services provide the path to get your HP Storage solutions and your business connected to HP. Once connected, our experts are able to scan your system and run health checks, then use that data to create personalized reports and recommendations for actions to take to prevent problems and downtime.

HP Care Pack Flex Install Startup SKU & option bands 6500 StoreOnce Backup system

		Up to 4-Couplets, Initial Installation	Add-On Couplet without #0D1	Add-On 2 or 3 Couplets with Expansion Rack	Capacity Upgrade
		Same Site	Same Site	Same Site	Same Site
		(Quote qty one for each additional site)			
Part	Description	Service SKU			
BB896A	HP StoreOnce 6500 120TB Backup Couplet for Initial Rack	HA124A1#5RZ			
BB897A	HP StoreOnce 6500 120TB Backup Couplet for Existing Racks		HA124A1#5S0		
BB900A	HP StoreOnce 6500 120TB Backup Couplet for Additional Racks			HA124A1#5S1	
BB899A	HP StoreOnce 6500 88TB Capacity Upgrade Kit				HA124A1#5S2

Advanced start-up services

HP StoreOnce Catalyst Solution and Replication Solution Services. These are mandatory services included when the appropriate licenses are ordered. They provide a configuration and verification service in the Customer environment to optimize the benefits of deploying Replication and/or Catalyst functionality

Service and Support, HP Care Pack, and Warranty Information

HP Care Pack Flex Advanced Install Startup SKU & option bands

HP 6500 StoreOnce Backup system

		Level 1	Level 2	Scope of work
Same Site (Quote qty one for each additional site)				
Related Licenses	Description	Service SKU (level one required)		
EJ026A/AE HP StoreOnce 6000 Replication LTU (EJ026A/AE)	Data Replication Service	HA124A1#58E	HA115A1#58F	HA115A1#58G
TC397AAE TC396AAE BB895A/AE HP StoreOnce 6000 Catalyst LTU (BB895A/AE)	Catalyst Service	HA124A1#5TY	HA115A1#5TZ	HA115A1#5U0

HP StoreOnce Rack Transition service

This service provides for the re-racking of HP StoreOnce B6200 and 6500 products into a rack other than originally installed in. Per rack - HA124A1#5UK

HP StoreOnce Installation and Startup for single-node products; 2700, 4500, 4700, 4900 (Optional) -

First StoreOnce System - HA124A1 #55Q

Additional StoreOnce Systems on same site - HA124A1 #55R

Capacity upgrade (non #OD1) - HA113A1 #5KK

Per Event Service - HP StoreOnce System Health Check Service provides an assessment service for up to 2 StoreOnce Backup systems. Comparisons are made between the Customer set up and HP Best Practices and reports provided on how to improve the utilization of the StoreOnce product(s).

HP StoreOnce Health Check Service

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA4-3821ENW.pdf>

	Care Pack	Per Event	Contractual
Description	Service SKU		
StoreOnce Backup System Health Check Service	HM006A1	HM006AE	HM006AC

Remote Support Tools

HP Insight Remote Support: Count on proven technology to deliver secure, reliable 24x7 remote monitoring, diagnosis, and problem resolution, all available at no extra charge if you have an existing warranty, service agreement, or HP Care Pack Service with HP.

<http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-4676ENW.pdf>

Service and Support, HP Care Pack, and Warranty Information

For more information on HP Services and Support

To learn more on HP Storage Services, visit: www.hp.com/services/storage

Or contact your HP sales representative or HP Authorized Channel Partner

Or take a look at the following resources:

- HP StoreOnce Replication Solution Service Sales Brief <http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA4-4540ENW.pdf>
 - HP StoreOnce Replication Solution Service data sheet <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA4-3945ENW.pdf>
 - HP StoreOnce Catalyst Solution Service Sales Brief <http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA4-4480ENW.pdf>
 - HP StoreOnce Catalyst Solution Service data sheet <http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA4-4489ENW.pdf>
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Summary of Changes

Date	Version History	Action	Description of Change:
30-Mar-2015	From Version 5 to 6	Changed	Changes made throughout the entire document
30-Jan-2015	From Version 4 to 5	Changed	Edits made to 4900 support shelf, 6500 what's in the box contents and 'What's new' June '14 date removal
09-Jan-2015	From Version 3 to 4	Changed	Changes to the HP StoreOnce 6500 purchasing information table
15-Sep-2014	From Version 2 to 3	Changed	Update the firmware version number of the 6500 model.
18-Aug-2014	From Version 1 to 2	Changed	Changes were made throughout the Overview, Technical Specifications, and Software Options Sections. Product Descriptions Updated.

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