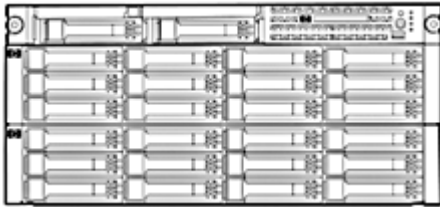


### Overview

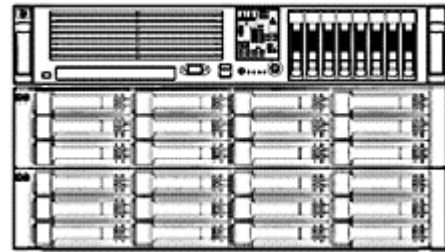
Are you frustrated with your current backup and recovery performance?

The HP StorageWorks 6000 Virtual Library System is a single-node solution that offers fast data protection and backup in complex SAN environments and scales in performance and capacity to 600 MB/sec and 122 TB of useable storage with 2:1 hardware compression. With the licensing of Accelerated deduplication which retains up to 50 times more data readily available on disk, you can obtain faster backup performance since the deduplication process doesn't impact the backup. Deduplication-enabled (previously called low-bandwidth) replication enables fast, low-cost disaster recovery between remote sites. The VLS6000 integrates seamlessly into existing backup applications and processes. It is a self-managed, auto configured, auto monitored and performance-tuned appliance and easily installed via a simple graphic interface. The VLS6000 uses RAID 6 technology and highly reliable ProLiant servers that reduce the risk of data loss.

### HP StorageWorks 6000 Virtual Library System



HP StorageWorks 6200 Virtual Library System



HP StorageWorks 6600 Virtual Library System

### Models

#### HP StorageWorks 6000 Virtual Library System

HP StorageWorks 6218 Virtual Library System	AH809B*
HP StorageWorks 6227 Virtual Library System	AH810B*
HP StorageWorks 6636 Virtual Library System	AH811B*
HP StorageWorks 6653 Virtual Library System	AH812B*
HP StorageWorks 6000 Virtual Library System Data Deduplication Capacity LTU	T9707A
HP StorageWorks 6000 Virtual Library System Data Deduplication Capacity E-LTU	T9707AAE
HP StorageWorks Virtual Library System Low Bandwidth Replication LTU	T5537A
HP StorageWorks Virtual Library System Low Bandwidth Replication E-LTU	T5537AAE

\*#0D1 will appear after this part number on your sales order when factory integration is indicated.

### Standard Features

#### 6000 Virtual Library System Customer benefits

- Seamless integration into current backup and recovery processes
  - Fast data restoration and backup performance
  - Cost-effective data protection and on-going management
  - Your valuable data is protected by HP, your trusted and experienced storage vendor.
- 

#### Key Features

- Accelerated deduplication and deduplication-enabled replication can be licensed for the VLS6000
- A single-node solution that offers industry-leading performance and easily scales in performance and capacity to 600 MB/sec and up to 122 TB of useable storage, with 2:1 hardware compression (VLS6600 only)
- Hardware RAID 6 reduces the risk of data loss
- Certified with popular backup software packages through HP StorageWorks Enterprise Backup Solution ([www.hp.com/go/ebs](http://www.hp.com/go/ebs))
- A highly available solution using HP ProLiant servers with redundant subsystems: fans, power supply units, hardware-mirrored systems disks and hot swap array drives
- Ships with Automigration - software included with the VLS GUI which simplifies moving cartridge data from the VLS to a tape library or another Virtual Library System.
- The VLS6000 supports up to 10,000 slots and 32,000 cartridges (only when using the VLS firmware version 3.X or higher required for Accelerated deduplication).

### Product Highlights

- 
- Accelerated deduplication** The VLS6000 now supports the option of capacity licensing for Accelerated deduplication. One VLS6000 license T9707A or T9707AAE (NOTE: Electronic software is available in all countries except China and Japan. For China and Japan should order the physical equivalent.) is required for each shelf with 250 GB or 500 GB disks (4.4 TB) and two licenses are required for each shelf with 750 GB disks (6.6 TB) or 1 TB disks (8 TB). Accelerated deduplication retains up to 50 times more data readily available on disk by replacing redundant blocks of data with pointers to the original block. Accelerated deduplication delivers fast backup performance since the deduplication process does not impact the backup. Accelerated deduplication delivers fast restore performance since the latest backup copy is always retained in its entirety while data reduction occurs on the previous backups. Accelerated deduplication needs to recognize the specific backup application being used since it initially strips out the cartridge headers in order to decompose all the files and data types in order to do file-level comparisons to previous backups.
- 
- Seamless integration** The HP 6000 Virtual Library System is deployed, managed and operated just like a tape library minimizing disruptions to your environment. Emulations include the HP ESL E-series and MSL tape libraries as well as 1/8 G2 tape autoloaders. The VLS6000 also emulates the HP Ultrium 230 Tape Drives (LTO-1), HP Ultrium 460 Tape Drives (LTO-2), HP Ultrium 960 Tape Drives (LTO-3), HP Ultrium 1840 Tape Drives (LTO-4 capacity only, no encryption), DLT 7000, DLT 8000, and SDLT 320 Tape Drives.
- 
- Fast data restoration and backup performance** A single-node solution that offers industry-leading performance and easily scales in performance and capacity to 600 MB/sec and 122 TB of useable storage, with 2:1 hardware compression (VLS6600 only) without impact on performance. Accelerated deduplication (an optional license) retains up to 50 times more data readily available on disk. Accelerated deduplication delivers fast backup performance since the deduplication process does not impact the backup.
- 
- Cost-effective data protection and on-going management** A self-managed, auto-configuration, auto-monitoring and self diagnosis, auto performance-tuning and load-balancing appliance that is easily installed through a simple interface. As environments and needs change, so does the VLS6000.
- 
- Reliability** While the HP 6000 Virtual Library System contains reliable hardware featuring hot plug disk drives, standard redundant power supplies and fans as well as hardware RAID 6 protection, the real reliability is for your data protection process. Simplifying the process by which storage is shared means fewer errors occur, allowing your process to run more smoothly and faster.
- 
- Deduplication-enabled Replication** The HP StorageWorks 6200 and 6600 Virtual Library Systems support the license of deduplication-enabled replication. This application, which layers on top of Accelerated deduplication, allows customers to implement low-cost disaster recovery between multiple geographically-dispersed data centers. It allows these VLS systems to synchronize via low cost IP-WAN connections by only sending the changes (after data deduplication) across the wire. Deduplication-enabled replication provides an improved disaster recovery solution that allows customers to reduce or eliminate off site vaulting of tapes (including associated services) and reduce or eliminate media handling costs.
-

### Product Highlights

#### Automigration

The HP StorageWorks 6200 and 6600 Virtual Library Systems support Automigration. This service is a form of "disk cache to tape", called "echo copy", which allows copies of data to be moved off the virtual library to a physical library or another VLS under the control of the VLS, not the backup application. Future updates will allow full integration with ISVs via SMI-S 1.3 specifications supporting what is known as "smart copy". HP Data Protector 6.1 supports smart copy. Automigration is an HP developed intellectual property and does not require licensing. SAN based Automigration is only supported on non-deduplication/replication enabled VLS systems.

#### Automigration - Echo Copy

Echo copy can streamline the process and reduce the costs of making physical tape cartridges from virtual tape cartridges, for vaulting and off-sitting purposes. Echo copy is run through the Automigration software (a tab on the VLS GUI), not the backup application. It acts as a transparent disk cache to the physical library, so that the backup application writes to virtual cartridges in the virtual library, and Automigration then automatically schedules the copies from virtual cartridges to their matching physical cartridges (with the same barcodes) based on the Automigration policies the user establishes.

Since Echo copy is managed through the Automigration software, not the backup application, the destination library is not visible to the backup application - so no licensing is required. Copy traffic is no longer routed through the SAN which speeds up the copy process. Since the tape library is dedicated to the VLS no copy servers are required. Echo copy also eliminates the need for tape-to-tape copy administration since this is automated through copy policy management. All destination tapes created by echo copy are in the native tape format, so they can be easily restored directly from any tape drive or library that is visible to the backup application.

#### Automigration - Smart Copy

Smart copy provides the same capabilities with one important exception. Smart Copy allows the backup ISV to initiate the copy with the VLS6000 actually implementing the move. The cartridge bar codes between the two copies are different and the backup ISV is able to track the move. SMI-S 1.3 support is required by the ISV to be able to implement Smart Copy. HP Data Protector 6.1 supports smart copy.

#### Data Protection Software & ISV support

Check the EBS website for the latest VLS and Accelerated deduplication supported backup ISVs and data types <http://www.hp.com/go/ebs>

#### Electronic Software Delivery

Electronic software is now available in most countries. HP recommends purchasing electronic products over physical products when available for faster delivery and the convenience of not having to manage either file away or throw away-confidential paper licenses. For more information, please contact an HP representative.

#### Compatibility

HP's Enterprise Business Solutions (EBS) assures that your HP StorageWorks 6000 Virtual Library System works with leading servers, operating systems, and backup applications - and not just those sold by HP. Based on a foundation of extensive interoperability testing, EBS 1-2-3 provides a step-by-step methodology for designing, configuring, and implementing your SAN ensuring HP VLS6000 will work seamlessly in many environments. HP VLS6000 is especially suitable in a mixed system environment. For the latest list of servers, workstations, operating systems, and backup software that support HP 6000 Virtual Library System, check the tape backup compatibility pages on our web site at: <http://www.hp.com/go/ebs>.

### Product Highlights

#### Server Compatibility

The HP StorageWorks 6000 Virtual Library System is supported on many popular industry servers including HP ProLiant and HP-UX servers. For a complete list of HP and third party servers, please visit the Enterprise Backup Solution on the Worldwide web at: <http://www.hp.com/go/ebs>.

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#### OS Support

HP provides extensive support on most major operating systems. For the most up-to-date information, please visit the latest compatibility matrix at <http://www.hp.com/go/ebs>

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#### Backup Software Support

The HP StorageWorks 6000 Virtual Library System is supported on leading backup software applications. As new certifications are achieved, they are posted on the Enterprise Backup Solution Compatibility Matrix. Please visit <http://www.hp.com/go/ebs> for the latest compatibility information.

### Warranty Information, HP Care Pack, and Service and Support

**Warranty and Services Included with the Product** Hewlett-Packard provides a 1-year, next-day, on-site, limited warranty for the HP StorageWorks VLS9000 hardware, plus 9x5 phone support for the duration of the warranty. All hard drive modules have a 1-year, parts exchange, limited warranty, with next business day response, plus 9x5 phone support for the duration of the warranty.

HP warrants only that the Software media will be free of physical defects for a period of ninety (90) days from delivery.

For more information about HP's Global Limited Warranty and Technical Support, visit:  
[ftp://ftp.compaq.com/pub/products/storageworks/warranty/en\\_321708-008.pdf](ftp://ftp.compaq.com/pub/products/storageworks/warranty/en_321708-008.pdf)

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### For increased uptime, productivity and ROI -HP Care Pack packaged services for Storage

These days, you need to get the most out of your storage investment-you can't afford not to. When you buy HP storage products and solutions, it's also a good time to think about what levels of service and support you may need. To help take the worry out of deploying, designing, maintaining, and managing your environment, we've designed a portfolio of service options that are as: flexible, reliable and scalable as your storage. Unlike storage-only vendors, we take a holistic approach to your entire environment, bridging storage, servers, blades, software and network infrastructures with our HP Care Pack packaged services for Storage.

#### Protect your business beyond the warranty

When it comes to robustness and reliability, standard warranties on today's computing equipment have matured just as the technologies have matured. Good news on some fronts-but also a source of potential problems and subsequent consequences that come from depending on standard warranties alone. Standard warranty protects against product defects and some causes of downtime- but not the business. By using a standard approach to warranty uplifts, such as HP Care Pack Services, you can reduce downtime risks and be more certain of operational consistency for both mission-critical and standard business computing. Simply put, HP Care Pack Services normalize the warranty of combined products - helping you proactively guard against unplanned downtime.

#### Extending warranties with HP Care Pack Services

For cost-effective upgrading or extending your standard warranty, HP Care Pack Services offer a suite of standard reactive hardware and software support services that are sold separately, or combined as with our Support Plus and Support Plus 24 services. The portfolio also provides a combination of proactive and reactive services, such as Proactive 24 Service and Critical Service. In addition, with HP Proactive Select we offer an innovative approach to service delivery that gives you the flexibility to acquire the specific proactive services you need today, then add services as your needs evolve. HP Proactive Select offers a broad set of technical or per-event type service options - including server, storage, and network, SAN device, and software, environment, installation and education services. Services that you can mix and match depending on your specific requirements, from preliminary planning and equipment delivery to installation, configuration, integration, and testing, through every level of ongoing support. Our HP Care Pack packaged services for Storage assures help when you need it most. And for many products, post-warranty HP Care Pack Services are available when your original warranty has expired.

#### HP Storage Services: Offering reliability, flexibility and value-just like your storage

HP Storage Services offers a full spectrum of customer care, from technology support to complex migrations to complete completely managed services. HP Factory Express provides customization, integration and deployment services for turnkey solutions. HP Education offers flexible, comprehensive training on storage networking, disk storage systems, and storage software to help your IT staff get the most out of your investments. And HP Financial solutions extend innovative financing and asset management programs to cost-effective buy, manage and eventually retire your older equipment.

HP Storage Services, the trusted business technology experts who manage your technology in action, because when technology works, business works. <http://www.hp.com/hps/storage>



### Warranty Information, HP Care Pack, and Service and Support

**NOTE:** Care Pack Services availability may vary by product and country.

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 <http://www.hp.com/go/lookuptool>

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#### Recommended HP Care Pack Services for optimal satisfaction with your HP product.

##### Recommended Support **3-Year HP Support Plus 24**

For a higher return on your storage investment, HP Support Plus 24 provides integrated hardware and software support services designed specifically for your technology. Available 24x7, this 3-year combined reactive support option delivers onsite hardware support and over-the-phone software support around-the-clock. Leverage the full strength of HP Technology Services - customers can trust the services professionals at HP to work collaboratively with them, putting our strategic and technical know-how to work across their entire infrastructure.

- Improve uptime with responsive hardware and software services
- Enjoy consistent service coverage across geographically dispersed sites
- Update HP software at a predictable cost
- Increase customer satisfaction-with no interoperability gaps

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6638EN.pdf>

##### Recommended Deployment

##### HP Installation and Startup Service for HP StorageWorks VLS Tape Libraries

For smooth startup, HP Installation and Startup Service for HP StorageWorks VLS Tape Libraries provides for the deployment of HP StorageWorks libraries, including library sub-components in SAN environments. In today's new era of business technology- customers can trust the services professionals at HP to work collaboratively with them, putting our strategic and technical know-how to work across their entire infrastructure.

- Installation and startup by an HP technical specialist
- Availability of an HP service specialist to answer basic questions during the delivery of this service
- Delivery of the service at a mutually scheduled convenient time
- Verification prior to installation that all service prerequisites are met
- A project manager to manage the implementation of the service engagement (Implementation Service only)
- Service performed by an HP technical specialist
- Delivery of the service at a mutually scheduled time
- Product installation according to the product specifications
- Deployment activities designed to bring the Fibre Channel-based tape library into operation
- Improved performance
- Higher value of the HP StorageWorks VLS libraries due to leveraging of HP knowledge in implementing Fibre Channel-based systems and solutions
- Fewer implementation-related disruptions in the IT environment
- Increased system reliability and more effective data management
- Installation that adheres to the product specifications and supports business configuration requirements

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA1-1971ENW.pdf>

### Warranty Information, HP Care Pack, and Service and Support

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Related HP Care Pack Services that will enhance your HP product experience.

#### Related Services

#### HP Data Replication Solution Services for HP StorageWorks Virtual Library System

For businesses looking to support data replication between data centers for disaster recovery:

To help you safeguard your critical business information, HP Data Replication Solution Service provides implementation of the replication feature of the VLS product family. This service provides the analysis, design, implementation, and testing services necessary to deploy optimal functionality of real time data replication on a VLS product. This service provides comprehensive implementation and test plans for data replication at the Customer location. With special consideration for data availability, consistency, currency, and I/O performance, our storage specialist will collaborate with the Customer designated IT storage administrator to plan, design, and optimize the configuration.

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA2-4818ENW.pdf>

#### HP Backup and Recovery Solution Service

For customers who need help implementing their backup software:

Rapid recovery from system downtime can hinge on the efficiency of your backup and recovery management environment - and on how well that environment is integrated with your storage infrastructure. But integration processes can be time-consuming and complex, and your IT resources are already stretched thin. Where can you find the expert help you need?

For fast, effective integration of your backup solution into an existing or new storage infrastructure, turn to the storage experts at HP Services. Our Backup and Recovery Solution Service (BRSS) provides end-to-end management of your backup integration process. The BRSS team works with you to analyze your business and IT environment; develop a comprehensive integration plan and timetable; design an architecture that suits your critical requirements; install backup software; implement your solution; and validate your configuration.

<http://h20195.www2.hp.com/v2/GetPDF.aspx/5982-7441EN.pdf>

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#### eSupport

HP eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

#### Support Portal

The HP support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

Features include:

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires an HP service agreement. To access the support portal, visit: <http://www.hp.com/support>

### Warranty Information, HP Care Pack, and Service and Support

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HP Insight Remote Support software delivers secure remote support for your HP Servers and Storage, 24 X 7, so you can spend less time solving problems and more time focused on your business. You can have your systems remotely monitored for hardware failure using secure technology that's been proven at thousands of companies around the world. In many cases, you can avoid problems before they occur.

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#### Customer Technical Training

Consider education as an integral part of your strategy to get the best return on investment for your HP storage solution. HP offers a variety of training courses on storage software, networking, archiving and disk storage systems. Our classes are available in many delivery modalities from traditional instructor-led courses at one of our 80 training centers worldwide to on-site training customized to your needs or online. [www.hp.com/learn/storage](http://www.hp.com/learn/storage)

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#### HP Services Awards

HP Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction. For a list of all our awards, please visit <http://h20219.www2.hp.com/services/cache/433028-0-0-225-121.html>

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#### Additional Services Information

For more information about HP Care Pack Services for Storage, please visit: <http://www.hp.com/hps/storage>

If you have specific questions, contact your local HP representative. Contact information for a representative in your area can be found at "Contact HP" <http://www.hp.com>

### Kit Contents

Model	Description	Part Number
HP 6218 Virtual Library System	HP StorageWorks 6218 Virtual Library System Supplied with each Virtual Library System <ul style="list-style-type: none"><li>● HP StorageWorks 6200 Virtual Library System node</li><li>● HP StorageWorks MSA20 Storage Enclosure configured with twelve 500 GB SATA disk drives</li><li>● Includes full 16 GB of RAM</li><li>● Serial Cable</li><li>● Installation Poster</li><li>● HP 6000 Virtual Library System Documentation CD</li><li>● System recovery CD</li><li>● 4 IEC power cords (2 for the node, 2 for the MSA20)</li></ul>	AH809B*

\*#0D1 will appear after this part number on your sales order when factory integration is indicated.

HP 6227 Virtual Library System	HP StorageWorks 6227 Virtual Library System Supplied with each Virtual Library System <ul style="list-style-type: none"><li>● HP StorageWorks 6200 Virtual Library System node</li><li>● HP StorageWorks MSA20 Storage Enclosure configured with twelve 750 GB SATA disk drives</li><li>● Includes full 16 GB of RAM</li><li>● Serial Cable</li><li>● HP StorageWorks Command View Tape Library Software CD</li><li>● Installation Poster</li><li>● HP 6000 Virtual Library System Documentation CD</li><li>● HP Command View Tape Library Software Documentation CD</li><li>● System recovery CD</li><li>● 4 IEC power cords (2 for the node, 2 for the MSA20)</li></ul>	AH810B*
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\*#0D1 will appear after this part number on your sales order when factory integration is indicated.

HP 6636 Virtual Library System	HP StorageWorks 6636 Virtual Library System Supplied with each Virtual Library System <ul style="list-style-type: none"><li>● HP StorageWorks 6600 Virtual Library System node</li><li>● Two HP StorageWorks MSA20 Storage Enclosure each configured with twelve 500 GB SATA disk drives</li><li>● Includes full 16 GB of RAM</li><li>● Serial Cable</li><li>● HP StorageWorks Command View Tape Library Software CD</li><li>● Installation Poster</li><li>● HP 6000 Virtual Library System Documentation CD</li><li>● HP Command View Tape Library Software Documentation CD</li><li>● System recovery CD</li><li>● 6 IEC power cords (2 for the node, 2 for each MSA20)</li></ul>	AH811B*
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\*#0D1 will appear after this part number on your sales order when factory integration

### Kit Contents

is indicated.

<b>HP 6653 Virtual Library System</b>	HP StorageWorks 6653 Virtual Library System Supplied with each Virtual Library System <ul style="list-style-type: none"><li>● HP StorageWorks 6600 Virtual Library System node</li><li>● Two HP StorageWorks MSA20 Storage Enclosure each configured with twelve 750 GB SATA disk drives</li><li>● Includes full 16 GB of RAM</li><li>● Serial Cable</li><li>● HP StorageWorks Command View Tape Library Software CD</li><li>● Installation Poster</li><li>● HP 6000 Virtual Library System Documentation CD</li><li>● HP Command View Tape Library Software Documentation CD</li><li>● System recovery CD</li><li>● 6 IEC power cords (2 for the node, 2 for each MSA20)</li></ul>	AH812B*
	*#0D1 will appear after this part number on your sales order when factory integration is indicated.	
<b>HP 6000 Virtual Library System 2.5 TB Capacity Bundle</b>	HP StorageWorks 6000 Virtual Library System 2.5 TB Capacity Bundle Supplied with each Virtual Library System Capacity Bundle <ul style="list-style-type: none"><li>● HP 6000 Virtual Library System Capacity License (T4259A)</li><li>● HP StorageWorks MSA20 Storage Enclosure configured with twelve 250 GB SATA disk drives</li><li>● 2 IEC power cords</li><li>● Installation Poster</li></ul>	AF730A*
	*#0D1 will appear after this part number on your sales order when factory integration is indicated.	
<b>HP 6000 Virtual Library System 4.4 TB Capacity Bundle</b>	HP StorageWorks 6000 Virtual Library System 4.4 TB Capacity Bundle Supplied with each Virtual Library System Capacity Bundle <ul style="list-style-type: none"><li>● HP 6000 Virtual Library System Capacity License (T4259A)</li><li>● HP StorageWorks MSA20 Storage Enclosure configured with twelve 500 GB SATA disk drives</li><li>● 2 IEC power cords</li><li>● Installation Poster</li></ul>	AG170A*
	*#0D1 will appear after this part number on your sales order when factory integration is indicated.	
<b>HP 6000 Virtual Library System 6.6 TB Capacity Bundle</b>	HP StorageWorks 6000 Virtual Library System 6.6 TB Capacity Bundle Supplied with each Virtual Library System Capacity Bundle <ul style="list-style-type: none"><li>● HP 6000 Virtual Library System Capacity License (T4259A) - contains quantity 2</li><li>● HP StorageWorks MSA20 Storage Enclosure configured with twelve 750 GB SATA disk drives</li><li>● 2 IEC power cords</li></ul>	AH813A*

### Kit Contents

- Installation Poster

\*#0D1 will appear after this part number on your sales order when factory integration is indicated.

#### HP 6000 Virtual Library System 8 TB Capacity Bundle

HP StorageWorks 6000 Virtual Library System 8 TB Capacity Bundle  
Supplied with each Virtual Library System Capacity Bundle

AL564A\*

- HP 6000 Virtual Library System Capacity License (T4259A) - contains quantity 2
- HP StorageWorks MSA20 Storage Enclosure configured with twelve 1 TB SATA disk drives
- 2 IEC power cords
- Installation Poster

\*#0D1 will appear after this part number on your sales order when factory integration is indicated.

#### HP 6000 Virtual Library System 2Gb Upgrade Node

HP 6000 Virtual Library System 2Gb Upgrade Node  
Supplied with each 2Gb Upgrade Node

AP334A

- HP StorageWorks 6600 Virtual Library System node
- Includes full 16 GB of RAM
- Includes 3.x Accelerated deduplication firmware
- Serial Cable
- HP StorageWorks Command View Tape Library Software CD
- Installation Poster
- HP 6000 Virtual Library System Documentation CD
- HP Command View Tape Library Software Documentation CD
- System recovery CD
- 2 IEC power cords

**NOTE:** This node is intended to upgrade older VLS6000 systems (VLS61xx, VLS65xx and VLS68xx) to take advantage of Accelerated deduplication and deduplication-enabled replication. If the system is a VLS68xx with greater than 8 shelves of storage, the system will have to be split into two separate systems (needing 2 upgrade nodes) to be a supportable VLS6600 configuration.

#### VLS6000 Capacity License

HP StorageWorks 6000 Virtual Library System Capacity License

T4259A/  
T4259AAE\*\*

Supplied with each Virtual Library System Capacity License

- HP 6000 Virtual Library System Capacity License

**NOTE:** This product enables a customer supplied MSA20 with twelve 250 GB, 500 GB, 750 GB or 1 TB hard disk drives (HDDs) to be licensed to an existing HP 6000 Virtual Library System. If you require the hardware and the license, purchase the HP 6000 Virtual Library System 2.5 TB Capacity Bundle (AF730A), the HP 6000 Virtual Library System 4.4 TB Capacity Bundle (AG170A), the HP 6000 Virtual Library System 6.6 TB Capacity Bundle (AH813A) or the HP 6000 Virtual Library System 8 TB Capacity Bundle (AL564A).

**NOTE:** Partial configurations cannot be added to the HP 6000 Virtual Library System



### Kit Contents

- each MSA20 must have 12 HDDs of the same capacity installed. 2.5 TB and 4.4 TB shelves require 1 license for each shelf, 6.6 TB and 8 TB shelves require 2 licenses for each shelf.

\*\*Electronic software is available in all countries except China and Japan. For China and Japan should order the physical equivalent.

#### HP VLS6000 Data Deduplication Capacity LTU

HP StorageWorks 6000 Virtual Library System Deduplication Capacity LTU

T9707A/  
T9707AAE\*\*

Supplied with license

- One VLS6000 license T9707A or T9707AAE\*\* is required for each shelf with 250 GB or 500 GB disks (4.4 TB) and two licenses are required for each shelf with 750 GB disks (6.6 TB) or 1 TB disks (8 TB).

\*\*Electronic software is available in all countries except China and Japan. For China and Japan should order the physical equivalent.

**NOTE:** In addition to the capacity deduplication licensing for VLS here are other key considerations:

1. There is a REQUIREMENT for 16 GB of RAM for each ProLiant server in order to support Accelerated deduplication and deduplication-enabled replication. Newer VLS6000 systems (AH809B, AH810B, AH811B, and AH812B) come standard with 16 GB of RAM. For older VLS6000 systems shipped with 4 GB RAM (AH809A, AH810A, AH811A, AH812A) you will need to add 12 GB RAM. This involves ordering the following part numbers for each node:  
397413-B21 HP 4GB FBD PC2-5300 2x2GB Kit  
397415-B21 HP 8GB FBD PC2-5300 2x4GB Kit
2. Minimum of VLS firmware level 3.1 must be used to support Accelerated deduplication. This firmware will only be available (initially) as a web download.
3. You will need to reference the following website for configuration, capacity and performance considerations for sizing VLS Accelerated deduplication configurations and use models. [www.hp.com/support/vls\\_dedup](http://www.hp.com/support/vls_dedup)
4. Accelerated deduplication needs to recognize the specific backup application being used since it initially strips out the cartridge headers in order to decompose all the files and data types in order to do file-level comparisons to previous backups. Check the EBS website for the latest Accelerated deduplication supported backup ISVs and data types

<http://www.hp.com/go/ebs>

**NOTE:** The entire VLS device must be licensed for deduplication - no partial licenses supported. Deduplication licenses will be installed via the VLS GUI license plug-in.

#### HP VLS Low Bandwidth Replication LTU

HP StorageWorks Virtual Tape Library Low Bandwidth Replication LTU

T5537A/  
T5537AAE\*\*

Supplied with License

- One VLS license T5537A or T5537AAE\*\* is required per VLS6000 for target sites only - none required on source site for active-passive configurations. For active-active configurations involving bi-directional replication, each site requires a license.



### Kit Contents

\*\*Electronic software is available in all countries except China and Japan. For China and Japan should order the physical equivalent.

**NOTE:** In addition to the deduplication-enabled replication licensing for VLS here are other key considerations:

1. All VLS systems involved with replication (whether a source or target) must all be licensed for Accelerated deduplication. In addition they have the same HW requirements and considerations as for Accelerated deduplication (see above).
2. Minimum of VLS firmware level 3.2 must be used to support deduplication-enabled replication. This replication firmware will be included in the 3.2 release and can be activated through licensing.
3. Four modes of deduplication-enabled replication will be supported including: two-site active-passive (replication in one direction), two-site active-active (replication in both directions) many to one supporting up to four sites all replicating to a fifth site and N-way with four sites (similar to two-site active-active). Each site is a source and target.
4. C&I services will provide analysis, design, implementation and testing necessary to deploy a VLS solution with Accelerated deduplication and deduplication-enabled replication.

### Feature Comparison

VLS Firmware Level	2.3 (VLS not running Accelerated deduplication)	3.2 (VLS running Accelerated deduplication)
Supported Platforms	All VLS models: VLS6200, VLS6600, VLS9000, VLS12000 with 4 GB RAM	VLS 4GB models: VLS6200, VLS6600, VLS9000, VLS12000 with 16 GB RAM
VLS9000/VLS12000 node support	Up to 8 nodes	Up to 4 nodes with supported ISVs
Backup Ingest performance	600 MB/sec	550 MB/sec
Number of slots	1024 per library	10000 per library
Number of libraries	16 per node	16 per node
Number of cartridges	8192	32000
Automigration - Echo Copy	Yes	No
Automigration - Smart Copy	Yes with DP 6.1	No
Delete Cartridge	Yes	No
Replication support	High-bandwidth	Deduplication-enabled
Hot Add Arrays	Yes	No
Hot Add Nodes	Yes	N/A
Storage pool support	Multiple storage pools	Single storage pool
Virtual LUN Support	144 per node	96 per node
LUN Masking usability, Command line interface enhancements	No	Yes

### Related Options

Power Distribution units	<b>NOTE:</b> For more information on power distribution units, please consult the QuickSpecs on the Worldwide web at: <a href="http://h18000.www1.hp.com/products/quickspecs/11041_na/11041_na.html">http://h18000.www1.hp.com/products/quickspecs/11041_na/11041_na.html</a>	
Low Voltage Modular PDU Model, 100 - 127 VAC	24A Model - mPDU, 24A, Low	252663-D71
High Voltage Modular PDU Model(s), 200 - 240 VAC	16A Model - mPDU, 16A, High 24A Model - mPDU, 24A, High 40A Model - mPDU, 40A, High 40A Model - mPDU, 40A, High (power cord attached)	252663-B24 252663-D72 252663-B21 252663-D73
Power Cords (for connection to standard wall outlets)	Power Cord, C13, 10A, 1.83m <b>NOTE:</b> Each unit comes with 2 IEC power cord for the node and two power cords for each MSA20 included (4 cords with the VLS6100 & 6200, 6 cords with the VLS6500 and 6600 and 10 cords with the VLS6800).	AF556A
FC Host Bus Adapters	For more information on FC HBAs please consult the EBS connectivity matrix at <a href="http://www.hp.com/go/ebs">http://www.hp.com/go/ebs</a> .	
HP Data Protector software	<b>LTU (license-to-use), media and manuals</b> Data Protector Starter Pack Single Drive, for Windows Data Protector Starter Pack Single Drive, for HP-UX Data Protector Starter Pack Single Drive, for Sun Solaris <b>LTU only</b> Data Protector Starter Pack Single Drive, for Windows LTU only Data Protector Starter Pack Single Drive, for HP-UX LTU only Data Protector Starter Pack Single Drive, for Sun Solaris LTU only <b>Media</b> Data Protector Media <b>Manuals</b> Data Protector Manuals <b>Drive Extensions</b> Data Protector drive license for Windows, NetWare, or Linux (Intel) Data Protector drive license for UNIX, NAS, or SAN Data Protector Library Extension, 61-250 Slots Data Protector Library Extension, unlimited Slots <b>Functional Extensions</b> Data Protector on-line extension for Windows	B6961AA B6951AA B6951DA B6961BA B6951BA B6951CA B6960MA B6960LA B6963AA B6953AA B6957BA B6958BA B6965BA

### Related Options

Data Protector on-line extension for UNIX	B6955BA
Data Protector open file backup license for 1 server	BA153AA
Data Protector open file backup license for 10 servers	BA153BA
Data Protector open file backup license for 5 workstations	BA154AA
Data Protector open file backup license for 1 Enterprise Server	BA155AA
Data Protector open file backup media. no license	BA152AA
Data Protector Manager-of-Managers extension for Windows	B6966AA
Data Protector Manager-of- Managers extension for UNIX	B6956AA
Advanced backup to disk license, 1 TB	B7038AA
Manuals for Functional extensions	B6960EA

### Configuration Information

#### Step 1 – Select a Configuration

HP StorageWorks 6653 Virtual Library System	AH812B
HP StorageWorks 6636 Virtual Library System	AH811B
HP StorageWorks 6227 Virtual Library System	AH810B
HP StorageWorks 6218 Virtual Library System	AH809B

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#### Step 2 – Add additional capacity (optional)

HP StorageWorks 6000 Virtual Library System 8 TB Capacity Bundle	AL564A*
HP StorageWorks 6000 Virtual Library System 6.6 TB Capacity Bundle	AH813A*
HP StorageWorks 6000 Virtual Library System 4.4 TB Capacity Bundle	AG170A*
HP StorageWorks 6000 Virtual Library System 2.5 TB Capacity Bundle	AF730A*

HP 6200 Virtual Library System:

up to three additional capacity bundles may be added to the base unit.

HP 6600 Virtual Library System:

up to six additional capacity bundles may be added to the base unit.

Capacity kits (enclosures) can be mixed within VLS6000 units. All 12 drives within each enclosure (shelf) must be of the same capacity. For example if you have a VLS6218 that has one 500 GB drive enclosure, you can add an additional drive enclosure (capacity bundle) with any one of the four available capacity bundles, 250 GB, 500 GB, 750 GB or 1 TB.

\* #0D1 will appear after this part number on your sales order when factory integration is indicated.

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#### Step 3 - Select appropriate Services/Support (optional)

- Determine whether you require services via HP direct/HP authorized enterprise resellers or HP authorized commercial resellers.
  - Choose Installation or Installation and Startup service desired. HP recommends Installation and Startup for SAN based libraries. (Details of specific part numbers in service section.)
  - Choose support uplift type. There are different service uplifts uplifting years of service, hours of availability and response time. HP recommends three year 24X7 support uplifts for SAN libraries. (Details of specific part numbers in service section.)
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### Configuration Information

#### Step 4 - Select the Appropriate Rack

Description	Part Number	Supports Factory Racking	Supports Field Racking
S10614 (14U) Rack Cabinet - Shock Pallet <sup>2</sup>	292302-B22	X	X
10622 (22U) Rack Cabinet - Shock Pallet	AF022A	X	X
10622 (22U) Rack Cabinet - Pallet	AF021A		X
10636 G2 (36U) Rack Cabinet - Shock Pallet	AF012A	X	X
10636 G2 (36U) Rack Cabinet - w/Extension - Shock Pallet	AF014A	X	X
10636 G2 (36U) Rack Cabinet - Pallet	AF011A		X
10636 G2 (36U) Rack Cabinet - Crate	AF013A	X	X
10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A	X	X
10642 G2 (42U) Rack Cabinet - w/ Extension - Shock Pallet	AF004A	X	X
10642 G2 (42U) Rack Cabinet - Pallet	AF001A		X
10642 G2 (42U) Rack Cabinet - Crated	AF003A		X
Modular Cooling System (MCS) - 42U Cabinet	AF098A	X	X

<sup>2</sup>14U racks cannot be used for the VLS6600.

**NOTE:** (Pallet) used to ship empty racks shipped on a truck

(Shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels)

(Crated) used for air shipments of empty racks.

**NOTE:** It is mandatory to use a shock pallet in order to ship racks with equipment installed.

**NOTE:** The full line of VLS6000 products can now be integrated and shipped installed in racks

### Technical Specifications

	VLS6218*	VLS6227*	VLS6636	VLS6653
Usable Capacity (std - non compressed)	4.4 TB	6.6 TB	8.8 TB	13.2 TB
Usable Capacity (2:1 compression)	8.8 TB	13.2 TB	17.6 TB	26.4 TB
Max Usable Capacity (std – non compressed)	28.4 TB	30.6 TB	56.8 TB	61.2 TB
Max Usable Capacity (2:1 compression)	56.8 TB	61.2 TB	113.6 TB	122.4 TB

\* These products employ software compression which will impact system performance

Performance by configuration 4 Gb Models	HP 6200 Virtual Library System		HP 6600 Virtual Library System	
	w/ compression disabled	w/ uncompressible data	w/ 2:1 compressible data	
1 disk enclosure	0.4 TB/hr (100 MB/s)	n/a	n/a	
2 disk enclosures	0.7 TB/hr (200 MB/s)	0.7 TB/hr (200 MB/s)	1.4 TB/hr (400 MB/s)	
3 disk enclosures	1.1 TB/hr (300 MB/s)	1.1 TB/hr (300 MB/s)	2.2 TB/hr (600 MB/s)	
4 disk enclosures	1.4 TB/hr (400 MB/s)	1.4 TB/hr (400 MB/s)	2.2 TB/hr (600 MB/s)	
5 to 8 enclosures	n/a	2.0 TB/hr (560 MB/s)	2.2 TB/hr (600 MB/s)	

**NOTE:** Maximum theoretical performance values. Actual performance is dependent on environment. Software compression on VLS6200 impacts performance by up to 50%

**NOTE:** 1MB = 1,000,000 bytes

	HP 6200 Virtual Library System	HP 6600 Virtual Library System
Number of Virtual Libraries	1 to 16	1 to 16
Number of Virtual Tape Drives	1 to 128	1 to 128
Interface	VLS6200 is Two 4 Gb Fibre Channel Ports (LC connectors, auto-negotiating)	VLS6600 is Four 4 Gb Fibre Channel Ports (LC connectors, auto-negotiating)

### Power Consumption by Component

VLS6200 Node	852 W
VLS6600 Node	1035 W
MSA20 Enclosure each (with disks)	345 W

RAID Level	VLS6200, VLS6600	RAID 5 or RAID 6
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### Technical Specifications

#### Dimensions and Physical Characteristics HP 6200 Virtual Library System

<b>Form Factor</b>	3U (total installed form factor – base unit)
<b>Physical Dimensions (HxWxD):</b> <a href="#">NOTE: 1 enclosure standard</a>	<b>Node</b> 1.7 x 16.8 x 27.8 in (4.3 x 42.6 x 70.5 cm)
	<b>Disk enclosure</b> 3.5 x 19.2 x 23.5 in (8.8 x 48.8 x 59.7 cm)
	<b>Shipping (HxWxD)</b> 41.0 x 48.0 x 40.0 in (104 x 122 x 102 cm)
<b>Out of Box Weight</b>	<b>Node</b> 37 lb (16.78 kg)
	<b>Disk Enclosure</b> 53 lb (24 kg) (per enclosure)
<b>Shipping Weight</b>	143 lb (64.9 kg)

#### HP 6600 Virtual Library System

<b>Form Factor</b>	6U (total installed form factor – base unit)
<b>Physical Dimensions (HxWxD):</b> <a href="#">NOTE: 2 enclosures standard</a>	<b>Node</b> 1.7 x 16.8 x 27.8 in (4.3 x 42.6 x 70.5 cm)
	<b>Disk Enclosure</b> 3.5 x 19.2 x 23.5 in (8.8 x 48.8 x 59.7 cm)
	<b>Shipping (HxWxD)</b> 48.0 x 40.0 x 40.0 in (121.9 x 101.6 x 101.6 cm)
<b>Out of Box Weight</b>	<b>Node</b> 37 lb (16.78 kg)
	<b>Disk Enclosure</b> 54.3 lb (24.6 kg) (per enclosure)
<b>Shipping Weight</b>	168 lb (76.2 kg)

#### HP 6000 Virtual Library System 2.5 TB Capacity Bundle Kit ,HP 6000 Virtual Library System 4.4 TB Capacity, HP 6000 Virtual Library System 6.6 TB Bundle Kit and HP 6000 Virtual Library System 8 TB Bundle Kit

<b>Form Factor</b>	2U
<b>Dimensions (HxWxD)</b>	<b>Physical Dimensions</b> 3.5 x 19.2 x 23.5 in (8.8 x 48.8 x 59.7 cm)
	<b>Shipping (HxWxD)</b> 33.5 x 32.5 x 28.0 in (85.1 x 82.6 x 71 cm)
<b>Weight</b>	<b>Out of Box Weight</b> 53 lb (24 kg) (per enclosure)
	<b>Shipping Weight</b> 68 lb (30.8 kg)

HP 6000 Virtual Library System 2 Gb Upgrade Node - same as specifications for VLS6600 node above.

#### VLS6000 Capacity License

<b>Shipping (HxWxD)</b>	8.5 x 11.0 in (21.6 x 27.9 cm)
<b>Shipping Weight</b>	1 lb (0.5 kg)

### Technical Specifications

Environmental	Operating temperature range	10° to 35° C (50° to 95° F)
	Shipping temperature range	-40° to 66° C (-40° to 150° F)
	Operating Humidity (non-condensing)	20 to 80% Relative Humidity

**Worldwide Product Safety and EMC Approvals** Safety: Worldwide compliance to 60950-1  
EMC: MSA 20 Regulatory Model Number HSTNM-S001 CISPR 22 CISPR 24 & FCC Class A  
VLS 61000 and VLS65000 heads: Regulatory Model Number HSTNM-2105 CISPR 22 CISPR 24 & FCC Class B

**NOTE:** For country specific compliance contact your local sales representative

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