Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Request for Quotation
21 — Info Technology

Proc Folder: 235721
Doc Description: Data Backup System
Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2016-07-22	2016-08-17 13:30:00	CRFQ 0210 ISC1700000001	1

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

CBTS
212 East Fourth Street
Cincinnati OH 45202
513-614-2828

09/09/16 09:42:11
WV Purchasing Division

FOR INFORMATION CONTACT THE BUYER

Stephanie L Gale
(304) 558-8801
stephanie.l.gale@wv.gov

Signature X _____ **FEIN #** 74-2724593 **DATE** August 1, 2016

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMAITON:

The West Virginia Purchasing Division is soliciting bids on behalf of the West Virginia Office of Technology to establish a contract for the one time purchase of its Data Backup system to include: hardware, software, support and maintenance.

INVOICE TO	SHIP TO
DEPARTMENT OF ADMINISTRATION OFFICE OF TECHNOLOGY 1900 KANAWHA BLVD E, BLDG 5 10TH FLOOR CHARLESTON WV25305 US	IS&C - DATA CENTER MANAGER DEPARTMENT OF ADMINISTRATION BLDG 6 RM B110 1900 KANAWHA BLVD E CHARLESTON WV 25305-0135 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Cost of System - Complete Attachment A Pricing Page	0.00000	EA		$1,314,336.00

Comm Code	Manufacturer	Specification	Model #
71151106			

Extended Description :

Vendor/s should not complete Oasis pricing, and should instead submit Attachment A Pricing Page as instructed on 4.1 Contract Award - Pricing Page in the Specifications.

SCHEDULE OF EVENTS

Line	Event	Event Date
1	Technical Questions Due	2016-08-03

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

Ashley Howard
(Name, Title)
Senior Account Manager Healthcare
(Printed Name and Title)
221 East Fourth Street; Cincinnati OH 45202
(Address)
(513) 614-2828 / (866)549-0474
(Phone Number) / (Fax Number)
ashley.howard@cbts.net
(email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

CBTS
(Company)

Dan M
(Authorized Signature) (Representative Name, Title)

Director of Sales
(Printed Name and Title of Authorized Representative)

August 1, 2016
(Date)

513-397-7259
(Phone Number) (Fax Number)

RFQ No. CRFQ 0210 ISC1700000001

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: CBTS

Authorized Signature: _____ Date: 8/3/16

State of Ohio

County of Hamilton, to-wit:

Taken, subscribed, and sworn to before me this 3rd day of August, 2016

My Commission expires 2/11, 2021

AFFIX SEAL HERE

NOTARY PUBLIC _____

NOTARIAL SEAL STATE OF OHIO

JAMIE PITSTICK
Notary Public, State of Ohio
My Commission Expires 02-11-2021

Rev. 04/14

State of West Virginia
VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with ***West Virginia Code***, §5A-3-37. (Does not apply to construction contracts). ***West Virginia Code***, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the ***West Virginia Code***. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Vendor Preference, if applicable.

1. **Application is made for 2.5% vendor preference for the reason checked:**
   ____ Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
   ____ Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**
   ____ Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or,**

2. **Application is made for 2.5% vendor preference for the reason checked:**
   ____ Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

3. **Application is made for 2.5% vendor preference for the reason checked:**
   ____ Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

4. **Application is made for 5% vendor preference for the reason checked:**
   ____ Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or,**

5. **Application is made for 3.5% vendor preference who is a veteran for the reason checked:**
   ____ Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or,**

6. **Application is made for 3.5% vendor preference who is a veteran for the reason checked:**
   ____ Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

7. **Application is made for preference as a non-resident small, women- and minority-owned business,** in accordance with ***West Virginia Code* §5A-3-59 and *West Virginia Code of State Rules*.**
   ____ Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: Dan Mazza **Signed:** [signature]

Date: 8-3-16 **Title:** Director of Sales

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: ISC1700000001

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

[✓] Addendum No. 1	[ ] Addendum No. 6
[✓] Addendum No. 2	[ ] Addendum No. 7
[✓] Addendum No. 3	[ ] Addendum No. 8
[✓] Addendum No. 4	[ ] Addendum No. 9
[✓] Addendum No. 5	[ ] Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

CBTS
Company

Authorized Signature

9-7-16
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

Attachment A – Pricing Page

Charleston Solution

Quantity	Part Number	Description	Unit Price	Extended Cost
1	BB917A	HPE StoreOnce 5500 60TB System	$ 16,161.00	$ 16,161.00
13	BB941A	HPE StoreOnce 5500 44TB Cap Upg Kit	$ 6,907.00	$ 89,791.00
13	BB941A 0D1	Factory integrated	$ -	$ -
2	BB933A	HPE StoreOnce 5500 60TB Drwr/Cap Upg Kit	$ 8,599.00	$ 17,198.00
2	BB933A 0D1	Factory integrated	$ -	$ -
1	BB926A	HPE StoreOnce 10GbE Network Card	$ 346.00	$ 346.00
1	BB926A 0D1	Factory integrated	$ -	$ -
1	BB929A	HPE StoreOnce 16Gb Fibre Channel Card	$ 691.00	$ 691.00
1	BB929A 0D1	Factory integrated	$ -	$ -
1	BB907A	HPE StoreOnce 4900/5500 Sec Pack LTU	$ 1,434.00	$ 1,434.00
1	BB907A 0D1	Factory integrated	$ -	$ -
1	BB905A	HPE StoreOnce 4900/5500 Replication LTU	$ 7,452.00	$ 7,452.00
1	BB905A 0D1	Factory integrated	$ -	$ -
1	BB906A	HPE StoreOnce 4900/5500 Catalyst LTU	$ 4,300.00	$ 4,300.00
1	BB906A 0D1	Factory integrated	$ -	$ -
1	BB949A	HPE StoreOnce 10GbE Netwrk Exp LTU	$ 1.00	$ 1.00
1	BB949A 0D1	Factory integrated	$ -	$ -
1	BB952A	HPE StoreOnce 16Gb Fibrechannel Card LTU	$ 1.00	$ 1.00
1	BB952A 0D1	Factory integrated	$ -	$ -
2	BB946A	HPE StoreOnce 5500 60TB Cap Upg LTU	$ 1.00	$ 2.00
2	BB946A 0D1	Factory integrated	$ -	$ -
13	BB947A	HPE StoreOnce 5500 44TB Cap Upg LTU	$ 1.00	$ 13.00
200	TF558AAE	HP DP perTB 250-499 SW E-LTU	$ 1,224.00	$ 244,800.00
13	BB947A 0D1	Factory integrated	$ -	$ -
1	H1K93A4	HPE 4Y Proactive Care 24x7 wDMR Service	$ -	$ -
1	H1K93A4 SSX	HPE StoreOnce 4900/5500 Replication Supp	$ 31,797.00	$ 31,797.00
1	H1K93A4 SSY	HPE StoreOnce 4900/5500 Catalyst Supp	$ 11,526.00	$ 11,526.00
1	H1K93A4 SSZ	HPE StoreOnce 4900/5500 Sec Pack Supp	$ 6,102.00	$ 6,102.00
1	H1K93A4 XDX	HPE StoreOnce 5500 60TB Base Supp	$ 19,608.00	$ 19,608.00
2	H1K93A4 XDY	HPE StoreOnce 5500 60TB Upgrade Supp	$ 10,433.00	$ 20,866.00
13	H1K93A4 XE8	HPE StoreOnce 5500 44TB Cap Upg Kit Supp	$ 9,080.00	$ 118,040.00
1	HA113A1	HPE Installation Service	$ -	$ -
1	HA113A1 5KK	HPE StoreOnce Basic Installation SVC	$ 347.00	$ 347.00
1	H8E03A1	HPE StoreOnce Integration Level 2 SVC	$ 22,685.00	$ 22,685.00
1	HA124A1	HP Technical Installation Startup SVC	$ -	$ -
1	HA124A1 5T7	HPE StoreOnce Sing N Catalys Startup SVC	$ 3,129.00	$ 3,129.00
2	HA124A1 55Q	HPE StoreOnce System startup SVC	$ 1,699.00	$ 3,398.00
3	HA124A1 5V0	HPE StoreOnce Addl 1 day Startup SVC	$ 2,086.00	$ 6,258.00
1	HH445A1	HP Data Protector Adv Install SVC	$ 28,217.00	$ 28,217.00
9	HF383A1	HPE Training Credits for Storage SVC	$ 735.00	$ 6,615.00
36	HM995A1	HP BigData Trng Units	$ 205.00	$ 7,380.00
30		CBTS PROJECT MANAGEMENT HOURS	$ 165.00	$ 4,950.00
75	HL926A1	HPE Storage Operations Unit of SVC	$ 65.00	$ 4,875.00
			Subtotal	$ 677,983.00

HARDWARE	$124,187.00
SOFTWARE	$258,003.00
SUPPORT	$207,939.00
SERVICES	$68,984.00
EDUCATION	$13,995.00
DATA DESTRUCTION	$4,875.00

Attachment A – Pricing Page Continued

Flatwoods Solutions

Quantity	Part Number	Description	Unit Price	Extended Cost
1	BB917A	HPE StoreOnce 5500 60TB System	$ 16,161.00	$ 16,161.00
13	BB941A	HPE StoreOnce 5500 44TB Cap Upg Kit	$ 6,907.00	$ 89,791.00
13	BB941A 0D1	Factory integrated	$ -	$ -
2	BB933A	HPE StoreOnce 5500 60TB Drwr/Cap Upg Kit	$ 8,599.00	$ 17,198.00
2	BB933A 0D1	Factory integrated	$ -	$ -
1	BB926A	HPE StoreOnce 10GbE Network Card	$ 346.00	$ 346.00
1	BB926A 0D1	Factory integrated	$ -	$ -
1	BB929A	HPE StoreOnce 16Gb Fibre Channel Card	$ 691.00	$ 691.00
1	BB929A 0D1	Factory integrated	$ -	$ -
1	BB907A	HPE StoreOnce 4900/5500 Sec Pack LTU	$ 1,434.00	$ 1,434.00
1	BB907A 0D1	Factory integrated	$ -	$ -
1	BB905A	HPE StoreOnce 4900/5500 Replication LTU	$ 7,452.00	$ 7,452.00
1	BB905A 0D1	Factory integrated	$ -	$ -
1	BB906A	HPE StoreOnce 4900/5500 Catalyst LTU	$ 4,300.00	$ 4,300.00
1	BB906A 0D1	Factory integrated	$ -	$ -
1	BB949A	HPE StoreOnce 10GbE Netwrk Exp LTU	$ 1.00	$ 1.00
1	BB949A 0D1	Factory integrated	$ -	$ -
1	BB952A	HPE StoreOnce 16Gb Fibrechannel Card LTU	$ 1.00	$ 1.00
1	BB952A 0D1	Factory integrated	$ -	$ -
2	BB946A	HPE StoreOnce 5500 60TB Cap Upg LTU	$ 1.00	$ 2.00
2	BB946A 0D1	Factory integrated	$ -	$ -
13	BB947A	HPE StoreOnce 5500 44TB Cap Upg LTU	$ 1.00	$ 13.00
200	TF558AAE	HP DP perTB 250-499 SW E-LTU	$ 1,224.00	$ 244,800.00
13	BB947A 0D1	Factory integrated	$ -	$ -
1	H1K93A4	HPE 4Y Proactive Care 24x7 wDMR Service	$ -	$ -
1	H1K93A4 SSX	HPE StoreOnce 4900/5500 Replication Supp	$ 31,797.00	$ 31,797.00
1	H1K93A4 SSY	HPE StoreOnce 4900/5500 Catalyst Supp	$ 11,526.00	$ 11,526.00
1	H1K93A4 SSZ	HPE StoreOnce 4900/5500 Sec Pack Supp	$ 6,102.00	$ 6,102.00
1	H1K93A4 XDX	HPE StoreOnce 5500 60TB Base Supp	$ 19,608.00	$ 19,608.00
2	H1K93A4 XDY	HPE StoreOnce 5500 60TB Upgrade Supp	$ 10,433.00	$ 20,866.00
13	H1K93A4 XE8	HPE StoreOnce 5500 44TB Cap Upg Kit Supp	$ 9,080.00	$ 118,040.00
1	HA113A1	HPE Installation Service	$ -	$ -
1	HA113A1 5KK	HPE StoreOnce Basic Installation SVC	$ 347.00	$ 347.00
1	HA124A1	HP Technical Installation Startup SVC	$ -	$ -
1	HA124A1 5T7	HPE StoreOnce Sing N Catalys Startup SVC	$ 3,129.00	$ 3,129.00
2	HA124A1 55Q	HPE StoreOnce System startup SVC	$ 1,699.00	$ 3,398.00
3	HA124A1 5V0	HPE StoreOnce Addl 1 day Startup SVC	$ 2,086.00	$ 6,258.00
1	HH445A1	HP Data Protector Adv Install SVC	$ 28,217.00	$ 28,217.00
			$ -	$ -
75	HL926A1	HPE Storage Operations Unit of SVC	$ 65.00	$ 4,875.00
			Subtotal	$ 636,353.00

Grand Total	$ 1,314,336.00

HARDWARE	**$124,187.00**
SOFTWARE	**$258,003.00**
SUPPORT	**$207,939.00**
SERVICES	**$41,349.00**
EDUCATION	**$0.00**
DATA DESTRUCTION	**$4,875.00**

Attention notification regarding: General Terms and Conditions (Warranty (a), (b) & (c))

CBTS is a Hewlett Packard Enterprise Authorized Reseller and does not manufacture the equipment we resell or develop the software that we license.

However, CBTS does pass through all equipment and software warranties as provided by the equipment manufacturer or software publisher.

3.1 General Vendor Specifications

3.1.1 The Vendor must list the costs of all contract items; hardware, software, services, implemented, testing, training, maintenance, and 48-month warranty, being bid in its response to this RFQ in Attachment A. This list must reflect the total cost of the bid for the covered period, which is four (4) years. In the event of an upgrade/update during the life of this contract, the vendor must include the costs associated with the four (4) years of support/maintenance for any hardware/software that will be repurposed with the upgraded system.

See attached sheet for all costs.

3.1.2 Data duplication must be provided in the system.

HPE StoreOnce deduplication enables network efficient offsite data replication. All HPE StoreOnce 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.

With HPE 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.

Ref. HPE StoreOnce Systems Pg.5

3.1.3 The vendor system must provide for encrypting data that is backed up, both in flight and at rest.

The HPE 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. HPE StoreOnce Security pack is available for all HPE StoreOnce products.

NOTE: ** Data in Flight encryption via IPSec is supported on StoreOnce Catalyst only.

Ref. HPE StoreOnce Systems Pg.6

3.1.4 At the completion of the transition of all data to the vendor system , the Vendor must provide secure erasure/destruction of all data on all deinstalled hardware prior to its removal from State premises, and certify in writing that the data is non-recoverable. NIST Purge Standards (http://nvlpubs .nist.gov/nistpubs/SpecialPublications/NIST. SP.800-88rl .pdf) must, at a minimum , be met. The Vendor will then remove and dispose of the deinstalled hardware.

Yes, data will be securely destroyed and equipment removed form State premises in accordance to NIST.

3.1.5 The vendor system must be protecting a minimum of 200 TB of production data. This data will be backed up daily, and have a 30-day retention period. Both the Charleston and Flatwoods locations must protect this minimum amount. The protection of 200 TB of production data equates to logical protection of 6.0 PB of data (200 TB per day x 30-day retention at both the Charleston and Flatwoods locations).

Each StoreOnce 5500 is comprised of 60TB base and (13) 44TB Capacity upgrade kits totaling 632TB of raw storage. With 3.5% daily change, the total storage needed over 30 days will be 410TB of protected storage.

3.1.6 Of the 200 TB of protected data, the vendor system must protect a combined 150 TB of SAN data via NDMP from an EMC VNX5700 located in the Charleston Data Center and an EMC VNX5500 located in the Flatwoods Data Center, and 50 TB of file data.

HPe Data Protector protects data via NDMP using Network Appliance Filers or Data Protector proprietary Device Server (Media Agent). NAS systems powered by Windows, NetWare, or standard Linux, which can run a standard Data Protector Device Server (Media Agent), require only the Data Protector drive extensions for Windows, NetWare, Linux

Ref. HPE Data Protector software Pg.12

3.1.7 Automated replication of backed-up data between both sites (Charleston and Flatwoods) must also be part of the vendor system. Both sites must perform backups. Both sites must send and receive replicated data to and from the

other site. Daily replication between the sites, after the initial full backups and replication, must complete within 14 hours over a 1GB circuit. The current average change rate is approximately 3.5% per day, but could rise due to growth.

HP Data Protector provides Enhanced Automated Disaster Recovery (EADR) capabilities. Integrated at the core of the product, EADR enables IT administrators to back up not only application data but system data, including operating system files, drivers, and files **required for the initial boot process. In case of a hardware failure, EADR can easily reinstate the entire system to a virtual machine or physical machine.**

The transfer rate using the StoreOnce 5500 Catalyst is up to 37.7TB/hour, giving a total of 528TB transfer in a 14 hour window.

3.1.8 The vendor system must back-up data on the following operating systems and environments running on all capable hardware platforms:

- 3.1.8.1 AIX 6.1 and later
- 3.1.8.2 HP-UX version 11 iv3 and later
- 3.1.8.3 Red Hat Enterprise Linux v4 and later
- 3.1.8.4 SUSE Linux 9 and later
- 3.1.8.5 VMWare ESX
- 3.1.8.6 Windows Server 2003 and later

The listed environments are supported on StoreOnce as it pertains to the requirements. The full list of supported platforms is located in the document under the referenced page.

Linux Red Hat/SUSE/Debian/OEL/CentOS
IBM AIX
Windows /XP/2003/2008/Vista/7/2008 R2/2012/2012 R2
HPE-UX
NFS/shared disk
CIFS
NDMP NAS filer

Ref. HPE Data Protector software Pg.12

3.1.9 The vendor system must back-up the following applications and data without affecting operation of the system in production:

- 3.1.9.1 Oracle lOgRl and later
- 3.1.9.2 SharePoint 2010 and later
- 3.1.9.3 SQL Server 2005 and later

The listed environments are supported on StoreOnce as it pertains to the requirements. The full list of supported platforms is located in the document under the referenced page.

Oracle®

MS SQL
MS SharePoint
Ref. HPE Data Protector software Pg.12

3.1.10 The vendor system must support 'on-demand' client backups and file restores.

Application consistent recovery: leading business application integrations extend backup, automated point-in-time recovery, and granular restores to application owners enabling them to manage, drive and service their own backup and recovery requirements based on the backup infrastructure defined by IT.

Ref. HPE Data Protector software Pg.1

3.1.11 The vendor system must support ad-hoc data restores from any previous backup within the retention period.

Application consistent recovery: leading business application integrations extend backup, automated point-in-time recovery, and granular restores to application owners enabling them to manage, drive and service their own backup and recovery requirements based on the backup infrastructure defined by IT

Ref. HPE Data Protector software Pg.1

3.1.12 The vendor system must support ad-hoc data restores of any individual database, folder, or file that has been backed up.

Application consistent recovery: leading business application integrations extend backup, automated point-in-time recovery, and granular restores to application owners enabling them to manage, drive and service their own backup and recovery requirements based on the backup infrastructure defined by IT

Ref. HPE Data Protector software Pg.1

3.1.13 The Agency must monitor usage throughout its billing periods. Usage information must be detailed and metered so that each protected client can be tracked by amount of data protected. A single monthly usage figure without detail is not acceptable.

Monitor multiple StoreOnce appliances through a single interface with StoreOnce Reporting Central, a default feature shipped with all HPE StoreOnce Systems within the StoreOnce GUI. Reporting Central provides a rolled up status of up to 20 registered StoreOnce appliances in a single pane of glass and allows drill-down reporting into areas of interest such as deduplication ratio, capacity usage for StoreOnce Catalyst stores, VTL libraries, NAS shares, read/write throughput, replication throughput, stream count, CPU, memory, disk I/O and networking and FC channel utilization. Reports for a desired time frame can be exported to a CSV or PNG format file.

3.1.14 Vendor should provide with bid, a complete list of products used in quoted solution, but must provide it prior to award.

See Attachments

3.1.15 Vendor should provide with bid, manufacturer specifications for items on their product list as applicable, but must provide it upon request.

See Attachments

3.1.16 Vendor must provide a minimum of 3 hours of training for a minimum of three (3) end-users and a maximum of three (3) days of eight (8) hours a day for a maximum of three (3) end-users. The amount of training required will depend upon the WVOT technician 's familiarity with the solution awarded. Travel costs and accommodations must be included in the overall cost of the new system.

The training that is provided with this solution is Big Data Training from HP. This includes 36 credits which covers 3 people training to cover the management and administration of the StoreOnce and Data Protector.

3.2 Service and Support Level

3.2.1 The Vendor must warranty and maintain the system for a period of forty-eight (48) months, effective upon acceptance of the equipment by the Agency. During this 48-month period, the Vendor shall make any necessary repairs, replace any defective parts, perform preventive maintenance, implement engineering changes and modifications to hardware and software and otherwise maintain the system at no additional cost to the Agency.

4yr Proactive Care has been issued to this solution to provide 48 months coverage. Proactive Care consists of 4hr 24x7 service on all hardware and software.

3.2.2 The Vendor must provide escalating, multilevel support services. This service must be 24 hours a day, 7 days a week, 365 days a year (phone, email, chat), with a non-critical response time of four (4) hours, and a critical-response time of two (2) hours. Criticality will be determined by WVOT personnel.

33 Specification for System Acceptance

3.3.1 The agency will formally accept the system after the hardware and software have been implemented and confirmed to be working properly for 30 days without any issues. The Agency will issue a request for Change Order to the West Virginia Purchasing Division stating acceptance of the system, thereby beginning the forty-eight (48) months of warranty as specified in Section 4.1.

4. CONTRACT AWARD:

4.1 Contract Award: The Contract is intended to provide Agency with a purchase price for the Contract Items. The Contract shall be awarded to the Vendor that provides the Contract Items meeting the required specifications for the lowest overall total cost as shown on the Pricing Pages.

Pricing Page: The Vendor must complete the Pricing Page (Attachment A) by entering the total price for the system (including delivery, implementation , testing, on-site training, maintenance, and 48-month warranty). The Vendor must identify the part number, component description, quantity, and unit price for Charleston and Flatwoods separately. The Pricing Page is in an editable mode so that vendors can add/subtract line items as required for their vendor solution. Please calculate the Subtotal and Total in the fields provided. In the event of a vendor miscalculation, the unit price will prevail. The Vendor must complete the Pricing Page in full as failure to complete the Pricing Page in its entirety may result in the Vendor's bid being disqualified.

4.1.1 The Vendor should electronically enter the information into the Pricing Page as an electronic document. A wvOasis Pricing Page will not be available in this solicitation, as different solutions may

HPE StoreOnce Systems

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 HPE StoreOnce Systems; 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.
HPE StoreOnce 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. HPE StoreOnce 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**.

HPE 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 HPE'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, 10 GbE 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. HPE StoreOnce offers flexible choices for the number and types of connectivity on StoreOnce 3520, 3540 and 5100. Choose the connectivity options, 10 GbE-T, 10 GbE, or 8 GB FC, which makes the most sense for your environment and also, provides flexibility for future growth/changes.

NOTES: 4900 and 6500 have fixed Ethernet and FC connectivity.
*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 and storage configuration.
** 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 HPE StoreOnce Systems family will include:
- A new StoreOnce 3100 system
  - The StoreOnce 3100 delivers a 1U solution with 5.5 TB of usable*** capacity (8 TB RAW)
  - With speeds of up to 6.4 TB/hour* using HPE StoreOnce Catalyst.
- A new StoreOnce 3520 system
  - The StoreOnce 3520 delivers a scalable 2U solution with 7.5 to 15.5 TB of usable*** capacity (12-24 TB RAW)
  - With speeds of up to 12.7 TB/hour* using HPE StoreOnce Catalyst.
- A new StoreOnce 3540 system
  - The StoreOnce 3540 delivers a scalable 2U solution with 15.5 TB to 31.5 TB of usable*** capacity (24-48 TB RAW)
  - With speeds of up to 12.7 TB/hour* using HPE StoreOnce Catalyst.
- A new StoreOnce 5100 system
  - The StoreOnce 5100 delivers a scalable solution with 36 TB to 216 TB of usable*** capacity (48-288 TB RAW)
  - With speeds of up to 26.7 TB/hour* using HPE StoreOnce Catalyst.

The HPE StoreOnce Backup family features:
- Flexible choice for number and types of connectivity, 10GbE-T, 10GbE, or 8Gb FC, on StoreOnce 3520, 3540 and 5100
  - Customers can choose the connectivity options that makes the most sense for their environment. Also, provides flexibility for future growth/changes
- Initial licenses for StoreOnce 3100, 3520, 3540 and 5100 pre-installed in the factory
  - Provides customers with a smoother out of box experience - no longer needing to download license keys or possibly losing the entitlement documentation during unpacking
- IPv6 support for NFS and VT iSCSI interfaces
  - Meets the growing demands for IPv6 support. More customers (especially governmental) need products that support IPv6.
- Addition of a simple network wizard
  - Provides customers with a tool to ease the initial IP configuration prior to continuing with the remaining product setup
- Gen9 Catalyst over Fibre Channel support on IBM AIX platforms
  - Catalyst over Fibre Channel provides all the ISV control and source side deduplication benefits of current StoreOnce Catalyst but via your Fibre Channel fabric.
  - Ability to support Fibre Channel environments running StoreOnce Catalyst on IBM AIX servers
- Centralized Encryption Key Management support for 3100, 3520, 3540 and 5100 products

NOTE: Pre-installed licenses not available on StoreOnce 4900 or 6500
***Actual usable capacity for customer data storage is dependent upon drive formatting, log file and Meta data size, housekeeping backlog.

HPE StoreOnce Backup Models

Target deployment	Product options	Usable *** capacity (before dedupe)
Enterprise data center	HPE StoreOnce 6500	Scale from 72 to 1728 TB usable ***
	HPE StoreOnce 4900	Scale from 36 to 432 TB usable ***
Mid-size data center or large regional office	HPE StoreOnce 5100	Scale from 36 TB to 216 TB usable ***
	HPE StoreOnce 3540	Scale from 15.5TB to 31.5 TB usable***
Small data center or remote office	HPE StoreOnce 3520	Scale from 7.5 to 15.5 TB usable ***
	HPE StoreOnce 3100	5.5 TB usable ***
	HPE StoreOnce VSA	4, 10 or 50 TB usable*** depending on license

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

For previous versions of HPE 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 and storage configuration. To optimize capacity utilization and in accordance with performance requirements, your capacity requirements should be planned following Recommended Configuration guidelines: http://h20565.www2.hpe.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

The following features and benefits apply to all HPE StoreOnce 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, HPE StoreOnce Systems offer 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, HPE StoreOnce is also available as a virtual appliance for virtualized data protection that utilizes existing infrastructure.

Whatever the HPE 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 licenses or shelves (3520, 3540, 5100) or simply add more disks (4900, 6500) or additional nodes (StoreOnce 6500 only).

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

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

Reducing your backup data storage needs

HPE 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 HPE StoreOnce deduplication with a fully configured HPE 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 HPE 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 HPE StoreOnce 6500 and HPE StoreOnce Catalyst.

You can enhance performance by deduplicating anywhere; at the application source or at the backup server or at the target HPE StoreOnce 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 HPE StoreOnce systems, in conjunction with all applications that support StoreOnce Catalyst. **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 and storage configuration.
Reducing the time to restore data	Hewlett Packard Enterprise 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
Freeing up your IT resources	HPE StoreOnce Systems allow you to reduce the complexity of your backup environment by consolidating and automating all of your backup processes using a single HPE StoreOnce 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 small offices, HPE 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. With HPE 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. 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.
Lowering the cost of data protection	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. HPE StoreOnce deduplication also enables network efficient offsite data replication. All HPE StoreOnce 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. 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.
Protecting your remote offices	HPE StoreOnce systems are 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 HPE StoreOnce VSA or choose dedicated appliances such as the StoreOnce 3100 depending on the infrastructure, performance and management requirements of your remote office deployments. HPE 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 HPE StoreOnce 6500 target at the data center. 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. With HPE 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 HPE 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. HPE StoreOnce Security pack is available for all HPE StoreOnce products. Data in flight encryption is intended to be used to secure links between data centers for StoreOnce Replication or Low Bandwidth Catalyst Copy operations. Using Data In Flight Encryption for direct backup operations to the StoreOnce appliance over a local network is not supported due to the performance impact of the encryption. **NOTE:** ** 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 HPE StoreOnce 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 HPE StoreOnce systems are easily rack-mounted in standard racks, while the performance leading HPE StoreOnce 6500 is pre-integrated into an HPE 42U rack for efficient use of space in the data center.
Delivering reliable backup and restore	HPE StoreOnce systems can enhance reliability by automating and consolidating backup to reduce operator intervention and consequently user-generated errors. Hewlett Packard Enterprise understands the need for highly reliable, highly available data protection. Consequently HPE StoreOnce systems feature hardware RAID 6 (RAID 5 on StoreOnce 3100) to reduce the risk of data loss due to disk failure. The high performance HPE 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. Hewlett Packard Enterprise has unique intellectual property which protects data throughout its lifecycle when stored on the HPE StoreOnce appliance. HPE StoreOnce Integrity Plus is a market leader in data integrity. HPE StoreOnce 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

HPE StoreOnce Recovery Manager Central facilitates automated, efficient, non-intrusive backup and disaster recovery and provides converged data protection by integrating 3PAR StoreServ primary 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.

HPE StoreOnce VSA Backup

The HPE 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 4 TB	VSA 10 TB	VSA 50 TB
Usable configurable capacity	4TB	10TB	50 TB
Catalyst write performance (max)	1 TB/hour	2 TB/hour	6 TB/hour
NAS, VT write performance (max)	400 GB/hour	800 GB/hour	2.4 TB/hour
Replication fan-in/fan-out (appliance)	8/2	8/2	8/2
Backup targets (recommended max)	4	6	8
Concurrent data streams (max)	16	24	32
Backup targets supported	Catalyst, VTL, NFS, CIFS over Ethernet		
Hypervisor support	VMware ESXi, Microsoft Hyper-V - for details see http://www.hp.com/go/BURAcompatibility		
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 1 TB 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 Hewlett Packard Enterprise support or the ability to buy Care Packs for Hewlett Packard Enterprise support. This freeware version can be upgraded to any of the products in the table above by purchasing and applying the appropriate license. This is available from http://www.hp.com/go/freebackup

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 Hewlett Packard Enterprise support for the duration of the licensed term
- Scalability - capacity upgrade licenses to scale from 4 TB to 50 TB

Configuration notes

Backup data capacity is added to the StoreOnce VSA using 1 TB, 5 TB or 10 TB 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 achieve the performance detailed in the table above, it is recommended that the StoreOnce VSA is configured with the following minimum resources:

HPE StoreOnce VSA Backup

Configured capacity	1 TB to 4 TB	5 TB to 10 TB	10 TB to 50 TB
Memory (min)	1 6GB	24 GB	32 GB
Processor (min @ 2.2GHz)	2 vCPU	4 vCPU	12 vCPU
IOPs (typical)	450	900	2,700

Configuring additional resources can improve the performance and enable more backup targets to be created. For details on setting up the StoreOnce VSA see the StoreOnce VSA Deployment and Configuration Guide that is included with the download package and also available via http://www.hp.com/go/support

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 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

HPE StoreOnce VSA Backup

consider any backup software components, running in virtual machines, which will require resources to execute backup and recovery jobs.

Purchasing information

Description	3 year license-to-use	5 year license-to-use
StoreOnce VSA 4 TB	D4T77AAE, D4T77A	D4U49AAE, D4U49A
StoreOnce VSA 10 TB	TC458AAE, TC458A	D4U62AAE, D4U62A
StoreOnce VSA 4 TB to 10 TB Capacity Upgrade	D4U56AAE, D4U56A	D4U58AAE, D4U58A
StoreOnce VSA 50 TB	D4U47AAE, D4U47A	D4U48AAE, D4U48A
StoreOnce VSA 10 TB to 50 TB 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 following configuration services.
  - Data Replication Service: http://dccappshares01.austin.hpe.com/SALES_LIBRARY-PRO/CONCENTRA/Autofed%20Content/UCM/UCM-Concentra/Pub/ucm4AA4-3945ENW/4AA4-3945ENW.pdf
  - Catalyst Solution service: http://dccappshares01.austin.hpe.com/SALES_LIBRARY-PRO/CONCENTRA/Autofed%20Content/UCM/UCM-Concentra/Pub/ucm4AA4-4489ENW/4AA4-4489ENW.pdf
- The StoreOnce VSA license enables 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.

HPE StoreOnce VSA Backup

- 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.
- For more information on adding capacity expansion licenses see the StoreOnce VSA Deployment and Configuration Guide
- The StoreOnce VSA licenses can be used for an initial 3 or 5 year license-to-use term. The same licenses can be used to extend a license-to-use term.

- A license to extend a current license-to-use term can only be activated, less than 180 days from the end of the current license term.
  NOTE: A check for the time left on the current license is made at activation time, not at purchase time. If you attempt to activate a license for a StoreOnce VSA with more than 180 days of the existing license left to run, the activation will fail.
- A license to extend an existing license-to-use period term must match the capacity of the existing base license. If you attempt to activate a license for an already licensed StoreOnce VSA that has a non-matching capacity license the activation will fail.
- For more information on extending the license-to-use term see the StoreOnce VSA Deployment and Configuration Guide
- The license-to-use term starts from the day the license is redeemed from the Hewlett Packard Enterprise licensing portal.

QuickSpecs
HPE StoreOnce Systems

HPE StoreOnce Systems

HPE StoreOnce 3100 System

HPE StoreOnce 3100 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 6.4 TB/hour* with StoreOnce Catalyst, allowing a full 25.6 TB* of backup to be completed in just 4 hours.

Overview Product Specifications

	StoreOnce 3100
Form Factor	1U Rack
Total capacity (raw)	8 TB
Total capacity (usable***)	5.5 TB
Write performance (max)	1.6 TB/hour
Catalyst performance (max)	6.4 TB/hour
Max fan-in/backup targets	8

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

Compatibility:
Hewlett Packard Enterprise extensive compatibility testing program assures that your HPE Systems work with leading servers, operating systems, and backup applications, including those not manufactured by Hewlett Packard Enterprise.

Compatibility details on specific servers and the latest hardware compatibility information, can be found HERE

Warranty
Hewlett-Packard Enterprise provides a 1 year parts exchange, 1 year labor, 1 year on site, normal business hours, next business day response for StoreOnce 3100, StoreOnce 3520, StoreOnce 3540, StoreOnce 5100, StoreOnce 4900 and StoreOnce 6500 Backup systems, plus 9x5 phone support for the duration of the warranty.

Purchasing information:
Also refer to Software Options

Product name	Part-number Description	Includes

HPE StoreOnce Systems

HPE StoreOnce 3100 8 TB System	BB913A	HPE StoreOnce 3100 System with 8 TB of RAW disk storage

- HPE 3100 system
- 4x 2 TB Hot swap hard drives
- Easy Install Rail Kit
- EAC Card
- Accessory Kit featuring:
- Important Card
- Start Here Poster
- Ethernet cable(Cat 5e) 3m (x2)
- Power cable (IEC 320 C13 Connector for Rack PDU)

HPE StoreOnce 3520 System

HPE StoreOnce 3520 is designed for small to midsized data centers and as a replication target device for up to remote and branch offices. The StoreOnce 3520 delivers a scalable 2U solution from 7.5 to 15.5 TB of usable*** capacity (12-24 TB RAW) using an upgrade license. Meet backup windows with speeds of up to 12.7 TB/hour* using HPE StoreOnce Catalyst for protection of up to 50.8 TB* of data in a 4-hour window.

Overview Product Specifications

	StoreOnce 3520
Form Factor	2U Scalable Rack
Total capacity (raw)	Up to 24 TB
Total capacity (usable***)	Up to 15.5 TB
Write performance (max)	4.6 TB/hour
Catalyst performance (max)	12.7 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 and storage configuration.

Scalability:
Start out with the HPE StoreOnce base unit at 2U with 12 TB of RAW capacity (7.5 TB usable***). When you're ready, simply purchase a capacity upgrade license to increase available capacity to a total of 24TB RAW (15.5 TB usable***).
NOTE: The StoreOnce 3520 comes fully populated with 12x 2 TB disks. However, initial working capacity is 12 TB RAW, a capacity upgrade license is required to activate the additional disk capacity.

Compatibility:

HPE StoreOnce Systems

Hewlett Packard Enterprise extensive compatibility testing program assures that your HPE 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:

- HPE StoreOnce 3520 systems can be connected to the servers they protect via 1 GB Ethernet as well as 10 GbE Ethernet and 8 GB Fibre Channel when the appropriate optional hardware is installed.
- They are supported on all 10 GB Ethernet network interface cards (NICs) and switches, dependent on product. 1Gb Ethernet network connections are also supported for sites without 10 GB Ethernet networks (with reduced performance)
- HPE StoreOnce 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 Enterprise provides a 1 year parts exchange, 1 year labor, 1 year on site, normal business hours, next business day response for StoreOnce 3100, StoreOnce 3520, StoreOnce 3540, StoreOnce 5100, 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
HPE StoreOnce 3520 12 TB System	BB922A	HPE StoreOnce 3520 System with 24 TB of RAW disk storage	• HPE StoreOnce 3520 System (12 x 2 TB disks) • Easy Install Rail Kit • EAC Card • Accessory Kit featuring: • Important Card • Start Here Poster • Ethernet cable(Cat 5e) 3m (x2) • Power cable (IEC 320 C13 Connector for Rack PDU)
HPE StoreOnce 3520 12 TB Capacity Upgrade LTU/E-LTU	BB944A/AAE	StoreOnce 3520 12 TB Capacity Upgrade LTU/E-LTU	• Entitlement certificate

Also refer to Software Options to add licenses for:

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

Also refer to Network/Chanel cards:
HPE StoreOnce 10 GbE Network Card
HPE StoreOnce 10 GbE-T Network Card
HPE StoreOnce 8 GB Fibre Channel Card

HPE StoreOnce Systems

NOTE: A total number of 4 in any combination can be used.

HPE StoreOnce 3540 Systems

HPE StoreOnce 3540 is designed for small to midsized data centers and as a replication target device for up to 24 remote and branch offices. The StoreOnce 3540 delivers a scalable 2U solution from 16 to 31.5 TB of usable*** capacity (24 to 48 TB RAW) using a simple and cost effective capacity upgrade. Meet backup windows with speeds of up to 12.7 TB/hour* using HPE StoreOnce Catalyst for protection of up to 50.8 TB* of data in a 4-hour window.

Overview Product Specifications

	StoreOnce 3540
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)	12.7 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 and storage configuration.
***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 HPE StoreOnce base unit at 2U with 24 TB of RAW capacity (15.5 TB usable***). When you're ready, simply purchase a capacity upgrade license to increase available capacity to a total of 48 TB RAW (31.5 TB usable***).
NOTE: The StoreOnce 3540 comes fully populated with 12x 2 TB disks. However, initial working capacity is 24 TB RAW, a capacity upgrade license is required to activate the additional disk capacity.

Compatibility:

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

Compatibility details on specific servers and the latest hardware compatibility information, can be found HERE

Configuration notes:

- HPE StoreOnce 3540 systems can be connected to the servers they protect via 1 GB Ethernet as well as 10 GBE Ethernet and 8 GB Fibre Channel when the appropriate optional hardware is installed.
-

HPE StoreOnce Systems

- They are supported on all 10 GB Ethernet network interface cards (NICs) and switches, dependent on product. 1 GB Ethernet network connections are also supported for sites without 10Gb Ethernet networks (with reduced performance)
- HPE 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 Enterprise provides a 1 year parts exchange, 1 year labor, 1 year on site, normal business hours, next business day response for StoreOnce 3100, StoreOnce 3520, StoreOnce 3540, StoreOnce 5100, 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
HPE StoreOnce 3540 24 TB System	BB914A	HPE StoreOnce 3540 System with 24 TB of RAW disk storage	• HPE StoreOnce 3540 System (12 x 4 TB disks) • Easy Install Rail Kit • EAC Card • Accessory Kit featuring: • Important Card • Start Here Poster • Ethernet cable(Cat 5e) 3m (x2) • Power cable (IEC 320 C13 Connector for Rack PDU)
HPE StoreOnce 3540 24 TB Capacity Upgrade LTU/E-LTU	BB943A/AAE	StoreOnce 3540 24 TB Capacity Upgrade LTU/E-LTU	• Entitlement certificate

Also refer to Software Options to add licenses for:

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

Also refer to Network/Channel Cards

- HPE StoreOnce 10 GBE Network Card
- HPE StoreOnce 10 GBE-T Network Card
- HPE StoreOnce 8 GB Fibre Channel Card

NOTE: A total number of 4 in any combination can be used.

HPE StoreOnce 5100 Systems

HPE StoreOnce 5100 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

HPE StoreOnce Systems

provides a replication target device for up to 50 remote or branch offices. StoreOnce 5100 delivers a scalable 2U to 12U solution from 36 TB to 216 TB of usable*** capacity (48 TB to 288 TB RAW)and speeds of up to 26.7 TB/hour* with HPE StoreOnce Catalyst for protection of over 106.8 TB* of data in a 4-hour window

Overview Product Specifications

	StoreOnce 5100
Form Factor	2U Scalable Rack
Total capacity (raw)	Up 288 TB
Total capacity (usable***)	Up to 216 TB
Write performance (max)	13.8 TB/hour
Catalyst performance (max)	26.7 TB/hour
Max fan-in/backup targets	32

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 and storage configuration.

***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 HPE StoreOnce base unit at 2U with 48 TB RAW (36 TB usable) capacity. When you're ready, simply purchase up to 5 additional shelves using the corresponding storage expansion/capacity upgrade kit for up to 288 TB RAW (216 TB) of total usable storage. A fully configured StoreOnce 5100 is 12U.

Compatibility:

Hewlett Packard Enterprise extensive compatibility testing program assures that your HPE 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:

- HPE StoreOnce 3520 systems can be connected to the servers they protect via 1 GB Ethernet as well as 10 GbE Ethernet and 8 GB Fibre Channel when the appropriate optional hardware is installed.
- They are supported on all 10 GB Ethernet network interface cards (NICs) and switches, dependent on product. 1 GB Ethernet network connections are also supported for sites without 10Gb Ethernet networks (with reduced performance)
- HPE 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 Enterprise provides a 1 year parts exchange, 1 year labor, 1 year on site, normal business hours, next business day response for StoreOnce 3100, StoreOnce 3520, StoreOnce 3540, StoreOnce 5100 StoreOnce 4900 and StoreOnce 6500 Backup systems, plus 9x5 phone support for the duration of the warranty.

Purchasing information:

HPE StoreOnce Systems

Product name	Part-number	Description	Includes
HPE StoreOnce 5100 48 TB System	BB915A	HPE StoreOnce 5100 with 48 TB of RAW disk storage	• HPE 5100 System (includes 12 x 4 TB disks for data storage and 2 x 900 GB SAS disks for OS) • Easy Install Rail Kit • EAC Card • Accessory Kit featuring: • Important Card • Start Here Poster • Ethernet cable(Cat 5e) 3m (x2) • Power cable (IEC 320 C13 Connector for Rack PDU)
HPE StoreOnce 5100 48 TB Capacity Upgrade Kit	BB916A	HPE StoreOnce 5100 48 TB System upgrade kit - a D3650 base enclosure offering additional 48 TB of RAW disk storage	• D3650 storage enclosure with 12 x 4 TB discs, redundant power supplies and fan modules. • Rack-mounting hardware kit • 1m 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:

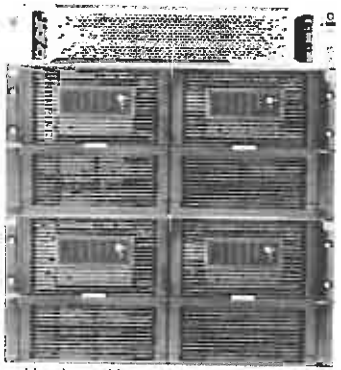
- HPE StoreOnce Replication
- HPE StoreOnce Catalyst
- HPE StoreOnce Enterprise Manager
- HPE StoreOnce Security Pack

Also refer to Network/Channel Cards

- HPE StoreOnce 10 GbE Network Card
- HPE StoreOnce 10 GbE-T Network Card
- HPE StoreOnce 8 GB Fibre Channel Card

NOTE: A total number of 4 in any combination can be used.

HPE StoreOnce 4900 Backup



HPE 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 22 TB/hour* with HPE StoreOnce Catalyst for protection of 88 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 and storage configuration.
***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 HPE StoreOnce base unit with 60 TB 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 HPE StoreOnce 4900 includes 4 drawers of disk (2 drawers in each unit). A fully

configured HPE StoreOnce 4900 is 12U (or 36 TB per U in terms of density).

Compatibility:
Hewlett Packard Enterprise extensive compatibility testing program assures that your HPE Backup Systems work with leading servers, operating systems, and backup applications, including those not manufactured by Hewlett Packard Enterprise.

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.
- HPE StoreOnce 4900 Backup systems can be connected to the servers they protect via a 10 GB Ethernet or 8Gb Fibre Channel.
- They are supported on all 10 GB 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)
- HPE 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, Hewlett Packard Enterprise 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 Enterprise 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:

HPE StoreOnce 4900 Backup

Product name	Part-number	Description	Includes
HP StoreOnce 4900 Backup	BB903A	HP StoreOnce 4900 Backup with 60 TB of RAW disk storage	• 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 • HPE 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 60 TB of RAW disk storage	• 1 storage enclosure with 15 x 4 TB discs, redundant power supplied 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
HP StoreOnce 4900 44TB Capacity Upgrade Kit	BB908A	HP 4900 Backup 44 TB Capacity Upgrade Kit	• 11 x 4 TB disks and entitlement certificate

Also refer to Software Options to add licenses for:

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

HPE StoreOnce 6500 Backup

HPE StoreOnce 6500 Backup

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

HPE StoreOnce 6500 takes HPE 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 HPE 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

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

Special feature: Highly Resilient

HPE StoreOnce 6500 is designed with no single point of hardware failure. The hardware of the HPE 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)
- 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 HPE StoreOnce 6500:

- Start out with the HPE StoreOnce 6500 120 TB system consisting of two nodes connected in failover configuration as a couplet. This is delivered pre-integrated into HPE's 42U racks which also contain the necessary networking capabilities for future expansion within the entire rack using an HPE 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 22 x 4 TB disks, giving 88 TB RAW capacity (72 TB 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 (432 TB 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 HPE StoreOnce 6500 120TB system and again scale up by adding capacity upgrade kits. This gives you a maximum configuration of two fully configured HPE 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 2240 TB RAW (1728 TB usable***) purchase the HPE 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 HPE StoreOnce B6200:

Customers who have already invested in the HPE 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.

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

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 88 TB Capacity Upgrade Kit).

Existing Configuration		Upgrade	SKUs Required				
B6200 Couplet(s)	6500 Couplet(s)	Adding 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:

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

Compatibility details on specific servers and the latest hardware compatibility information, can be found HERE

Warranty

Hewlett-Packard Enterprise 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:

HPE StoreOnce 6500 Backup

Product name	Part-number	Description	Includes
HP StoreOnce 6500 120 TB for Initial Rack	BB898A	HP StoreOnce 6500 Backup with 120 TB of RAW disk storage	• HPE 6500 Processing Nodes (2) • HPE 6500 Switch kit • HPE 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 88 TB Capacity Upgrade Kit	BB899A	HP StoreOnce 6500 88 TB upgrade kit, offering additional 88 TB of RAW disk storage	• 22 * 4 TB HDDs • HPE 6500 88TB Capacity Upgrade License Entitlement Certificate
HP StoreOnce 6500 120 TB 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	• HPE 6500 Processing Nodes (2) • HPE 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 120 TB for Second Rack	BB900A	HP StoreOnce 6500 Backup with 120 TB of RAW disk storage	• HPE 6500 Processing Nodes (2) • HPE 6500 Switch kit • HPE 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 currently installed B6200 and 6500	• 8 x 15m optical cables • 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 HPE StoreOnce B6200 installation to create a Mixed Couplet.	• 4 x 10GbE SFP+ transceivers • 8 x 2m SAS HD to Mini SAS cables

Also refer to Software Options

HPE 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

HPE StoreOnce 6500 Backup

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
Write Performance	34.8 TB/hr	69.6 TB/hr	104.4 TB/hr	139.2 TB/hr

HPE StoreOnce 6500 Backup

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 HPE 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.hpe.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 #0D1 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 #0D1 must be added to products listed for essential factory integration, i.e. BB896A HPE StoreOnce 6500 120TB for Initial Rack and\or BB900A HPE StoreOnce 6500 120TB for Extra Racks

Factory Integrated Cluster:

HPE StoreOnce 6500 Backup

	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
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				
HPE 642 1075mm Shock Intelligent Series Rack	42U		42U	

HPE StoreOnce Catalyst

HPE StoreOnce Catalyst brings to fruition the HPE 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 and storage configuration.

Ordering Information

HPE StoreOnce Catalyst is available by electronic license for customers of any of the latest HPE 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 4500/ HPE StoreOnce 5100	E-LTU	BB888AAE
	LTU	BB888A
HPE StoreOnce 2000/3000	E-LTU	BB887AAE
	LTU	BB887A

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

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.

- The license is locked to the appliance and cannot be transferred to another 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:
  - HPE Data Protector (for supported versions see
  - http://www.hp.com/go/buracompatibility
  - BridgeHead Software (for supported versions see
  - http://www.hp.com/go/buracompatibility
  - Symantec NetBackup (via an HPE OST plug-in) available from http://www.hp.com/go/StoreOnce/VERITAS
  - Symantec Backup Exec (via an HPE OST plug-in available from
  - http://www.hp.com/go/StoreOnce/VERITAS
  - Oracle RMAN (via an HPE plug-in) available from
  - http://www.hp.com/go/StoreOnce/OracleRMAN
  - Microsoft SQL Server (via HPE plug-in) available from http://www.hpe.com/go/StoreOnce/SQLServer
  - http://www.hp.com/go/StoreOnce/SQLServer
  - SAP HANA (via HPE plug-in) available from http://www.hpe.com/go/StoreOnce/SAPHANA
  - SAP on Oracle (via HPE plug-in) available from http://www.hpe.com/storage/storeonce-SAPOracle

HPE StoreOnce Replication

Hewlett Packard Enterprise 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

Hewlett Packard Enterprise delivers replication by license, either as a standalone replication solution, or as part of the HPE StoreOnce Catalyst licensing. With HPE StoreOnceSystems, 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 4500/ HPE StoreOnce 5100	24	E-LTU	BB885AAE
		LTU	BB885A
HPE StoreOnce 2000/3000	8	E-LTU	BB884AAE
		LTU	BB884A

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

- 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.
- The license is locked to the appliance and cannot be transferred to another appliance.
- 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

HPE Reporting Central and StoreOnce Enterprise Manager

Monitor multiple StoreOnce appliances through a single interface with StoreOnce Reporting Central, a default feature shipped with all HPE StoreOnce Systems within the StoreOnce GUI. Reporting Central provides a rolled up status of up to 20 registered StoreOnce appliances in a single pane of glass and allows drill-down reporting into areas of interest such as deduplication ratio, capacity usage for StoreOnce Catalyst stores, VTL libraries, NAS shares, read/write throughput, replication throughput, stream count, CPU, memory, disk I/O and networking and FC channel utilization. Reports for a desired time frame can be exported to a CSV or PNG format file. **NOTE:** Reporting of stream count, CPU, memory, disk I/O and networking and FC channel utilization are only supported on 3100, 3520, 3540 and 5100 products

For larger installations HPE 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. SEM can be installed on a separate Windows server management station and contains a full database of statistics that is pulled periodically from each device and allows reporting over a long period. In addition to reporting capacity, performance and device status the tool allows logical groupings of devices with different polices and then allows these virtual groups to be managed independently. Through SEM the user is able to drill down to individual StoreOnce appliances and launch their GUI's to manage them in more depth. 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 http://www.hp.com/go/StoreOnce/SEM

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

HPE StoreOnce REST API SDK

The StoreOnce REST API SDK provides a well-defined RESTful application programming interface (API) that customers can use for integrating and automating reporting/management capabilities with StoreOnce appliances. The SDK essentially delivers a programming interface for polling StoreOnce systems with reporting queries at a desired granularity, and the information extracted from the appliances can then be integrated with the customer's own reporting tool allowing for considerable flexibility in monitoring large StoreOnce environments. The SDK also allows customers to automate select management tasks such as creating and deleting backup targets (StoreOnce Catalyst stores, VTL libraries, NAS shares) and this capability can be integrated with the customer's own management tools. The StoreOnce SDK can be downloaded at http://h20564.www2.hp.com/hpsc/doc/public/display?docId=c04608993

HPE StoreOnce Security Package

The HPE 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.

- HPE 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
- It enables the StoreOnce System to request encryption keys from HPE ESKM version 4.0 or greater using KMIP 1.2 protocol or SafeNet's KeySecure key manager using KMIP protocol for centralized encryption key management.
  NOTE: Centralized Encryption Key Management is currently only supported on 3100, 3520, 3540 and 5100 products.
- Local Key Management is included with 1 key per store and the ability to backup and restore keys
- HPE StoreOnce Data in Flight encryption feature protects against unauthorized access of data being transferred over the wire between devices.
- Data in Flight encryption via IPSec is supported on StoreOnce Catalyst only. Encryption is enabled via the operating system utilizing IPSec. 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
- HPE 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 HPE 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 HPE StoreOnce Security Pack license 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 HPE StoreOnce Data at Rest, Data in Flight Encryption, Centralized Encryption Key Management and Secure Erase.

Model / license for	Security Pack License/E-LTU	Part number
HP StoreOnce 5500 and B6200	E-LTU	BB894AAE
	LTU	BB894A
HP StoreOnce 4900	E-LTU	BB907AAE
	LTU	BB907A
HP StoreOnce 4500/ HPE StoreOnce 5100	E-LTU	BB892AAE
	LTU	BB892A
HPE StoreOnce 2000/3000 series	E-LTU	BB891AAE
	LTU	BB891A

HPE 10GbE Connectivity	The following cables are recommended for HPE 10GbE connectivity. **NOTE:** Optical 10GbE SFPs are included in 4900 and 6500 but should be purchased separately for the B6200 or previous version of StoreOnce products.	
10GbE Fibre Optic Modules	HP BladeSystem c-Class 10Gb SFP+ SR Transceiver	455883-B21
	NOTE: Fibre transceivers and cables must be purchased separately for B6200 fibre-optic environments - 4 transceivers are required for each couplet.	
HPE ProCurve 10GbE Connectivity	The following cables are recommended for 10GbE connectivity with HPE 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
	NOTE: Direct Attach Cable (DAC) must be purchased separately for copper environments.	
Fibre 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

	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 Enterprise.com/rnd/pdfs/10gig_cabling_technical_brief.pdf	
Fibre 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
	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 fibre-optic environments.	
Power Supply	The following power supply is available for StoreOnce 3100 only	
	HP 500W Flex Slot Platinum Hot Plug Power Supply Kit	720478-B21
Network/Channel Cards	The following cards are available for StoreOnce 3520, 3540 and 5100 only	
	HPE StoreOnce 10 GbE Network Card	BB926A
	HPE StoreOnce 10 GbE-T Network Card	BB927A
	HPE StoreOnce 8 GB Fibre Channel Card	BB928A
	NOTE: A total number of four in any combination can be used. These optional hardware cards come with a license that is pre-installed and activated when ordered with the initial product. However, if not ordered at the same time as the base product these licenses will need to be installed and activated.	
	NOTE: The cards are supplied with the necessary SFPs, with the exception of the 10GbE- T network card. The 10GbE-T card uses RJ45 connectors.	

StoreOnce VSA 4 TB	StoreOnce VSA 10 TB	StoreOnce VSA 50 TB	StoreOnce 3100	StoreOnce 3520	StoreOnce 3540	StoreOnce 5100	StoreOnce 4900	StoreC 65C

QuickSpecs

HPE StoreOnce Systems

Technical Specifications

Form Factor	Virtual appliance	Virtual appliance	Virtual appliance	1U rack	2U rack	2U rack	2 to 12U scalable rack	7 to 12U scalable rack	Provi in 4 1075 rac
Total Capacity (RAW)				8 TB	24 TB	48 TB	288 TB	Up to 560 TB	Up 2240
Total Capacity (Usable***)	up to 4 TB	up to 10 TB	1 to 50 TB	5.5 TB	15.5 TB	31.5 TB	216 TB	Up to 432 TB	Up 1728
Data retention with deduplication	80 TB	200 TB	1000 TB	110 TB	282 TB	573 TB	3360 TB	8.6 PB	34 F
Fan-in Max	8	8	8	24	96	96	96	50	38
Write Performance	400 GB/hr	800 GB/hr	2.4 TB/hr	1.6 TB/hr	4.6 TB/hr	4.6 TB/hr	13.8 TB/hr	8.5 TB/hr	63.2 T
	(max aggregated data transfer rate using VTL)								
Read Performance	225 GB/hr	600 GB/hr	1.8 TB/hr	1.4 TB/hr	4.1 TB/hr	4.1 TB/hr	14.2 TB/hr	10.1 TB/hr	75.2 T
	(max aggregated data transfer rate using VTL)								
StoreOnce Catalyst Performance	1 TB/hr	2 TB/hr	6 TB/hr	6.4 TB/hr	12.7 TB/hr	12.7 TB/hr	26.7 TB/hr	22 TB/hr	139 T
	(max aggregated data transfer rate)								
Targets for backup applications	Catalyst, VTL, CIFS, NFS				HPE StoreOnce Catalyst, Virtual Tape Library (VTL) CIF			HPE StoreOnc Catalyst, Virtual Tape Libr (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	4 x 1GbE, Up to 8 x 10GbE SFP+ or 10GbE Base-T or 8Gb FC	4 x 1GbE, Up to 8 x 10GbE SFP+ or 10GbE Base-T or 8Gb FC	4 x 1GbE, Up to 8 x 10GbE SFP+ or 10GbE Base-T or 8Gb FC	4x 8Gb Fibre Channel, 4x 1Gb Ethernet, 4x10Gb Ethernet	8x 8 Fib Chan 8 x 1 Ether 4 x10 Ether Pe Coup
Disk drives	n/a	n/a	n/a	2 TB, SAS 7200rpm, 3.5-inch	2 TB, SAS 7200rpm, 3.5-inch	4 TB, SAS 7200rpm, 3.5-inch	4 TB, SAS 7200rpm, 3.5-inch	4 TB, SAS 7200rpm, 3.5-inch	4 TB, 7200r 3.5-ir
Number of Disk Drives	n/a	n/a	n/a	4	12	12	12 to 72 (max)	15 (min), 140 (max)	30 (r 560 (r

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

RAID Support	n/a	n/a	n/a	Hardware RAID 5	Hardware RAID 6	Hardware RAID 6	Hardware RAID 6	Hardware RAID 6	Hardv RAI
Total number of backup targets	4	12	16	8	24	24	32	50	38
	StoreOnce Catalyst, Virtual Tape Libraries and NAS backup targets combined								
Max Number of Cartridges Emulated	2048	6144	8192	768	24,576	24,576	32,768	819,200	6,553,
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	See table below	See t belc
• Range input voltage				200 to 240 VAC	200 to 240 VAC	200 to 240 VAC	200 to 240 VAC		
• Rated input frequency	n/a	n/a	n/a	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz		
• Rated input current	n/a	n/a	n/a	x A (at 120VAC) x A (at 240 VAC)	x A (at 120VAC) x A (at 240 VAC)	x A (at 120VAC) x A (at 240 VAC)	x A (at 120VAC) x A (at 240 VAC)		
Heat dissipated BTU	n/a	n/a	n/a	1979 BTU/hr (at 120 VAC) 1965 BTU/hr (at 240 VAC)	3207 BTU/hr (at 120 VAC) 3112 BTU/hr (at 240 VAC)	3207 BTU/hr (at 120 VAC) 3112 BTU/hr (at 240 VAC)	3207 BTU/hr (at 120 VAC) 3112 BTU/hr (at 240 VAC)	See table below	See t belc
Rated steady-state power and max peak power	n/a	n/a	n/a	500 W (at 100 to 120 VAC) 500 W (at 200 to 240 VAC)	800 W (at 100 to 120 VAC) 800 W (at 200 to 240 VAC)	800 W (at 100 to 120 VAC) 800 W (at 200 to 240 VAC)	800 W (at 100 to 120 VAC) 800 W (at 200 to 240 VAC)		
Idle (disks spinning)	n/a	n/a	n/a	LWAd 5.5A LpAm 37dBA	LWAd 5.7A LpAm 39dBA	LWAd 5.7A LpAm 39dBA	LWAd 5.7A LpAm 39dBA		
Operating (random seeks to disks)	n/a	n/a	n/a	LWAd 3.2C LpAm 46dBA	LWAd 5.9C LpAm 31dBA	LWAd 5.9C LpAm 31dBA	LWAd 5.9C LpAm 31dBA		

Power requirements for StoreOnce 4900

Input Voltage	208V				220V				240V			
	A	W	VA	BTU/hr	A	W	VA	BTU/hr	A	W	VA	BT
Base configuration (1 drive enclosure) (total 15 drives)	6.7	1374	1384	4989	6.3	1373	1385	4987	5.8	1373	1387	4
Expansion 1 (total 26 drives)	7.2	1490	1504	5427	6.8	1490	1503	5425	6.3	1490	1505	5
Expansion 2 (total 37 drives)	7.8	1607	1619	5866	7.4	1606	1621	5863	6.8	1606	1623	5
Expansion 3 (total 48 drives)	8.3	1724	1737	6304	7.9	1723	1739	6302	7.3	1723	1741	6
Expansion 4 (total 59 drives)	8.9	1841	1854	6743	8.4	1840	1857	6740	7.7	1840	1859	6
Expansion 5 (total 70 drives) (Max)	9.5	1957	1972	6683	9	1957	1975	6680	8.2	1957	1977	6
Expansion 6 (additional drive enclosure) (total 85 drives)	13.8	2844	2866	10010	13	2843	2869	10008	12	2843	2872	1
Expansion 7 (total 96 drives)	14.3	2960	2983	10448	13.6	2956	2987	10446	12.5	2956	2990	1
Expansion 8 (total 107 drives)	14.9	3077	3100	10887	14.1	3076	3105	10884	13	3076	3108	1
Expansion 9 (total 118 drives)	15.5	3194	3218	11325	14.6	3193	3222	11323	13.4	3193	3226	1
Expansion 10 (total 129 drives)	16	331	3336	11764	15.2	3310	3340	11761	13.9	3310	3344	1
Expansion 11 - Maximum Capacity (total 140 drives)	16.6	3427	3453	11704	15.7	3427	3458	11701	14.4	3427	3462	1

Technical Specifications

Power requirements for StoreOnce 6500

Input Voltage	208V				220V				240V			
	A	W	VA	BTU/hr	A	W	VA	BTU/hr	A	W	VA	BTU/hr
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
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

Technical Specifications

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

StoreOnce Backup system:		3100	3520	3540	5100	4900	6500 120 TB for Initial Rack
	Form factor	1U	2U	2U	2U	7U	42U
Dimensions	Out of box	1.7 x 17.1 x 29.5 inches (4.32 x 43.46 x 75.0 cm)	3.44 x 17.54 x 28.75 in (8.73 x 44.55 x 73.02 cm)	3.44 x 17.54 x 28.75 in (8.73 x 44.55 x 73.02 cm)	3.44 x 17.54 x 28.75 in (8.73 x 44.55 x 73.02 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	10.4 x 38.4 x 24 in (26 x 96 x 60 cm)	10.4 x 38.4 x 24 in (26 x 96 x 60 cm)	10.4 x 38.4 x 24 in (26 x 96 x 60 cm)	10.4 x 38.4 x 24 in (26 x 96 x 60 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	37 lb. (16.78kg)	66 lb (30kg)	67.1 lb (30.5kg)	68.2 lb (31kg)	249.28 lb (113 kg)	953 lb (433 kg)
	Shipping	70 lb (31.8 kg)	90 lb (41 kg)	92 lb (42 kg)	93 lb (42.5 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 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 20°C/hr (36°F/hr). The upper limit and rate of change may be limited by the type and number of options installed. **NOTE:** System performance during standard operating support may be reduced if operating with a fan fault or above 30°C (86°F).					
	Shipping temperature						
	Operating humidity	Minimum to be the higher (more moisture) of -12°C (10.4°F) dew point or 8% relative humidity. Maximum to be the lower (less moisture) of 24°C (75.2°F) dew point or 90% relative humidity.					

Technical Specifications

StoreOnce Backup Upgrade Kits:		StoreOnce 5100 48 TB Upgrade Kit	StoreOnce 4900 44 TB Drawer/Cap Upgrade Kit	StoreOnce 4900 60 TB Drawer/Cap Upgrade Kit	6500 120 TB for Existing Rack	6500 120 TB for Extra Racks	6500 88 TB Capacity Upgrade Kit
	Form factor	2U		5U	14U	42U	N/A
Dimensions	Out of box	3.44" x 17.64" x 23.54" in (8.7 x 44.8 x 59.8 cm)	n/a	17.6 x 35.1 x 8.8 in (44.7 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	11.13 x 38.12 x 23.75 in (27.8 x 95.3 x 59.3 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 109 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	60 lb (27.2 kg)		198.68 lb (90.31 kg)	556.87 lb (253.12 kg)	953 lb (433 kg)	43.56 lb (19.8 kg)
	Shipping	78lbs (35.38kg)		238.78 lb (108.31 kg)	615.35 lb (279.12 kg)	1162 lb (528 kg)	50.16 lb (22.8 kg)

HPE Support Services and Warranty Information

HPE Support Services and Warranty Information Services to accelerate time to results
HPE Support 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 HPE StoreOnce Storage, so you can efficiently and affordably consolidate, manage, and extract value from unstructured data.

Technical Specifications

Start here to understand your data protection options. Next, develop a methodical plan and design the optimal HPE StoreOnce Storage solution that addresses your unique technology requirements.
HPE 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.hpe.com/V2/GetPDF.aspx/4AA4-1175ENW.pdf

Deploy and integrate

Implement HPE 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 HPE 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 HPE StoreOnce Data Replication Solution Service is required if the StoreOnce VSA is to act as a replication target. The HPE StoreOnce Catalyst Solution Service is required if the StoreOnce VSA is to host Catalyst Stores and use Catalyst Copies.

HPE 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 HPE StoreOnce Storage. http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-3945ENW.pdf

HPE StoreOnce Catalyst Solution and Startup Service - Configuration of the best possible performance for HPE StoreOnce Catalyst software environments with your choice of three levels of service, based on the complexity of the environment and the level of service desired.
Catalyst Solution Service: http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-4489ENN.pdf
Catalyst single node startup service: http://h20195.www2.hpe.com/v2/GetPDF.aspx/4aa4-9988ENW.pdf

HPE StoreOnce Recovery Manager Central (RMC) Software Installation and Startup Service—Provides deployment of HPE 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
http://h20195.www2.hpe.com/v2/GetPDF.aspx/4aa5-6254ENW.pdf

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

HPE StoreOnce Firmware Analysis and Implementation Service
HPE Firmware Analysis and Update Implementation Services are technical services that provides the analysis and implementation of firmware updates, taking into account the relevant revision dependencies within the IT environment.
http://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA4-7728ENW.pdf

HPE 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 HPE storage quickly and efficiently.

Technical Specifications

http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA3-0774ENW.pdf

HPE Proactive Select - A flexible way to purchase services to fit your environment with an extensive menu of HPE Proactive Select event and technical services, such as onsite firmware upgrades, health checks, assessments, and education.
http://h20195.www2.hpe.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. HPE Support Services are sold by Hewlett Packard Enterprise and Hewlett Packard Enterprise Authorized Service Partners. Services for customers purchasing from Hewlett Packard Enterprise or an enterprise reseller are quoted using Hewlett Packard Enterprise order configuration tools. Customers purchasing from a commercial reseller can find HPE Support Services at http://www.hp.com/go/lookuptool

HPE 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.hpe.com/v2/GetPDF.aspx/4AA3-8855ENW.pdf

HPE 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.hpe.com/v2/GetPDF.aspx/4AA5-3259ENW.pdf

HPE Datacenter Care
Get the support you need to deploy, operate, and evolve your data center environment to be hybrid-cloud ready with single-point-of-accountability for Hewlett Packard Enterprise and others' product.
http://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA4-0459ENW.pdf
HPE Foundation Care - HPE Foundation Care connects you to HPE 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 HPE support Service.
http://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA4-8876ENW.pdf

HPE 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 HPE Storage.
http://www.hp.com/learn/storage

Get connected and get back to business - HPE Storage Technology Services provide the path to get your HPE Storage solutions and your business connected to Hewlett Packard Enterprise. 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.

Technical Specifications

Flexible Installation and Startup SKU's and option bands

HPE StoreOnce 6500HP StoreOnce 6500 System Installation and Startup service

		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 120 TB Backup Couplet for Initial Rack	HA124A1#5RZ			
BB897A	HP StoreOnce 6500 120 TB Backup Couplet for Existing Racks		HA124A1#5S0		
BB900A	HP StoreOnce 6500 120 TB Backup Couplet for Additional Racks			HA124A1#5S1	
BB899A	HP StoreOnce 6500 88 TB Capacity Upgrade Kit				HA124A1#5S2

HPE StoreOnce 6500 Rack Transition Service
This service provides for the re-racking of HPE StoreOnce B6200 and 6500 products into a rack other than originally installed in. Per rack - HA124A1#5UK
HPE StoreOnce 3100, 3520, 3540, 4900 and 5100 System Installation and Startup service

Description	Service SKU	Additional StoreOnce system on same site
HPE StoreOnce 3100, 3520, 3540, HP StoreOnce 4900 and 5100 System	HA124A1#55Q	HA124A1#55R
HP StoreOnce 4900 system (additional for non #0D1)	HA124A1#5V0	
HP StoreOnce 4900 capacity upgrade (additional for non #0D1)	HA124A1#5V0	
HPE StoreOnce 5100 Capacity upgrade (non #0D1)	HA113A1#5KK	

(*) Optional for HPE StoreOnce 3100, 3520, 3540 and 5100
Advanced start-up services

HPE StoreOnce Catalyst and Replication Solution Service
HPE StoreOnce Catalyst Solution and Replication Solution Services. These are for the HPE StoreOnce 6500 and 4900 systems mandatory service 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. These service are optional for the HPE StoreOnce 3100, 3520, 3540 and 5100 and are available in 3 levels.

Description	Service SKU
HP StoreOnce Catalyst solution service lvl1	HA124A1#58E
HP StoreOnce Catalyst solution service lvl2	HA115A1#58F
HP StoreOnce Catalyst solution service lvl3	HA115A1#58G
HP StoreOnce Replication solution service lvl1	HA124A1#5TY
HP StoreOnce Replication solution service lvl2	HA115A1#5TZ
HP StoreOnce Replication solution service lvl3	HA115A1#5UO

NOTE: One service is required for each site when the appropriate licenses are ordered

HPE StoreOnce single node Catalyst Startup Service for 3100, 3520, 3540, 4900 and 5100
HPE StoreOnce single node Catalyst Startup Service provides implementation and verification of the backup and remote copy features of HP StoreOnce Catalyst functionality - HA124A1#5T7
NOTE: one service is required for each site when the appropriate licenses are ordered

HPE StoreOnce Recovery Manager Central software installation and startup service
The HPE StoreOnce Recovery Manager Central software installation and startup service provides deployment of the HPE StoreOnce Recovery Manager Central software, with features designed to both help ensure proper installation in the storage environment and increase the benefit from the storage investment.

Description	Service SKU
HP StoreOnce RMC for 3PAR	HA124A1#5WD
HP StoreOnce RMC-V for 3PAR	HA124A1#5WE
HP StoreOnce RMC-S for 3PAR	HA124A1#5ZB

HPE StoreOnce System Health Check Service
Proactive review of your HPE StoreOnce Storage solution or other HPE deduplication systems, including a review of operational, capacity, and performance data so you can rest assured that everything is operating effectively.

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

HPE StoreOnce Firmware Analysis and Implementation Service

HPE Firmware Analysis and Update Implementation Services are technical services that provides the analysis and implementation of firmware updates, taking into account the relevant revision dependencies within the IT environment.

Description	Support Service SKU	Per Event	Contractual
StoreOnce Firmware update analysis service	HM001A1	HM001AE	HM001AC
StoreOnce Firmware update implementation service	HM002A1	HM002AE	HM002AC

Remote Support Tools	Service Tools and Technical Support - HPE Remote Support monitors StoreOnce appliances and allows the appliance to proactively contact Hewlett Packard Enterprise if issues arise on the system. Site-specific data used both proactively and reactively with real-time monitoring and information extraction tools. **NOTE:** Requires StoreOnce 3.11.X firmware as a minimum

For more information on HPE Services and Support

To learn more on HPE Storage Services, visit: http://www.hpe.com/services/storage

Or contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner
Or take a look at the following resources:

- HPE StoreOnce Replication Solution Service Sales Brief
  http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-4540ENW.pdf
- HPE StoreOnce Replication Solution Service data sheet
  http://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA4-3945ENW.pdf
- HPE StoreOnce Catalyst Solution Service Sales Brief
  http://h20195.www2.hpe.com/V2/GetPDF.aspx/4AA4-4480ENW.pdf
- HPE StoreOnce Catalyst Solution Service data sheet
  http://h20195.www2.hpe.com/v2/GetPDF.aspx/4AA4-4489ENW.pdf

Summary of Changes

Date	Version History	Action	Description of Change
17-Dec-2015	From Version 11 to 12	Changed	Fixed some typos from last version.
01-Dec-2015	From Version 10 to 11	Changed	Changes made throughout the entire document
24-Jul-2015	From Version 9 to 10	Changed	Changes made throughout the entire document
19-Jun-2015	From Version 8 to 9	Changed	Changed made to the Storeonce VSA Backup and the Software Options Sections.
8-May-2015	From Version 7 to 8	Changed	Corrected some SKU numbers for the StoreOnce VSA and corrected some URLs
6-Apr-2015	From Version 6 to 7	Changed	Changed the version to 7 to match Product Bulletin.
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
9-Jan-2015	From Version 3 to 4	Changed	Changes to the HPE 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.

Sign up for updates

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c04328820 - 14996 - Worldwide - V12 - 17-December-2015

Hewlett Packard Enterprise

HPE Data Protector software

An intelligent approach to data protection
Built on a unified architecture that leverages analytics and automation, HPE Data Protector delivers comprehensive protection, real-time intelligence, and guided optimization enabling organizations backup and recovery environment to be just as agile as the infrastructure and workloads of today's IT environments. With an adaptive approach to backup and recovery, organizations will achieve simple, reliable, and cost-effective protection of information.

By standardizing the backup and recovery of information spread across locations, applications, formats, storage platforms, operating systems, and hypervisors, Data Protector provides assurance for mission critical information from the core to the edge, across physical, virtual, and cloud infrastructures.

Data Protector delivers:

Comprehensive Protection, based on a unified architecture, delivers a centrally managed and standardized backup and disaster recovery process that extends from the core datacenter to the edge of your business.

Operational Intelligence, from real-time analytics, delivers actionable insight and awareness for rapid root-cause analysis, bridging data protection gaps, and proactive planning of future data protection needs.

Guided Optimization, using recommendations and dynamic reporting, results in cost and risk reductions, balanced resource utilization, automated job prioritization, and identification and resolution of data protection inefficiencies across the backup infrastructure.

Key product highlights

Real-time Operational Intelligence: personalized/customizable dashboards and reports, intelligent scheduling, root-cause analysis, scenario-based modeling and predictive analytics for resource balancing, and identification and resolution of potential conflicts and contentions

Zero Downtime Backup/Instant Recovery: array-based snapshot integrations provide rapid protection and recovery while removing the burden that traditional backup technologies have on the production environment

Storage optimization: with compression, federated deduplication, storage management and analytics, organizations achieve increased scalability and cost efficiency, and better utilization of the IT infrastructure

Automated Disaster Recovery: centralized bare metal recovery from physical to physical, physical to virtual, virtual to virtual, and virtual to physical from any backup set at no additional cost

Application consistent recovery: leading business application integrations extend backup, automated point-in-time recovery, and granular restores to application owners enabling them to manage, drive and service their own backup and recovery requirements based on the backup infrastructure defined by IT

Advanced virtual server protection: hypervisor integrations, and support, offer virtual machine protection inheritance, tiered recovery options, process automation, analytics and visualization for virtual environments

Standardized protection: a unified and flexible architecture enables centralized protection across

heterogeneous environments, disparate operating systems and critical applications from core datacenters to remote sites

Information Retention: automated retention and replication management across different backup media, storage tiers and locations for compliance and efficient long-term data retention

What's new in HPE Data Protector 9.05

HPE Data Protector 9.05 provides enhanced security, accelerated VMware virtual machine backup, integration with HPE StoreOnce RMC, support for recently announced LTO-7 tape drives and libraries, and updates to reflect the Hewlett Packard Enterprise branding.
Virtualization

- Parallel vmdk backup - makes virtual machine backup more efficient and faster through parallel processing of multiple virtual disks even within the same virtual machine

Security

- FIPS 140-2 encryption - certified cryptology module for disk agent software encryption

HPE integrations

- HPE StoreOnce RMC integration – delivers centralized management and reporting of the backup process for greater transparency, control and ability to prove compliance as needed.
- StoreOnce Catalyst support for AIX and Solaris – provides Catalyst over IP and fiber channel support, and Federated Catalyst support for AIX and Solaris, expanding the support that is already available for Windows, Linux, and HPE-UX platforms.
- LTO-7 support - support for the LTO-7 media, drives, and libraries
- HPE Storage Optimizer GUI integration – enables the access of the Storage Optimizer UI directly from the Data Protector GUI.

3rd Party Integration Enhancements

- Expanded support for EMC Data Domain Boost to AIX and Solaris platforms and support for Boost over Fiber Channel (FC) for all supported platforms.
- Usability
- HPE rebranding and versioning – updates include logo changes, copyright updates and changes to company name. Additionally, the individual client/agent versions are now displayed according to the patch bundle installed.
  Command Line Interface (CLA) enhancements - include add/remove a client from a backup specification and setting of include and exclude parameters to enable bulk editing of backup specifications in large environments.

HPE Backup Navigator

HPE Backup Navigator is a highly interactive and intuitive reporting application that combines strong visualization and real-time operational analytics to simplify and optimize the backup and recovery experience for HPE Data Protector environments.

- Intelligent dashboards - Dashboard reports provide valuable insights into the key performance indicators of the backup and recovery process, and more importantly, they're interactive and customizable allowing the IT administrator to filter, change, and modify views
- Real-Time predictive analytics - Gain visual foresight into the backup and recovery process based on

Overview

daily use, along with trending and forecasting algorithms to reveal future performance and capacity gaps and requirements specific to your data set characteristics, infrastructure capabilities, and organizational requirements

- Rapid root-cause analysis and problem solving - Proactively detect and address potential resource conflicts and systematic/systemic issues before they cascade into outages and data loss that negatively impact business operations.
- Collaboration and cross-system support - Automate the report creation process, allowing them to be scheduled and shared with stakeholders within the organization, or securely isolated and made available to external customers relying on the backup and recovery service. The same information can be exported in a variety of formats for inclusion into other organizational systems.
- Flexible reporting - Extensible reports can be customized and tailored to match the specific needs of the operator, organization, or customer, relying on the details for decision-making and taking appropriate action.
- "What-if" scenario evaluation - Get intelligent insights into current backup and recovery operations before new datasets are included into the process. Such insights can identify whether or not service-level agreements would remain achievable, the impacts to the backup infrastructure (physical capacity, network load, device loads, etc.), and the best ways to balance the demands of new datasets within the existing infrastructure.

What's new in HPE Backup Navigator 9.30

- New reports are to cover virtualization environment, drives, and HPE Data Protector
- Enhanced event notification and management
- Support for the remote HPE Backup Navigator agents installation on Windows
- Severity filtering in the session output reports
- Support for SUSE Linux Enterprise 12

HPE Data Protector Operations Manager integration

HPE Data Protector Smart Plug-in for HPE Operations Manager 9.0 and HPE Data Protector Management Pack 9.0 enable real-time intelligent monitoring, analysis, isolation, remediation and reporting solution for HPE Data Protector environments. By continually monitoring the health and state of each component of the backup and recovery infrastructure, IT administrators are actively updated. HPE Data Protector Smart Plug-in for HPE Operations Manager is an extension to HPE Operations Manager while HPE Data Protector Management Pack is offered as an extension for Microsoft Systems Center Operations Manager. These products provide the following benefits:

- Real-time discovery, visualization and utilization analysis - proactively monitor, cross-correlate, and auto-detect issues that impact backup and recovery operations in heterogeneous virtualized and physical infrastructures
- Instant diagnostics and actionable insight – separates cause from effect and dramatically accelerates diagnosis in simple or complex backup infrastructures providing IT administrators with actionable information by pinpointing the real root cause of data protection problems more quickly and accurately
- Context-sensitive issue isolation with assistive remediation – configurable alerting for correlated events, sustained conditions and escalations enabling the IT staff to remain abreast of critical issues in the backup and recovery infrastructure with assistive troubleshooting to resolve issues before they affect those who rely on the data protection service
- Collaboration and cross-system support - Automate the report creation process, allowing them to be scheduled and shared with stakeholders within the organization, or securely isolated and made available to external customers relying on the backup and recovery service. The same information can be exported in a variety of formats for inclusion into other organizational systems.

Overview

- Flexible visualization and reporting – intelligent insights into the current backup and recovery infrastructure presented graphically and tailored to the needs of the IT administrator enabling them to discover ways to improve utilization, identify unused components to better load balance workloads, identify whether or not Recovery Point Objectives and service-level agreements remain achievable, and visualize the precise information needed to enable proactive decision making and taking the most appropriate action associated with the report content
- Manage and control backup and recovery operations – context-sensitive orchestration of the HPE Data Protector backup and recovery technology stack (backup target(s)-to-cells-to-cell managers-to-backup agents) and control over the actions that can be taken on each to achieve a well-defined and fully optimized data protection posture

Hardware support

- Broad coverage of HPE-UX, Windows, Solaris, Tru64, OpenVMS, NetWare, Linux, AIX, and other operating environments
- ZDB/IR support for HPE P9000/P6000/P4000/3PAR, and ZDB support for NetApp and EMC Symmetrix disk arrays
- Built in software Backup to disk such as File Library and software de-dupe storage supports any direct connected storage that the server's operating system supports
- Disk-based backup appliances from HPE, EMC, Quantum, etc.
- HPE Tape libraries, StorageTek, ADIC, IBM, etc.
- For detailed information on Hewlett Packard Enterprise Data Protector support matrices please visit: http://www.hp.com/go/dataprotector

Software Pre-Requisites

Cell Manager Requirements

The Data Protector Session Manager does not support the IDB on a file system that is mounted as NFS type.

On Systems Running HPE-UX (IA64)

The Cell Manager must meet the following minimum requirements:

- The Soft File Limit per Process on the Cell Manager should be at least 1024.
- 8 GBRAM (For recovery of the Internal Database, twice as much total RAM is required.)
- For each parallel backup session 40 MB of RAM are required and 5 - 8 MB per data segment size. For example, if you want to run 60 parallel backup sessions 3 GB of RAM plus 512 MB for data segments are needed.
- 1.5 GB of free disk space + approximately up to 2% of planned data to be backed up (for use by the IDB).It is recommended to modify the kernel parameters as follows:
  - Set the kernel parameter shmmax (maximum size of a shared memory segment) to at least 2.5 GB. To check the configuration, execute:
  - kcusage shmmax
  - For recovery of the Internal Database, the parameter should be set to twice the above value.
  - Set the kernel parameter maxdsiz_64 (max data segment size) to at least 134217728 bytes (128 MB), and the kernel parameter semmnu (number of semaphore undo structures) to at least 256.
  - After committing these changes, recompile the kernel and reboot the machine.

On Systems Running Windows

The Cell Manager must meet the following minimum requirements:

- 4 GB of total RAM. For recovery of the Internal Database, twice as much total RAM is required. Each parallel backup session requires 40 MB of RAM. For example, 60 parallel backup sessions requires 3 GB of RAM.
- 1.5 GB of free disk space + approximately up to 2% of planned data to be backed up (for use by the IDB)2 × size_of_the_biggest_package_to_be_installed + 10 MB of disk space needed on the system driveOn Windows Server 2008 systems, the firewall must also be configured to accept "Remote Service Administration" (NP) connections (port 445).
- On Windows Server 2008 systems, administrative privileges are required to install Data Protector
- For viewing online help on the Data Protector Cell Manager, Internet Explorer 8.0 or later is required. Compatibility view should be disabled for locally stored websites. Mozilla Firefox 17.0.5 (Extended Support Release) or later. Other Web browsers may fulfill this requirement as well, but have not been tested.

On Linux Systems

The Cell Manager must meet the following minimum requirements:

- 4 GB of total RAM. For recovery of the Internal Database, twice as much total RAM is required. For each parallel backup session 40 MB of RAM are required and 5 - 8 MB per data segment size. This means that, for example, if you want to run 60 parallel backup sessions 3 GB of RAM plus 512 MB for data segments are needed.
- 1.5GB of free disk space + approximately up to 2% of planned data to be backed up (for use by the IDB).If the version of libstdc++ on the system is not 5 (for example libstdc++.so.6 instead of libstdc++.so.5) you need to install the compatibility package compat-2004 or compat-libstdc++.
- To install the Java GUI Server on Red Hat Enterprise Linux 4.0, the libstdc++-4.0.2-8.fc4.x86_64.rpm package is required. If yours system does not already contain a 64-bit version of libstdc++. So. 5 then you must install it with libstdc++-3.3.3-7.x86_64.rpm.
- Requirements for viewing online Help on the Data Protector Cell Manager are the same as on Data Protector Clients.

Installation Server Requirements

On Systems Running HPE-UX — The Installation Server must meet the following minimum requirements:

- 512 MB of available RAM
- 1.5 GB of free disk space
- The inetd daemon must be installed and running

On Systems Running Windows Server — The Installation Server must meet the following minimum requirements:

- 512 MB of available RAM
- 2 GB of disk space
- Administrative privileges are required to install Data Protector 8.10. You must also configure a user account whose credentials will be used during remote installation.

On Systems Running Linux — The Installation Server must meet the following minimum requirements:

- 512 MB RAM
- 1.5 GB of disk space
- The inetd or xinetd daemon must be installed and running

Deduplication Store Server Requirements

- It is recommended to have a dedicated Deduplication Server

	CPU speed (GHz) / Number of cores	Physical memory dedicated to the StoreOnce Software	Number of disks (dedicated to the store)
Minimum requirements	2.8 / 2 core	4 GB RAM	1
Recommended requirements	2.8 / 4-6 cores	6 GB RAM	4 or more using RAID 5

Client System Requirements

On Systems Running UNIX

- The prerequisite for remote installation of the Data Protector client is the following:
- The inetd or xinetd (on Linux) daemon must be up and running on the remote client system. The prerequisite for viewing online Help on the Data Protector client is the following:

Disk space and RAM requirements of Data Protector UNIX clients — The following table shows the minimum disk space and RAM requirements for the various Data Protector clients:

Client System	RAM (MB)	Disk Space (MB)
Disk Agent	64 (recommended 128)	20
Media Agent	64 (recommended 128)	20
Integration modules	64 (recommended 128)	20
English Documentation & Help	N/A	100

NOTE: The figures indicate requirements for the components only. For example the "disk space" figure does not include space allocation for the operating system, page file or other applications.

HPE-UX Systems — When installing or upgrading remotely, the minimal available disk space in the folder /tmp should be the same size as the biggest package being installed.

For HPE-UX 11.11, the IPv6NCF11i bundle or TOUR/IPv6 support is required to enable the Internet Protocol version 6 (IPv6).

Solaris Systems — When installing a Media Agent, make sure that the following entry is in the file /etc/system: set semsys:seminfo semmni=100

When installing or upgrading remotely, the minimal available disk space in folders /tmp and /var/tmp should be the size of the biggest package being installed.

On Systems Running Windows — The prerequisites for Windows user interface installation and remote installation on the client are:

- On Microsoft Windows XP Professional systems, Service Pack 3 must be installed.
- On Microsoft Windows Server 2003 systems, Service Pack 2 must be installed.
- For viewing the Help, you need a Web browser that is able to run under the same account as the Data Protector GUI process. JavaScript must be enabled in the Web browser. The following Web browsers are supported:
  - Windows Internet Explorer 8.0 or later. Compatibility view should be disabled for locally stored websites.
  - Mozilla Firefox 17.0.5 (Extended Support Release) or later
- Other Web browsers may fulfill this requirement as well, but have not been tested.

Installation Server and Client System Requirements

The following table presents the minimum available RAM and disk space requirements for different Data Protector Windows client components:

Client System	RAM (MB)	Disk Space (MB)
User Interface	512[1]	150[2]
Disk Agent	64 (recommended 128)	20
Media Agent	64 (recommended 128)	20
Integration modules	64 (recommended 128)	20
English Documentation & Help	N/A	85

NOTES:

[1]Memory requirements for the GUI system vary significantly with the number of elements that need to be displayed at a time. This consideration applies to the worst case (like expanding a single directory). You do not need to consider all directories and file names on a client, unless you want to expand all directories while viewing. It has been shown that 2 MB of memory is required per 1,000 elements (directories or file names) to display, plus a base requirement of 50 MB. So the 256 MB of RAM is enough to display the maximum number of file names.

[2]Regarding the disk space, keep in mind that the page file alone should be able to grow to about 3 times the physical memory.

The figures indicate requirements for the components only. For example the "disk space" figure does not include space allocation for the operating system, page file or other applications.

Newer Windows Operating Systems and Service Packs

Windows versions subsequent to Windows XP Service Pack 2 and Windows Server 2003 introduce an improved version of the Internet Connection Firewall (ICF), under a new name as Microsoft Firewall. The firewall is turned on by default. During the installation of a new Data Protector client using the Installation Server, the installation agent is started on the remote computer. The Installation Server then connects to this agent through the Data Protector cell port (by default 5555). However, if Microsoft Firewall is running, the connection cannot be established and the installation fails.

To resolve this, perform one of the following steps:

- Configure Windows Firewall to allow connections through a specific port.
- If the omnirc variable OB2FWPASSTHRU is set on the Installation Server, the installation agent automatically registers itself with Windows Firewall and the installation continues normally.

Installation Server and Client System Requirements

Java web reporting

To use Data Protector Java web reporting, the following prerequisites must be fulfilled:

A supported Web browser must be installed on the system. A supported Java runtime environment must be installed on the system and enabled in the Web browser

A supported Java runtime environment must be installed on the system and enabled in the Web browser

Microsoft Internet Explorer:

The default web browser security settings prevent webpages from running scripts or using ActiveX controls. To allow the web browser to run scripts and use ActiveX controls in order to enable Data Protector Web Reporting, click Allow blocked content in the Internet Explorer Information bar. To permanently allow blocked content, select Tools > Internet Options > Advanced, locate the Security section and select the option Allow active content to run in files on My Computer.

Local Client Installation

UNIX clients are installed locally using the installation script omnisetup.sh. You can install the client locally from the HPE-UX DVD-ROM and import it to the Cell Manager using automated procedure.

For the installation procedure see the HPE Data Protector installation and licensing guide.

Upgrade

The procedures for upgrading to Data Protector 9.0 from Data Protector 6.2, 7.0, 8.0 and 8.1 are documented in the HPE Data Protector Installation and Licensing guide. To upgrade from an even earlier version, you first need to upgrade to one of the above mentioned Data Protector versions, and then upgrade to Data Protector 9.0 following the instructions in the HPE Data Protector Installation and Licensing Guide.

Requirements for HPE Data Protector Services on Windows Server 2003 and Windows Server 2008

HPE Data Protector uses four services:

Inet	Backup client service
CRS	Cell Manager service
RDS	Cell Manager Database service
UI-Proxy	User Interface proxy service

By default, Inet and RDS services are running under the Local System account, and CRS and UIProxy services are running under the Administrator account.
You can change the account information for any of these services. However, the following are minimum requirements that must be met by the new accounts:

Installation Server and Client System Requirements

Service	Resource	Minimum resource permission required by service
RDS	Data _ Protector _ program _ data\db40(WindowsServer2008) Data _ Protector _ home\db40 HKLM\ SOFTWARE\Hewlett Packard Enterprise\OpenView\OmniBackII	Full access Read
CRS	Data _ Protector _ program _ data (WindowsServer2008) Data _ Protector _ home HKLM\ SOFTWARE\Hewlett Packard Enterprise\OpenView\OmniBackII	Full access Full access
Inet	Backup and Restore Take Ownership	
UIProxy	HKLM\ SOFTWARE\Hewlett Packard Enterprise\OpenView\OmniBackII	Read

Files installed in the %SystemRoot%\ system32 folder

The following files are placed (depending on the components selected) into %SystemRoot%\ system32 folder on Windows systems:

BrandChgUni.dll	This is a resource library. It is used only internally; however, it Also contains the path to registry settings, so it must be located In a well-known location where it can be accessed by Integration libraries.
libarm32.dll	This is a NULL shared library for ARM instrumentation. It may be replaced by third-party monitoring software.
ob2informix.dll	This library is used to integrate with the Informix Server database.
snmpOB2.dll	This library is used to implement system SNMP traps.

Application Platforms

Backup Agents

Windows /XP/2003/2008/Vista/7/2008 R2/2012/2012 R2; Novell OES; HPE-UX; Sun Solaris; Linux Red Hat/SUSE/Debian/OEL/CentOS,; IBM AIX; SGI IRIX;; SCO OpenServer,; OpenVMS; MacOS

Additional operating systems supported via:

- NFS/shared disk, CIFS
- NDMP NAS filer:
  - HPE X9000
  - HPE NAS 8000
  - HPE Storage Server NAS
  - Network Appliance filers
  - EMC Celerra
  - Hitachi BluArc

Application Agents

- Oracle®, Informix, Sybase, MS SQL Server, MS SQL, MS Exchange, MS SharePoint, MS DPM, SAP, SAP DB/MaxDB, Baan IV, Lotus Notes, Lotus Domino, DB2, Autonomy LiveVault and Autonomy Connector Framework Server
- Full virtual platform integration with VMware vSphere, ESXi and ESXI server using vStorage API for Data Protection (VADP) and VMware Consolidated BackupVM-level support for Citrix XenServer, HPE Integrity Virtual Machine, MS Virtual Server, MS Windows 2008/2008R2 Hyper-V Backup device servers - with robotic control (for control of tape drives and tape library systems, including shared tape libraries)
- Windows XP/2003/2008/2008 R2, HPE-UX, Sun Solaris, Novell NetWare OES, Linux Red Hat/SUSE/Debian, OpenVMS, IBM Aix
- Granular Recovery agent for SharePoint 2007 & 2010; VMware vSphere, Exchange 2010

High Availability Applications

- Clusters: RH & SLES Clusters, Microsoft® Cluster Server, HPE MC/Serviceguard, VERITAS Cluster, Tru64 Cluster, Novell Netware Cluster, OpenVMS Cluster and HPE EFS Clustered Gateway
- Zero-downtime backup: HPE Business Copy XP/P9000 and Continuous Access XP/P9000, HPE Business Copy EVA HPE Continuous Access EVA, HPE SAN/iQ Snapshots, HPE 3PAR Virtual Copy, HPE P2000 Snapshots , EMC TimeFinder and EMC SRDF, EMC CLARiiON SnapView-Snapshots and NetApp snapshots
- Instant recovery: HPE Disk Array XP/P9000, EVA and P4000

Application Platforms

Management Platforms	Management Systems	• Windows • HPE-UX • Linux
	Manager-of-Managers	• Windows • HPE-UX • Linux
Supported Backup Devices	Supported Technologies	• Data Protector supports a wide range of HPE and non-HPE disk and tape devices. For a full list, check the compatibility matrices on hp.com/go/dataprotector. • DDS, DLT, DLT1, Super DLT, QIC/Travan, Magneto-Optical, Mammoth M2, Eliant, IBM 3590 (Magstar), STK 9840, STK 9940, AIT and LTO Ultrium. • Supported range of standalone backup devices, auto changers, library systems and silos from Hewlett Packard Enterprise, StorageTek, Sony, Dell, Seagate, ADIC, ATL, Spectralogic, Exabyte, Quantum, Breece Hill, Overland Data and others. • Supported range of disk devices from Hewlett Packard Enterprise, EMC, IBM, Quantum, Sepaton, FalconStor, and Exagrid • One Button Disaster Recovery • Support for StoreOnce Software Deduplication • Support for Backup device server (Media Agent) with Deduplication.
Storage Networking	Supported Technologies	• Storage configurations in SAN • iSCSI (SCSI over TCP/IP), FCIP (FC over IP) and iFCP (Internet FC Protocol)

For the latest platform, integration, cluster and device support information and other details, please consult: http://www.hp.com/go/dataprotector

Licenses, Services and Warranties

Distribution Media	DVD (physical), download (electronic)
Documentation	Data Protector software manuals are available in PDF format. Install the PDF files during the Data Protector software setup procedure by selecting the English Documentation (Guides, Help) component on Windows or the OB2-DOCS component on UNIX. Once installed, the manuals reside in the <Data_Protector_home>\docs directory on Windows and in the /opt/omni/doc/C/ directory on UNIX. Data Protector software support matrices can be found at the above mentioned locations in the support_matrices sub-directory. You can also find the manuals in PDF format at http://support.openview.hp.com/selfsolve/manual Data Protector software also provides Help topics and context-sensitive (F1) Help for Windows and UNIX platforms. You can access the Help from the top-level directory of any installation DVD-ROM without installing Data Protector: • Open DP_help.chm (on Windows) • Unpack the zipped tar file DP_help.tar.gz, and access the Help system through DP_help.htm (on UNIX) The latest version of the Acrobat Reader software is available at: http://www.adobe.com. Documentation The HPE Data Protector documentation set consists of the following guides: HPE Data Protector Getting Started Guide This guide provides an overview of the basic Data Protector functionality and is designed to help you get started with the product HPE Data Protector Concepts Guide This guide describes Data Protector concepts and provides background information on how Data Protector works. It is intended to be used with the task-oriented online Help. HPE Data Protector Installation and Licensing Guide This guide describes how to install the Data Protector software, taking into account the operating system and architecture of your environment. This guide also gives details on how to upgrade Data Protector, as well as how to obtain the proper licenses for your environment. HPE Data Protector Troubleshooting Guide This guide describes how to troubleshoot problems you may encounter when using Data Protector. HPE Data Protector Disaster Recovery Guide This guide describes how to plan, prepare for, test, and perform a disaster recovery. HPE Data Protector Integration Guides These guides describe how to configure and use Data Protector to back up and

restore various databases and applications. They are intended for backup administrators or operators. There are six guides:

- HPE Data Protector Integration Guide for Microsoft Applications: SQL Server, SharePoint Server, and Exchange Server
  This guide describes the integrations of Data Protector with the following Microsoft applications: Microsoft SQL Server, Microsoft SharePoint Server, and Microsoft Exchange Server.
- HPE Data Protector Integration Guide for Oracle and SAP
  This guide describes the integrations of Data Protector with Oracle Server, SAP R/3, and SAP MaxDB.
- HPE Data Protector Integration Guide for IBM Applications: Informix, DB2, and Lotus Notes/Domino
  This guide describes the integrations of Data Protector with the following IBM applications: Informix Server, IBM DB2 UDB, and Lotus Notes/Domino Server.
- HPE Data Protector Integration Guide for Sybase, Network Node Manager, and Network Data Management Protocol Server
  This guide describes the integrations of Data Protector with Sybase Server, HPE Network Node Manager, and Network Data Management Protocol Server.
- HPE Data Protector Integration Guide for Virtualization Environments
  This guide describes the integrations of Data Protector with virtualization environments: VMware Virtual Infrastructure and VMware vSphere, Microsoft Hyper-V, and Citrix XenServer.
- HPE Data Protector Integration Guide for Microsoft Volume Shadow Copy Service
  This guide describes the integration of Data Protector with the Microsoft Volume Shadow Copy Service. This guide also documents application writer specifics.

HPE Data Protector Zero Downtime Backup Concepts Guide
This guide describes Data Protector zero downtime backup and instant recovery concepts and provides background information on how Data Protector works in a zero downtime backup environment. It is intended to be used with the task-oriented HPE Data Protector Zero Downtime Backup Administrator's Guide and the HPE Data Protector Zero Downtime Backup Integration Guide.

HPE Data Protector Zero Downtime Backup Administrator's Guide
This guide describes how to configure and use the integration of Data Protector with HPE P6000 EVA Disk Array Family, HPE P9000 XP Disk Array Family, HPE P4000 SAN Solutions, NetApp and EMC Symmetrix Remote Data Facility and TimeFinder. It is intended for backup administrators or operators. It covers the zero downtime backup, instant recovery, and the restore of file systems and disk images.

HPE Data Protector Zero Downtime Backup Integration Guide
This guide describes how to configure and use Data Protector to perform zero downtime backup, instant recovery, and standard restore of Oracle Server, SAP R/3, Microsoft Exchange Server, and Microsoft SQL Server databases.

HPE Data Protector Integration Guide
This guide describes how to configure and use the following:

- IBM Informix Server integration, IBM DB2 UDB integration, and IBM Lotus Notes/Domino Server integration.
- Microsoft SQL server integration, Microsoft SQL Server 2007/2010/2013 integration, Microsoft SharePoint Server VSS based solution, Microsoft Exchange Server 2007 integration, Microsoft Exchange Server 2010 integration, and Microsoft Exchange Single Mailbox integration.
- Oracle Server integration, SAP R/3 integration, SAP MaxDB integration, and SAP HANA Appliance integration. I
- Sybase Server integration, Network Data Management Protocol Server integration, and NetApp SnapManager solution.
- VMware - Virtual Environment integration and Microsoft Hyper-V - Virtual Environment integration.

HPE Data Protector Deduplication White Paper
This technical white paper describes how Data Protector integrates with Backup to Disk devices introducing support for deduplication. By supporting deduplication, several new concepts are added to Data Protector, including a new device type, the Backup to Disk device, and two interface types - the StoreOnce Software deduplication and the StoreOnce Backup System. Backup to Disk devices and deduplication are both discussed in detail in this document.

HPE Data Protector Integration with Autonomy IDOL Server White Paper
This technical white paper describes the integration of Data Protector with Autonomy IDOL Server, which introduces e-discovery for enterprise environments where Data Protector is used as the data protection application. The white paper guides you through all usage aspects of the Data Protector IDOL Server integration: installation and configuration, indexing Data Protector backup images, restoring on a basis of full content search, and troubleshooting. Where needed, cross-references point to Data Protector and IDOL Server documentation.

HPE Data Protector Integration with Autonomy LiveVault White Paper
This technical white paper describes the integration of Data Protector with Autonomy LiveVault®, which introduces cloud backup for enterprise environments where Data Protector is used as the data protection application. The white paper guides you through all usage aspects of the Data Protector LiveVault integration: installation and configuration, backup policy management, cloud backup, restore of data from the LiveVault cloud to a system in the Data Protector cell (cloud restore) and troubleshooting. Where needed, cross-references point to Data Protector and LiveVault documentation.

HPE Data Protector Product Announcements, Software Notes, and References
This guide gives a description of new features of the latest release of HPE Data Protector software. It also provides information on installation requirements, required patches, and limitations, as well as known issues and workarounds.

HPE Data Protector Command Line Interface Reference
This guide describes the Data Protector command-line interface, command options and their usage as well as providing some basic command-line examples.

Software Licensing

NOTE: Beginning with Data Protector 8.10, new license key passwords will be issued. All old passwords (issued for DP versions prior to 8.10) are no longer valid and not recognized by HPE Data Protector 8.10. For newly purchased licenses, you need to select the product version (7.00 or earlier, 8.00 or 8.10) when requesting a password. A password generated for HPE Data Protector 8.10 will not work with any previous version of Data Protector. Existing Data Protector customers need to have a valid active support agreement in place, covering the quantity and types of licenses eligible to upgrade their license passwords.

HPE Data Protector supports 2 licensing schemes:

- Traditional licensing based on features and backup targets - available for all versions of HPE Data Protector software
- Capacity Based Licensing - available with HPE Data Protector 7.01 and above

Traditional Licensing

Data Protector supports essentially 3 different backup targets (snapshot, disk and tape). Depending on which one used the customer would license one or all targets as they also can be combined. In addition the customer can control performance of the backup by parallelizing use of targets.

The product structure is modular and offers a lot of flexibility. You can order the license that provides the Data Protector software functionality, which best meets the specific requirements of your environment. The Data Protector software 7.0 product structure and licensing consists of three main categories:

- The Starter Packs: A management server (Cell Manager) is supported on HPE-UX,
  Windows and Linux.
- Backup targets such as tape drive licenses, referred to as Drive Extensions, for one drive, advanced backup to disk and Zero Downtime Backup both licensed by capacity
- Data Protector Functional Extensions: The functional extensions licenses are required once per instance (system, library and terabyte) for on-line backup of databases and applications, the Manager-of-Managers functionality, for libraries with more than 60 media slots, encryption, Instant Recovery, NDMP, Granular Recovery Extension,

NOTE: The UNIX product licenses operate on the UNIX, Windows and Novell NetWare platforms, providing the functionality regardless of the platform, while the Windows product licenses operate on the Windows, Novell NetWare and Linux platforms only. Passwords are bound to the Cell Manager and are valid for the entire Data Protector cell. Clients do not require any license for file system or disk image backups.

Capacity Based Licensing
The capacity based product structure is introduced in Data Protector 7 Update 1 (DP 7.01) release. It is based on the volume of primary data protected by HPE Data Protector. The capacity is measured in "Front End Terabytes" or Front End TB. The total amount of Front End Terabytes is defined as the aggregate amount of source data from the largest full backup per backup specification under retention. The

following features are included in the capacity based license:

- Cell Managers & Manager of Managers
- Tape Drives and Libraries
- Online Backup & Granular Recovery Extensions
- Zero Downtime Backup & Instant Recovery
- Advanced Backup to Disk & NDMP
  NOTE: Software encryption is NOT included and must be ordered separately

The complementary products that are sold separately are:

- Distribution Media (DVD sets)
- Media Operations*
- IDOL Server (req. to take advantage of the inclusive IDOL integration)
- HPE Cloud Backup "protection plan" to use the integrated Cloud Backup
- HPE Backup Navigator
- HPE DP Extended Online Backup
- DP ZDB for non HPE Storage Arrays
- Data Protector Management Pack
- Data Protector Smart Plug-in for HPE Operations Manager

*HPE Data Protector Media Operations is only available for DP version 7.0x.

NOTE: Traditional and Capacity product structures can be utilized by the same customer but they cannot be combined on the same Cell Manager or MoM environment. The complementary products listed are the exception to this as these license can be combined with both Data Protector Traditional and Capacity Based Licensing methods. Migration from traditional product structure to capacity based product structure is supported – please contact your authorized Hewlett Packard Enterprise sales representative for details. Both licensing models are valid for any size of environment.

NOTE: For more information on IDOL integration and Integrated Cloud Backup, please contact your Hewlett Packard Enterprise sales representative.

Additional license authorizations and restrictions applicable to your software product are found at: http://www.hp.com/go/SWLicensing

Software Warranty

Hewlett Packard Enterprise 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 HPE Global Limited Warranty and Technical Support, visit:
http://h40059.www4.hp.com/warranty/support/tc.php

Licenses, Services and Warranties

HPE Software Support

HPE Foundation Care 24x7 Service
HPE Foundation Care 24x7 connects you to Hewlett Packard Enterprise 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. Make HPE your first call for hardware or software questions; Collaborative Support is included in all Foundation Care Services for this product and provides troubleshooting assistance on software such as Microsoft Server, Red Hat Linux, VMware and more. Three years' coverage recommended with HPE Care Pack Service.

HPE Foundation Care Next Business Day Service
HPE Foundation Care Next Business Day connects you to HPE during business hours for assistance on resolving issues - features next business day hardware onsite response and software call back within two hours after opening your case. Make HPE your first call for hardware or software questions; Collaborative Support is included in all Foundation Care Services for this product and provides troubleshooting assistance on software such as Microsoft Server, Red Hat Linux, VMware and more. Three years' coverage recommended with HPE Care Pack Service.

PLEASE **NOTE:** Support is NOT bundled with the software license and must be ordered separately. Orders that do not include a minimum of a 1-year support contract will be rejected.

For more information on these support offerings, please see:
http://www.hp.com/go/hpsoftwaresupport.

HPE Services: Scalable, Flexible and Reliable

The HPE QuickStart Services provide customers with improved speed and confidence in IT infrastructure deployment, and prepare their IT staff and processes for operational success. These services are a suite of scalable, clearly defined service engagements that provide product and solution deployment consistent with HPE specifications. QuickStart Services help ensure a successful implementation, improve the productivity of your technical staff and allow your IT resources to stay focused on their core tasks and business priorities.

For more information contact your Hewlett Packard Enterprise sales representative or authorized business partner.

Licenses, Services and Warranties

HPE Autonomy Education

Autonomy Education is a well-established training department that strives at all times to deliver the best possible learning experience. With a team of experienced trainers and subject matter experts from around the world, our department offers you well designed training courses that range from Infrastructure Technologies, Pan-Enterprise Search, eDiscovery, Content Management, Customer Interactions through to Business Process Management, Records Management and eCommerce.

To learn more about Autonomy's training offerings, including course detail, please visit Course Training Schedule page:
https://registration.autonomy.com/autonomy/schedule.php?CType=Archiving+%26+Records+Management&PType=Power

HPE Financial Services

HPE Financial Services provides innovative financing and financial asset management programs to help customers cost-effectively acquire, manage, and ultimately retire their HPE solutions. For more information on these services, please contact your Hewlett Packard Enterprise sales representative or visit:
http://www.hp.com/go/hpfinancialservices

Traditional Licensing

All UNIX Licenses-To-Use (LTU) can be used for Microsoft Windows, NetWare, Linux systems if applicable

Step 1 - Starter Packs

Product Name		Description	Part Number
HPE Data Protector Starter Packs		License Only	
		for HPE-UX	B6951BA
		for Windows	B6961BA
		for Linux	B6961CA
	E-Delivery	for HPE-UX	B6951BAE
	E-Delivery	for Windows	B6961BAE
	E-Delivery	for Linux	B6961CAE
		Media Only (DP 9.0)	
		English	TD586EA
		French	TD586EF
		Japanese	TD586EJ
		Simplified Chinese	TD586ES
		Media Only (DP 9.0)	
	E-Delivery	English	TD586EAE
	E-Delivery	French	TD586EFE
	E-Delivery	Japanese	TD586EJE
	E-Delivery	Simplified Chinese	TD586ESE
		Media Only (DP 8.1)	
		English	TD586DA
		French	TD586DF
		Japanese	TD586DJ
		Simplified Chinese	TD586DS
		Media Only (DP 8.1)	
	E-Delivery	English	TD586DAE
	E-Delivery	French	TD586DFE
	E-Delivery	Japanese	TD586DJE
	E-Delivery	Simplified Chinese	TD586DSE

NOTE: Please, make sure that latest patches are applied, in order to have access to the latest functionality and level of localization. Patches can be found at http://support.openview.hp.com/selfsolve/patches

The Starter Pack license is the foundation of a Data Protector backup environment and is required in all installations. It includes the license-to-use (LTU) for:

- one management server (cell manager) on the specified platform
- unlimited number of backup clients (agents) on any platform
- one drive license (B6951xx contains 1xB6953AA, and B6961xx contains 1xB6963AA)
- built in media management
- libraries up to 60 slots
- System Disaster Recovery options
- sophisticated reporting (in Data Protector GUI and via the web)
- service-centric management through integrations into HPE software. This license is obligatory.

Individual licenses are required for additional drives and additional functionality All UNIX Starter Pack licenses can also be used as a substitute for a Windows, NetWare, and or Linux Starter Pack.

The base Data Protector media kit consists of 3 DVDs, including HPE Data Protector for all platforms, all integrations into other HPE software, and electronic manuals.

NOTES:

- In case the Cell Manager is running in a cluster using the same virtual IP address for all nodes in the cluster, only one starter pack is required.
- In case the Cell Manager is running in a virtual machine environment one starter pack is required for each individual Cell Manager IP Address.

Step 2 - Drive and Library Extensions

HPE Data Protector Backup Drive		Description	Part Number
		for UNIX, NAS, SAN	B6953AA
	E-Delivery	for UNIX, NAS, SAN	B6953AAE
HPE Data Protector Backup Drive		Description	Part Number
		for Windows, NetWare, Linux (Intel))	B6963AA
	E-Delivery	for Windows, NetWare, Linux (Intel)	B6963AAE

For SAN, UNIX, NAS:
Includes the license-to-use (LTU) for one drive, directly attached to a UNIX, OpenVMS system, a NAS device or used in a SAN.

A drive can be a tape drive, a file device, or Magneto Optical drive.
You need as many licenses as there are drives in use at any point in time. This is typically the total number of configured drives to allow all drives to be used simultaneously.

- Drive licenses cannot be shared between multiple Cells.
- This license can also be used as a substitute for the Windows, NetWare, and Linux license. However, if the drive is not used in a SAN, it is more affordable to use B6963AA.
- This license is required for NAS systems managed via NDMP (for example Network Appliance Filers and EMC Celerra File Servers), or NAS systems requiring a Data Protector proprietary Device Server (Media Agent), (for example HPE NAS 8000). NAS systems powered by Windows, NetWare, or standard Linux, which can run a standard Data Protector Device Server (Media Agent), require only the Data Protector drive extensions for Windows, NetWare, Linux (B6963AA).

For Windows, NetWare, Linux:
Includes the license-to-use (LTU) for one drive directly attached to a Windows, NetWare, or Linux (Intel) system. A drive can be a tape drive, a file device), or Magneto Optical drive.
You need as many licenses as there are drives in use at any point in time. This is typically the total number of configured drives to allow all drives to be used simultaneously.

- Drive licenses cannot be shared between multiple Cells.
- In case that multiple systems access the drive in a SAN, the drive extension for UNIX, NAS, SAN (B6953AA) is required. A Fiber Channel point-to-point connection is not considered a SAN.
- This license is valid for drives attached to NAS devices powered by Windows, NetWare or Linux, which can run a standard Data Protector Device Server (Media Agent).

For supported drives please refer to the Data Protector support matrixes at the following web link: http://www.hp.com/go/dataprotector

		Description	Part Number
HPE Data Protector Library extension			E-Delivery
		with 61-250 slots	B6957BA
		with unlimited slots	B6958BA
		upgrade to unlimited slots library	B6958CA
	E-Delivery	with 61-250 slots	B6957BAE
	E-Delivery	with unlimited slots	B6958BAE
	E-Delivery	upgrade to unlimited slots library	B6958CAE

Includes the license-to-use (LTU) for managing tape libraries with the number of physically available slots within one Data Protector Cell. Required once per library.

- STK silos using ACSLS and GRAU/EMASS library systems using DAS require the unlimited slots license.
- This license is based on the physical slots inside the library, not logical slots. For example Data Protector allows partitioning a physical 120 slots library into two logical 60 slots libraries. Still one 61 - 250 slots library extension is required
- Libraries with the capability to create virtual partitions also require the license based on the number of physically available slots once per physical library.
- In case of library sharing between multiple Cells, the Manager-of-Managers LTU is required for each Cell to license the library across all Cells with one license. Otherwise, one license is required for each Cell.
- For supported libraries please refer to the Data Protector support matrixes under: http://www.hp.com/go/dataprotector

Step 3 - Functional Extensions

HPE Data Protector On-line extension	Description	Part Number E-Delivery

	for UNIX	B6955BA
	for Windows, Linux	B6965BA
E-Delivery	for UNIX	B6955BAE
E-Delivery	for Windows, Linux	B6965BAE

Includes the license-to-use (LTU) to perform on-line backup of databases and applications running on the specified platform. Required per server, it does not matter how many databases are running on the system. Even if databases of different types are running on the same system, only one license is required. As a general rule, every system responsible for storing application data to be protected in an online state requires a Data Protector online backup LTU.

- If a system runs multiple partitions, this LTU is required for each partition.
- In a cluster environment, each system participating in the cluster requires a LTU.
- In an Oracle RAC (Real Application Cluster) each cluster node with an installed Application Agent requires one Online Backup LTU.
- Online Backup LTUs are required when using Zero Downtime Backup to protect applications.
- Open file backup and restore using the Windows file system snapshot feature VSS (Volume Shadow copy Service) does not require the Online Backup LTU. However, Online Backup of databases, which are not part of the operating system, requires this Online Backup extension. System configuration backup does not require the Online Backup LTU.
- Required for MS Exchange Single Mailbox backup
- Each node with a configured Oracle DataGuard standby database in Data Protector requires this license.
- Not required for HPE Network Node Manager Online Backup
- Not required for HPE Systems Insight Manager Online Backup.
- For supported databases please refer to the Data Protector support matrixes at: http://www.hp.com/go/dataprotector

Online Backup Licensing in Virtual Environments

- vStorage API for data protection (VADP) and VMware ESX/ESXi Server backup require one Online Backup LTU for Windows, Linux license per ESX/ESXi server
  NOTE: VCB-host, vCenter Server and the VMware vCloud Director integration doesn't require a separate license as it is covered by the license per ESX host
- Microsoft Hyper-V environments require one Online Backup LTU for Windows, Linux license per physical Hyper-V server.
- Additional Online Backup LTU is highly recommended for each virtual machine that contains application-specific agents.
- For virtual environments, the same licensing requirements apply for array assisted snapshots - see ZDB&IR licensing description for more details.
- Online backup of an application/database on a VMware Virtual Machine requires one license per virtual machine. Previous script-based solutions can continue to be used without additional licensing, but those scripts are no longer supported by HPE and need to be maintained by the customer on versions Data Protector 6.1 and beyond.

Online Backup Licensing for Microsoft SharePoint

- For SharePoint environments, an Online Backup LTU is required for each physical system that contains persistent data, such as content databases or index servers.

HPE Data Protector Granular Recovery Extension

	Description	Part Number
	for 1-server	TB737AA
E-Delivery	for 1-server	TB737AAE

Includes the license to restore single items from a backup done on a single server with a Data Protector Online Backup extension (in this case the DP Online Backup LTU is required).

For other backup sources like offline backups or 3rd party backup of the GRE supported applications, one GRE license is needed per target server to which items will be recovered with GRE. The GRE license is locked to that server for 1 year; afterwards it can be used for a different server

Granular Recovery Extension Licensing for Microsoft SharePoint

- For SharePoint environments, a Granular Recovery Extension is required for each physical server that contains a content database which backup acts as a source for recovering a single document, a directory or an entire site.

Granular Recovery Extension Licensing for VMware

- For VMware, a Granular Recovery Extension (GRE) license is required for each ESX server that hosts one or multiple VM virtual machines during backup and which files are recovered using GRE.

One DP Online Backup LTU is required per system to perform a backup that can be used for Granular Recovery.

Granular Recovery Extension Licensing for Exchange
The Granular Recovery Extension (GRE) for Microsoft Exchange 2010 requires a GRE license for each Exchange server that hosts one or multiple databases that needs to be backed up.

HPE Data Protector Encryption extension

	Description	Part Number
	for 1-server/workstation	BB618AA
	for 10-servers/workstations	BB618BA
E-Delivery	for 1-server/workstation	BB618AAE
E-Delivery	for 10-servers/workstations	BB618BAE

Includes the license-to-use (LTU) and media to encrypt all backup data of one HPE Data Protector client server or workstation with the HPE Data Protector AES 256 bit encryption software. Required once for each HPE Data Protector client (Agent / Application Agent) with encryption configured.

- Tape drive based encryption is free of charge and does not require this license.
- In a cluster environment, each system participating in the cluster requires a

LTU.

HPE Data Protector Manager-of-Managers extension

	Description	Part Number
	for UNIX	B6956AA
	for Windows	B6966AA
E-Delivery	for UNIX	B6956AAE
E-Delivery	for Windows	B6966AAE

Includes the license-to-use (LTU) for each Data Protector management server (Cell Manager), running on the specified platform, to be part of a Manager-of-Managers environment.

- Required to share tape libraries between multiple Data Protector cells.
- Required in addition to the Cell Manager license.
- Ideal solution for central backup management of branch offices.
- B6956AA (Unix MoM) can also be used for a Windows management server (Cell Manager) if required

HPE Data Protector Advanced Backup to Disk extension

	Description	Part Number E-Delivery
	for 1 TB	B7038AA
	for 10 TB	B7038BA
	for 100 TB	B7038CA
E-Delivery	for 1 TB	B7038AAE
E-Delivery	for 10 TB	B7038BAE
E-Delivery	for 100 TB	B7038CAE

Includes the license-to-use (LTU) for 1 TB of backup disk storage. Required once per terabyte (TB) usable native capacity of backup disk storage.
- The "Advanced Backup to Disk" license is required to backup to a Data Protector File Library and to a Data Protector Backup To Disk Device Type, and can be used instead of drive licenses to backup to a Virtual Tape Library.

- Usable native capacity of a HPE Data Protector Backup To Disk device is the size on disk of the Backup To Disk device consumed by all protected HPE Data Protector backups. This includes Data Protector StoreOnce Software Store, StoreOnce Catalyst, Data Domain Boost, Smart Cache and Cloud.

- For Automated Replication Synchronization, only the source repository needs to be licensed to the source Cell Manager and the target repository needs to be licensed to the target Cell Manager.

- The capacity contained in the Cloud Backup to Disk type will not count towards the Advanced Backup to Disk license capacity for the Data Protector 9.01 version of VMware Object Copy to HPE Helion cloud functionality.

- Usable native capacity of a HPE Data Protector File Library is the available size on disk for the file library, as reported by the file system.

- HPE Data Protector synthetic full and virtual full backup: Virtual full backups and the incremental backups to be consolidated into a synthetic / virtual full backup

must be stored in the HPE Data Protector file library, which requires this license.
- Usable native capacity of a Virtual Tape Library (VTL) is the size on disk of the virtual tape library consumed by all protected HPE Data Protector backups as reported by the VTL.

- For each VTL you can choose whether to use the backup to disk or tape drive licensing model. Within one VTL, both concepts cannot be mixed.
- By default, HPE Data Protector treats VTL devices as ordinary libraries (such as SCSI II libraries). To utilize the advanced backup to disk licenses, the device must be marked as a VTL during the device configuration. See the online Help index entry: "virtual tape library" for more information.
- If the VTL has a built-in capability to migrate backup data to cheaper disk or tape. the migrated storage capacity must also be fully licensed. No drive and library licenses are required for the tape library exclusively controlled by the VTL, but the used capacity of all tapes in the physical tape library must be licensed. In some cases it may be more cost-effective to use the tape drive licensing model instead (B6953AA and B6963AA). This requirement does not apply when HPE Data Protector object copy is used to migrate the backup data to another disk or tape.

  Licensing for HPE VLS Automigration - Automigration is a VLS media copy feature in Data Protector and can free up additional capacity on a VLS device by migrating data. Therefore, licensing for the migrated data is required, and the capacity of the media used for migration needs to be added to the total disk capacity of the VLS. In some cases it may be more cost effective to switch to drive licensing completely, as described above.

  Licensing for VTL Replication: In cases where Data Protector is actively managing source and target devices in a replication set-up, licensing is required for both devices. In cases where Data Protector is not actively managing the target device, only the source device needs to be licensed. This includes the VLS Echo Copy feature, which is treated as replication.

- If HPE Data Protector is using the VTL exclusively, it is recommended to license a quantity matching the capacity of the VTL. HPE calls the physical VTL capacity "usable native capacity". Other vendors call it "raw capacity"
- If Advanced Backup to Disk licensing was purchased before July 1st, 2008, Hewlett Packard Enterprise is fully committed to protect customers' investments. This means you can choose to use this license for the VTL under the previous licensing terms: "Usable native capacity of a VTL is the space occupied by protected backups and protected backup copies and mirrors according to the Data Protector internal database. To keep virtual tape library licensing stress free and simple a compression rate of 2:1 is assumed for VTLs with no extra charge." Please note that using the previous model only makes sense if you do not use compression or deduplication technology. Otherwise, a better value is provided through the new licensing model.
- Due to this size on disk licensing concept, compression rates and deduplication rates do not need to be considered. The RAID configuration also does not need to be considered.

- 1 TB = 1024 GB, 1 GB = 1024 MB, 1 MB = 1024 KB, 1 KB = 1024 bytes
- In case of central licensing with MoM, at minimum 1 TB needs to be assigned to

each Cell using the Advanced Backup to Disk functionality.

		Description	Part Number
HPE Data Protector Zero Downtime Backup (ZDB) extension		for UNIX 1TB	B7025CA
		for UNIX 10 TB	B7025DA
		for Linux 1 TB	TD588AA
		for Linux 10TB	TD589AA
		for Windows 1TB	TD590AA
		for Windows 10TB	TD591AA
	E-Delivery	for UNIX 1TB	B7025CAE
	E-Delivery	for UNIX 10 TB	B7025DAE
	E-Delivery	for Linux 1 TB	TD588AAE
	E-Delivery	for Linux 10TB	TD589AAE
	E-Delivery	for Windows 1TB	TD590AAE
	E-Delivery	for Windows 10TB	TD591AAE

Includes the license-to-use (LTU) for one terabyte (TB) of "used primary disk space capacity" of UNIX, Linux, or Windows based backup, utilizing the snapshot capabilities of the disk array supported by Data Protector

"Used primary disk space capacity" is the total capacity of all primary disks on the disk array used by of UNIX, Linux, or Windows systems The primary disks contain the application data and are protected by Data Protector.
In the case of the ZDB for Windows:

- via VSS disk array hardware provider
- or via Data Protector disk array native agents

The total capacity of primary disks represents the total true usable capacity of these disks; independent of the total size of the application data. Data Protector does not require licenses for the capacity consumed by the secondary volumes, mirrors, and snapshots that are used for data protection.

Used capacity differs from raw capacity in that RAID overhead is excluded. This means the RAID configuration does not need to be considered.

Please, be aware that the ZDB licenses for UNIX or Linux can also be used for Linux and Windows systems

For Zero Downtime Backup protection of VMware the ZDB for UNIX or Linux license is required.

NOTE: A Data Protector Online Backup LTU (B6955BA, B6965BA) is additionally required per system to protect all applications using ZDB.

For supported applications please refer to the Data Protector support matrixes available at: http://www.hp.com/go/dataprotector

HPE Data Protector	Description	Part Number

Instant Recovery extension

	for UNIX 1TB	B7028AA
	for UNIX 10 TB	B7028DA
	for Linux 1 TB	TD592AA
	for Linux 10TB	TD593AA
	for Windows 1TB	TD594AA
	for Windows 10TB	TD595AA
E-Delivery	for UNIX 1TB	B7028AAE
E-Delivery	for UNIX 10 TB	B7028DAE
E-Delivery	for Linux 1 TB	TD592AAE
E-Delivery	for Linux 10TB	TD593AAE
E-Delivery	for Windows 1TB	TD594AAE
E-Delivery	for Windows 10TB	TD595AAE

Includes the license-to-use (LTU) for one terabyte (TB) of "used primary disk space capacity" of UNIX, Linux, or Windows based backup utilizing the snapshot capabilities of the disk array supported by Data Protector.

"Used primary disk space capacity" is the total capacity of all primary disks on the disk array that are used by UNIX, Linux, or Windows systems. The primary disks contain the application data and are protected by Data Protector

In the case of the IR for Windows:

- via VSS disk array hardware provider
- or via Data Protector disk array native agents

The total capacity of primary disks represents the total true usable capacity of these disks; independent of the total size of the application data. Data Protector does not require licenses for the capacity consumed by the secondary volumes, mirrors, and snapshots that are used for data protection.

Used capacity differs from raw capacity in that RAID overhead is excluded. This means the RAID configuration does not need to be considered.

Instant Recovery license is not required for VMware VADP array snapshot retention or recovery from snapshot operations.

Please, be aware that these IR licenses for UNIX can also be used for Linux and Windows systems.

NOTE: Requires an equivalent licensing of Zero Downtime Backup.

HPE Data Protector Direct Backup using NDMP

	Description	Part Number E-Delivery
	Direct Backup for NDMP, 1TB LTU	B7022BA
	Direct Backup for NDMP, 10TB LTU	B7022DA
	Direct Backup for NDMP, 100TB LTU	TD186AA
E-Delivery	Direct Backup for NDMP, 1TB LTU	B7022BAE
E-Delivery	Direct Backup for NDMP, 10TB LTU	B7022DAE
E-Delivery	Direct Backup for NDMP, 100TB LTU	TD186AAE

Includes the license-to-use (LTU) to backup 1 TB, 10 TB or 100 TB of 1 NDMP Server. Required once per terabyte (TB) used disk space, for each file server being backed up via NDMP (e.g. Network Appliance Filers or EMC Celerra File Servers).

- Used disk space capacity is the total capacity of all volumes of the file server being backed up via NDMP. This amount represents the total usable capacity of these volumes, and matches with their configured LDEV sizes

HPE Data Protector Media Operations

	Description	Part Number
	Entry Level	B7100AA
	Enterprise	B7101AA
	Unlimited media	B7102AA
	Media	TD587BA
E-Delivery	Entry Level	B7100AAE
E-Delivery	Enterprise	B7101AAE
E-Delivery	Unlimited media	B7102AAE
E-Delivery	Media	TD587BAE

NOTE: HPE Data Protector Media Operations is only available for DP version 7.0x.

The Entry Level includes the license-to-use (LTU) for 2000 media, one management server and unlimited clients.

The Enterprise includes the license-to-use (LTU) for 10 000 media, one management server and unlimited clients.

The unlimited includes the license-to-use (LTU) for unlimited media, one management server and unlimited clients.

Media refers to the total number of tape media to be tracked in the Data Protector Media Operations internal database. The entry level and enterprise level licenses can be used in any combination to match the customer's total number of tape media to be tracked.
- Data Protector Media Operations is not included in the Data Protector starter packs DVDs and has to be ordered separately via TD587BA or TD587BAE.
NOTE: Media Operations doesn't work with DP 8.x versions. This applies to DP 7.0.x and prior versions only.

Single Server Editions

HPE Data Protector, Single Server Edition	Description	Part Number E-Delivery
	LTU Only	
	for HPE-UX	B7020BA
	for Windows	B7030BA
E-Delivery	for HPE-UX	B7020BAE
E-Delivery	for Windows	B7030BAE
	Migration To Starter Pack	
	for HPE-UX	B7021AA
	for Windows	B7031AA
E-Delivery	for HPE-UX	B7021AAE
E-Delivery	for Windows	B7031AAE

Includes the license to backup one single server on the specified platform with an unlimited number of UNIX and/or Windows workstations, one backup drive; and the ability to manage one autochanger/library with up to 10 slots.

The Single Server Edition for Windows can only manage Windows workstations

To obtain the following functionality the Single Server Edition has to be migrated to the Starter Pack via the migration LTU:

- additional backup clients (agents) on any platform
- additional backup drives
- the ability to manage autoloaders/libraries with more than 10 slots
- systems disaster recovery
- sophisticated reporting (in the Data Protector GUI and via the web)
- SAN support (with the management server for HPE-UX)
- service-centric management through integrations into HPE Software

Once migrated, additional drives as well as further additional functionality can be ordered via separate LTUs.

To order the migration LTU, a single server edition LTU is required.

NOTE: An upgrade from Single Server edition to Capacity Based license model is not supported.

HPE Data Protector Capacity Based Licensing

Capacity Tiers	Description	Part Number E-Delivery
	LTU Only	
	DP per TB, 1-9 TB LTU	TF521AA
	DP per TB, 10-49TB LTU	TF542AA
	DP per TB, 50-99 TB LTU	TF543AA
	DP per TB, 100-249 TB LTU	TF544AA
	DP per TB, 250-499 TB LTU	TF558AA
	DP per TB, 500-1000 TB LTU	TF561AA
	DP per TB, >1000TB	TF582AA
E-Delivery	DP per TB, 1-9 TB LTU	TF521AAE
E-Delivery	DP per TB, 10-49TB LTU	TF542AAE
E-Delivery	DP per TB, 50-99 TB LTU	TF543AAE
E-Delivery	DP per TB, 100-249 TB LTU	TF544AAE
E-Delivery	DP per TB, 250-499 TB LTU	TF558AAE
E-Delivery	DP per TB, 500TB-1 PB LTU	TF561AAE
E-Delivery	DP per TB, >1PB	TF582AAE
	Media Only (DP 9.0)	
	English	TD586EA
	French	TD586EF
	Japanese	TD586EJ
	Simplified Chinese	TD586ES
	Media Only (DP 9.0)	
E-Delivery	English	TD586EAE
E-Delivery	French	TD586EFE
E-Delivery	Japanese	TD586EJE
E-Delivery	Simplified Chinese	TD586ESE
	Media Only (DP 8.1)	
	English	TD586DA
	French	TD586DF
	Japanese	TD586DJ
	Simplified Chinese	TD586DS
	Media Only (DP 8.1)	
E-Delivery	English	TD586DAE
E-Delivery	French	TD586DFE
E-Delivery	Japanese	TD586DJE
E-Delivery	Simplified Chinese	TD586DSE

It is based on the volume of primary data protected by HPE Data Protector. The capacity is measured in "Front End Terabytes" or Front End TB. The total amount of Front End Terabytes is defined as the aggregate amount of source data from the largest full backup per backup specification under retention. For example;

- For a full & incremental backup concept, only full are considered
- For an incremental forever, a "synthetic" full is taken as base
  NOTE: 1 PB = 1024 TB, 1 TB = 1024 GB, 1 GB = 1024 MB, 1 MB = 1024 KB, 1 KB = 1024 bytes

The capacity purchase tier in Data Protector capacity based license scheme is determined by the total TB of DP capacity license owned by the customer.

For Example:

- An initial purchase of a 63 TB would be at the HPE DP per TB, 50-99 TB tier: 63X TF543AAE

Here is an example scenario where a customer purchases an 8 TB of DP capacity first and then makes subsequent purchases of a 5TB and a 50 TB of DP capacity. Here is what each order will include:

- An initial purchase of an 8 TB capacity will be at the HPE DP per TB, 1-9 TB tier: 8X TF521AA
- The second purchase of 5 more TB will be at HPE DP per TB, 10-49 TB tier: 5X TF542AA
- The next purchase of 50 TB will be HPE DP per TB, 50-99 TB tier: 50X TF543AA

In case of central licensing with MoM, at minimum 1 TB needs to be assigned to each Cell Manager.

The capacity based license includes the following features of HPE Data Protector software:

- Cell Managers & Manager of Managers
- Tape Drives and Libraries
- Online Backup & Granular Recovery Extensions
- Zero Downtime Backup & Instant Recovery
- Advanced Backup to Disk & NDMP

NOTE: Software encryption is NOT included and must be ordered separately

The complementary products that are sold separately are:

- Distribution Media (DVD sets)
- Media Operations*
- IDOL Server (req. to take advantage of the inclusive IDOL integration)
- HPE Cloud Backup "protection plan" to use the integrated Cloud Backup
- HPE Backup Navigator
- HPE DP Extended Online Backup
- DP ZDB for non HPE Storage Arrays
- Data Protector Management Pack
- Data Protector Smart Plug-in for HPE Operations Manager

*HPE Data Protector Media Operations is only available for DP version 7.0x.
NOTE: For more information on IDOL integration and Integrated Cloud Backup, please contact your Hewlett Packard Enterprise sales representative.

Here are some example scenarios for Capacity Based licensing:

- If a customer has 200 TB of data to protect and backs up to a dedupe store that only uses 20 TB they would still need 200 TB capacity license
- If a customer has 100 TB of data but only protects 10 TB of this data they would only need a 10 TB capacity license
- If a customer backs up the same 10 TB multiple times, only a 10 TB capacity

license is needed.

HPE Data Protector Complementary Products

HPE Backup Navigator		Description	Part Number E-Delivery
		LTU Only	
		HPE Backup Navigator per TB, 1-9TB SW LTU	A8G54AA
		HPE Backup Navigator per TB, 10-49TB SW LTU	A8G55AA
		HPE Backup Navigator per TB, 50-99TB SW LTU	A8G56AA
		HPE Backup Navigator per TB, 100-249TB SW LTU	A8G57AA
		HPE Backup Navigator per TB, 250-499TB SW LTU	A8G58AA
		HPE Backup Navigator per TB, 500-1000TB SW LTU	A8G59AA
		HPE Backup Navigator 1PB+ SW LTU	A8G60AA
	E-Delivery	HPE Backup Navigator per TB, 1-9TB SW E-LTU	A8G54AAE
	E-Delivery	HPE Backup Navigator per TB, 10-49TB SW E-LTU	A8G55AAE
	E-Delivery	HPE Backup Navigator per TB, 50-99TB SW E-LTU	A8G56AAE
	E-Delivery	HPE Backup Navigator per TB, 100-249TB SW E-LTU	A8G57AAE
	E-Delivery	HPE Backup Navigator per TB, 250-499TB SW E-LTU	A8G58AAE
	E-Delivery	HPE Backup Navigator per TB, 500-1000TB SW E-LTU	A8G59AAE
	E-Delivery	HPE Backup Navigator 1PB+ SW E-LTU	A8G60AAE
HPE Extended Online Backup	This license is valid for use with either Traditional or Capacity based Data Protector implementations. One LTU is required per TB of primary data protected by HPE Data Protector. The capacity calculation is the same as for the Data Protector capacity based licensing.		
		HPE Backup Navigator Single Cell Manager up to 10TB SW LTU	H7U58AA
DP SPI for HPE Ops Mgr	E-Delivery	HPE Backup Navigator Single Cell Manager up to 10TB SW E-LTU	H7U58AAE
	This license is valid for use with either Traditional or Capacity based		

DP Management Pack

for a single Data Protector Cell Manager with up to 10TB of full backup capacity of data that is protected by Data Protector. For additional Cell Managers or capacity above 10TB upgrade using H7U59AAE. The capacity calculation is the same as for the Data Protector capacity based licensing.

	HPE Backup Navigator Single Cell Manager Upgrade LTU	H7U59AA
E-Delivery	HPE Backup Navigator Single Cell Manager Upgrade LTU	H759AAE

This license is valid for use with either Traditional or Capacity based Data Protector implementations. One LTU is required per Backup Navigator Single Cell Manager to upgrade to multiple Data Protector Cell Managers and enable capacity expansion with HPE Backup Navigator capacity licenses. H7U58AAE + H7U59AAE = (qty 10 of A8G55AAE). The capacity calculation is the same as for the Data Protector capacity based licensing.

	Media Only (Backup Navigator 9.3) English	H7P25EA
E-Delivery	Media Only (Backup Navigator 9.3) English	H7P25EAE

	Description	Part Number
	LTU Only	
	HPE DP Extended Online backup for Win/Lin LTU	H7U62AA
E-Delivery	HPE DP Extended Online backup for Win/Lin E-LTU	H7U62AAE

This license is valid for use with either Traditional or Capacity based Data Protector implementations. Includes the license-to-use (LTU) to perform on-line backup of MySQL databases and applications running on the specified platform. Required per server, it does not matter how many databases are running on the system. As a general rule, every system responsible for storing MySQL application data to be protected in an online state requires a Data Protector Extended online backup LTU.

	HPE DP SPI for HPE Ops Manager SW LTU	H7U60AAE
E-Delivery	HPE DP SPI for HPE Ops Manager SW E-LTU	H7U60AAE

	Media Only (DP SPI for HPE Ops Mgr 9.0) English	H7U61AA
E-Delivery	English	H7U61AAE

This license is valid for use with either Traditional or Capacity based Data Protector implementations. One LTU is required per Data Protector Cell Manager. Includes integration with HPE Operations Manager.

	HPE DP Management Pack SW LTU	H7P27AA
E-Delivery	HPE DP Management Pack SW E-LTU	H7P27AAE

	Media Only (DP Management Pack 9.0) English	H7P26BA
E-Delivery	English	H7P26BAE

This license is valid for use with either Traditional or Capacity based Data Protector implementations. One LTU is required per Data Protector Cell Manager. Includes integration with Microsoft System Center Operations Manager.

Zero Downtime Backup for non-HPE Arrays

	Description	Part Number
	LTU Only	
	DP ZDB non HPE Array UX 1TB SW LTU	H7P92AA
	DP ZDB non HPE Array UX 10TB SW LTU	H7P93AA
	DP ZDB non HPE Array Lin 1TB SW LTU	H7P94AA
	DP ZDB non HPE Array Lin 10TB SW LTU	H7P95AA
	DP ZDB non HPE Array Win 1TB SW LTU	H7P96AA
	DP ZDB non HPE Array Win 10TB SW LTU	H7P97AA
E-Delivery	DP ZDB non HPE Array UX 1TB SW E-LTU	H7P92AAE
E-Delivery	DP ZDB non HPE Array UX 10TB SW E-LTU	H7P93AAE
E-Delivery	DP ZDB non HPE Array Lin 1TB SW E-LTU	H7P94AAE
E-Delivery	DP ZDB non HPE Array Lin 10TB SW E-LTU	H7P95AAE
E-Delivery	DP ZDB non HPE Array Win 1TB SW E-LTU	H7P96AAE

Configuration Information

E-Delivery	DP ZDB non HPE Array Win 10TB SW E-LTU	H7P97AAE

For more information on Hewlett Packard Enterprise Data Protector **software**

- General web page: http://www.hp.com/go/dataprotector (**NOTE:** The latest HPE Data Protector software support matrices can be found by clicking "Support Matrices" from this page)
- Direct link to QuickSpecs with detailed product specifications, ordering information and more: http://www.hp.com/go/QuickSpecs

To learn more about HPE's Information solutions, visit http://www.hp.com/go/im

Summary of Changes

Date	Version History	Action	Description of Change:
January 22, 2016	From Version 53 to 54	Changed	Content updated on the entire document
September 04, 2015	From Version 52 to 53	Changed	Changes were made throughout quickspecs
April 24, 2015	From Version 51 to 52	Changed	Updated the Integration Guide detail, Backup Navigator 9.1 product numbers, Capacity license description
February 13, 2015	From Version 50 to 51	Changed	Changes on the Licenses, Services and Warranties Section
January 16, 2015	From Version 49 to 50	Changed	Changes were made throughout quickspecs
August 4, 2014	From Version 48 to 49	Changed	Changes were made throughout quickspecs
May 9, 2014	From version 47 to 48	Changed	Updated HP Software Suppor
January 17, 2014	From Version 46 to 47	Changed	Changes made to the Overview: Key Product Highlights, Software Licensing and Configuration Information sections.
September 1, 2013	From Version 45 to 46	Changed	Changes made to the Countries available under Media
June 10, 2013	From Version 44 to 45	Changed	Changes made throughout the QuickSpec
December 4, 2012	From Version 43 to 44	Changed	Changes made in the Overview, Installation Server and Client System Requirements, and Configuration.
October 24, 2012	From Version 42 to 43	Changed	Changes made throughout the QuickSpec
September 14, 2012	From Version 41 to 42	Changed	Changes made to the Configuration Information section
August 26, 2012	From Version 40 to 41	Changed	Changes made throughout the QuickSpec
June 29, 2012	From Version 39 to 40	Changed	Changes made to Installation Server and Client System Requirements and Configuration sections.
May 11, 2012	From Version 38 to 39	Changed	Changes made throughout the QuickSpec
December 21, 2011	From Version 37 to 38	Changed	Changes made throughout the QuickSpec
September 7, 2011	From Version 36 to 37	Changed	Minor edit made in Step 3 of the Configuration section
June 24, 2011	From Version 35 to 36	Changed	Minor edits were made throughout
June 9, 2011	From Version 34 to 35	Removed	Mentions of StorageWorks were removed
June 2, 2011	From Version 33 to 34	Removed	Duplicate text was removed from Step 3
April 8, 2011	From Version 32 to 33	Changed	Changes were made throughout

Summary of Changes

July 9, 2010	From Version 31 to 32	Changed	Revisions were made throughout the QuickSpec, including changing Data Protector to version 6.11, completely revising Configuration Information and adding all mentions of Granular recovery
March 26, 2010	From Version 30 to 31	Added	To learn more, visit www.hp.com/im was added to the Copyright.
October 16, 2009	From Version 29 to 30	Changed	HP Services: Scalable, Flexible and Reliable was updated in the Licenses, Services and Warranties section and Step 3 of the Configuration Information section.
June 12, 2009	From Version 28 to 29	Changed	Updated version numbers for HP-UX (PA-RISC) and HP-UX (IA64) for Software Pre-Requisites in the Hardware and Software Pre-Requisites section Modified link for Software Warranty in the Licenses, Services and Warranties section Revised part numbers for HP-UX, Sun Solaris and Windows for HP Data Protector, Single Server Edition in the Configuration Information section Removed Licenses history from HP Software Support 9x5 and added Rapid call-back for the most critical (Severity 1) problems to HP Software Support 24x7 for Software Support in the Licenses, Services and Warranties section Removed link from HP Services: Scalable, Flexible and Reliable in the Licenses, Services and Warranties section
April 3, 2009	From Version 27 to 28	Changed	HP Data Protector On-line extension and HP Data Protector Advanced Backup to Disk extension were updated in Step 3 of the Configuration section and Business Problems and Customer Benefits were removed with the Customer Benefits section.
January 9, 2009	From Version 26 to 27	Added	NOTE to HP Software Support in the Licenses, Services and Warranties section.
December 29, 2008	From Version 25 to 26	Changed	Changes were made throughout the entire QuickSpec, excluding the Application Platforms section
June 27, 2008	From Version 24 to 25	Added	Added a note to the Licenses, Services and Warranties/Software Product Support section
		Changed	Minor grammatical and formatting changes were made throughout the Quickspec
January 25, 2008	From Version 23 to 24	Changed	Changed the title and all occurrences of "HP Data Protector Software" to "HP Data Protector software"
September 7, 2007	From Version 22 to 23	Changed	Changes made within the What's New section and in Step 2 of the Configuration Information section.
July 13, 2007	From Version 21 to 22	Changed	Changes made within the Configuration Information section only

Summary of Changes

June 19, 2007	From Version 20 to 21	Changed	Changes made throughout the QuickSpec except for the Application Platforms section
June 11, 2007	From Version 19 to 20	Added	Added EMEA version
April 13, 2007	From Version 18 to 19	Changed	Step 2 of the Configuration Information section was reformatted.
February 12, 2007	From Version 17 to 18	Changed	Changes made throughout the entire QuickSpec except for the Hardware Support and Application Platforms sections. NOTE that the title has changed.
November 24, 2006	From Version 16 to 17	Changed	The URL in the Software Product Support object was changed. The Part Number for Windows, Netware, Linux in HP OpenView Storage Data Protector Backup Drive was corrected
November 13, 2006	From Version 15 to 16	Changed	Updated the What's New section and the CONFIGURATION INFORMATION section was rewritten
September 1, 2006	From Version 14 to 15	Changed	Updated the What's New section and Step 1 in the CONFIGURATION INFORMATION section
June 2, 2006	From Version 13 to 14	Changed	Updated Steps 1 and 3 in the CONFIGURATION INFORMATION section
		Added	Added a NOTE to the CONFIGURATION INFORMATION section
May 5, 2006	From Version 12 to 13	Changed	Removed the "not" from "cannot" in Step 3 of the Configuration Information Section
April 24, 2006	From Version 11 to 12	Changed	The entire QuickSpec was rewritten
August 1, 2005	From Version 10 to 11	Changed	A URL in Step 3 of the Configuration Information section was corrected.
January 14, 2005	From Version 9 to 10	Changed	Only minor grammatical corrections were made
November 3, 2004	From Version 8 to 9	Changed	Only minor grammatical corrections were made.
November 1, 2004	From Version 7 to 8	Changed	The entire QuickSpec was rewritten
June 23, 2004	From Version 6 to 7	Changed	The only change was made in the Backup Agents section of Application Platforms
February 24, 2004	From Version 5 to 6	Removed	Removed mention of EVA models from the Data Protector models section.
October 9, 2003	From Version 4 to 5	Changed	Configuration information
September 30, 2003	From Version 3 to 4	Changed	Changes for this announcement applied to all sections of the QuickSpec. Please note the title has been changed as well. Models and Configuration Information: Cell Manager has been replaced with Starter Pack.

Summary of Changes

August 25, 2003	From Version 2 to 3	Changed	Document was reformatted.
July 23, 2003	From Version 1 to 2	Changed	2 URLs were updated

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