Overview

Shape the Future of QuickSpecs – Your Input Matters

HPE StoreOnce VSA 5.x

The HPE StoreOnce products are secondary storage systems optimized for data protection workloads. Using data deduplication and compression, backup data is efficiently and economically stored. HPE StoreOnce Integrity Plus - industry leading patented technology – ensures the backup data is available for restore and recovery whenever it is needed. StoreOnce systems are available as purpose-built hardware appliances and as virtual appliances.

This document describes the virtual appliance; the StoreOnce VSA. The HPE StoreOnce VSA and the purpose-built appliances have the same feature set and can be managed through the same centralized management console.

The StoreOnce VSA can be deployed on VMware vSphere and Microsoft Hyper-V, which allows flexible software defined, secondary storage to be quickly deployed. It is easily deployed in small and branch locations with backup data replication to a remote StoreOnce system. A single StoreOnce VSA can scale up to 500 TB of usable capacity, which is extended to 1,500 TB with the Cloud Bank Storage option, and protect up to 36 TB of data per hour.

A simple, capacity based, scheme is used to license HPE StoreOnce VSAs. For environments with many StoreOnce VSAs, or a dynamic population of StoreOnce VSAs, a license server can be used to simplify StoreOnce VSA license management and enable licenses to be recycled when the StoreOnce VSA is decommissioned.

For evaluation, 90-day StoreOnce VSA trialware is available. For an extended evaluation or deployment into non-critical, self-supported environments, a 1 TB freeware StoreOnce VSA is also available.

HPE StoreOnce Purpose Built Backup Appliances

For information see the **HPE StoreOnce QuickSpecs.**

Capacity and Performance Numbers

A key attribute of HPE StoreOnce systems is the high efficiency deduplication and compression that delivers significant space savings compared to storing recovery points on general purpose storage. HPE StoreOnce deduplication, with fine grained 4 kb chunk sizes, is the most efficient space saving technology available in a backup storage system. In addition to the HPE StoreOnce data reduction deduplication, the space saving achieved is dependent upon many factors including the type of data being protected, nature and frequency of changes to this data, backup software settings, backup schedule, recovery point retention and concurrent tasks contending for resources.
This QuickSpecs contains maximum performance numbers using HPE StoreOnce Catalyst and raw, usable and effective capacity. Raw capacity is the installed capacity of media used to store backup data. This is configured with RAID or other protection against media failure. The usable capacity is the available physical capacity after this protection. The effective capacity is the logical capacity as a result of the StoreOnce data reduction space saving. A ratio of 60:1 is used between the effective capacity and the usable capacity to indicate the space saving that can be achieved. To accurately size the required capacity of the HPE StoreOnce system and the performance required to meet your backup window, the HPE StoreOnce Sizer should be used.

What's New

- HPE StoreOnce VSA 5.1

Standard Features

Compatibility with Previous StoreOnce Generations

Only StoreOnce VSA 5.x option licenses can be installed on StoreOnce VSA 5.x virtual appliances. Only StoreOnce VSA 4.x option licenses can be installed on StoreOnce VSA 4.x virtual appliances. There is no upgrade path from StoreOnce VSA 3.x to StoreOnce VSA 4.x or from StoreOnce VSA 4.x to StoreOnce VSA 5.x. There is replication and StoreOnce Catalyst Copy compatibility between all StoreOnce generations.
For details of the HPE StoreOnce Gen4 part numbers to add to an existing HPE StoreOnce Gen4 VSA or HPE StoreOnce Gen4 VSA License Server please see an earlier version (version 5) of the HPE StoreOnce VSA QuickSpecs.

Software-Defined Capacity and Performance

A StoreOnce VSA can be configured with up to 500 TB usable capacity. The starting usable capacity point for a StoreOnce VSA is 4 TB when individually licensed, or 1 TB if allocated licenses from a license server. Each StoreOnce VSA can be expanded in 1 TB increments using one or many 1 TB stackable licenses. When the Cloud Bank Storage feature is used to connect to object storage, the usable capacity can be expanded by 1,000 TB up to 1,500 TB.

A StoreOnce VSA can be configured for backup data to be written at up to 36 TB/hour. The number of backup targets and concurrency can also be configured according to the solution requirements.

Choice of Interfaces for Integration into Your Environment

The following are available to connect to your backup environment

- StoreOnce Catalyst; over IP & Fibre Channel
- Virtual tape libraries (VTL); over iSCSI & Fibre Channel

StoreOnce Catalyst

StoreOnce Catalyst is a protocol and interface optimized for data protection workloads. The Catalyst server runs on the StoreOnce system and the Catalyst client is integrated into the data protection application. This design enables the data protection application to control the execution and retention of backups and backup copies to and between StoreOnce systems. This means the data protection application has control of the protected data through its lifecycle. Using StoreOnce Catalyst, the data deduplication can be configured to be executed on the StoreOnce System or on a data protection software component such as a media agent.

Compared to the VTL interface, StoreOnce Catalyst has no limiting geometry (cartridges, libraries). The Catalyst protocol also enables higher performance backup as well as enhanced reporting and control in the data protection application.

Deduplication Optimized Offsite Replication

StoreOnce enables backup data to be replicated to a StoreOnce system in another rack, building, site, continent or public cloud. This data replication is deduplication-optimized to reduce bandwidth requirements so the job finishes faster and link costs are kept down. One StoreOnce system can be the replication target for multiple source StoreOnce systems to consolidate the storage of replicas

Extensive Compatibility

HPE StoreOnce VSA works with many hypervisors, data protection software and business applications. Detailed compatibility information is published in the StoreOnce **support matrix.**

Standard Features

Reliable Backup and Restore

In any storage system it is essential that the integrity of the data stored is maintained so data can be recovered exactly as it was written. StoreOnce Systems include HPE StoreOnce Integrity Plus - industry leading patented technology to deliver data integrity throughout the lifecycle. With Integrity Plus you get inbuilt protection which checks data at many stages in the backup and recovery processes and also continually checks the data when at rest, correcting errors if necessary.

Eliminating Complexity with Effortless Management

HPE StoreOnce systems have a simple to use web-hosted graphical interface. For automated operation a CLI and REST interface are also available.

For organizations with multiple data centers and or many branch locations StoreOnce Federated Management enables centralized control and visibility of all your StoreOnce systems. Federated Management allows you to manage multiple StoreOnce systems from a single interface for efficient and consistent management of multiple StoreOnce systems.

Reducing the Risk to Data at Rest and Data in Flight

HPE StoreOnce security provides 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 to prevent expired backups being accessed. These functions can be configured on an application or store basis and are not restricted to the whole appliance.

Data in flight encryption is supported to secure links between devices for StoreOnce replication, Catalyst Copy and Catalyst backup operations. It is not recommended to use IPsec if performing regular restores (including Veeam Backup Copy Jobs) or tape offloads. It is possible write performance may be impacted when using IPsec, however performance improvements should be seen after the first backup.

Data in Flight encryption via IPSec is supported on StoreOnce Catalyst only. Using data in flight encryption for VTL direct backup operations to the StoreOnce System over a local network is not supported due to the performance impact.

All-Inclusive, Perpetual, Capacity-Based Licensing

StoreOnce VSA licensing is based on usable capacity, net of space saving from StoreOnce data reduction. Licenses are perpetual and software updates are available to all users with support entitlement. All features, except encryption and Cloud Bank Storage, are included in the capacity licenses.

License Server for Simplified License Management

The standard license mechanism for HPE StoreOnce VSA is to license each StoreOnce VSA individually. For environments with many StoreOnce VSAs or a dynamic population of StoreOnce VSAs, the AutoPass License Server (APLS) adds flexibility and control over license management. In an APLS deployment, capacity licenses are added to the APLS in 100 TB increments. This creates a pool of capacity that is allocated to connected StoreOnce VSAs as required. If a StoreOnce VSA is disconnected from the APLS the license capacity is returned to pool of capacity.

Standard Features

Cloud Bank Storage to Lower the cost of Long Term Backup Data Retention

Cloud Bank Storage is an extension to StoreOnce Catalyst that extends the usable capacity of the StoreOnce VSA and provides a lower cost storage location for long term retention backup data. It does this by combining low object storage costs with StoreOnce deduplication.

The object storage can be an on-premises system or a cloud-based service. This reduces the storage costs of long term backup data retention and enables off site data protection without investing in offsite facilities or changing existing workflows. Up to 1,000 TB object storage can be connected via Cloud Bank[1] Storage to increase the usable capacity of the StoreOnce VSA to up to 1,500 TB.

This equates to up to 90 PB[2] of data storage with StoreOnce deduplication**.** To control costs when connected to public cloud hosted object storage, Cloud Bank Storage uses a cloud-optimized data transfer and storage. For information on the supported object storage systems and services see the **StoreOnce support matrix.**

Notes:

- Cloud Bank Storage is supported for use a Catalyst Copy target. The performance of object storage means it is not supported to use Cloud Bank Storage as a backup target.
- Based on a 60:1 space saving from StoreOnce data reduction.

Custom Reporting and Management with HPE StoreOnce REST API

The StoreOnce REST API provides a well-defined RESTful API that you can use for integrating and automating reporting/management capabilities with StoreOnce systems. These APIs deliver a programming interface for polling StoreOnce systems with reporting queries at a desired granularity and the information extracted can be integrated with your reporting tools for flexibility in monitoring large StoreOnce environments. The APIs also allow you to automate and integrate management tasks such as creating and deleting backup targets. Download the **StoreOnce REST API .**

StoreOnce VSA Trialware

All StoreOnce VSA deployments have an instant-on license to enable a 90-day evaluation of all StoreOnce VSA features and up to 500 TB capacity. At any point during this 90-day period a purchased StoreOnce VSA license can be added – see the 'Part Numbers and Licensing' section below. The trialware is available from the **My HPE Software** portal.

StoreOnce VSA Freeware

For an extended evaluation or deployment into non-critical, self-supported environments a 1 TB freeware StoreOnce VSA is available. The StoreOnce VSA freeware license enables perpetual use with self-service support. The StoreOnce VSA freeware enables all product features to be used except for backup data encryption and Cloud Bank Storage. The freeware capacity is limited to 1 TB usable capacity. The StoreOnce VSA freeware license is available from the **My HPE Software** portal.

Standard Features

Key parameters and resource requirements	
Parameter	**Value**
Form factor	Virtual appliance
Target types (interfaces)	StoreOnce Catalyst: over IP[1] & Fibre Channel[2] Virtual tape libraries (VTL): over iSCSI[5] & Fibre Channel[2]
VTL emulations	D2DBS Generic Libraries: Ultrium-VT, LTO-2 - LTO-7 EML & ESL E Series Libraries: LTO-2 - LTO-7 IBM-TS3500 Libraries: IBM LTO-3 & IBM LTO-5 MSL G3 Series Libraries: LTO-2 - LTO-7
Virtual tape cartridges per VSA	Up to 131,072
Virtual tape cartridges per VTL	Up to 4,096
Host support	VMware-vSphere Microsoft Hyper-V For detailed compatibility information see the **StoreOnce support matrix**[3]
NIC support	Per host and hypervisor support
Fibre Channel HBA support	HPE StoreFabric Fibre Channel HBAs using VMDirectPath I/O Passthrough. For detailed compatibility information see the **StoreOnce support matrix**[3]

StoreOnce VSA can be configured to provide the capacity and performance needed to meet your data protection requirements. The first table below shows the minimum StoreOnce VSA configuration and the incremental resources required to increase capacity, performance, stream count and/or the number of backup targets up to the maximum configuration. The second table below shows resource requirements for minimum and maximum configurations.

Minimum configuration, maximum configuration and resources needed to scale StoreOnce VSA			
Parameter	**Min**	**Max**	**To scale from minimum configuration**
Local usable	4 TB[4]	500 TB	100 MB vRAM per incremental TB
Cloud Bank usable capacity	-	1,000 TB	100 MB vRAM per TB
Max backup speed[5]	2 TB/hr	36 TB/hr	1 vCPU + 300 IOPS per incremental TB/hr
Concurrency	16 streams	256 streams	500 MB vRAM per incremental stream
Backup targets	4 stores	32 stores	1 GB vRAM per incremental store
Fan-in ratio	8 sources	8 sources	

Key parameters for StoreOnce VSA		
Resource Requirements	**Min Config**	**Max Config**
Minimum vRAM	24 GB	320 GB
Minimum vCPU[6]	2	36
IOPS[7]	600	10,800
Dedicated hard drives[8]	4	72

Notes:

- [1]IPv4 or IPv6 connection.
- [2]Fibre Channel data connections supported for VSAs on VMware vSphere hosts only.
- [3]This requires a HPE Passport account – the single sign on for HPE websites and services. Create an account here.
- [4]When connected to a license server the minimum licensed capacity is 1 TB.
- [5]This is with StoreOnce Catalyst. Backup performance to a VTL target is approximately 25% of this. The numbers quoted here are for VMware vSphere. For StoreOnce VSA in Hyper-V environments performance is up to 25% less.
- [6]The CPUs should be 1.5 GHz or faster. Additional vCPUs should be added in multiples of two.
- [7]Based on 128 KB average read/write sizes. The read/write mix, hypervisor caching and application caching may make the stated performance achievable with lower storage IOPS. Deploying a StoreOnce VSA provisioned with lower than the stated storage IOPS should only be done after validation of performance.
- [8]Indicative numbers based on 7,200 rpm SAS HDDs and assuming 150 IOPS per HDD. The number is net of RAID overhead and spares.

Standard Features

Example configurations (with and without Cloud Bank Storage)				
Parameter	**Small**	**Medium**	**Large**	**Maximum**
Local usable capacity	10 TB	150 TB	400 TB	500TB
Cloud Bank usable capacity	-	150 TB	-	1,000
Backup performance	4 TB/hr	8 TB/hr	20 TB/hr	36TB/hr.
Concurrency	16 streams	24 streams	64 streams	256 streams
Backup targets	6 stores	12 stores	16 stores	32 stores
Fan-in ratio	8 sources	8 sources	8 sources	8 sources

Resource Requirements				
vRAM	27 GB	66 GB	100 GB	181 GB
vCPUs	4	8	20	36
IOPS	1,200	2,400	6,000	10,800
Dedicated hard drives	8	16	40	72

AutoPass License Server (APLS) for StoreOnce VSA

If you have large or dynamic populations of StoreOnce VSAs the AutoPass License Server (APLS) simplifies license management. The APLS centralizes license management and allows licenses to be returned to the license server when the StoreOnce VSA is decommissioned. The APLS is available for free at **http://www.hpe.com/software/apls.**

Capacity and feature licenses are added to the license server in 100 TB increments to create a pool of licenses. As needed, these are allocated in 1 TB increments to connected StoreOnce VSAs. See the 'Licensing and Part numbers' section below for license details.

Notes: Once a licensing mode (individual license | connect to license server) is selected it cannot be changed.

Host requirements

The APLS can run on a Windows or Linux physical or virtual machine. It is accessed using a Google Chrome, Microsoft Internet Explorer or Mozilla Firefox browser. For details of supported APLS versions, host resource requirements, OS support and browser version support see the **StoreOnce support matrix**.

APLS operation

- To acquire and maintain use of licenses the StoreOnce VSA must be connected to the APLS. The connected StoreOnce VSAs are polled approximately each hour to check connection to the APLS.
- On connection to the APLS a 1 TB capacity license is allocated to the StoreOnce VSA.
- Licenses returned, using the StoreOnce VSA management console, are added back to the APLS pool and available for allocation to any connected StoreOnce VSA.
- If the StoreOnce VSA is disconnected from the APLS, the allocated licenses remain with the StoreOnce VSA for 7 days from the most recent connection and all capacity and features enabled by the allocated licenses remain usable.
- If the StoreOnce VSA is disconnected for more than 7 days the allocated licenses are returned to the APLS and the StoreOnce VSA moves to an unlicensed (read only) state.
- After 7 days and for up to 60 days from the most recent connection, the StoreOnce VSA can reconnected to licenses be allocated to the StoreOnce VSA to return it to a licensed state.
  - If the StoreOnce VSA is not connected to the APLS for 60 days it moves to an unlicensed and unusable state.

Standard Features

Use of Cloud Bank Storage with StoreOnce VSA

Operation

The usable capacity of the StoreOnce VSA can be expanded up to 1,500 TB by using Cloud Bank Storage to connect up to 1,000 TB of object storage. A bucket/container from the connected object storage is associated with a Catalyst store. This Catalyst store is used as a Catalyst Copy target in the same way as a regular Catalyst store. The translation of the backup data to object storage format is efficiently handled by StoreOnce and transparent to the data protection application.

Host Resources

Resources should be allocated to the StoreOnce VSA to host the Cloud Bank store(s) as laid out in the resource requirements section above.

Detach

Many object storage vendors offer 'cold' storage tiers with reduced costs. The performance of 'cold' tiers is not sufficient for Cloud Bank Storage operations. For Cloud Bank stores with backup data that has to be retained but access requests are unlikely, the Cloud Bank store can be detached to enable it to be moved to a cold tier. On detach the Cloud Bank store is put into a read only state and is no longer visible to the StoreOnce system or the data protection application. The bucket/container associated with the detached store can then be moved, independently of StoreOnce and the data protection application, using the object storage console, to a 'cold' tier or other location for long term low cost retention.

If the detached store needs to be read it has to be moved back to a supported storage tier and reconnected to a StoreOnce system. This can be the original StoreOnce VSA or any StoreOnce system running the same or newer version of the StoreOnce software. A detached store is reconnected read only. To reconnect, details and credentials of the object storage provider and bucket/container are required. For encrypted Cloud Bank stores the encryption key needs to be provided if it is not stored on the host StoreOnce system.

Licensing

Cloud Bank Storage and the Cloud Bank Storage Detach feature are licensed features. The licenses are capacity based with the licensed capacity measured as the capacity written after deduplication and compression. The Cloud Bank licenses are added in any multiple of 1 TB up to 1,000 TB. The Cloud Bank Storage Detach licenses are added in any multiple of 1 TB with no upper limit. See the licensing and part numbers section below.

Supported object storage

Most leading cloud and on-premises object storage services are supported for use with Cloud Bank Storage. For information on the current supported object storage systems and services see the **StoreOnce support matrix.**

StoreOnce VSA in high availability deployments

To minimize downtime and survive a host failure, StoreOnce VSA can be deployed in a VMware vSphere cluster. Leveraging the VMware vSphere High Availability feature means the unavailability of the StoreOnce VSA can be limited to minutes if its host fails. In the event of a host failure, the vSphere High Availability feature enables the StoreOnce VSA to be restarted on another host in the cluster so backup, restore or copy operations can resume.

Service and Support

Support and services overview

All HPE StoreOnce VSA with purchased licenses include three years 24x7 HPE Tech Care. This is entitled on the HPE StoreOnce VSA base license (BC002AAE/BC002A). This support entitlement includes support for all added capacity, Cloud Bank Storage and encryption licenses added to the StoreOnce VSA.

The licenses for the HPE StoreOnce VSA license server include support for the license server and the connected StoreOnce VSAs. This is entitled on the HPE StoreOnce VSA License Server 100TB license (BC005AAE/BC005A). This support entitlement includes support for all added capacity, Cloud Bank Storage and encryption licenses added to the license server.

The included support can be upgraded to HPE Tech Care, or HPE Complete Care. Support can also be extended to 4 or 5 years. When the included, or upgraded, support expires it must be renewed to maintain entitlement to HPE Services support and software updates.

Optional HPE Services services are available; to set up StoreOnce VSAs in a high availability configuration; to configure and verify deployment of data protection solutions using StoreOnce Catalyst and StoreOnce VSA; to integrate StoreOnce VSA in an end-to-end solution with your data protection software; and Advanced Start Up services.
Notes: When running the 90-day, instant-on demo license or the freeware license there is no entitlement to HPE Services support or the ability to buy HPE Services Support Services.

Support and services benefits

Deploy and integrate

Implement the HPE StoreOnce VSA in a high availability configuration correctly for 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 investment in the StoreOnce VSA, as you keep your staff up to date on the product features.

Advisory, professional and operational support services

Services to accelerate time to results from HPE Services bring you a rich portfolio of Advisory, Professional and Operational support services 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 organization.

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.

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 Services - Service and Support

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

Consume IT on your terms

HPE GreenLake brings the cloud experience directly to your apps and data wherever they are—the edge, colocations, or your data center. It delivers cloud services for on-premises IT infrastructure specifically tailored to your most demanding workloads.

Service and Support

With a pay-per-use, scalable, point-and-click self-service experience that is managed for you, HPE GreenLake accelerates digital transformation in a distributed, edge-to-cloud world.

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

Managed services to run your IT operations

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

Free up resources with Operational Services from HPE Services

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

Recommended Services

HPE Tech Care Service.

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

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

HPE Complete Care Service

HPE Complete Care Service is a modular, edge-to-cloud IT environment service that provides a holistic approach to optimizing your entire IT environment and achieving agreed upon IT outcomes and business goals through a personalized and customer-centric experience. All delivered by an assigned team of HPE Services Services experts. HPE Complete Care Service provides:

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

https://www.hpe.com/services/completecare

HPE Education Services

HPE Education Services offers comprehensive training for new, as well as experienced, storage and data protection administrators. This is designed to expand your skills and keep you up to speed with the latest storage, virtualization and data protection technology from HPE Storage. For more information see the **HPE Education Services web page.**

Get connected and get back to business

HPE Services provides 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.

Service and Support

For more information

- **http://www.hpe.com/services**
- **https://www.hpe.com/us/en/services/operational.html**

To learn more on HPE Storage Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Contact information for a representative in your area can be found at "Contact HPE" **https://www.hpe.com/us/en/contact-hpe.html**

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

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

Configuration Information

StoreOnce VSA Configuration Guidelines

Please read and understand the following general and hypervisor specific configuration guidelines before deploying StoreOnce VSA.

Recommendations

- It is recommended that at least one virtual disk is allocated to the StoreOnce VSA before the first power on. Additional virtual disks can be added later to increase capacity up to the licensed capacity.
- Plan to add virtual disks as needed to the StoreOnce VSA. Once a virtual disk is added it cannot be removed, to reclaim the space or increase the size, without destroying the StoreOnce VSA.
- Use RAID protection for the storage allocated to the StoreOnce VSA for resilience against hard disk failure.
- The storage used for the StoreOnce VSA should not be shared with the storage used by the protected virtual machines, particularly if backup data replication is not used.
- Reserve all memory and CPU allocated to the Storeonce VSA. Overprovisioning memory or CPU can lead to insufficient resources available to deliver the expected performance.
- Periodically monitor allocated resource utilization and allocate additional resources if the current allocated resources are approaching saturation.
- Performance can be seen using hypervisor performance monitoring tools. These vary between VMware vSphere and Windows Hyper-V. Adding resources requires the StoreOnce VSA to be restarted so these upgrades should be done outside backup times.

VMware configuration notes

- 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.
- It is recommended that the virtual disks used to provide capacity for StoreOnce VSA are in a .vmdk format from a VMFS3, VMFS5 or VMFS6 data store. NFS data stores are supported but careful consideration of the performance implications should be made before deployment. Raw disks are not supported.
- 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.
- Thick and thin provisioned virtual disks are supported to provision storage for backup data. If thin provisioned virtual disks are selected, care should be taken to ensure that the datastore is backed by sufficient physical storage.
- StoreOnce VSA is supported for use with vMotion and Storage vMotion during backup and recovery operations. It is also supported in environments using vSphere High Availability and vSphere Distributed Resource Scheduler. Support for vSphere Fault Tolerance is limited to StoreOnce VSA configurations with a maximum of 8 vCPUs due to this VMWare maximum.

Hyper-V configuration notes

- 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.
- The 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 the configured StoreOnce VSA.
- Fixed and dynamically expanding virtual hard disks (.VHDX or .VHD) are supported to provision storage for backup data. If dynamically expanding virtual hard disks are selected, care should be taken to ensure that the NTFS Logical Volume is backed by sufficient physical storage.
- StoreOnce VSA supports use of Hyper-V Live Migration during backup and recovery operations.

Configuration Information

Licensing and Part Numbers

Licensing overview

The StoreOnce VSA has a simple and flexible, capacity-based license scheme. All purchased licenses are perpetual and include 3 years HPE Services support entitlement.

On installation, a unique serial number is created for the StoreOnce VSA and a 90-day, instant-on demo license is activated. Before the end of this 90 days, for continued operation, the StoreOnce VSA must have one of the three licenses below added:

- Individual license
- License from a license server
- Freeware license

For an individual license and a freeware license, the StoreOnce VSA serial number is needed to acquire the license. These StoreOnce VSA licenses are locked to the serial number and cannot be transferred to another StoreOnce VSA.
For the StoreOnce license server the Locking Code (on the APLS GUI License Management page) is needed to acquire the StoreOnce License Server licenses.

Notes:

- Once a licensing mode (individual license | connect to license server) is selected it cannot be changed. After a StoreOnce VSA is given a freeware license it cannot be connected to a license server.
- When using the 90-day, instant-on demo license up to 500 TB of capacity can be configured. When licenses are added to continue use beyond the 90-day demo period the licensed capacity must be greater or equal to the configured capacity.
- When running the 90-day, instant-on demo license, there is no entitlement to HPE Services support or the ability to buy HPE Services Support Services.
- When running the 90-day, instant-on demo license, data at rest encryption and data in flight encryption are not available.

Individual licensing

A StoreOnce VSA starts with a 4 TB Base license. Up to 496 Stackable 1 TB licenses can be added to the base license for licensed capacity of up to 500 TB. Multiple 1 TB LTUs can be activated and applied in a single transaction.

Licenses for individual licensing

Description	SKU for LTU	SKU for E-LTU
HPE StoreOnce VSA 4TB Base E-LTU	n/a	S4P06AAE
HPE StoreOnce VSA Stackable 1TB E-LTU	n/a	S4P07AAE

Optional Licenses

Description	SKU for LTU	SKU for E-LTU
HPE StoreOnce Cloud Bank Storage Read/Write for Gen5 Systems 1 TB	S4P26A	S4Q10AAE
HPE StoreOnce Cloud Bank Storage Read/Write for Gen5 Systems 10 TB	SP429A	SP34AAE
HPE StoreOnce Cloud Bank Storage Read/Write 100TB E-LTU	S4P30A	S4Q46AAE
HPE StoreOnce Cloud Bank Storage Detach for Gen5 Systems 1 TB	S4Q27A	S4Q11AAE
HPE StoreOnce Cloud Bank Storage Detach 10TB E-LTU	S4Q49A	S4Q47AAE
HPE StoreOnce Cloud Bank Storage Detach 100TB E-LTU	S4Q50A	S4Q48AAE
HPE StoreOnce Encryption E-LTU	S4P28A	S4P14AAE

Notes: The option licenses are the same as used to add Cloud Bank Storage and encryption to the StoreOnce hardware appliances.

Configuration Information

Freeware licensing

The freeware license is acquired from the **HPE My License Portal** and added to the StoreOnce VSA to allow perpetual use of most features and up to 1 TB usable capacity. At any time a StoreOnce VSA with a freeware license can be upgrade by adding a 4 TB individual base license. Once upgraded, any of the individual stackable capacity and option licenses can be added.

Notes:

- If more than 1 TB capacity is configured during the 90 day instant-on period, it is not possible to add the StoreOnce VSA freeware license.
- The freeware comes without entitlement to HPE Services support services, the ability to buy HPE Services support services, data at rest encryption and data in flight encryption.

Licenses to upgrade Freeware version

Description	SKU for LTU	SKU for E-LTU
HPE StoreOnce VSA 4TB Base E-LTU	n/a	S4P06AAE

AutoPass License Server (APLS) licensing

Licenses are added to the AutoPass License Server (APLS) to create a pool of license capacity that is allocated to one or more connected StoreOnce VSAs. The first license added to the APLS must be a 100 TB License Server license (S4P08AAE). After this, an unlimited number of stackable 100 TB License Server licenses (S4P09AAE) can be added to increase capacity. Cloud Bank Storage licenses and encryption licenses are added to the license server enable these capabilities to be allocated to connected StoreOnce VSAs.

Notes: Only one HPE StoreOnce VSA License Server Encryption license needs to be added to the APLS to enable all connected StoreOnce VSAs to use encryption.

Licenses to Populate the License Server

Description	SKU for LTU	SKU for E_LTU
HPE StoreOnce for VSA Server 100TB E-LTU	n/a	S4P08AAE
HPE StoreOnce for VSA Server Stackable 100TB E-LTU	n/a	S4P09AAE
HPE StoreOnce for VSA Server Encryption E-LTU	n/a	S4P15AAE
HPE StoreOnce Cloud Bank Storage Read/Write for VSA Server 100TB E-LTU	n/a	S4P12AAE
HPE StoreOnce Cloud Bank Storage Detach for VSA Server 100TB E-LTU	n/a	S4P13AAE

Cloud Bank Storage licenses

The Cloud Bank Storage feature is licensed and enabled through option licenses for the StoreOnce VSA and StoreOnce VSA license server as shown in the tables above.

Cloud Bank Storage licenses are available in 1 TB increments for individually licensed StoreOnce VSAs and 100 TB increments for license servers. The maximum Cloud Bank Storage capacity that can be enabled for a StoreOnce VSA is 1,000 TB.
Cloud Bank Storage Detach licenses are also available in 1 TB increments for individually licensed StoreOnce VSAs and 100 TB increments for license servers. There is no upper limit to the capacity of Cloud Bank Storage detach licenses that can be added to a StoreOnce VSA or the license server.

Up to a total of 50 Cloud Bank Storage and Cloud Bank Storage Detach license keys can be added to a StoreOnce VSA. For the larger StoreOnce VSAs it is recommended to generate license keys with large multiples of 1 TB to avoid this 50 license key limit becoming a constraint.

Configuration Information

Unlicensed Behaviour

StoreOnce VSA

An individual StoreOnce VSA moves to unlicensed mode if no license is added within 90 days of deployment. For the first 60 days in unlicensed mode the StoreOnce VSA operates as read only preventing additional backup or copies being written. At any time during this 60-day unlicensed period a license key can be added to resume full functionality.

When operating in unlicensed mode warnings are issued that the StoreOnce VSA will cease to be operational if no license is added before the end of this 60-day period. If no license key is added within 60 days of StoreOnce VSA going into unlicensed mode it will cease to be operational and move to an unusable state. For a StoreOnce VSA to return from a locked down state to an operational state requires HPE intervention and the addition of the required license(s).

AutoPass License Server (APLS)

A StoreOnce VSA connected to an AutoPass License Server (APLS) moves to unlicensed mode if it is disconnected for more than 7 days. After 7 days and for up to 60 days from the most recent connection to the APLS, the StoreOnce VSA can reconnected to the APLS and be allocated licenses to return to a licensed state. If the StoreOnce VSA is not connected to the APLS within 60 days from most recent connection and allocated licenses it moves to an unusable state.

Advanced Start-Up Services

HPE StoreOnce Catalyst Solution Service and HPE StoreOnce Catalyst Solution Services provide a best practice configuration and verification service in the customer environment to optimize the benefits of deploying StoreOnce Catalyst and StoreOnce VSA functionality. These services are available in 3 levels. Within the scope of the service, StoreOnce VSA configuration is part of the solution service.

Description	SKU
HPE StoreOnce Catalyst solution service lvl1	HA124A1#5TY
HPE StoreOnce Catalyst solution service lvl2	HA115A1#5TZ
HPE StoreOnce Catalyst solution service lvl3	HA115A1#5UO

For more information see the **data sheet.**

HPE StoreOnce VSA High Availability Installation and Start-up Service

HPE StoreOnce VSA High Availability Installation and Start-up Service provides a high availability deployment of the HPE StoreOnce VSA with features designed to help enable proper installation into your environment.

HPE StoreOnce VSA HA Start-up SVC HA124A1#5T1

- (HG0V7E)

HPE StoreOnce Integration Services

The StoreOnce Integration Services are intended to provide proven HPE best practice integration between the customer's backup software and StoreOnce. This service helps customers utilize the advanced features of their backup software with StoreOnce for an optimized end-to-end solution. Within the scope of the service, StoreOnce VSA configuration is part of the integration service.

HPE StoreOnce Integration Level 1 SVC	H8E02A1
HPE StoreOnce Integration Level 2 SVC	H8E03A1

For more information see the **data sheet.**

Summary of Changes

Date	Version History	Action	Description of Change
04-Aug-2025	Version 6	Changed	Overview and Standard Features sections were updated - Updated for Gen5 StoreOnce VSA. Removed content on the High Availability Manager solution. Compatibility with Previous StoreOnce Generations Configuration Information section was updated – New Licenses SKUs were added
		Added	SKU for LTU S4P26A, SP429A, S4P30A, S4Q27A, S4Q49A, S4Q50A, S4P28A SKU for E-LTU S4Q10AAE, SP34AAE, S4Q46AAE, S4Q11AAE, S4Q47AAE, S4Q48AAE, S4P14AAE, S4P06AAE S4P08AAE, S4P09AAE, S4P15AAE, S4P12AAE, S4P13AAE
21-Aug-2023	Version 5	Changed	Overview and Standard Features and Configuration Information sections were updated
01-Nov-2021	Version 4	Changed	Service and Support section was updated
06-Jul-2020	Version 3	Changed	Overview and Standard Features sections were updated
01-Jun-2020	Version 2	Changed	Configuration Information section was updated
07-Oct-2019	Version 1	New	New QuickSpecs

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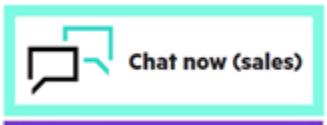

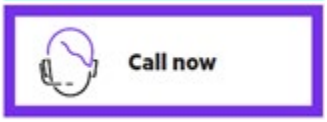

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