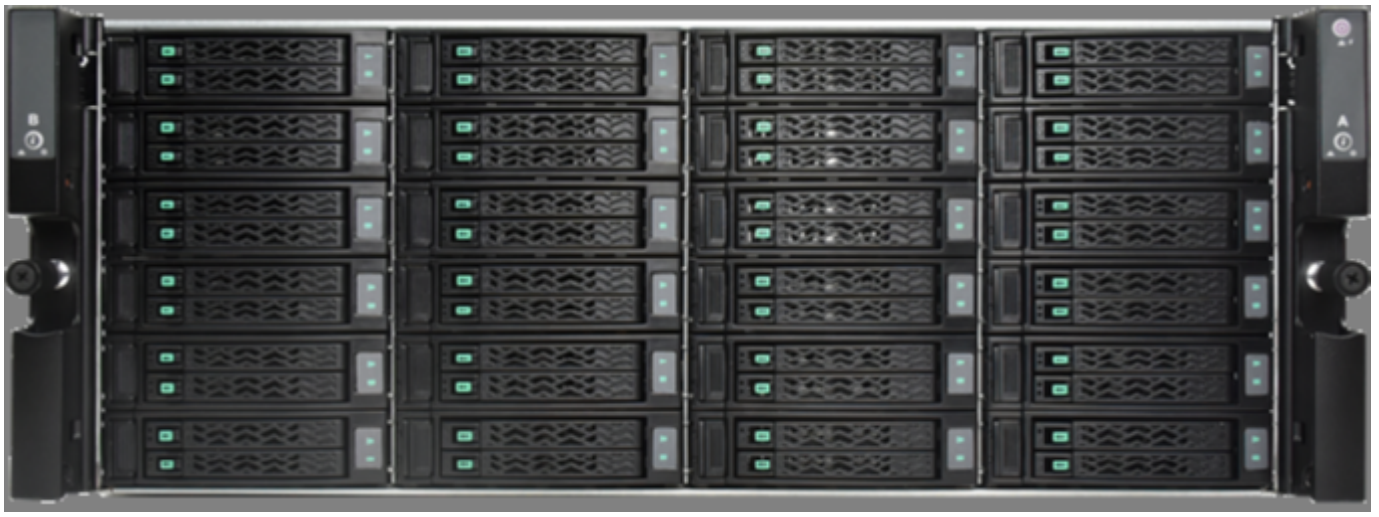
HPE Nimble Storage All Flash Arrays

Experience the Power of Predictive

HPE Nimble Storage All Flash Arrays combine a flash-efficient architecture with HPE InfoSight predictive analytics to achieve fast, reliable access to data and 99.9999% guaranteed availability[1]. Radically simple to deploy and use, the arrays are cloud-ready - providing data mobility to the cloud through HPE Cloud Volumes. Your storage investment made today will support you well into the future, thanks to our technology and business-model innovations. HPE Nimble Storage All Flash Arrays include all-inclusive licensing, easy upgrades, and flexible payment options - while also being future-proofed for new technologies, such as NVMe and SCM.

What's new

A new all-flash array platform that is up to 65% faster and twice the scalability of previous all-flash arrays. HPE Nimble Storage All Flash Arrays are guaranteed provide more effective capacity per terabyte of raw storage than competitive all-flash arrays[2].
The new platform is future-proofed with an architecture for NVMe and Storage Class Memory (SCM). The arrays are designed to be upgraded with SCM for greater performance in the future. These all-flash arrays reflect HPE's commitment to deliver business value today and tomorrow as demonstrated by our **timeless storage**.
NOTE: For more information about the entire HPE Nimble Storage product portfolio, go to **https://www.hpe.com/us/en/storage/nimble.html**.



HPE Nimble Storage All Flash Array
(Base array, 4U; all 24 bays hold Dual Flash Carriers with Small Form Factor SSDs)

NOTE:
[1] For details on the HPE Nimble Storage 6-nines guarantee, refer to **https://www.hpe.com/h20195/v2/Getdocument.aspx?docname=a00018503enw**.
[2] For details on the HPE Store More Guarantee for HPE Nimble Storage, refer to **http://h20195.www2.hpe.com/V2/GetDocument.aspx?docname=a00039975enw**

Overview

HPE InfoSight predictive analytics

- Automatically predicts and resolves 86% of problems before you even know there is an issue[3].
- Transforms the support experience through cloud-based predictive analytics and Level 3-only support.
- Sees across the infrastructure stack and resolves problems beyond storage.
- Simplifies planning with prescriptive forecasts into capacity, performance, and bandwidth needs.
- Makes infrastructure smarter and more reliable by learning from the installed base.

Radical Simplicity

- Simple to deploy. Simple to use. Simple to manage.
- Cloud-ready. Deploy flash on-premises or in the cloud with common data services and mobility between all-flash, adaptive flash, and HPE Cloud Volumes.
- Timeless storage means no worries today or tomorrow. Flash arrays are future-proofed for NVMe and SCM and come with a satisfaction guarantee, all-inclusive software licensing, flat support pricing, no forklift upgrades, and an option to receive a free faster controller upgrade after three years.
- Radically easy to integrate with many ecosystems. Deep integration with VMware, MS applications, Oracle, Veeam, and others.

Fast and Reliable

- Scale-to-fit: Scale-up performance and capacity independently and non-disruptively. Scale-out to 4 arrays managed as one.
- Up to 5X or more, data reduction from variable block inline deduplication and compression.
- Backup and DR from all-flash to adaptive flash arrays at one-third the cost.
- Data reduction, snapshots, and Triple+ Parity RAID with no performance impact.
- Sub-millisecond response time for performance-sensitive enterprise workloads.

Absolute Resiliency

- 99.9999% (six-nines) guaranteed availability[1].
- Triple+ Parity RAID tolerates 3 simultaneous drive failures plus additional protection through intra-drive parity.
- App-granular, FIPS-certified encryption provides data at rest and over-the-wire protection. Secure data shredding is built-in.
- Native application-consistent snapshots and replication plus integration with leading backup software.

NOTE:

[3] Based on actual customer data collected by the HPE Nimble Storage Support organization. See also **https://www.hpe.com/h20195/v2/Getdocument.aspx?docname=a00018503ENW**.

HPE Nimble Storage All Flash Array models

Overview

AF-Series Arrays	AF20Q	AF20	AF40	AF60	AF80	Scale-out[1] 4X AF80
Raw capacity (TB/TiB)[2]	6-46/5-42	11-46/10-42	11-184/10-167	11-553/10-502	23-1106/21-1005	4423/4023
Usable capacity (TB/TiB)[2]	3-25/2-23	17-33/15-30	8-136/7-124	8-407/7-370	17-815/15-741	3260/2965
Effective capacity (TB/TiB)[2, 3]	14-128/13-116	82-168/75-153	40-682/36-620	40-2037/36-1853	82-4075/75-3706	16303/14827
Max. # of expansion shelves	1	1	1	2	2	8
RAID level	Triple+ Parity					
Onboard iSCSI/Mgmt. 1 Gb/10 Gb ports per array[4]	**4**	**4**	**4**	**4**	**4**	**16**
Optional iSCSI 1 Gb ports per array6	**4, 8, 12, 16**	**4, 8, 12, 16**	**4, 8, 12, 16, 20, 24**	**4, 8, 12, 16, 20, 24**	**4, 8, 12, 16, 20, 24**	**96**
Optional iSCSI 10 Gb ports per array6	**4, 8, 12, 16** **4, 8, 12, 16**	**4, 8, 12, 16** **4, 8, 12, 16**	**4, 8, 12, 16, 20, 24**	**4, 8, 12, 16, 20, 24**	**4, 8, 12, 16, 20, 24**	**96**
Optional FC 8 Gb/16 Gb ports per array	**4, 8, 12, 16** **4, 8, 12, 16**	**4, 8, 12, 16** **4, 8, 12, 16**	**4, 8, 12, 16, 20, 24**	**4, 8, 12, 16, 20, 24**	**4, 8, 12, 16, 20, 24**	**96**
Max. power requirement (watts/kVA)	**600/0.667**	**650/0.722**	**800/0.889**	**850/0.944**	**1200/1.333**	**4800/5.332**
Thermal (BTU)	**1968**	**2132**	**2624**	**2788**	**3936**	**15744**

NOTE: Specifications are subject to change without notice.

1 Scale-out configuration consists of 4x AF80 arrays, each with two all-flash shelves.

2 Raw, usable, and effective capacities are shown in TB (10^{12} bytes) and TiB (2^{40} bytes).

3 Effective capacity is the capacity of the base array and maximum number of expansion shelves. Assumes data reduction of five to one from deduplication and compression.

4 Onboard ports are 10GbaseT. Optional ports are: 1GbaseT, 10GbaseT, or 10GbE SFP+.

Overview

SSD Expansion Shelves for All Flash Arrays

	AF20Q	AF20	AF40	AF60	AF80
Raw capacity (TB/TiB)[1]			6-184/5-167		
Usable capacity (TB/TiB)[1]			4-136/3-124		
Effective capacity (TB/TiB)[1, 2]			20-682/18-620		

NOTE: Specifications are subject to change without notice.

1 Raw, usable, and effective capacities are shown in TB (10^{12} bytes) and TiB (2^{40} bytes).

2 Effective capacity is the capacity of the base array and maximum number of expansion shelves. Assumes data reduction of five to one from deduplication and compression.

Host OS Support

Microsoft® Windows® Server, including Microsoft® Hyper-V™ | VMware vSphere™ | HP-UX® | Ubuntu

SUSE® Linux Enterprise | SUSE® Linux Virtualization | Red Hat® Enterprise Linux® | Red Hat® Enterprise Virtualization

CentOS | Oracle® Linux® (UEK and RHEL compatible kernels) | Oracle® Solaris | Citrix® XenServer | IBM® AIX®

NOTE: For the latest information on supported operating systems refer to Single Point of Connectivity Knowledge (SPOCK) for HPE Storage products, including HPE Nimble Storage:
http://www.hpe.com/storage/spock

Warranty

HPE Nimble Storage arrays come with the following warranties:

- 1 year; parts-only warranty for hardware components, including SSDs
- 90 day, software updates for defects

Additionally, HPE Nimble Storage will provide phone support for replacing a defective part. Additional support coverage is required for HPE Nimble Storage Arrays.

NOTE: For hardware warranty claims, defective part must be received before replacement parts are shipped.
NOTE: Warranty is provided by HPE Nimble Storage.
NOTE: Link to **HPE Global Limited Warranty and Technical Support**.

Service and Support

Support is required for all HPE Nimble Storage arrays. Support SKUs provide up to five years of 24x7 telephone and email support for the arrays with a choice of Next Business Day (NBD) parts exchange, 4-hour parts delivery, or 4 hour onsite support, access to the HPE InfoSight predictive analytics platform and software updates.
NOTE: Support contract is mandatory for all HPE Nimble Storage products.

Installation Service

HPE Nimble Storage Array Start-up service
On-site installation of a new HPE Nimble Storage array in a data center with up to six (6) shelves.

HPE Nimble Storage Upgrade service
On-site installation of upgrades kits or expansion shelves for an existing HPE Nimble Storage array.

NOTE: Installation services are optional for all HPE Nimble Storage products.

Parts and Materials

Hewlett Packard Enterprise will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.

Step 1 - Choose Base configuration

All HPE Nimble Storage All Flash Arrays come in a 4U form-factor chassis with

- (2) controllers with fans and NVDIMM, and
- (4) 1GbE/10GbE network ports, i.e. (2) per controller for iSCSI or management traffic, and
- (2) power supplies and
- All-inclusive software including HPE InfoSight predictive analytics

Additional host connectivity per controller is indicated in the product descriptions below.
Flash capacity upgrades, network upgrades and expansion shelves will be available for integration in the field.

HPE Nimble Storage AF-Series Adaptive Flash Arrays - Base Configuration

Base Array

HPE Nimble Storage AF20Q All Flash Dual Controller 10GBASE-T 2-port Configure-to-order Base Array	Q8H73A
HPE Nimble Storage AF20 All Flash Dual Controller 10GBASE-T 2-port Configure-to-order Base Array	Q8H74A
HPE Nimble Storage AF40 All Flash Dual Controller 10GBASE-T 2-port Configure-to-order Base Array	Q8H41A
HPE Nimble Storage AF60 All Flash Dual Controller 10GBASE-T 2-port Configure-to-order Base Array	Q8H42A
HPE Nimble Storage AF80 All Flash Dual Controller 10GBASE-T 2-port Configure-to-order Base Array	Q8H43A

Step 2 - Choose Head SSD Capacity

All HPE Nimble Storage All Flash Arrays come with one or two of the following SSD capacity options. Additional capacity can be added by connecting up to (2) flash expansion shelves to the base array - depending on the model.
NOTE: R2 and non-R2 SKUs are functionally equivalent. The OCA quote tool will guide to the appropriate SKU option when configuring a model.

Table below shows All Flash Array compatibilities with SSD Options.

Head SSD Capacity Options

Configuration Information

Any two different capacities of the following options can be selected:		AF20Q	AF20	AF40	AF60	AF80
Q8H78A	HPE Nimble Storage AF20Q All Flash Array R2 5.76TB (12x480GB) FIO Flash Bundle	Yes				
Q8H79A	HPE Nimble Storage AF20Q All Flash Array R2 11.52TB (12x960GB) FIO Flash Bundle	Yes				
Q8B70B	HPE Nimble Storage AF20 All Flash Array 5.76TB (24x240GB) FIO Flash Bundle		Yes			
Q8B72B	HPE Nimble Storage AF20 All Flash Array R2 11.52TB (24x480GB) FIO Flash Bundle		Yes			
Q8B74B	HPE Nimble Storage AF20 All Flash Array R2 23TB (24x960GB) FIO Flash Bundle		Yes			
Q8B58B	HPE Nimble Storage AF20 All Flash Array 46TB (24x1.92TB) FIO Flash Bundle		Yes			
Q8H46A	HPE Nimble Storage AF60/80 All Flash Array 11.52TB (24x480GB) FIO Flash Bundle				Yes	Yes
Q8H47A	HPE Nimble Storage AF40 All Flash Array R2 11.52TB (24x480GB) FIO Flash Bundle			Yes		
Q8G43B	HPE Nimble Storage AF60/80 All Flash Array 23TB (24x960GB) FIO Flash Bundle				Yes	Yes
Q8G44B	HPE Nimble Storage AF40 All Flash Array R2 23TB (24x960GB) FIO Flash Bundle			Yes		
Q8G61B	HPE Nimble Storage AF40/60/80 All Flash Array 46TB (24x1.92TB) FIO Flash Bundle			Yes	Yes	Yes
Q8G62B	HPE Nimble Storage AF40/60/80 All Flash Array 92TB (24x3.84TB) FIO Flash Bundle			Yes	Yes	Yes

Platform RAM installed (GB)	32GB	32GB	64GB	160GB	320GB
Platform Min SSD capacity (RAW)= (Head SSD+ expansion) capacity (TB)	6TB	11TB	11TB	11TB	23TB
Platform Max SSD capacity (RAW)= (Head SSD+ expansion) capacity (TB)	46TB	46TB	184TB	553TB	1106 TB

Step 3 - Choose Head Networking Option

Only ONE of the following options can be selected. Please refer to configuration guidelines for specific support of networking options on AF-Series arrays.

Head Networking Options

Select one:		AF20Q	AF20	AF40	AF60	AF80
Q8B84B	HPE Nimble Storage 2x1GbE 2-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes
Q8B85B	HPE Nimble Storage 4x1GbE 2-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes
Q8B88B	HPE Nimble Storage 2x10GbE 2-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes
Q8B89B	HPE Nimble Storage 4x10GbE 2-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes
Q8B86B	HPE Nimble Storage 2x10GBASE-T 2-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes

Configuration Information

Q8B87B	HPE Nimble Storage 4x10GBASE-T 2-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes
Q8B90B	HPE Nimble Storage 2x16Gb Fibre Channel 2-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes
Q8B91B	HPE Nimble Storage 4x16Gb Fibre Channel 2-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes
Q8B92B	HPE Nimble Storage 6x16Gb Fibre Channel 2-port FIO Adapter Kit			Yes	Yes	Yes
Q8B95B	HPE Nimble Storage 2x10GbE 2-port and 2x16Gb Fibre Channel 2-port FIO Adapter Kit			Yes	Yes	Yes
Q8B96B	HPE Nimble Storage 2x10GbE 2-port and 4x16Gb Fibre Channel 2-port FIO Adapter Kit			Yes	Yes	Yes
Q8B93B	HPE Nimble Storage 2x10GBASE-T 2-port and 2x16Gb Fibre Channel 2-port FIO Adapter Kit			Yes	Yes	Yes
Q8B94B	HPE Nimble Storage 2x10GBASE-T 2-port and 4x16Gb Fibre Channel 2-port FIO Adapter Kit			Yes	Yes	Yes
Q8B98B	HPE Nimble Storage 4x10GbE 2-port and 2x16Gb Fibre Channel 2-port FIO Adapter Kit			Yes	Yes	Yes
Q8B97B	HPE Nimble Storage 4x10GBASE-T 2-port and 2x16Gb Fibre Channel 2-port FIO Adapter Kit			Yes	Yes	Yes
Q8B99B	HPE Nimble Storage 2x1GbE 2-port and 2x10GBASE-T 2-port FIO Adapter Kit			Yes	Yes	Yes
Q8C00B	HPE Nimble Storage 2x1GbE 2-port and 4x10GBASE-T 2-port FIO Adapter Kit			Yes	Yes	Yes
Q8C01B	HPE Nimble Storage 6x10GbE 2-port FIO Adapter Kit			Yes	Yes	Yes
Q8C02B	HPE Nimble Storage 6x10GBASE-T 2-port FIO Adapter Kit			Yes	Yes	Yes
Q8C03B	HPE Nimble Storage 2x16Gb Fibre Channel 4-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes
Q8C04B	HPE Nimble Storage 4x16Gb Fibre Channel 4-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes
Q8C05B	HPE Nimble Storage 6x16Gb Fibre Channel 4-port FIO Adapter Kit			Yes	Yes	Yes
Q8C17B	HPE Nimble Storage 2x10GbE 4-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes
Q8C18B	HPE Nimble Storage 4x10GbE 4-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes
Q8C19B	HPE Nimble Storage 6x10GbE 4-port FIO Adapter Kit			Yes	Yes	Yes
Q8C20B	HPE Nimble Storage 2x10GBASE-T 4-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes
Q8C21B	HPE Nimble Storage 4x10GBASE-T 4-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes
Q8C22B	HPE Nimble Storage 6x10GBASE-T 4-port FIO Adapter Kit			Yes	Yes	Yes
Q8C23B	HPE Nimble Storage 2x10GbE 4-port and 4x16Gb Fibre Channel 4-port FIO Adapter Kit			Yes	Yes	Yes
Q8C06B	HPE Nimble Storage 2x10GbE 2-port and 4x16Gb Fibre Channel 4-port FIO Adapter Kit			Yes	Yes	Yes
Q8C24B	HPE Nimble Storage 4x10GbE 4-port and 2x16Gb Fibre Channel 4-port FIO Adapter Kit			Yes	Yes	Yes

Configuration Information

Q8C07B	HPE Nimble Storage 4x10GbE 2-port and 2x16Gb Fibre Channel 4-port FIO Adapter Kit			Yes	Yes	Yes
Q8C08B	HPE Nimble Storage 2x10GbE 2-port and 2x16Gb FC 4-port and 2x16Gb FC 2-port FIO Adapter Kit			Yes	Yes	Yes
Q8C09B	HPE Nimble Storage 2x1GbE 4-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes
Q8C11B	HPE Nimble Storage 4x1GbE 4-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes
Q8C12B	HPE Nimble Storage 6x1GbE 4-port FIO Adapter Kit			Yes	Yes	Yes
Q8C13B	HPE Nimble Storage 2x1GbE 4-port and 2x16Gb Fibre Channel 2-port FIO Adapter Kit			Yes	Yes	Yes
Q8C14B	HPE Nimble Storage 2x1GbE 4-port and 2x10GbE 2-port FIO Adapter Kit			Yes	Yes	Yes
Q8C15B	HPE Nimble Storage 2x1GbE 4-port and 4x16Gb Fibre Channel 2-port FIO Adapter Kit			Yes	Yes	Yes
Q8C16B	HPE Nimble Storage 2x1GbE 4-port and 4x10GbE 2-port FIO Adapter Kit			Yes	Yes	Yes
Q8C10B	HPE Nimble Storage 2x10GBASE-T 2-port and 4x16Gb Fibre Channel 4-port FIO Adapter Kit			Yes	Yes	Yes
R0N84A	HPE Nimble Storage 2x10GbE 2-port and 2x16Gb Fibre Channel 4-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes
R0N85A	HPE Nimble Storage 2x10GBASE-T 2-port and 2x16Gb Fibre Channel 4-port FIO Adapter Kit	Yes	Yes	Yes	Yes	Yes

Step 4 - Optional All-Flash Shelves

The All-Flash shelves are optional; Min 0, Max 2.

		AF20Q	AF20	AF40	AF60	AF80
Q8B53B	HPE Nimble Storage AF All Flash AFS3 CTO Expansion Shelf	Yes*	Yes	Yes	Yes	Yes
	Maximum number of AFS3 shelves (per platform basis.)	1*	1	1	2	2

NOTE: *AF20Q must be fully populated in the head before an AFS3 shelf can be added as an upgrade.

Step 5 - Add Support (Mandatory)

Support recommendations are designed to help you enhance technology operations, lower risk and make it easier for you to seek the right balance between affordability and service-level commitments. Depending on your individual support needs, choose from three levels of care that cover the entire lifecycle to better address your needs from 1, 3, 4 and 5 year durations for service levels ranging from Next Business Day parts exchange to 4 hour onsite response.

NS 1/3/4/5Y FC NBD Parts Exchange Support	HT7A1A1/3/4/5*
NS 1/3/4/5Y FC NBD Parts Exchange w DMR Support	HT7A2A1/3/4/5
NS 1/3/4/5Y FC 4H Parts Exchange Support	HT6Z0A1/3/4/5
NS 1/3/4/5Y FC 4H Parts Exchange w DMR Support	HT6Z1A1/3/4/5
NS 1/3/4/5Y FC 4H Onsite Exchange Support	HT6Z2A1/3/4/5
NS 1/3/4/5Y FC 4H Onsite Exchange w DMR Support	HT6Z3A1/3/4/5
NS 1/3/4/5Y FC NBD Onsite Exchange Support	HT6Z4A1/3/4/5**
NS 1/3/4/5Y FC NBD Onsite Exchange w DMR Support	HT6Z5A1/3/4/5**

NOTE: * Minimum support required 1 year Next Business Day Parts Exchange.

NOTE: ** Support level available in Japan only.

Installation Services

Installation Services are intended to guide you from start to finish and to help make your installation a success. Our engagement includes the following phases:
Array Installation

- Inventory and verify HPE Nimble Storage equipment against the sales order
- Physically rack and cable all HPE Nimble Storage equipment, including connecting network
- cables provided by the customer
- Conduct power-on tests and verify operation
- Add the array to an existing HPE Nimble Storage Group, if applicable
- Configure array's basic management, monitoring, & reporting capabilities
- Configure array for additional data networks / SAN connectivity as needed
- Upgrade the array to the latest recommended HPE Nimble OS version

NOTE: Installation services are optional.

HPE Nimble Storage Array Start-up service	HA114A1#5MR
HPE Nimble Storage Array Upgrade service	HA124A1#5MS

Racks

HPE Nimble Storage arrays and expansion shelves are compatible with industry standard 4-post EIA 19 inch racks with square mounting holes, including HPE 36U, 42U and 48U Enterprise Shock Racks. HPE recommends HPE racks with a depth of 1200mm to best accommodate the length of the Nimble Storage chassis; the HPE 1200mm rack provides ample room for cabling and ease of serviceability. HPE racks with a depth of 1075mm can be used but may have limited space for cabling and component access. If a 3rd party rack with a depth less than 1075mm is used, the rear doors cannot be fully closed.

Recommended Racks:

HPE G2 Enterprise Series Racks

- HPE 48U 600mmx1200mm G2 Enterprise Rack
- HPE 48U 800mmx1200mm G2 Enterprise Rack
- HPE 42U 600mmx1200mm G2 Enterprise Rack
- HPE 42U 800mmx1200mm G2 Enterprise Rack

HPE G2 Advanced Series Racks

- HPE 48U 600mmx1200mm G2 Advanced Rack
- HPE 48U 800mmx1200mm G2 Advanced Rack
- HPE 42U 600mmx1200mm G2 Advanced Rack
- HPE 42U 800mmx1200mm G2 Advanced Rack
- HPE 36U 600mmx1200mm G2 Advanced Rack
- HPE 36U 800mmx1200mm G2 Advanced Rack

NOTE: For more information on the HPE rack offerings, please see the following URL:
https://www.hpe.com/info/rackandpower

NOTE: For more information on rack options, see:

http://www.hpe.com/products/rackoptions

NOTE: For more information on PDUs, see:
http://www.hpe.com/servers/pdu

Step 6: Required and additional power cords

HPE Nimble Storage Arrays and expansion shelves do not ship with any power cords by default and require a minimum of 2 power cords per system. Please ensure these are selected at time of quoting. A pair of C13/C14 power cords are required when connecting base arrays or expansion shelves to Rack-Mounted Power Distribution Units (PDU). A pair of country/region specific power cords are required when connecting base arrays or expansion shelves to standard office wall power outlets.

HPE Nimble Storage AS3112 to C19 250V 16Amp 1.8m AU FIO Power Cord	Q8J02A
HPE Nimble Storage Schuko to C19 250V 16Amp 1.8m EU FIO Power Cord	Q8J03A
HPE Nimble Storage BS 1363 UK10 to C19 250V 16Amp 1.8m UK FIO Power Cord	Q8J04A
HPE Nimble Storage NEMA L5-20P to C19 125V 20Amp 2.5m US FIO Power Cord	Q8J05A
HPE Nimble Storage GB2099 to C19 250V 16Amp 1.8m CN FIO Power Cord	Q8J06A
HPE Nimble Storage KSC8305 to C19 250V 16Amp 1.8m KR FIO Power Cord	Q8J07A
HPE Nimble Storage JIS8303 to C19 125V 15Amp 1.8m TW/JP FIO Power Cord	Q8J08A
HPE Nimble Storage JIS8303 6-15 to C19 250V 15Amp 1.8m JP FIO Power Cord	Q8J09A
HPE Nimble Storage IS1293 to LS-60 250V 16Amp 1.8m IN FIO Power Cord	Q8J10A
HPE Nimble Storage SAN164-1 to C19 250V 16Amp 1.8m ZA FIO Power Cord	Q8J11A
HPE Nimble Storage SI32 to C19 250V 16Amp 1.8m IL FIO Power Cord	Q8J12A
HPE Nimble Storage CEI 23-16 to C19 250V 16Amp 1.8m IT FIO Power Cord	Q8J13A
HPE Nimble Storage C19 to C20 250V 16Amp 1.8m PDU Base Array FIO Power Cord	Q8J14A
HPE Nimble Storage AS 3112 to C13 250V 10Amp 1.8m AU FIO Power Cord	Q8J15A
HPE Nimble Storage Schuko to C13 250V 10Amp 1.8m EU FIO Power Cord	Q8J16A
HPE Nimble Storage BS1363 UK10 to C13 250V 10Amp 1.8m UK FIO Power Cord	Q8J17A
HPE Nimble Storage NEMA 5-15P to C13 125V 10Amp 1.8m US FIO Power Cord	Q8J18A
HPE Nimble Storage GB2099 to C13 250V 10Amp 1.8m CN FIO Power Cord	Q8J19A
HPE Nimble Storage KSC8305 to C13 250V 10Amp 1.8m KR FIO Power Cord	Q8J20A
HPE Nimble Storage JIS8303 to C13 125V 12Amp 1.8m TW/JP FIO Power Cord	Q8J21A
HPE Nimble Storage JIS8303 6-15 to C13 250V 15Amp 1.8m JP FIO Power Cord	Q8J22A
HPE Nimble Storage IS1293 to C13 250V 10Amp 1.8m IN FIO Power Cord	Q8J23A
HPE Nimble Storage SANS164-1 to C13 250V 10Amp 1.8m ZA FIO Power Cord	Q8J24A
HPE Nimble Storage SI32 to C13 250V 10Amp 1.8m IL FIO Power Cord	Q8J25A
HPE Nimble Storage CEI23-16 to C13 250V 10Amp 1.8m IT FIO Power Cord	Q8J26A
HPE Nimble Storage C13 to C14 250V 10Amp 1.8m Universal FIO Power Cord	Q8J27A

Field Upgrade Options

The following product options are to upgrade currently installed All Flash Arrays.

SSD Capacity Upgrade on Head

Any one of the following:		AF20Q	AF20	AF40	AF60	AF80
Q8H83A	HPE Nimble Storage AF20Q All Flash Array R2 5.76TB (12x480GB) Flash Field Upgrade	Yes	No	No	No	No
Q8H84A	HPE Nimble Storage AF20Q All Flash Array R2 11.52TB (12x960GB) Flash Field Upgrade	Yes	No	No	No	No
Q8D08B	HPE Nimble Storage AF All Flash Array 5.76TB (24x240GB) Flash Field Upgrade	No	Yes	No	No	No
Q8D09B	HPE Nimble Storage AF20 All Flash Array 11.52TB (24x480GB) Flash Field Upgrade	No	Yes	No	No	No
Q8D10B	HPE Nimble Storage AF20 All Flash Array 23TB (24x960GB) Flash Field Upgrade	No	Yes	No	No	No
Q8H56A	HPE Nimble Storage AF40/60/80 All Flash Array 11.52TB (24x480GB) Flash Field Upgrade	No	No	Yes	Yes	Yes
Q8H57A	HPE Nimble Storage AF40/60/80 All Flash Array 23TB (24x960GB) Flash Field Upgrade	No	No	Yes	Yes	Yes
Q8G63B	HPE Nimble Storage AF40/60/80 All Flash Array 46TB (24x1.92TB) Flash Field Upgrade	No	No	Yes	Yes	Yes
Q8C98B	HPE Nimble Storage AF40/60/80 All Flash Array 92TB (24x3.84TB) Flash Field Upgrade	No	No	Yes	Yes	Yes

Head Network Add / Upgrade Options

Only one of the following options can be selected		AF20Q	AF20	AF40	AF60	AF80
Q8C62B	HPE Nimble Storage 2x10GBASE-T 2-port Adapter Field Upgrade	Yes	Yes	Yes	Yes	Yes
Q8C63B	HPE Nimble Storage 2x10GbE 2-port Adapter Field Upgrade	Yes	Yes	Yes	Yes	Yes
Q8C64B	HPE Nimble Storage 2x1GbE 2-port Adapter Field Upgrade	Yes	Yes	Yes	Yes	Yes
Q8C65B	HPE Nimble Storage 2x16Gb Fibre Channel 2-port Adapter Field Upgrade	Yes	Yes	Yes	Yes	Yes
Q8C66B	HPE Nimble Storage 2x16Gb Fibre Channel 4-port Adapter Field Upgrade	Yes	Yes	Yes	Yes	Yes
Q8C67B	HPE Nimble Storage 2x1GbE 4-port Adapter Field Upgrade	Yes	Yes	Yes	Yes	Yes
Q8C68B	HPE Nimble Storage 2x10GbE 4-port Adapter Field Upgrade	Yes	Yes	Yes	Yes	Yes
Q8C69B	HPE Nimble Storage 2x10GBASE-T 4-port Adapter Field Upgrade	Yes	Yes	Yes	Yes	Yes

All-Flash Shelves (3rd Gen, for AFA only)

Only one of the following options can be selected		AF20Q	AF20	AF40	AF60	AF80
Q8C54B	HPE Nimble Storage AF All Flash Array AFS3 Shelf 5.76TB (24x240GB) Flash Field Upgrade	Yes	Yes	Yes	Yes	Yes

Configuration Information

Q8C55B	HPE Nimble Storage AF All Flash Array AFS3 Shelf 11.52TB (24x480GB) Flash Field Upgrade	Yes	Yes	Yes	Yes	Yes

NOTE: Maximum capacity of "SSD Capacity Bundles" and "All Flash Expansion Shelf Chassis:"
AF20Q = 46TB
AF20 = 46TB
AF40 = 184TB
AF60 = 553TB
AF80 = 1106TB

Technical Specifications

Physical Dimensions	Width in/mm	Depth in/mm	Height in/mm/U	Weight lb/kg
HPE Nimble Storage AF20Q/20/40/60/80	17.3/439	35/890	6.92/175.8/4	115/52

Power Requirements	AF20Q	AF20	AF40	AF60	AF80
Input Voltage					
AC PCM option		100-120V, 50-60Hz 200-240V, 50-60Hz			200-240V, 60Hz
Max power requirements (Watts/kVA)	600 W / 0,667 kVA	650 W 0.772 kVA	800 W 0.889 kVA	850 W 0.994 kVA	1200 W 1.333 kV
Thermal (BTU)	1968 BTU	2132 BTU	2624 BTU	2788 BTU	3936 BT

NOTE: AF80 requires 200-240V only.

Environmental Specifications[1]

Operating Temperature	10 - 35° C (50 - 95° F) Reduce rating by 1° F for each 1000 ft altitude (1.8° C/1,000 m)
Shipping Temperature	0° C - 40° C (32° F - 104° F) Maximum rate of change is 20°C/hr (36°F/hr)
Operating Altitude (ft/m) max.	10,000 ft / 3,048 m
Shipping Altitude (ft/m) max.	40,000ft/ 12,192 m
Humidity	8 - 90%, non-condensing
Shipping Humidity	5 - 95%, non-condensing
Operating Vibration	0.25 G, Sine 5 - 200 Hz (approx. 15 min/axis); 0.4 GRMS, Random 5 - 200 Hz (approx. 60 min/axis)
Non-operating Vibration	0.5 G, Sine 5 - 200 Hz (approx. 15 min/axis); 0.98 GRMS, Random 5 - 500Hz (approximate 30 min/axis)
Operating Shock	20 G, 2.5ms, half-sine, one shock on each side
Non-operating Shock	20 G, 10ms, square wave, one shock on each side
Electromagnetic Compatibility	Subpart B of Part 15 of FCC Rules for Class A digital devices ICES-003, Issue 6, dated January 2016 (Class A) VCCI V-3: April 2014 (Class A) EN 55022:2010 CISPR 22:2008 AS/NZS CISPR 22:2009 +A1:2010 EN55032:2012 CISPR 32:2012 EN 55024:2010 CISPR 24:2010 +A1:2015 TCVN 7189:2009 NBTC TS 3001-2555 TP TC 020/2011
Safety	EN60950-1:2005 (Second Edition); Am1:2009 + Am2:2013

IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013
EN60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013
UL/IEC 60960-1 2nd Ed. Am1 + Am2
CNS14336-1 ('99)
CNS13438 ('95)
NOM-019-SCFI-1998
NBTC TS 4001-2550
TP TC 004/2011
IS 13252 (PART 1):2010 +A1:2013 + A2:2-15
SANS IEC 60950-1

NOTE: [1] Specifications are subject to change without notice.

Certifications / Markings	UL	NOM
	cUL	MoEc
	CE	NBTC SDoC
	FCC Class A	CITC/CoC*
	IC Class A	EAC
	VCCI Class A	BIS
	RCM	LOA (S. Africa)
	BSMI Class A	RoHS 2011/65/EU, EN50581:2012
	KC	WEEE
	CCC Exemption	

Summary of Changes

Date	Version History	Action	Description of Change
01-Oct-2018	Version 10	Changed	Overview and Configuration Information sections were revised.
13-Aug-2018	Version 9	Changed	Configuration Information section was revised.
06-Aug-2018	Version 8	Changed	Configuration Information section was updated.
04-Jun-2018	Version 7	Changed	Raw capacity for the AF20 array was revised.
14-May-2018	Version 6	Changed	Overview section was revised.
07-May-2018	Version 5	Changed	Overview, Configuration Information, and Technical Specifications were revised.
13-Nov-2017	Version 4	Changed	Overview and Configuration Information were revised.
06-Nov-2017	Version 3	Changed	Changes made to the entire document including the new Branding changes.
12-Jun-2017	Version 2	Changed	Detail on included power cords and SAS cables.
05-Jun-2017	Version 1	Created	Created first version, including AF1000.

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