



# HPE SMALL BUSINESS SOLUTIONS FOR SHARED STORAGE

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## ABOUT THIS CONFIGURATION GUIDE

### HPE Small and Medium Business Solutions

HPE Small and Medium Business Solutions are validated configurations designed to meet a variety of IT workloads and sizes for small to medium sized businesses. They consist of a base system plus options and software to make up a complete solution. In most cases these combinations are the foundation for Flex Offer special pricing. Note that pricing and special offers change much more frequently than these configurations and subject to change without notice.

- **Remote Worker (VDI)**—Fast and secure remote access for all your apps and data from anywhere
- **Small Office Deployment**—A simple approach for your first complete IT solution including wired and wireless networking
- **General Purpose**—Low-cost solutions for smaller environment with customizable functionality
- **Business Continuity**—Protect data and applications from catastrophic loss
- **Virtualization**—Run multiple workloads on a single server
- **Shared Storage**—A single storage pool for multiple servers with recommended workload configurations
- **Hyperconverged Infrastructure (HCI)**—Software-defined storage for high availability virtualization
- **Database and Application**—Host line-of-business database and applications on-premises

### HPE Small and Medium Business Solutions for Shared Storage

HPE Small and Medium Business Solutions for Shared Storage are external storage solutions designed to provide high-performance storage for multiple servers, giving SMB workloads the performance and resilience of more expensive SAN solutions while keeping solution costs to a minimum.

Current HPE SMB Shared Storage Solutions feature the HPE MSA Storage products in all available connection form factors to meet the broadest variety of SMB workload connectivity needs:

- HPE MSA 1060 12Gb SAS SFF Storage for direct attach external storage of up to four servers
- HPE MSA 1060 and 2060 10GBASE-T iSCSI SFF Storage cost-effective iSCSI protocol via standard CAT6/7 Ethernet cables and network equipment
- HPE MSA 2060 10GbE iSCSI SFF Storage traditional SFP+ 10GbE iSCSI Ethernet connectivity
- HPE MSA 2062 16Gb Fibre Channel SFF Storage traditional FC SAN connectivity

HPE SMB Shared Storage Solutions are designed to be bundled together with recommended workload optimized HPE ProLiant servers configured specifically for use with Shared Storage Solutions, or they can drop into existing networks and connect to customer hardware.

Key HPE SMB Solution server workloads featured in the HPE Shared Storage portfolio are

- General Purpose
- Virtualization
- Database

### Configuration disclaimer

The configurations in this guide have been tested and validated to meet the stated solution capacity for a variety of typical small to medium business workloads. While they are complete solutions as configured, they can be considered reference configurations and may be sensibly modified as needed to achieve your unique solution requirements as long as the configuration specifications are not reduced. They are typically a minimum configuration for the solution size, so if a smaller configuration is needed it is often more advantageous to scale-up from a smaller configuration rather than scale-down from a larger configuration.

The stated capacity for workloads in this guide are highly subjective and depend on the environment they are deployed to. Use these values as a guide—not as an absolute. The stated capacity is also based on default settings for the server and storage options specified in the configuration. Stated capacity does not take into account all of the possible system settings or option modifications available, which can greatly impact the configuration's stated capacity. For example, certain BIOS settings are not factored into the solution capacity by default but can potentially greatly increase the number of virtualized desktop workloads possible in a VDI or virtualization solution. Another example would be the increased performance that can be achieved by replacing hard disk drives with solid-state drives or by adding more memory.



Note also that this guide is updated from time to time and these configurations are subject to change without notice, as solution components can be discontinued before this guide is next updated. When substituting discontinued options be sure to replace with comparable options that match or exceed the discontinued option specifications.

### Use the iQuote Solutions tile

Unless otherwise noted, all of the configurations in this guide are available in the **Solutions** tile on the iQuote home page. iQuote is an online sales enablement web application that simplifies the process of configuring, quoting, and purchasing HPE products and solutions from a single location. The **Solutions** tile provides a quick and convenient way to select the complete solutions presented in this guide without having to manually configure them in iQuote. After selecting the desired solution in iQuote it can be modified as needed. You can access the universal version of iQuote via [iquote.hpe.com](http://iquote.hpe.com), or contact your preferred HPE authorized partner or distributor for live pricing.

## BUILD YOUR SOLUTION

### Step 1: Determine the use case

HPE Small Business Solutions for Shared Storage are available in different configurations, depending on your use case. The following sections show the available configurations for each use case.

**TABLE 1.** Use case

Use case	Storage and recommended server	Key features
File and backup	HPE MSA 1060 12Gb SAS SFF Storage HPE ProLiant DL360 Gen10	<ul style="list-style-type: none"> <li>Low-cost 24 SFF entry level direct attached storage starting at 7.2 TB</li> <li>Expandable with up to 3 additional SFF or LFF enclosures for a maximum of 96 SFF/36 LFF drives; SFF and LFF enclosures can be mixed for very flexible data tiering</li> <li>Direct connect up to 4 servers for capacity sharing and high availability/redundancy; no storage network required</li> </ul>
Virtualization	HPE MSA 1060 10GBASE-T iSCSI SFF Storage HPE ProLiant DL360 Gen10	<ul style="list-style-type: none"> <li>Best priced 24 SFF iSCSI entry level SAN storage starting at 14.4 TB</li> <li>Expandable with up to 3 additional SFF or LFF enclosures for a maximum of 96 SFF/36 LFF drives; SFF and LFF enclosures can be mixed for very flexible data tiering</li> </ul>
	HPE MSA 2060 10GBASE-T iSCSI SFF Storage HPE ProLiant DL365 Gen10 Plus	<ul style="list-style-type: none"> <li>Best value 24 SFF iSCSI entry level SAN storage starting at 14.4 TB or 7.2 TB</li> <li>Expandable with up to 9 additional SFF or LFF enclosures for a maximum of 240 SFF/120 LFF drives; SFF and LFF enclosures can be mixed for very flexible data tiering</li> <li>Choice of 10GBASE-T or 10G SFP+ Ethernet connectivity to low cost 10G switches for flexibility to match existing network infrastructure or take advantage of new 10G iSCSI switch technology</li> </ul>
	HPE MSA 2060 10GbE iSCSI SFF Storage (SFP+) HPE ProLiant DL360 Gen10	<p>Common features for HPE MSA 1060 iSCSI and HPE MSA 2060 iSCSI Solutions</p> <ul style="list-style-type: none"> <li>Enables highly reliable virtualized environments with server failover capability</li> <li>Connect as many servers as workloads permit via iSCSI switched SAN for capacity sharing and high availability/redundancy</li> <li>Microsoft server solutions can be direct-connected to storage for switchless configurations</li> </ul>
Database	HPE MSA 2062 16Gb Fibre Channel SFF Storage HPE ProLiant DL360 Gen10	<ul style="list-style-type: none"> <li>High performance 24 SFF Fibre Channel SAN storage starting at 7.2 TB</li> <li>Capable of over 325K IOPS enabled by included 3.84 TB flash storage and Advanced Data Services</li> <li>Expandable with up to 9 additional SFF or LFF enclosures for a maximum of 240 SFF/120 LFF drives; SFF and LFF enclosures can be mixed for very flexible data tiering</li> <li>Connect as many servers as workloads permit via Fibre Channel switched SAN for capacity sharing and high availability/redundancy</li> </ul>

### NOTE

Configurations are subject to change as options can EOL/DISC. Be sure to replace with comparable options that match the option specifications.

### Step 2: Choose the right solution

#### File and backup

Businesses that need greater than 8 TB of high-performance storage or redundant servers for highly available applications should consider the HPE Small Business Shared Storage Solution for file and backup, consisting of a bundle of an HPE ProLiant DL160 Gen10 server combined with an HPE MSA 1060 12Gb SAS SFF Storage system. The servers connect directly to the storage enclosure via HPE Mini SAS High Density to Dual 2-lane Mini SAS High Density External Fanout cables so there is no need for expensive SAN network fabric. With the HPE MSA 1060 12Gb SAS SFF Storage system, it is recommended to start with the SAS Fanout cables which will allow up to 4 servers to connect to a single HPE MSA 1060 SAS system. By starting with Fanout cables in the beginning you avoid any downtime to add the third



and fourth servers in the future. The HPE MSA 1060 12Gb SAS SFF Storage system is only available with the 24 slot SFF enclosure, and up to three expansion enclosures can be added. The expansion enclosures can be a mix of LFF or SFF enclosures providing a total of up to 96 SFF drives, or 24 SFF plus 36 LFF drives, to enable maximum flexibility in your storage strategy.

Note that only two of the eight SFF drive bays in the HPE ProLiant DL160 server are populated (boot disks), leaving the remaining six bays available for additional local storage. An internal HPE Smart Array Controller is required if the additional local drives are SAS drives.

**TABLE 2.** HPE Small Business Shared Storage File and Backup Solution

<b>Solution Components</b>	HPE MSA 1060 12Gb SAS SFF Storage HPE ProLiant DL160 Gen10 server
<b>Solution Capacity</b>	Starting at 7.2 TB HDD (raw)
<b>Storage</b>	
<b>Form Factor</b>	2U Modular Storage Array 24 x SFF Hot-Plug bays
<b>Disk Controller</b>	2 x HPE MSA 12Gb SAS (2 ports per controller)
<b>Data Storage</b>	6 x 1.2 TB SAS HDD
<b>Storage Connectivity</b>	HPE Mini SAS High Density to Dual 2-lane Mini SAS High Density External Fanout Cable or HPE Mini SAS High Density (HD) Cable
<b>Out of band Management</b>	1 x port 100/1000 Mb Ethernet; 1 x USB
<b>Server</b>	
<b>Form Factor</b>	1U Rack Server 8 x SFF Hot-Plug bays
<b>Processor</b>	Intel® Xeon® Scalable (8-core/2.1 GHz)
<b>Memory</b>	2 x 16 GB
<b>OS Storage</b>	2 x 240 GB SATA SSD
<b>Disk Controller</b>	HPE Smart Array S100i (boot volume)
<b>Storage HBA</b>	E208e-p (2 x External Mini SAS HD ports)
<b>Data Network</b>	2 x ports 1GbE
<b>Power Supply</b>	2 x 500W
<b>OS Software</b>	Microsoft Windows Server 2019 Standard
<b>Optional Software</b>	HPE iLO Advanced

**NOTE**

Up to four nodes can be directly attached to the storage in this solution using HPE Mini SAS High Density to Dual 2-lane Mini SAS High Density External Fanout Cables to provide multi-server independent or redundant configuration. If more than four nodes are expected to connect to the storage array, then consider one of the following HPE SMB Shared Storage Solutions featuring iSCSI or Fibre Channel.

**Virtualization**

Businesses that need a highly scalable/highly available virtualization solutions should consider the HPE Small Business Solution for Shared Storage for virtualization. This solution consists of an HPE MSA 1060 10GBASE-T iSCSI SFF Storage, HPE MSA 2060 10GBASE-T iSCSI SFF Storage, or HPE MSA 2060 10GbE iSCSI SFF Storage array plus one or more HPE ProLiant Gen10 servers optimized for virtualization to provide scalable storage that reduces cost of storage ownership by sharing a single storage pool versus multiple servers with their own internal storage. Servers connect to the HPE MSA storage array via an iSCSI SAN fabric (10GbE Switch and connecting cables) which reduces the cost of the storage fabric compared to Fibre Channel. Alternatively, directly connecting the servers to the HPE MSA Storage is supported for servers running Microsoft Windows Server 2019 or 2022. HPE MSA 1060 supports up to 2-nodes, while the HPE MSA 2060 supports up to 4-nodes.

For 10GBase-T connectivity the Aruba Instant On 1960 12XGT 12-port 10GbE Aggregator Switch is a perfect match for the HPE MSA 2060 iSCSI 10GBASE-T iSCSI Storage. This low-cost, plug-and-play switch is as simple to configure for the iSCSI storage network between multiple servers and the MSA as connecting standard CAT6/7 Ethernet cables. Adding a second Instant On 1960 enables a high-availability configuration. With both SFP+ and Base-T ports, this switch easily integrates into existing network infrastructure.



The HPE MSA 2060 storage array scales easily by adding disks and enclosures—up to 9 additional SFF or LFF expansion enclosures for a maximum of 240 SFF, 120 LFF, or a combination of both. The HPE MSA 1060 storage array scales up to 3 additional enclosures for a maximum of 96 SFF drives or a combination of up to 24 SFF + 36 LFF drives.

Note that only two of the eight SFF drive bays in the HPE ProLiant servers in the following configurations are populated (boot disks), leaving the remaining six bays available for additional local storage.

**TABLE 3.** HPE Small Business Shared Storage Virtualization Solution

Solution Components	HPE MSA 1060 10GBASE-T iSCSI SFF Storage HPE ProLiant DL360 Gen10 server	HPE MSA 2060 10GBASE-T iSCSI SFF Storage HPE ProLiant DL365 Gen10 Plus server	HPE MSA 2060 10GbE iSCSI SFF Storage HPE ProLiant DL360 Gen10 server
Solution Capacity	Starting at 13 vCPU/14.4 TB HDD (raw)	Starting at 45 vCPU/14.4 TB	Starting at 33 vCPU/7.2 TB HDD (raw)
<b>Storage</b>			
Form Factor	2U Modular Smart Array 24 x SFF Hot-Plug bays	2U Modular Storage Array 24 x SFF Hot-Plug bays	2U Modular Storage Array 24 x SFF Hot-Plug bays
Disk Controller	2 x HPE MSA 1060 10GBASE-T iSCSI (2 x RJ45 ports per controller)	2 x HPE MSA 2060 10GBASE-T iSCSI (4 x RJ45 ports per controller)	2 x HPE MSA 2060 10GbE iSCSI (4 x SFP+ ports per controller)
Data Storage	12 x 1.2 TB SAS HDD	12 x 1.2 TB SAS HDD	6 x 1.2 TB SAS HDD
Storage Connectivity*	10GbE Base-T CAT6/7 Ethernet cable	10GbE Base-T CAT6/7 Ethernet cable	Aruba or HPE FlexNetwork 10G SFP+ to SFP+ Direct Attach Copper Cable
Recommended Storage Network Switch	Aruba Instant On 1960 12XGT 12-port 10GBase-T Switch	Aruba Instant On 1960 12XGT 12-port 10GBase-T Switch	Aruba 3810M 16SFP+ 2-slot Switch
Out of band Management	1 x port 100/1000 Mb Ethernet; 1 x USB	1 x port 100/1000 Mb Ethernet; 1 x USB	1 x port 100/1000 Mb Ethernet; 1 x USB
<b>Server</b>			
Form Factor	1U Rack Server 8 x SFF Hot-Plug bays	1U Rack Server 8 x SFF Hot-Plug bays	1U Rack Server 8 x SFF Hot-Plug bays
Processor	1 x Intel Xeon Scalable (10-core/2.4 GHz)	1 x AMD EPYC (32-core/2.6 GHz)	2 x Intel Xeon Scalable (12-core/2.4 GHz)
Memory	2 x 32 GB	8 x 32 GB	12 x 32 GB
OS Storage	2 x 480 GB SATA SSD	2 x 480 GB SATA SSD	2 x 480 GB SATA SSD
Disk Controller	HPE Smart Array P408i-a (boot volume)	HPE Smart Array P408i-a (boot volume)	HPE Smart Array P408i-a (boot volume)
Data Network	4 x ports 1GbE	4 x ports 1GbE	4 x ports 1GbE
Storage HBA	2 x ports 10GbE Base-T PCIe	2 x ports 10GbE Base-T PCIe	2 x SFP+ ports 10GbE PCIe
Power Supply	2 x 800W	2 x 800W	2 x 500W
OS Software	Microsoft Windows Server 2022 or 2019 VMware vSphere® Essentials		
Management	HPE iLO Advanced		

\* Check SPOCK for HBA/Cable/Switch compatibility

**NOTE**

Recommend multiple servers for high availability failover (such as VMware vSphere® vMotion® or Microsoft VM Live Migration or Failover Clusters).

**IMPORTANT**

VMware® does not support “direct connect” between the server and the HPE MSA Storage. The storage network must consist of a switched network fabric whether using HPE Direct Attach Cables, 10GbE CAT6/7 cables, or optical transceivers. In a switched network the DAC cables must be supported by the switch. HPE MSA is qualified with a range of DAC cables (see QuickSpecs), check SPOCK for end-to-end compatibility with your switch.



**NOTE**

Up to four nodes running Microsoft Windows Server can be directly attached to the storage in this solution using 10G SFP+ to SFP+ Direct Attach Over Copper Cables or 10GbE Base-T (CAT6/7) Ethernet cables to provide multi-server independent or redundant configuration without a switched storage network. If running a different operating system, or more than four nodes are expected to connect to the storage array, then a switched storage network is required. In a switched network the DAC cables must be supported by the switch. HPE MSA is qualified with a range of DAC cables (see QuickSpecs), check SPOCK for end-to-end compatibility with your switch.

**Database**

Businesses that need highly scalable/high performance database solutions that can also be configured in a highly available cluster should consider the HPE Small Business Solution for Shared Storage database configuration. This solution consists of one or more HPE ProLiant DL360 Gen10 servers optimized for database hosting to limit licensing costs, combined with an HPE MSA 2062 16Gb Fibre Channel SFF Storage. Multiple servers can share the HPE MSA Storage to distribute workloads and add failover capability to reduce the cost of storage ownership versus multiple servers with their own internal storage. The HPE MSA storage array scales easily by adding disks and enclosures—up to 9 additional SFF or LFF expansion enclosures for a maximum of 240 SFF, 120 LFF, or a combination of both.

Note that only two of the eight SFF drive bays in the HPE ProLiant DL360 server are populated (boot disks), leaving the remaining six bays available for additional local storage. An HPE Smart Array Controller is required if the additional local drives are SAS drives.

**TABLE 4.** HPE Small Business Shared Storage Database Solution

<b>Solution Components</b>	HPE MSA 2062 16Gb Fibre Channel SFF Storage HPE ProLiant DL360 Gen10 server
<b>Solution Capacity</b>	Starting at 10.8 TB HDD (raw)
<b>Storage</b>	
<b>Form Factor</b>	2U Modular Storage Array 24 x SFF Hot-Plug bays
<b>Disk Controller</b>	2 x HPE MSA 16Gb Fibre Channel (4 ports per controller)
<b>Data Storage</b>	6 x 1.8 TB SAS HDD
<b>Cache Storage</b>	2 x 1.92 TB SAS Read Intensive SSD
<b>Storage Connectivity</b>	4 x HPE MSA 16Gb Short Wave Fibre Channel SFP+ Transceiver 2 x HPE Premier Flex LC/LC Multi-mode OM4 2 Fiber Cable*
<b>Out of band Management</b>	1 x port 100/1000 Mb Ethernet; 1 x USB
<b>Server</b>	
<b>Form Factor</b>	1U Rack Server 8 x SFF Hot-Plug bays
<b>Processor</b>	Intel Xeon Scalable (8-core/3.2 GHz)
<b>Memory</b>	6 x 32 GB
<b>OS Storage</b>	2 x 240 GB SATA SSD
<b>Disk Controller</b>	HPE Smart Array S100i (boot volume)
<b>Data Network</b>	2 x ports 10GbE
<b>Storage HBA</b>	HPE StoreFabric 16Gb 2-Port Fibre Channel Host Bus Adapter
<b>Power Supply</b>	2 x 800W
<b>OS Software</b>	Microsoft Windows Server 2019 Standard
<b>Optional Software</b>	HPE iLO Advanced

\* Check SPOCK for HBA/Cable/Switch compatibility

**NOTE**

Direct connect in Fibre Channel is supported in Microsoft Windows, limited to 4 redundantly connected hosts. If running a different operating system, or more than four nodes are expected to connect to the storage array, then a switched storage network is required.



## HYBRID CLOUD OPTIONS

To extend your solution to hybrid cloud, start with the hardware configuration and follow the considerations as outlined in the section on HPE Small Business Solutions for Virtualization with Microsoft Windows Server and Hyper-V. The additional Microsoft Azure Cloud Services that make up the hybrid cloud solution are:

- **HPE Cloud Volumes Backup** enables cloud-based recovery, DR on demand, and instant migration: VM to VM format, cloud to cloud, and to/from on-premises and back. If you have an existing backup ISV like Veeam/Commvault, this service is plug-and-play enabling you to instantly start backing to cloud simply by pointing your backup target to HPE Cloud Volumes Backup.
- **Veeam Backup & Replication** software is a recommended option when considering any HPE Small Business Solution, or when using an HPE Small Business Solutions for Backup as a Veeam backup target. Veeam Backup & Replication delivers powerful availability across all cloud, virtual, and physical workloads with a simple, flexible, and reliable solution. Protect your data no matter the location or workload type.
- **Azure Virtual Machines** gives you the flexibility of virtualization for a wide range of computing solutions—development and testing, running applications, and extending your data center. It's the freedom of open-source software configured the way you need it. It's as if it was another rack in your data center, giving you the power to deploy an application in seconds instead of weeks. Supports Linux®, Windows Server, SQL Server, Oracle®, IBM, and SAP®.
- **Azure Backup** can be used to back up and restore data in the Microsoft cloud. Azure Backup replaces existing on-premises or off-site backup solutions with a cloud-based solution that is reliable, secure, and cost-competitive. Azure Backup automatically allocates and manages backup storage with a pay-as-you-go model, so you only pay for the storage that you consume. In addition, Azure Backup uses the underlying power and unlimited scale of the Azure cloud to deliver high availability with no maintenance or monitoring overhead.

## SERVICES AND FINANCING

### HPE Pointnext Services

A services partner built for your business today and tomorrow, HPE Pointnext Services enables you to meet availability commitments with a variety of coverage levels and response times, and easily connect to HPE for faster problem resolution. HPE Pointnext Services offers comprehensive hardware and software services to help increase the availability of IT infrastructure and extend in-house IT staff with HPE expertise. You can do more with less by leveraging service tools with built-in simplification and remote management tools.

Service offerings include:

- HPE Pointnext Complete Care
- HPE Pointnext Tech Care
- HPE Lifecycle Services

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### NOTE

HPE recommends HPE Pointnext Tech Care as the minimum recommended service level for HPE Small Business Solutions.

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### HPE Financial Services

Simple IT equipment financing, asset lifecycle solutions and SMB finance option designed to help your business seize opportunities to evolve and thrive. [hpe.com/us/en/services/finance-it-technology.html](https://hpe.com/us/en/services/finance-it-technology.html)

**HPE Subscription services** allow SMBs to select a complete solution from predefined options that include best-in-class compute, storage, and networking hardware; software; accessories; and worry-free support services for a predictable monthly subscription fee. No large, up-front purchase to make—just subscribe, use, return, and renew. No worries about what to do with old equipment. Need to expand? Simply add more hardware or services. HPE channel partners can offer hardware, software, and support services in a single solution and deliver it in one simplified subscription contract.

**HPE Technology Refresh program** replaces ownership with predictable monthly or quarterly payments and provides for a shorter, routine refresh cycle every 24 to 48 months. SMBs don't have to be locked into holding onto aging IT equipment and delaying upgrades.



## RESOURCES

- Solution brief: [HPE Small Business Solutions for Shared Storage](#)
- [HPE ProLiant DL160 Gen10 Server QuickSpecs](#)
- [HPE ProLiant DL360 Gen10 Server QuickSpecs](#)
- [HPE ProLiant DL365 Gen10 Plus Server QuickSpecs](#)
- [HPE MSA 1060 QuickSpecs](#)
- [HPE MSA 2060 QuickSpecs](#)
- [HPE MSA 2062 QuickSpecs](#)
- [HPE ProLiant Server Options](#)
- [IT Support Services](#)
- [iQuote](#)

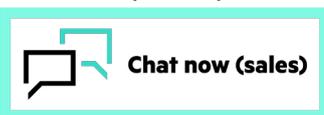
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