Hewlett Packard Enterprise

Configuration guide

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HPE SMALL BUSINESS SOLUTIONS FOR FILE AND BACKUP

CONTENTS

HPE SMALL BUSINESS SOLUTIONS FOR FILE AND BACKUP

HPE Small Business Solutions for File and Backup provide two use-case options.

- Configurations optimised for file provide a central repository for files and data with fast performance so employees can collaborate more easily and securely.
- Configurations optimised for backup and disaster recovery help minimise downtime by protecting data and making it fast and easy to recover when disaster strikes.

USE THE IQUOTE SOLUTIONS TILE

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BUILD YOUR FILE SERVER SOLUTION

Step 1: Determine your file server needs

To size your file server, start by determining the following:

- Performance level required
- Storage capacity required over the life of the file server

Performance level

The File Solutions provide storage and access control of user and application files, which can be accessed from local or remote networks. Low latency is preferred, but some latency is generally acceptable.

HPE SMB Solutions for File are optimised as follows:

- **Compute**—Low to medium processor performance (one processor, no more than 16 cores, less than 2.5 GHz is generally acceptable).
- **Memory**—Low to medium memory capacity (8–32 GB is acceptable, 64 GB should be considered if more than 250 users will share the server storage).
- **Networking**—The standard 1GbE (2 or 4 ports) on HPE ProLiant servers is sufficient for all but the most demanding SMB file server environments.
- **Storage performance**—Low to medium performance hard disk drives (HDDs); 7.2K rpm SATA HDDs are sufficient for fewer than 25 users, beyond 25 users you should choose 10K/15K rpm SAS HDDs. For extreme sensitivity to disk latency, implement a disk accelerator such as HPE SmartCache, or go with all SAS or SATA solid-state drives (SSDs).

Solution capacity

Capacity requirements can be widely variable, making it difficult to determine. But unless you are starting a new organisation with no storage history, you can estimate capacity needed by evaluating your existing storage usage over time. Two methods can be used to determine the needed capacity:

- Analyse existing storage
- Estimate storage needs

Method 1: Analyse existing file storage

Every file system tracks the date a file is created and the current size of the file. This information can be used to determine storage usage over time. There are plenty of tools available on the web to acquire file utilisation data, but even a simple script that dumps these attributes into a .csv file can be used to analyse storage usage and provide a starting point to calculate storage requirements of the new file server.

A Microsoft Windows PowerShell script can be run on a specific shared folder to get a .csv file of a list of the creation date and size of all files in the folder and all of its subdirectories, which can then be analysed in a spreadsheet.

Copy the entire command below and paste it into a text editor (such as Notepad). Replace "z:\" with the appropriate file path of the folder to be analysed. The path for both the folder to be analysed and the location of the resulting .csv file must be enclosed in double-quotes. Then copy the edited version of the script from the text editor and paste it into the PowerShell command line and press ENTER. The resulting .csv file will be stored as "export.csv" in the folder that was analysed.

NOTE
This script may not record "Hidden" or "System" files, depending on file system settings.

Get-ChildItem -r "Z:\" | select CreationTime,Length | Export-Csv -Path "Z:\export.csv" -En UTF8 -NoType -Delim ','

Method 2: Estimate storage needs

If you don't have a file history to analyse, such as when establishing a new office, you can create a general estimate using the following example:

1. Define storage user profiles.

   Organisations typically have a mix of user profiles with different storage needs (adjust the **bolded** values for files per day, average file size, and profile mix to fit your organisation).

   a. Office worker: Creates **10** files per day averaging **5** MB = 50 MB per day (MBpd)

   b. Media worker: Creates **5** files per day averaging **15** MB = 75 MBpd

   c. Data analyst: Creates **7** files per day averaging **10** MB = 70 MBpd

2. Determine organisational mix of storage profiles.

   a. Office worker: **60%**

   b. Media worker: **10%**

   c. Data analyst: **30%**

3. Calculate needs based on the organisation size and the expected service life of the server.

   a. Five-year service life = approximately 1,175 workdays (235 workdays per year after vacations and holidays).

   b. Capacity required = ((profile-a MBpd X (.6 X company size)) + (profile-b MBpd X (.1 X company size)) + (profile-c MBpd X (.3 X company size))) X 1,175)

Refer to the chart below for estimated storage needs based on this example profile mix:

File server storage capacity planner										
	User profile (235 workdays per year)				Company size					
User profiles	**Profile mix**	**Average files/day**	**Average file size**	**Daily files**	**Five-year capacity**	**10 users**	**25 users**	**50 users**	**100 users**	**250 users**
Office worker: low file count and size	60%	10	5 MB	50 MB	58.7 GB	0.4 TB	0.9 TB	1.8 TB	3.5 TB	8.8 TB
Media worker: low file count, large file size	10%	5	15 MB	75 MB	88.1 GB	0.1 TB	0.2 TB	0.4 TB	0.9 TB	2.2 TB
Data analyst: medium file count and size	30%	7	10 MB	70 MB	82.2 GB	0.2 TB	0.6 TB	1.2 TB	2.5 TB	6.2 TB
Total profile mix (must = 100)	**100%**				**Five-year total**	**0.7 TB**	**1.7 TB**	**3.4 TB**	**6.9 TB**	**17.2 TB**

Step 2: Choose the right configuration

File Solutions include a starting capacity of 4 TB to 9.6 TB of raw storage. Multiple drives allow for configuration of RAID arrays for protection against drive failures. All servers except the HPE ProLiant MicroServer Gen10 Plus can be expanded by adding more drives and, in some cases, additional drive bays.

Server used for base configuration	Processor cores/GHz	Memory	Network	Solution storage*	Internal drive bays** Used/available/max
MicroServer Gen10 Plus 4LFF (NHP)	4/3.4	16 GB	4 x 1GbE	4 TB	4/0/4
ML30 Gen10 8SFF	4/3.4	32 GB	2 x 1GbE	4.8 TB	6/2/8
ML110 Gen10 8SFF	10/2.2	32 GB	2 x 1GbE	6 TB	7/1/16
ML350 Gen10 8SFF	10/2.2	64 GB	4 x 1GbE	9.6 TB	6/2/24
DL20 Gen10 4SFF	4/3.6	32 GB	2 x 1GbE	4.8 TB	4/0/6
DL160 Gen10 8SFF	8/2.1	32 GB	2 x 1GbE	4.8 TB	6/2/8
DL180 Gen10 8SFF	8/2.1	32 GB	2 x 1GbE	4.8 TB	7/1/26
DL325 Gen10 8SFF	16/3.3	64 GB	4 x 1GbE	4.8 TB	6/2/10
DL360 Gen10 8SFF	8/2.1	32 GB	4 x 1GbE	4.8 TB	6/2/11
DL380 Gen10 8SFF	10/2.2	64 GB	4 x 1GbE	9.6 TB	6/2/30
DL385 Gen10 8SFF	16/3.3	64 GB	4 x 1GbE	9.6 TB	6/2/30
MSA 1050 24SFF SAS—DL160 Shared Storage File Solution* **	8/2.1	32 GB	2 x 1GbE	7.2 TB	6/18/24–96

* Total raw capacity in the default configuration, usable storage depends on RAID implementation; File Solutions include separate OS boot volumes which consume 1–2 drive bays but are not counted in the total raw capacity.

** Achieving maximum internal storage requires optional hardware. If you are using the iQuote Solutions tile, you can easily find additional storage bundles including optional drive bays for many of these configurations. See HPE QuickSpecs for maximum drive count and capacity details.

*** The HPE Small Business Shared Storage Solution for File and Backup is a bundle of HPE ProLiant DL160 Gen10 server and HPE MSA 1050 SAS external storage, which can be configured with up to four enclosures for a total of 96 SFF drive bays for high-capacity requirements. The eight SFF drive bays in the DL160 are not counted in the max internal drive bays figure for the Shared Storage configuration.

Step 3: Configure the HPE Small Business Solution for File

HPE Small Business Solutions for File and Backup consist of an HPE SMB Offer, plus additional hardware and software options to complete the configuration. HPE SMB Offer configurations are the foundation for special pricing and are the starting point for building your solution configuration. Additional options are then carefully selected from among the most popular and best priced HPE options available to complete the File Solution.

After selecting the appropriate HPE Small Business Solution configuration for your business outcome and sizing requirements, you may also wish to expand its capabilities by adding recommended options.

The configurations for File Solutions were designed for cost-effectiveness and structured as building blocks for easy expandability. Most configurations include redundant boot drives for OS mirroring. The use of SAS drives provides faster data transfers for better performance and low latency and is recommended for supporting more than 25 users on a single system. All configurations include multiple data volume drives to enable RAID for protection against disk failure. For additional reliability most HPE Small Business Solutions are equipped with redundant power supplies.

Businesses that need greater than 10 TB of high-performance storage, or need 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 1050 dual SAS controller external storage array. With two ports per controller, two servers can share the external storage to achieve a highly available configuration which can withstand failure of one server. The servers connect directly to the storage enclosure via HPE Direct Attach cables so there is no need for expensive SAN fabric network. And with up to four enclosures (up to 96 SFF drive bays) there is plenty of room for storage growth. And enclosures can be a mix of LFF or SFF enclosures to enable maximum flexibility in your storage strategy.

Operating system and storage considerations: HPE ProLiant MicroServer Gen10 Plus

The Windows Server or ClearOS operating system (OS) is intended to be installed on the two of the 1 TB HDDs to allow for RAID protection of the OS volume. This configuration leaves the remaining two 1 TB HDDs for a separate Data volume which should also be configured in a RAID for protection. Alternatively, you can configure all 4 HDDs in a single RAID volume for both boot and data.

NOTE

HPE does not offer ClearOS support. ClearCentre provides all ClearOS support.

ClearOS does not support RAID configuration on the embedded HPE Smart Array S100i Controller. To configure drive arrays, use another HPE storage controller like the HPE Smart Array E208 or P408 Controller, or use the software RAID capability included with ClearOS.

OS and storage considerations: HPE ProLiant Gen10 servers

The Windows Server or ClearOS[1] OS is intended to be installed on the dual low-capacity drives, which should be configured as a RAID 1 array to protect against the failure of one disk. The remaining HDDs should also be configured in a RAID array for protection against drive loss. In most cases more storage can be added to expand capacity now or as your needs grow.

For the fastest deployment, HPE Gen10 servers now have Rapid Setup built into the server. Simply boot the server into Rapid Setup and it will provide a recommended RAID configuration for all installed drives, select the boot volume, and install your choice of Windows or ClearOS onto the boot volume. See the HPE Small Business Solutions Deployment Guide for details.

Optional enhancements

Most HPE Small Business File Solutions can be enhanced with one or more of the following options:

- iLO Advanced
- HPE Secure Encryption
- HPE SmartCache

Storage options for archiving and disaster recovery

HPE RDX Removable Disk Backup System is a recommended option for reliable disk-based backup and recovery with unmatched portability, fast recovery and easy integration.[2] The HPE RDX Removable Disk Solution provides a simple, cost-effective way to back up and protect critical data. Complement your local backups with a cloud backup strategy so you can recover quickly, even if you lose your entire site or local backup copies.

HPE StoreEver MSL 1/8 Tape Autoloader or MSL2024 Tape Library are recommended options that meet demanding storage requirements for businesses needing unattended backup, disaster recovery, or low-cost long-term archive capability..[3] Both systems offer a broad choice of storage capacities and technology including LTO-8, LTO-7, LTO-6, or LTO-5 Ultrium tape drives. Web-based remote management enables easy management from across the room or across the globe. Quickly manage tape media both in and out of the library with the standard bar code reader, configurable mail slots, and multiple removable magazines. Protect important business data from unauthorised access with several data encryption options. Quickly increase capacity and/or performance with tool-free drive upgrades in the MSL2024/MSL4048 or move tape drive kits to an MSL3040/MSL6480 for scalability and additional enterprise class features.

[1] ClearOS is supported on MicroServer Gen10 Plus, ML30 Gen10 and DL20 Gen10 only.
[2] HPE RDX is recommended on solution configurations built on HPE ProLiant MicroServer Gen10 Plus, ML30 Gen10, ML110 Gen10, ML350 Gen10 and DL20 Gen10 servers with Windows Server. RDX is not supported in ClearOS.
[3] HPE StoreEver MSL 1/8 Tape Autoloader or MSL2024 Tape Library are recommended on solution configurations built on HPE ProLiant DL100 and DL300 series Gen10 servers.

Configuration comparisons

Tower systems

	MicroServer Gen10 Plus	ML30 Gen10	ML110 Gen10	ML350 Gen10
System	Micro tower 4 x LFF non-hot-plug bays	4U tower 8 x SFF hot-plug	4.5U tower 8 x SFF hot-plug	4U tower 8 x SFF hot-plug
Processor (cores/freq.)	1 x Intel® Xeon® E-2224 (4/3.4)	1 x Intel Xeon E-2224 (4/3.4)	Intel® Xeon® Silver 4210 (10/2.2)	Intel Xeon Silver 4210 (10/2.2)
Memory	1 x 16 GB PC4-2666	2 x 16 GB PC4-2666	2 x 16 GB PC4-2933	4 x 16 GB PC4-2933
Boot drives	2 x 1 TB 6G 7.2K SATA HDD*	2 x 300 GB 12G 10K SAS HDD	2 x 240 GB 6G Read Intensive SATA SSD	2 x 240 GB 6G Read Intensive SATA SSD
Storage drives	2 x 1 TB 6G 7.2K SATA HDD*	4 x 1.2 TB 12G 10K SAS HDD	5 x 1.2 TB 12G 10K SAS HDD	HPE Smart Array P408i-a
Disk controller	HPE Smart Array S100i (integrated)	HPE Smart Array P408i-p	HPE Smart Array P408i-p	HPE Smart Array P408i-a
Network	4 x ports at 1GbE	2 x ports at 1GbE	2 x ports at 1GbE	4 x ports at 1GbE
Power supply	1 x 200W	2 x 500W	2 x 800W	2 x 800W
Optional enhancements	HPE Secure Encryption/Smart Array E-208i-p Bundle	– iLO Advanced – HPE Secure Encryption – HPE SmartCache/480 GB 6G MU SSD Bundle	– iLO Advanced – HPE Secure Encryption – HPE SmartCache/480 GB 6G MU SSD Bundle	– iLO Advanced – HPE Secure Encryption – HPE SmartCache/960 GB 6G MU SSD Bundle
Archival and disaster recovery storage	HPE RDX 1 TB Removable Disk Backup System (external, USB 3.0 connectivity)	HPE RDX 2 TB Removable Disk Backup System (external, USB 3.0 connectivity)	HPE RDX 3 TB Removable Disk Backup System (external, USB 3.0 connectivity)	HPE RDX 4 TB Removable Disk Backup System (external, USB 3.0 connectivity)

* **NOTE:** An alternative MicroServer HDD configuration would be to configure all 4 HDDs in a single RAID 5 volume for both boot and data.

Rack systems

	DL20 Gen10	DL160 Gen10	DL180 Gen10	DL325 Gen10	DL360 Gen10	DL380 Gen10	DL385 Gen10
System	1U rack 4 x SFF hot-plug	1U rack 8 x SFF hot-plug	2U rack 8 x SFF hot-plug	1U rack 8 x SFF hot-plug	1U rack 8 x SFF hot-plug	2U rack 8 x SFF hot-plug	2U rack 8 x SFF hot-plug
Processor (cores/freq.)	1 x Intel Xeon E-2234 (4/3.6)	Intel Xeon Silver 4208 (8/2.1)	Intel Xeon Silver 4208 (8/2.1)	1 x AMD EPYC 7302P (16/3.3)	Intel Xeon Silver 4208 (8/2.1)	Intel Xeon Silver 4210 (10/2.2)	1 x AMD EPYC 7302 (16/3.3)
Memory	2 x 16 GB PC4-2666	2 x 16 GB PC4-2933	2 x 16 GB PC4-2933	4 x 16 GB PC4-2933	2 x 16 GB PC4-2933	2 x 32 GB PC4-2933	4 x 16 GB PC4-2933
Boot drives	N/A	2 x 240 GB 6G Read Intensive SATA SSD	2 x 240 GB 6G Read Intensive SATA SSD	2 x 240 GB 6G Read Intensive SATA SSD	2 x 240 GB 6G Read Intensive SATA SSD	2 x 240 GB 6G Read Intensive SATA SSD	2 x 240 GB 6G Read Intensive SATA SSD
Storage drives	4 x 1 TB 6G 7.2K SATA	4 x 1.2 TB 12G 10K SAS HDD	4 x 1.2 TB 12G 10K SAS HDD	4 x 1.2 TB 12G 10K SAS HDD	4 x 1.2 TB 12G 10K SAS HDD	4 x 2.4 TB 12G 10K SAS HDD	4 x 2.4 TB 12G 10K SAS HDD
Disk controller	HPE Smart Array S100i SW (Embedded)	HPE Smart Array P408i-a	HPE Smart Array P408i-a	HPE Smart Array P408i-a	HPE Smart Array P408i-a	HPE Smart Array P408i-a	HPE Smart Array P408i-a
Network	2 x ports at 1GbE	2 x ports at 1GbE	2 x ports at 1GbE	4 x ports at 1GbE	4 x ports at 1GbE	4 x ports at 1GbE	4 x ports at 1GbE
Power supply	2 x 500W	2 x 500W	2 x 500W	2 x 800W	2 x 500W	2 x 500W	2 x 800W
Optional enhancements	– iLO Advanced – HPE Secure Encryption/Smart Array E208i-a Bundle	– iLO Advanced – HPE Secure Encryption – HPE SmartCache/480 GB 6G MU SSD Bundle	– iLO Advanced – HPE Secure Encryption – HPE SmartCache/480 GB 6G MU SSD Bundle	– iLO Advanced – HPE Secure Encryption – HPE SmartCache/480 GB 6G MU SSD Bundle	– iLO Advanced – HPE Secure Encryption – HPE SmartCache/480 GB 6G MU SSD Bundle	– iLO Advanced – HPE Secure Encryption – HPE SmartCache/960 GB 6G MU SSD Bundle	– iLO Advanced – HPE Secure Encryption – HPE SmartCache/960 GB 6G MU SSD Bundle
Archival and disaster recovery storage	HPE RDX 4 TB Removable Disk Backup System (external, USB 3.0 connectivity)	HPE StoreEver MSL 1/8 SAS Tape Autoloader (LTO-7 SAS Tape Drive)	HPE StoreEver MSL 1/8 SAS Tape Autoloader (LTO-7 SAS Tape Drive)	HPE StoreEver MSL 1/8 SAS Tape Autoloader (LTO-7 SAS Tape Drive)	HPE StoreEver MSL 1/8 SAS Tape Autoloader (LTO-7 SAS Tape Drive)	HPE StoreEver MSL2024 SAN Tape Library (2 x LTO-7 FC Tape Drive)	HPE StoreEver MSL2024 SAN Tape Library (2 x LTO-7 FC Tape Drive)

	External storage system
	MSA 1050 SAS/DL160 Gen10 bundle
MSA 1050 system	2U rack 24 x SFF hot-plug
Controller	2 x 2 port SAS SFP+
Connectivity	2 x HPE SAS Direct Attach SFP+ cables
Storage drives	6 x 1.2 TB 12G 10K SAS HDD
DL160 system	1U rack 8 x SFF hot-plug
Processor (cores/freq.)	Intel Xeon Silver 4208 (8/2.1)
Memory	2 x 16 GB PC4-2933
Boot drives	2 x 240 GB 6G Read Intensive SATA SSD
Storage drives	N/A
Disk controller	HPE Smart Array E208e-p
Network	2 x ports at 1GbE
Power supply	2 x 500W
Optional enhancements	iLO Advanced

BUILD YOUR BACKUP SERVER SOLUTION

Step 1: Determine your backup server needs

To size your backup server, start by determining the following:

- Performance level required
- Storage capacity required over the life of the file server

Performance level

The Backup Solutions provide high-capacity storage for on-premises backups of user and application files. High-capacity storage solutions are typically optimised for performance or price. Since backups tend to be scheduled during off-peak hours to minimise performance impact on production systems, lower-performing, low-cost, mid-grade SATA HDDs are usually acceptable as long as the backup window remains acceptable (i.e., the time it takes for all backups to be completed). When the backup window begins to encroach on the normal usage schedule of the production systems, you may need to consider performance upgrades in the form of disk acceleration or faster (and more expensive) enterprise-grade disks, or even SSDs in the most extreme cases.

Backup Solutions are optimised as follows:

- **Compute**—Low to medium processor performance (one processor, no more than 16 cores, less than 2.5 GHz is generally acceptable).
- **Memory**—Low to medium memory capacity (8–32 GB is acceptable, 64 GB should be considered if backing up multiple data sources simultaneously).
- **Networking**—The standard 1GbE (two or four ports) on HPE ProLiant servers is sufficient for all but the most demanding Small Business backup server requirements.
- **Storage performance**—Low- to medium-grade 7.2K rpm SATA HDDs are sufficient for most Small Business backup requirements. But if multiple large backups are required in a short backup window you can potentially reduce your backup window by implementing a disk accelerator such as HPE SmartCache or go with 10K rpm SAS HDDs or even SAS or SATA SSDs for demanding backup windows.

Storage capacity

The capacity required for a backup server can vary widely depending on the backup strategy and amount of data to be backed up. Adding tape-based archival storage to your backup strategy can minimise the size and cost of disk-based capacity. Additionally, adding cloud backup to your strategy, for example, with Microsoft Azure cloud services, can be an alternative to either supplement or eliminate local long-term storage of backup data.

A good rule of thumb is to have enough capacity for 10 full backups. Using the servers in the File Server Storage Capacity Planner example table in the previous section as a model, 10 full backups would eventually grow to 10 TB, 20 TB, 40 TB, 70 TB, and 180 TB of backup disk storage needed (respective to each company size of 10, 25, 50, 100, and 250 users in the example). Keeping all this backup data on disk storage can be extremely expensive. A cost-efficient strategy is to keep the two most recent full backups (and their related incremental backups) on local disk storage for quick access in case of an emergency recovery, and off-load backups to tape or other removable media like the RDX, or to the cloud to enable recovery from off-premises media should the entire data centre be lost. This strategy would reduce the disk storage needed from the example above to 2 TB, 4 TB, 8 TB, 14 TB, and 36 TB, respectively.

Step 2: Choose the right configuration

The Backup Solutions include a starting capacity of 4 TB to 16 TB of raw storage. Multiple drives allow for configuration of RAID arrays for protection against drive failures. All except the HPE ProLiant MicroServer Gen10 Plus and the ML30 Gen10 server can be expanded by adding more drives and, in some cases, additional drive bays.

Server used for base configuration	Processor cores/GHz	Memory	Network	Solution storage*	Internal drive bays** Used/available/max
MicroServer Gen10 Plus 4LFF (NHP)	4/3.4	16 GB	4 x 1GbE	4 TB	4/0/4
ML30 Gen10 4LFF	4/3.4	32 GB	2 x 1GbE	4 TB	4/0/4
ML110 Gen10 4LFF	8/2.1	32 GB	2 x 1GbE	8 TB	4/0/8
ML350 Gen10 4LFF	8/2.1	32 GB	4 x 1GbE	16 TB	4/0/12
DL180 Gen10 8LFF	6/1.9	32 GB	2 x 1GbE	16 TB	6/2/12
DL380 Gen10 12LFF	8/2.1	16 GB	4 x 1GbE	16 TB	6/6/19 (+2 SFF)
DL385 Gen10 12LFF	16/3.3	16 GB	4 x 1GbE	16 TB	6/6/19 (+2 SFF)
MSA 1050 24SFF SAS—DL160 Shared Storage File Solution* **	8/2.1	32 GB	2 x 1GbE	7.2 TB	6/18/24–96

* Total raw capacity in the default configuration, usable storage depends on RAID implementation; Backup Solutions include separate OS boot volumes which consume 1–2 drive bays but are not counted in the total raw capacity.

** Achieving maximum internal storage requires optional hardware. If you are using the iQuote Solutions tile, you can easily find additional storage bundles including optional drive bays for many of these configurations. See HPE QuickSpecs for maximum drive count and capacity details.

*** The HPE Small Business Shared Storage Solution for File and Backup is a bundle of HPE ProLiant DL160 Gen10 server and HPE MSA 1050 SAS external storage, which can be configured with up to four enclosures for a total of 96 SFF drive bays for high-capacity requirements. The eight SFF drive bays in the DL160 are not counted in the max internal drive bays figure.

Step 3: Configure the HPE Small Business Backup Solution

HPE Small Business Solutions for File and Backup consist of an HPE SMB Offer plus additional hardware and software options to complete the configuration. HPE SMB Offer configurations are the foundation for special pricing and are the starting point for building your solution configuration. Additional options are then carefully selected from among the most popular and best priced HPE options available to complete the Backup Solution.

After selecting the appropriate HPE Small Business Solution configuration for your business outcome and sizing requirements, you may also wish to expand its capabilities by adding recommended options.

The configurations for Backup were designed for cost-effectiveness and structured as building blocks for easy expandability. The use of SATA HDDs provides economical high-capacity storage. All configurations include multiple data volume drives to enable RAID for protection against disk failure. For additional reliability, most HPE Small Business Backup Solutions are equipped with redundant power supplies.

Businesses that need to keep large amounts of backups on local disk, or need redundant servers to meet tight backup window objectives, 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 1050 dual SAS controller external storage array. With two ports per controller, two servers can share the external storage to run multiple backup jobs simultaneously. The servers connect directly to the storage enclosure via HPE Direct Attach cables so there is no need for expensive SAN fabric network. And with up to four enclosures (up to 96 SFF drive bays) there is plenty of room for storage growth. And enclosures can be a mix of LFF or SFF enclosures to enable maximum flexibility in your storage strategy.

OS and storage considerations

NOTE
ClearOS is only supported on the MicroServer and ML30 Backup Solution. All solutions support Microsoft Windows Server.

Drives in the tower (ML and MicroServer) systems are intended to be configured in a single RAID 5 volume used by both OS and backup data due to the limited number of drive bays of the default configuration. If a separate boot volume is required, consider using M.2 SSDs as the boot volume or adding the optional drive bay expansion.

NOTE
MicroServer and ML30 do not support adding a drive bay expansion.

Rack (DL) systems are equipped with sufficient drive bays to separate drives for the boot and storage volumes. In the case of rack servers, the Windows Server OS is intended to be installed on the dual low-capacity drives, which should be configured as a RAID 1 array to protect against the failure of one disk. The remaining HDDs for the data volume should be configured in a RAID array for protection against drive loss. In most cases more storage can be added to expand capacity now or as your needs grow.

For the fastest deployment, HPE Gen10 servers now have Rapid Setup Software (RSS) built into the server. Simply boot the server into Rapid Setup and it will provide a recommended RAID configuration for all installed drives, select the boot volume, and install your choice of Windows or ClearOS onto the boot volume. See the HPE Small Business Solutions Deployment Guide for details.

Optional enhancements

Most HPE SMB Backup Solutions can be enhanced with one or more of the following additional options:

- iLO Advanced
- HPE Secure Encryption
- HPE SmartCache (excluding MicroServer and ML30)
- Capacity expansion bundles

Storage options for archiving and off-loading disk backup data to external media

HPE RDX Removable Disk Backup System is a recommended option for reliable disk-based backup and recovery with unmatched portability, fast recovery and easy integration..[4] The HPE RDX Removable Disk Solution provides a simple, cost-effective way to back up and protect critical data. Complement your local backups with a cloud backup strategy so you can recover quickly, even if you lose your entire site or local backup copies.

HPE StoreEver MSL 1/8 Tape Autoloader or MSL2024 Tape Library are recommended options that meet demanding storage requirements for businesses needing unattended backup, disaster recovery, or low-cost long-term archive capability..[5] Both systems offer a broad choice of storage capacities and technology including LTO-8, LTO-7, LTO-6, or LTO-5 Ultrium tape drives. Web-based remote management enables easy management from across the room or across the globe. Quickly manage tape media both in and out of the library with the standard bar code reader, configurable mail slots, and multiple removable magazines. Protect important business data from unauthorised access with several data encryption options. Quickly increase capacity and/or performance with tool-free drive upgrades in the MSL2024/MSL4048 or move tape drive kits to an MSL3040/MSL6480 for scalability and additional enterprise class features.

[4] RDX is recommended for HPE Small Business Backup solutions based on HPE ProLiant ML series servers. RDX is not supported in ClearOS.
[5] HPE StoreEver MSL 1/8 Tape Autoloader or MSL2024 Tape Library are recommended on solution configurations built on HPE ProLiant DL100 and DL300 series Gen10 servers.

Configuration comparisons

Tower systems

	MicroServer Gen10 Plus	ML30 Gen10	ML110 Gen10	ML350 Gen10
System	Micro tower 4 x LFF non-hot-plug bays	4U tower 4 x LFF hot-plug	4.5U tower 4 x LFF hot-plug	4U tower 8 x LFF hot-plug
Processor (cores/freq.)	1 x Intel Xeon E-2224 (4/3.4)	1 x Intel Xeon E-2224 (4/3.4)	Intel Xeon Silver 4208 (8/2.1)	Intel Xeon Silver 4208 (8/2.1)
Memory	1 x 16 GB PC4-2666	2 x 16 GB PC4-2666	2 x 16 GB PC4-2933	2 x 16 GB PC4-2933
Boot drives	2 x 1 TB 6G 7.2K SATA HDD*	N/A	N/A	N/A
Storage drives	2 x 1 TB 6G 7.2K SATA HDD*	4 x 1 TB 6G 7.2K SATA HDD	4 x 2 TB 6G 7.2K SATA HDD	4 x 4 TB 6G 7.2K SATA HDD
Disk controller	HPE Smart Array S100i (integrated)	S100i (integrated)	S100i (integrated)	HPE Smart Array E208i-a
Network	4 x ports at 1GbE	2 x ports at 1GbE	2 x ports at 1GbE	4 x ports at 1GbE
Power supply	1 x 200W	1 x 350W	1 x 550W	2 x 500W
Optional enhancements	– HPE Secure Encryption/Smart Array E-208i-p Bundle	– iLO Advanced – HPE Secure Encryption/E208i-p Bundle	– iLO Advanced – HPE Secure Encryption/ E208i-p Bundle – 4 x Drive Bay Expansion – HPE SmartCache/1.92 TB 6G MU SSD Bundle	– iLO Advanced – HPE Secure Encryption – 4 x Drive Bay Expansion (up to two) – HPE SmartCache/P408i-p/1.92 TB 6G MU SSD Bundle
Archival and disaster recovery storage	HPE RDX 1 TB Removable Disk Backup System (external, USB 3.0 connectivity)	HPE RDX 2 TB Removable Disk Backup System (external, USB 3.0 connectivity)	HPE RDX 3 TB Removable Disk Backup System (external, USB 3.0 connectivity)	HPE RDX 4 TB Removable Disk Backup System (external, USB 3.0 connectivity)

* **NOTE:** An alternative MicroServer HDD configuration would be to configure all 4 HDDs in a single RAID 5 volume for both boot and data.

Rack systems

	DL180 Gen10	DL380	DL385
System	2U rack 8 x LFF hot-plug	2U rack 12 x LFF hot-plug	2U rack 12 x LFF hot-plug
Processor (cores/freq.)	Intel® Xeon® Bronze 3204 (6/1.9)	Intel Xeon Silver 4208 (8/2.1)	1 x AMD EPYC 7302 (16/3.3)
Memory	2 x 16 GB PC4-2933	1 x 16 GB PC4-2933	1 x 16 GB PC4-2933
Boot drives	2 x 1 TB 6G 7.2K SATA HDD	2 x 480 GB 6G Read Intensive SATA SSD	2 x 480 GB 6G Read Intensive SATA SSD
Storage drives	4 x 4 TB 6G 7.2K SATA HDD	4 x 4 TB 6G 7.2K SATA HDD	4 x 4 TB 6G 7.2K SATA HDD
Disk controller	HPE Smart Array E208i-a	S100i (integrated)	HPE Smart Array P816i-a
Network	2 x ports at 1GbE	4 x ports at 1GbE	4 x ports at 1GbE
Power supply	2 x 500W	2 x 500W	2 x 800W
Optional enhancements	– iLO Advanced – HPE Secure Encryption	– iLO Advanced – HPE Secure Encryption – Performance Scale-up Bundle (16 GB memory, 4 x 1 TB HDD, P816i-a, HPE SmartCache [included with P816], 2 x 960 GB 6G MU SSD)	– iLO Advanced – HPE Secure Encryption – Performance Scale-up Bundle (16 GB memory, 4 x 1 TB HDD, HPE SmartCache [included with P816], 2 x 960 GB 6G MU SSD)
Archival and disaster recovery storage	HPE StoreEver MSL 1/8 SAS Tape Autoloader (LTO-7 SAS Tape Drive)	HPE StoreEver MSL2024 SAN Tape Library (2 x LTO-7 FC Tape Drive)	HPE StoreEver MSL2024 SAN Tape Library (2 x LTO-7 FC Tape Drive)

	External storage system
	MSA 1050 SAS/DL160 Gen10 bundle
MSA 1050 system	2U rack 24 x SFF hot-plug
Controller	2 x 2 port SAS SFP+
Connectivity	2 x HPE SAS Direct Attach SFP+ cables
Storage drives	6 x 1.2 TB 12G 10K SAS HDD
DL160 system	1U rack 8 x SFF hot-plug
Processor (cores/freq.)	Intel Xeon Silver 4208 (8/2.1)
Memory	2 x 16 GB PC4-2933
Boot drives	2 x 240 GB 6G Read Intensive SATA SSD
Storage drives	N/A
Disk controller	HPE Smart Array E208e-p
Network	2 x ports at 1GbE
Power supply	2 x 500W
Optional enhancements	iLO Advanced

HYBRID FILE AND BACKUP OPTIONS

Start the configuration and follow the considerations as outlined in the section on HPE Small Business Solutions for File and Backup with Windows Server. The additional Microsoft Azure services that make up the hybrid file and backup solution are:

- **Azure Files** offers fully-managed file shares in the cloud that are accessible via the industry-standard Server Message Block protocol. Azure file shares can be mounted concurrently by cloud or on-premises deployments of Windows, Linux®, and macOS®.
- **Azure File Sync** centralises file shares in Azure Files, while keeping the flexibility, performance and compatibility of an on-premises file server. Azure File Sync transforms Windows Server machines into a quick cache of your Azure file share. You can use any protocol that's available on Windows Server to access your data locally, including server message block, network file system, and file transfer protocol service. You can have as many caches as you need across the world.
- **Azure Backup** can be used to back up and restore data in the Microsoft cloud. Azure Backup replaces existing on- or off-site backup 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 overheads.
- **Azure Storage Service Encryption** for data at rest helps protect data to meet security and compliance commitments. With this feature, the Azure storage platform automatically encrypts data before persisting it to Azure Files and decrypts the data before retrieval. All data written to the Azure storage platform is encrypted through 256-bit AES encryption, one of the strongest block ciphers available.

To create the hybrid cloud business continuity plan, start by using Azure File Sync to replicate data from the legacy file server(s) to the on-premises HPE Small Business Solution for File and Backup. For additional accessibility, replicate to the Azure File Service located in a local or remote region. Azure Backup Services can be set up to provide full backup and restore capabilities between the legacy server(s), the HPE Small Business Solution server, and Microsoft Azure. Finally, all storage can be encrypted using HPE Secure Encryption on-premises and Azure Storage Service Encryption in the cloud for enhanced security.

SERVICES AND FINANCING

HPE Pointnext Services

HPE Pointnext Services is a services partner built for your business today and tomorrow. HPE Pointnext Services enable you to meet availability commitments with a variety of coverage levels and response times and easily connects 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 Foundation Care
- HPE Proactive Care
- HPE Proactive Care Advanced
- HPE installation and deployment services

NOTE
HPE recommends Foundation Care 24x7 as the minimum recommended service level for HPE Small Business Solutions.

HPE Financial Services

Purchasing new IT and keeping it current can be financially daunting. HPE is offering a better way for you to acquire and pay for the IT infrastructure you need.

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's tech refresh programme 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 on to aging IT equipment and delaying upgrades. With HPE tech refresh, SMBs can have the IT they need to meet business goals and pay overtime to conserve cash, saving 10–15% over three or four years.

PROTECT YOUR DATA

HPE Small Business Solutions lower the cost of accessing easy-to-use, on-premises and hybrid cloud solutions without sacrificing security. To learn more about HPE Small Business Solutions, visit the resources included in this document, or contact your HPE or authorised partner representative. Find an IT reseller close to you at findapartner.hpe.com/.

RESOURCES

- Solution brief: HPE Small Business Solutions for File and Backup
- HPE ProLiant Server QuickSpecs
- HPE ProLiant Server Options
- IT Support Services
- iQuote

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