

### Overview

#### HPE Data Management Framework 6

The HPE Data Management Framework 6 (HPE DMF6) optimizes data accessibility and storage resource utilization by enabling a hierarchical, tiered storage management architecture. Data is allocated to tiers based on service level requirements defined by the administrator. For example, frequently accessed data can be placed on a flash, high-performance tier, less frequently accessed data on hard drives in a capacity tier, and archive data can be sent off to tape storage.

An integrated policy engine allows specification of data movement between tiers, as well as integration with backup, archive, and disaster recovery mechanisms. By allocating data to the proper tier, data is stored at the most cost effective tier for accessibility requirements. Additionally, data intensive workflows can be streamlined through automatic staging of data, eliminating data gathering delays.

Data always seems available to the user or application, and is accessed upon use, as scheduled, or per policy. By allocating data to the proper tier, storage capacity is used optimally for the data it contains, minimizing cost of storage and increasing ROI.

## Standard Features

### HPE Data Management Framework Ordering Rules

#### New Installation Ordering Rules

HPE Data Management Framework SKUs

|  |          |
|--|----------|
| HPE Data Management Framework 6.x Server with Capacity E-LTU     | Q2V41AAE |
| HPE Data Management Framework 6.x Parallel Data Mover E-LTU      | Q2V42AAE |
| HPE Data Management Framework 6.x High Availability Server E-LTU | Q2V43AAE |

|   |          |
|---|----------|
| HPE Data Management Framework 6. x 10TB Capacity E-LTU            | Q2V45AAE |
| HPE Data Management Framework 6.x 10TB Increments Capacity E-LTU  | Q2V46AAE |
| HPE Data Management Framework 6.x 100TB Capacity E-LTU            | Q2V47AAE |
| HPE Data Management Framework 6.x 100TB Increments Capacity E-LTU | Q2V48AAE |
| HPE Data Management Framework 6.x 1PB Capacity E-LTU              | Q2V49AAE |
| HPE Data Management Framework 6.x 1PB Increments Capacity E-LTU   | Q2V50AAE |
| HPE Data Management Framework 6.x 10PB Capacity E-LTU             | Q2V51AAE |
| HPE Data Management Framework 6.x 10PB Increments Capacity E-LTU  | Q2V52AAE |

#### Ordering Guidelines:

1. New installations MUST order Q2V41AAE
2. New installations MUST order one of the Base tier capacity licenses:

|  |          |
|--|----------|
| HPE Data Management Framework 6. x 10TB Capacity E-LTU | Q2V45AAE |
| HPE Data Management Framework 6.x 100TB Capacity E-LTU | Q2V47AAE |
| HPE Data Management Framework 6.x 1PB Capacity E-LTU   | Q2V49AAE |
| HPE Data Management Framework 6.x 10PB Capacity E-LTU  | Q2V51AAE |

Capacity licenses for new installations are built from a base tier license plus additional incremental licenses.

Ex. 1 Capacity licenses for 20TB:

10TB Base Tier license + 10TB incremental license

| Qty | HPE Part # | Description  |
|-----|------------|--|
| 1   | Q2V45AAE   | HPE Tiered Data Management DMF 6.x 10TB Capacity E-LTU           |
| 1   | Q2V46AAE   | HPE Tiered Data Management DMF 6.x 10TB Increment Capacity E-LTU |

Ex. 2 Capacity Licenses for 160TB:

100TB Base Tier license + (6 x 10TB incremental license)

| Qty | HPE Part # | Description  |
|-----|------------|--|
| 6   | Q2V46AAE   | HPE Tiered Data Management DMF 6.x 10TB Increment Capacity E-LTU |
| 1   | Q2V47AAE   | HPE Tiered Data Management DMF 6.x 100TB Capacity E-LTU          |

1. If a Parallel Data Mover option, Q2V42AAE, HPE Tiered Data Management DMF 6.x Parallel Data Mover E-LTU, is ordered, the HPE Clustered Extents File System should be running on that server as well. The HPE Clustered Extents File System node licenses can be purchased either as a single license or in defined quantities, e.g. 5 node licenses, 10 node licenses, etc.
2. If the High Availability option, Q2V43AAE, HPE Tiered Data Management DMF 6.x High Availability Server E-LTU, is ordered, the server on which it resides should be running the HA version of RHEL or SLES.
3. If integration with Lustre is needed, Q2V44AAE, HPE Tiered Data Management DMF for Lustre Copy Tool E-LTU, should be ordered.

## Standard Features

### DMF Upgrade Ordering Rules

If a customer wants to exist an existing installation, the following information is required:

Existing licensed capacity

Desired capacity

The necessary upgrade licenses consist of the addition of incremental capacity licenses necessary to reach the desired capacity.

Example 1

Existing capacity: 50TB

Desired capacity: 500TB

Required capacity: 450TB

Required licenses:

| Qty | HPE SKU  | Description   |
|-----|----------|---|
| 5   | Q2V46AAE | HPE Data Management Framework 6.x 10TB Increments Capacity E-LTU  |
| 4   | Q2V48AAE | HPE Data Management Framework 6.x 100TB Increments Capacity E-LTU |

Example 2

Existing capacity: 50TB

Desired capacity: 5000TB

Required capacity: 4950TB

Required licenses:

| Qty | HPE SKU  | Description   |
|-----|----------|---|
| 5   | Q2V46AAE | HPE Data Management Framework 6.x 10TB Increments Capacity E-LTU  |
| 9   | Q2V48AAE | HPE Data Management Framework 6.x 100TB Increments Capacity E-LTU |
| 4   | Q2V50AAE | HPE Data Management Framework 6.x 1PB Increments Capacity E-LTU   |

## Additional Options

### The Right Data at the Right Time and Place

- The HPE Data Management Framework(DMF) enables HPC Linux storage environments to use a hierarchical, tiered storage architecture which allocates data based on defined policies. Data always appears online to the user or application, and is accessed upon use, as scheduled, or per policy.
- A file can be partially recalled, and the data nearly immediately accessible, even as the remainder of the file is still being loaded or recalled.
- Specific parts of a file can be recalled while the entire file remains on a lower tier.
- Job-specific data staging can be used to accelerate workflows since the data required for jobs can be staged for use ahead of time so there is never a delay to gather data.

### Optimized Use of Data Storage Resources

- The HPE Data Management Framework (DMF) optimizes usage of storage resources. Excessive storage capacity can be reduced as cold or static data can be expediently moved to other tiers or archived as necessary. For instance, expensive flash storage can be used to its fullest, since cold and unneeded data can be moved to other tiers automatically.
- ROI is improved as data can be moved to appropriate tiers or into archive as required, so that data is always placed on the least expensive storage required per access policy, significantly reducing overall cost of storage.

### Low Administrative Overhead

- The HPE Data Management Framework (DMF) provides automated policies that reduce manual data transfers.
- Integrated policy engine reduces script programming creation and maintenance time for data transfer needs.
- Centralized management and reporting interface simplifies data administration

### Future-proof Storage Architecture

- The HPE Data Management Framework (DMF) allows the seamless introduction of new storage technologies by allowing automatic migration, validation and consolidation of data to the new storage capabilities in the background.
- Data migration to new storage capabilities is invisible to the end user as data is always accessible.

### Supported Servers

HPE ProLiant DL360 Server  
HPE ProLiant DL380 Server

<https://www.hpe.com/us/en/servers/proliant-dl-servers.html>

### Supported Tape Libraries

#### HPE Tape Libraries

HPE TFinity ExaScale Edition Tape Library  
HPE T950 Tape Library  
HPE StoreEver MSL4048, MSL3040, and MSL6480 Tape Libraries  
HPE StoreEver ESL G3 Tape Library

<https://www.hpe.com/us/en/storage/storeever-tape-storage.html>

#### Other Tape Libraries

Spectra Logic® T50, T120, T200, T380, T680, T950, and TFinity libraries  
IBM® TS3100-TS3200 (3573), TS3310 (3576), and TS3500 (3584)  
Oracle® SL150, L180, L700, L700e, SL500, SL3000, SL8500, and all ACSLS controlled libraries  
Overland® NEO series libraries  
Qualstar® XLS series libraries  
Quantum® i6, i40, i80, i500, i2000, and i6000

### Supported Tape Drives

#### HPE Tape Drives

HPE LTO Ultrium Generation 2, 3, 4, 5, 6, 7, 8

#### Other Tape Drives

## Additional Options

IBM® LTO Ultrium Generation 2, 3, 4, 5, 6, 7, 8  
 Oracle® T10000A, T10000B, T10000C, T10000D  
 IBM® TS1120 (3592-E05), TS1130 (3592-E06), TS1140 (3592-E07), TS1150 (3592-E08), TS1155 (3592-55F)

### Advanced Tape Features

Logical Block Protection  
 Recommended Access Order  
 Spectra Logic TAOS  
 Multi-Accessor Control

### Disk Storage

#### HPE ZeroWatt Storage

HPE ZeroWatt Storage (ZWS) is a hardware-with-software performance oriented and power managed high density storage system exclusively for HPE DMF. Combining HPE DL380 server technology and HPE D6020 JBOD storage with an innovative on-disk format that enables very high streaming data transfer, low mount time, and intelligent power management. ZWS is the ideal warm tier storage option with minimized power utilization.

### Cloud Storage

The DMF platform includes a Media- Specific Processor (MSP) for cloud and object storage environments that is based on the Simple Storage System (S3) interface originally created by Amazon. Cloud and object based storage within DMF environments may be used both for large scale data storage or as a repository for the storage of DMF metadata and configuration information. This latter use case – particularly when used with public cloud storage – provides an excellent means of implementing off-site metadata backups as part of a best practice disaster recovery plan.

Cloud and object storage systems supported through the S3 interface include:

- Amazon S3® Standard, Standard - Infrequent Access, and Reduced Redundancy Storage
- SUSE Enterprise Storage (Ceph)
- DDN WOS®
- Netapp StorageGRID® Webscale
- HGST Active Archive System®
- Scality® RING
- IBM® Cloud Object Storage

### Supported Managed Filesystems

HPE Clustered Extents File System (XFS and CXFS)  
 Lustre

### Supported Operating Systems

DMF 6.9

- RHEL 7.5
- SLES 12 SP3

## Additional Options

|                            |  |
|----------------------------|--|
| <b>HPE Warranty</b>        | Worldwide, 24-hour support is available for the HPE Data Management Framework software solution through HPE. Customers are provided with complete installation services and given access to advanced services such as proactive checks and migration assistance. |
| <b>Service and Support</b> | 3 year 7x24 (Foundation Care)  |

## Summary of Changes

| Date        | Version History | Action  | Description of Change   |
|-------------|-----------------|---------|---|
| 03-Dec-2018 | Version 8       | Changed | Update for DMF 6.9 release in DMF Suite 4.1.<br>QuickSpecs name changed from <b>HPE Data Management Framework</b> to <b>HPE Data Management Framework 6</b> |
| 01-Oct-2018 | Version 7       | Changed | Update for ISSP 4.0.1 release.<br>Additional Options and Standard Features sections were updated.   |
| 05-Mar-2018 | Version 6       | Changed | Update tape support list, fix URLs, list filesystem support   |
| 18-Dec-2017 | Version 5       | Updated | Update information from cloud storage   |
| 02-Oct-2017 | Version 4       | Updated | Corrections, add full tape support list, ZWS, and cloud   |
| 07-Aug-2017 | Version 3       | Updated | Update additional options   |
| 13-Jul-2017 | Version 2       | Changed | Correct QuickSpecs Headers  |
| 11-Jul-2017 | Version 1       | New     | New QuickSpecs  |



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