



HP Data Protector Express Single Server Edition technical white paper

Backup and recovery software exclusively for StorageWorks tape
drives and tape autoloaders

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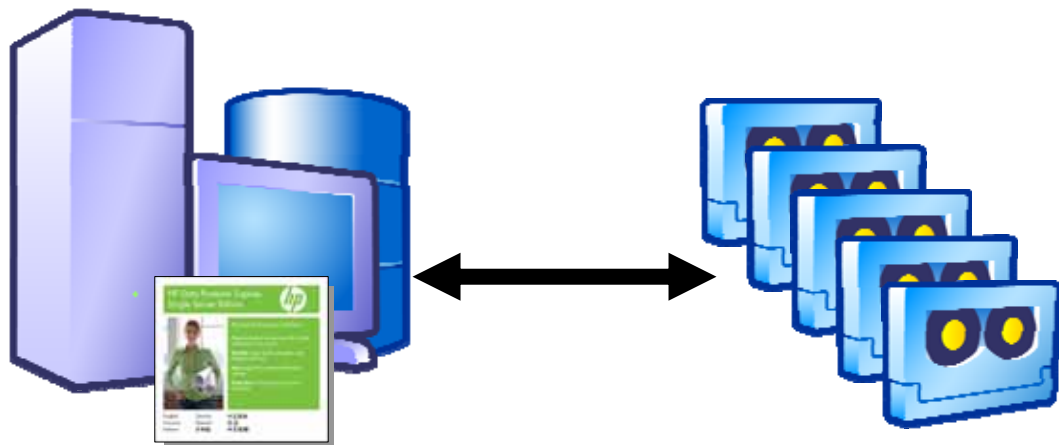
Introduction

No other media matches tape for long-term, robust and economic data protection. And, no one provides as many features and tools as standard with its tape drives and tape autoloaders as HP.

For small- and medium-sized organizations, HP offers a range of standards-based DAT and LTO format tape drives and tape autoloaders. These products ship with everything you need to protect your data and systems. As well as the tape device, this includes cables, data and cleaning cartridges, documentation and HP Data Protector Express Single Server Edition backup and recovery software and the Data Protector Express Bare Metal Disaster Recovery (BMDR) option.

Data Protector Express Single Server Edition is based on the class-leading HP Data Protector Express backup and recovery software. This provides a smart and easy method to protect data on a single server by backing up to an HP tape drive or HP tape autoloader (Figure 1). The included Data Protector Express BMDR option provides an automated method to recover a server after a serious hardware or software failure and works fastest with the HP One Button Disaster Recovery (OBDR) feature of the HP tape drives.

Figure 1. Data Protector Express Single Server Edition provides robust protection of a single machine in conjunction with an HP tape drive, HP tape autoloader or other supported device



Why use Data Protector Express Single Server Edition

Every organization acknowledges that it is important to protect its data. This importance is validated by many studies that show that organizations suffering serious data loss are negatively financially impacted and frequently go out of business as a consequence of the data loss. Why is it then that so many organizations do not have adequate data protection policies in place? Often it is because the solutions are too complex to implement and manage. HP tape drives and tape autoloaders by including Data Protector Express Single Server Edition make it easy to implement a simple and robust data protection solution, without adding cost and complexity. For organizations seeking a way to implement a systematic method to protect their data, this is an excellent first step that can be added to as required.

Organizations that already have some form of data protection process in place can also benefit from using Data Protector Express Single Server Edition with their HP tape product. If the current data protection process uses utilities or tools included with the operating system, moving to Data Protector Express Single Server Edition adds functionality and performance. Compared to operating system utilities and tools, Data Protector Express Single Server Edition offers greater flexibility, performance and ease of use—adding more powerful scheduling capability, rapid server recovery with the BMDR option and an easy route to add network and application data protection.

If there is an existing data protection process that uses a different backup and recovery software product, then using Data Protector Express Single Server Edition is a low-risk opportunity to evaluate this alternative, class-leading product, with greater performance and functionality than similar products. If it is decided that Data Protector Express should replace the existing backup and recovery software, then Data Protector Express Single Server Edition ownership allows this to be done at a reduced cost by way of discounted purchase of Data Protector Express using a part number specially created for HP tape drive and tape autoloader customers.

The inclusion of the Data Protector Express BMDR option with Data Protector Express Single Server Edition provides a fast method to recover a server following a major hardware or software failure such as a failed hard disk or a virus attack, with the potential to reduce recovery time from days to a few hours. Using the BMDR option with the HP tapes drives' OBDR feature simplifies recovery further by allowing the system to boot and automatically recover from the most recent full tape backup.

Data Protector Express Single Server Edition is easy to use

HP understands the needs of smaller organizations and has designed Data Protector Express Single Server Edition to be easy to use and without the need for training.

Simple graphical user interface

Data Protector Express Single Server Edition is managed using a simple graphical user interface (GUI). This GUI runs on Microsoft Windows and Linux (on X Windows) with a Console User Interface (CUI) for NetWare. Using this interface, multiple views are presented of the Data Protector Express installation and operation; examples are shown in Figures 2a and 2b.

Wizards for frequent tasks

To make the execution of frequent tasks easy, Data Protector Express Single Server Edition includes many Wizards. There are wizards to create and schedule backup jobs and restore jobs. There are also wizards to prepare disk for disk-to-disk backup and for media management tasks. All wizards guide you through each step necessary to create the job or task you select. Once complete, the Wizard creates a job that is saved for later use or revision.

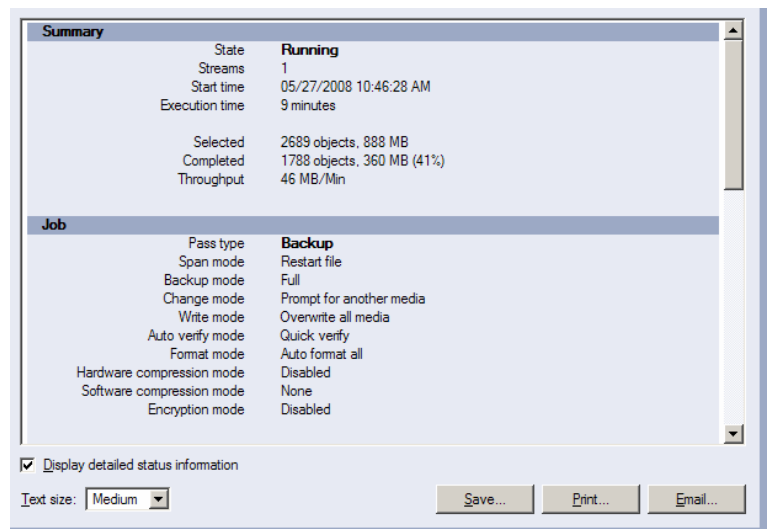
Automatic Device Detection

When you start Data Protector Express Single Server Edition, the software automatically recognizes all installed, virtual and physical, backup devices. The detected devices are then displayed in the GUI and available for backup. From the Devices view of the Favorites desk bar you can easily perform operations using the device such as configuring the device, erasing media, formatting media and ejecting media. The status of all detected devices is shown and warning icons alert users if the device is not operating properly or unavailable.

Figure 2a. Wizards are available, from the Favorites desk bar, to automate the most frequently run tasks.



Figure 2b. It is easy to see the progress of jobs by looking at the job status view.



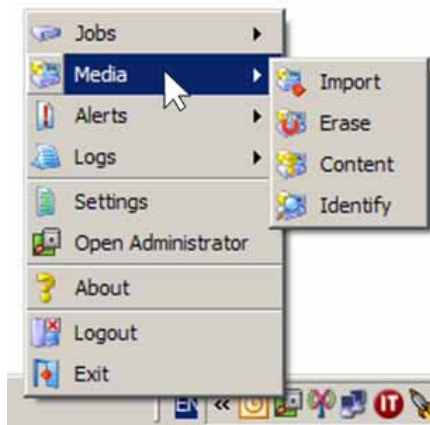
Reduced interface for frequent tasks and status

An alternative and smaller interface, called the Quick Access Control, is available to make monitoring and executing frequent tasks even easier. On Windows machines the Quick Access Control is opened from a system tray icon (Figure 3). This system tray icon also changes appearance to instantly show the state of the Data Protector Express installation.

To use the Quick Access Control, the Data Protector Express service must be running. If the service is not running, it can be started by selecting 'Settings' from the Quick Access Control menu.

Jobs and media can be accessed and created using the Quick Access Control and alerts and logs can be accessed. For less frequent and more complex tasks, the main GUI can be started from the Quick Access Control menu by selecting 'Open Administrator'.

Figure 3. The Quick Access Control is opened by right-clicking the icon in the System Tray (Windows) and makes running and monitoring day to day tasks faster and easier.



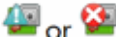





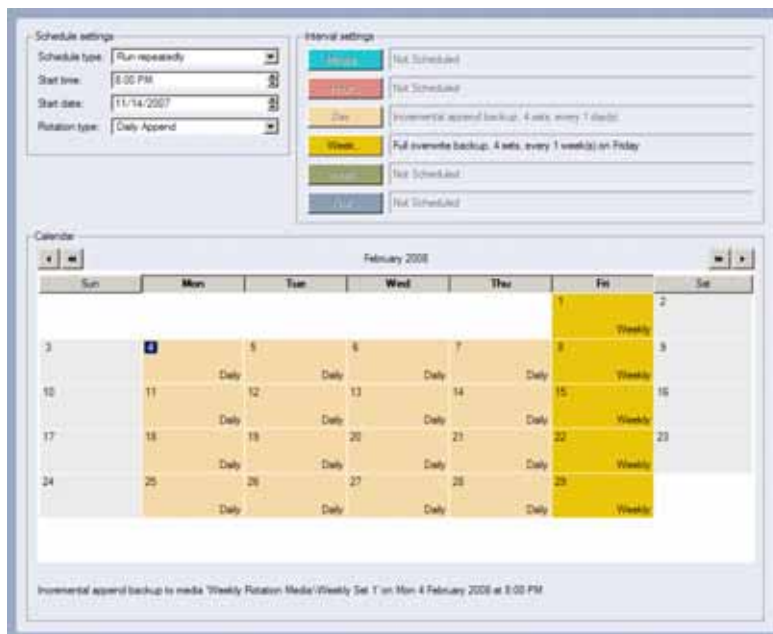
icon	status
 or 	Disconnected
	Job failure
	Pending alerts
	Job in progress
	Idle

Figure 4. The Daily Append backup schedule (default settings) displayed using the graphical scheduler. By clicking on each day, the backup job and media to be used is displayed. This pre-configured rotation schedule is for organizations that have a relatively small amount of data to protect and want to minimize the cost of data protection by using a single tape drive and reducing the time spent handling media. In its default set-up, it uses 4 pieces of media and requires just one media change per week. Even with this low investment it provides the security of a maximum of 24 hours data loss, the ability to recover to a point in the past 4 weeks plus the added protection of being able to take media off-site.



Calendar-like graphical scheduler

By its nature, backup is a repetitive task. Efficiency and reliability are increased by automating backup jobs. Data Protector Express Single Server Edition includes ready-to-use, automated, schedules based on standard types of backup job scheduling. It is also possible for users to create custom schedules by specifying the type and frequency of jobs. Job execution frequency is specified, as part of a job's properties, with the robust and easy-to-use graphical scheduler (example in Figure 4).

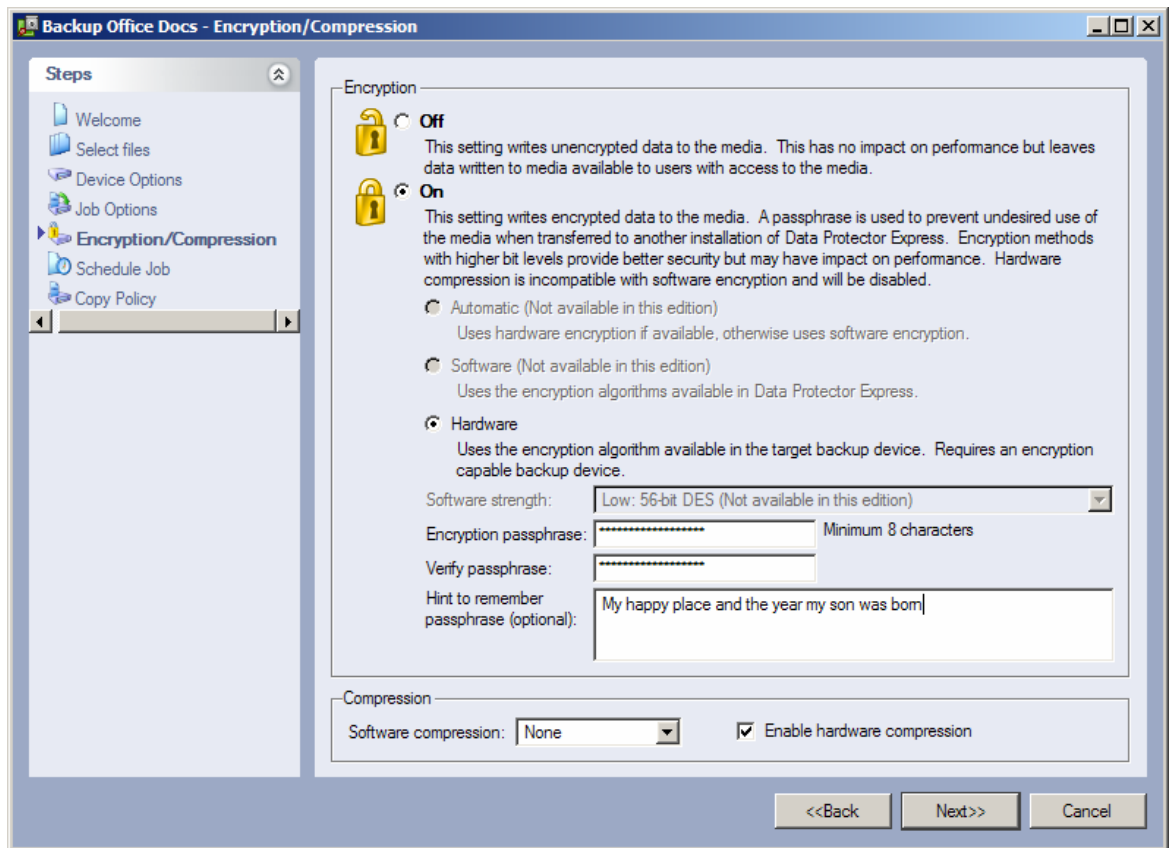
Data encryption

Increasingly business practices and regulations require that backup data is encrypted, particularly if the backup media is to be transported offsite. Data Protector Express Single Server Edition allows the user, in conjunction with an encryption-capable tape device, to specify whether the backup data is encrypted as part of the backup job properties. The encryption is secure and flexible while being very easy to manage.

Data Protector Express Single Server Edition does not require that the user understands encryption algorithms or generates and manages encryption keys. The encryption is managed using one simple screen (Figure 5). The user simply has to:

- Ensure that an HP encryption-capable device, such as an HP LTO-4 Ultrium tape drive, is available
- Specify that the backup data will be encrypted
- Choose a passphrase and optionally a related hint

Figure 6. The Encryption/Compression screen of a job's properties is used to specify the encryption settings



Managing the passphrase is a critical when using backup data encryption. The protected data may need to be recovered months or years in the future so passphrases must be kept securely. For the best security, the user should store passphrases in a safe location and not on the computer running Data Protector Express. If the user is unable to supply the passphrase when requested to do so, neither the user nor HP Support will be able to access the encrypted data.

Bare Metal Disaster Recovery (BMDR) option for fast restart of operations

The Data Protector Express Bare Metal Disaster Recovery (BMDR) option included with Data Protector Express Single Server Edition in HP StorageWorks tape drive and tape autoloaders delivers fast and automated recovery of systems and information following a serious disaster. After a serious incident there will be many things to do to get the organization operational again. The Data Protector Express Bare Metal Disaster Recovery option makes it simple to get your servers operational again. It is a fast and robust method to automate the rebuild of your new or repaired servers with the operating systems and applications and then to reload the data.

Unlike some other disaster recovery products, the Data Protector Express BMDR option will recover the server from completely new hardware (bare metal). However, replacement hardware or components should be the same as the original hardware or components. Other recovery products require you to reinstall the operating system before recovering the server, whereas using the Data Protector Express Bare Metal Disaster Recovery option only requires that you create a boot CD/DVD, on one of the Data Protector Express media servers, to execute the recovery. The smart Data Protector Express BMDR option simply requires you to follow the on-screen prompts to recover your server in the minimum time. There is no need to install or configure anything first.

With HP tape drives the process is further simplified, as support for HP One-Button Disaster Recovery (OBDR) is provided and any full backup tape can be disaster recovery media. When doing full backups to HP tape drives, the necessary recovery information is automatically created and stored on the tape to enable OBDR-based recovery. Figure 7 shows how quickly and easily the Data Protector Express BMDR option makes rebuilding and recovering a server after a disaster.

Figure 7. Comparison of steps needed for disaster recovery using the HP tape drives' OBDR feature, the Data Protector Express BMDR option with CD/DVD media and other disaster recovery methods (reboots not shown for clarity).

Data Protector Express BMDR + HP tape OBDR	Data Protector Express BMDR	Other bare metal disaster recovery products	Manual recovery
Full backup to HP tape drive	DR setup + backups	DR setup + backups	Backups
Disaster	Disaster	Disaster	Disaster
Replace/repair hardware	Replace/repair hardware	Replace/repair hardware	Replace/repair hardware
Power on tape drive, power on server, follow automated recovery process	Create DR media	Create DR media	Re-install OS with service packs/patches and drives
	Boot server from DR media, follow automated recovery process	Boot server from DR media to reload OS and applications	Re-install applications including backup application
		Recover data	Recreate backup application database
			Create and run restore job to recover data

Support and services

Data Protector Express Single Server Edition has 12 months HP business hours phone and e-mail support included for peace of mind.

Upgrading to Data Protector Express

Upgrading to Data Protector Express from Data Protector Express Single Server Edition provides a range of additional benefits. Some of these benefits are delivered by increased base product functionality, and some are added by way of licensed options. No options can be added to Data Protector Express Single Server Edition; it is first necessary to upgrade to Data Protector Express.

Table 1 shows the differences between Data Protector Express Single Server Edition and Data Protector Express. Owners of Data Protector Express Single Server Edition are entitled to acquire Data Protector Express at a reduced price by using a specially discounted part number created for this purpose—BB117BT. All jobs and settings created in Data Protector Express Single Server Edition are maintained on upgrading to Data Protector Express.

Table 1. Differences between Data Protector Express Single Server Edition and Data Protector Express

Feature	Data Protector Express Single Server Edition	Data Protector Express
Operating system and platform support	Windows (multi-platform), Linux (multi-platform), Netware (multi-platform)	Windows (multi-platform), Linux (multi-platform), Netware (multi-platform)
Device support	HP tape drives, HP tape autoloaders, disk, CD/DVD	Tape drives, tape autoloaders, small tape libraries, VTLs, disk, CD/DVD
D2D backup capacity and features	Includes 36 GB of D2D backup capacity, configured as a Data Protector Express Virtual Library.	Includes unlimited D2D backup capacity, configured as a Virtual Library. Extendable with D2Any2Any option to copy disk backups to other media.
Bare Metal Disaster Recovery option	Included.	Maintained for a single server when upgrading to Data Protector Express. An option for additional server that are to have an automated disaster recovery capability.
Network backup of servers	Protection for a single server only.	Yes, the Network Server Agent enables network backup of servers.
Network backup of desktops	Protection for a single server only.	Unlimited number of Windows desktops supported as part of base Data Protector Express license.
Data Encryption	Support for HP tape devices with a data encryption capability.	Support for tape devices with a data encryption capability. Software data encryption to encrypt backup data to any device.
Network backup of servers	Protection for a single server only.	Additional networked servers added by ordering a Network Server Agent for each server to be protected.
Protection of Microsoft Exchange and Microsoft SQL Server	No online protection capability.	Online protection with Data Protector Express Application Online Agent.
Backup frequency for scheduled jobs	Yearly, Monthly, Daily	Yearly, Monthly, Daily Hourly, Minutely.
Microsoft Volume Copy Shadow Service (VSS) support for open file backup	No	Yes on Microsoft Windows NTFS.
Parallel backup and recovery data streams for fast performance	Up to 4 parallel data streams.	Up to 8 parallel data streams.
Support included	Business hours phone and e-mail. Rights to service packs.	Business hours phone and e-mail. Rights to service packs and new versions. Care Packs can be purchased for additional coverage.

Options available after upgrading to Data Protector Express

Once Data Protector Express Single Server Edition is upgraded to Data Protector Express all the following options are available:

HP Data Protector Express Network Server Agent

This is used to add a server-class machine to the Data Protector Express Storage Domain and enables that machine to host a backup device for local or network backup (to act as a media server). By joining the Data Protector Express Storage Domain, backup and recovery over the network to a shared backup device and/or backup and recovery to a local device is enabled with centralized control. One Network Server Agent is required for each machine added to the Data Protector Express Storage Domain. Available in a single pack (BB121BA) and three pack (BB122BA).

HP Data Protector Express Application Online Agent

This option enables online protection for Microsoft Exchange Servers and Microsoft SQL Servers. The backup runs without taking the application offline so users are still able to access e-mail and databases. One license needed per machine for each application protected.

HP Data Protector Express Bare Metal Disaster Recovery Option

This option enables allows you to get productive again quickly after a disaster or failure. The Bare Metal Disaster Recovery option automates system recovery and returns the system to state of last full backup without requiring a reinstallation of the operating system. It supports the HP One Button Disaster Recovery feature of HP tape products. One license per machine that requires automated disaster recovery. One Bare Metal Disaster Recovery option is included with Data Protector Express Single Server Edition and maintained on upgrading to Data Protector Express.

HP Data Protector Express D2Any2Any Option

The D2Any2Any option enables multi-tier backup between different media types. It automates the movement of backed up data from backup media to tertiary media for longer term retention and additional protection. It works with Data Protector Express D2D backup (Virtual Library), Virtual Tape Libraries and all other supported media. Once installed, it enables automatic, policy-driven movement of backup data from secondary to tertiary media which makes possible disk-to-disk-to-tape backup with direct recovery from tape. Just one license required per Data Protector Express Storage Domain.

HP Data Protector Express Drive Expansion (1 incremental drive) Option

Installing this option adds support for multi-drive tape libraries, virtual tape libraries and Data Protector Express Virtual Libraries. One license is required for each drive in excess of one per tape library, virtual tape library or Virtual Library. There are no additional licenses required based on the number of slots used in the library.

Ordering information

Data Protector Express Single Server Edition is only available with the purchase of HP tape drives and HP tape autoloaders. There is no other way to obtain this software. For users of Data Protector Express Single Server Edition, there is a part number that allows the fully featured Data Protector Express software to be purchased at a reduced price—BB117BT.

When the upgrade is made, options are available to further increase the functionality of Data Protector Express.

Table 2. The specially discounted part number for registered users of Data Protector Express Single Server Edition to upgrade to Data Protector Express

Upgrade to Data Protector Express	
BB117BT	Upgrade from HP Data Protector Express Single Server Edition to Data Protector Express 4.0
Once upgraded, add options	
BB121BA	HP Data Protector Express 4.0 Network Server Agent
BB122BA	HP Data Protector Express 4.0 Network Server Agent 3 Pack
BB125BA	HP Data Protector Express 4.0 Application Online Agent
BB128BA	HP Data Protector Express 4.0 Bare Metal Disaster Recovery Option
BB130BA	HP Data Protector Express 4.0 Option
BB133BA	HP Data Protector Express 4.0 Drive Expansion (1 incremental drive) Option

Glossary

Backup Server—The starting point for all Data Protector Express Single Server Edition and Data Protector Express installations. The minimum required to protect a machine or machines. The Backup Server manages the Data Protector Express Storage Domain and by default contains the Data Protector Express catalog. Data Protector Express Single Server Edition is based on the Data Protector Express Backup Server and readily upgraded to the full functionality of the Data Protector Express Backup Server.

Bare Metal Disaster Recovery—The process of rebuilding a new computer from scratch (“bare metal”) after a major failure. Traditionally this required reinstalling the operating system, reloading applications and then restoring data and settings. Data Protector Express automates this process.

Catalog—The database required to run Data Protector Express. The information stored includes jobs and job history, device information, media and license key details. The Data Protector Express catalog, by default, runs on the Backup Server and stores information for the Storage Domain.

Media server—A media server is a machine that manages the reading and writing of data to backup devices. The Data Protector Express Backup Server is the first media server in the Storage Domain. Every machine that has a Network Server Agent installed can act as a media server.

Network Server Agent—This is required for a machine to join the Data Protector Express Storage Domain. Once installed it allows a LAN-connected server to be backed up over the network and protection centrally managed. The Network Server Agent also allows the machine to host a backup device—act as a media server—for local or network backup.

Storage Domain—The Data Protector Express Storage Domain comprises the Data Protector Express Backup Server, protected machines, backup devices, backup media and the Data Protector Express catalog. There is one Storage Domain per Data Protector Express catalog, and one Data Protector Express catalog per Storage Domain. The Backup Server manages the catalog of Storage Domain wide information. The concept of the Data Protector Express Storage Domain is important to understanding Data Protector Express. In a Storage Domain, all machines and backup devices are known to all machines.

Virtual Library—A Data Protector Express Virtual Library is created on a local hard disk, on a network disk or a combination of both. The Virtual Library emulates the geometry of a generic tape library to allow easy D2D backup and recovery. It is configured with any number of drives and slots. Once created, it is used as a physical tape library. The one difference is that copy polices enabled with the D2Any2Any option are set for the Virtual Library not the job backing up to the Virtual Library.

Virtual Tape Library (VTL)—A VTL is a disk-based hardware device that presents itself as a tape drive or tape library. Data Protector Express manages, uses and license the VTL in the same way as the physical tape device that the VTL emulates.

For more information

- For more information on the related HP Data Protector Express Single Server Edition software
<http://www.hp.com/go/dataprotectorexpress/sse>
- For more information on HP Data Protector Express software
<http://www.hp.com/go/dataprotectorexpress>
- For more information on HP StorageWorks tape drives and autoloaders
<http://www.hp.com/go/tape>

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