

HP OpenView Storage Data Protector A.05.50 Software Release Notes

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Document History

Version	Date	Description
1.0	October 18, 2004	Initial version
1.1	October 28, 2004	Added last minute changes

Chapter 1: Announcements

Data Protector A.05.50 is compatible with OmniBack II and Data Protector tapes, scripts, and procedures and includes existing OmniBack II functionality.

1.1 Upgrades

Upgrade information is available in the *HP OpenView Storage Data Protector Installation and Licensing Guide*. Upgrade procedures to Data Protector A.05.50 from OmniBack II version A.04.10, and Data Protector versions A.05.00 and A.05.10 are described.

1.2 What Is Supported?

Detailed information on supported platforms, devices, and integrations is available in Appendix C of this document.

For the latest platform and integration support information, refer to Appendix C or to the HP OpenView Storage Data Protector page at: http://www.openview.hp.com/products/datapro/spec_0001.html.

In case of hardware or software failures in third-party products, please call the respective vendor directly. Supported Data Protector commands from the command-line interface (CLI) are documented in the *HP OpenView Storage Data Protector Command Line Interface Reference*.

1.3 Licensing

Data Protector A.05.50 leverages the product numbers from OmniBack II and Data Protector A.05.x. All OmniBack II A.04.10 licenses and Data Protector A.05.00 and A.05.10 licenses can be used with Data Protector A.05.50 and retain their original functionality. No license migration is required. However, standard product licenses according to the desired functionality are required and need to be installed.

1.3.1 HP OpenView Storage Data Protector Advanced Backup to Disk Extension

Data Protector A.05.50 introduces a new license for file libraries: HP OpenView Storage Data Protector advanced backup to disk extension, B7038AA. This extension includes license-to-use for 1 TB of backup disk storage. One such license-to-use is required per each used terabyte of backup disk storage.

For more information, refer to the *HP OpenView Storage Data Protector Installation and Licensing Guide*.

1.4 Discontinuance of Support

The discontinuance of support for the predecessor product OmniBack II, for previous Data Protector versions, and for previous Media Operations versions, is as follows:

- Full HP support for **OmniBack II A.03.50** has ended on July 31, 2004; with maintenance support only for OmniBack II A.03.50 available through January 31, 2005. Additionally, self-help support (formerly known as knowledge base support) for OmniBack II A.03.50 will be available through July 31, 2005.
- Full HP support for **OmniBack II A.04.10** has been extended and is scheduled to end on December 31, 2004; with maintenance support only for OmniBack II A.04.10 provided through June 30, 2005. Additionally, self-help support (formerly known as knowledge base support) for OmniBack II A.04.10 will be available through December 31, 2005.
- Full HP support for **Data Protector A.05.00** is scheduled to end on August 31, 2006; with maintenance support only for Data Protector A.05.00 available through January 31, 2007. Additionally, self-help support (formerly known as knowledge base support) for Data Protector A.05.00 will be available through August 31, 2007.
- Full HP support for **Data Protector A.05.10** is scheduled to end on August 31, 2007; with maintenance support only for Data Protector A.05.10 available through February 28, 2008. Additionally, self-help support (formerly known as knowledge base

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support) for Data Protector A.05.10 will be available through August 31, 2008.

- Full support for **Media Operations 3.00, 3.01, and 3.02** is scheduled to end on August 31, 2007; with maintenance support only for Media Operations 3.00, 3.01 and 3.02 available through February 28, 2008. Additionally, self-help support (formerly known as knowledge base support) for Media Operations 3.00, 3.01 and 3.02 will be available through August 31, 2008.

Please, be aware that the next version after Media Operations 3.2 is Data Protector Media Operations 5.5. The releases of these products are being aligned, and they will share the same version number from now on.

1.5 Updated Information

For the latest information, including corrections to documentation refer to the Data Protector home page:

<http://www.hp.com/go/dataprotector>

Chapter 2: Product Features and Benefits

Data Protector is compatible with OmniBack II tapes, scripts, and procedures and includes all OmniBack II functionality.

This chapter gives a brief description of Data Protector A.05.50 features and major changes in comparison to the previous Data Protector version.

2.1 Enhanced Functional Capabilities to Adapt in Real Time to Business Needs

Data Protector manages backup and recovery from disk or tape, mitigating risk to the Adaptive Enterprise by ensuring continuity of business operations.

2.1.1 Advanced Backup to Disk

Data Protector now has a specialized disk-based backup device called the File Library device. This device is designed to address present industrial requirements for:

- Devices that can quickly back up small amounts of data continuously generated by applications such as databases
- A small backup window
- A fast restore capability
- Minimal storage costs

The File Library device is configured and used through the Data Protector GUI. The device is conceptually similar to a tape stack in that it consists of one or more directories which are the equivalent of slots in a tape stack where material is stored. In the case of the File Library device the type of material being stored is a series of files called File Depots which are created each time a backup to the device is made.

The File Library device is supported on many platforms, for details, please refer to the latest list of support matrices on the Web: http://www.openview.hp.com/products/datapro/spec_0001.html.

2.1.2 Advanced Media Management

Data Protector A.05.50 introduces the object copy functionality, which enables you to copy object versions that you specify to a specific media set. You can select object versions from one or several backup sessions. During the object copy session, Data Protector reads the backed up data from the source media, transfers the data, and writes it to the target media.

The result of an object copy session is a media set that contains the object versions you specified. You can directly restore from this media set as an alternative to the media set created during backup.

Additional copies of backed up data are created for multiple purposes:

- Vaulting
You can make copies of backed up objects and keep them in several locations.
- Freeing media
To keep only protected object versions on media, you can copy such object versions, and then leave the medium for overwriting.
- Demultiplexing of media
You can copy objects to eliminate interleaving of data.
- Consolidating a restore chain

You can copy all object versions needed for a restore to one media set.

- Migration to another media type

You can copy your backups to media of a different type.

- Support of advanced backup concepts

You can use backup concepts such as disk staging.

You can start an object copy session interactively or specify an automated start of the session. Data Protector offers two types of automated object copying: post-backup object copying and scheduled object copying.

For more information on the object copy functionality, refer to the *HP OpenView Storage Data Protector Concepts Guide*, the *HP OpenView Storage Data Protector Administrator's Guide*, and the online Help.

2.1.3 Backup Mirroring

Data Protector A.05.50 introduces the object mirror functionality, which enables writing the same data to several media sets simultaneously during a backup session. You can mirror all or some backup objects to one or more additional media sets.

The result of a successful backup session with object mirroring is one media set containing the backed up objects and additional media sets containing the mirrored objects. The mirrored objects on these media sets are treated as object copies.

The use of the object mirror functionality serves the following purposes:

- It enables easy multi-site vaulting, as the backed up data can be mirrored to remote sites.
- It improves the fault tolerance of backups, as the same data is written to several media. A media failure on one medium during a backup session does not affect the creation of the other mirrors.
- As the backup objects are read only once and several devices can be used concurrently, it takes less time to create several copies during backup compared to copying the data after the backup.

You specify object mirroring when configuring a backup specification. In the backup specification, select the objects you want to mirror, and then specify the number of mirrors. Specify separate devices for the backup and for each mirror.

For more information on the object mirror functionality, refer to the *HP OpenView Storage Data Protector Concepts Guide*, the *HP OpenView Storage Data Protector Administrator's Guide*, and the online Help.

2.1.4 Handling of Filenames Containing Multibyte Characters

Data Protector A.05.50 has improved the handling of file names in mixed environments. The GUI can be configured to correctly display file names and session messages and to enable the selection for restore even if the selected file/directory names contain multibyte characters. This is true for virtually any combination of Cell Manager, Disk Agent Client and GUI client on different platforms.

For more information, refer to the *HP OpenView Storage Data Protector Installation and Licensing Guide*, the *HP OpenView Storage Data Protector Concepts Guide*, and the *HP OpenView Storage Data Protector Administrator's Guide*.

2.1.5 Enhanced sanconf Command

The `sanconf` command in Data Protector A.05.50 detects and automatically configures supported devices that are connected to Windows, HP-UX, Solaris, Linux, Novell NetWare, Tru64, and AIX clients.

2.1.6 Barcode as a Medium Label

With the Data Protector A.05.50 release, it is possible to write the barcode string as media label to the media header during the

initialization of the medium.

2.1.7 Restore of Share Information on Windows Systems

Data Protector A.05.50 backs up and restores share information for directories on Windows (except on Windows ME). If a directory was shared on the network when it was backed up, it will be by default automatically shared after it is restored.

2.1.8 Support for Multiple Paths to Devices

With previous versions of Data Protector, if a device was configured with several clients, several logical devices had to be configured for all devices on every client using a lock name. It is now possible to define multiple paths, that is client names and SCSI addresses, to a device as a single logical device without the need to use lock names and thus configure the device only once. The paths are used by Data Protector in the defined order.

2.1.9 Multi-host Support for Library Sharing and Replacement of ACS and DAS Media Agents

With Data Protector A.05.50 the different Media Agents (general, NDMP, DAS and ACS) have been consolidated into one general Media Agent package. This Media Agent is capable of controlling the robotics and drives of all supported library types (SCSI/SAN attached, ADIC/GRAU DAS and STK ACS) and in addition the robotics for an NDMP server.

Additionally, there is an NDMP Media Agent which is capable of controlling the robotics and drives and backup and restore processes on NDMP.

With this new design it is possible to provide unlimited library sharing between different systems. The following was not possible in previous releases but can now be done:

- Library sharing between NDMP servers (NDMP controlled library)
- ADIC/GRAU DAS and STK ACS library support for NDMP backup
- ADIC/GRAU DAS and STK ACS library support for client systems where ADIC/GRAU DAS and STK ACS robotic control is not available from ADIC/GRAU DAS and STK ACS, but can be served by a different system running on another platform.

For more details about supported platforms, refer to the latest list of support matrices on the Web:

http://www.openview.hp.com/products/datapro/spec_0001.html

2.1.10 NDMP Media Agent Enhancements

Data Protector A.05.50 offers a new version of its NDMP Media Agent with improved catalog handling, resulting in faster and more reliable performance in NDMP environments (NetApp and Celerra). The NDMP Media Agent utilizes the environment resources in a more efficient way. The Data Protector NDMP integration now supports all three NDMP authentication types: none, text and MD5, thus enabling a higher degree of security. Direct access restore is now supported also for directories for NetApp.

2.1.11 Enhanced Device Performance

Data Protector A.05.50 Disk Agent (DA) performance has been improved to keep the new generation of high-performance backup devices streaming (such as LTO II devices).

2.1.12 Novell NetWare Enhancements

Data Protector A.05.50 does not have file size limitations on Novell Netware 6.0 and newer systems. Pre- and post-exec scripts are supported with Data Protector A.05.50 on Novell NetWare.

The Data Protector A.05.50 Media Agent has been redesigned to use the NetWare Peripheral Architecture, thus providing users with broader and more reliable driver support for third-party host adapters and storage devices.

2.1.13 Simplified Access to Library Management Consoles

The Data Protector A.05.50 GUI enables direct invocation of a web browser and automatic loading of the library management console interface into it. This feature is available for SCSI libraries, jukeboxes using optical media, external controls, ADIC/GRAU DAS libraries, and StorageTek ACS libraries. It can also be used in NDMP environments.

2.1.14 Extended Licensing

2.1.14.1 HP OpenView AutoPass

As an alternative to the native method of entering licenses into Data Protector, now the HP OpenView AutoPass utility can be utilized. This utility is integrated with Data Protector, allowing for an automatic, simplified and instant retrieval and installation of Data Protector license passwords. If the Cell Manager system is not directly connected to the internet, AutoPass supports generation of Permanent Password Request Form, which you can later send by fax or e-mail to the HP password delivery center.

For more information on the AutoPass utility, refer to the *HPOV Auto Pass User's Guide*.

2.1.14.2 License Checking and Reporting and Capacity Based Licensing

In addition to already existing mechanisms, the presence and quantity of Data Protector A.05.50 licenses are checked as a part of the Data Protector checking and maintenance mechanism once a day. If licenses are missing, a message is logged in the Event Log. In addition, a new CLI option has been introduced to report the missing licenses.

Data Protector now checks the number of installed licenses against the number of licenses needed for a cell. For more details about the `omnicc -check_licenses` command refer to the `omnicc` man page.

2.1.15 Tool for Collecting Log, Debug and System Info Files

Since Data Protector operates in large network environments, the data needed by HP support service can be complex and difficult to gather. Data Protector A.05.50 provides a tool for collecting and packing log, debug, and `getinfo` files to be sent to HP support service.

2.1.16 EMC GeoSpan for Microsoft Cluster Service Support

The Data Protector A.05.50 supports EMC GeoSpan for Microsoft Cluster Service. The solution provides an integrated backup and restore of filesystems, raw disks, Oracle, and Microsoft SQL Server 2000.

2.2 Improved Business Processes

Data Protector is designed to simplify and to centralize backup and recovery operations by integrating a variety of techniques to eliminate backup windows.

2.2.1 Eliminates the Impact of the Planned Downtime

2.2.1.1 Online Backup of Databases and Applications

Support for SAP DB

Data Protector A.05.50 introduces support for the SAP DB application. The Data Protector SAP DB integration enables you to perform backup of an SAP DB instance in the online and admin operating modes.

The following SAP DB instance's objects are backed up:

- data

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- configuration
- archive logs

The Data Protector SAP DB integration provides you with the following backup types:

- full backup of data and configuration (SAP DB Full backup)
- differential backup of data and configuration (SAP DB Diff backup)
- backup of archive logs (SAP DB Trans backup)

Note that when the SAP DB instance is in the offline operating mode, only a standard filesystem backup of data, configuration and archive logs can be performed.

When performing a restore, the Data Protector SAP DB integration provides the following possibilities:

- To restore the database to its original state at a specific point in time by applying the chain of needed full, differential, and transactional backup sessions.
- To restore the SAP DB instance's data and configuration by applying a specific full or differential backup session.
- To restore the SAP DB instance's archive logs by applying a specific transactional backup session.
- To restore to an SAP DB instance or SAP DB server other than the original (SAP DB migration).

Online Backup of IBM DB2 on Linux and Windows

With the Data Protector A.05.50 release, the Data Protector IBM DB2 UDB integration is supported also on Linux and Windows platforms besides HP-UX and AIX platforms.

2.2.1.2 Filesystem/application backup on an inactive MC/ServiceGuard node

With the Data Protector A.05.50 release, it is possible to back up a filesystem or an application running on an inactive MC/ServiceGuard node. It is no longer required that the Cell Manager and a client run on the same cluster node. It is no longer necessary to configure an application and the Cell Manager in the same package.

With this improvement, it is now possible to spread the load throughout the cluster, so that the Cell Manager and an application database do not compete for resources on the same server while the other nodes are idle.

2.2.2 Eliminates the Impact of the Unplanned Downtime

2.2.2.1 Reconnect Broken Connection Enhancements

Pre-Data Protector A.05.50 versions could reconnect only broken (control) connections between the Backup Session Managers (running on the Cell Manager) and Disk Agents (DA) / Media Agents (MA). Data Protector A.05.50 can now reconnect also broken (data) connections between DAs and MAs during backup.

2.2.2.2 Oracle ZDB Enhancements

Improves Database Recovery after Instant Recovery for Oracle and SAP R/3

Data Protector can now automatically perform a database recovery after an instant recovery using RMAN. You can select the recovery method and other recovery options in the Instant Recovery context of the Data Protector GUI.

Data Protector now performs a configuration check to ensure that you can safely perform an instant recovery. If the database is not configured properly for an instant recovery, that is if the recovery catalogs or archive logs are on the same source volumes as the

database, the backup session is aborted. A new tool for resolving sets of files, `omniresolve`, is introduced.

Instant recovery with database recovery is supported with Oracle8i/9i regardless of the ZDB method (proxy-copy or backup set).

ZDB Backup Set Method for Oracle8i/9i

In the previous release, the backup set method was supported only for Oracle8. Data Protector now supports the Oracle backup set method also for Oracle8i/9i in addition to the proxy-copy method supported in the A.05.10 release. The backup method can be selected for each Oracle instance during the configuration.

Enhanced Proxy Copy Backup and Restore Process for Oracle8i/9i

Proxy copies created during a ZDB to disk+tape or ZDB to tape can now be used as a base for incremental backups. To reduce the impact on backup, the database is in backup mode only during the replica creation and not during the whole backup process. The optimizations with handling resources results in better performance during a backup or restore of a proxy copy backup object. Data Protector now automatically backs up the control file at the end of a backup session.

The performance of the cross check command, used for synchronization between Oracle Recovery Manager meta data and Data Protector Media Management Database, is improved substantially.

2.2.2.3 Automatic Discovery of Changed SCSI Addresses

In SAN environments, SCSI addresses can change dynamically. Data Protector now stores the device serial numbers and automatically discovers and updates the changed SCSI address.

2.2.2.4 Improved Installation and Upgrade on UNIX

Installing and upgrading Data Protector using the `omnisetup.sh` script is now the unified method of installation.

On HP-UX it is no longer necessary to uninstall Data Protector during an upgrade. The packages are now upgraded directly.

2.2.3 Security Enhancements

Data Protector A.05.50 introduces several security enhancements. Certain enhancements are enabled by default and require no extra configuration even when an existing Data Protector cell is upgraded from a previous release. Some enhancements on the other hand may require careful configuration (or, in case of an upgrade, reconfiguration) and are therefore disabled by default. Refer to the *HP OpenView Storage Data Protector Installation and Licensing Guide* for the security related information that needs to be considered before enabling the advanced security features or when experiencing problems with the default security settings.

2.3 Reduced IT Costs and Complexity

Data Protector reduces IT and business operations costs by providing broad compatibility of operating systems, applications, drives, libraries, and disk arrays.

2.3.1 Adds Support for Applications, Operating and Storage Environments

2.3.1.1 Cell Manager Support for HP-UX 11.23 on IA-64

Data Protector A.05.50 introduces support for Intel Itanium 2 (IA-64) architecture based Cell Manager and Installation Server for HP-UX 11.23, running in 32-bit native mode. All supported features and limitations for PA-RISC architecture based HP-UX systems described in the Data Protector documentation, also apply to HP-UX 11.23, unless stated otherwise. The Cell Manager on IA-64 HP-UX 11.23 supports local CLI and remote GUI from HP-UX (PA-RISC), Windows, and Solaris platforms. For details on supported GUI platforms, refer to Appendix C, "Support Matrices," on page 69.

2.3.1.2 Large File and Partition Support

In Data Protector A.05.50, there are no longer any Data Protector specific limitations for backup and restore of large files and partitions on Windows, HP-UX, Solaris, AIX, IRIX, Tru64, Linux, Novell NetWare (except for Novell NetWare 5.1 due to the Novell NetWare Storage Management Services limitation) and MPE (except for MPE 6.0) systems.

2.3.1.3 Solaris Disk Agent Enhancements

Data Protector A.05.50 supports backup and restore of ACLs (file permission attributes) on UFS and VxFS 3.5 on Sun Solaris 7/8/9 and new organization of extended attributes on Solaris 9 UFS.

2.3.1.4 Microsoft Exchange Server 2003

Data Protector A.05.50 introduces support for Microsoft Exchange Server 2003, including single mailbox backup and restore. The Data Protector Exchange 2003 integration can be configured as cluster-aware on Microsoft Cluster Server.

2.3.1.5 HP StorageWorks EVA SMI-S Agent

Data Protector A.05.50 introduces a new HP StorageWorks EVA agent - the EVA SMI-S Agent. This agent supports a new industry standard - Storage Management Initiative Specification (SMI-S), which has been designed to enhance interoperability of storage hardware and software by providing a common management interface for a network storage environment.

The EVA SMI-S Agent supports HP StorageWorks EVA operating with Command View (CV) EVA starting with v3.2 and Virtual Controller Software (VCS) starting with v3.02x. The agent executes all tasks required for managing HP StorageWorks EVA. It communicates to the HP StorageWorks SMI-S EVA provider, which directs communication between incoming requests and Command View EVA, and this way establishes control over the array.

2.3.1.6 Other Extensions

- Automatic configuration of supported devices that are connected to Data Protector clients running on AIX 4.3.x or 5.x operating system in a SAN environment
- Large file support, object copy and object mirroring, multiple paths to devices, software compression, and software encryption are supported by the OpenVMS Disk Agent. ACSLS is now supported for OpenVMS.

Chapter 3: Limitations and Recommendations

3.1 Size Limitations

3.1.1 Internal Database Size

	Data Protector A.05.50
Number of filenames ¹	32 GB or approx. 700 million (UNIX systems) 450 million (Windows systems)
Number of file versions	10 x No of filenames
Maximum number of DCBF ² directories	50
Maximum size per DCBF directory	4 GB
Maximum number of files per DCBF directory	10,000
Maximum number of concurrent drives (DLT7000 and lower performing)	100
Maximum number of concurrent drives (DLT8000/SDLT/LTO)	50

Notes

¹ The maximum size of the filename database is 32 GB for the Cell Manager. The number of filenames is an estimate for an average Data Protector environment.

² DCBF = Detail Catalog Binary Files

3.1.2 Number of Objects in a Backup Specification

There can be up to 500 Filesystem objects in the backup specification.

3.1.3 Number of Media

There can be up to 40,000 media in one pool.

In total, there can be 500,000 media in the Data Protector media management database.

3.1.4 Maximum size of file depots used for File Library

The Maximum Size of each file depot used for the File Library device is the minimum of

- 2 TB or
- the maximum supported file size in the filesystem where the File Library resides in

3.1.5 Number of Sessions in the Database

There can be up to 1,000,000 sessions in the database. At the most, 2,000 backup sessions can be run in one day.

3.1.6 Number of Backups Scheduled at One Time

The maximum total number of backup sessions running in parallel is 100 on UNIX systems and 60 on Windows systems. The default value is set to 5. This can be increased using the `MaxBSessions` global option. When the number of parallel sessions is larger than 50 (recommended maximum) the probability of hitting one of the system limits on the Cell Manager increases significantly (number of file descriptors, TCP/IP limitations, memory limitations).

3.1.7 Concurrent Activities

- Each backup session can by default use up to 32 devices at the same time. The upper limit for this parameter is controlled by the `MaxMPerSM` global option (default = 32).
- By default, up to 32 Disk Agents (depending on the concurrency of a device) can write to the same device at the same time. This number can be controlled using the `MaxDAperMA` global option.
- Up to 10 media can be imported in the IDB at the same time.

3.1.8 Number of Cells in a MoM Environment

There can be up to 50 cells in a MoM environment.

3.2 Localization

Data Protector A.05.50 is localized to the Japanese and French languages on Windows, HP-UX and Solaris operating systems. However, the installation procedure is not localized.

- International Versions of Microsoft Windows are not supported. The localized version is supported only on Microsoft Windows XP, 2000 with Japanese Language Support.

3.3 Platform Limitations

3.3.1 UNIX and Linux Limitations

- LOFS filesystems are fully supported. However, Data Protector does not recognize directories that are lofs-mounted, if they are mounted within the same filesystem. This will result in additional data being backed up.
- The maximum size of files and disk images you can back up depends on operating system and filesystem limitations. Data Protector has no file size limitations on the following UNIX systems: HP-UX, Solaris, AIX, IRIX, Linux, Tru64. On other UNIX systems Data Protector backs up files and disk images of up to 2 GB.
- Cross filesystem restore of ACLs (file permission attributes) is not supported. For example, ACLs backed-up from the VxFS filesystem cannot be restored to a UFS filesystem and vice versa. File objects however, can be restored to a different filesystem without ACLs.
- The GUI on UNIX can display a maximum 32000 files in one directory.
- File names containing quotation marks are not supported.
- To view online Help on UNIX platforms, you need to have a Web browser installed. You also have to set the Help Mode to default HTML browser in the `Preferences` options from the `File` menu in the GUI.
- On UNIX clients, the `ksh` shell must be installed. Note that on Linux the Public Domain Korn Shell (`pdksh`) can also be used.

HP-UX Limitation

- Restore of a single file from a disk image is not supported.
- In the HP-UX GUI, the user/group information IDs is displayed in numeric format only.

Solaris Limitations

- If a `csh` script is used for `pre-` or `post-exec`, the `-b` option must be specified in the interpreter specification line:
`#!/bin/csh -b`
- On Solaris, `/tmp` is a virtual filesystem in the swap area. If the `/tmp` directory is included in a backup specification, it is backed up as an empty directory. If restoring such backup, a swap area must be configured on the client prior the restore, otherwise the `/tmp` directory cannot be re-created.
- The Solaris installation CD-ROM is in the `pkg` stream format, which is not recognized by the standard tar utility. That's why the HP-UX, and not the Solaris installation CD-ROM must be used for the local installation/upgrade of Solaris clients.
- Data Protector A.05.50 does not support backup and restore of access control lists (ACLs) on Veritas Cluster File System (CFS).
- On Solaris, detection of media types other than Data Protector media is not reliable, due to the use of a number of different block sizes. Do not rely on Data Protector to recognize foreign media.
Workaround: To prevent Data Protector from automatically initializing a medium it does not recognize correctly, set `INITONLOOSEPOLICY=0` in the global options file. All media then have to be initialized manually.
- Cleaning tape recognition in DDS libraries does not work on Solaris.

Tru64 Limitations

- Raw device backup is not supported.
- Backup and restore of sockets and FIFOs is not supported on Tru64.

Linux Limitations

- After the transition from the `ext2` to the `ext3` filesystem on Linux systems, the journal will be visible as the `.journal` file in the `root` directory of the filesystem. If the filesystem is not mounted, the journal will be hidden and will not appear in the filesystem.
Due to the Linux operating system limitations, do not delete this `.journal` file, do not back it up, and do not restore it from backup.

SCO Limitations

- The `Restore Sparse Files` option, which can be selected when setting options for the Restore Session, is not supported on SCO UNIX.

3.3.2 Windows Limitations

- Windows directory share information can only be restored to a Windows system (except for Windows ME) with a Data Protector A.05.50 Disk Agent or newer. If this requirement is not met, the directory will still be restored, but the Disk Agent will ignore the directory share information.
- Only one CONFIGURATION backup can run on a Windows client at a time.
- Data Protector requires the same name for both, the computer name and the resolving hostname.

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- Microsoft Installer (MSI) 2.0 is required to install Data Protector A.05.50. If an older MSI version is installed on the target system, the Data Protector setup will automatically upgrade it to version 2.0. In this case, Data Protector will display a note at the end of the upgrade, stating that MSI was upgraded. It is highly recommended to restart the system, if MSI was upgraded. This applies to remote installation procedure as well (the MSI on the client will be updated and it is recommended to reboot the client).
- Backing up network shared volumes using the VSS functionality is not supported.
- The GUI on Windows can display a maximum 64000 files in one directory.
- When installing Data Protector on Windows, you cannot run multiple instances of the `setup.exe` program.
- The `<file share>` name used during the installation of the Data Protector Cluster Integration on Windows must not be "omniback". See also the *HP OpenView Storage Data Protector Installation and Licensing Guide*.
- When browsing with the backup specification editor a Windows client, the Windows user interface lists both online and offline Informix dbspaces. To check for databases, use the `onstat -d` command. Available databases are marked with the PO flag.
- Data Protector Cell Manager cannot be installed on Windows 2000 if NetLimiter is installed on the same system.
- Data Protector cannot be installed on Windows 2000 systems if any of the products from the Citrix MetaFrame application family is installed on the system (QXCR1000109889).

32-bit Windows Limitation

- On Windows, the native robotics driver (Removable Storage Manager) is automatically loaded to enable tape libraries. To use the library robotics with Data Protector on 32-bit Windows systems, disable the Windows medium changer (robotics) driver before you configure the system with the Data Protector Media Agent.

64-bit Windows Limitations

- The glossary is not available in online Help on 64-bit versions of Windows.
- Only the native Microsoft Windows installation CD is supported for Automated System Recovery (ASR). The *Windows XP 64-bit Edition Recovery DVD* that comes with Itanium systems cannot be used for ASR.
- It is not possible to integrate the Data Protector GUI with the Microsoft Management Console (MMC) using the Data Protector `OB2_Snap` snap-in.
- Data Protector A.05.50 does not support Web Reporting on the 64-bit versions of Windows XP/Server 2003, as JVM does not include support for Itanium 2 on Windows.

Windows Me Limitation

- On Windows Me, the original time attributes of the directory cannot be restored even if the `overwrite` option is used. The time attributes are preserved only if the original directory structure exists on the target system.

3.3.3 Novell NetWare Limitations

- The Novell NetWare client must be installed locally on the Novell NetWare system. There is no support for a remote installation from an Installation Server.
- Cross-platform restore is not supported.
- On Novell NetWare 5.1 systems, Data Protector can back up only files and disk images not exceeding 4 GB, due to the Novell Storage Management Services (SMS) limitation. Novell NetWare 6.x systems do not have file size and partition size limitations.

3.3.4 MPE/iX Limitations

- The MPE/iX client must be installed locally on the MPE/iX system. There is no support for a remote installation from an Installation Server.
- The maximum number of MPE/iX Disk Agents that can be running at the same time is limited to 15.
- The backup of MPE/iX configuration files or operating system is not possible. If you need to recover the MPE/iX configuration files or operating system, you should create a System Load Tape (SLT).
- The TurboStore/iX 7x24 True-Online product must be installed on the system in order to use the online and true-online backup options (option `ONLINE` and `ONLINE = START`).
- True-online backup with the `ONLINE = END` option is not supported.
- Cross-platform restore is not supported.
- The maximal path of arguments (trees and directories) for Data Protector `-tree` and `-exclude` DA options is 210 characters. It is recommended to back up whole accounts and groups on MPE/iX filesystem, instead of backing up individual files in one backup session.
- Preview backup with option `-exclude` uses POSIX wildcards (*, ?). Backup with option `-exclude` uses specific MPE/iX wildcards @ (replace zero or more alphanumeric characters) and ? (replace one alphanumeric character).
- Maximum Media Agent communication buffer is 32 KB.
- On MPE/iX clients, only the `omnib` command is supported.
- The following TurboStore/iX options are not supported and must not be used: `FCRANGE`, `FILES`, `LOGVOLSET`, `MAXTAPEBUF`, `NOTIFY`, `ONERROR`, `PURGE`, `RENAME`, `SPLITVS`, `STOREDIRECTORY`, `STORESET` and `TRANSPORT`.
- The following TurboStore/iX options are not supported by the TurboStore/iX API (which is used by Data Protector A.05.50 for backup and restore): `COMPRESS`, `FCRANGE`, `FILES`, `FULLDB`, `INTER`, `LOGVOLSET`, `MAXTAPEBUF`, `NOTIFY`, `ONERROR`, `ONLINE=END`, `PARALLEL`, `PARTIALDB`, `PURGE`, `RENAME`, `SPLITVS`, `STOREDIRECTORY`, `STORESET` and `TRANSPORT`.
- Tape statistics functionality is not supported on Media Agents running on MPE.
- On MPE/iX 6.0, only files not exceeding 4 GB can be backed up.

3.3.5 OpenVMS Limitations

- The OpenVMS client must be installed locally on the OpenVMS system. There is no support for a remote installation from an Installation Server.
- The product can only be installed on the system disk in `SYS$COMMON: [OMNI]`.
- Any file specifications that are passed to the CLI must conform to a UNIX style syntax:

```
/disk/directory1/directory2/filename.ext.n
```

- The string should begin with a slash, followed by the disk, directories, and file name, separated by slashes.
- Do not place a colon after the disk name.
- A period should be used before the version number instead of a semi-colon.
- File specifications for OpenVMS files are case insensitive, except for the files that reside on ODS-5 disks.

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For example:

An OpenVMS file specification of:

```
$1$DGA100: [USERS.DOE] LOGIN.COM;1
```

must be specified in the form:

```
/$1$DGA100/Users/Doe/Login.Com.1
```

- There is no implicit version number. You always have to specify a version number. Only file versions selected for the backup will be backed up. If you wish to include all versions of the file, select them all in the GUI window, or, using the CLI, include the file specifications under the Only (-only) option, including wildcards for the version number, as follows

```
/DKA1/dir1/filename.txt.*
```
- If the Do not preserve access time attributes (-touch) option is enabled during a backup, the last accessed date will be updated with the current date and time on ODS-5 disks. On ODS-2 disks, this option has no effect, and all the dates remain unchanged.
- Rawdisk backups are not available on OpenVMS. There is no equivalent to a "BACKUP/IMAGE" or "BACKUP/PHYSICAL".
- The Backup POSIX hard links as files (-hlink) option is not available on OpenVMS.
Files with multiple directory entries are only backed up once using the primary path name. The secondary path entries are saved as soft links. During a restore, these extra path entries will also be restored.
For example, system specific roots on an OpenVMS system disk will have the SYSCOMMON.DIR;1 path stored as a soft link. The data for this path will be saved under [VMS\$COMMON...].
- Files being backed up or restored are always locked regardless of whether the Lock files during backup (-lock) option is enabled or disabled. With the -lock option enabled any file opened for write is not backed up. With the -lock option disabled any open file is backed up as well. No message is issued when an open file is saved.
- The default device and directory for pre- and post-exec command procedures is /omni\$root/bin. To place the command procedure anywhere else the file specification must contain the device and directory path in UNIX style format: For example: /SYS\$MANAGER/DP_SAVE1.COM
- If you restore to a location other than the original location, only the disk device and starting directory are changed. The original directory path is added to the destination path to form the new restore location.
- If the Do not preserve access time attributes option is disabled during a backup and if the Restore Time Attributes (-notouch) option is disabled during a restore, the last accessed date will be updated with the current date and time on ODS-5 disks. On ODS-2 disks, the original dates will be set on the files.
- The Move Busy Files (-move) and Restore Sparse Files (-sparse) options are not available on OpenVMS.
- Files backed up from an ODS-5 disk on an OpenVMS system that have extended filesystem names (for example upper and lower case letters, Unicode characters, etc) may not be restored to an ODS-2 disk.
- If the Restore Protection Attributes (-no_protection) option is disabled, the files are created with the default owner, protection and ACL.
- Files with multiple directory entries (soft links) will be saved once using the primary path/filename. There is no support for a BACKUP/IMAGE equivalence. To make a restored copy of an OpenVMS system disk bootable the OpenVMS WRITEBOOT utility has to be used to write a boot block onto the restored disk.
- 16-bit Unicode filenames on an ODS-5 disk volume will be displayed in VTF7 (OpenVMS specific) notation on the Cell Manager in the form of "^Uxxyy" for a Unicode character where "xx" and "yy" are the Unicode hex codes for this character. Other valid characters for files on ODS-5 volumes can be specified using the OpenVMS guidelines for extended file specification syntax.

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- If you restore OpenVMS files to a non-OpenVMS platform you will lose the OpenVMS specific file attributes (for example record format, backup date, ACL).
- Files that have been saved on non-OpenVMS platforms and are to be restored to an OpenVMS system may lose some file attributes. No ACL will be restored in this case.
- For a backup, if you select `Do not preserve time attributes` or if during restore you turn off the `Restore time attributes` options (touch option), the volume where the files reside must be an ODS-5 disk with the `access_dates volume_characteristic` set. If the volume is an ODS-2 volume or that attribute is not set, the `last accessed`, `attributes`, and `modified` dates will not be used. To create an ODS-5 volume with that characteristic, use the command:
`$ SET VOLUME/STRUCTURE_LEVEL=ODS-5 - /VOLUME_CHARACTERISTICS=ACCESS_DATES`
- No qualification is done for tape drives which are not supported by OpenVMS. See the OpenVMS Software Product Description (SPD) for a complete list of tape drives.
- HSJ connected tape libraries cannot be autoconfigured. Use manual configuration methods to add these devices to Data Protector.
- Maximum block size on tape is 63.5 kB for all tape devices.
- All tape media initialized by the Media Agent starts with an ANSI VOL1 label having a non-blank Volume Accessibility character. To mount such a tape volume under OpenVMS use the `/OVERRIDE=ACCESSIBILITY` qualifier. However, the tape volume does not comply with ANSI tape labeling and can therefore not be used with OpenVMS utilities like DCL-COPY.
- Restore file to original location with the `no-overwrite` option will not restore any files.
- Incremental Backup will work at the directory level only, because OpenVMS creates a new file with a new version number upon modification of an existing file. Data Protector on OpenVMS allows to create incremental backups at file level only if the filename is exactly the same as the previous, including the version number.
- The `omnidlc` command (Debug and Logfile Collector) does not support clients running on OpenVMS. Debugs and log files created on OpenVMS platforms have to be collected manually. For details on how to collect debug and log files refer to the ReadMe file for the OpenVMS clients provided on the Windows Installation CD-ROM.

3.4 Limitations on Disk Array Integrations

3.4.1 HP StorageWorks Disk Array XP Limitations

- Asynchronous CA configuration is not supported.
- Split mirror restore (restore to a secondary volume and synchronizing to the primary volume) is only supported for the filesystems and disk images in the BC configuration. Database/application split-mirror restore is not supported.
- In case the MS Exchange Server 2000/2003 is installed on the backup system, its Information Store (MDB) and Directory Store have to be installed on the HP StorageWorks Disk Array XP LDEVs that are different than the mirrored LDEVs used for the integration. The drive letters assigned to these LDEVs have to be different from those assigned to the LDEVs that are used for the integration.
- Dynamic disks are not supported on Windows 2000.
- Instant recovery from a ZDB-to-disk+tape session cannot be performed using the Data Protector GUI after exporting or overwriting the media used in the backup session. The backup media must not be exported or overwritten even after an object copy session. If the backup media have been exported or overwritten, perform instant recovery using the Data Protector CLI. For information, refer to the *HP OpenView Storage Data Protector Zero Downtime Backup Administrator's Guide*.

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- Campus Cluster configurations cannot be run on HP-UX if the backup server has any of the following patches installed: PHCO_25814, PHCO_25390, or PHCO_24809. These patches will cause the `vgimport` of a partial quorum volume group to core dump. PHCO_23333 does not demonstrate this behavior.
- Split mirror backups (ZDB to disk and ZDB to disk+tape) cannot be started or previewed before the backup specification has been saved.
- During a Data Protector session, when the HP StorageWorks AutoPath Shortest Queue Length load balance policy is set, and if the failover to an alternate path occurs, the Data Protector will fail the session.
- Routine maintenance, including (and not limited to) hot-swapping any field replaceable components like, disk array controllers, FC switches, and/or online firmware upgrades during backups are not supported. Backups are a high-IO activity and should not be done at the same time as routine maintenance.

3.4.2 HP StorageWorks Virtual Array Limitations

- Only the HP Business Copy VA snapshot configuration is supported.
- Dynamic disks are not supported on Windows 2000.
- Only one logical volume can reside on one HP StorageWorks Virtual Array LUN in case LVM Mirroring is used.
- Limit the size of LUN0 to 10 MB and do not use it for storing data, as LUN0 is used as a command device and is accessed by all hosts connected to the disk array.
- ZDB-to-disk and ZDB-to-disk+tape sessions cannot be started or previewed before the backup specification has been saved.
- Instant recovery from a ZDB-to-disk+tape session cannot be performed using the Data Protector GUI after exporting or overwriting the media used in the backup session. The backup media must not be exported or overwritten even after an object copy session. If the backup media have been exported or overwritten, perform instant recovery using the Data Protector CLI. For information, refer to the *HP OpenView Storage Data Protector Zero Downtime Backup Administrator's Guide*.
- Due to a hardware limitation, it is not possible to perform instant recovery if extra snapshots, associated with the same parent LUNs as those to be restored are existing on the HP StorageWorks Virtual Array.
Workaround: It is necessary to delete (using `omnidbva` or manually remove) these extra snapshots before the instant recovery can be performed. Snapshots created by Data Protector can be identified using the `omnidbva -lun` command.
- If instant recovery is performed, all snapshots for the parent LUNs involved in the instant recovery session will be deleted automatically before the restore takes place.
- Routine maintenance, including (and not limited to) hot-swapping HBAs/SCSI controllers, disk array controllers, FC switches, and/or online firmware upgrades during backups are not supported. Backups are a high-IO activity and should not be done at the same time as routine maintenance.

3.4.3 HP StorageWorks Enterprise Virtual Array Limitations

- Dynamic disks are not supported on Windows 2000.
- With Virtual Controller Software v2.x, the following is not supported: instant recovery, snapclones, and replica set rotation.
- With Virtual Controller Software v2.x or v3.0, maximum of 7 snapshots (either vsnaps or standard snapshots) per source volume can exist.
- If you have multiple storage Management Appliances, only the Management Appliances that manage your EVA storage systems are supported, but not those that monitor them.

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- Only one type of target volume per source volume can exist on a disk array at the same time. For example, a snapclone of a source volume cannot be created if a vsnap or a standard snapshot of the same source volume already exists.
- For ZDB-to-disk and ZDB-to-disk+tape sessions (instant recovery enabled), only snapclones can be used.
- Instant recovery changes the physical location of the source volumes if replica and source volumes are not in the same disk group.
- Instant recovery from a ZDB-to-disk+tape session cannot be performed using the Data Protector GUI after exporting or overwriting the media used in the backup session. The backup media must not be exported or overwritten even after an object copy session. If the backup media have been exported or overwritten, perform instant recovery using the Data Protector CLI. For information, refer to the *HP OpenView Storage Data Protector Zero Downtime Backup Administrator's Guide*.
- On all supported platforms (Solaris, HP-UX, and Windows 2000), HP StorageWorks Enterprise Virtual Array supports systems with multiple FC HBA cards only when they are running Secure Path.
- Virtual Controller Software v1.0 is not supported.
- Continuous Access software appliance (DRM) is not supported.
- Routine maintenance, including (and not limited to) hot-swapping HBAs/SCSI controllers, disk array controllers, FC switches, and/or online firmware upgrades during backups are not supported. Backups are a high-IO activity and should not be done at the same time as routine maintenance.
- Running two (or more) EVA ZDB-to-tape or ZDB-to-disk+tape sessions in parallel on the same backup client is not supported if an HP-UX system is used as a backup client.

3.5 NDMP Limitations

- Only filesystem backup and restore is possible.
- The NDMP integration can handle backups of up to 20 million files if up to 10% of the total number of backed up files are directories, for an average directory name length of 25 characters, and average filename length of 10 characters. In such a case, the NDMP integration allocates up to 1.9 GB of system memory and 2.8 GB of disk space.

For optimal performance the recommended number of files and directories for an NDMP backup specification is 10 million.

The default upper limit for the number of files for an NDMP backup specification is 5 million. To enable higher values, the `OB2NDMPMEMONLY` omnirc file variable must be set to 0.

- Device cleaning is not supported.
- Load balancing is not supported.
- Only Full and Incr1 backup levels are supported.
- Maximum device concurrency is 1.
- Device selection as well as filesystem browsing is not possible.
- Device block size is limited to 64 KB.
- NDMP devices must use dedicated media pools.
- Localization for the NetApp specific messages is not possible.
- It is not possible to deselect a subtree of the selected tree to be restored.
- Object copying, object mirroring, and media copying is not supported for NDMP backup.

- Medium header sanity check is not supported on NDMP clients.

NetApp Filer

- On NetApp filers running Data ONTAP version prior to 6.4, direct access restore (DAR) is not supported for directories; a standard restore will be performed instead. This has performance implications only.

Celerra

- If you select directory restore using the Direct Access Restore functionality, only the selected directory will be restored without its contents. To restore an entire directory tree, set `DIRECT=N`.

3.6 Direct Backup Limitations

- In a direct backup environment, the backup and restore of an Oracle database installed on raw partitions (rawdisk or raw logical volumes) are not supported.
- Instant Recovery of data backed up in a direct backup environment is supported only if:
 - Control files and online redo logs do not reside on the same logical volumes as data files.
 - A whole database backup had been performed, meaning that all data files that belong to the Oracle9i Server instance had been selected during the backup.
- The pre-exec and post-exec options for backup objects are not available for direct backup of raw logical volumes. They are available for Oracle9i direct backup.
- The systems in the direct backup environment must be HP-UX 11.11.

3.7 Limitations on Database Integrations

3.7.1 Oracle Limitations

- When using RMAN scripts in Oracle backup specifications, double quotes (") must not be used, single quotes (') must be used instead.
- Data Protector does not check whether database objects to be restored were backed up and exist in the Data Protector internal database. The restore procedure simply starts.
- When restoring tablespaces to point in time the RMAN interface has to be used.
- Only the Oracle Restore GUI and Oracle RMAN can be used to recover the Oracle recovery catalog database.
- When using the Data Protector Restore GUI, the user will not be able to edit RMAN scripts before they are executed when performing a restore operation.
- When restoring a database using the Data Protector Restore GUI for Oracle to a host other than the one where the database originally resided, the instance name chosen on the new host must be the same as that of the original instance name.
- On Windows platforms, a proxy copy backup of an Oracle8i/9i database is not possible if the database is on raw disks. The backup seems to be completed without any problems reported, but restore from the session is not possible .
- Instant recovery is not supported if Oracle8.0.x is used as a part of an Oracle ZDB integration.
- If an object is deleted from the RMAN Recovery Catalog database, these changes will not be propagated automatically to the IDB

and vice versa.

- The Oracle backup set ZDB method is not supported if the database is installed on raw disks.

3.7.1.1 Windows Oracle Limitation

- Maximum 15 RMAN channels can be allocated to run Oracle backup and restore sessions on Windows platforms.

3.7.2 SAP R/3 Limitations

- If ZDB to tape is used to back up a tablespace in a ZDB environment on Windows, and the `ZDB_ORA_INCLUDE_CF_OLF_omnirc` variable is not set to 1, the backup does not work if the control file is not on the mirrored disk/in the snapshot that will be backed up.

3.8 Limitations on Clusters

3.8.1 MC/ServiceGuard Limitation

- When adding components on MC/ServiceGuard, add the component(s) on the active node. Then start the package on the other node, and add the component(s) on this node too.

3.9 Other Limitations

- Only local shared storage (connected to cluster nodes via SCSI) is supported in cluster environments for ASR. Shared storage on Disk Arrays connected to cluster nodes via Fibre Channel (for example: EVA or XP disk arrays) is not supported unless appropriate device drivers are provided during the initial phase of ASR recovery (by pressing F6). This enables Windows 2003 Setup to correctly detect shared storage located on Disk Arrays.

It is necessary to execute a test plan. The operation is at your own risk.

- Data Protector does not support hostnames with non-ASCII characters.
- Do not export media which contain integration object copies made from platforms that support Unicode (for example, Windows) to non-Unicode platforms (for example, HP-UX) or vice versa.
- The STK - Horizon Library manager is not supported.
- You cannot select different condition factors for pools sharing the same free pool. All media pools using a free pool inherit the condition from the free pool.
- Device files for the spt driver cannot be created automatically by Data Protector. The device file needs to be created manually using the `mknod` command.
- Media pools with magazine support cannot use free pools.
- Data and catalog protection can only be set until the year 2037.

Workaround: set protection period to 2037 or less and extend it with one of the future Data Protector releases that will support time settings past the year 2037.

- The network connections from a Cell Manager to DA clients must respond within 10 seconds or the backup will be marked as failed.
- The name of a backup specification should not exceed 64 characters.

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- The maximum length of text strings to identify or describe the properties of media and devices (for example, the media label applied to a medium when being initialized) is 80 characters.
- Session level restore is not available for the online database integrations.
- The - (minus) symbol must not be used as the first character in any Data Protector labels or descriptions.
- The word `DEFAULT` is a reserved keyword and must not be used in device names, backup specification names, and pool names.
- All media with barcode labels starting with the `CLN` prefix are treated as cleaning tapes. Labels with this prefix should only be used on cleaning tapes.
- Software data compression for online database backups, such as Oracle, Sybase, SAP R/3, Informix, and Microsoft SQL Server, is not supported.
- The configuration of SNMP traps using the Data Protector Manager depends on the platform of the Cell Manager: On HP-UX Cell Managers, the recipient system for the trap that is configured in the GUI, receives the traps. On Windows Cell Managers, the content of the recipient field in the GUI is ignored. The recipient must be configured on the Cell Manager in the Control Panel under `Network->Services->SNMP Services`.
- The eject/enter functionality for ATL 2640 and ATL 6/176 devices is not supported using the fast access port.
- Media of different format types are not compatible:

- Data Protector (written by devices under direct Data Protector MA control)

- NDMP NetApp (written by devices connected to NetApp filers)

- NDMP Celerra

Media from these different format categories cannot reside in the same pool. A media from one format category cannot be recognized when subjected to one of the other environments using a different format category. In such a case, the media will be viewed as foreign and depending on the policy, unexpected overwrites might occur.

- From one backup object, only 1,024 files and/or directories can be selected, otherwise select the entire object. For details about backup objects, refer to the *HP OpenView Storage Data Protector Administrator's Guide*.
- Some filesystems allow creation of deep directory structures (deeper than 100). Data Protector can only back up down to a depth of 100.
- When changing the `omnirc` file, it is required to restart the Data Protector services/daemons on the system. This is mandatory for the `crs` daemon on UNIX and recommended for `Data Protector Inet` and `CRS` services on Windows. On Windows, restarting is not required when adding or changing entries, it is required only when removing entries.
- If you use quotes ("`"`) to specify a pathname, do not use the combination of a backslash and quotes ("`\`"). If you need to use trailing backslash at the end of the pathname, use double backslash ("`\\`").
- Tape quality statistics functionality is not currently supported if the Media Agent runs on: MPE, SCO, NetWare, Linux, Sinix, AIX.
- Automatic drive cleaning for library definitions with a shared cleaning tape is not supported. Each library definition needs to have its own cleaning tape configured.
- The path of DR image file is limited to 250 characters, if it is saved on the Cell Manager during backup.
- When recreating volumes during the Phase 1 of automated disaster recovery (EADR or OBDR), the original volume-compression flag is not restored (always saved to non-compressed).

Workaround: Restore the volume compression flag manually after restore.

- The Data Protector GUI can display a limited number of backup specifications. The number of backup specifications depends on the size of their parameters (name, group, ownership information and information if the backup specification is dynamic or not). This size should not exceed 80 Kb.
- The maximum pathname length supported by Data Protector is 1023 characters.
- Devices of type file library are not supported for filesystem which have compression turned on.
- The length of the directory names which can be configured for devices of type file library cannot exceed 46 characters.
- The length of the pathname for jukebox slots and standalone file devices cannot exceed 77 characters.

3.10 Recommendations

3.10.1 Number of Clients in a Cell

In typical environments, 100 clients per cell is a reasonable number. In some customer environments it is possible to have many hundred clients in one cell, depending on factors like:

- IDB load: types of objects backed up, filesystem log level, image, online database, split mirror backup/zero downtime backup, NDMP...
- Network and system load: local versus network backup, level of concurrent backup activities.
- Maintenance tasks: user management, configuration of backup specifications, upgrade, patches.

The maximum number of clients per cell should not exceed 1000.

3.10.2 Large Number of Small Files

Backup of a client with a large number (>100,000) of small files puts a high stress on system resources. If such a system needs to be backed up, the following steps (in the suggested sequence) can be performed to improve the situation:

1. Avoid any other activity on the system where the Media Agent runs during backup.
2. Change the log level option for such filesystems to directory. This way, individual filenames and file versions will not increase the size of the database.
3. Consider disk image backup.
4. Increase the system resources (memory, CPU) on the system where the Media Agent runs first and then on the Cell Manager system.

3.10.3 NDMP Backup Configuration

The maximum number of files and directories per NDMP backup specification should not exceed 20 million. The recommended number of files and directories per NDMP backup specification is 10 million.

3.10.4 Support for NIS+

NIS+ cannot be used as the primary name resolution for hosts when using Data Protector. However, you can run Data Protector on the hosts where NIS+ is configured if one of the following alternatives for name resolution with Data Protector is chosen:

- Using DNS. In this case, change the line starting with hosts in the `/etc/nsswitch.conf` file as follows:

```
hosts: dns [NOTFOUND=continue] nisplus
```

- Using hosts file. In this case, change the line starting with hosts in the `/etc/nsswitch.conf` file as follows:

```
hosts: files [NOTFOUND=continue] nisplus
```

In both cases, the Cell Manager must have full qualified name registered in DNS or hosts file.

3.10.5 Microsoft Exchange Single Mailbox Backup

Microsoft Exchange Server single mailbox backup is not as space- and CPU-efficient as backup of the whole Microsoft Exchange Server 2000/2003 or Microsoft Exchange Server 5.x. It is recommended to use Microsoft Exchange Single Mailbox Integration only for backup of a small number of mailboxes. If you are backing up large numbers of mailboxes, use Microsoft Exchange Server 2000/2003 Integration or Microsoft Exchange Server 5.x Integration instead.

3.10.6 GUI on UNIX

It is recommended to set the locale to a locale that uses UTF-8 encoding on the UNIX systems where GUI will be running. This will enable you to switch between different encodings in the Data Protector GUI to correctly display filenames and session messages containing non-ASCII characters.

Chapter 4: Known Problems and Workarounds

This section lists known Data Protector and non-Data Protector problems and workarounds.

4.1 Known Data Protector Problems and Workarounds

4.1.1 Installation and Upgrade Related Problems

- In case there is not enough free disk space on the destination partition, the push installation of the User Interface fails and reports:
 [Warning] Installation of User Interface FAILED!
 Data Protector Software package installation failed
 Check the log file `/var/tmp/cc.pkgadd-log`

Workaround: The disk space on the destination partition has to be at least 40 MB even if the package is installed on the linked partition.
- Installation CD-ROM cannot be ejected after installing the Cell Manager on Solaris systems.

Workaround: Stop and start Data Protector services:

```
/opt/omni/sbin/omnisv stop
/opt/omni/sbin/omnisv start
```
- If the cluster client is configured under several virtual names, then Data Protector Cell Manager will only update configuration information for cluster virtual node.

Workaround: This has no effect on the actual state of the Data Protector client - only configuration data is not upgraded. To finish the upgrade, log to the Cell Manager system and run the command `omnicc -update_host <virtual-name>` for every virtual name (other than cluster name).
- Import of the Data Protector cluster virtual server will fail during the installation of cluster-aware Cell Manager if there is another cluster virtual server configured on Microsoft Cluster Server in any cluster group and is offline. If this virtual server is online during the Data Protector installation, the import of the Data Protector cluster virtual server will be successful.

Workaround: Put all virtual servers in your cluster online and import the Data Protector cluster virtual server manually after the installation.
- When uninstalling the EVAA component, the `libexpat.dll` file is also removed. The `omnidbeva` command will therefore fail.

Workaround: Copy the `libexpat.dll` file to a temporary location and after the EVAA component is uninstalled, copy the file back to `<Data_Protector_home>/bin`.
- If you upgrade a Data Protector client on HP-UX 11.23, the binaries of the Data Protector components that are not supported on HP-UX 11.23 (for example EMC, DB2) are not removed. If you later uninstall Data Protector, the binaries are left on the system.

Workaround: Uninstall the previous version of OmniBack II or Data Protector before installing Data Protector A.05.50.

4.1.2 User Interface Related Problems

- In the Data Protector GUI on HP-UX, when using the default `roman8` encoding, unreadable characters may appear.

Workaround: Set your locale to an `iso88591` encoding. For example, set an `iso88591` compatible locale:

```
$ export LANG=C.iso88591
```

There are usually other `iso88591` locales too, such as `en_US.iso88591`, `de_DE.iso88591`, etc. You can check available locales on your system using the `locale -a` command. If this command isn't available on your system, browse the following

directories to determine which locales are supported:

```
/usr/lib/nls  
/usr/lib/locales  
/usr/lib/X11/nls
```

- Copying a selection of a session message text to clipboard by right clicking the selected text and selecting Copy to clipboard does not work on UNIX systems. A workaround for UNIX systems is to make a selection in the session message text and paste it in a text editor (for example vi editor). You can then save the contents of the text editor in a new file.
- When using Data Protector CLI on Windows to manage backups of other platforms, the filenames will only be displayed correctly for code page 1252. Characters from other code pages will appear corrupted. Even though a filename appears corrupted in the CLI, it will be backed up or restored properly. Data Protector CLI expects such "corrupted" filenames as input parameters. You can use copy and paste to input filenames as they appear in code page 1252.

Refer also to online Help index keyword "internationalization" for internationalization limitations tables.

- Data Protector messages are displayed only in black color on the Japanese version of Windows 2000. The Use color highlighting option is disabled on the Japanese version of Windows 2000.

4.1.3 Media Agent and Disk Agent Related Problems

- In previous releases the devbra command on Linux and Solaris systems reported rewind on close device files (/dev/st* on Linux and /dev/rmt/*mb on Solaris) during the configuration instead of no rewind on close devices (/dev/nst* on Linux and /dev/rmt/*mbn on Solaris). Thus, the devices were configured as rewind on close devices. As a result, Data Protector can overwrite the media header and thus render the backup unusable. The problem occurs in SAN environments, for example if the path (rewind on close) of one device points to another device that is currently in use on another host.

Workaround: Ensure that there are no rewind on close devices configured. Review your device configuration on Linux and Solaris systems and reconfigure all rewind on close devices as no rewind on close devices.

During an upgrade, the rewind on close devices are not upgraded automatically, instead a warning is displayed with an advice to reconfigure the devices. Reconfigure devices manually before you perform the next backup.

- When you have a cell set up where the Cell Manager is installed outside the cluster and the devices are connected to cluster nodes and a failover during backup activity occurs, the Media Agent may not be able to properly abort the session, which results in the medium no longer being appendable (QXCR1000143515).
- When attempting a parallel restore which has more Disk Agents than the Media Agent concurrency, some Disk Agents may fail with the following error:

```
Cannot handshake with Media Agent (Details unknown.) => aborting.
```

Workaround: Restart the restore objects of the failed Disk Agents (QXCR1000108320).

- During restore, the restore Disk Agent (VRDA) displays the mount points of the application host in the monitor. For example, instead of the restore target mount point /var/opt/omni/tmp/<name.company.com>/BC/fs/LVM/VXFS it actually displays the corresponding application source mount point /BC/fs/LVM/VXFS.
- Cleaning tape drive functionality works correctly when there is a cleaning tape present either in the library slot or in the repository slot. If the cleaning tape is not present, the mount request for the cleaning tape will not work properly.
- When importing a range of tapes, Data Protector normally skips all invalid tapes (such as tar tapes, blank tapes, etc.) and continues with the next slot. If importing a range of tapes on a NetApp Filer (Celerra), and a NetApp tape is detected, Data Protector reports a major error and aborts.
- If during backup/restore to ACSLS library mount request occurs (in case that library run out of usable media) do not format or scan additional tapes with the tape device used by the backup/restore session. Use the different tape device in library to perform this

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operation and confirm the mount request.

- When restoring files to a different host via a UNC share, the restore fails with the following message in the session log:

```
Can not open: ([112] There is not enough space on the disk. ) => not restored.
```

```
[Warning] From: VRDA@host1.test.com "host2.test.com [/H]" Time: 27/09/00 16:58:40  
Nothing restored
```

Workaround: OmniInet logon user must have the access to log on to the remote host, which is specified in the UNC path. You should also be the owner or have write permission to the files you want to restore via UNC share.

- Data Protector UNIX session manager sometimes fails to start restore media agents in parallel on Novell NetWare clients with an error message like, for example, Could not connect to inet or Connection reset by peer. It is possible that some parallel restore sessions are completed without errors, while other restore sessions are not even started.

Workaround: Set the `SmMaxAgentStartupRetries` global variable in the Data Protector global options file (located in `/etc/opt/omni/server/options/global`) to 2 or more (max. 50). This variable specifies the maximum number of retries for the session manager to restart the failed agent before it fails. For more information on the Data Protector global options file, refer to the online Help index keyword "global options file".

- After upgrading to Data Protector A.05.50, you cannot use devices that were configured as different device types in previous releases. For example, you cannot use 9940 devices that were configured as 9840 devices, 3592 devices that were configured as 3590 devices or SuperDLT devices that were configured as DLT devices. The following error occurs:

```
[Critical] From: BMA@ukulele.company.com "SDLT" Time: 2/22/2003 5:12:34 PM  
[90:43] /dev/rmt/1m  
Invalid physical device type => aborting
```

Workaround: Manually reconfigure these devices using the `mchange` command, located on the Cell Manager in the following directories:

— On HP-UX: `/opt/omni/sbin/utilns/HPUX`

— On Solaris: `/opt/omni/sbin/utilns/SOL`

— On Windows: `<Data_Protector_home>\bin\utilns\NT`

The syntax of the `mchange` command is: `mchange -pool PoolName -newtype NewMediaClass`
where:

PoolName is the name of the media pool with devices that are currently configured and should be reconfigured (for example, Default DLT or Default T9840).

NewMediaClass is the new media type of the devices, for example, T9940 for 9940 devices, T3592 for 3592 devices, and SuperDLT for SuperDLT device.

This command changes media types for all media, drives and libraries that use the defined media pool. After you have executed this command for each device you changed, move the media associated with the reconfigured devices from the current media pool to the media pool corresponding to these media. For example, move the media associated with the reconfigured 9940 devices to the Default T9940 media pool, media associated with the reconfigured 3592 devices to the Default T3590 media pool, and the media associated with the reconfigured SuperDLT devices to the Default SuperDLT media pool. For related procedures, refer to the online Help.

- The default block size for file devices, file libraries, or jukebox devices is changed from 16kB to 64kB after the upgrade to Data Protector A.05.50. The append and import medium operations on media in such devices are not possible after the upgrade if the media were configured with the default block size setting before the upgrade.

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Workarounds:

- If you still need the data on the media, change the block size setting to 16kB for the devices used with the needed media.
- If you do not need the data on the media, recycle or reformat the media using the new default block size setting.

- When restoring data using List From Media, the session may fail with the following message:
[Critical] From: MSM@vinyl.hermes.com "FUYL" Time: 13.8.04 11:29:16
Failed to allocate memory.
[Normal] From: MMA@vinyl.hermes.com "FUYL" Time: 13.8.04 11:29:16
ABORTED Media Agent "FUYL"

Backups with a large number of files require a large amount of memory when List From Media is used.

Workaround: Import the medium to write detailed information about backed up data on the medium to the IDB and then browse it for a restore.

- Backup sessions for backing up to a file library device ignore the media pre-allocation list.
- If the media of a file library device are unprotected, they are deleted at the beginning of the next backup session that is using this device. However, the session, which was using the first medium of the file library device, is still stored in the database. If you try to perform a restore by specifying this session, the restore fails and the following message is issued: `Object not found`.
- When trying to backup directory structure with more than 100 directories (on HP-UX this number is equal to the maximum number of allowed open file descriptors), the following message is displayed twice instead of once:
[Major] From: VBDA@host.hermes.si "C:" Time: 8/31/2004 11:04:52 AM
[81:74] File system too deep: (100) levels.
- When backing up mount point on Windows, if a subdirectory is deselected (excluded from backup), the whole mount point might still be backed up.
- When trying to expand the empty windows mount point in tree view, the following error is reported:
`Cannot read directory contents.`
- When a restore of the configuration on a Novell NetWare platform is attempted, the TSA.nlm module might report an error similar to the following:
[Minor] From: HPVRDA@<host> "CONFIGURATION:" Time: xx/xx/xxxx xx:xx:xx
TSA: Error (TSAFS.NLM 6.50 272) The program was processing a record or sub record and did not find the Trailer field.
- When utilizing autoloader devices, messages from the HPUMA.nlm module might be unreadable. For example:
[Normal] From: HPBMA@<host> "<device name>" Time: xx/xx/xxxx xx:xx:xx
?T?y??K?
- On Windows, the encrypt attribute of an encrypted folder will be restored. However, only a user who logs on using the account under which the Omnifinet service runs on the client or an Administrator will be able to remove the attribute.
- If a disk becomes full during a backup session using a jukebox (with media of type file) as destination device all slots (configured on this disk) containing unprotected media will be marked as empty.

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Workaround:

1. Rescan the slots which are marked as empty. After the rescan, the media will be visible again in the slot.
2. Free up space on the disk to avoid this problem again.

After performing both steps, you can continue to work with the jukebox device.

- When copying older application objects (backed up with a pre-A.05.50 version of Data Protector), one of the following conditions must be fulfilled:

— Perform object copy with the target MA running on the same platform where the original backup was made.

or

— Perform object copy and always retain at least one of the copies or the original in the IDB (catalog protection permanent)

- An object copy session containing many objects (more than 200) or complex object media relations (see below) may hang.
Workarounds:

— Change the device mapping so that only one device is used to read the copy source media per media type (DLT or LTO) and try again.

— Split the original object copy session into multiple sessions and restrict each session to copy objects from one backup session only.

— Split the original object copy session into multiple sessions and restrict the session to copy as few media as possible in a single session.

Hangs are commonly caused by copying objects from one (source) media which were created by different backup sessions using different (logical) devices.

- When backing up Macintosh files on a Windows system, certain characters in file names can cause problems. If file names contain characters considered invalid on a Windows filesystem (typically '*' or '?'), or contain characters mapped to such invalid characters (for example, Macintosh bullet character), it is possible that individual files are not backed up or that the Disk Agent aborts ungracefully.

Workaround: Rename the problematic files.

4.1.4 Integration Related Problems

Microsoft Exchange Server

- ZDB of Microsoft Exchange 2000 Server (which was upgraded to SP3) fails with the following error:
[Normal] From: SNAPA@tuljan.ipr.com <mailto:SNAPA@tuljan.ipr.com> " " Time: 7/24/2002 10:26:52 AM
Executing the split pre-exec script.
(omniex2000.exe -dismount -storage_group 'Accept' -appsrv vaexchg.ipr.com)
[Critical] From: SNAPA@tuljan.ipr.com <mailto:SNAPA@tuljan.ipr.com> " " Time: 7/24/2002 10:26:53 AM
[224:501] Split links pre-exec command failed with exit code -1.

Workaround: When Exchange 2000 Server is upgraded to SP3, omniex2000.dll must be unregistered and registered again. From <Data_Protector_home>/bin directory on the Exchange 2000 Server system, run the regsvr32.exe command:

to unregister: regsvr32 /u omniex2000.dll

to register: regsvr32 omniex2000.dll

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- In the Data Protector GUI, the tape device you want to use for a Microsoft Exchange Server restore cannot be changed from the device originally used by backup.
Workaround: To change the device for restore, in the Data Protector GUI, click the Change button. You cannot change the device by just unselecting the default device and selecting the desired device.
- For the purpose of remote administration, to be able to run the `omniex2000SM.bat` script from a Windows client that does not have the Microsoft Exchange 2000/2003 Integration software component installed, you must copy the `omniex2000SM.bat` to such a client.

Microsoft SQL Server

- In the Data Protector GUI, the tape device you want to use for a Microsoft SQL Server 7.0/2000 restore cannot be changed from the device originally used by backup.
Workaround: To change the device for restore, in the Data Protector GUI, click the Change button. You cannot change the device by just unselecting the default device and selecting the desired device.

SAP R/3

- SAP backup fails, when '-u' option is specified in the command line when using `brbackup` or `brarchive` commands.
Workaround: If you specified '-u' in the command line of `brbackup` or `brarchive`, it should be followed by `<username>/<password>`.
- A split mirror restore of the SAP R/3 integration using the Data Protector GUI on the backup system is done as a regular filesystem restore, during which split mirror agents (SYMA, SSEA) mount disks on `/var/opt/omni/tmp` (by default). Since this is a restore of an application integration, VRDA restores files to the original mount points. Therefore, the restore is not done to EMC disks, but to the root partition.
Workaround: Set the following `omnirc` variable in the `/opt/omni` directory on the backup system:
`SYMA_PRESERVE_MOUNTPOINTS=1`, for the EMC Symmetrix integration
`SSEA_PRESERVE_MOUNTPOINTS=1`, for the StorageWorks XP integration

Oracle

- Restore of an Oracle9i database on Linux fails with the error message `Binary util_orarest failed`.
Workaround: Replace the `util_orarest.exe` file with the `util_orarest9.exe` file (both located in the `/usr/omni/bin` directory on Linux). To do so, rename the `util_orarest.exe` to `util_orarest.exe.orig` and `util_orarest9.exe` to `util_orarest.exe`.
- The `ZDB_ORA_INCLUDE_CF_OLF`, `ZDB_ORA_INCLUDE_SPF`, and `ZDB_ORA_NO_CHECKCONF_IR` `omnirc` variables were not set and database recovery after instant recovery fails with the following error:
`ORA-00338: log <name> of thread <num> is more recent than control file`
The above error message means that the control file was overwritten during instant recovery. This happens if the location where the Oracle control file is installed was specified as the `<control_file_location>` parameter which defines the location of the control file copy.
Workaround: Perform recovery using a backup of the control file.
Ensure that `<control_file_location>` does not point to the location where the Oracle control file is installed.
- In split mirror backup environment on Solaris 7 (Sun SPARC) with Oracle8.0, where different configuration files exist both on backup host and application host, it is possible that check configuration passes but the actual backup fails because the check configuration process reads the configuration for the backup host while the backup process reads the configuration for the application host.

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Workaround: To force the configuration process and backup process to read from the same configuration file, the `/opt/omni/sbin/ob2rman.exe` file on the backup host needs to be replaced with the file `UNIX-CD: /MISC/Solaris7_Oracle8/ob2rman.exe` located on any of the UNIX Data Protector CDs.

Caution: save the original file and ensure that the permissions of the replaced files are like they were on the original file.

- If you restore a backup, performed using the proxy-copy and perform a database recovery, RMAN may try to use the channel allocated for restoring proxy-copy backups to recover the database. As a result, the recovery will fail. (performed)

Workaround: Start a database recovery only session from the Restore context or by using RMAN scripts.

- When restoring to another client, the list of backup objects is not updated after the new client is selected.

Workaround: In the `Restore` action drop-down list, select a different restore action to refresh the list:

— If you selected `Perform Restore`, `Perform Restore & Recovery`, or `Perform Recovery Only`, select `Perform RMAN Repository Restore` and then again the previous selected action.

— If you selected `Perform RMAN Repository Restore`, select `Perform Restore` and then again `Perform RMAN Repository Restore`.

Informix

- When reconfiguring Informix Integration using the Data Protector GUI, the configuration data already known to Data Protector is not displayed in the GUI.

Workaround: Enter the configuration data manually.

- Restore of an Informix database cannot be started from the CLI with the `ommir` command.

Workaround: The restore can be started with `ob2onbar.exe` or with the Informix command `onbar.exe`.

- Restore of Informix objects from backups done before upgrade to Data Protector A.05.50 hangs if backup was done using a file device, a file library, or a jukebox device and if the default block size setting was used with the media in such devices. This is due to the change of the default block size for file devices, file libraries, and jukebox devices from 16kB to 64kB during the upgrade to Data Protector A.05.50.

Workaround: Change the block size setting for the devices used with the media needed for the restore from the default (64kB) to 16kB.

Sybase

- When reconfiguring Sybase Integration using the Data Protector GUI, the configuration data already known to Data Protector is not displayed in the GUI.

Workaround: Enter the configuration data manually.

Lotus Notes/Domino

- On Windows systems with two processors, backup of Lotus Domino/Notes hangs if a device with concurrency set to more than 16 (or 23 if the `OB2SHMIPC` variable is set to 0) is used.

Workaround: None.

- Lotus Domino integration agent (`ldbar`) will use configuration values that were valid when the backup specification (`barlist`) was created. Any further changes to the integration configuration will not be reflected in the backup specification and as a consequence, `ldbar` will use wrong parameters.

Workaround: Recreate the backup specification.

Disk Array Integrations

- The configuration requirements for ZDB of Oracle or SAP R/3 databases have changed in the following cases:
 - if Oracle8i/9i is used as a part of an Oracle ZDB integration and you intend to perform instant recovery sessions
 - if Oracle is used as a part of an SAP R/3 ZDB integration and you intend to perform instant recovery sessions

In these cases, the Oracle database needs to be reconfigured. For more information on configuration requirements, refer to the `ZDB_ORA_INCLUDE_CF_OLF_omniirc` variable in the *HP OpenView Storage Data Protector Zero Downtime Backup Administrator's Guide*.

- When running a ZDB using the EVA SMI-S agent, the process can hang under the following condition: The source disks involved in the backup session have control distributed between 2 or more EVA SMI-S Providers.

The processes must be manually killed.

Workaround:

Disks involved in a EVA SMI-S agent ZDB must be controlled through one HP StorageWorks SMI-S EVA provider only. Multiple HP StorageWorks SMI-S EVA providers may be configured and active in the environment, but disks in a specific ZDB cannot be controlled by more than one of these HP StorageWorks SMI-S EVA providers.

4.1.5 Cluster Related Problems

- If backup server is in a cluster environment and the backup is performed using the actual hostname, instant recovery fails if you try to recover using the secondary host.

Workaround: In order to avoid this, use a virtual hostname.

MC/ServiceGuard

- After failover on the secondary Application System (application is in MC/ ServiceGuard) instant recovery may fail with the following error message, if the `Check data configuration consistency` option is selected:

```
[Critical] From: SSEA@wartburg.company.com" Time: 11/8/2001 11:43:09 AM
```

```
Data consistency check failed!
```

```
Configuration of volume group /dev/vg_sap has changed since the last backup session!
```

Two workarounds are possible:

- Make sure that the `vg` configuration on the system is not changed, deselect the `Check data configuration consistency` option and restart the instant recovery.
 - When setting up the cluster, make sure that all disk device files are identical by use of the `ioinit` command.
- If you export a physical node from the MC/ServiceGuard cluster, you cannot import it back, as the `cell_server` file will be deleted. This file is shared among all nodes of a cluster, so you need to recreate it.

Workaround: Run `/opt/omni/sbin/install/omniforsg.ksh -primary -upgrade`.

Microsoft Cluster Server

- When restoring the Cluster Database on a Microsoft Cluster Server, you should stop the cluster service on all inactive nodes before starting the restore. If cluster service is active on any other node at the time of the restore, the restore API will fail and may cause a failover.

- When the Cell Manager is installed on a Microsoft Cluster Server and you start a restore of the Cluster Database, the restore session will hang. This is because the cluster service is stopped by the restore API causing the Restore Session Manager to lose the connections to the IDB and the MMD.

Workaround: Wait for the VRDA to complete and then abort the session. You then need to restart the GUI (or reconnect to the Cell Manager). Also, when starting a Cluster Database restore make sure that this is the only item you are restoring and that no other sessions are running.

4.1.6 Other Known Problems

- If you have different logical devices for the same physical device and you use a different logical device for backup every day, the lock name concept prevents collisions between different logical devices assigned to the same physical device.

When trying to perform a restore, where several logical devices but only one physical device was used for different backups (full, inc1, inc2, inc3...), Data Protector does not check the lock name, and therefore does not recognize that the same physical device was used for all backups. An error message that the restore session is waiting for the next device to get free is displayed.

Workaround: Remap all logical devices to the same physical device by following the steps below:

1. In the Context List, click **Restore**.
2. In the Scoping Pane, expand the appropriate data type and desired client system and object for restore.
3. When the Restore Properties window opens, select the files that you would like to restore.
4. In the Devices tab, select the original device and click **Change**.
5. When the Select New Device window opens, select the physical device name and click **OK**.

- Command `omnistat -session [session ID] -detail` sometimes displays **Restore started** and **Backup started** incorrectly. This can result in both parameters appearing to be identical
- The following applications are not recommended to be installed together with Data Protector on the same system: WebQoS, CyberSitter 2000, NEC E-border AUTOSOCKS.

Coexistence of Data Protector Media Agent and Storage Allocator may cause unexpected results. For most recent patch information, refer to the HP Web page: <http://support.openview.hp.com/support.jsp>

- Data Protector instant recovery fails when the filesystem is busy.

Workaround: List processes which occupy filesystem by using the `fuser` command. For example, if the filesystem `/oracle/P01` is busy, run: `fuser -kc /oracle/P01`.

- If a backup is performed on one node and then instant recovery attempted to another node with the `Check data configuration consistency` option selected, the following error message is displayed: `Volume group configuration has changed`. This message is displayed because the `vgdisplay` command detects that the LUN configuration on one client is different than that of the other client.

Workaround: If the `ext_bus` instance is the same, this message is not displayed. Alternatively, it is not displayed if the `Check data configuration consistency` option is not enabled.

- A backup may fail, if the snapshot backup specification contains an invalid `rdsk` object in the first place.

Workaround: Change the order of the `rdsk` objects so that a valid `rdsk` is in the first place.

- Data Protector services may not be running after EADR/OBDR.

Workaround: In the Control Panel, go to Administrative Tools, Services and change the startup type for Data Protector services from Manual to Automatic. Start the services after you have changed the startup type.

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- If more than one `omnidbutl -purge` session is started, `omnidbutl` reports that it cannot communicate with the Cell Manager. To avoid this, do not start more than one session.
- On OpenVMS, a restore session may be ceaselessly completed with reported errors due to an unusual delay while unloading a tape drive.

Workaround: Set the Cell Manager global parameter `SmPeerID` to 10 and restart all Data Protector services on your Cell Manager.

- When using SNMP traps on a Windows Cell Manager, Data Protector uses the default community name "public". This applies to both the SNMP send method with Data Protector notifications or reporting and the SNMP traps for System and Application management applications.

Workaround:

In the registry key `HKEY_LOCAL_MACHINE\SOFTWARE\Hewlett-Packard\OpenView\OmniBackII\SNMPTrap` create a value named `Community` and set it to the community name you want to use. Note that all SNMP traps will be sent with the same community name and to the destinations associated with it in the Windows Control Panel.

- On Linux systems, when sending a report using the e-mail send method, the mail does not have a subject and contains "root" in the `From` field. The correct `From` and `Subject` entries are inside the mail body.

Workaround: Use `sendmail` to send the mail reports.

For example, to use `sendmail` instead of `/usr/bin/mail`, create the following link:

```
ln -s /usr/sbin/sendmail /usr/bin/mail
```

Note that on some Linux distributions `/usr/bin/mail` already exists. It is not advisable to remove this existing path since some applications may rely on it.

4.2 Known Non-Data Protector Problems and Workarounds

4.2.1 Non-Data Protector Problem Related to Installation or Upgrade

- After installation or upgrade to Data Protector A.05.50, Windows may report that some application is not installed or that a reinstall is required. The reason is an error in the Microsoft Installer upgrade procedure. Please read the Microsoft Knowledge Base article Q324906 to solve the problem.
- On rare occasions, Windows may incorrectly report free disk space for an NTFS volume that is mounted at a directory on an NTFS filesystem: instead of the NTFS volume free space the amount of free space on the NTFS filesystem is reported. In such cases, if you try to install Data Protector to the mounted NTFS volume, the Data Protector Setup Wizard will not start the installation if the amount of free space on the NTFS filesystem is smaller than the minimum disk space installation requirement.

Workaround: free enough additional disk space on the NTFS filesystem by removing unnecessary files.

4.2.2 Non-Data Protector Problems Related to User Interface

- When using the Data Protector GUI on UNIX platforms the color codes used in menu trees can be unreadable because the menu entries are highlighted in black.

There are two workarounds:

1. Modify the `.Xdefaults` file in the home directory by adding the following line:

```
*enableEtchedInMenu: False
```

Log off and log on so that the change takes effect.

2. Start the GUI with the `-cde` command line option. This forces the GUI to use system colors. You can also export the system colors before running the GUI using the following command:

```
export OMNI_CDE_COLORS=1
```

- When starting online Help from the GUI on UNIX systems using Netscape Navigator, only the Netscape browser is started.

Workaround: Verify that the correct pathname to the Netscape Navigator installation is specified in the Data Protector GUI:

1. Click `File -> Preferences -> Settings`.
2. In the `Location of executable script or binary file` text box, enter the correct pathname to Netscape Navigator.

- When using the Data Protector GUI on UNIX platforms, the following action may cause the hang of the GUI:

If you use the drop-down arrow in the Data Drive drop-down list (Devices & Media context, Devices -> Drives -> drive property page -> Drive tab) to get a list of available devices, and then try to change the width of columns in the list, the GUI may hang.

- When using CLI on UNIX, the characters may be displayed incorrectly.

Different encoding systems (Latin, EUC, SJIS, UNICODE) cannot be used in the desktop environment and in the terminal emulator. For example, you start the desktop environment in EUC-JP, open a terminal emulator and change the locale to SJIS. Due to an OS limitation, if you use any CLI command, the characters can be displayed incorrectly. To eliminate this problem, start the desktop in your desired locale.

4.2.3 Non-Data Protector Problems Related to Media Agent and Disk Agent

- Erase operation on magneto-optical drive connected to HP-UX fails with the following error:
[Major] From: MMA@lada.com "MO-lada" Time: 5/6/2002 3:52:37 PM
[90:90] /dev/rdisk/c2t0d1
Cannot erase disk surface ([22] Invalid argument) => aborting
- If Physical Address Expansion (PAE) is specified for Windows 2000, Data Protector is not able to perform correctly with devices such as Ultrium. Device operations fail with the following error:
error 87 cannot write to device the parameter is incorrect
This happens if the tape that is being restored was created while running Windows 2000 without the Physical Address Extensions (PAE) option enabled.

Workaround: Set the registry key value MaximumSGList to 17. MaximumSGList should be located in
HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\\Parameters
where <adapter> represents the ID of a SCSI interface used for controlling the device (e.g. aic78u2 for Adaptec).
- If the LSI Logic 53C1010-66 card is used on an HP Server rx2600 Itanium 2 client with Windows 2003 Enterprise Edition, restore may fail with an internal error.
- Brece Hill's Saguaro libraries use the stack mode for entering and ejecting cartridges. One mail slot has two SCSI addresses, one for the enter operation and the other for the eject operation. For Data Protector to work in this mode, the following omnirc command variables must be set:
 - OB2LIB_STACKEXP must contain the SCSI address of the export slot
 - OB2LIB_STACKIMP must contain the SCSI address of the import slot
- Data Protector Media Agent cannot coexist with CA ArcServe installed on the same Windows client system, as this can lead to data loss.
- Due to a Microsoft Windows 2000 bug the backup of the Active Directory can fail, especially if there are several backup runs within a short period of time.

Workaround: Install the Microsoft Windows 2000 Service Pack 2. For more information refer to the Microsoft Knowledge Base on <http://support.microsoft.com/support/kb/articles/Q282/5/22.ASP>.
- Cannot import media or omnimlist using a DLT8000 (StorageWorks_E DLT Library). Getting errors...
[Major] From: MMA@hkgbkup3 "HKGBKUP3_1m" Time: 10/31/01 19:52:35
[90:182] Cannot forward segment. ([5] I/O error)
[Major] From: MMA@hkgbkup3 "HKGBKUP3_1m" Time: 10/31/01 19:52:35
[90:53] /dev/rmt/1m Cannot seek to requested position ([5] I/O error)

Resolution:

Quantum has confirmed that there is a problem with the controller firmware. There is a cumulative slip occurring in the tach relative to the tape. This coupled with seeing the BOT marker causes the drive to reconstruct its internal directory. This happens only on tapes with LOTS of data.

Please consult with your HP Support representative before you perform any of the following: The DLT8000 drive FW must be upgraded to V51. This can be done by accessing the FW Upgrade page and following the directions:
http://www.hp.com/cposupport/swindexes/hpsurestor18551_swen.html

More details of the fix in Service Note A5597A-27.

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- On UNIX systems, the original creation timestamp of a symbolic link is not preserved during a restore. The timestamp is set to the current system time. Due to a limitation of the system call `utime()`, the creation timestamp of a symbolic link cannot be changed after the link creation.(QXCR1000113319)

Workaround: None.

- After backing up a volume containing long filenames with associated 8.3 short filenames, the short filenames previously associated with the long filenames may not be retained after a restore. This happens due to a Windows limitation described in the Microsoft Knowledge Base Article 176014. This can cause certain applications to fail if specific 8.3 short filenames are incorrectly associated with long filename files. The problem most likely affects Microsoft SQL Server users because Microsoft SQL Server keeps paths to its databases stored in the 8.3 short filename notation.

Workaround: After restoring the directory containing the files that are not correctly associated with the 8.3 short filenames, move those files temporarily to another directory and then move them back to the original directory in exactly the same order as they were initially created. This way, the same 8.3 short filenames will be assigned to those filenames as before the restore.

- Due to Windows filesystem limitations, files that were backed up on UNIX and whose names contain the backslash (“\”) character may be restored to a wrong location and with the wrong file name on Windows. Windows interpret the backslash in a file name as a directory separator. For example, if a file named `back\slash` file was backed up on UNIX and restored to a Windows client, it will be restored into the `back` directory with the file name `slash`.
- On AIX 5.2, `devbra` cannot retrieve serial numbers of the devices connected through the CAMBEX driver. As a consequence, device autoconfiguration and automatic discovery of changed SCSI addresses do not work.

Workaround: Configure the devices manually. Do not use automatic discovery of changed SCSI addresses for devices connected through the CAMBEX driver on AIX 5.2.

- Backup of a filesystem may finish with error messages similar to the following one:

```
Cannot open attribute directory /BC/fs/VxVM/UFS/Test6.doc: read-only filesystem! Extended attributes not backed up.
```

Workaround: Set the `omnirc` variable `OB2SOL9EXTATTR` to 0, to disable backup of extended attributes on Solaris 9.

- Due to a bug in `TSAFS.NLM` module on Novell NetWare systems, the following error is reported during the restore on Novell NetWare with the `Trustee only restore` option enabled:

```
The program was processing a record or subrecord and did not find the Trailer field.
```

The restore is performed successfully and the error message can be ignored.

Workaround: The fix is not available at the moment. Check for Novell NetWare support patches.

4.2.4 Non-Data Protector Problems Related to Integrations

Microsoft Exchange Server

- If a Microsoft Exchange backup fails with an error message like "...cannot wait for synchronization event", the reason could be that the backup was run concurrently with a defragmentation process.

Consult the Microsoft support article ID: Q183675.

- Due to MAPI behavior, if the subject line of a backed up message begins with a sequence of up to 4 non-space characters followed by a space, and any of these non-space characters is a colon (":"), the message, once restored, will have a wrong subject line. For example, a message with the original subject line `ABC: ha1a` will get the subject line `ABC: ABC: ha1a.` after the restore.

This does not apply to standard prefixes for e-mail subjects, such as `Re:`, `Fwd:`, and so on, if they are generated automatically by your e-mail client (for example, by pressing the **Reply** button in Microsoft Outlook).

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Microsoft SQL Server

- Due to Microsoft SQL Server 7.0 bug 53787 in cluster support with VDI, set the `_VIRTUAL_SERVER_NAME_` environment variable in the `omni.rc` file prior to invoking `IClientVirtualDeviceSet::Create()`.
- If installed as a cluster-aware application, Microsoft SQL Server 7.0 needs the Microsoft SQL Server 7.0 Service Pack 1.
- When performing a Microsoft SQL Point-in-time restore, the warning `Invalid value specified for STOPAT parameter` is shown. It happens when transactional log is being restored. The database remains in an unrecovered state as if the `RESTORE LOG` operation was run with the `Leave the database non-operational` option.

Workaround: The database can be recovered to the latest point in time:

— by using the Microsoft SQL Query Analyzer. To recover the database, run the following T-SQL command: `RESTORE DATABASE <database_name> WITH RECOVERY`

or

— by restarting restore session without the 'Point in time' option specified

SAP R/3

- SAP R/3 brtools version 4.6C has problems backing up datafiles on Solaris platform. Database backup and tablespace backups however work fine.
- Backing up an SAP R/3 database using the zero down time backup functionality and Oracle8 Recovery Manager together fails.

During the SAP R/3 (Oracle8i/9i) integration backup, the following error may occur:

```
BR002I BRARCHIVE 4.6D (17)
BR252E Function fopen() failed
for '/oracle/YP1/817_64/saparch/adhjhzc.cpd' at location main-4
BR253E errno 2: No such file or directory
BR121E Processing log file /oracle/YP1/817_64/saparch/adhjhzc.cpd failed
sh: 12312 Memory fault
[Warning] From: OB2BAR@sv005 "OMNISAP" Time: 02/20/02 10:54:03
BRARCHIVE /usr/sap/YP1/SYS/exe/run/brarchive -d util_file
-scd -c returned 35584
```

Workaround: Add the Oracle8 `NLS_LANG` environmental variable into the SAP R/3 configuration file:

```
NLS_LANG=AMERICAN_AMERICA.WE8DEC
SAPDATA_HOME=/oracle/YP1
```

SAP DB

- Backup completes with errors if filenames contain spaces. .

Workaround:

— On Windows: Change the `RUNDIRECTOY` parameter to short (8+3) path names and edit filenames in the registry key `HKEY_LOCAL_MACHINE\SOFTWARE\SAP\SAP_DBTech\IndepData`. Restart the database.

— On HP-UX and Linux systems: Create a symbolic link to the directory with a space in the name and adjust the `RUNDIRECTORY` parameter of the database to use the symbolic link. Adjust the values of the `IndepData` parameter in the ini file `/usr/spool/sql/ini/SAP_DBTech.ini` (on Linux) or `/var/spool/sql/ini/SAP_DBTech.ini` (on HP-UX).

Oracle

- When performing a split mirror backup of Oracle, and tablespaces can neither be put in nor out of the backup mode, Data Protector finishes the backup with an error:
ORA-12532: TNS: invalid argument
alter tablespace IDX end backup
ORA-03114: not connected to ORACLE
Workaround: Ensure that the newest 'ksh' patches are installed on the system.
- Tablespace names must not be RMAN reserved names on the Oracle integration for Windows platforms. In such case the backup fails when Oracle8 RMAN parses the command script. Also, a tablespace called LEVEL cannot be created due to the Oracle8 internal error.
- An Oracle backup session on the Windows platform waits for 20 sec. before it ends. This waiting time occurs because Oracle does not notify that the API session is complete. If you run a backup from RMAN and use the Data Protector library (`orasbt.dll`) to perform that task, you must wait at least 20 sec. between two backups with the same backup specification name. If not so, all the backup objects will be within one backup session.
- In case the backup system is low on resources (CPU, memory, etc.), the following error is reported by the Oracle Server Manager in the Data Protector Monitor context for the Oracle HP StorageWorks XP integration: `ORA-12532: TNS: invalid argument`.
Workaround: Configure the backup system in such a way that it has sufficient resources to run the Oracle Instance and perform a backup at the same time.
- While performing a backup set ZDB, the following warning is displayed for each database datafile:
RMAN-06554: WARNING: file n is in backup mode
The processing of each message may take up to 20 seconds. This causes a considerable slow down for backups of databases with a large number of datafiles (200 or more datafiles).

Informix

- If an Informix Logical Log backup on the Informix Dynamic Server version 7.30 is aborted or fails, the Onbar hangs.
Workaround: Contact Informix Support for an appropriate patch (PTS 102449).
- Due to an Informix bug, the point in time restore for Informix 7.31 TC8 on Windows 2000 does not work.
Workaround: Contact Informix support for an appropriate patch .
- On Informix 7.3x 64-bit, the `$(INFORMIXDIR)/bin/onbar` binary does not work properly.
Workaround: Copy the `$(INFORMIXDIR)/bin/onbar` shell-script from 32-bit version of Informix 7.3x. If you do not have this script, contact Informix Support.
- When you start more than a single restore session of the Informix Dynamic Server version 9.21.TC1 on Windows 2000, the session might hang.
Workaround: Reboot the Windows 2000 system and restart the restore .
- When you perform a recovery and then a restore in Informix, Data Protector always reports that the ON-Bar process exits with the return code 0.
Workaround: Check the Informix log file `/tmp/bar_act.log`, for the real return code value.
- Restore of a whole backup chain on Informix 9.20 FC1 64 bit on HP-UX does not work.

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Workaround: Check for availability of an Informix patch that should solve this problem.

- When performing a backup on Informix Enterprise Decision Server version 8.3, the logical logs are not backed up automatically. This is an Informix PTS bug 147170 .

Workaround: Install the Informix patch 8.30.FC3D9.

- Due to an Informix bug, you cannot perform an Informix restore by a logical log number on Windows 2000 with the Informix version 7.31.TC2.
- If you are using a version of Informix that is older than 8.3x version, it can happen that the Informix log files cannot be backed up.

Workaround: Edit the `/opt/omni/sbin/ob2onbar.exe` script so that every option "-b -l" is replaced with "-l".

- When the Restore complete database option for the Informix integration is selected in the Restore Context of the GUI, only several databases are shown as selected for restore. However, the complete database is restored. This problem occurs when ReflectionX is used .

Workaround: To avoid this problem, use the ReflectionX version 9.0.

Sybase

- Aborting a Sybase backup session on Solaris and Windows 2000 hangs the system.

Workaround: Kill the `$SYBASE_HOME_DIR/bin/sybmultipbuf` process from the command-line interface to abort the backup session.

Disk Array Integrations

- The integration between HP OpenView Storage Data Protector and HP StorageWorks EVA provides instant recovery by using snapclones. The creation of a snapclone takes time and requires resources from the disk array. The performance impact depends on factors such as disk management, configuration, I/O load and disk usage. Therefore, it is strongly recommended to do some benchmarking in performance sensitive environments before deciding to use this functionality.

Data Protector also provides some built-in performance boosting functionality. For example:

- You can allocate snapclones to a different disk group than the one used for the original virtual disks, thus redirecting read and write operations on a replica from the original disk group to a replica disk group, or allocating a replica to low-performance disks.
- During a ZDB to disk+tape or ZDB to tape, you can delay the backup to tape until the snapclones are fully created, thus preventing degradation of the application data access times during the phase of backup to tape.
- You can create an "Instant Recovery" of a snapclone, which is not yet created.

Please contact HP consulting for assistance.

- When performing a ZDB on Windows, Windows does not clean up devnodes from Registry, which can prevent the backup system from booting. The problem occurs on snapshot disk arrays (HP StorageWorks VA and HP StorageWorks EVA).

Workaround: Install the "Scrubber" utility and run it. It will remove obsolete storage nodes from the Registry. Note that a reboot of the backup system is required afterwards. For more information on the "Scrubber" utility, refer to the Microsoft support.

- If performing a snapshot backup on HP StorageWorks EVA (Windows systems), the following message may occur:

```
[Normal]
Starting drive discovery routine.
[Major]
Resolving of filesystem <fsname> has failed. Details unknown.
```

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Workaround: Install Secure Path version 4.0B and patch v4.0B-3. The patch is available on http://www.openview.hp.com/products/datapro/spec_0001.html.

Additionally, set the following `omniirc` variables to minimize the probability of the problem to occur:

```
EVA_EMAPI_MAX_RETRY
```

```
EVA_EMAPI_RETRY_DELAY
```

Predefined values of these variables should fit most of your configurations. However, if the specified settings do not solve the problem, you should enlarge the values as needed.

- When using the SecurePath 4.0C driver, the backup system occasionally crashes.
- Snapclone is not available with the VSS HP StorageWorks EVA provider version v0.0.0.24.
- When HP StorageWorks EVA is used as a VSS Hardware Provider, the option `Snapshot Type` is ignored by the provider. (HSLco41930)

Workaround: Use the EVA configuration tool to select the desired type of a shadow copy, for example `snapshot`, `vsnap`, or `snapclone`.

- When HP StorageWorks EVA or HP StorageWorks VA VSS Hardware Provider are used as a VSS Hardware Provider, the management appliance user name and password are stored in registry as a plain text. .
- During a VSS Transportable Backup the following error is reported by the VSSBAR on the backup server: `Import failed`.

If the backup server is inspected after the failed session, the snapshots are actually visible as new disks in the Device Manager, as well as in the "Disk Manager". In the Disk Manager window the volumes may even be visible (together with the volume labels), but the Windows "volmount" CLI tool does not detect and show them. All subsequent backup sessions fail.

Workaround: Delete the VSS Snapshot Database on the backup server and reboot the server. To locate the VSS Snapshot Database files, use the registry editor to find the value of the following registry keys:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\BackupRestore\FilesNotToBackup\VSS  
Service DB
```

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\BackupRestore\FilesNotToBackup\VSS  
Service Alternate DB
```

- When HP StorageWorks EVA is used as a VSS Hardware Provider, sometimes VSSBAR reports that shadow copies creation was started, and then the EVA provider consumes 99% of the CPU and hangs. The session can not be aborted.

Workaround: None. To stop the CPU consumption and abort the backup session proceed as follows:

1. Stop the provider service using the Service Manager.
 2. If the service can not be stopped, kill its process using the Task Manager.
 3. Stop the VSS and VDS services. Delete the VSS Snapshot Database. To locate the VSS Snapshot Database files, use the registry editor to find the value of the following registry keys:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\BackupRestore\FilesNotToBackup\VSS  
Service DB  
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\BackupRestore\FilesNotToBackup\VSS  
Service Alternate DB.
```
 4. Connect to the management appliance, identify the shadow copies (if any) and delete them.
 5. Retry the backup. If the same error persists, repeat the procedure and reboot the system.
- A backup session can fail if there are more than 4 source volumes (original virtual disks) in a snapshot set.(QXCR1000101055)

Workaround: None. Make sure that the number of source volumes in a backup specification does not exceed 4 and that the next

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snapshot starts no earlier than 30 minutes after the last snapshot was deleted.

- The hardware shadow copy provider can fail with a message similar to the following:

```
INFO: HardwareProvider::LocateLuns() - Failed.
```

```
INFO: HSV_ElementMgr::enableAccess() - FAILED
```

```
errorMsg = '\Hosts\VSSQA\levstik:Api The presented unit already exists. Command ignored'
```

```
cellName = 'EVA-4 (Kolosej)'
```

```
unitID = '1f200710b4080560ff4e0100001001000000e54e'
```

```
unitName = \Virtual Disks\VSSQA\Levstik\LevstikExch7\CPQHWP-3f38d17d
```

```
LUN ID = '21'
```

Workaround: None. To clean up the system, restart the provider, delete the provider information from the VSS Snapshot Database on the backup server, and delete the snapshots on the EVA.

To get the provider ID, use the command `vssadmin list providers`. To locate the VSS Snapshot Database files, use the registry editor to find the value of the following registry keys:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\BackupRestore\FilesNotToBackup\VSS  
Service DB
```

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\BackupRestore\FilesNotToBackup\VSS  
Service Alternate DB
```

- If an HP StorageWorks Disk Array XP split mirror backup session is started on a Solaris system with the GUI `Leave the backup system enabled` option or CLI `leave_enabled_bs` option set, and the `.omnirc` file `SSEA_MOUNT_PATH` variable is changed after the session is finished, the next split mirror backup or split mirror restore session for the same mount point will fail.

Workaround: To avoid the failure, manually unmount the old backup system mount point and (re)start the session.

Volume Shadow Copy Service

- The following MSDE writer components cannot be restored while the SQL server is online: master, model and msdb .
- When restoring the MSDE writer while the SQL server is offline, the restore completes with error messages similar to the following :

```
Major] From: OB2BAR@concord.ipr2.hermes.si "MSVSSW" Time: 8/7/2003 1:49:49 PM
```

```
Component 'master' reported: 'CSqlRestor::PrepareToRestore failed with HRESULT = 0x8000ffff'.
```

Workaround: None. The problem may be resolved in a future Microsoft Windows Server 2003 Service Pack release.

4.2.5 Non-Data Protector Problems Related to Reporting

- When using Outlook XP (2002) or Outlook 2003, the following problem appears: when you add a report to a report group specifying e-mail as the send method, and then try to start the report group, the CRS service stops responding and must be restarted (HSLco35048). The same happens if you configure a notification and select the e-mail send method. This problem also occurs if you install the latest security update for Outlook 2000 or Outlook 98 (Microsoft Knowledge Base article IDs: Q262617, Q267319, Q262700). The cause of the problem is that Outlook requires user interaction before sending an e-mail notification.

To prevent this behavior, customize security settings so that you set the `When sending items via Simple MAPI` option to `Automatically approve`. For information on how to customize security settings for Outlook 2000 or Outlook 98, refer to `Administrator Information About the Outlook E-mail Security Update` (Microsoft Knowledge Base article ID: Q263296). For Outlook XP (2002) or Outlook 2003, refer to the respective Office Resource Kit.

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Additionally, Outlook Express can be used as an alternative to Outlook, as it does not require any user intervention for sending e-mails. Data Protector is able to send reports in HTML format if used in combination with Outlook Express. Otherwise an HTML report is sent as an attachment.

Outlook Express is installed by default on Windows 2000 and newer versions and is the default MAPI handler on these systems. If you plan to use Outlook Express, do not install any other e-mail software (including Outlook) since it typically replaces the default MAPI handler. If you are using Microsoft Office, ensure that you do not select Microsoft Outlook during Microsoft Office installation.

Outlook Express supports only the SMTP protocol as e-mail carrier. If you plan to use Outlook Express with Microsoft Exchange servers, the SMTP Mail Connector option must be enabled on the Microsoft Exchange Server. See Microsoft Knowledge Base article ID 265293 for more details on how to configure SMTP on Microsoft Exchange.

- Due to the operating system limitations, international characters in localized E-mail notifications and reporting can be displayed incorrectly on UNIX if they are passed between systems using a different locale.
- When viewing web reporting using Netscape Navigator, after resizing the browser window, the applet does not adjust its size to fit within the new dimension.

Workaround: Start the Netscape Navigator manually, resize the window to the desired size and then open the WebReporting.html file.

- When using web reporting in localized UNIX environments with SJIS or EUC Japanese locale set, the non-UTF-8 Web Reporting input data is converted into UTF-8 (Unicode) before being written to the Data Protector configuration files. Such characters will not be displayed correctly when using web reporting.
- When using web reporting on HP-UX 11.00 together with Netscape 7.0 (only in Japanese language), the tree in the Scoping Pane is not properly displayed.
- When you are backing up Data Protector clients not configured for Data Protector report, the report lists all clients from a specified network range. In case you specify a C-class network that is in another subnet, then the report can take quite a lot of time before it is created.
- If you use Data Protector reporting and the output format is HTML, a UNICODE file is produced. Some earlier browsers (such as Internet Explorer 3.x) do not support local viewing of UNICODE files. However, if you view the same file through a Web server using the same browser, it is displayed correctly.

4.2.6 Other Non-Data Protector Problems

- When mounting CIFS share on a UNIX system, the directory size is not calculated correctly and Data Protector backup statistics consequently report a wrong backup size at the end of the backup session. The reason are inter-operability problems between Windows and UNIX platforms.
- Backup on UNIX systems may fail because of the shared memory shortage with the following error :

```
Cannot allocate shared memory pool (IPC Cannot Create Shared Memory Segment
System error: [22] Invalid argument
) => aborting
```

Workaround: The actions are different for different operating systems. After you have applied the changes, you need to reboot the system.

On HP-UX

Set the OB2SHMEM_IPCGLOBAL variable to 1 in the global options file: /opt/omni/.omnirc.

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On Solaris

Set the kernel parameters in the `/etc/system` file as follows:

```
set shmsys:shminfo_shmmax=4294967295
set shmsys:shminfo_shmmin=1
set shmsys:shminfo_shmmni=100
set shmsys:shminfo_shmseg=10
set semsys:seminfo_semmni=100
set semsys:seminfo_semmsl=100
set semsys:seminfo_semmns=256
set semsys:seminfo_semopm=100
set semsys:seminfo_semvmx=32767
```

If the problem persists, the parameters can be increased.

On SCO UnixWare

Increase the value of the `SHMMAX` kernel variable using the `scoadmin` command. The minimum value required by Data Protector can be calculated using the following equation:

minimum value for `SHMMAX` = (Disk Agent buffers * Block size in KB * 1024) + 16

You can get the values of Disk Agent buffers and Block size from the Advanced Options dialog box for the target backup device. It is recommended that the `SHMMAX` value is set to larger number.

- If an IRIX 6.5 disk is connected to the second SCSI controller, there might be a problem detecting if the disk is mounted.
Workaround: Ensure that the disk is not mounted before you perform disk image (rawdisk) restore.
- Data Protector uses host name resolution to communicate between hosts. This is done either via DNS servers or via `/etc/hosts` or `/etc/lmhosts` file. If the DNS service is not available or correctly configured on the Windows clients, you can edit the `hosts` (`lmhosts`) file, which are located in the `<%SystemRoot%>\System32\drivers\etc` directory. Use the `hosts` file if you want to map IP addresses to hostnames and `lmhosts` file if you want to map IP addresses to computer (NetBIOS) names. Additional information on how you can edit these files is found in the beginning of these two files. After you have done editing, terminate the Data Protector GUI and restart it for changes to take effect. You must ensure that the name resolution is consistent throughout the Data Protector cell.
- When connecting a Windows 2000 GUI client to a Cell Manager, the following error may occur:
`You do not have access to any Data Protector functionality ...`
The issue can be that the system name (including the domain suffix) is set at two places on Windows 2000 systems. You have to ensure that the fully qualified hostnames in the (system properties->Network-Tab->properties->more->Primary DNS suffix...) and (local area connection properties->TCP/IP->Advanced->DNS-Tab->DNS-suffix...) settings on the Windows 2000 GUI client are identical and are the same as the system name (including the DNS suffix) defined in the Data Protector User Context.
- Secure path on HP-UX external device filename may change after reboot. This changes the mapping to volume managers. Raw device backups can fail due to a different device file being specified in the backup specification.

Chapter 5: Installation Requirements

This chapter gives a description of Cell Manager, Installation Server, and client installation requirements. It also provides a list of upgrade requirements.

The following are general installation requirements:

- Free TCP/IP port: 5555 by default
- The TCP/IP protocol must be installed and running. The protocol must be able to resolve all hostnames in the Data Protector Cell.

5.1 Cell Manager Requirements

The Data Protector Cell Manager does not support the IDB on a filesystem that is mounted as NFS type.

5.1.1 On Systems Running HP-UX 11.0, 11.11, and 11.23

The Cell Manager must meet the following minimum requirements:

- The Soft File Limit per Process on the Cell Manager should be at least 1024.
- 256 MB RAM (512 MB recommended)

For each parallel backup session 40 MB of RAM are required and 5 - 8 MB per data segment size. This means that, for example, if you want to run 60 parallel backup sessions 3 GB of RAM plus 512 MB for data segments are needed.

- 240 MB of disk space + approximately 2% of planned data to be backed up (for use by the IDB).
- It is recommended to modify the kernel parameters as follows:

— set `maxdsiz` (Max Data Segment Size) to at least 134217728 bytes (128 MB).

— set `semnu` (Number of Semaphore Undo Structures) to at least 256.

After committing these changes, recompile the kernel and reboot the machine.

5.1.2 On Systems Running Solaris 7/8/9

The Cell Manager must meet the following minimum requirements:

- 256 MB RAM (512 MB recommended)

For each parallel backup session 40 MB of RAM are required and 5 - 8 MB per data segment size. This means that, for example, if you want to run 60 parallel backup sessions 3 GB of RAM plus 512 MB of data segments are needed.

- 240 MB of disk space + approximately 2% of planned data to be backed up (for use by the IDB)
- The following values of kernel parameters are recommended:

SEMMNI (maximum number of semaphore sets in the entire system) = 100

SEMMNS (maximum semaphores on the system) = 256

A system restart is necessary for kernel changes to take effect.

5.1.3 On Systems Running Windows 2000/XP

The Cell Manager must meet the following minimum requirements:

- 256 MB RAM (512 MB recommended). For each parallel backup session 40 MB of RAM are required. This means that, for example, if you want to run 60 parallel backup sessions 3 GB of RAM are needed.
- Windows 2000, Service Pack 3 or later
- Windows XP Professional, Service Pack 1
- 190 MB of disk space + approximately 2% of planned data to be backed up (for use by the IDB)
- $2 \times \text{<size of the biggest package to be installed>} + 5\text{MB}$ of disk space needed on system drive
- Microsoft Internet Explorer 5.x or later

5.1.4 On Systems Running Windows Server 2003-32 bit

The Cell Manager must meet the following minimum requirements:

- 256 MB RAM (512 MB recommended). For each parallel backup session 40 MB of RAM are required. This means that, for example, if you want to run 60 parallel backup sessions 3 GB of RAM are needed.
- 190 MB of disk space + approximately 2% of planned data to be backed up (for use by the IDB)
- $2 \times \text{<size of the biggest package to be installed>} + 5\text{MB}$ of disk space needed on system drive
- Microsoft Internet Explorer 5.x or later

5.2 Installation Server Requirements

5.2.1 On Systems Running HP-UX

The Installation Server must meet the following minimum requirements:

- 64 MB RAM
- 512 MB of disk space

5.2.2 On Systems Running Solaris 7/8/9

The Installation Server must meet the following minimum requirements:

- 64 MB RAM
- 512 MB of disk space

5.2.3 On Systems Running Windows 2000/XP

The Installation Server must meet the following minimum requirements:

- 64 MB RAM (Windows 2000 Professional)
- 250 MB of disk space

- Microsoft Windows 2000 Service Pack 3 or later
- Windows XP Professional, Service Pack 1
- Microsoft Internet Explorer 5.x or later

5.2.4 On Systems Running Windows Server 2003-32 bit

The Installation Server must meet the following minimum requirements:

- 64 MB RAM
- 250 MB of disk space
- Microsoft Internet Explorer 5.x or later

5.3 Client System Requirements

5.3.1 On Systems Running UNIX

The prerequisites for UNIX user interface installation and remote installation on the client are:

- Netscape Navigator 4.7.x, Netscape Navigator 7.0 or Mozilla 1.4 for Data Protector online help on UNIX
- The `inetd` daemon must be up and running.

The Web browser must be able to run under the same account as Data Protector.

Disk space and RAM requirements of Data Protector UNIX clients

The following table shows the minimum disk space and RAM requirements for the various Data Protector clients:

Client System	RAM (MB)	Disk Space (MB)
User Interface ^a	256 ^b	150 ^c
Disk Agent	64 (recommended 128)	10
Media Agent	64 (recommended 128)	20
Integration Modules	64 (recommended 128)	20

- The documentation (.pdf files, 55 MB) is included.
- The memory requirements for the GUI system vary significantly with the number of elements that need to be displayed at a time. This consideration applies to the worst case actual display which you want to view (like expanding a single directory). You do not need to consider the total of directories and file names on a client, unless you want to expand all directories while viewing. It has been shown that 2 MB memory are required per 1000 elements (directories or file names) to display plus a base need for about 50 MB. So the 128 MB of RAM are enough to display the maximum number of file names.
- With regard to the disk space, keep in mind, the page file alone should be able to grow to about 3 times the physical memory.

The figures indicate requirements from the agent only. For example the "disk space" figure does not include space allocation for the OS, page file or other applications.

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The Data Protector A.05.50 HP-UX and Solaris GUI are based on Windows emulation software and therefore require higher graphical processing power. It is recommended to use midrange (or higher) workstation system with considerable graphics power. Usage over dial-up line is not feasible.

HP-UX Systems

When installing or upgrading remotely, the available disk space in the folder `/tmp` should be at least the size of the biggest package being installed.

Solaris Systems

When installing a Media Agent, make sure that the following entry is in the file `/etc/system`:

```
set semsys:seminfo semmni=100
```

When installing or upgrading remotely, the available disk space in folders `/tmp` and `/var/tmp` should be at least the size of the biggest package being installed.

The Solaris installation CD-ROM is in the pkg stream format, which is not recognized by the standard tar utility. That is why the HP-UX, and not the Solaris installation CD-ROM must be used for the local installation/upgrade of Solaris clients.

5.3.2 On Systems Running Windows

The prerequisites for Windows user interface installation and remote installation on the client are:

- Microsoft Windows 2000 with Service Pack 2
- Windows XP Professional, Service Pack 1
- Have Microsoft Internet Explorer 5.0 or higher installed on the system.

The following table shows the disk space and RAM requirements of Data Protector Windows clients:

Client System	RAM (MB)	Disk Space (MB)
User Interface ^a	256 ^b	100 ^c
Disk Agent	64 (recommended 128)	10
Media Agent	64 (recommended 128)	20
Integration Modules	64 (recommended 128)	20

- a. the documentation (.pdf files, 55 MB) is always included.
- b. The memory requirements for the GUI system vary significantly with the number of elements that need to be displayed at a time. This consideration applies to the worst case actual display which you want to view (like expanding a single directory). You do not need to consider the total of directories and file names on a client, unless you want to expand all directories while viewing. It has been shown that 2 MB memory are required per 1000 elements (directories or file names) to display plus a base need for about 50 MB. So the 256 MB of RAM are enough to display about the maximum number of file names.
- c. With regard to the disk space, keep in mind, the page file alone should be able to grow to about 3 times the physical memory.

The figures indicate requirements from the agent only. For example the "disk space" figure does not include space allocation for the OS, page file or other applications.

5.3.2.1 Windows XP Service Pack 2

Windows XP Service Pack 2 introduces an improved version of the Internet Connection Firewall (ICF), under a new name as Microsoft Firewall. Contrary to Service Pack 1, the firewall is turned on by default.

During the installation of a new Data Protector client using the Installation Server, the installation agent is started on the remote computer. The Installation Server then connects to this agent through the Data Protector Cell port (by default 5555). However, if Microsoft Firewall is running, the connection cannot be established and the installation fails.

To resolve this, perform one of the following steps:

- Configure Windows Firewall to allow connection through a specific port.
- If the `omniirc` variable `OB2FWPASSTHRU` is set on the Installation Server, the installation agent automatically registers itself with Windows Firewall and the installation continues normally.

5.4 Java Web Reporting

Java VM versions 1.1 or later must be installed on the system and enabled in the Web browser. The supported browsers are Netscape Navigator 4.7.x, Netscape 7.x and Microsoft Internet Explorer 5.0 with Service Pack 1 or later.

You can download a Java VM plug-in for Internet Explorer and Netscape Navigator browsers at <http://java.sun.com/products/plugin/>.

5.5 Novell NetWare

- Any Novell system that is part of a Data Protector cell must have TCP/IP version 3.1 or later installed.
- Novell NetWare 5.1 must have the Support pack 5 or later installed. Novell NetWare 6.0 must have the Support pack 4 or later installed. Novell NetWare 6.5 must have the Support pack 1 or later installed.

5.6 Local Client Installation

UNIX clients are installed locally using the installation script `omni_setup.sh`. You can install the client locally from the HP-UX Installation Server installation CD-ROM and import it to the Cell Manager using automated procedure.

For the installation procedure refer to the *HP OpenView Storage Data Protector Installation and Licensing Guide*.

MPE/iX, Novell NetWare, and OpenVMS clients can be installed only locally. Remote installation is not supported.

5.7 Upgrade

The upgrade procedure to Data Protector A.05.50 from its predecessor OmniBack II release A.04.10 and from Data Protector A.05.00 and A.05.10 is documented in the *HP OpenView Storage Data Protector Installation and Licensing Guide*. To upgrade from an even earlier version, you need to first upgrade to OmniBack II A.04.10 and then upgrade to Data Protector A.05.50 following the procedure in the *HP OpenView Storage Data Protector Installation and Licensing Guide*.

On Solaris, you can perform a one-step upgrade from Data Protector A.05.00 and Data Protector A.05.10 to Data Protector A.05.50.

When upgrading both, HP-UX from 10.20 to 11.x and from OmniBack II to Data Protector, you need first to remove OmniBack II, upgrade the operating system and then install Data Protector A.05.50.

5.8 Requirements for Data Protector Services on Windows Server 2003

Data Protector uses three services: OmniInet - Client backup service, CRS - Cell Server Service, and RDS - Cell Server Database Service. By default, OmniInet and RDS services are running under the Local System account, and CRS service is running under the Administrator's account.

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You can change the account information for any of these services. However, the following are minimum requirements that must be met by the new accounts:

Service	Resource	Minimum resource permission required by service
RDS	<Data_Protector_home>\db40 HKLM\SOFTWARE\Hewlett-Packard\OpenView\OmnibackII	Full access Read
CRS	<Data_Protector_home> HKLM\SOFTWARE\Hewlett-Packard\OpenView\OmnibackII	Full access Full access
OmniInet	Backup and Restore Take Ownership	- -

5.9 Files Installed in the %systemroot%\system32 Folder

The following files are placed (depending on the components selected) into system32 folder on Windows systems:

BrandChgUni.dll	This is a resource library. It is used only internally; however, it also contains the path to registry settings, so it must be located in a well-known location where it can be accessed by integration libraries.
libarm32.dll	This is a NULL shared library for ARM instrumentation. It may be replaced by third-party monitoring software.
ob2informix.dll	This library is used to integrate with the Informix database.
orasbt.dll	This library is used to integrate with the Oracle database.
snmpOB2.dll	This library is used to implement system SNMP traps.

Chapter 6: Required Patches

For Data Protector patches, please consult <http://support.openview.hp.com/support.jsp> for the latest information. For systems running Windows, contact the Microsoft Corporation for the latest Microsoft Windows Service Pack.

For patches on systems running the HP-UX operating systems please consult http://www.software.hp.com/SUPPORT_PLUS/gpk.html for the latest information or check with the Response Center to get the current patch numbers. Install the latest patches before calling support.

The Patches listed can be replaced with newer patches.

We recommend that you regularly install the Extension Software Package delivered for HP-UX. This is a collection of recommended patches, some of which are listed below. Contact HP Support for the current version of the HP-UX Extension Software Package.

6.1 HP-UX 11.00 System Patches Required by Data Protector

The following HP-UX 11.00 patch bundles are required by Data Protector:

Service Pack	Bundle Name	Description
SP58-11.00 (or later)	QPK1100	Current patch bundle for HP-UX 11.00

The following HP-UX 11.00 individual patches are recommended by Data Protector in addition to the patch bundle from the table above:

Patch Name	Hardware Platform	Description
PHCO_25707	s700_800	libc cumulative patch
PHKL_22170	s700_800	JFS 3.3 fix mount(2), umount & fs_size probs
PHKL_25613	s700_800	IDS/9000; syscalls related to file/socket
PHNE_26551	s700_800	HyperFabric B.11.00.0[0-12] cumulative patch
PHSS_14982	s700_800	PDCINFO patch Version A.02.24
PHSS_17496	s700_800	Predictive C.11.0[0,a-m] cumulative patch
PHSS_26262	s700_800	ld(1) and linker tools cumulative patch
PHSS_26270	s700_800	MC/SG & SG-OPS Edition A.11.12
PHSS_26338	s700_800	MC/SG & SG-OPS Edition A.11.09

6.2 HP-UX 11.11 System Patches Required by Data Protector

The following HP-UX 11.11 patch bundles are required by Data Protector:

Service Pack	Bundle Name	Description
SP0206-11.11 (or later)	GOLDQPK11i	Current patch bundle for HP-UX 11.11
SP0206-11.11 (or later)	HWEnable11i	Required hardware enablement patches

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The following HP-UX 11.11 individual patches are recommended to be installed on any Data Protector system.

Patch Name	Hardware Platform	Description
PHCO_27408	s700_800	LVM commands cumulative patch
PHKL_26785	s700_800	SCSI Tape (stape) cumulative
use latest	s700_800	MC/Service Guard patches for the version you use

6.3 System Patches for the Data Protector GUI on HP-UX

The following HP-UX individual patches are highly recommended for Data Protector GUI clients:

Patch Name	Hardware Platform	Operating System	Description
PHCO_25707	s700_800	11.00	libc cumulative patch
PHKL_27351	s700_800	11.00	creat(2) ENOENT, syscall, signal, umask
PHKL_27364	s700_800	11.00	Probe, IDDS, PM, VM, PA-8700, asyncio, T600, Hang
PHNE_26387	s700_800	11.00	ONC/NFS General Release/Performance Patch
PHSS_26262	s700_800	11.00	ld(1) and linker tools cumulative patch

6.4 System Patches Required by MPE/iX System

Operating System	Description
MPE/iX 6.0 system	PowerPatch II, TurboStore/iX's patch MPELXC2C (C.60.23)
MPE/iX 6.5 system	PowerPatch I, TurboStore/iX's patch MPELXG2A (C.65.13)
MPE/iX 7.0 system	PowerPatch I

6.5 Solaris System Patches Required by Data Protector

Solaris 7 Recommended Patch Cluster is required by Data Protector GUI on Solaris.

Operating System Patch: Use the latest kernel patch from Sun Microsystems. Sun provides patch information at: <http://sunsolve.sun.com>.

In order to start the Data Protector GUI the following patches are required:

OS Version	Patch	Description
Solaris 7	106327-20	32-bit Shared library patch for C++ for SunOS 7
Solaris 8	108434-13	32-bit Shared library patch for C++ for SunOS 8

OS Version	Patch	Description
Solaris 8	108773-18	IIIM and X Input & Output Method patch for SunOS 8

6.6 Novell NetWare Patches Required by Data Protector

Use the latest recommended patches on Novell NetWare clients:

- the latest filesystem patch (NSS)
- TSAx.NLM patches
- the latest Support Pack

See patch information at Novell NetWare Web page: <http://support.novell.com>.

Chapter 7: Obsolete Platforms, Integrations, and Media Feature Support in Data Protector A.05.50

The relevant version information regarding supported platforms is in the support matrices (see Appendix C).

The information in this chapter is provided for your convenience but may be not exhaustive.

7.1 Obsolete Platforms

The following platforms are no longer supported in the Data Protector A.05.50:

- Windows NT 4.0

7.2 Obsolete Clients

The following clients are no longer supported in the Data Protector A.05.50:

- HP-UX 11.22
- Red Hat Linux 6.x, 7.0, 7.x
- SuSE Linux 6.x, 7.x
- Windows 98
- Novell NetWare 4.2
- IBM AIX 4.3.3

7.3 Obsolete Integrations

The following integrations are no longer supported in the Data Protector A.05.50

- Informix IDS, versions 7.24, 7.30, 9.20
- Informix XPS, versions 8.30, 8.32
- IBM DB2 7.2

7.4 Cartridge Memory Support Obsolescence

Cartridge Memory is no longer supported in Data Protector A.05.50.

Chapter 8: Data Protector Documentation

8.1 Location of Documentation

Data Protector manuals are available in printed format and in PDF format. Install the PDF files during the Data Protector setup procedure by selecting the *User Interface* component on Windows or the *OB2-DOCS* component on UNIX. Once installed, the manuals reside in the `<Data_Protector_home>\docs` directory on Windows and in the `/opt/omni/doc/C/` directory on UNIX. Data Protector support matrices can be found at the above mentioned locations in the `support_matrices` sub-directory. You can also find the manuals in PDF format at http://ovweb.external.hp.com/lpe/doc_serv/

Additionally, the following file is provided:

- A spreadsheet to estimate the size of the IDB, `IDB_capacity_planning.xls`

The latest version of the Acrobat Reader software is available at <http://www.adobe.com>.

8.2 Printed Documentation

The Data Protector printed documentation set consists of the following manuals:

HP OpenView Storage Data Protector Administrator's Guide

This manual describes typical configuration and administration tasks performed by a backup administrator, such as device configuration, media management, configuring a backup, and restoring data.

HP OpenView Storage Data Protector Installation and Licensing Guide

This manual describes how to install the Data Protector software, taking into account the operating system and architecture of your environment. This manual also gives details on how to upgrade Data Protector, as well as how to obtain the proper licenses for your environment.

HP OpenView Storage Data Protector Integration Guide

This manual describes how to configure and use Data Protector to back up and restore various databases and applications. There are four versions of this manual:

- *HP OpenView Storage Data Protector Integration Guide for Microsoft Applications: SQL Server 7/2000, Exchange Server 5.x, Exchange Server 2000/2003, and Volume Shadow Copy Service*
This manual describes the integrations for Microsoft applications: Microsoft SQL Server 7/2000, Microsoft Exchange Server 5.x, Microsoft Exchange Server 2000/2003, and Volume Shadow Copy Service.
- *HP OpenView Storage Data Protector Integration Guide for Oracle and SAP*
This manual describes the integrations for Oracle, SAP R3, and SAP DB.
- *HP OpenView Storage Data Protector Integration Guide for IBM Applications: Informix, DB2, and Lotus Notes/Domino*
This manual describes the integrations for IBM applications: Informix, IBM DB2, and Lotus Notes/Domino.
- *HP OpenView Storage Data Protector Integration Guide for Sybase, Network Node Manager, and Network Data Management Protocol*
This manual describes the integrations for Sybase, Network Node Manager, and Network Data Management Protocol.

HP OpenView Storage Data Protector Concepts Guide

This manual describes Data Protector concepts and provides background information on how Data Protector works. It is intended to be

used with the task-oriented *HP OpenView Storage Data Protector Administrator's Guide*.

HP OpenView Storage Data Protector Zero Downtime Backup Concepts Guide

This manual describes Data Protector zero downtime backup and instant recovery concepts and provides background information on how Data Protector works in a zero downtime backup environment. It is intended to be used with the task-oriented *HP OpenView Storage Data Protector Zero Downtime Backup Administrator's Guide* and the *HP OpenView Storage Data Protector Zero Downtime Backup Integration Guide*.

HP OpenView Storage Data Protector Zero Downtime Backup Administrator's Guide

This manual describes how to configure and use the integration of Data Protector with HP StorageWorks Virtual Array, HP StorageWorks Enterprise Virtual Array, EMC Symmetrix Remote Data Facility and TimeFinder, and HP StorageWorks Disk Array XP. It is intended for backup administrators or operators. It covers the zero downtime backup, instant recovery, and the restore of filesystems and disk images.

HP OpenView Storage Data Protector Zero Downtime Backup Integration Guide

This manual describes how to configure and use Data Protector to perform zero downtime backup, instant recovery, and standard restore of Oracle, SAP R/3, Microsoft Exchange, and Microsoft SQL databases.

HP OpenView Storage Data Protector Integration Guide for HP OpenView

This manual describes how to install, configure, and use the integration of Data Protector with HP OpenView Service Information Portal, HP OpenView Service Desk, and HP OpenView Reporter. It is intended for backup administrators. It discusses how to use the OpenView applications for Data Protector service management.

HP OpenView Storage Data Protector MPE/iX System User Guide

This manual describes how to install and configure MPE/iX clients, and how to back up and restore MPE/iX data.

HP OpenView Storage Data Protector Integration Guide for HP OpenView Operations

This manual describes how to monitor and manage the health and performance of the Data Protector environment with HP OpenView Operations (OVO), HP OpenView Service Navigator, and HP OpenView Performance (OVP).

HP OpenView Storage Data Protector Media Operations User's Guide

This manual provides tracking and management of offline storage media. It is intended for network administrators responsible for maintaining and backing up systems. It describes the tasks of installing and configuring the application, performing daily media operations and producing reports.

HP OpenView Storage Data Protector Software Release Notes

This manual gives a description of new features of HP OpenView Storage Data Protector A.05.50. It also provides information on supported configurations (devices, platforms and online database integrations, SAN, and ZDB), required patches, and limitations, as well as known problems and workarounds. An updated version of the supported configurations is available at http://www.openview.hp.com/products/datapro/spec_0001.html.

8.3 Online Help

Data Protector provides context-sensitive (F1) Help and Help Topics for Windows and UNIX platforms.

8.4 Localization

Data Protector is localized into Japanese and French.

The following manuals are localized into Japanese:

- *HP OpenView Storage Data Protector Installation and Licensing Guide*

Data Protector A.05.50 Release Notes

- *HP OpenView Storage Data Protector Concepts Guide*
- *HP OpenView Storage Data Protector Administrator's Guide*
- *HP OpenView Storage Data Protector Integration Guide for Microsoft Applications: SQL Server 7/2000, Exchange Server 5.x, Exchange Server 2000/2003, and Volume Shadow Copy Service*
- *HP OpenView Storage Data Protector Integration Guide for Oracle and SAP*
- *HP OpenView Storage Data Protector Integration Guide for IBM Applications: Informix, DB2, and Lotus Notes/Domino*
- *HP OpenView Storage Data Protector Integration Guide for Sybase, Network Node Manager, and Network Data Management Protocol*
- *HP OpenView Storage Data Protector Zero Downtime Backup Concepts Guide*
- *HP OpenView Storage Data Protector Zero Downtime Backup Administrator's Guide*
- *HP OpenView Storage Data Protector Zero Downtime Backup Integration Guide*
- *HP OpenView Storage Data Protector Software Release Notes*

The following manuals are localized into French:

- *HP OpenView Storage Data Protector Installation and Licensing Guide*
- *HP OpenView Storage Data Protector Concepts Guide*

8.5 Errata

This section contains updates to the Data Protector documentation not included in:

- The Data Protector documentation at the time of the release. See “General Errata” on page 63.
- The localized versions of the documents. See “Localization Specific Errata” on page 64.

8.5.1 General Errata

This section contains updates to the Data Protector documentation not included in the Data Protector documentation at the time of the release.

8.5.1.1 WebHelp on Mozilla

Search functionality does not work properly in the Data Protector WebHelp on Mozilla with the default Mozilla security settings. To enable search, it is recommended to create a new Mozilla profile and use it only for viewing Data Protector WebHelp.

Perform the following steps:

1. Run the Mozilla Profile Manager by executing the following command: `/opt/mozilla/mozilla -profilemanager`.
2. Create a new profile named Data Protector WebHelp and start Mozilla using this profile.
3. In the Edit menu, select Preferences and then expand Privacy & Security.
4. Click SSL and deselect the Sending form data from an unencrypted page to an unencrypted page warning option. Click OK.

The changed security option will be saved only in the newly created profile without changing other user profiles. This profile will enable you to search in the Data Protector WebHelp without compromising your system security, provided that you use it only for

displaying Data Protector WebHelp.

8.5.1.2 Advanced Backup to Disk

The following statement in the *HP OpenView Storage Data Protector Installation and Licensing Guide* on page A-11 is not correct:

The backup to disk storage cannot be distributed over multiple disk arrays and systems.

The correct statement is:

The backup to disk storage can be distributed over multiple disk arrays and systems.

8.5.1.3 Upgrading the VSS Integration

Information about upgrading the VSS integration is missing in the *HP OpenView Storage Data Protector Installation and Licensing Guide*. The Data Protector A.05.10 installation placed empty `writerstab_format` and `writerstab_info` files into the `<Data_Protector_home>\Config\integ\config\msvssw` directory. After upgrading to Data Protector A.05.50, these two files are moved to the `<Data_Protector_home>\Config\Server\integ\config\msvssw` directory. However, the files remain empty, because the Data Protector upgrade procedure does not replace users configuration data.

Workaround: manually overwrite these two files with the new ones located in the `<Data_Protector_home>\NewConfig\Server\integ\config\msvssw` directory. Note that on a cluster-aware Data Protector Cell Manager, the `NewConfig` directory is saved on every cluster node.

Data Protector A.05.10 patches may have replaced the `writerstab_format` and `writerstab_info` files already. In such a case, no action is required.

8.5.1.4 Oracle Integration Limitation

The `MAXPIECESIZE RMAN` parameter option is not supported with Data Protector A.05.50 since the restore of multiple backup pieces created during a backup is not possible using the Data Protector Oracle8 Integration.

8.5.2 Localization Specific Errata

This section includes updates of the Data Protector documentation that are not included in the localized versions of the documents.

8.5.2.1 Enhanced Security in Disaster Recovery on Windows

Due to enhanced security in Data Protector A.05.50, it is required to add the user performing disaster recovery to the Data Protector Admin user group on the Cell Manager prior to the recovery. This gives the user access to the Cell Manager when performing an online disaster recovery.

When the disaster recovery finishes, remove the added user account from the Data Protector Admin user group on the Cell Manager, unless it existed before the disaster recovery.

Recovery procedures for the following disaster recovery methods have changed:

Assisted Manual Disaster Recovery:

When creating a temporary disaster recovery user account during the Windows installation (step 4), add the user account to the Data Protector Admin user group on the Cell Manager before running the `drstart` command.

Enhanced Automated Disaster Recovery (EADR) and One Button Disaster Recovery (OBDR):

Before performing EADR/OBDR, add a user with the following information to the Data Protector Admin user group on the Cell Manager:

- Type: Windows
- Name: Administrator
- Group/domain: <user_domain>
- Client: <target_system_clientname>

Automated System Recovery (ASR):

When prompted to change ASR diskettes (step 6 of the ASR recovery procedure), add a user with the following information to the Data Protector Admin user group on the Cell Manager:

- Type: Windows
- Name: SYSTEM
- Group/Domain: NT AUTHORITY
- Client: machinename

You can then replace the ASR diskettes and proceed with the recovery procedure.

8.5.2.2 ASR Disaster Recovery on Clusters

Only local shared storage (connected to cluster nodes via SCSI) is supported in cluster environments for ASR. Shared storage on Disk Arrays connected to cluster nodes via Fibre Channel (for example: EVA or XP disk arrays) is not supported unless appropriate device drivers are provided during the initial phase of ASR recovery (by pressing F6). This enables Windows 2003 Setup to correctly detect shared storage located on Disk Arrays.

It is necessary to execute a test plan. The operation is at your own risk.

8.5.2.3 Installing and Upgrading Data Protector on Solaris 9

To enable advanced backup and restore features and ensure proper operation of Data Protector on Solaris 9, replace the generic Solaris Disk Agent (DA) with Solaris 9 DA in the following cases:

- You installed Data Protector Cell Manager on Solaris 9 using the `omni.setup.sh` command.
- You installed or upgraded Data Protector on Solaris using the `pkgadd` command.
- You installed Data Protector A.05.50 on Solaris 7/8 and then you upgraded the operating system to Solaris 9.

In this case, install the DA on the Solaris 9 system again using an installation server or `ob2install` command. Refer to online Help index keyword “adding Data Protector components” or to the `ob2install` man page.

Appendix A: List of Enhancements and Defects Fixed in Data Protector A.05.50

The list of enhancements and fixed defects can be found on any Data Protector CD in the \DOCS directory, in the file [DP55_Enhancements_Resolved_Defects.pdf](#).

Appendix B: Filename Conversion Performance

This appendix shows the impact of file name conversion in the IDB on backup performance.

HP OpenView Storage Data Protector Installation and Licensing Guide provides more information on conversion of file names in the IDB. Among other aspects, it covers the following:

- Which cell configurations require file name conversion in the IDB.
- How to skip the conversion and what are the consequences.
- Which other conversion options are available and what is their purpose.

B.1 Filename Conversion Performance on a UNIX Cell Manager

The following table presents the results of the backup performance measurements during conversion and non-conversion backups. The figures help you estimate the time needed for the first full backup of Windows clients after the upgrade to Data Protector A.05.50.

Filesystem Conditions on the Windows Client			Data Protector A.05.10		Data Protector A.05.50			
Total No. of Files (in 1000)	No. of Files / Dir	% of Non - ASCII File Names	1 st Backup Duration	2 nd Backup Duration	Conversion Backup			2 nd Backup Duration
					Duration	Time per 1000 Files	Ratio to the 1 st Data Protector A.05.10 Backup (%)	
150	10	100	09:00.7	06:58.3	08:46.0	3.51	77	05:04.6
		50	09:50.6	07:07.6	06:42.6	2.68	68	05:26.7
		10	09:41.9	06:58.8	05:25.9	2.17	56	05:16.6
		0	10:10.8	07:06.3	05:22.8	2.15	53	05:23.6
150	1000	100	06:07.6	03:45.8	51:08.5	20.46	835	02:39.3
		50	05:01.4	03:43.7	25:11.4	10.08	501	02:31.8
		10	05:01.5	03:47.7	07:39.4	3.06	152	02:39.3
		0	05:24.9	03:49.6	02:35.1	1.03	48	02:40.1
2000	100.000	50	1:46:38.0	1:35:10.0	16:30:10.0	29.01	929	1:09:19.0
		10	2:10:02.9	1:40:58.9	14:19:27.4	25.18	661	1:10:23.4
		0	2:18:29.1	1:47:17.1	2:03:27.9	3.62	89	1:40:43.9

The tests were performed on systems with the following hardware and operating system configuration:

	Hardware Model	CPU	RAM	Operating System
Cell Manager	HP 9000/800/A500-5X	PA 8600 CPU Module 3.1, 550 MHz	1024 MB	HP-UX B.11.11 U
Client	PC	Intel Pentium III, 1266 MHz	1024 MB	Windows 2000 SP4 (Japanese)

The client and Cell Manager were the only systems connected in an isolated 100 Mb network.

The time needed to perform the conversion, which is done during the first full client backup (**conversion backup**) on a client per client basis, depends on several factors. Typical directory structures on clients (less than 200 directories), should not significantly extend the conversion backup time. However, the conversion backup of large directories and numerous file names containing non-ASCII characters can take considerably more time than a subsequent full backup of the same client.

The impact on the duration of the conversion backup depends on the following factors:

- The percentage of file names in the IDB originating from Windows clients. Bigger percentage means longer conversion backup. File names from non-Windows clients do not need a conversion and thus do not prolong the conversion backup time.
- The number of files in directories:
 - Medium size directories (containing more than 200 files): the impact depends on the number of files in a directory and the percentage of file names that need to be converted. The conversion backup will take longer than a normal full backup with Data Protector A.05.10 if there are many files in a directory with more than 10% of the file names containing non-ASCII characters.
 - Large directories (containing more than 10.000 files): the conversion backup takes significantly longer than a normal full backup with Data Protector A.05.10 if there are large directories on the system containing non-ASCII characters.

Note that after the conversion backup all subsequent backups are faster than comparable backups performed with Data Protector A.05.10.

B.2 File Name Conversion Performance on a Windows Cell Manager

Raw estimates for the duration of IDB conversion of file names for your specific configuration is displayed at the end of the upgrade process on a Windows Cell Manager. The impact on duration of the IDB conversion mainly depends on the number of file names in the IDB originating from non-Windows clients.

Appendix C: Support Matrices

The support matrices can also be found on any Data Protector CD in the \DOCS directory. The following support matrices are available in the Adobe Acrobat format:

[HP OpenView Storage Data Protector A.05.50 Supported Platforms and Integrations](#)

[HP OpenView Storage Data Protector A.05.50 Supported Devices](#)

[HP OpenView Storage Data Protector A.05.50 Split-mirror Backup for HP StorageWorks Disk Array XP](#)

[HP OpenView Storage Data Protector A.05.50 Zero Downtime Backup for HP StorageWorks Virtual Array](#)

[HP OpenView Storage Data Protector A.05.50 Zero Downtime Backup for HP StorageWorks Enterprise Virtual Array](#)

[HP OpenView Storage Data Protector A.05.50 Zero Downtime Backup for HP StorageWorks Enterprise Virtual Array using EVA SMI-S agent](#)

[HP OpenView Storage Data Protector A.05.50 EMC Split-mirror Backup Integration](#)

[HP OpenView Storage Data Protector A.05.50 Disaster Recovery Support Matrix](#)

[HP OpenView Storage Data Protector A.05.50 Supported Devices and SAN Solutions](#)

[HP OpenView Storage Data Protector A.05.50 Fibre Channel SAN Support Matrix](#)

[HP OpenView Storage Data Protector A.05.50 VSS Support Matrix](#)

[HP OpenView Storage Data Protector A.05.50 Network Attached Storage \(NAS\) Support Matrix](#)

[HP OpenView Storage Data Protector A.05.50 Direct Backup Support Matrix](#)

For the latest list of support matrices on the Web, please refer to:

http://www.openview.hp.com/products/datapro/spec_0001.html