

HP OpenView Storage Data Protector A.06.00 Product Announcements, Software Notes, and References

revised on August 7, 2006 (also available on the installation DVD-ROM)



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Document History

Version	Date	Description
1.0	August 1, 2006	Initial version
1.1	August 7, 2006	Last minute changes

Chapter 1: Announcements

HP OpenView Storage Data Protector automates high performance backup and recovery, from disk or tape, over unlimited distances, to ensure 24x7 business continuity, and seamless integration with HP storage hardware and management solutions. Data Protector delivers innovation and performance at a much lower cost than competitive solutions, while offering flexibility, scalability, and performance. Data Protector is a key member of the fast-growing HP storage software portfolio and offers the unique advantage of being able to source hardware, software, and award winning service offerings from a single, trusted source. Data Protector is both easy to deploy and use. It has a simple installation, automated routine tasks, and centralized licensing facility that reduces costs and data center complexity.

Now announcing its later version: Data Protector A.06.00.

1.1 Upgrades

Upgrade information is available in the *HP OpenView Storage Data Protector Installation and Licensing Guide*. Upgrade procedures to Data Protector A.06.00 from Data Protector versions A.05.00, A.05.10, and A.05.50 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.hp.com/support/manuals>.

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.06.00 leverages the product numbers from Data Protector A.05.x. All Data Protector A.05.00, A.05.10, and A.05.50 licenses can be used with Data Protector A.06.00 and retain their original functionality. No license migration is required. However, new product licenses according to the desired functionality are required and need to be installed.

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 previous Data Protector versions and for previous Data Protector Media Operations versions, is as follows:

- 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 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 3.02 was Data Protector Media Operations 5.5. The releases of these products were aligned, and they now share the same version number.

- Full HP support for **Data Protector A.05.50** (incl. **Data Protector Media Operations 5.5**) is scheduled to end on October 31,

2008; with maintenance support only for **Data Protector A.05.50** available through April 30, 2009. Additionally, self-help support (formerly known as knowledge base support) for **Data Protector A.05.50** will be available through October 31, 2009.

1.5 Support for old agents

Wherever possible, all clients in a Data Protector cell should be upgraded to version A.06.00 during the regular upgrade process. This ensures that customers can benefit from the full feature set of Data Protector A.06.00 on all systems in a cell.

However, due to the high demand, support for older agents has been extended.

Disk agents and media agents of the same Data Protector version (A.05.00, A.05.10, or A.05.50) are supported in a A.06.00 cell with the following constraints:

- Support is limited to the feature set of the older Data Protector version.
- Operations involving clients on different systems (for example export media / import media) have to be performed using agents of the same version.
- Older media agents are not supported in combination with NDMP servers.
- If one Data Protector component on a client is upgraded to A.06.00, all other components have to be upgraded to A.06.00 as well.
- Version A.05.00/A.05.10 disk agents must be upgraded to A.06.00, if you plan to back up files which contain non-ASCII characters in their file names.

In case of problems in connection with old agents, we would like to ask customers to consider the feasibility of an upgrade to A.06.00 as the first resolution step.

1.6 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

A summary of the benefits provided by Data Protector A.06.00 is as follows.

1. Virtual full backup allows space savings with space efficient full backups to disk, faster full backup creation and improved backup media utilization by enabling backup creation through pointers versus copying data again.
2. Synthetic full backup eliminates the need to run regular full backups by consolidating incremental backups. Ideal solution for a distributed environment, minimizing the traffic burden on the network.
3. Continuous mail service during backup, ensuring maximum availability via zero downtime backup and instant recovery based on Microsoft Volume Shadow Copy Service and VDS hardware providers.
4. Cell Manager for Linux provides high performance network-wide data protection for pure Linux environments. Installation Server is also available on this platform.
5. Enhanced incremental backup reliably detects renamed, moved, or files with changed attributes, which enables incremental forever. Full backup is done only once and incremental backups to disk forever.
6. Filesystem incremental zero downtime backup enables you to stream from the replica to tape only files that fit the conventional incremental backup criteria, thus reducing space requirements on tape.
7. Overcomes data loss by performing backup on the copy of the production data at the remote site (Continuous Access) with HP StorageWorks Enterprise Virtual Array.

The rest of the chapter gives a more detail description of these Data Protector A.06.00 features and major changes in comparison to the previous Data Protector version.

2.1 Synthetic Backup and Virtual Full Backup

Data Protector A.06.00 introduces an advanced backup solution called synthetic backup. This solution enables you to create synthetic full backups and virtual full backups with an operation called object consolidation.

2.1.1 Synthetic Backup

Synthetic backup is a backup solution that eliminates the need to run regular full backups. Instead, incremental backups are run, and subsequently merged with the full backup into a new, synthetic full backup. This can be repeated indefinitely, with no need to run a full backup again. In terms of restore speed, such a backup is equivalent to a conventional full backup.

2.1.2 Virtual Full Backup

Unique in the market, virtual full backup is an even more efficient type of synthetic backup. This solution uses pointers to consolidate data rather than copy the data. As a result, the consolidation takes less time and avoids unnecessary duplication of data.

Virtual full backup is performed in the same way as normal synthetic backup, with the two additional requirements stated below. In an object consolidation session, Data Protector automatically performs a virtual full backup if:

- All backups are written to one file library: the full backup, incremental backups, and the resulting virtual full backup.
- The file library uses distributed file medium format.

2.1.3 Object Consolidation

The Data Protector object consolidation functionality enables you to merge a restore chain of a backup object into a new, consolidated version of this object, either a synthetic full backup or a virtual full backup.

You can start an object consolidation session interactively or specify an automated session. Data Protector offers two types of

automated object consolidation: post-backup and scheduled object consolidation.

2.2 Cell Manager and Installation Server on Linux x86-64

Data Protector A.06.00 introduces support for AMD64/Intel EM64T architecture based Cell Manager and Installation Server for Linux systems. All supported features and limitations of UNIX systems described in the Data Protector documentation, also apply to the Linux Cell Manager, unless stated otherwise. The Cell Manager on Linux supports local CLI and remote GUI from HP-UX (PA-RISC), Windows, and Solaris platforms.

With the Linux Installation Server, you can install Data Protector components remotely to all UNIX clients.

For details on supported Linux distributions and GUI platforms, see the latest support matrices.

2.3 Cell Manager and Installation Server for Windows x64 Operating Systems

Data Protector A.06.00 introduces support for AMD64/Intel EM64T architecture based Cell Manager and Installation Server for Windows operating systems. All supported features and limitations of 32-bit Windows operating systems described in the Data Protector documentation, also apply to the 64-bit Windows Cell Manager, unless stated otherwise. For details on the supported Windows operating systems, see the latest support matrices.

2.4 Incremental ZDB

Data Protector A.06.00 provides support for filesystem incremental zero downtime backup. Incremental ZDB is a filesystem ZDB to tape or ZDB to disk+tape session in which Data Protector streams to tape only files that fit the incremental backup criteria, the same criteria that are used for incremental non-ZDB sessions.

2.5 The Data Protector Oracle Integration Changes and Improvements

Data Protector A.06.00 offers a new version of the Data Protector Oracle integration that introduces the following improvements:

- Support for Oracle Data Guard. You can now configure an Oracle database (single or multi-instance) for Oracle Data Guard environment and thus you can:
 - Back up and restore a physical standby database.
 - Restore and recover a primary database from a standby database backup.
 - Restore and recover a standby database from a primary database backup.
- Support for duplication of a production database. You can now duplicate a database using the Data Protector GUI (Restore context).
- Enhancements in the Oracle database configuration for ZDB. You can now configure an Oracle database for ZDB using the Data Protector GUI.
- Data Protector now supports the Oracle 10g flash recovery area and automatic storage management (ASM). ASM is also supported for ZDB to tape.

You can now select flash recovery area as backup object in a backup specification. The files from the flash recovery area can be backed up from disk to a backup device using Data Protector.
- All Data Protector methods for enabling debugging are now also available for Oracle integration.
- By default, Data Protector backs up the recovery catalog and the Data Protector managed control file in every backup session or, in ZDB environment, after every ZDB to tape or ZDB to disk+tape. These features can be now disabled when creating a backup specification.

- The `ob2rman.exe` and `util_oracle8.exe` commands have been converted to Perl scripts (`ob2rman.pl` and `util_oracle8.pl`).

2.6 Enhanced Support for Microsoft Volume Shadow Copy Service

2.6.1 VSS Instant Recovery for Microsoft Exchange Server 2003 and MSDE

Data Protector A.06.00 introduces the instant recovery feature to be used within the Data Protector VSS integration. Instant recovery is available for the MSDE and Microsoft Exchange Server 2003 writers. Rollforward operation after the instant recovery is supported for the Microsoft Exchange Server 2003 Writer. Incremental and Differential backup types are available also for a transportable backup.

With the introduction of Instant Recovery through VSS, Data Protector now offers a complete solution for backing up and recovering the Exchange Server without the need to shut down the Exchange Server as with the Microsoft Exchange Integration, thus offering continuous mail services during backup.

2.6.2 Restore of Individual Files

Data Protector A.06.00 enables you to restore single files instead of whole components.

2.6.3 Microsoft Data Protection Manager Writer 2006

Data Protector A.06.00 introduces support for the Microsoft Data Protection Manager 2006 Writer. With this writer you can back up and restore the DPM database and the latest replicas on the DPM server. You can also perform a restore directly to the DPM clients.

2.6.4 Enhanced Support for Microsoft Exchange Server 2003

Data Protector A.06.00 supports additional backup types for the Microsoft Exchange Server 2003: Copy, Incremental, and Differential.

2.7 Enhanced Data Protector Microsoft Exchange Single Mailbox Integration

Data Protector A.06.00 offers a new version of the Data Protector Microsoft Exchange Single Mailbox integration, enabling you to back up and restore Public Folders as well. Besides, you can now back up and restore individual folders from different mailboxes and Public Folders. As part of this enhancement, two new restore options have been added:

- Restore to original folder
- Restore to new folder

2.8 Enhanced Incremental Backup

Data Protector A.06.00 introduces incremental backup with enhanced detection of changes made to a file. Unlike conventional incremental backup, enhanced incremental backup can reliably detect renamed and moved files, as well as files with changes in attributes.

To perform enhanced incremental backup, enable the Enhanced incremental backup option in the backup specification.

2.9 Support for SAP R/3 BRTOOLS 6.4 splitint Interface

Data Protector A.06.00 can use the `splitint` command (supported by SAP R/3 BRTOOLS 6.4 or newer) to split the mirrors or create the snapshots. Using `splitint`, the database is put in to backup mode only during the time that is needed to perform the split, thus shortening the overall time during which the database is in backup mode. By default, the backup process is performed as in previous releases. For details, see the *HP OpenView Storage Data Protector Zero Downtime Backup Integration Guide*. See also the latest

support matrices for details on supported versions of SAP R/3 BRTOOLS.

2.10 Support for Localized Database Applications

Data Protector A.06.00 has improved support for localized database applications, including localized tablespace names, filenames, and other components, depending on the database application (SAP R/3, Sybase, Lotus Domino/Notes, Informix, Oracle). For details, refer to the *HP OpenView Storage Data Protector Integration Guide* and *HP OpenView Storage Data Protector Zero Downtime Backup Integration Guide*.

2.11 Oracle Integration on OpenVMS Platforms

With Data Protector A.06.00, Oracle integration is supported on OpenVMS platforms.

2.12 Enhanced Support for the HP StorageWorks Enterprise Virtual Array Integration

2.12.1 Support for Continuous Access (CA) + Business Copy (BC) Configurations

Data Protector A.06.00 introduces ZDB support for combined CA+BC configurations on HP StorageWorks Enterprise Virtual Arrays, which allows you to perform remote plus local replication. This offers the following advantages:

- Increased safety of the backed up data, as the replica produced on the remote array is completely independent of the original
- The performance of the local disk array is not affected during backup from the replica on the remote disk array to tape

In addition, you can handle replica creation differently in non-failover and failover scenarios by specifying a set of failover handling options.

2.12.2 Support for HP-UX Logical Volume Manager (LVM) Mirroring Configurations

Data Protector A.06.00 introduces ZDB support for LVM mirroring configurations on HP StorageWorks Enterprise Virtual Arrays, providing a software technique to replicate only one mirror part of the volume group participating in backup (using a local replication technique). The following are the advantages of using LVM mirroring configurations:

- The data is available on more than one LVM disk thus providing high availability
- If an I/O channel fails, LVM can recover the data from the duplicate source
- Disk space usage is reduced by making a copy of part of the total disks used.

2.12.3 Support for EVA-XL Arrays

Data Protector A.06.00 introduces ZDB and IR support for EVA-XL (EVA 4000/6000/8000) arrays.

2.13 Secure Remote Installation Using Secure Shell (SSH)

Data Protector A.06.00 enhances security of the remote installation method by introducing secure shell (SSH) installation, which can be used as an alternative to the already existing remote installation method. SSH installation protects both the Installation Server and the client and installs Data Protector components in a secure way:

- The Installation Server is authenticated to the client through the public-private key pair mechanism.
- Installation packages are sent over the network with encryption, and not as plain text.

2.14 Sending Notifications and Reports by E-mail Using the SMTP Protocol

Data Protector A.06.00 supports the SMTP protocol for sending reports and notifications by e-mail, using available SMTP servers. An external e-mail application is no longer required. The SMTP protocol is recommended as the default e-mail send method on both, UNIX and Windows.

2.15 Multiple Free Pools of the Same Media Type

Data Protector A.06.00 enables you to create more than one free pool of the same media type. This provides the following benefits over previous versions of Data Protector:

- Media from a free pool could be assigned to incompatible devices that used the same media type. With Data Protector A.06.00, you can assign a free pool for each device.
- Several libraries of the same type had to share the same free pool. If Data Protector tried to use media from the free pool that were not in the same library, a mount request was issued. With Data Protector A.06.00, you can configure one free pool for each library and avoid unnecessary mount requests.

2.16 Access Control List (ACL) Supported on Tru64 and Linux Platforms

With previous version of Data Protector, ACL attribute backup/restore was supported on HP-UX, AIX, and Solaris platforms. Data Protector A.06.00 adds ACL support for Tru64 and Linux platforms.

2.17 Data Protector General Media Agent on Windows x64 and Linux x86-64 Platforms

Data Protector A.06.00 offers a new version of the general Media Agent that is now supported also on Windows and Linux clients running on the 64-bit processor AMD64/Intel EM64T (x86-64). For details, see the latest list of support matrices on the Web: <http://www.hp.com/support/manuals>.

2.18 NDMP Media Agent Enhancements

Data Protector A.06.00 offers a new version of the NDMP Media Agent that supports two additional media management functionalities:

- Adjustable tape block size
- Dirty drive detection

The new NDMP Media Agent is now supported also on IA64 HP-UX 11.23. For details, see the latest list of support matrices on the Web: <http://www.hp.com/support/manuals>

2.19 ADIC/GRAU DAS Libraries Support on IA-64 HP-UX

Data Protector A.06.00 offers support for ADIC/GRAU DAS libraries on IA-64 HP-UX. For details, see the latest list of support matrices on the Web: <http://www.hp.com/support/manuals>.

2.20 Debug Log File Collector Enhancements

Data Protector A.06.00 offers a new version of the debug log file collector utility (the Data Protector `omnidlc` command), enabling you to collect debugs not only from the default location but also from user-specified directories. In addition, debug log collector is now

available on OpenVMS systems.

Chapter 3: Limitations and Recommendations

3.1 Size Limitations

3.1.1 Internal Database Size

	Data Protector A.06.00
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 size per DCBF file	2 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 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.

3.1.3 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

3.1.4 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.

3.1.5 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 `MaxSessions` 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).

3.1.6 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 `MaxMachines` 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 `MaxDataStreams` global option.
- Up to 10 media can be imported in the IDB at the same time.

3.1.7 Number of Cells in a MoM Environment

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

3.2 Upgrade Limitations

- A backup of the Internal Database, created with previous versions of Data Protector, cannot be restored with Data Protector A.06.00. After upgrading the Cell Manager, backup the Internal Database before you continue using Data Protector.

3.3 Localization

Data Protector A.06.00 is localized to the Japanese and French languages on Windows, HP-UX, and Solaris operating systems. However, the installation procedure is not localized.

- The Japanese localized version is supported on Microsoft Windows with Japanese language support. International versions of Microsoft Windows are not supported.
- The French localized version is supported on Microsoft Windows with French language support. International versions of Microsoft Windows are not supported.

3.4 Platform Limitations

3.4.1 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.

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- Cross-platform restore of ACLs is not supported. This limitation is due to different internal ACL data structures on different UNIX systems.
- Cross restore of ACLs between Linux 32-bit and 64-bit is not supported.
- Modification of ACL entries does not affect the modification time of the file object, so the file object (and the modified ACL) is not backed up during an incremental backup.
- The GUI on UNIX can display a maximum 32000 items (files in one directory, slots in a library, and so on) in a tree view.
- 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 Limitations

- Restore of a single file from a disk image is not supported.

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.
- Data Protector A.06.00 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.
- If you use access control lists (ACLs) and perform backups and restores between 32-bit and 64-bit Linux systems (for example, you perform a backup on a 32-bit Linux system and restore this backup to a 64-bit Linux system), the ACL entries are not restored.
- SNMP traps are not supported on 64-bit Linux systems (x86-64).

SCO Limitations

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

3.4.2 Windows Limitations

- Windows directory share information can only be restored to a Windows system (except for Windows ME) with a Data Protector A.06.00 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.
- Microsoft Installer (MSI) 2.0 is required to install Data Protector A.06.00. 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).
- Remote installation using secure shell (SSH) is not supported on Windows platforms.
- Secure shell installation supports key-based authentication. It does not support other authentication modes.
- Backing up network shared volumes using the VSS functionality is not supported.
- The GUI on Windows can display a maximum 64000 items (files in one directory, slots in a library, and so on) in a tree view.
- 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 Server 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 Product Demo for Windows is not supported on 64-bit versions of Windows.
- The glossary is not available in online Help on 64-bit versions of Windows.
- 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.

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- 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.06.00 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.
- On AMD64/Intel EM64T systems, sending notifications and reports by e-mail using MAPI is supported only with Microsoft Outlook Express, and not Microsoft Outlook.

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.

3.4.3 Novell NetWare Limitations

- The Novell NetWare client must be installed locally on the Novell NetWare system. There is no support for remote installation from an Installation Server.
- Cross-platform restore is not supported.

3.4.4 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`, `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.06.00 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.

3.4.5 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.

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` 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

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directory path is added to the destination path to form the new restore location.

- To successfully back up write-protected and shadow disks, enable the `Do not preserve access time attributes` option in the backup specification.
- If the `Do not preserve access time attributes` option is disabled during a backup and if the `Restore Time Attributes` 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.
- 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.
- The omnichck `-patches -host` command is not supported on OpenVMS.
- 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.
- File library device cannot be created on ODS-2 disk because of its filename length limitations.
- 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.
- 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.
- On the OpenVMS client with the Oracle integration installed, you have to configure a Data Protector `admin` user with the username `<Any>` and the group name `<Any>`. This limitation is due to the lack of the user group name concept on OpenVMS.
- If you run the Media Agent and the Data Protector Oracle integration agent on the same OpenVMS client, modify the group ID of the `omniadmin` user as DBA using the `MCR AUTHORIZE` utility.
- When a debug and logfile collector is used on OpenVMS, the following applies:

- The OpenVMS ODS-2 disk structure file name can contain the maximum of 39 characters.
- As OpenVMS systems do not have the `get_info` utility, the `get_info.out` file is blank and is not collected.
- The `omnidlc` command run with the `-session` parameter does not collect the debug files produced during specified session, because session names are not part of the OpenVMS debug filename. Instead, all available logs are collected.

3.5 Limitations on Disk Array Integrations

3.5.1 HP StorageWorks Disk Array XP Limitations

- Asynchronous CA configuration is not supported.
- With BC1 configurations, only filesystem and disk image backups are supported.
- Split mirror restore (restore to a secondary volume and synchronizing to the primary volume) is supported for the filesystems and disk images in the BC configuration. Database/application split-mirror restore is not supported.
- Instant recovery is only possible to restore the data backed up in BC configurations.
- 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.
- Object copying and object mirroring are not supported for ZDB to disk.
- 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*.
- When restoring filesystems in an instant recovery session, no object other than those selected for instant recovery should share the disks that are used by objects selected for the session.
- Routine maintenance, including (but 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.

3.5.2 EMC Symmetrix Disk Array Limitations

- ZDB to disk, ZDB to disk+tape, and instant recovery are not supported. Only ZDB to tape is supported.
- Preview backup is not supported.
- Routine maintenance, including (but 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.

3.5.3 HP StorageWorks Virtual Array Limitations

- Only one logical volume can reside on one HP StorageWorks Virtual Array LUN in case LVM Mirroring is used.

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- LUN0 is used as a command device and is accessed by all hosts connected to the disk array. Follow the array guidelines with configuration of LUN0 and make sure it does not contain any user data.
- Dynamic disks are not supported.
- Object copying and object mirroring are not supported for ZDB to disk.
- 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*.
- When restoring filesystems in an instant recovery session, no object other than those selected for instant recovery should share the disks that are used by objects selected for the session.
- 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 (but 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.

3.5.4 HP StorageWorks Enterprise Virtual Array Limitations

- Dynamic disks are not supported.
- 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.
- A replica cannot be reused if any snapclone from this replica has a snapshot attached or if a target volume from this replica is presented to some system.
- Data Protector does not allow ZDB to use an instant recovery object as a source volume.
- For ZDB-to-disk and ZDB-to-disk+tape sessions (instant recovery enabled), only snapclones are used.
- When cloning of a source volume is in progress, another snapclone of that source volume cannot be created.
- Preview backup is not supported.
- Object copying and object mirroring are not supported for ZDB to disk.
- Care must be taken when instant recovery is performed on objects located on lower performance disks, as this may result in undesired performance penalties. In such cases, a ZDB to the high performance disks and subsequent instant recovery will reverse the situation.
- During instant recovery, CRC check is not performed.
- 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*.

- Routine maintenance, including (but 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.

3.6 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.

- 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.
- Supported device block sizes:

NAS device	Block size range
ONTAP < 6.5.3	64
ONTAP ≥ 6.5.3	64 ≤ size ≤ 256
Celerra	64 ≤ size ≤ 256

- 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.
- Restore of data residing on more than one medium using the `List from Media` option is not supported. To perform such a restore, you should first import all related media.

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`.

3.7 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 Oracle 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 Oracle direct backup.
- The systems in the direct backup environment must be HP-UX 11.11.

3.8 Limitations on Database Integrations

3.8.1 General Limitations

- With database integrations that support restore by starting the integration agent via the CLI, starting such a restore is not supported if you access the client through Remote Desktop Connection and the Media Agent to be used is on the same client.

3.8.2 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 Oracle 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 .
- 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.

3.8.3 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_omniirc` 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.

3.8.4 Informix Server Limitations

- On Windows, due to an Informix Server bug, you cannot perform an Informix Server restore by a logical log number with the Informix Server version 7.31.TC2.
- On Windows, cold restore of non-critical dbspaces is not possible.

3.8.5 VSS Microsoft Exchange Server 2003 Limitations

- At the time of release for Data Protector A.06.00, the VSS agent can run into error conditions when interfacing with the VSS and VDS HW Providers for the HPStorageWorks Enterprise Virtual Array. This can result in a high failure rate for backups depending on the actual system load on the array and on the systems involved. To avoid this problem, Instant Recovery for VSS should not be used, and the rotation count for such backup specifications should be set to 0. This limitation will be removed with an upcoming patch to handle these backup failures.
- Due to a Microsoft Exchange Server 2003 writer issue, non-latin characters (for example, Japanese characters) for Exchange store or storage group names are not supported.

3.9 Limitations on Clusters

3.9.1 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.

3.10 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.

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- 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.
- 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 Server, 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.
- Data Protector does not support copying a media copy. However, such a copy can be made if the original medium is exported and thus the copy becomes the original. If you export the second level copy, you cannot import it again if the original medium is imported.

3.11 Recommendations

3.11.1 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.

3.11.2 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.

3.11.3 Synthetic Backup - Object Consolidation Frequency

When consolidating a large number of objects with very long restore chains, an error might occur. To prevent this, run object consolidation regularly, for example, when you would normally run a full backup, to keep the restore chain manageable.

3.11.4 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.

3.11.5 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.

3.11.6 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. 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 instead.

3.11.7 GUI on UNIX

When using the GUI on UNIX systems, it is strongly recommended to set the locale to a locale that uses UTF-8 encoding in order to:

- enable switching between different encodings, thus enabling proper display of file names and session messages containing non-ASCII characters in mixed environments.
- ensure that names of devices, backup specifications, and such, containing non-ASCII characters, which were created in UNIX GUI, also display properly in Windows GUI, and vice versa.
- prevent failures to create a backup specification or other similar items when using an S-JIS locale on UNIX, typically when using characters with second byte equal to '\ (backslash).

Chapter 4: Recognized Issues and Workarounds

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

4.1 Known Data Protector Issues and Workarounds

4.1.1 Installation and Upgrade Related Issues

- 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.
- 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).
- When installing Data Protector clients remotely in a cluster environment, the Data Protector GUI allows you to push the components to a virtual host, even though the components must not be added to the virtual host.
Workaround: None. Do not push the components to the virtual host. Install the clients locally, as described in the documentation.
- 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.
- 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 Data Protector before installing Data Protector A.06.00.
- On Windows systems, desktop shortcuts used to start Data Protector that were created by the user (for example by dragging the menu entry to the desktop) do not work after an upgrade.
Workaround: Recreate the desktop shortcuts after upgrading.

4.1.2 User Interface Related Issues

- 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.
- In Japanese environments you may experience problems with the UNIX GUI if it is used remotely through XWindows emulation software (such as Reflection, Exceed). The UNIX GUI works without problems if it is used locally or if used through VNC software.

4.1.3 Media Agent and Disk Agent Related Issues

- 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.

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- 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 operation and confirm the mount request.
- If you restart the system during a backup, the medium to which data is backed up may get corrupted, although Data Protector does not report any errors. Consequently, you may not be able to restore any backups from this medium. Subsequent backups to the corrupted medium will fail too.
- 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.06.00, 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/lm  
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.

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- 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.

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 back up 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 OmniInet 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 Issues

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.
- By default, Data Protector does not support a restore to a recovery storage group on an Exchange Server 2003. However, if you enable recovery storage groups, restore will fail.
Workaround: Remove the recovery storage group or set the `Recovery Storage Group Override` registry key. For details, see the Microsoft Knowledge Base Article 824126.

Microsoft Exchange Single Mailbox

- When configuring the Microsoft Exchange Single Mailbox integration, the following issues may occur:
 - The CLI configuration finishes without reporting an error, but the configuration actually fails. When creating a backup specification, the configuration dialog displays. If the backup is started from the CLI, or from the GUI where the configuration was not performed in GUI, the session finishes immediately without backing up any data.
 - If the integration was configured using the GUI and you run the configuration check from the CLI, the check will fail with `*RETVAl *8561`.Workarounds:
 - Use the GUI to configure the integration and to check the configuration.
 - Set/export the environment variable `OB2BARHOSTNAME` on the client system
`set OB2BARHOSTNAME=<client_name>` (Windows) or
`export OB2BARHOSTNAME=<client_name>` (Unix)
and repeat the configuration using the CLI.
- When configuring the Microsoft Exchange single mailbox integration for a Microsoft Exchange cluster, Data Protector uses the active node instead of the Exchange virtual hostname. As a result, you can only backup and restore on the node which was active during the configuration. If a failover occurs, the backup or restore will fail.
Workaround: Switch the nodes back before performing a backup or restore. The issue will be resolved with a patch in the first patch release.

Microsoft SQL Server

- In the Data Protector GUI, the tape device you want to use for a Microsoft SQL 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.

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

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`<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_MOUNPOINTS=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.

- 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 Server

- When reconfiguring the Informix Server 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 Server database cannot be started from the CLI with the `omnirc` command.

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

- Restore of Informix Server 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

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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 (`ldbarr`) 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, `ldbarr` 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 Oracle 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_omni.rc` variable in the *HP OpenView Storage Data Protector Zero Downtime Backup Administrator's Guide*.

- When running a ZDB on EVA, 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 an EVA 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 Issues

- 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 Issues

- If you consolidate object versions that have already been consolidated, selecting the session in the `Restore` context results in a message that the session contains no valid restore objects. This is because the session is treated as a copy and consequently cannot be selected for restore.

Workaround: Either select the session in which the objects were originally consolidated, or select the objects under `Restore Objects`.

- To prevent object consolidation sessions from using too much system resources, the number of object versions that can be consolidated in one session is limited to 500 by default. If more object versions match the selection criteria, the session is aborted.

Workaround: Either tighten the selection criteria, for example, by limiting the time frame, the number of backup specifications, and so on, or increase the value of the global variable `CopyAutomatedMaxObjects`.

- If you perform interactive object consolidation of objects that span more than one medium and the number of consolidation devices used is smaller than the number of objects being consolidated, the object consolidation session may hang.

Workaround: Either increase the number of consolidation devices, or select the object versions for consolidation in the order in which their full backups were performed.

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- If full backups for multiple objects reside multiplexed on a device which is different than the file library hosting the corresponding incremental backups for these objects (e.g. on a tape library), it may happen that some of the file writers (file library drives) needed as targets for the consolidation session get aborted because of a failure on the source Media Agent side (e.g. in case of a media error, an incorrect block size, a canceled mount request, and similar). This may result in a hanging object consolidation session, in case there are not enough file writers remaining to complete the consolidation for other objects. Once all remaining objects are consolidated, all file writers will be freed up again at the end of the session.

Workaround: Ensure that the number of file library drives used as consolidation devices is equal or higher than the number of objects being consolidated. If the number of configured file library drives is smaller than the number of objects to be consolidated, it is suggested to split the consolidation of multiple objects into more than one session.

- 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://www.itrc.hp.com>

- 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 `omnidbutil -purge` session is started, `omnidbutil` 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 Issues and Workarounds

4.2.1 Non-Data Protector Issues Related to Installation or Upgrade

- After installation or upgrade to Data Protector A.06.00, 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.

- On Windows XP, an additional dialog window may pop up during the uninstallation of the CORE patch, displaying an error.

For details about the problem and a possible resolution, see the InstallShield KB article Q107094

<http://support.installshield.com/kb/view.asp?articleid=Q107094>

- On Linux systems, the `rpm` utility does not correctly uninstall Data Protector packages if you specify several packages in one command. For example, if you use `rpm -qa | grep OB2 | xargs rpm -e`, the `rpm` utility does not resolve dependencies in the correct order.

Workaround: Remove the Data Protector packages one by one.

4.2.2 Non-Data Protector Issues 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 platforms, the web browser does not start although it is correctly installed on the system.

Workaround: Verify that the correct pathname to the web browser 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 the web browser binary or startup script.

- 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 Issues 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\<adapter>\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.

- Breece 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 `omnicrc` 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 known issue 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

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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

- 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 known issue in `TSAF5.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 Issues 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.

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- 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: ha!a will get the subject line ABC: ABC: ha!a. 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).

Microsoft SQL Server

- Due to Microsoft SQL Server 7.0 known issue 53787 in cluster support with VDI, set the `_VIRTUAL_SERVER_NAME_` environment variable in the `omnirc` 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

- Instant Recovery of Microsoft SQL Server system databases fails.

Workaround: Follow the instant recovery procedure in the *HP OpenView Storage Data Protector Zero Downtime Backup Integration Guide*. As stated there, you need to restart the services of the SQL Server instance after the instant recovery completes. If this does not automatically start a recovery of all system databases:

1. Start the SQL Server instance in single-user mode.
2. Manually start a recovery of the master database.
3. Start a recovery of every other system database (SQL Server instance must be started in single-user mode).
4. Restart the services of the SQL Server instance.

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 Oracle Recovery Manager together fails.

During the SAP R/3 (Oracle) 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
```

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

```
NLS_LANG=AMERICAN_AMERICA.WE8DEC
```

```
SAPDATA_HOME=/oracle/YP1
```

- Offline SAP R/3 ZDB to disk (SPLITINT) on Solaris fails with the following error message:

```
BR0253E  errno 4: Interrupted system call
```

Workaround: None. The problem may be solved with a newer version of SAP BRTOOLS.

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 Server

- Due to an Informix Server known issue, the point in time restore for Informix Dynamic Server 7.31 TC8 on Windows 2000 does not work.

Workaround: Contact Informix Server support for an appropriate patch .

- On Informix Dynamic Server 7.3x 64-bit, the `$INFORMIXDIR/bin/onbar` binary does not work properly.

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Workaround: Copy the `$INFORMIXDIR/bin/onbar` shell-script from 32-bit version of Informix Dynamic Server 7.3x. If you do not have this script, contact Informix Server Support.

- When you perform a recovery and then a restore in Informix Server, Data Protector always reports that the ON-Bar process exits with the return code 0.

Workaround: Check the Informix Server log file `/tmp/bar_act.log`, for the real return code value.

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

Workaround: Edit the `/opt/omni/1bin/ob2onbar.pl` script so that every option "-b -l" is replaced with "-l".

Sybase

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

Workaround: Kill the `$SYBASE_HOME_DIR/bin/sybmultip` 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.
```

Workaround: Install Secure Path version 4.0B and patch v4.0B-3. The patch is available on <http://www.itrc.hp.com>.

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

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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 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.

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```
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 `.omniarc` 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.

- A snapshot backup of an Exchange Server 2003 database fails, and event ID 9607 is logged. See Microsoft Knowledge Base article ID 910250 for information on how to resolve this problem.

4.2.5 Non-Data Protector Issues 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.

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.

- If a Data Protector Cell Manager and Microsoft Exchange Server 2003 coexist on the same system, e-mail reporting using MAPI does not work. This is because Microsoft does not support installing Outlook on a system with Microsoft Exchange Server 2003 installed.

Workaround: Use the e-mail SMTP send method for reports and notifications.

- 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 older browsers 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.
- If you receive localized Data Protector e-mail notifications containing Japanese characters on the host where Japanese is not the default locale, the output of the notifications may be correctly displayed.

Workaround:

1. If you have this problem with the Microsoft Outlook, save the message in the HTML format, then open it in a web browser and follow the next step.
2. If you use a web browser, select the Japanese locale, Shift-JIS, EUC, or UTF-8. For example, select View->Character Encoding->More Encodings->East Asian-Japanese (Shift_JIS).

4.2.6 Other Non-Data Protector Issues

- 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`.

On Solaris

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

```
set shmsys:shminfo_shmmax=4294967295
set shmsys:shminfo_shmmni=1
set shmsys:shminfo_shmmn=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.

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- 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 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)
- $2 \times \langle \text{size of the biggest package to be installed} \rangle + 5\text{MB}$ of disk space needed on system drive
- Microsoft Internet Explorer 5.x or later

5.1.4 On Systems Running Windows Server 2003 (32 and 64-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)
- $2 \times \langle \text{size of the biggest package to be installed} \rangle + 5\text{MB}$ of disk space needed on system drive
- Microsoft Internet Explorer 5.x or later

5.1.5 On Systems Running SUSE Linux Enterprise Server 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 for data segments are needed.
- 240 MB of disk space + approximately 2% of planned data to be backed up (for use by the IDB).
- If the version of libstdc++ on the system is not 5 (for example libstdc++.so.6 instead of libstdc++.so.5) you need to install the compatibility package `compat-2004` or `compat-libstdc++`.

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
- 750 MB of disk space

5.2.2 On Systems Running Solaris 8/9

The Installation Server must meet the following minimum requirements:

- 64 MB RAM
- 750 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 and 64-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

5.2.5 On Systems Running SUSE Linux Enterprise Server 9

The Installation Server must meet the following minimum requirements:

- 64 MB RAM
- 800 MB of disk space

5.3 Client System Requirements

5.3.1 On Systems Running UNIX

The prerequisite for remote installation of the Data Protector client is the following:

- The `inetd` daemon must be up and running on the remote client system.

The prerequisite for viewing online Help on the Data Protector client is the following:

- A web browser that is able to run under the same account as Data Protector must be installed on the client system:

— On HP-UX, the Mozilla web browser is supported. HP recommends using Mozilla 1.7, but you can also use any other Mozilla version that is officially supported on this platform. For a list of supported Mozilla versions and their installation packages, see the web site <http://www.hp.com/products1/unix/java/mozilla/index.html>.

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- On Solaris, Mozilla 1.7, Netscape 7.0, and Netscape Navigator 4.7x are supported. HP recommends using Mozilla 1.7. You can download it at <http://www.sun.com/software/solaris/browser/index.xml> and <http://www.mozilla.org/releases/#1.7.12>.
- On Linux, Mozilla 1.7 is supported. You can download it at <http://www.mozilla.org/releases/#1.7.12>.

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.

The Data Protector A.06.00 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.

Linux Systems

The RPM module must be installed and enabled on a Linux Debian client system, as Data Protector uses the rpm package format for installing.

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

- the documentation (.pdf files, 55 MB) is always 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 256 MB of RAM are enough to display about 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.

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 `omnic` 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 1.4.2 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, Mozilla 1.7 and Microsoft Internet Explorer 6.0 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 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 locally. Remote installation is not supported.

5.7 Upgrade

The upgrade procedure to Data Protector A.06.00 from Data Protector A.05.00, A.05.10, and A.05.50 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 Data Protector A.05.00 and then upgrade to Data Protector A.06.00 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, A.05.10 or A.05.50 to Data Protector A.06.00.

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.

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:

<code>BrandChgUni.dll</code>	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.
<code>libarm32.dll</code>	This is a NULL shared library for ARM instrumentation. It may be replaced by third-party monitoring software.
<code>ob2informix.dll</code>	This library is used to integrate with the Informix Server database.
<code>orasbt.dll</code>	This library is used to integrate with the Oracle database.
<code>snmpOB2.dll</code>	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.itrc.hp.com> or http://www.software.hp.com/SUPPORT_PLUS/qpk.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
SP64-11.00 (or later)	QPK1100	Current patch bundle for HP-UX 11.00
use latest	HWE1100	Required hardware enablement patches

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
SP0312-11.11 (or later)	GOLDQPK11i	Current patch bundle for HP-UX 11.11

Service Pack	Bundle Name	Description
SP0312-11.11 (or later)	HWEnable11i	Required hardware enablement patches

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
PHSS_33033	s700_800	ld(1) and linker tools cumulative patch

6.3 HP-UX 11.23 System Patches Required by Data Protector

The following HP-UX 11.23 patch bundles are required by Data Protector:

Service Pack	Bundle Name	Description
Use latest	QPK1123	Current patch bundle for HP-UX 11.23

The following HP-UX 11.23 individual patches are recommended to be installed on any Data Protector system.

Patch Name	Hardware Platform	Description
PHKL_32272 ^a	s700_800	Changes to fix intermittent failures in getacl/setacl.

- a. This patch is required to support the access control list (ACL) functionality.

6.4 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

6.5 System Patches Required by MPE/iX System

Operating System	Description
MPE/iX 6.5 system	PowerPatch I, TurboSTORE/iX's patch MPELXG2A (C.65.13)
MPE/iX 7.0 system	PowerPatch I

6.6 Solaris System Patches Required by Data Protector

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 8	108434-13	32-bit Shared library patch for C++ for SunOS 8
Solaris 8	108773-18	IIIM and X Input & Output Method patch for SunOS 8
Solaris 8	111721-04	Math Library (libm) patch for SunOS 8

6.7 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>.

6.8 SUSE Linux Enterprise Server 9.0 System Patches Required by Data Protector

Use the latest recommended system patches provided by SUSE.

6.9 Tru64 System Patches Required by Data Protector

To support the access control list (ACL) functionality, the following Tru64 patch is required:

- QAR 98885

Chapter 7: Obsolete Platforms, Integrations, and Media Feature Support in Data Protector A.06.00

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 Clients

The following clients are no longer supported in the Data Protector A.06.00:

- MPE 6.0
- SGI IRIX 6.4
- SCO Unixware 7.1.1, 7.1.2
- SNI Sinix 5.43, 5.44
- Caldera OpenLinux

7.2 Obsolete Integrations

The following integrations are no longer supported in the Data Protector A.06.00

- Informix IDS 9.3
- Sybase ASE 11.9.3, 12.0
- Microsoft Exchange Server 5.5

7.3 HP StorageWorks EVA Agent (legacy) Obsolescence

HP StorageWorks EVA Agent (legacy) is no longer supported in Data Protector A.06.00.

7.4 Obsolete NAS Devices

Linux based HP NAS 8000 device is no longer supported in Data Protector A.06.00.

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://www.hp.com/support/manuals>

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 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 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 online Help..

HP OpenView Storage Data Protector Disaster Recovery Guide

This manual describes how to plan, prepare for, and perform a disaster recovery using HP OpenView Storage Data Protector.

HP OpenView Storage Data Protector Troubleshooting Guide

This manual describes how to troubleshoot problems you may encounter when using Data Protector. It contains general problems and proposed actions to solve them.

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, Exchange Server, and Volume Shadow Copy Service***

This manual describes the integrations for Microsoft applications: Microsoft SQL Server 7/2000, 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/MaxDB.

- ***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 Server, IBM DB2, and Lotus Notes/Domino.

Data Protector A.06.00 Product Announcements, Software Notes, and References

- *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, Network Data Management Protocol, and VMware.

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 Product Announcements, Software Notes, and References

This manual gives a description of new features of HP OpenView Storage Data Protector A.06.00. 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.hp.com/support/manuals>.

The *HP OpenView Storage Data Protector Administrator's Guide* was obsoleted with the A.06.00 release. It is replaced by the online Help, the *HP OpenView Storage Data Protector Troubleshooting Guide*, and *HP OpenView Storage Data Protector Disaster Recovery Guide*.

8.3 Online Help

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

You can access online help from the top-level directory on the installation DVD without installing Data Protector:

- For Windows systems, unzip `DP_help.zip` and run `DP_help.chm`
- For UNIX systems, unpack the zipped tar file `DP_help.tar.gz`, and access the online help system through `DP_help.htm`

8.4 Localization

The following manuals are localized into Japanese:

- *HP OpenView Storage Data Protector Installation and Licensing Guide*
- *HP OpenView Storage Data Protector Concepts Guide*
- *HP OpenView Storage Data Protector Disaster Recovery Guide*
- *HP OpenView Storage Data Protector Troubleshooting Guide*
- *HP OpenView Storage Data Protector Integration Guide for Microsoft Applications: SQL Server, Exchange Server, and Volume Shadow Copy Service*
- *HP OpenView Storage Data Protector Integration Guide for Oracle and SAP*
- *HP OpenView Storage Data Protector Zero Downtime Backup Concepts Guide*
- *HP OpenView Storage Data Protector Product Announcements, Software Notes, and References*

The following manuals are localized into French:

- *HP OpenView Storage Data Protector Installation and Licensing Guide*
- *HP OpenView Storage Data Protector Concepts Guide*
- *HP OpenView Storage Data Protector Zero Downtime Backup 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 68.
- The localized versions of the documents. See “Localization Specific Errata” on page 69.

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 HP OpenView Storage Data Protector Concepts Guide, chapter 6 “Service Integration”

In Chapter 6 “Service Integration” of the *HP OpenView Storage Data Protector Concepts Guide*, note that Data Protector no longer supports an HP OpenView Service Desk integration, nor the indirect HP OpenView Operations - Service Information Portal (OVO-SIP)

integration. HP OpenView Reporter version 3.0 is now obsolete.

8.5.1.2 HP OpenView Storage Data Protector Zero Downtime Backup Integration Guide, chapter 5 “Integrating the Data Protector ZDB Integrations and Microsoft Volume Shadow Copy Service”

In Chapter 5 "Integrating the Data Protector ZDB Integrations and Microsoft Volume Shadow Copy Service" of the *HP OpenView Storage Data Protector Zero Downtime Backup Integration Guide*, in section “Prerequisites and Limitations”, the following ZDB limitation is obsolete in Data Protector A.06.00:

- Transportable hardware snapshots must be transported out of the cluster before a backup can be performed.

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 Last Minute Changes in the HP OpenView Storage Data Protector Product Announcements, Software Notes, and References

The English version of the *HP OpenView Storage Data Protector Product Announcements, Software Notes, and References* contains several last minute changes, such as new recognized issues and workarounds, or limitations that were not included in the localized versions of the documents.

8.5.2.2 Description of the util_oracle8.pl Command Option Has Been Updated

The `-client <CLIENT_NAME>` option of the `util_oracle8.pl` command needs to be specified only in a cluster environment.

8.5.2.3 How to Restore SAP R/3 Tablespaces Located on Raw Partitions

SAP R/3 tablespaces located on raw partitions cannot be restored using the Data Protector GUI. Instead, use SAP R/3 restore commands.

8.5.2.4 Additional Patches Needed on Solaris 8

On Solaris 8, the SunOS 8 Math Library (libm) patch (111721-04) needs to be installed.

8.5.2.5 Backup Limitation

If you restart the system during a backup, the medium to which data is backed up may get corrupted, although Data Protector does not report any errors. Consequently, you will not be able to restore any backups from this medium. Subsequent backups to the corrupted medium will fail too.

8.5.2.6 About Backing Up the Microsoft Data Protection Manager Writer

To ensure data consistency, schedule a DPM replica synchronization before starting a backup. If you start a backup while an incremental synchronization of the DPM replica is still in progress, the backup gets corrupted, although Data Protector does not report any errors. In case of synchronization with consistency check, Data Protector automatically aborts the backup session.

8.5.2.7 Database Integrations Limitation

With database integrations that support restore by starting the integration agent via the CLI, starting such a restore is not supported if you access the client through Remote Desktop Connection and the Media Agent to be used is on the same client.

8.5.2.8 Browsing Drives in a MoM Environment

In a MoM environment, you cannot browse drives if the file library resides on a client from another cell.

8.5.2.9 E-Mail Reporting Does Not Work with Microsoft Exchange Server 2003

If a Data Protector Cell Manager and Microsoft Exchange Server 2003 coexist on the same system, e-mail reporting using MAPI does not work. This is because Microsoft does not support installing Outlook on a system with Microsoft Exchange Server 2003 installed.

Workaround: Use the e-mail SMTP send method for reports and notifications.

8.5.2.10 Automated Media Copying Is Not Supported with File Libraries

As media copying is designed to make exact copies of media that are usually moved to a different location, it is not supported with file libraries. To make copies of data in a file library, use the object copy functionality.

8.5.2.11 Restore of Consolidated Objects Fails

If you consolidate object versions that have already been consolidated, selecting the session in the `Restore` context results in a message that the session contains no valid restore objects. This is because the session is treated as a copy and consequently cannot be selected for restore.

Workaround: Either select the session in which the objects were originally consolidated, or select the objects under `Restore Objects`.

8.5.2.12 Which Restore Chain Is Selected for Object Consolidation?

When there are many possible restore chains to select from, Data Protector consolidates the one containing the object version with the latest point in time. For example, backup sessions: Full, Incr1, Incr2, Incr2 result in three restore chains but Data Protector consolidates only the one consisting of Full, Incr1, and the latest Incr2.

8.5.2.13 SAP R/3 and Localized Databases

The SAP R/3 chapter in the *HP OpenView Storage Data Protector Zero Downtime Backup Integration Guide* was updated:

- The subsection “Considerations” in the section “Restoring an SAP R/3 Database” was updated with new information about Localized SAP R/3 Object Names.
- A new troubleshooting section titled “Restore Sessions Fail due to Invalid Characters in Filenames” was added.

8.5.2.14 Are the Current Oracle Datafiles Switched to Their Restored Datafile Copies?

When restoring to a new location, current datafiles will be switched to the restored datafile copies only if you select `Perform Restore` and `Recovery` from the `Restore` action drop-down list.

8.5.2.15 Upgrade in a MoM Environment and File Library Use

If you upgrade a MoM environment sequentially, note that you cannot use distributed file media format with your file libraries until all Cell Managers have been upgraded to Data Protector A.06.00.

Appendix A: List of Enhancements and Issues Fixed in Data Protector A.06.00

The list of enhancements and fixed defects can be found on any Data Protector DVD in the \DOCS directory, in the file [DP60_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.06.00.

Filesystem Conditions on the Windows Client			Data Protector A.05.10		Data Protector A.06.00			
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 DVD in the \DOCS directory. The following support matrices are available in the Adobe Acrobat format:

[HP OpenView Storage Data Protector A.06.00 Supported Platforms and Integrations](#)

[HP OpenView Storage Data Protector A.06.00 Supported Devices](#)

[HP OpenView Storage Data Protector A.06.00 Split-mirror Backup for HP StorageWorks Disk Array XP](#)

[HP OpenView Storage Data Protector A.06.00 Zero Downtime Backup for HP StorageWorks Virtual Array](#)

[HP OpenView Storage Data Protector A.06.00 Zero Downtime Backup for HP StorageWorks Enterprise Virtual Array using EVA SMI-S agent](#)

[HP OpenView Storage Data Protector A.06.00 EMC Split-mirror Backup Integration](#)

[HP OpenView Storage Data Protector A.06.00 Disaster Recovery Support Matrix](#)

[HP OpenView Storage Data Protector A.06.00 Supported Devices and SAN Solutions](#)

[HP OpenView Storage Data Protector A.06.00 Fibre Channel SAN Support Matrix](#)

[HP OpenView Storage Data Protector A.06.00 VSS Support Matrix](#)

[HP OpenView Storage Data Protector A.06.00 Network Attached Storage \(NAS\) Support Matrix](#)

[HP OpenView Storage Data Protector A.06.00 Direct Backup Support Matrix](#)

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

<http://www.hp.com/support/manuals>