IBM Tivoli Storage Manager V5.5 delivers robust application-aware storage management, enhanced security, and more efficient use of disk storage

At a glance

IBM Tivoli Storage Manager V5.5 key enhancements include:

- Enhanced security with Tivoli Storage Manager server-managed encryption keys for the client

- Efficient use of sequential access disk pools

- Fault tolerant export and import operations with restartable server-to-server export/import

- Fast, non-disruptive backups with Microsoft Exchange 2007 Volume Shadow Copy Service (VSS) support

- Integrated approach to protecting VMware with VMware Consolidated Backup (VCB) integration

- Broader support for application snapshots with:

  – Tivoli Storage Manager for Advanced Copy Services additional device and operating system support for DB2 snapshots

  – Tivoli Storage Manager for Copy Services VSS support for Microsoft SQL Server

- Backup, archive, and space management support for AIX Workload Partitions (WPAR)

- Internet Protocol v6 (IPv6) support

- Online image backup and open file support on Windows 64-bit operating systems

- AIX encrypted file system backup support

For ordering, contact:

Your IBM representative, an IBM Business Partner, or the Americas Call Centers at

800-IBM-CALL Reference: YE001

Overview

IBM Tivoli® Storage Manager V5.5 family of products is designed to provide a comprehensive solution focused on the key data protection activities of backup, archive, recovery, space management, and disaster recovery planning.

Tivoli Storage Manager V5.5 is designed to provide improvements to the scalability, ease of administration, and security characteristics. These enhancements can help improve the productivity of personnel administering and using Tivoli Storage Manager, and can help improve the security of backup data.

Tivoli Storage Manager V5.5 enhancements

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- Help improve scalability, performance, and coverage

  - Performance and disk utilization through more efficient use of sequential access disk pools improvements

    -- Sequential access disk pool volume concurrent retrieve access

    -- Sequential access disk pool migration thresholds improvements

  - Volume ShadowCopy Service (VSS) exploitation for Microsoft® Exchange 2007 backup and restore

  - VMware consolidated backup integration

  - Backup, archive, and space management support for AIX® Workload Partitions (WPAR)

  - Support for Internet Protocol V6 (IPv6)

  - Use of the Tivoli Storage Manager Solaris backup-archive client to back up and archive your data from ZFS file systems

- Extend beyond traditional backup and recovery

  - Tivoli Storage Manager for Advanced Copy Services additional device and operating system support for DB2® snapshots

  - Tivoli Storage Manager for Copy Services VSS for Microsoft SQL Server

- Help improve time to value and ease of use of the Tivoli Storage Manager offering

  - Restartable server-to-server export/import, minimizing the impact of a disruption to operations

  - Online image backup for Windows® 64-bit operating systems

  - Open file support for Windows 64-bit operating systems

  - SAN device mapping for virtual tape library (VTL)

- Help improve security of Tivoli Storage Manager within the IT environment

  - Tivoli Storage Manager management of encryption keys for data from backup-archive clients

  - AIX encrypted file system backup support

Key prerequisites

Refer to the Hardware and software requirements section.

Planned availability dates

For all products except IBM Tivoli Storage Manager for Advanced Copy Services:

- November 16, 2007: Electronic general availability via Passport Advantage®

- December 14, 2007: Media general availability via Passport Advantage and AAS

For IBM Tivoli Storage Manager for Advanced Copy Services:

- March 28, 2008: Electronic general availability via Passport Advantage

- April 25, 2008: Media general availability via Passport Advantage and AAS

Description

Enhanced disk utilization and performance

IBM Tivoli Storage Manager supports two types of disk storage pool formats: random access and sequential access. Tivoli Storage Manager V5.5 improves its exploitation of sequential access disk pools.

- **Sequential access disk pool volume concurrent retrieve access** — Tivoli Storage Manager V5.5 enables concurrent access to sequential file volumes from multiple Tivoli

Storage Manager operations, designed to deliver improved operational performance on sequential access disk storage pools.

- **Sequential access disk pool migration thresholds** — Migration of data from sequential access disk is now based on the total occupancy of the sequential access disk storage pool and not on the total number of sequential access volumes that have data. Migration begins when percentage occupancy for the entire pool reaches the high migration threshold. This allows more data to be stored on the sequential access disk before migration, and can result in more effective utilization of sequential access disk storage pools.

VMware consolidated backup integration

Tivoli Storage Manager V5.5 integrates with VMware Consolidated Backup (VCB) to coordinate the movement of virtual machine data from the VCB proxy server to tape devices. One benefit of this integration is that you can eliminate LAN backup traffic with LAN-free virtual machine backup. Usability enhancements have also been added in Tivoli Storage Manager V5.5 to enable better recovery and management of virtual machine data from the Tivoli Storage Manager server. The backup is performed from a VCB backup host, and can manage a virtual machine's backup data as if it had been backed up by a Tivoli Storage Manager client running on the virtual machine.

Backup, archive, and space management support for AIX Workload Partitions (WPAR)

AIX V6.1 introduces a new, software-based, virtualization approach called WPAR that complements the existing IBM System Logical Partitions by reducing the number of operating system images that have to be managed when consolidating workloads. WPAR enables the system administrator to consolidate multiple applications inside of a single running instance of AIX V6.1.

Tivoli Storage Manager V5.5 support for WPAR enables:

- Backup and restore of local partition file data within the global partition using the local partition namespace available within the global partition.

- Migration and transparent recall of local partition file data — Journaled File System (JFS2) and General Parallel File System (GPFS™) — within the global partition.

- Storage and retrieval of application data using Tivoli Storage Manager APIs supported from global partition.

Support for AIX Encrypted File System (EFS) backup

EFS is integrated into JFS2 beginning with AIX V6.1. Tivoli Storage Manager V5.5 backs up files in either clear text or in raw (encrypted) format. In raw (encrypted) format, the data is not decrypted on backup, and the keys must be available to use the data after restore. In clear text format, the data is decrypted (by EFS) as it is being read on backup and can optionally be encrypted by Tivoli Storage Manager using encryption options available within Tivoli Storage Manager. Using the option to decrypt and backup with Tivoli Storage Manager, encryption can make it easier to manage keys for long term data archival using Tivoli Storage Manager key managed encryption.

Additional AIX enhancements

- **Snapshot image backup of AIX JFS2 filesystem** — Snapshot image backup support is available for AIX JFS2 filesystem for AIX V5.3, or later. This support is based on AIX JFS2 snapshot. Snapshot image backup can significantly reduce application downtime due to backup operations.

- **Snapshot-based file level backup and archive of AIX JFS2 file system** — Snapshot-based file backup and archive support using AIX JFS2 snapshot is available for AIX JFS2 filesystem for AIX V5.3, or later. This support provides consistent file-level backup and archive of the data while helping to reduce application downtime.

- **NFSV4 ACL support for AIX and AIX JFS2 filesystem** — Support for backup-restore, archive-retrieve, and migration-recall of NFSV4 ACL for JFS2 file system and NFS mounted file systems is available on AIX V5.3, or later. This additional support allows non-AIX NFSV4 ACL data to be backed up from an AIX NFS client.

- **AIX JFS2 EAV2 support** — Support for backup-restore, archive-retrieve, and migration-recall of AIX JFS2 extended attributes (EA) support is available on AIX V5.3, or later.

- **Used block-only image backup of AIX JFS2 filesystem** — Used block-only image backup allows backup only of the in-use blocks of the AIX JFS2 filesystem. This support can reduce

the backup time for filesystems that are not fully occupied.

Restartable server-to-server export/import

Tivoli Storage Manager enables you to move backup and meta data from one server to another. This function is called export/import, and with it you can transfer clients between servers (for load balancing) or move from one server operating system platform to another. You can export or import an administrator, node, server, or policy information. You can export the complete server or just parts of it, for example, a few clients and their stored data. Even an incremental export restricted by a given time frame is possible.

Tivoli Storage Manager V5.5 enhances the server-to-server export/import function by allowing export/import to restart from a checkpoint in the event of a disruption such as a network outage. This can reduce the time to complete interrupted export/import operations.

An incremental export can limit the amount of data being exported. In this case, the export command specifies the date (FROMDATE) and time (FROMTIME) the data was stored on the server. Only data stored on the server after the specified date and time will be exported.

Tivoli Storage Manager V5.5 further enhances incremental import and export of data by adding a TODATE and TOTIME parameter, allowing the administrator to incrementally import and export data for the time periods between the FROMDATE/FROMTIME and TODATE/TOTIME. TODATE/TOTIME, together with existing FROMDATE/FROMTIME, will allow an administrator to specify a time window for data objects that will be exported. This can help with synchronizing servers and can satisfy business requirements to capture and retain data stored within a specified time window.

Windows support enhancements

- **Online image backup on Windows 64-bit operating systems**

  On the Windows client platforms, Tivoli Storage Manager can take snapshots of a volume while it is online to enable online point-in-time volume image copies to be backed up to Tivoli Storage Manager. Prior to Tivoli Storage Manager V5.5, this support was only available for 32 bit Windows platforms. Tivoli Storage Manager V5.5 extends online image backup by providing this functionality on 64 bit Windows platforms as well.

- **Open file support for Windows 64-bit operating systems**

  The Tivoli Storage Manager client includes a feature, referred to as Open File Support (OFS), which enables files that are locked by other applications to be backed up. Prior to Tivoli Storage Manager V5.5, this support was only available for 32 bit Windows platforms. Tivoli Storage Manager V5.5 extends OFS by providing this functionality on 64 bit Windows platforms as well.

- **Files with up to 8,184 character directory names**

  Support has been added to the Tivoli Storage Manager Windows backup-archive client to backup files that have directory names up to 8,184 characters in length.

SAN device mapping for Virtual Tape Libraries (VTL)

In a SAN environment, device IDs can change dynamically (for example, device or cabling changes). Tivoli Storage Manager uses a method that dynamically discovers and maps devices in the environment, even when the paths change. Tivoli Storage Manager V5.5 is enhanced to allow for the mapping and discovery of VTL devices in the SAN.

Tivoli Storage Manager server-managed encryption keys for backup-archive client

To help improve the security of stored data, the backup-archive client implements an optional encryption function, which allows for encrypting data before it is sent to the Tivoli Storage Manager server. This helps secure backup or archive data during transmission, and it means that the data stored on the Tivoli Storage Manager server is encrypted.

Prior to Tivoli Storage Manager V5.5, encryption using the backup-archive client required either that the user remember the encryption key password during restore or that the password be stored locally on the client system. Tivoli Storage Manager V5.5 is enhanced so that the Tivoli Storage Manager generates, encrypts, stores, and manages the encryption key in the Tivoli Storage Manager database. This eases the end-user burden because keys are managed by the Tivoli Storage Manager server and not the user.

Tivoli Storage Manager server-managed encryption keys have been available in releases prior to

Tivoli Storage Manager V5.5 for data backed up via the Tivoli Storage Manager API and for Tivoli Storage Manager data protection modules.

Application-managed encryption, for IBM System Storage™ TS1120 (available in V5.4.0) and LTO-4 tape drives (available in V5.4.1), supports three different encryption management methods: Application, System, or Library Managed. For application-managed encryption, Tivoli Storage Manager generates, stores, and communicates encryption keys to the tape drives. Tivoli Storage Manager's policy management capabilities automatically determine if tape drive encryption is to be used, and if so, determines which of the TS1120 or LTO-4 encryption management methods to employ.

Internet Protocol V6 (IPv6) support

Tivoli Storage Manager V5.5 supports IPv6, which is the next generation protocol designed to replace the current version, Internet Protocol V4 (IPv4). There are some restrictions with the new version. Refer to IBM Tivoli Storage Manager Administrator's Reference V5.5 and IBM Tivoli Storage Manager Backup-Archive Clients Installation and User's Guide V5.5.

Extending beyond traditional backup and recovery

IBM Tivoli Storage Manager for Copy Services and IBM Tivoli Storage Manager for Advanced Copy Services can help protect your mission-critical data that requires 24 x 7 availability. They offer ready-to-use, application consistent, product-based solutions designed to implement high-efficiency backup and restore processes for business-critical applications, and help to eliminate backup-related performance impact on the production host. By integrating hardware and software-based snapshot capabilities with IBM Tivoli Storage Manager and its data protection components for Microsoft Exchange, Microsoft SQL, IBM DB2 UDB, Oracle, and SAP, you can manage your snapshot backup operations and leverage the performance, scheduling, and media management functions of Tivoli Storage Manager to help ensure that your application servers are operational 24 hours a day.

Tivoli Storage Manager for Copy Services provides the integration with Microsoft Volume Shadow Copy Service (VSS) and VSS providers for snapshots. Tivoli Storage Manager for Advanced Copy Services provides the integration with IBM FlashCopy® as supported by IBM System Storage SAN Volume Controller (SVC), IBM System Storage DS6000™, IBM System Storage DS8000™, and other snapshot mechanisms.

In today's business world, application servers often are operational 24 hours a day. The data on the application servers should be well protected. With the rapid increase in the amount of data on these servers, their critical business needs, and the shrinking backup windows, traditional backup and restore methods are reaching their limits in meeting your challenging requirements. Snapshot operations can help minimize the impact caused by backups. Since a snapshot operation typically takes much less time (seconds, minutes) than the time for a tape backup (hours), the window during which the application must be aware of a backup can be reduced to a minimum time. The snapshots can be retained as backups on local disk, or sent to Tivoli Storage Manager server storage pools, or both.

- **Additional device and operating system support for Tivoli Storage Manager for Advanced Copy Services V5.5** (electronic availability March 28, 2008; media availability April 25, 2008)

  Tivoli Storage Manager for Advanced Copy Services V5.5 has been enhanced to support DB2 on NFS attached N series, allowing frequent, space efficient snapshots of DB2 data. Tivoli Storage Manager for Advanced Copy Services now also supports DB2 on Linux™ (IBM System x™).

- **VSS Snapshot support for Microsoft SQL Server with Tivoli Storage Manager for Copy Services V5.5**

  Tivoli Storage Manager for Copy Services V5.5 introduces VSS Snapshot support for Microsoft SQL. Tivoli Storage Manager for Copy Services is designed to eliminate the backup window for large SQL databases and reduce the backup load (I/O, memory, CPU) on the production server by shifting the load to a second server.

IBM Tivoli Storage Manager for Mail V5.5 — Microsoft Exchange 2007 VSS support

Tivoli Storage Manager for Mail helps protect Lotus® Domino® and Microsoft Exchange data within the Tivoli Storage Manager storage hierarchy. It supports online (hot) backup, and exploits the backup-certified interfaces provided by Lotus Domino and Microsoft Exchange. This helps to maximize the protection of the data and the performance of backups and restores.

For Microsoft Exchange, Tivoli Storage Manager for Mail uses the backup APIs provided by

Microsoft to create a copy of the Exchange server storage group databases along with the associated transaction logs. The module can produce the different types of backups specified by Microsoft backup APIs: full backups, incremental backups, differential backups, copy backups, and database copy backups. In addition, VSS snapshot support for backup and restore of Exchange storage groups is provided in conjunction with Tivoli Storage Manager for Copy Services. The VSS support is designed to provide very fast, non-disruptive backups as well as "instant restore" of Exchange storage groups when used with a VSS provider for which FlashCopy restore is supported.

With Tivoli Storage Manager V5.5, Tivoli Storage Manager for Mail exploits Exchange 2007 VSS features to enable:

- Local Continuous Replication (LCR) VSS backups

- Cluster Continuous Replication (CCR) VSS backups

- Recovery Storage Group Restore from VSS backups

- Alternate Storage Group Restore from VSS backups

IBM Tivoli Storage Manager HSM for Windows V5.5 — Reconciliation, improved storage pool utilization

IBM Tivoli Storage Manager HSM for Windows provides space management for Microsoft Windows NTFS file systems. With a graphical user interface (GUI), IBM Tivoli Storage Manager HSM for Windows allows administrators to define file migration policies. File migration eligibility is determined by include and exclude policy criteria such as file type (extension) and various criteria related to the age of a file (creation, modification, last access). Tivoli Storage Manager HSM for Windows helps free administrators and users from file system pruning tasks. Tivoli Storage Manager HSM for Windows is designed to assist administrators to more effectively manage Windows NTFS disk storage by automatically migrating files selected based on administrator established policy to less expensive storage devices, while preserving Windows NTFS file accessibility.

IBM Tivoli Storage Manager HSM for Windows has added a reconciliation function that enables V5.5 to reconcile what files have been migrated by HSM for Windows and which of those files may have subsequently been moved or deleted from the file server. This enhancement can improve HSM storage pool utilization and potentially reduce your hardware and software costs. Also, the integration between HSM for Windows and the backup-archive client has been improved. This step of integration between HSM and backup will help ensure that there is always the current file content stored in the backup, even for migrated files. Thus, the user should be able to recreate the complete file from the backup only, even in case of an HSM failure.

IBM Tivoli Storage Manager for Space Management V5.5 — Performance enhancements

IBM Tivoli Storage Manager for Space Management provides Hierarchical Storage Management (HSM), which is an important component of information lifecycle management. Tivoli Storage Manager for Space Management helps free administrators and users from manual file system pruning tasks, and helps control the need for additional disk storage, by automatically and transparently migrating files via policy to near line or offline storage.

Tivoli Storage Manager for Space Management is available for AIX JFS2 and GPFS, Linux GPFS, Solaris VxFS, and HP-UX JFS file systems.

Tivoli Storage Manager for Space Management V5.5 has been enhanced to help increase performance and use memory more efficiently in searches of candidate files for HSM migration. Tivoli Storage Manager for Space Management V5.5 also has been enhanced to process more files in a single namespace.

IBM Tivoli Storage Manager for Enterprise Resource Planning (ERP) enhancements

Tivoli Storage Manager for ERP V5.5 provides automated data protection, can reduce the impact of data backups, and restores on the SAP database server, and can reduce the administrator workload necessary to meet data protection and storage management requirements. Tivoli Storage Manager for ERP seamlessly integrates with the database-specific utilities of DB2 UDB (db2 admin) and Oracle (RMAN), or with the SAP BR*Tools. Tivoli Storage Manager for ERP is specifically optimized to help protect your vital SAP data. An Administration Assistant helps maximize administrator productivity by helping to simplify administration, configuration, and monitoring of Tivoli Storage Manager for ERP in production environments. This powerful solution helps enable administrators to more effectively, consistently, and reliably manage backup and recovery of multiple SAP systems with large volumes of data. The Tivoli Storage Manager for ERP software module allows multiple SAP database servers to share a single Tivoli Storage Manager server to automatically manage the backup data. As the intelligent interface to SAP

databases, Tivoli Storage Manager for ERP is SAP certified in heterogeneous environments, supporting large-volume data backups, data recovery, data cloning, and disaster recovery of multiple SAP database servers.

Tivoli Storage Manager for ERP V5.5 has been enhanced to provide the following:

- Coordinated and consistent backup of multiple DB2 Extended Enterprise Edition (EEE) partitions — enhanced to handle backup and recovery of multi-node DB2 EEE environments in a coordinated way to preserve database consistency

- Support for Red Hat Enterprise Linux 5.5

- Support for DB2 V9.5

- Support SAP with Oracle on HP-UX 11i v3 on IA64

IBM Tivoli Storage Manager for Databases enhancements

IBM Tivoli Storage Manager for Databases complements IBM Tivoli Storage Manager to help protect Oracle and Microsoft SQL data. It supports incremental and full backup to help provide online (hot) backup, and exploits the backup-certified utilities and interfaces provided by Oracle and Microsoft SQL, and uses the Tivoli Storage Manager storage hierarchy for data placement and management. This helps to maximize the protection of the data and the performance of the backups and restores, and helps to minimize storage hardware costs.

With today's high availability requirements, database servers regularly operate in a cluster to protect against outages. With this in mind, Tivoli Storage Manager for Databases V5.5 has been enhanced so that Data Protection for SQL operates in a Veritas Cluster Server environment and has the ability to failover to another node in the cluster when the database server does.

IBM System Storage Archive Manager V5.5 enhancements

IBM System Storage Archive Manager provides data retention capabilities that help meet requirements for data retention and disposition. IBM System Storage Archive Manager's existing policy-based data management capabilities help meet these needs today through an open application programming interface (API). IBM System Storage Archive Manager is designed to prevent the modification of data under its control and to prevent the deletion of that data by unauthorized agents (individual or program) prior to the expiration of the retention period. This helps ensure that neither individuals nor programs can maliciously or accidentally delete data under IBM System Storage Archive Manager control.

IBM System Storage Archive Manager V5.5, as well as IBM Tivoli Storage Manager V5.5, adds enhancements to sequential access disk pools. V5.5 enables concurrent access to sequential file volumes from multiple Tivoli Storage Manager operations. This is designed to deliver improved performance of operations on sequential file disk storage pools. Migration of data from sequential access disk is now based on the total occupancy of the sequential file disk storage pool and not on the total number of sequential file volumes that have data. Migration begins when percentage occupancy for the entire pool reaches the high migration threshold. This allows more data to be stored on sequential access disk before migration, resulting in more effective utilization of sequential access disk storage pools. V5.5 has also been enhanced to provide server-managed keys so that Tivoli Storage Manager generates, encrypts, stores, and manages the client encryption keys. This eases the administrator and end-user burden because keys are managed by the server and not the user.

IBM Tivoli Storage Manager for System Backup and Recovery (SysBack) V6.1

IBM Tivoli Storage Manager for System Backup and Recovery (also known as SysBack) provides system administrators and other system users with a simple, efficient way to back up and recover data from a command line or a SMIT menu-driven interface. SysBack lets you recover all or part of the system. SysBack is also flexible; you can install one system installation image to another system with either identical or different hardware configurations, called "cloning." SysBack can be used as a standalone product or in conjunction with a Tivoli Storage Manager server.

SysBack V6.1 adds the following:

Tivoli Storage Manager integration enhancements

- SysBack supports the system boot process via CD and DVD devices when recovering the system using data stored in a Tivoli Storage Manager server.

- SysBack supports the use of the Tivoli Storage Manager backup-archive client file-by-file backup data to recover the system during bare machine recovery processing. A file-by-file backup is defined as being a Tivoli Storage Manager incremental or selective backup. Other

backup types such as image backups, backup sets, and NAS backups are not supported.

- Since the Tivoli Storage Manager backup-archive client backups do not contain the necessary Logical Volume Manager (LVM) structure information required for system installation, SysBack has created a new LVM-only backup option. You can use this special backup type in combination with your Tivoli Storage Manager backup-archive client backups during the system install processing.

New backup types

- LVM-only backups allow you to back up just the LVM information for the complete system to CD and DVD, tape, virtual device, Tivoli Storage Manager server, and directory devices. These backups can be used:
  - As boot media.
  - To recreate LVM structures in normal mode.
  - As a part of the system installation and recovery process when restoring the system using backups generated by the Tivoli Storage Manager backup-archive client.

  This backup type will not back up any of the system or user data on the system. However, the media is bootable. LVM-only backups can be stored on all supported backup devices: disk image file, tape, CD and DVD devices, or to a Tivoli Storage Manager server. The backup destinations may be locally attached or remotely accessed over the network. Just like any other SysBack backup type, the LVM-only backup can be performed as a default "push" backup or a centrally administered "pull backup."

- JFS2 Snapshot backups allow you to create snapshot copies of JFS2 filesystems and then use SysBack backup commands to back up those copies. By using this process, user and system access to the original JFS2 filesystem is maintained while SysBack accesses the snapshot copy for backup. Using this backup option also offers you the ability to create a point in time backup of JFS2 file systems. Since it is not required to unmount or quiesce the file system in order to create a snapshot copy, there is very little, if any, application downtime associated with the backup process.

Enhancements to existing backup types

- When using the default backup option for LVM and disk information collection, the system recovery process is required to read and to display all of the installation options for all of the volume group, logical volume, file system, and physical disk information for the system regardless of whether or not the associated volume groups were included in the backup image. This process can be time consuming for customer environments that contain hundreds or thousands of disks — especially when cloning the image to a new machine.

  Therefore, SysBack now provides new options to limit the amount of volume group, logical volume, filesystem, and physical disk information collected during a system level backup.

- A new backup option has been added that will allow your backups to continue even when a missing or invalid backup object is specified to the backup command.

  This feature would most commonly be used in:
  - Dynamic environments where files, file systems, logical volumes, and volume groups are continuously being created, removed, and recreated
  - An environment where hundreds of similar systems are supported and you would like to use a single backup command or script for all systems

  When this option is set, any backup objects specified to the backup command, which are not found on the system at the time of backup, would simply be ignored rather than the entire backup process terminating.

Serviceability enhancements

- The new Enhanced Network Install Debugging options allow you to store debug trace files created during a system installation process on a remote system via NFS mounted directory. This helps ensure that the trace information can be retrieved in the event of an installation process hang or crash in which the trace file can not be retrieved from memory or disk.

- The new Automatic Backup and Restore Process Logging options allow you to globally, and automatically, capture process output from SysBack backup and restore commands initiated via command line or via SMIT interface.

This process output can be used for evaluation of the overall processing cycle or when additional information is required for problem diagnosis. All of the logs for all of your systems can be stored in a central location via NFS mounted directories.

- The new SysBack Activity Logging option provides an additional level of process information to use when monitoring your environment or performing problem source identification tasks. The activity log will automatically capture data from the backup and restore processes, and will be stored in a directory on the local system that initiated the process. If you wish to manage all of the logs for all of your systems in a central location, you may simply define an NFS mounted directory as the output location.

- SysBack now provides a new command similar to the AIX snap command to collect detailed environment information for your system and the SysBack product. This information may be used to diagnose a variety of possible problems that you might encounter.

IBM Tivoli Storage Manager for z/OS® V5.5

Distributed products in the Tivoli Storage Manager family can operate with Tivoli Storage Manager for z/OS and Tivoli Storage Manager Extended Edition for z/OS servers. For information on the Tivoli Storage Manager for z/OS servers, refer to Software Announcement 207-292, dated November 13, 2007.

This same announcement also includes information on IBM Tivoli Storage Manager for Data Retention for z/OS, as well as IBM Tivoli Storage Manager for Mail for z/OS, for customers who may want to backup Domino for z/OS data on a distributed Tivoli Storage Manager server.

Products not being updated to V5.5

IBM Tivoli Storage Manager for Microsoft SharePoint V5.4

IBM Tivoli Storage Manager for Microsoft SharePoint allows you to quickly and confidently restore your Microsoft SharePoint business data and content due to a business interruption of almost any kind. IBM Tivoli Storage Manager for Microsoft SharePoint is a policy-based backup and recovery solution that provides full, incremental, or differential backup at the site-level, subsite-level, and item-level for Microsoft SharePoint Portal 2003, Microsoft Office SharePoint Server 2007, and Windows SharePoint Services V2.0 and V3.0 environments. For information on IBM Tivoli Storage Manager for Microsoft SharePoint V5.4, refer to Software Announcement 207-092, dated May 1, 2007.

IBM Tivoli Storage Manager Express V5.3 and complementary products

IBM Tivoli Storage Manager Express and its complementary products, IBM Tivoli Storage Manager Express for Microsoft Exchange and IBM Tivoli Storage Manager Express for Microsoft SQL, are designed to provide a backup and recovery solution for customers who want a basic backup and recovery solution that is inexpensive and easy to deploy and use. For more information, refer to Software Announcement 206-060, dated March 14, 2006, and Software Announcement 206-200, dated August 15, 2006.

Accessibility by people with disabilities

A U.S. Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at

http://www.ibm.com/able/product_accessibility/index.html

Section 508 of the U.S. Rehabilitation Act

The IBM Tivoli Storage Manager products in this announcement are capable, as of November 16, 2007, when used in accordance with IBM's associated documentation, of satisfying the applicable requirements of Section 508 of the Rehabilitation Act, provided that any assistive technology used with the product properly interoperates with it. A U.S. Section 508 Voluntary Product Accessibility Template (VPAT) can be requested via the following Web site

http://www.ibm.com/able/product_accessibility/index.html

Product positioning

Tivoli Storage Manager is an integral part of IBM Service Management. IBM Service Management is a revolutionary way to align your organization — and all its related functions —

with your business. IBM Service Management encompasses the management processes, tactics, and best practices to deliver business services. Since IBM understands that IT and operations are very much a part of your business, we offer powerful tools to help you align the four primary components of your business:

- People

- Processes

- Information

- Technology

IBM Service Management lets you pull these critical components together with an array of tightly integrated solutions that can be viewed as three interconnected layers:

- IBM Process Management

- IBM Service Management platform

- IBM Operational Management

Tivoli Storage Manager is positioned in IBM Service Management as an IBM Operational Management product. IBM Operational Management products help users ensure the availability, reliability, and performance of business-critical software and hardware, aid in optimizing storage requirements, and help meet ongoing needs for data security. Other IBM Operational Management product categories are:

- Business Application Management, which helps maintain availability and optimal performance of business-critical software applications spanning multiple servers, operating systems, and databases

- Server, network, and device management, which helps users to optimize availability and performance of underlying IT architecture, including networks, operating systems, databases, and servers

- Security management, which helps automate identity management and security event management

Reference information

For information on IBM Tivoli Storage Manager V5.4, refer to Software Announcement 207-010, dated January 23, 2007.

For information on IBM Tivoli Storage Manager for z/OS V5.5, refer to Software Announcement 207-292, dated November 13, 2007.

Business Partner information

If you are a Direct Reseller - System Reseller acquiring products from IBM, you may link directly to Business Partner information for this announcement. A PartnerWorld ID and password are required (use IBM ID).

BP Attachment for Announcement Letter 207-290

https://www.ibm.com/partnerworld/mem/sla.jsp?num=207-290

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Education support

Comprehensive education for IBM Tivoli® products is offered through Worldwide Tivoli Education Delivery Services. A wide range of training options are available, including classes led by instructors, learning on demand, on-site training, and blended learning solutions.

For additional information, visit

http://www-306.ibm.com/software/tivoli/education/

Offering Information

Product information is available via the Offering Information Web site

http://www.ibm.com/common/ssi

Publications

No publications are shipped with these programs.

The following English publications can be ordered from the Publications Center after planned availability. Translated publications will be available 60 days after the English publications are available.

Title	Order Number
IBM Tivoli Storage Manager for AIX(R) Installation Guide V5.5	GC23-5969
IBM Tivoli Storage Manager for AIX Administrator's Guide V5.5	SC32-0117
IBM Tivoli Storage Manager for AIX Administrator's Reference V5.5	SC32-0123
IBM Tivoli Storage Manager for SAN for AIX Storage Agent User's Guide V5.4	SC32-0129
IBM Tivoli Storage Manager for HP-UX Installation Guide V5.5	GC23-5970
IBM Tivoli Storage Manager for HP-UX Administrator's Guide	SC32-0118
IBM Tivoli Storage Manager for HP-UX Administrator's Reference V5.5	SC32-0124
IBM Tivoli Storage Manager for SAN for HP-UX Storage Agent User's Guide V5.4	SC32-0130
IBM Tivoli Storage Manager for Sun Solaris Installation Guide V5.5	GC23-5972
IBM Tivoli Storage Manager for Sun Solaris Administrator's Guide V5.5	SC32-0120
IBM Tivoli Storage Manager for Sun Solaris Administrator's Reference V5.5	SC32-0126
IBM Tivoli Storage Manager for SAN for Sun Solaris Storage Agent User's Guide V5.4	SC32-0132
IBM Tivoli Storage Manager for Linux(TM) Installation Guide V5.5	GC23-5971
IBM Tivoli Storage Manager for Linux Administrator's Guide V5.5	SC32-0119
IBM Tivoli Storage Manager for Linux Administrator's Reference V5.5	SC32-0125
IBM Tivoli Storage Manager for SAN for Linux Storage Agent User's Guide V5.4	SC32-0131
IBM Tivoli Storage Manager for Windows(R) Installation Guide V5.5	GC23-5973
IBM Tivoli Storage Manager for Windows	SC32-0121

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   Administrator's Guide V5.5
IBM Tivoli Storage Manager for Windows                      SC32-0127
   Administrator's Reference V5.5
IBM Tivoli Storage Manager for SAN for Windows              SC32-0133
   Storage Agent User's Guide V5.4

IBM Tivoli Storage Manager for System Backup and            SC32-6543
   Recovery Installation and User's Guide V6.1

Tivoli Storage Manager SANergy(TM) Administrator's Guide    GC32-0740
   V3.2
IBM Tivoli Storage Manager Messages V5.5                    SC32-0140
IBM Tivoli Storage Manager Performance and Tuning Guide     SC32-0141
   V5.5
IBM Tivoli Storage Manager Problem Determination Guide V5.5 SC32-0142

IBM Tivoli Storage Manager for NetWare  Backup-Archive      SC32-0144
   Clients Installation and User's Guide V5.5

IBM Tivoli Storage Manager for UNIX(R) and Linux            SC32-0145
   Backup-Archive Clients Installation and User's Guide V5.5

IBM Tivoli Storage Manager for Windows  Backup-Archive      SC32-0146
   Clients Installation and User's Guide V5.5

IBM Tivoli Storage Manager for Macintosh  Backup-Archive    SC32-0143
   Clients Installation and User's Guide V5.5

IBM Tivoli Storage Manager for Space Management for UNIX    SC32-0148
   and Linux User's Guide V5.5
IBM Tivoli Storage Manager HSM for Windows                  SC32-1773
   Administration Guide V5.5

IBM Tivoli Storage Manager Using the Application Program    SC32-0147
   Interface V5.5

IBM Tivoli Storage Manager for Databases                    SC32-9064
   Data Protection for Oracle for UNIX and Linux
   Installation and User's Guide V5.4.1

IBM Tivoli Storage Manager for Databases                    SC32-9065
   Data Protection for Oracle for Windows
   Installation and User's Guide V5.4.1

IBM Tivoli Storage Manager for Databases                    SC32-9059
   Data Protection for Microsoft® SQL Server
   Installation and User's Guide V5.5

IBM Tivoli Storage Manager for Mail                         SC32-9058
   Data Protection for Microsoft Exchange Server
   Installation and User's Guide V5.5

IBM Tivoli Storage Manager for Mail                         SC32-9056
   Data Protection for Lotus® Domino® for UNIX, Linux,
   and OS/400® Installation and User's Guide V5.4.2

IBM Tivoli Storage Manager for Mail                         SC32-9057
   Data Protection for Lotus Domino for Windows
   Installation and User's Guide V5.4.2

IBM Tivoli Storage Manager for Enterprise Resource          SC33-6340
   Planning Data Protection for SAP
   Installation and User's Guide for Oracle V5.5

IBM Tivoli Storage Manager for Enterprise Resource          SC33-6341
   Planning Data Protection for SAP
   Installation and User's Guide for DB2® V5.5

IBM Tivoli Storage Manager for Advanced Copy Services       SC33-8207
   Data Protection for Snapshot Devices for mySAP
   Installation and User's Guide for Oracle V5.4

IBM Tivoli Storage Manager for Advanced Copy Services       SC33-8330
   Data Protection for Snapshot Devices for DB2 Advanced
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    Copy services Installation and User's Guide V5.5

IBM Tivoli Storage Manager for Advanced Copy Services        GC32-1780
 Installation and User's Guide for DB2 UDB, V5.3.3

IBM Tivoli Storage Manager for Advanced Copy Services        SC33-8208
 Data Protection for Snapshot Devices for mySAP
 Installation and User's Guide for DB2 UDB V5.4

IBM Tivoli Storage Manager for Hardware                      GC32-1772
 Data Protection for FlashCopy® Devices for Oracle
 Installation and User's Guide, V5.3.1
```

Notes:

- IBM Tivoli Storage Manager for Mail: Data Protection for Microsoft Exchange Server Installation and User's Guide provides information on Microsoft VSS support.

- IBM Tivoli Storage Manager for UNIX and Linux Backup-Archive Clients Installation and User's Guide provides information on the OS/390® UNIX client.

- Tivoli Storage Manager Information Center can be found at

The IBM Publications Center

  http://www.ibm.com/shop/publications/order

The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalog of 70,000 items. Extensive search facilities are provided. Payment options for orders are via credit card (in the U.S.) or customer number for 20 countries. A large number of publications are available online in various file formats, and they can all be downloaded by all countries free of charge.

Technical information

Specified operating environment

Hardware and software requirements

Tivoli Storage Manager V5.5 server hardware and software requirements

Tivoli Storage Manager supported devices

Refer to the following Web site for the list of devices that are supported by Tivoli Storage Manager (5608-ISM) and for those that are supported by Tivoli Storage Manager Extended Edition (5608-ISX). Libraries that have more than four drives or more than 48 tape slots require the Extended Edition license.

  http://www.ibm.com/software/sysmgmt/prod
  ucts/support/IBMTivoliStorageManager.html

In addition, this Web site provides access to a knowledge base of solutions, hints and tips, technical notes, README files, product fixes and refreshes, product documentation and more. The knowledge database is located under Self Help.

Server and backup-archive client requirements

The current **minimum** disk space requirement for **installing** a UNIX and Linux Tivoli Storage Manager backup-archive client is approximately 45 MB, with an additional 15 MB required for the API. The current **minimum** disk space requirement for **installing** a desktop Tivoli Storage Manager backup-archive client is approximately 35 MB, with an additional 10 MB required for the API. During installation, 60 MB to 80 MB of additional free disk space is required.

The **minimum** memory requirement for **running** the backup-archive clients is approximately 20 MB. This does not include the installed client package, nor any of the individual options that may be associated with a given client, including the API, GUI, and driver options the user may have selected at installation.

The communication protocols supported for each server and client are included below. The

actual communication protocols that can be used for any particular server/client combination are limited to those protocols supported by both server and client.

To use the Shared Memory communication method, the client must meet the Tivoli Storage Manager server operating system requirements. To use LAN-free functions, the client must meet the Tivoli Storage Manager for SAN Management storage agent operating system requirements.

These server requirements and backup-archive client requirements may need some modifications on an ongoing basis. For the most current and specific server or backup-archive client requirements and installation instructions, be sure to review the **README** file instructions that accompany the products being installed.

For the most current Tivoli Storage Management product versions supported and related information, refer to the Tivoli Storage Manager Web site

   http://www.ibm.com/software/tivoli/products/storage-mgr/

The designations of IBM System i™, IBM System p™, IBM System x™, and IBM System z™ will be used in the following hardware and software section and are defined as:

- IBM System i — the combination of the product lines of IBM System i5™, eServer® i5, eServer iSeries™, and AS/400®

- IBM System p — the combination of the product lines of System p5™, eServer p5, eServer pSeries®, eServer OpenPower®, and optionally RS/6000®

- IBM System x — the combination of the product lines of System x3nnn, eServer xSeries®, and AMD processor-based eServer servers

- IBM System z — the combination of the product lines of System z9™, eServer zSeries®, and optionally S/390®

Tivoli Storage Manager Administration Center requirements

The Tivoli Storage Manager Administration Center Web interface for the server and a Web client interface for client machines require a Java™ Swing-capable (at JRE 1.4.2) Web browser:

- MS Internet Explorer 6.0, or later with Java Plug-in 1.4.2

- Mozilla 1.6, or later

For platform and browser-specific JRE notes, refer to the README file.

Refer to the Backup-archive client requirements section for the specific operating system levels supported for the Web clients. TCP/IP is the only communication protocol supported for this client interface.

For platform and browser specific JRE notes, refer to the README file.

For the latest recommendation on the Administration Center installation, use keyword TSMADMINCENTER when you visit

   http://www.ibm.com/software/sysmgmt/prod
   ucts/support/IBMTivoliStorageManager.html

The machine hosting the Administration Center and Integrated Solutions Console requires the following:

- Disk space:
  - To install the console on a system for the first time, the user needs 982 MB to satisfy the installation program disk space and an additional 300 MB of temporary space.
  - To update an installation that already has Integrated Solutions Console (ISC) V6.0.1 installed from previous versions of the Administration Center, the user needs 400 MB of installation program disk space and 225 MB of temporary space.
  - 500 MB for the completed installation.

- Virtual memory/swap space: Equal to double the system's physical memory. At a minimum, this should be at least equal to the system's physical virtual memory.

- Network connectivity: To use the console across a network, the following items are required

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for the machine:

– Network adapter and connection to a physical network that can carry IP packets, for example, Ethernet.

– Static IP address.

– Configured fully-qualified host name. ISC must be able to resolve an IP address from its fully-qualified host name. To verify that the host name is configured correctly, the user can issue the ping command from a command line. An example command is:

ping hostname.yourco.com,

where hostname.yourco.com is the fully-qualified host name.

The Tivoli Storage Manager Administration Center server requires the following hardware and software:

- AIX server:
  - Operating system: AIX V5.1 with ML4, AIX V5.2 with ML1 + APAR IY44183, AIX V5.3 with ML1, or AIX V6.1
  - Hardware:
    -- Processor: POWER4™ 450 MHz at a minimum; production environments should consider higher speeds
    -- Physical memory: 512 MB, or more
- Windows server:
  - Operating system:
    -- Windows 2000 (Professional, Server, or Advanced Server) with SP4
    -- Windows XP
    -- Windows Server 2003 (Standard, Enterprise, or Datacenter) Edition
  - Hardware:
    -- Processor: CPU speeds of late model, midrange to high-end servers are recommended. Pentium® 800 MHz, or equivalent at a minimum. Production environments should consider the Pentium 4 processor at 1.4 GHz, or higher.
    -- Physical memory: 512 MB, or more.
  - File system: NTFS file system is recommended.
- Linux server:
  - Operating system: SUSE Linux Enterprise Server (SLES) 8, SUSE Linux Enterprise Server (SLES) 9, Linux Enterprise Server (SLES) 10, Red Hat Enterprise Linux 3 Update 3, Red Hat Enterprise Linux 4, or Red Hat Linux Enterprise 5
  - Hardware:
    -- Processor: CPU speeds of late model, midrange to high-end servers are recommended. Pentium 800 MHz or equivalent at a minimum. Production environments should consider the Pentium 4 processor at 1.4 GHz, or higher.
    -- Processor: Power4 450 MHz at a minimum; production environments should consider higher speeds.
    -- Processor: Any IBM System z processor.
    -- Physical memory: 512 MB, or more.
- Solaris server:
  - Operating system: Solaris 8, 9, or 10
  - Hardware:
    -- Processor: Ultra 60 at 450 MHz at a minimum; Sun Blade 2000 workstation at 1 GHz, or higher is recommended.
    -- Physical memory: 512 MB, or more.

The machine hosting the Tivoli Storage Manager Administration Center server can be the same machine as the Tivoli Storage Manager server if it meets the requirements for both servers. In this case, the physical memory requirements must be added for both servers.

Tivoli Storage Manager server requirements

AIX server requirements for Tivoli Storage Manager

The Tivoli Storage Manager server on AIX requires the following hardware and software:

- Machine — 64 bit IBM System p or IBM System i, as supported by AIX
- Minimum memory and space requirement to run:
  - RAM — 1 Gigabyte
  - Disk space — 200 MB — refer to the README file
- Operating system — AIX V5.3 64 bit or AIX V6.1 64 bit
- Communication protocol — one of the following:
  - TCP/IP, which comes standard with AIX
  - Shared memory protocol

HP-UX PA-RISC server requirements for Tivoli Storage Manager

The Tivoli Storage Manager server on HP-UX PA-RISC requires the following hardware and software:

- Machine — 64 bit HP 9000 server
- Minimum memory and space requirement to run:
  - RAM — 256 MB
  - Disk space — 100 MB for installed files, database, recovery log, and utilities; 60 MB for temporary space — refer to the README file
- Operating system — HP-UX 11i v2 64 bit
- Communication protocol:
  - TCP/IP, which comes standard with HP-UX
  - Shared memory protocol

HP-UX Itanium server requirements for Tivoli Storage Manager

The Tivoli Storage Manager server on HP-UX Itanium requires the following hardware and software:

- Machine — HP Integrity Server (Itanium)
- Minimum memory and space requirement to run:
  - RAM — 256 MB
  - Disk space — 100 MB
- Operating system — HP-UX level 11i v2
- Communication protocol:
  - TCP/IP, which comes standard with HP-UX
  - Shared memory protocol

Linux x86 server requirements for Tivoli Storage Manager

The Tivoli Storage Manager server on Linux x86 requires the following hardware and software:

- Machine — An i686 compatible symmetric multiprocessor (SMP) or uniprocessor (UP)
- Minimum memory and space requirement to run:
  - RAM — 128 MB

- Disk space — 256 MB hard disk space (includes full install, 9 MB recovery log, 17 MB database)

- Software supported

  - Red Hat Enterprise Linux 4 and 5

  - SUSE Linux Enterprise Server 9 and 10

  - Asianux 2.0 — Red Flag DC 5.0, Miracle Linux 4.0, and Haansoft Linux 2006 or Asianux 3.0

  - V2.3.3, or later of the GNU C libraries installed on the target machine

- Communication protocol

  - TCP/IP, which comes standard with Linux x86

  - Shared memory protocol

Linux x86_64 server requirements for Tivoli Storage Manager

The Tivoli Storage Manager server on Linux x86_64 requires the following hardware and software:

- Machine — AMD64 or Intel® EM64T x86_64 compatible symmetric multiprocessor (SMP) or uniprocessor (UP)

- Minimum memory and space requirement to run:

  - RAM — 128 MB

  - Disk space — 256 MB hard disk space (includes full install, 9 MB recovery log, 17 MB database)

- Software supported

  - Red Hat Enterprise Linux 4 and 5

  - SUSE Linux Enterprise Server 9 and 10

  - Asianux 2.0 — Red Flag DC 5.0, Miracle Linux 4.0, and Haansoft Linux 2006 or Asianux 3.0

  - V2.3.3, or later of the GNU C libraries installed on the target machine

- Communication protocol

  - TCP/IP, which comes standard with Linux x86_64

  - Shared memory protocol

Linux IA64 server requirements for Tivoli Storage Manager

The Tivoli Storage Manager server on Linux IA64 requires the following hardware and software:

- Machine — INTEL Itanium 2 IA64 compatible symmetric multiprocessor (SMP) or uniprocessor (UP)

- Minimum memory and space requirement to run:

  - RAM — 128 MB

  - Disk space — 256 MB hard disk space (includes full install, 9 MB recovery log, 17 MB database)

- Software supported

  - Red Hat Enterprise Linux 4 and 5

  - SUSE Linux Enterprise Server 9 and 10

  - Asianux 2.0 or Asianux 3.0

  - V2.3.3, or later of the GNU C libraries installed on the target machine

- Communication protocol

  - TCP/IP, which comes standard with Linux IA64

– Shared memory protocol

Linux System z server requirements for Tivoli Storage Manager

The Tivoli Storage Manager server on Linux for System z requires the following hardware and software:

- Machine: System z server with either native 64-bit LPARS or 64 bit VM guests.

- Minimum memory and space requirements:
  - RAM — 128 MB
  - Disk space — 72 MB hard disk space (includes full install, 9 MB recovery log, 17 MB database)

- Linux operating environments supported:
  - Red Hat Enterprise Linux 4 and 5
  - SUSE Linux Enterprise Server 9 and 10
  - V2.3.3, or later of the GNU C libraries

- Communication protocol
  - TCP/IP, which comes standard with Linux
  - Shared memory protocol

Linux on POWER™ server requirements for Tivoli Storage Manager

The Tivoli Storage Manager server on Linux IBM System p and IBM System i requires the following hardware and software:

- Machine — One of the following IBM systems:
  - IBM System p or IBM System i, with POWER processors, as supported by Linux distribution

  Up-to-date information on the hardware requirements can be found at

    http://www-03.ibm.com/systems/p/linux/

- Minimum memory and space requirement to run:
  - RAM — 128 MB
  - Disk space — 128 MB hard disk space (includes full install, 9 MB recovery log, 17 MB database)

- Software supported
  - Red Hat Enterprise Linux 4 and 5
  - SUSE Linux Enterprise Server 9 and 10
  - Asianux 2.0 — Red Flag DC 5.0 and Haansoft Linux 2006 or Asianux 3.0
  - V2.3.3, or later of the GNU C libraries installed on the target machine

- Communication protocol
  - TCP/IP, which comes standard with Linux
  - Shared memory protocol

Solaris SPARC server requirements for Tivoli Storage Manager

The Tivoli Storage Manager server on Solaris SPARC requires the following hardware and software:

- Machine — Any Sun system which supports the sun4u or sun4v architecture

- Minimum memory and space requirement to install:
  - RAM — 512 MB
  - Disk space — 128 MB

- Operating system — Solaris 9 or 10 (64 bit)
- Communication protocol — one of the following:
  - TCP/IP, which comes standard with Solaris
  - Shared memory protocol

Additional requirements:

- Transfer a client from the distribution medium to the target workstation
  - Additional temporary disk space is required during the transfer.

Solaris x86_64 server requirements for Tivoli Storage Manager

The Tivoli Storage Manager server on Solaris x86_64 requires the following hardware and software:

- Machine — An AMD64 or Intel EM64T or compatible processor
- Minimum memory and space requirement to install:
  - RAM — 512 MB
  - Disk space — 128 MB
- Operating system — Solaris 10 (64 bit)
- Communication protocol — one of the following:
  - TCP/IP, which comes standard with Solaris
  - Shared memory protocol

Windows server requirements for Tivoli Storage Manager

The Tivoli Storage Manager server on Windows requires the following hardware and software:

- Machine — one of the following:
  - An Intel Pentium or compatible processor-based computer.
  - An Intel Itanium processor-based computer.
  - An AMD64 or Intel EM64T or compatible processor-based computer.
- Minimum memory and space requirement to run:
  - RAM — 256 MB
  - Disk space — 110 MB

    The minimum memory requirement is for Tivoli Storage Manager. If your version of Windows has a higher minimum requirement, that should take precedence.
- Operating system:
  - Windows Server 2003 (Standard, Enterprise, or Datacenter) Edition
  - Windows Server 2003 SP1 (Enterprise or Datacenter) Edition 64 bit
  - Windows Server 2003 (Standard, Enterprise, or Datacenter) x64 Edition

    Note: Storage Server versions are supported.

    Note: All service packs are supported including R2.
- Communication protocol — One of the following:
  - Named Pipes, which comes standard with Windows
  - TCP/IP, which comes standard with Windows
  - Shared memory protocol

Tivoli Storage Manager backup-archive client requirements

AIX backup-archive client

An AIX backup-archive client requires the following hardware and software:

- Machine — RS/6000, System p, System i, or compatible hardware, as supported by AIX
- Minimum memory and space requirement to run:
  - RAM — 128 MB
  - Disk space — 59 MB
- Operating system — one of the following:
  - AIX V6.1
  - AIX V5.3 (32 bit or 64 bit)
- Java JRE 5 or 1.4.x (where x>=1) for the Java GUI
- A Mozilla 1.4, or later browser for the Web client and to access online help and documentation
- Communication protocol — one of the following:
  - TCP/IP, which comes standard with AIX
  - Shared memory protocol

For HACMP™:

- Machine — at least two identical IBM System p (RS/6000), SSA shared hard disk array, and one additional network adapter for each machine
- Operating system
  - AIX V5.3 (32 bit or 64 bit)
  - HACMP 5.3 (with IY80002) or 5.4 (with IY89869)

Client capabilities:

- Administrative Client Command Line Interface (CLI)
- Backup-Archive CLI
- Backup-Archive Java Graphical User Interface (Java GUI)
- Backup-Archive Web Client Interface
- Tivoli Storage Manager API (32 bit and 64 bit)
- X/Open API (32 bit)

AIX HSM client

An AIX HSM client requires IBM Tivoli Storage Manager for Space Management (5608-HSM) in addition to either IBM Tivoli Storage Manager (5608-ISM) or IBM Tivoli Storage Manager Extended Edition (5608-ISX), and the following hardware and software:

- Minimum hardware configuration:
  - Machine — RS/6000, System p, System i, or compatible hardware, as supported by AIX
  - RAM — 256 MB
  - Disk space — 1 GB disk space for an HSM managed file system
- Recommended hardware configuration:
  - Multiprocessor system (RS/6000)
  - RAM — 512 MB
  - Disk space — 82 MB for JFS2; 91 MB for GPFS™
- Software:
  - AIX V5.3 (32 bit or 64 bit) or AIX 6.1
  - For GPFS HSM: GPFS V3.2
  - Java JRE 5 or 1.4.x (where x>=1) for the Java GUI

- Communication protocol
  - TCP/IP, which comes standard with AIX

For HACMP:

- Machine — at least two identical IBM System p (RS/6000), SSA shared hard disk array, or FastT500/700 SCSI connected disks, and one additional network adapter for each machine
- Operating system
  - AIX V5.3 (32 bit and 64 bit)
  - HACMP 5.3 (with IY80002) or 5.4 (with IY89869)

Client capabilities:

- HSM Client CLI (requires Tivoli Storage Manager for Space Management)
- HSM Java GUI

Apple Macintosh backup-archive client

An Apple Macintosh backup-archive client requires the following hardware and software:

- Machine — A PowerPC® or Intel-based Macintosh
- Minimum memory and space requirement to run:
  - RAM — 128 MB
  - Disk space — 100 MB
- Operating system — Macintosh OS X, V10.5
- Communication protocol:
  - TCP/IP

Client capabilities:

- Administrative Client CLI
- Backup-Archive Web Client Interface
- Backup-Archive Java GUI

Hewlett-Packard HP-UX PA-RISC backup-archive client

An HP-UX PA-RISC backup-archive client requires the following hardware and software:

- Machine — HP 9000 Series 700 or 800 workstation or server
- Minimum memory and space requirement to run:
  - RAM — 256 MB
  - Disk space — 100 MB
- Operating system — HP-UX 11i v2 (32 bit or 64 bit) or HP-UX 11i v3
- Java JRE 1.4.x (where x>=1) or JRE 5 for the Java GUI
- A Mozilla 1.4, or later browser for the Web client and to access online help and documentation
- Communication protocol:
  - TCP/IP, which comes standard with HP-UX
  - Shared memory protocol

Client capabilities:

- Administrative Client CLI

- Backup-Archive CLI

- Backup-Archive Java GUI

- Backup-Archive Web Client Interface

- Tivoli Storage Manager API (32 bit and 64 bit)

- X/Open API (32 bit)

Hewlett-Packard HP-UX PA-RISC HSM client

An HP-UX PA-RISC HSM client requires IBM Tivoli Storage Manager for Space Management (5608-HSM) in addition to either IBM Tivoli Storage Manager (5608-ISM) or IBM Tivoli Storage Manager Extended Edition (5690-ISX), and the following hardware and software:

- Machine — HP 9000 Series 700 or 800 workstation or server

- Minimum memory and space requirement to run:
  - RAM — 256 MB
  - Disk space — 100 MB

- Operating system — HP-UX 11i v2 (32 bit or 64 bit)

- Filesystem —
  - Veritas filesystem (VxFS) 4.1
  - Veritas Volumemanager (VxVM) 3.5 or later, OnlineJFS 3.5

- Communication protocol:
  - TCP/IP, which comes standard with HP-UX

Client capabilities:

- HSM Client CLI

- HSM Java GUI

Hewlett-Packard HP-UX Itanium 2 backup-archive client

An HP-UX Itanium backup-archive client requires the following hardware and software:

- Machine — HP-UX Itanium 2 processor

- Minimum memory and space requirement to run:
  - RAM — 256 MB
  - Disk space — 72 MB

- Operating system — HP-UX 11i v2 (32 bit or 64 bit) or HP-UX 11i v3

- Java JRE 1.4.x (where x>=1) or JRE 5 for the Java GUI

- A Mozilla 1.4, or later browser for the Web client and to access online help and documentation

- Communication protocol:
  - TCP/IP, which comes standard with HP-UX
  - Shared memory protocol

Client capabilities:

- Administrative Client CLI

- Backup-Archive CLI

- Backup-Archive Java Graphical User Interface (Java GUI)

- Backup-Archive Web Client Interface

- Tivoli Storage Manager API

Hewlett-Packard HP-UX Itanium 2 HSM client

An HP-UX Itanium 64 HSM client requires IBM Tivoli Storage Manager for Space Management (5608-HSM) in addition to either IBM Tivoli Storage Manager (5608-ISM) or IBM Tivoli Storage Manager Extended Edition (5690-ISX), and the following hardware and software:

- Machine — An HP-UX Itanium 2 processor
- Minimum memory and space requirement to run:
  - RAM — 256 MB
  - Disk space — 550 MB hard disk space (includes full install and database)
- A minimum screen resolution of 800 by 600 pixels is required to display the Tivoli Storage Manager HSM Java GUI.
- Operating system — HP-UX 11i V2 for Itanium 2.
- Tivoli Storage Manager-enabled version of Veritas VxFS 4.1. Contact your IBM Tivoli Storage Manager representative for access to this version of VxFS 4.1.

Linux on x86/x86_64 backup-archive client

A Linux on x86/x86_64 backup-archive client requires the following hardware and software:

- Machine — x86-based PC (Pentium or newer) or AMD64/EM64T processor
- Minimum memory and space requirement to run:
  - RAM — 128 MB
  - Disk space — 26 MB
- Software supported:
  - Red Hat Enterprise Linux 4.0 or 5.0
  - SLES 9 or 10
  - Asianux 2.0 or 3.0
  - Novell OES
  - Java JRE 5 or 1.4.x (where x>=1)
  - A Mozilla 1.4, or later browser for the Web client and to access online help and documentation
- Communication protocol:
  - TCP/IP, which comes standard with Linux
  - Shared memory protocol

Client capabilities:

- Administrative Client CLI
- Backup-Archive CLI
- Backup-Archive Java Graphical User Interface (Java GUI)
- Backup-Archive Web Client Interface
- Tivoli Storage Manager API

Linux for x86/x86_64 HSM client

An Linux for x86/x86_64 HSM client requires IBM Tivoli Storage Manager for Space Management (5608-HSM) in addition to either IBM Tivoli Storage Manager (5608-ISM) or IBM Tivoli Storage Manager Extended Edition (5608-ISX), and the following hardware and software:

- Machine — x86-based PC (Pentium or newer) or AMD64/EM64T processor
- Minimum memory and space requirement to run:
  - RAM — 256 MB

– Disk space — 102 MB

- Software supported:
  - Red Hat Enterprise Linux 4.0 or 5.0
  - SLES 9 or 10
  - Filesystem — GPFS V3.2
  - Java JRE 5 or 1.4.x (where x>=1)
  - A Mozilla 1.4, or later browser for the Web client and to access online help and documentation
- Communication protocol:
  - TCP/IP, which comes standard with Linux

Client capabilities:

- HSM Client CLI
- HSM Java GUI

Linux on POWER backup-archive client

A Linux on POWER backup-archive client requires the following hardware and software:

- Machine — IBM System p or IBM System i, with POWER processors, as supported by Linux distribution
- Minimum memory and space requirement to run:
  - RAM — 64 MB
  - Disk space — 80 MB
- Software supported:
  - SLES 9 or 10
  - Red Hat Enterprise Linux 4.0 or 5.0
  - Java JRE 5 or 1.4.x (where x>=1)
  - A Mozilla 1.4, or later browser for the Web client and to access online help and documentation
- Communication protocol:
  - TCP/IP, which comes standard with Linux
  - Shared memory protocol

Client capabilities:

- Administrative Client CLI
- Backup-Archive CLI
- Backup-Archive Java Graphical User Interface (Java GUI)
- Backup-Archive Web Client Interface
- Tivoli Storage Manager API

Linux on Itanium 2 backup-archive client

A Linux on Itanium 2 backup-archive client requires the following hardware and software:

- Machine — Intel Itanium 64 bit Symmetric Multi-Processor (SMP) or uniprocessor (UP) based PC architecture
- Minimum memory and space requirement to run:
  - RAM — 128 MB

- – Disk space — 35 MB
- Software supported:
  - – SLES 9 or 10
  - – Red Hat Enterprise Linux 4.0 or 5.0
  - – Java JRE 5 or 1.4.x (where x>=1)
  - – The Web backup-archive client runs in one of the following Web browsers:
    - -- Microsoft Internet Explorer 5.0 or later, with JRE 5 or 1.4.x (where x>=1)
    - -- A Mozilla 1.4, or later browser for the Web client and to access online help and documentation
- Communication protocol:
  - – TCP/IP, which comes standard with Linux
  - – Shared memory protocol

Client capabilities:

- Administrative Client CLI
- Backup-Archive CLI
- Backup-Archive Java Graphical User Interface (Java GUI)
- Backup-Archive Web Client Interface
- Tivoli Storage Manager API

Linux for IBM System z backup-archive client

A Linux for System z backup-archive client requires the following hardware and software:

- Machine — A 9672 G5 or G6, Multiprise® 3000, or Linux for System z 800 or 900 (31 bit and 64 bit mode)
- Minimum memory and space requirement to run:
  - – RAM — 128 MB
  - – Disk space — 15 MB
- Software supported:
  - – SLES 9 and 10 Linux for System z
  - – Red Hat Enterprise Linux 4.0 or 5.0 for Linux for System z
  - – Java JRE 5, or 1.4.x (where x>=1)
  - – A Mozilla 1.4, or later browser for the Web client and to access online help and documentation
- Communication protocol:
  - – TCP/IP, which comes standard with Linux
  - – Shared Memory protocol

Client capabilities:

- Administrative Client CLI
- Backup-Archive CLI
- Backup-Archive Web Client Interface
- Tivoli Storage Manager API

Novell NetWare backup-archive client

A Novell NetWare backup-archive client requires the following hardware and software:

- Machine — A personal computer or workstation running as a NetWare file server
- Minimum memory and space requirement to run:
  – RAM — 512 MB of RAM (1 GB of RAM is recommended.)
  – Disk space — 20 MB
- Operating system — Novell NetWare 6.5 SP5+ (OES SP2)
- One of the following communication protocols:
  – TCP/IP, which comes standard with Novell NetWare

Client capabilities:

- Backup-Archive CLI
- Backup-Archive Web Client Interface
- Tivoli Storage Manager API

OS/400 API client

A Tivoli Storage Manager OS/400 API client requires the following hardware and software:

- Machine — Any AS/400 or IBM System i, which supports the operating system
- Minimum memory and space requirement to run:
  – RAM — 64 MB
  – Disk space — 5 MB
- Operating system
  – OS/400 i5/OS™ V5R3 or i5/OS V5R4
- Client capabilities
  – Tivoli Storage Manager API

Solaris SPARC backup-archive client

A Solaris SPARC backup-archive client requires the following hardware and software:

- Machine — A SPARCstation based on sun4u architecture or compatible workstation
- Minimum memory and space requirement to run:
  – RAM — 512 MB
  – Disk space — 100 MB
- Operating system — one of the following:
  – Solaris 9 or 10 (32 bit or 64 bit)
- Java JRE 5, or 1.4.x (where x>=1)
- A Mozilla 1.4, or later browser for the Web client and to access online help and documentation
- Communication protocol:
  – TCP/IP, which comes standard with Solaris
  – Shared memory protocol

Client capabilities:

- Administrative Client CLI
- Backup-Archive CLI
- Backup-Archive Java Graphical User Interface (Java GUI)
- Backup-Archive Web Client Interface
- Tivoli Storage Manager API

- X/Open API (32 bit)

Solaris SPARC HSM client

A Solaris SPARC HSM client requires IBM Tivoli Storage Manager for Space Management (5608-HSM) and either IBM Tivoli Storage Manager (5608-ISM) or IBM Tivoli Storage Manager Extended Edition (5608-ISX), and the following hardware and software:

- Minimum hardware configuration:
  - Machine — A SPARCstation based on sun4u architecture or compatible workstation
  - RAM — 512 MB
  - 1 GB disk space for an HSM managed file system
- Recommended hardware configuration:
  - A multiprocessor system (SPARCstation or compatible workstation)
  - RAM — 512 MB
  - 10 GB disk space for an HSM managed file system
- Operating system — one of the following:
  - Solaris 9 or 10 (32 bit or 64 bit)
- Veritas File System (VxFS) 4.1
- Java JRE 5, or 1.4.x (where x>=1)
- Communication protocol:
  - TCP/IP, which comes standard with Solaris

Client capabilities:

- HSM Client CLI
- HSM Java GUI

Solaris X86/X86_64 backup-archive client

A Solaris X86/X86_64 backup-archive client requires the following hardware and software:

- Machine — An x86 32 bit or 64 bit (AMD64/EM64T) based system that is explicitly compatible and fully capable of running the Solaris 10 x86 operating system
- Minimum memory and space requirement to run:
  - RAM — 512 MB
  - Disk space — 100 MB
- Operating system — one of the following:
  - Solaris 10 (32 bit or 64 bit)
- Java JRE 5, or 1.4.x (where x>=1)
- A Mozilla 1.4, or later browser for the Web client and to access online help and documentation
- Communication protocol:
  - TCP/IP, which comes standard with Solaris
  - Shared memory protocol

Client capabilities:

- Administrative Client CLI
- Backup-Archive CLI
- Backup-Archive Java Graphical User Interface (Java GUI)
- Backup-Archive Web Client Interface

- Tivoli Storage Manager API

Windows backup-archive client

A Windows backup-archive client requires the following hardware and software:

- Machine — one of the following:
  - x32 or compatible processor or multiprocessor
  - Itanium (IA64) processor supporting ACPI 2.0 64-bit fixed tables
  - AMD64/EM64T processor or multiprocessor
- Minimum memory and space requirement to run:
  - RAM — 128 MB
  - Disk space — 100 MB
- Operating system — one of the following:
  - Windows XP Professional (32 bit and 64 bit, SP 2, or later)
  - Windows Server 2003 Server (all editions, 32 bit and 64 bit)
  - Windows Server 2003 Server R2 (all editions, 32 bit and 64-bit support for same features as in Windows Server 2003)
  - Windows Vista® all editions (except Automated System Recovery (ASR))
- Communication protocol — one of the following, which are standard with all supported Windows platforms:
  - Named Pipes, used in conjunction with the Tivoli Storage Manager server running on the same Windows 2003 machine
  - TCP/IP (the only one used for Web client)
  - Shared memory protocol, used in conjunction with the Tivoli Storage Manager server running on the same Windows 2003 machine

Client capabilities:

- Administrative Client CLI
- Backup-Archive CLI
- Backup-Archive GUI
- Backup-Archive Web Client Interface
- Tivoli Storage Manager API
- ODBC (32-bit mode applications only)

Tivoli Storage Manager for z/OS® UNIX System Services (USS) client and API

A Tivoli Storage Manager z/OS USS client requires the following hardware and software:

- Machine — Any System z architecture CPU
- Operating system — one of the following:
  - z/OS V1R7, z/OS V1R8, or V1R9
- Java JRE 5, or 1.4.x (where x>=1)
- Communication protocol:
  - IBM TCP/IP

Restrictions — Tivoli Storage Manager server functions not included in this client:

- SQLDB: Certain SQL select statements using path for the files backed up by a z/OS UNIX System Services client might not work properly.

- Server command query content.

- Cross client restore.

Client capabilities:

- Administrative Client CLI

- Backup-Archive CLI

- Backup-Archive Web Client Interface

- Tivoli Storage Manager API (32 bit)

NDMP requirements

Tivoli Storage Manager Extended Edition includes support for NDMP-controlled backup and restore operations.

NDMP operations require the following hardware and software:

- A Tivoli Storage Manager Extended Edition server on Windows Server 2003, AIX 64 bit, Solaris 64 bit, HP 64 bit, or Linux. The Tivoli Storage Manager Extended Edition server supports NDMP on all the operating systems that are supported by the Tivoli Storage Manager Extended Edition server except for the z/OS operating system.

- A Tivoli Storage Manager Extended Edition supported backup-archive client on Windows, Solaris SPARC (32 bit or 64 bit), or AIX (32 bit or 64 bit) can be used for initiating backup and restore operations. To use a Web client to display files from a backup and select individual files to be restored, you must have a Windows Web client and a Web browser which can run on any platform.

- IBM System Storage™ N series, Network Appliance, or EMC Celerra NAS file server.

  For supported models and operating systems, refer to

    http://www.ibm.com/tivoli/storage

- Any other NAS file server that supports guidelines specified by Tivoli Storage Manager. NAS Vendors on the Ready for IBM Tivoli software list follow guidelines to implement NDMP as specified by Tivoli Storage Manager. File servers on the list have generally undergone tests to ensure they are compatible with Tivoli Storage Manager. For a list of NAS file servers that are certified through the Ready for IBM Tivoli software, visit

    http://www.ibm.com/software/sysmgmt/prod
    ucts/support/IBMTivoliStorageManager.html

- Tape drive and tape library.

  For supported combinations, refer to

    http://www.ibm.com/tivoli/storage

IBM System Storage Archive Manager

The IBM System Storage Archive Manager server runs on the AIX, Sun Solaris, HP-UX, Linux, and Microsoft Windows 2003 operating system platforms. The devices supported by Tivoli Storage Manager Extended Edition are also supported by IBM System Storage Archive Manager. Refer to the following Web site for the list of devices that are supported

    http://www.ibm.com/software/sysmgmt/prod
    ucts/support/IBMTivoliStorageManager.html

In addition, for the most current support and related information for Tivoli Storage Management products, including information on the Tivoli Storage Manager backup-archive clients, refer to the Tivoli Storage Manager Web site

    http://www-3.ibm.com/software/tivoli/products/storage-mgr/

Additional information

To implement the data retention capabilities, you need to install a new IBM System Storage Archive Manager server and then enable Data Retention protection. Once Data Retention

protection is enabled, it cannot be disabled and all data stored on that IBM System Storage Archive Manager server will be subject to the data retention policies.

IBM Tivoli Storage Manager HSM for Windows V5.5

Tivoli Storage Manager HSM for Windows requires the following hardware and software:

- Machine — Pentium processor
- Minimum memory and space requirements
  - At least 512 MB of memory
  - 50 MB of available disk space
- Any of the following Windows versions that support NTFS V5
  - Windows 2003 Server (32 bit)
  - Windows 2003 Server R2 (32 bit)
  - Windows 2003 Server SP2 (32 bit)
  - Windows 2003 Enterprise Server (32 bit)
  - Windows 2003 Enterprise Server R2 (32 bit)
  - Windows 2003 Enterprise Server SP2 (32 bit)
- Tivoli Storage Manager V5.5 Windows backup-archive client
- Tivoli Storage Manager Windows Client API V5.5

Tivoli Storage Manager for System Backup and Recovery V6.1

Tivoli Storage Manager for System Backup and Recovery, also known as SYSBack™, requires the following hardware and software:

- IBM System p
- IBM System i running AIX
- AIX V5.2 or V5.3
- The bos.sysmgt.sysbr fileset
- When AIX is installed, the following filesets are installed automatically with the system and may not be removed in order for SysBack to function properly:
  - bos.rte.net
  - bos.rte.archive
  - bos.rte.libnetsvc (when using Network Install functions)
- If you will be using the Remote Services functions of SysBack, the following AIX filesets are required:
  - bos.rte.net
  - bos.net.tcp.client
- If you will be using the Classic Network Boot functions for the Network Installs, the AIX bos.net.nfs.client fileset is required.
- SysBack backups are supported with the following file system types:
  - JFS
  - JFS2
  - NFS
  - CDFS
- If you will be using the NIM Resource Network Boot functions for Network Installs, the NIM environment and resources must first be installed and configured in the desired locations for SysBack to utilize these resources.
- Detailed tape drive support requirements are available at

> http://www.ibm.com/support/doc
> view.wss?rs=816&uid=swg21282832

- Detailed CD and DVD device support requirements are available at

> http://www.ibm.com/support/doc
> view.wss?rs=816&uid=swg21282831

- If you will be using the Tivoli Storage Manager integration features, you will need:
    - A previously configured Tivoli Storage Manager server at V5.4, or later.
    - The 32 bit Tivoli Storage Manager API Client at V5.4, or later.
    - When combining Tivoli Storage Manager backup-archive client backups with SysBack boot and installation processing, you must use a V5.4.0, or later version of the Tivoli Storage Manager backup-archive client.
    - Detailed limitations and exclusions related to Tivoli Storage Manager integration features is available at

    > http://www.ibm.com/support/doc
    > view.wss?rs=816&uid=swg21282833

Tivoli Storage Manager data protection solution products requirements

The Tivoli Storage Manager data protection solutions have been consolidated into IBM Tivoli Storage Manager for .... products. Listed below are the hardware and software requirements for the individual components, grouped by Tivoli Storage Manager for .... product.

The communication protocols that are supported by the Tivoli Storage Manager API shipped with the product and the Tivoli Storage Manager server, should be the ones supported for the data protection components.

IBM Tivoli Storage Manager for Mail

IBM Tivoli Storage Manager for Mail V5.5 contains the following components:

- Data Protection for Microsoft Exchange V5.5

- Data Protection for Lotus Domino V5.4.2

The hardware and software requirements for each component are listed below. For components that support multiple platforms, the requirements for each platform are listed in separate entries.

Data Protection for Microsoft Exchange V5.5 on Windows for x32

Data Protection for Microsoft Exchange on Windows for x32 requires the following hardware and software:

- Intel Pentium 166, or later processor (or equivalent) with at least 20 MB of available disk space and 96 MB of RAM.

- One of the following operating system options:
    - Windows Server 2003 with SP2, or later: Standard, Enterprise, or Data Center editions
    - Windows Server 2003 R2 with SP2, or later: Standard, Enterprise, or Data Center editions
    - Microsoft Virtual Server 2005 R2 SP1, or later

    Note: Microsoft Cluster Server (MSCS) and Veritas Cluster Server (VCS) are supported. Refer to the User's Guide for details on MSCS and VCS configuration.

- Microsoft Exchange Server 2003 SP2 or later: Standard or Enterprise Editions

- An IBM Tivoli Storage Manager server V5.4.1.2, or later.

- An IBM Tivoli Storage Manager API client V5.5.0, or later.

- An IBM Tivoli Storage Manager backup-archive client V5.4.1.2, or later, if IBM Tivoli Storage Manager central scheduling is used.

- An IBM Tivoli Storage Manager backup-archive client V5.5, or later, if VSS operations are used.

Data Protection for Microsoft Exchange V5.5 on Windows for x64

Data Protection for Microsoft Exchange on Windows for x64 requires the following hardware and software:

- Intel EMT64, or AMD Opteron, or equivalent x64 processor with at least 20 MB of available disk space and 96 MB of RAM.

- One of the following operating system options:

  – Windows Server 2003 with SP2 or later: Standard x64, Enterprise x64, or Data Center x64 editions.

    Note: Microsoft Cluster Server (MSCS) and Veritas Cluster Server (VCS) are supported. Refer to the User's Guide for details on MSCS and VCS configuration.

- Microsoft Exchange Server 2007: Standard or Enterprise Editions.

- An IBM Tivoli Storage Manager server V5.4.1.2, or later.

- An IBM Tivoli Storage Manager API client V5.5.0, or later.

- An IBM Tivoli Storage Manager backup-archive client V5.4.1.2, or later, if IBM Tivoli Storage Manager central scheduling is used.

- An IBM Tivoli Storage Manager backup-archive client V5.5, or later, if VSS operations are used.

Data Protection for Lotus Domino V5.4.2 for AIX

Data Protection for Lotus Domino on AIX requires the following hardware and software:

- IBM System p

- IBM System i

- Compatible hardware supported by the operating system and the application

- At least 8 MB of disk space and 128 MB of RAM

- Software

  – AIX V5.2 (32 bit or 64 bit) or AIX V5.3 (32 bit or 64 bit)

  – Lotus Domino 6.5.x, 7.0.x, or 8.0.x server

  – A Tivoli Storage Manager server V5.4.0, or later

  – A Tivoli Storage Manager API V5.4.1.2, or later

  – A Tivoli Storage Manager backup-archive client V5.4.1.2, or later, if you will be using IBM Tivoli Storage Manager central scheduling or Web Client GUI

  – DB2 Universal Database® V9.1.2, if you will be using Data Protection to backup Domino DB2 enabled Notes® databases

Data Protection for Lotus Domino V5.4.2 for Solaris

Data Protection for Lotus Domino for Solaris requires the following hardware and software:

- UltraSPARC and newer machines

- At least 8 MB of disk space and 128 MB of RAM

- Solaris 9 (64 bit) or 10 (64 bit)

- Lotus Domino 6.5.x, 7.0.x, or 8.0.x server

- A Tivoli Storage Manager server V5.4.0, or later

- A Tivoli Storage Manager API V5.4.1.2, or later

- A Tivoli Storage Manager backup-archive client V5.4.1.2, or later, if you will be using IBM Tivoli Storage Manager central scheduling or Web Client GUI

Data Protection for Lotus Domino V5.4.2 for Windows

Data Protection for Lotus Domino on Windows requires the following hardware and software:

- 32 bit or 64 bit Intel Pentium or higher, or compatible hardware supported by the operating system and the application

- At least 14 MB of disk space and 128 MB of RAM

- Windows 2003 Server: Standard or Enterprise Edition (32 bit or 64 bit, as applicable)

- Lotus Domino 6.5.x, 7.0.x, or 8.0.x server

- A Tivoli Storage Manager server V5.4.0, or later

- A Tivoli Storage Manager API V5.4.1.2, or later

- A Tivoli Storage Manager backup-archive client V5.4.1.2, or later, if you will be using IBM Tivoli Storage Manager central scheduling or Web Client GUI

- DB2 Universal Database V9.1.2 if you will be using Data Protection to backup Domino DB2 enabled Notes databases

Data Protection for Lotus Domino V5.4.2 for Linux on x86

Data Protection for Lotus Domino for Linux on x86 requires the following hardware and software:

- 32 bit or 64 bit Intel Pentium, or higher, or compatible hardware supported by the operating system and the application

- At least 8 MB of disk space and 128 MB of RAM

- Red Hat Enterprise Linux 4 or 5 (32 and 64 bit) or SLES 9 or 10 (32 and 64 bit)

- Lotus Domino 6.5.x, 7.0.x, or 8.0.x server

- A Tivoli Storage Manager server V5.4.0, or later

- A Tivoli Storage Manager API V5.4.1.2, or later

- A Tivoli Storage Manager backup-archive client V5.4.1.2, or later, if you will be using IBM Tivoli Storage Manager central scheduling or Web Client GUI

- DB2 Universal Database V9.1.2 if you will be using Data Protection to backup Domino DB2 enabled Notes databases

Data Protection for Lotus Domino V5.4.2 for Linux on IBM System z

Data Protection for Lotus Domino for Linux on IBM System z requires the following hardware and software:

- Any System z machine that is supported by the operating system and the application

- At least 8 MB of disk space and 128 MB of RAM

- Red Hat Enterprise Linux 4 or 5 (32 and 64 bit) or SLES 9 or 10 (32 and 64 bit)

- Lotus Domino 6.5, or later, 7.0.x, or 8.0.x server

- A Tivoli Storage Manager server V5.4.0, or later

- A Tivoli Storage Manager API V5.4.1.2, or later

- A Tivoli Storage Manager backup-archive client V5.4.1.2, or later, if you will be using IBM Tivoli Storage Manager central scheduling or Web Client GUI

Data Protection for Lotus Domino V5.4.2 for OS/400

Data Protection for Lotus Domino on OS/400 requires the following hardware and software:

- Any AS/400 or IBM System i machine that supports the operating system requirements

- At least 5 MB of disk space and 64 MB of RAM

- i5/OS V5R3 or V5R4

- OS/400 Option 30, QShell Interpreter

- A Lotus Domino 6.5.x, 7.0.x, or 8.0.x server

- A Tivoli Storage Manager server V5.4.0, or later

- The Tivoli Storage Manager API for OS/400 V5.4.1.2, or later

IBM Tivoli Storage Manager for Databases

IBM Tivoli Storage Manager for Databases V5.5 contains the following components:

- Data Protection for Oracle V5.4.1

- Data Protection for Microsoft SQL Server V5.5

The hardware and software requirements for each component are listed below. For components that support multiple platforms, the requirements for each platform are listed in separate entries.

Data Protection for Oracle V5.4.1 for AIX

Data Protection for Oracle for AIX requires the following hardware and software:

- Machine — Any RS/6000, IBM System p, or IBM System i or compatible hardware, that supports the operating system requirements.

- At least 8 MB of disk space and 128 MB RAM.

- One of the following operating system and Oracle configurations:
  - 64 bit AIX V5.2 or V5.3 (32 bit or 64 bit) with one of the following versions of Oracle:
    - -- Oracle 9i 9.2.x
    - -- Oracle 10g
    - -- Oracle 10gR2 (64 bit) Enterprise Edition or Real Application Clusters
  - 64 bit AIX V5.2 or AIX V5.3 (64 bit) and GPFS V2.1 or V2.2 and HACMP/ES V4.5, V5.1, or V5.2 with one of the following version of Oracle:
    - -- Oracle 9i 9.2.x
    - -- Oracle 10g
    - -- Oracle 10gR2 (64 bit) Real Application Clusters

- Any supported version of the Tivoli Storage Manager server

- IBM Tivoli Storage Manager API Client V5.4.1.2, or later

Data Protection for Oracle V5.4.1 for HP-UX on PA-RISC

Data Protection for Oracle on HP-UX on PA-RISC requires the following hardware and software:

- Machine — Any HP 9000 series 700 or 800 workstation that is supported by the operating system and the application

- At least 10 MB of disk space and 96 MB RAM

- 64 bit HP-UX 11i v2 with one of the following versions of Oracle:
  - Oracle 9i 9.2.x
  - Oracle 10g
  - Oracle 10gR2 Enterprise Edition or Real Application Clusters

- Java JRE 1.4.2, or later

- Any supported version of the Tivoli Storage Manager server

- IBM Tivoli Storage Manager API Client V5.4.1.2, or later

Data Protection for Oracle V5.4.1 for HP-UX on Itanium

Data Protection for Oracle for HP-UX on Itanium requires the following hardware and software:

- Machine — HP Integrity Server (Itanium)

- At least 8 MB of disk space and 96 MB RAM

- HP-UX 11i v2 or 11i v3 with one of the following versions of Oracle:

- Oracle 9i 9.2.x

- Oracle 10g

- Oracle 10gR2 Enterprise Edition or Real Application Clusters

- Java JRE 1.4.2, or later

- Any supported version of the Tivoli Storage Manager server

- IBM Tivoli Storage Manager API Client V5.4.1.2, or later

Data Protection for Oracle V5.4.1 for Linux on x86

Data Protection for Oracle for Linux on x86 requires the following hardware and software:

- Machine — Any x86-based PC architecture (for example Pentium), or later, that is supported by the operating system and the application

- At least 8 MB of disk space and 128 MB RAM

- One of the following operating system and Oracle configurations:

  - SLES 10 with Oracle 10gR2 Enterprise Edition or Real Application Clusters

  - Red Hat Enterprise Linux 4, SLES 9, or Asianux 2.0 with one of the following versions of Oracle:

    -- Oracle 9i 9.2.x

    -- Oracle 10g

    -- Oracle 10gR2 Enterprise Edition or Real Application Clusters

- Java JRE 1.4.2, or later

- Any supported version of the Tivoli Storage Manager server

- An IBM Tivoli Storage Manager API Client V5.4.1.2, or later

Data Protection for Oracle V5.4.1 for Linux on x86_64

Data Protection for Oracle for Linux on x86_64 requires the following hardware and software:

- Machine — Intel EM64T or Opteron AMD64 or compatible hardware supported by the operating system and the application

- At least 8 MB of disk space and 128 MB RAM

- One of the following operating system and Oracle configurations:

  - SLES 10 with Oracle 10gR2 Enterprise Edition or Real Application Clusters

  - Red Hat Enterprise Linux 4, SLES 9, or Asianux 2.0 with one of the following versions of Oracle:

    -- Oracle 9i 9.2.x

    -- Oracle 10g

    -- Oracle 10gR2 Enterprise Edition or Real Application Clusters

- Java JRE 1.4.2, or later

- Any supported version of the Tivoli Storage Manager server

- Tivoli Storage Manager API Client V5.4.1.2, or later

Data Protection for Oracle V5.4.1 for Linux on Power

Data Protection for Oracle for Linux on Power requires the following hardware and software:

- IBM System i or IBM System p, POWER 5 systems, or compatible hardware supported by the operating system and the application

- At least 8 MB of disk space and 128 MB RAM

- Red Hat Enterprise Linux 4, or SLES 9 with Oracle 10gR2 Enterprise Edition or Real

Application Cluster

- Java JRE 1.4.2, or later
- Any supported version of the Tivoli Storage Manager server
- An IBM Tivoli Storage Manager API Client V5.4.1.2, or later

Data Protection for Oracle V5.4.1 for Linux on z64

Data Protection for Oracle for Linux on z64 requires the following hardware and software:

- IBM System z 800 or 900 server
- At least 8 MB of disk space and 128 MB RAM
- Red Hat Enterprise Linux 4 (64 bit), or SLES 9 (64 bit)
- Oracle 10g or 10gR2 Enterprise Edition or Real Application Cluster
- Java JRE 1.4.2, or later
- Any supported version of the Tivoli Storage Manager server
- An IBM Tivoli Storage Manager API Client V5.4.1.2, or later

Data Protection for Oracle V5.4.1 for Solaris SPARC

Data Protection for Oracle for Solaris SPARC requires the following hardware and software:

- A Sun-4 SPARC or compatible workstation
- At least 8 MB of disk space and 96 MB RAM run:
- One of the following operating system and Oracle configurations:
  - 32 bit Solaris 9 or Solaris 10 with 32 bit Oracle 9i 9.2.x Enterprise Edition or Real Application Cluster
  - 64 bit Solaris 9 or Solaris 10 with Oracle 9i 9.2.x or Oracle 10g or Oracle 10gR2 (64 bit) Enterprise Edition or Real Application Cluster
- Java JRE 1.4.2, or later
- Any supported version of the Tivoli Storage Manager server
- 32-bit configurations require a Tivoli Storage Manager client API V5.3.4, or V5.3.5
- 64-bit configurations require a Tivoli Storage Manager client API V5.4.1.2, or later

Notes

Data Protection for Oracle for Solaris packages are supported:

- In Solaris 10 global zones with non-RAC or RAC databases
- In non-global (local) zones with non-RAC databases corresponding to Oracle's support

Data Protection for Oracle V5.3.3 for Solaris on x86

Data Protection for Oracle for Solaris on x86 requires the following hardware and software:

- Machine — x86-based PC architecture or compatible workstation
- Minimum memory and space requirement to run:
  - RAM — 96 MB
  - Disk space — 8 MB
- Software
  - Solaris 10 (32 bit) with Oracle 10g (32 bit) Enterprise Edition or Real Application Cluster
  - Tivoli Storage Manager server
  - Tivoli Storage Manager V5.3.3, or later API

Data Protection for Oracle V5.3.3 for Solaris on x86_64

Data Protection for Oracle for Solaris on x86_64 requires the following hardware and software:

- Machine — Intel EM64T or Opteron AMD64 or compatible workstation
- Minimum memory and space requirement to run:
  – RAM — 96 MB
  – Disk space — 8 MB
- Software
  – Solaris 10 (64 bit) with Oracle 10gR2 (64 bit) Enterprise Edition or Real Application Cluster
  – Tivoli Storage Manager server
  – Tivoli Storage Manager V5.3.3, or later API

Data Protection for Oracle V5.3.3 for Windows on x32

Data Protection for Oracle for Windows on x32 requires the following hardware and software:

- Machine — An Intel Pentium 166, or higher, or equivalent processor
- Minimum memory and space requirement to run:
  – RAM — 96 MB (128 MB, or more is recommended)
  – Disk space — 14 MB
- Software
  – Windows Server 2003 (32 bit) with Oracle 9i 9.2.x, 10g, or 10gR2 (32 bit) Enterprise Edition or Real Application Cluster
  – Tivoli Storage Manager server
  – Tivoli Storage Manager V5.3.3, or later API

Data Protection for Oracle V5.3.3 for Windows on IA64

Data Protection for Oracle for Windows on IA64 requires the following hardware and software:

- Machine — An Intel Pentium 166, or higher, or equivalent processor
- Minimum memory and space requirement to run:
  – RAM — 96 MB (128 MB, or more is recommended)
  – Disk space — 14 MB
- Software
  – Windows Server 2003 (64 bit) with Oracle 9i 9.2.x, 10g, or 10gR2 (64 bit) Enterprise Edition or Real Application Cluster
  – Tivoli Storage Manager server
  – Tivoli Storage Manager V5.3.3, or later API

Data Protection for Oracle V5.3.3 for Windows on x64

Data Protection for Oracle for Windows on x64 requires the following hardware and software:

- Machine — An Intel Pentium 166 or higher, or equivalent processor
- Minimum memory and space requirement to run:
  – RAM — 96 MB (128 MB, or more is recommended.)
  – Disk space — 14 MB
- Software
  – Windows Server 2003 (64 bit) with Oracle 10gR2 (64 bit) Enterprise Edition or Real Application Cluster
  – Tivoli Storage Manager server

– Tivoli Storage Manager V5.3.3, or later API

Data Protection for Microsoft SQL V5.5 for Windows on x32

Data Protection for Microsoft SQL for Windows on x32 requires the following hardware and software:

- Intel Pentium 166, or later processor (or equivalent) with at least 20 MB of available disk space and 96 MB of RAM
- One of the following operating system options:
  - Windows Server 2003 with SP2 or later: Standard, Enterprise, or Data Center editions
  - Windows Server 2003 R2 with SP2 or later: Standard, Enterprise, or Data Center editions

    Note: Microsoft Cluster Server (MSCS) and Veritas Cluster Server (VCS) are supported. Refer to the User's Guide for details on MSCS and VCS configuration.

    Note: Microsoft Virtual Server 2005 R2 SP1 or later is supported.
- Microsoft SQL Server 2000 SP4 or later: Standard or Enterprise Editions
- Microsoft SQL Server 2005 SP2 or later: Standard or Enterprise Editions
- A Tivoli Storage Manager server V5.4.0, or later
- A Tivoli Storage Manager API V5.5, or later
- A Tivoli Storage Manager backup-archive client V5.4.1.2, or later, if Tivoli Storage Manager central scheduling is used
- A Tivoli Storage Manager backup-archive client V5.5, or later, if VSS operations are used

Data Protection for Microsoft SQL V5.5 for Windows on IA64

Data Protection for Microsoft SQL for Windows on IA64 requires the following hardware and software:

- Intel Itanium 64-bit chipset, or equivalent or later processor with at least 20 MB of available disk space and 96 MB of RAM
- One of the following operating system options:
  - Windows Server 2003 with SP2 or later: Standard, Enterprise, or Data Center Editions for Itanium-based systems
- Microsoft SQL Server 2000 with SP4, or later: Standard or Enterprise 64-bit Editions
- Microsoft SQL Server 2005 with SP2, or later: Standard or Enterprise Editions for Itanium-based systems
- A Tivoli Storage Manager server V5.4.0, or later
- A Tivoli Storage Manager API V5.5, or later
- A Tivoli Storage Manager backup-archive client V5.4.1.2, or later, if Tivoli Storage Manager central scheduling is used

Data Protection for Microsoft SQL V5.5 for Windows on x64

Data Protection for Microsoft SQL for Windows on x64 requires the following hardware and software:

- Intel EMT64, or AMD Opteron, or equivalent x64 processor with at least 20 MB of available disk space and 96 MB of RAM
- One of the following operating system options:
  - Windows Server 2003 with SP2, or later: Standard, Enterprise, or Data Center x64 editions
  - Windows Server 2003 R2 with SP2, or later: Standard, Enterprise, or Data Center x64 editions
  - Microsoft Virtual Server 2005 R2 SP1, or later

Note: Microsoft Cluster Server (MSCS) and Veritas Cluster Server (VCS) are supported. Refer to the User's Guide for details on MSCS and VCS configuration.

- Microsoft SQL Server 2005 SP2 or later: Standard or Enterprise x64 Editions

- A Tivoli Storage Manager server V5.4.0, or later

- A Tivoli Storage Manager API V5.5, or later

- A Tivoli Storage Manager backup-archive client V5.4.1.2, or later, if Tivoli Storage Manager central scheduling is used

- A Tivoli Storage Manager backup-archive client V5.5, or later, if VSS operations are used

IBM Tivoli Storage Manager for Enterprise Resource Planning Data Protection for SAP V5.5 for Oracle requires the following hardware and software

- SAP 4.6C/D, or WebSphere® Application Server V6.20, V6.30, or V6.40, or SAP 7.0

- All SAP packages based on the above kernels such as:
  - SAP Enterprise (4.7)
  - SAP ECC

- Minimum RAM — 512 MB

- Minimum disk space
  - 100 MB
  - 250 MB for HP-UX — Itanium

- For AIX
  - Machine — RS/6000 IBM System p
  - AIX V5.2 (64 bit) at ML02
  - AIX V5.3 (64 bit)

- For Solaris
  - Machine — SPARCstation or compatible workstation
  - Solaris 9, 10 (64 bit)

- For HP-UX
  - Machine — HP 9000 Series 700 or 800 workstation
  - HP-UX 11i v2.0 (64 bit)
  - HP-UX 11i v3.0 (64 bit)

- For HP-UX Itanium
  - Machine — HP Integrity Server (Itanium)
  - HP-UX 11i v2 (64 bit)
  - HP-UX 11i v3.0 (64 bit)

- For Linux x86
  - Machine — Intel (or compatible) Pentium, or greater (32 bit) processor
  - SAP supported Linux distributions:
    -- Red Hat Enterprise Advanced Server 4, 5 (32 bit)
    -- SLES 9, 10 (32 bit)

- For Linux Itanium
  - Machine — Intel Itanium (64 bit) processor
  - SAP supported Linux distributions:
    -- SLES 9 with Oracle 9.2.0.5, or later

  Note: RMAN is not supported as long as Oracle Bug 4698914 is not resolved.

- For Linux x86_64
  - Machine — Intel EM64T or Opteron AMD64 or compatible processor
  - SAP supported Linux distributions:
    -- Red Hat Enterprise Advanced Server 4, 5
    -- SLES 9
    -- SLES 10 with Oracle 10
- For Linux POWER
  - Machine — IBM POWER processor
  - SAP supported Linux distributions:
    -- Red Hat Enterprise Advanced Server 4, 5
    -- SLES 9
    -- SLES 10 with Oracle 10
- For Windows 32 bit
  - Machine — Intel (or compatible) Pentium, or greater (32 bit), or Itanium (64 bit) processor
  - Windows 2003 Enterprise Edition (32 bit or 64 bit)
- For Windows x64
  - Machine — Intel EM64T, Opteron AMD64, or compatible processor
  - Windows 2003 Enterprise Edition (64 bit)
- Oracle releases that are supported by respective SAP version
- Tivoli Storage Manager API:
  - V5.3.0, or later for all UNIX, Linux, and Windows, except
    -- V5.3.0.1 for Linux POWER
    -- V5.5, or later for Linux Itanium

  Note: 32 bit or 64 bit mode of the API must match with the Data Protection for SAP.
- Tivoli Storage Manager server

Data Protection for SAP V5.5 for DB2 UDB requires the following hardware and software:

- SAP R/3 4.6C/D, WebSphere Application Server V6.20, V6.30, or V6.40, SAP Enterprise (4.7)
- All SAP packages based on the above kernels such as:
  - SAP Enterprise (4.7)
  - SAP ECC
- Minimum RAM — 512 MB
- Minimum disk space
  - 100 MB
- For AIX:
  - Machine — RS/6000 or System p
  - AIX V5.2 (32 bit or 64 bit) at ML02
  - AIX V5.3 (64 bit)
- For HP-UX Itanium:
  - Machine — HP Integrity Server (Itanium)
  - HP-UX 11i V3.0 (64 bit)
- For Linux x86:
  - Machine — Intel (or compatible) Pentium, or greater (32 bit) processor

- – SAP supported Linux distributions:
    - -- Red Hat Enterprise Advanced Server 4 or 5
    - -- SLES 9, 10 (Native Posix Threading Library)
- For Linux x86_64:
    - – Machine — Intel EM64T or Opteron AMD64 or compatible processor
    - – SAP supported Linux distributions:
        - -- Red Hat Enterprise Advanced Server 4 or 5
        - -- SLES 9, 10
- For Linux POWER:
    - – Machine — IBM POWER processor
    - – SAP supported Linux distributions:
        - -- Red Hat Enterprise Advanced Server 4 or 5 with DB2 UDB V9.1 only
        - -- SLES 9, 10
- For Solaris SPARC:
    - – Machine — SPARCstation or compatible workstation
    - – Solaris 9, 10 (64 bit)
- For Solaris x86_64:
    - – Machine — Intel EM64T or Opteron AMD64 or compatible workstation
    - – Solaris 10 (64 bit)
- For Windows 32 bit:
    - – Machine — Intel (or compatible) Pentium ,or greater (32 bit), or Itanium (64 bit) processor
    - – Windows 2003 Enterprise Edition (32 bit or 64 bit)
- For Windows x64_64:
    - – Machine — Intel EM64T, Opterion AMD64, or compatible processor
    - – Windows 2003 Enterprise Edition (64 bit)
- DB2 UDB Enterprise Server Edition (including Database Partitioning Feature — DPF) releases as supported by respective mySAP version
    - – Enterprise Server Edition V8.1 FP5, or later except Windows V8.1 FP13, or later
    - – Enterprise Server Edition V9.1, or later
    - – Enterprise Server Edition V9.5, or later

    Note: 32 bit or 64-bit mode must match between DB2 UDB, Data Protection for SAP, and Tivoli Storage Manager API.
- Tivoli Storage Manager API:
    - – V5.4.0
- Tivoli Storage Manager server

In addition, the Administration Assistant function for Data Protection for SAP requires the following software (refer to the README for details):

- Data Protection for SAP V5.4.
- Assistant Server
    - – Operating systems supported: same as Data Protection for SAP (refer to the information above)
    - – JRE V1.5, or later
    - – JavaMail 1.1.3, or later

– JavaBeans Activation Framework extension or JAF (javax.activation)

- Client — full Java-capable Web browser (browser requires Java Plug-in 1.5, or later). The browser must be enabled for Scalable Vector Graphics (SVG), either by native support or by the Adobe SVG viewer plugin.

    – Mozilla 1.3, or later

    – MS Internet Explorer 6.0, or later

    Note: If mail.jar and activation.jar are not residing on the Administration Assistant system, the "problem support" feature will be disabled.

IBM Tivoli Storage Manager for Advanced Copy Services

IBM Tivoli Storage Manager for Advanced Copy Services V5.5 contains the following components:

- Data Protection for Snapshot Devices for DB2 Advanced Copy Services V5.5

- Data Protection for Disk Storage and SAN VC for Oracle V5.3.1.3

- Data Protection for Snapshot Devices for mySAP V5.4.1.1

- DB2 UDB and Hardware Devices Snapshot Integration Modules V5.3.4.8

Three of these components provide support for DB2 in different environments:

- For releases of DB2 prior to 9.5 in a SAP environment, use Data Protection for Snapshot Devices for mySAP V5.4.1.1

- For releases for DB2 prior to V9.5 in a non-SAP environment, use DB2 UDB and Hardware Devices Snapshot Integration Modules V5.3.4.8

- For DB2 V9.5 in either a SAP or non-SAP environment, use Data Protection for Snapshot Devices for DB2 Advanced Copy Services V5.5

The hardware and software requirements for each component are listed below. For components that support multiple platforms, the requirements for each platform are listed in separate entries.

Data Protection for Snapshot Devices for DB2 Advanced Copy Services V5.5 (with FlashCopy Devices)

Data Protection for Snapshot Devices for DB2 Advanced Copy Services V5.5 (with FlashCopy Devices) requires the following hardware and software:

- Hardware:

    – One of the following hardware options:

        -- IBM System p

        -- IBM System p5

    – 512 MB memory and 200 MB disk space.

    – For Offloaded Tivoli Storage Manager backups using Tivoli Storage Manager for Advanced Copy Services for DB2 Advanced Copy Services, two AIX servers are required.

    – For disk storage:

        -- IBM System Storage DS6000™ with microcode level 6.0.600.25, or later or IBM System Storage DS8000™ with microcode level 6.1.600.52, or later or ESS 800 with microcode 2.4.4.30, or later.

        -- A machine with a processor supported by IBM Common Interface Model (CIM) Agent for DS Open API V5.1.0.67, or later V5.1.x levels, or V5.2.1, or later. ESS 800 is only supported with CIM Agent DS Open API V5.1.x.

    – For the SAN Volume Controller:

        -- IBM System Storage SAN Volume Controller V2.1, or later, up to and including SVC 4.2.0 (includes the SAN Volume Controller Master Console).

- Software:

- DB2 V9.5 for Linux, UNIX, and Windows.

- DB2 Advanced Copy Services (ACS) is part of the IBM DB2 High Availability (HA) Feature. To use DB2 ACS, you must have a license for the DB2 HA Feature.

- AIX V5.3 with 64 bit AIX kernel, at TL5 SP3 (minimum).

- Minimum C++ runtime level of xlC.rte 8.0.0.8 and xlC.aix50.rte 8.0.0.8.

- AIX Base System Locale ISO Code Set — U.S. English.

- Java runtime (for AIX) V1.1.8, V1.3.0, or V1.3.1, or later.

- Pegasus Common Interface Model (CIM) Server V2.5.1.x and Base Providers according to the CIM Server version (available for download from IBM Director for AIX download site). The Pegasus fileset names are sysmgt.pegasus.cimserver.rte and sysmgt.pegasus.osbaseproviders.

- OpenSSL 0.9.7 (available from the AIX Toolbox).

- For SAP with DB2 V9.5:

  -- SAP R/3 Release 4.5B to 4.6D or SAP NetWeaver with SAP kernel release 6.10 to 7.00 on supported levels by SAP.

- For offloaded Tivoli Storage Manager backups:

  -- Tivoli Storage Manager API version as required by Tivoli Storage Manager for Enterprise Resource Planning: Data Protection for SAP product and by DB2 V9.5

  -- Tivoli Storage Manager Server V5.4, or later

  -- Tivoli Storage Manager for Storage Area Networks V5.3 for LAN-free restore to production system

- For the SAN Volume Controller:

  -- Subsystem Device Driver (SDD) 1.6.0.2, or later or SDDPCM 2.1.x

- For disk storage:

  -- Subsystem Device Driver (SDD) 1.6.0.2, or later or SDDPCM 2.x

Data Protection for Snapshot Devices for DB2 Advanced Copy Services V5.5 (with N series Snapshot Devices)

Data Protection for Snapshot Devices for DB2 Advanced Copy Services V5.5 (with N series Snapshot Devices) requires the following hardware and software:

- Hardware:

  - One of the following hardware options when using AIX:

    -- IBM System p

    -- IBM System p5

  - 512 MB memory and 200 MB disk space.

  - The following hardware options when using Linux:

    -- x64 (64 bit AMD64 and Intel EM64T processors) along with 512 MB memory and 200 MB disk space

  - For offloaded Tivoli Storage Manager backups using Tivoli Storage Manager for Advanced Copy Services for DB2 Advanced Copy Services, two AIX servers are required.

  - IBM System Storage N series.

- Software:

  - DB2 V9.5 for Linux, UNIX, and Windows.

  - DB2 Advanced Copy Services (ACS) is part of the IBM DB2 High Availability (HA) Feature. To use DB2 ACS, you must have a license for the DB2 HA Feature.

  - One of the following operating systems:

    -- AIX V5.3 with 64 bit AIX kernel, at TL5 SP3 (minimum), and a minimum C++ runtime level of xlC.rte 8.0.0.8 and xlC.aix50.rte 8.0.0.8

- Red Hat Enterprise Linux (RHEL) 4 Update 4

- Red Hat Enterprise Linux (RHEL) 5

- SUSE Linux Enterprise Server (SLES) 9 Service Pack 3

- SUSE Linux Enterprise Server (SLES) 10 Service Pack 1

– Additional software requirements when using AIX:

- AIX Base System Locale ISO Code Set — U.S. English.

- Java runtime (for AIX) V1.1.8, V1.3.0, or V1.3.1, or later.

- AIX additional filesets: libgcc must be installed. It is part of the AIX Toolbox for Linux Applications. Refer to

http://www-03.ibm.com/servers/aix/products/aixos/linux/ezinstall.html

– For SAN-attached devices only:

- IBM System Storage N series FCP AIX Host Attach Kit V1.3 (enables to configure an IBM AIX host to access LUNs on an IBM N series storage system)

- Logical volumes need to be of type JFS2

– Additional software requirements when using Linux:

- Linux Base System Locale ISO Code Set — U.S. English

- Java runtime (for Linux) V1.1.8, V1.3.0, or V1.3.1 or later

- NFS attached only

– IBM DataONTAP in one of the general availability versions (last version is 7.2)

- The license for the features FCP, Flexible Volume Clone and Snap Restore must be activated.

– For SAP with DB2 V9.5:

- SAP R/3 Release 4.5B to 4.6D, or SAP NetWeaver with SAP kernel release 6.10 to 7.00

– For offloaded Tivoli Storage Manager backups:

- Tivoli Storage Manager API version as required by Tivoli Storage Manager for Enterprise Resource Planning: Data Protection for SAP product and by DB2 V9.5

- Tivoli Storage Manager Server V5.4, or later

- Tivoli Storage Manager for Storage Area Networks V5.3 for LAN-free restore to production system

Data Protection for Disk Storage and SAN Volume Controller for Oracle, V5.3.1.3

Data Protection for Disk Storage and SAN Volume Controller for Oracle requires the following hardware and software:

- Hardware

  – Two IBM System p compatible servers, with 64 MB memory and 4 MB disk space

  – For disk storage:

    - IBM System Storage DS6000 with microcode level 6.0.600.25, or later or IBM System Storage DS8000 with microcode level 6.1.600.52, or later

    - A machine that meets the minimum requirements of the IBM Common Interface Model (CIM) Agent for DS Open API V5.1.0.67, or later V5.1.x levels, or V5.2.1, or later

  – For SAN Volume Controller: IBM System Storage SAN Volume Controller V2.1, or later, up to and including SVC 4.1 (includes the SAN Volume Controller Management Console)

- Software for both the production and backup IBM System p systems:

  – AIX V5.2 (32 bit or 64 bit) ML9, or later or AIX V5.3 (32 bit or 64 bit) ML5, or later.

- Pegasus Common Interface Model (CIM) Server V2.5.1.x and Base Providers (available on Expansion Pack CD with AIX). The Pegasus fileset names are sysmgt.pegasus.cimserver.rte and sysmgt.pegasus.osbaseproviders.

- Required when using SVC (recommended when using disk storage):

  -- Subsystem Device Driver 1.6.0.2, or later

  -- Host Attachment Scripts 1.1.0.3, or later available at the following Web site

  http://www-1.ibm.com/support/docview.wss?uid=ssg1S4000341

- Data Protection for Oracle V5.3.3, or later.

- Tivoli Storage Manager API V5.4.1.2, or later.

- Tivoli Storage Manager backup-archive client V5.4.1.2, or later.

- Oracle Database 9i 9.2 (64 bit) (single or Real Application Cluster) 10g (64 bit) (single or Real Application Cluster).

- Tivoli Storage Manager server V5.4.0, or later.

Data Protection for Snapshot Devices for mySAP V5.4.1.1 (with FlashCopy Devices)

Data Protection for Snapshot Devices for mySAP V5.4.1.1 (with FlashCopy Devices) requires the following hardware and software:

- Hardware:

  - Two System p or compatible servers, with 256 MB memory and 100 MB disk space.

  - For disk storage: IBM System Storage DS6000 with microcode level 6.0.600.25, or later or IBM System Storage DS8000 with microcode level 6.1.600.52, or later or ESS 800 with microcode 2.4.4.30, or later.

    A machine with a processor supported by IBM Common Interface Model (CIM) Agent for DS Open API V5.1.0.67, or later V5.1.x levels or V5.2.1 or later.

    Note: ESS 800 is only supported with CIM Agent DS Open API V5.1.x.

  - For SAN Volume Controller: IBM System Storage SAN Volume Controller V2.1, or later up to and including SVC V4.1 (includes the SAN Volume Controller Master Console)

- Software

  - AIX V5.2 (32 bit or 64 bit) ML9+ and PTF U488817 for APAR IY44637 or AIX V5.3 (32 bit or 64 bit) ML5+ and fix for PMR 28176,070,729 referring to AIX V5.2 fix IY62648

  - AIX Base System Locale ISO Code Set — U.S. English

  - Java runtime (for AIX) V1.1.8, V1.3.0, or V1.3.1, or later

  - Pegasus Common Interface Model (CIM) Server V2.5.1.x and Base Providers according to the CIM Server version (available for download from IBM Director for AIX download site). Pegasus fileset names are sysmgt.pegasus.cimserver.rte and sysmgt.pegasus.osbaseproviders

  - OpenSSL 0.9.7 (available from the AIX Toolbox)

  - SAP R/3 Release 4.5B to 4.6D or SAP NetWeaver with SAP kernel release 6.10 to 7.00

  - Tivoli Storage Manager API version as required by the Tivoli Storage Manager for Enterprise Resource Planning: Data Protection for SAP product

  - Tivoli Storage Manager Server V5.4, or later

  - Tivoli Storage Manager for Storage Area Networks V5.3 for LAN-free restore to production system

  - For SAN Volume Controller

    -- Subsystem Device Driver (SSD) 1.6.0.2, or later, or SDDPCM 2.1.x

  - For disk storage

    -- Subsystem Device Driver (SSD) 1.6.0.2, or later, or SDDPCM 2.x

  - When using Oracle with SAP

- Tivoli Storage Manager for Enterprise Resource Planning: Data Protection for SAP for Oracle (V5.4, or later) for AIX

- Oracle 9.2 or 10 g (64 bit) as supported by the respective SAP release

- SAP DBA tools kernel release 6.20 with patch level 118+, 6.40 or 7.00 SAP with according patch level

    Note: On the backup system, only the SAP DBA tools and Oracle client code are required.

  – When using DB2 UDB with SAP

    - Tivoli Storage Manager for Enterprise Resource Planning: Data Protection for mySAP for DB2 UDB (V5.4, or later) for AIX.

    - DB2 UDB Enterprise Server Edition V8.1 FP7, or later (32 bit or 64 bit).

    - DB2 UDB Enterprise Server Edition V8.2 or DB2 V9 FP1 or FP3 or later (64 bit) for DB2 V9 FP2. A special DB2 build is required for APAR IY95759.

Data Protection for Snapshot Devices for mySAP V5.4.1.1 (with N series devices)

Data Protection for Snapshot Devices for mySAP V5.4.1.1 (with N series devices) requires the following hardware and software:

- Hardware:
  – Two System p or compatible servers, with 256 MB memory and 100 MB disk space
  – IBM System Storage N series

- Software:
  – AIX V5.2 (32 bit or 64 bit) ML5+ and PTF U488817 for APAR IY44637 or AIX V5.3 (32 bit or 64 bit) ML1+ and fix for PMR 28176,070,729 referring to AIX V5.2 fix IY62648.
  – AIX Base System Locale ISO Code Set — U.S. English.
  – Java runtime (for AIX) V1.1.8, V1.3.0, or V1.3.1, or later.
  – IBM DataONTAP in one of the general availability versions (last version is 7.2).
  – The license for the features FCP, Flexible Volume Clone, and Snap Restore must be activated.
  – Logical volumes need to be of type JFS2.
  – AIX additional filesets: libgcc must be installed. It is part of the AIX Toolbox for Linux Applications. Refer to

    http://www-03.ibm.com/servers/aix/
    products/aixos/linux/ezinstall.html

  – IBM System Storage N series FCP AIX Host Attach Kit V1.3 (enables the configuration of an IBM AIX host to access LUNs on an IBM N series storage system)
  – SAP R/3 Release 4.5B to 4.6D or SAP NetWeaver with SAP kernel release 6.10 to 7.00
  – Tivoli Storage Manager API version as required by the Tivoli Storage Manager for Enterprise Resource Planning: Data Protection for SAP product
  – Tivoli Storage Manager Server V5.4
  – Tivoli Storage Manager for Storage Area Networks V5.3 for LAN-free restore to production system

- When using Oracle with SAP
  – Tivoli Storage Manager for Enterprise Resource Planning: Data Protection for SAP for Oracle (V5.4, or later) for AIX
  – Oracle V9.2 or 10g (64 bit) as supported by the respective SAP release
  – SAP DBA tools kernel release 6.20 with patch level 118+, 6.40 or 7.00 with according patch level

Note: On the backup system, only the SAP DBA tools and Oracle client code are required.

- When using DB2 UDB with SAP:
  - Tivoli Storage Manager for Enterprise Resource Planning: Data Protection for SAP for DB2 UDB (V5.4, or later) for AIX.
  - DB2 UDB Enterprise Server Edition V8.1 FP7, or later 32 bit or 64 bit).
  - DB2 UDB Enterprise Server Edition V8.2 or DB2 V9 FP1 or FP3, or later (64 bit) for DB2 V9 FP2. A special DB2 build is required for APAR IY95759.

DB2 UDB Integration Module V5.3.4.8

The DB2 UDB Integration Module is used in conjunction with the Hardware Devices Snapshot Integration Module and the Tivoli Storage Manager backup-archive Client.

- Hardware
  - Two or more System p or compatible servers, with 256 MB memory and 100 MB disk space (one or more for the production DB2 server, one or more for the offloaded data movement)
- Software
  - AIX V5.2 (32 bit or 64 bit) or V5.3 (32 bit or 64 bit)
  - DB2 UDB V8.2 (64 bit), or later
  - Tivoli Storage Manager AIX client V5.4.1.2, or later
  - Tivoli Storage Manager server V5.4.0. or later

Hardware Devices Snapshot Integration Module V5.3.4.8

- Hardware
  - For Enterprise Storage Server™:
    - -- IBM Enterprise Storage Server Model 800, with advanced FlashCopy feature, selected to match expected FlashCopy backup requirements
    - -- For current Enterprise Storage Server FlashCopy configuration guidelines, refer to the Enterprise Storage Server Web site

    http://www-03.ibm.com/servers/storage/disk/ess/index.html
  - For disk storage:
    - -- IBM System Storage DS6000 with microcode level 6.0.600.25, or later or IBM System Storage DS8000 with microcode level 6.1.600.52, or later
    - -- A machine with a processor supported by DS6000 or DS8000 with IBM Common Interface Model (CIM) Agent for DS Open API V5.1.0.67, or later V5.1.x levels, or V5.2.1 or later
  - For SAN Volume Controller (SVC):
    - -- IBM Total Storage SAN Volume Controller V2.1, or later, up to and including SVC 4.1 (includes the SAN Volume Controller Master Console)
- Software
  - AIX V5.2 (34 bit or 64 bit) ML9, or later, or V5.3 (34 bit or 64 bit) ML5, or later.
  - Pegasus Common Interface Model (CIM) Server V2.5.1.x and Base Providers according to the CIM Server version (available for download from IBM Director for AIX download site). Pegasus fileset names are sysmgt.pegasus.cimserver.rte and sysmgt.pegasus.osbaseproviders.
  - IBM CIM Agent for DS open API V5.1.0.17, or later.
  - Tivoli Storage Manager AIX client V5.4.1.2, or later.
  - Tivoli Storage Manager server V5.4.0, or later.
  - Required for IBM Enterprise Storage Server (ESS):
    - -- Enterprise Storage Server CopyServices CLI V1.5.2.1, or later

> **Note:** The incremental flashcopy function requires ESS CopyServices CLI V2.3.0, or later, and advanced FlashCopy feature.

- Required when using SAN Volume Controller (recommended when using disk storage):
  -- Subsystem Device Driver 1.6.0.2, or later
  -- Host Attachment Scripts 1.1.0.3, or later available at the following Web site

  http://www-1.ibm.com/support/docview.wss?uid=ssg1S4000341

IBM Tivoli Storage Manager for Copy Services

IBM Tivoli Storage Manager for Copy Services V5.5 contains the following components:

- Microsoft Exchange VSS Integration Module V5.5
- Microsoft SQL VSS Integration Module V5.5
- Hardware Devices Snapshot Integration Module V5.5

The hardware and software requirements for these components are explained below.

Microsoft Exchange VSS Integration Module V5.5

The Microsoft Exchange VSS Integration Module is used in conjunction with Data Protection for Microsoft Exchange and the Tivoli Storage Manager Windows client. Together, these implement the VSS requestor interface to drive the Microsoft Volume Shadow Copy Services for backup and recovery of Exchange. With the addition of the Hardware Devices Snapshot Integration Module, you can also get the VSS Instant Restore function on SVC, DS6000, and DS8000. This component is simply a license file. When this component is installed, it enables VSS operations within the Data Protection for Microsoft Exchange interfaces. Since the Microsoft Exchange VSS Integration Module requires Data Protection for Exchange, refer to the requirements for Data Protection for Exchange.

Microsoft SQL VSS Integration Module V5.5

The Microsoft SQL VSS Integration Module is used in conjunction with Data Protection for Microsoft SQL and the Tivoli Storage Manager Windows client. Together, these implement the VSS requestor interface to drive the Microsoft Volume Shadow Copy Services for backup and recovery of SQL. With the addition of the Hardware Devices Snapshot Integration Module, you can also get the VSS Instant Restore function on SVC, DS6000, and DS8000. This component is simply a license file. When this component is installed, it enables VSS operations within the Data Protection for Microsoft SQL interfaces. Since the Microsoft SQL VSS Integration Module requires Data Protection for SQL, refer to the requirements for Data Protection for SQL.

Hardware Devices Snapshot Integration Module V5.5

The Hardware Devices Snapshot Integration Module is used in conjunction with the Tivoli Storage Manager Windows client. Together, these implement the VSS Instant Restore functionality. Since the Hardware Devices Snapshot Integration Module requires the Tivoli Storage Manager V5.5 Windows client, refer to the requirements for the Tivoli Storage Manager V5.5 backup-archive Windows client.

The following software combinations are supported for basic VSS operations:

- Microsoft Windows 2003 (32 bit) with Exchange Server 2003
- Microsoft Windows 2003 (x64) with Exchange Server 2007
- Microsoft Windows 2003 (32 bit) with SQL Server 2005
- Microsoft Windows 2003 (x64) with SQL Server 2005
- Any VSS provider that is supported by the Microsoft rules for VSS providers

For VSS off-loaded backup operations:

- Any VSS provider that supports transportable shadow copies

For VSS Instant Restore operations:

- IBM System Storage VSS provider

VSS provider requirements

The VSS provider is the snapshot component used to create the volume shadow copies. This component may be implemented in software or in a VSS-capable storage subsystem that strictly adheres to the Microsoft VSS provider interface.

Refer to the documentation that was shipped with the VSS Provider in order to understand the software and hardware requirements of the VSS Provider.

Tivoli Storage Manager will support **any** VSS Provider that strictly adheres to the Microsoft VSS Provider interface.

The following VSS Providers were tested:

- Microsoft VSS system provider
- IBM System Storage DS series with IBM System Storage support for Microsoft Volume Shadow Copy Service
- IBM System Storage SAN Volume Controller with IBM System Storage support for Microsoft Volume Shadow Copy Service
- IBM System Storage N series with SnapDrive support for Microsoft Volume Shadow Services
- NetApp FAS series with SnapDrive support for Microsoft Volume Shadow Services
- For VSS Instant Restore function:
  - The Hardware Devices Snapshot Integration Module
  - IBM System Storage SAN Volume Controller V2.1.4, or later, with IBM System Storage support for Microsoft Volume Shadow Copy Service and Virtual Disk Services (includes the SAN Volume Controller Master Console) and IBM System Storage VSS Hardware Provider V2.5.0.1027 (32 bit), or V2.6.0.0529, or later (x64), or IBM System Storage DS6000 or DS8000 series with IBM System Storage support for Microsoft Volume Shadow Copy Service and IBM System Storage VSS Hardware Provider V2.5.0.1027 (32 bit), or V2.6.0.0529 (x64)

    The IBM System Storage support for Microsoft Volume Shadow Copy and Virtual Disk Services is provided in IBM System Storage DS Open API package 5.1.0.17. The following Web page describes IBM System Storage DS Open API

Companion products: Tivoli Storage Manager customers may consider purchasing IBM Tivoli Continuous Data Protection (CDP) for Files. Tivoli CDP for Files is a real-time, continuous data protection solution specifically designed for file servers and user end points. Tivoli Storage Manager can be used with Tivoli CDP for files to provide off-machine protection when a user is connected, so real-time backups still occur. Tivoli Storage Manager provides off-site copies of backup data for vaulting, auditable disaster recovery plan, and tape and media management.

Customers who have a SAN environment may consider purchasing IBM TotalStorage® Productivity Center in addition to Tivoli Storage Manager. The customer can benefit from the ability to more fully manage their storage environment, including backup and recovery, management of disk performance, management of the physical network of the SAN, logical connections between the devices, and capacity management of file systems and databases. Additionally, IBM TotalStorage Productivity Center for Data complements Tivoli Storage Manager. The customer who leverages these products will benefit from the ability to extend policies and file reports to directly initiate a Tivoli Storage Manager's backup or archive when certain threshold conditions are met, or in the case of file reports, if conditions deem it necessary.

Tivoli Storage Manager customers may consider purchasing IBM Tivoli Storage Process Manager. Tivoli Storage Process Manager delivers a set of customizable IT Infrastructure Library (ITIL)-aligned storage management processes. Automated workflows within Tivoli Storage Process Manager can help implement provisioning, data cleanup, and backup incident prioritization, by working with existing Tivoli storage products such as IBM TotalStorage Productivity Center, IBM Tivoli Storage Manager, and IBM Tivoli Provisioning Manager to perform the operational task, monitor status of the task, and verify completion of the task.

Limitations: Libraries that have more than four drives or more than 48 tape slots require the Tivoli Storage Manager Extended Edition license.

For additional information, refer to Usage restrictions in the Terms and conditions section of this announcement, or to the license information document that is available on the IBM Software License Agreement Web site

http://www.ibm.com/software/sla/sladb.nsf

Performance considerations: The Tivoli Storage Manager products' performance will vary depending upon a customer's particular configuration, the client/server options, and customization.

Planning information

Installability: Conversion

For the AIX, Solaris, Linux, Windows, and HP-UX servers, the Tivoli Storage Manager database is automatically upgraded during the installation of the Tivoli Storage Manager V5.5 server. After this database upgrade, the user can no longer run a previous version of the servers with the database.

As a normal precaution, it is recommended that a full database backup be performed before installing the V5.5 code, as well as after completing the installation. Refer to the Installation Guide manuals for more detailed information.

As part of a migration plan from Tivoli Storage Manager V5.4 to Tivoli Storage Manager V5.5, Tivoli Storage Manager clients and servers may be upgraded at different times. To help prevent disruption to the user's backup and archive activities during the migration, note the following:

- A Tivoli Storage Manager V5.4 client can perform backup, restore, archive, and retrieve functions to a Tivoli Storage Manager V5.5 server.

- A Tivoli Storage Manager V5.5 client can perform backup, restore, archive, and retrieve functions to a Tivoli Storage Manager V5.4 server.

- A Tivoli Storage Manager V5.4 HSM client can perform migrate and recall functions to a Tivoli Storage Manager V5.5 server.

- A Tivoli Storage Manager V5.5 HSM client can perform migrate and recall functions to a Tivoli Storage Manager V5.4 server.

- If you backup, archive, or migrate data from a Tivoli Storage Manager V5.3 or V5.4 client to any Tivoli Storage Manager server, you can restore, retrieve, or recall that data using a Tivoli Storage Manager V5.5 client, except for Windows system state data.

- If you backup, archive, or migrate data from a Tivoli Storage Manager V5.5 client, you can restore, retrieve, or recall that data using a Tivoli Storage Manager V5.4 client, except AIX JFS2 Encrypted File System (EFS) data, Windows system state data, Windows data, which was backed up using the long file/path name support enabled in Tivoli Storage Manager V5.5, and any data backed up or archived by the V5.5 Macintosh client.

- All command line administrative clients can administer Tivoli Storage Manager V5.4 and V5.5 servers.

For journal-based backup, online image backup, open file system, password file format, and Windows system state and long file/path name migration considerations, refer to the Installation and User's Guide for the specific platform.

SysBack migration information

- When upgrading from any SysBack V5.x level, you will not need to uninstall the product before installing SysBack V6.1.

- The installation process for SysBack V6.1 will preserve any previous product configurations when installed over any previous SysBack version.

- Backups created with any level of SysBack V5.x may be restored using SysBack V6.1.

- Backups created using SysBack V6.1 can not be restored using SysBack V5.

- Push backups:

  – SysBack V5.6.1 (or later) clients may send their backups over the network to file on disk or to the tape device of a SysBack V6.1 server.

- SysBack V5.6.1 (or later) client backups, using the CD and DVD backup option, are not supported with a SysBack V6.1 server.

- SysBack V6.1 client backups may not be sent to any SysBack V5.x server.

- Pull backups between SysBack V5.x and SysBack V6.1 clients and servers are not supported.

- When using SysBack's Network Boot and Installation features, the Network Boot server and the Network Install server must both use SysBack V6.1.

Additional migration information:

- The following Tivoli Storage Manager server operating systems, supported in V5.4, were not migrated to V5.5 and are not supported in V5.5:
  - z/OS V1R4, V1R5, and V1R6
  - HP-UX 11i v1 and HP-UX 32 bit, all versions
  - AIX V5.1 and AIX 32 bit, all versions
  - Solaris 8
  - Red Hat Enterprise Linux Server 3
  - SLES 8
  - Red Flag 4.1/Asianux 1.0
  - Windows 2000

- The following Tivoli Storage Manager SAN storage agent operating systems, supported in V5.4, were not migrated to V5.5 and are not supported in V5.5:
  - HP-UX 11i v1 and HP-UX 32 bit, all versions
  - AIX 5.1 and AIX 32 bit, all versions
  - Solaris 8
  - Red Hat Enterprise Linux Server 3
  - SLES 8
  - Red Flag 4.1/Asianux 1.0
  - Windows 2000

- The following clients or client operating system levels were not migrated to V5.5. The V5.4 clients that support these operating systems can be used with the V5.5 Tivoli Storage Manager servers for as long as V5.4 is in support.
  - Macintosh 10.4
  - AIX V5.2

- The V5.4 clients can be downloaded from the Tivoli Storage Manager Web page at

  http://www.ibm.com/software/sysmgmt/prod
  ucts/support/IBMTivoliStorageManager.html

- The following Tivoli Storage Manager for System Backup and Recovery (SysBack) operating system, supported in V5.6.5, was not migrated to V6.1 and is not supported in V6.1:
  - AIX V5.1

- The following Data Protection software, supported in V5.4, was not migrated to V5.5 and is not supported in V5.5:
  - AIX 5.1
  - HP-UX PA-RISC 11i v1
  - OS/400 V5R2
  - Solaris 8
  - Red Hat Enterprise Linux 3
  - SLES 8

- Red Flag 4.1
- Windows 2000
- z/OS V1R4, V1R5, V1R6

For Tivoli Storage Manager for Databases

- Microsoft SQL 7.0
- Microsoft SQL Server 2000
- Microsoft Windows NT™ Server
- Microsoft Windows 2000 Server

For Tivoli Storage Manager for Mail

- Lotus Domino R5
- Microsoft Exchange Server V5.5
- Microsoft Exchange Server 2000
- Microsoft Windows NT Server
- Microsoft Windows 2000 Server

For Tivoli Storage Manager for Advanced Copy Services

- The Data Protection for ESS/Oracle and Data Protection for ESS/SAP components are not included in Tivoli Storage Manager for Advanced Copy Services V5.4. Customers who were using the ESS components can continue to use them. They should retain the modules as long as necessary to restore data that had been backed up. Data that was backed up with Data Protection for ESS/Oracle or SAP cannot be restored by the Data Protection for DS6000, DS8000, and SVC/Oracle or FlashCopy Devices/SAP components.

Software Maintenance is included with licenses purchased through Passport Advantage® and Passport Advantage Express. Product upgrades and technical support are provided by the Software Maintenance offering as described in the Agreements. Product upgrades provide the latest versions and releases to entitled software and technical support provides voice and electronic access to IBM support organizations, worldwide.

IBM includes one year of Software Maintenance with each program license acquired. The initial period of Software Maintenance can be extended by the purchase of a renewal option, if available.

Packaging: Tivoli Storage Manager is distributed with:

- Product CD-ROMs
- Quick Start Guide hardcopy (in English, French, Japanese)
- Quick Start Guide CD-ROM (in English, French, Japanese)

Tivoli Storage Manager Extended Edition is distributed with:

- Product CD-ROMs
- Quick Start Guide hardcopy (in English, French, Japanese)
- Quick Start Guide CD-ROM (in English, French, Japanese)

Tivoli Storage Manager for Storage Area Networks is distributed with:

- Product CD-ROMs
- Quick Start Guide hardcopy (in English, French, Japanese)
- Quick Start Guide CD-ROM (in English, French, Japanese)

Tivoli Storage Manager for Space Management is distributed with:

- Product CD-ROMs

- Quick Start Guide hardcopy (in English, French, Japanese)
- Quick Start Guide CD-ROM (in English, French, Japanese)

Tivoli Storage Manager HSM for Windows is distributed with:

- Product CD-ROMs
- Quick Start Guide hardcopy (in English, French, Japanese)
- Quick Start Guide CD-ROM (in English, French, Japanese)

Tivoli Storage Manager for System Backup and Recovery is distributed with:

- Product CD-ROMs
- Quick Start Guide hardcopy (in English, French, Japanese)
- Quick Start Guide CD-ROM (in English, French, Japanese)

System Storage Archive Manager is distributed with:

- Product CD-ROMs
- Quick Start Guide hardcopy (in English, French, Japanese)
- Quick Start Guide CD-ROM (in English, French, Japanese)

Tivoli Storage Manager for Mail is distributed with:

- Product CD-ROMs
- Quick Start Guide hardcopy (in English, French, Japanese)
- Quick Start Guide CD-ROM (in English, French, Japanese)

Tivoli Storage Manager for Databases is distributed with:

- Product CD-ROMs
- Quick Start Guide hardcopy (in English, French, Japanese)
- Quick Start Guide CD-ROM (in English, French, Japanese)

Tivoli Storage Manager for Copy Services is distributed with:

- Product CD-ROMs
- Quick Start Guide hardcopy (in English, French, Japanese)
- Quick Start Guide CD-ROM (in English, French, Japanese)

Tivoli Storage Manager for Advanced Copy Services is distributed with:

- Product CD-ROMs
- Quick Start Guide hardcopy (in English, French, Japanese)
- Quick Start Guide CD-ROM (in English, French, Japanese)

Tivoli Storage Manager for ERP is distributed with:

- Product CD-ROMs
- Quick Start Guide hardcopy (in English, French, Japanese)
- Quick Start Guide CD-ROM (in English, French, Japanese)

Tivoli Storage Manager for z/OS USS Client and API is distributed with:

- Product tape

- Tivoli Storage Manager for z/OS USS Backup-Archive Client Program Directory

- Tivoli Storage Manager for z/OS USS API Program Directory

Security, auditability, and control

The Tivoli Storage Manager products use the security and auditability features of the operating system software. The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

Software Services

IBM Software Services has the breadth, depth, and reach to manage your services needs. You can leverage the deep technical skills of our lab-based, software services team and the business consulting, project management, and infrastructure expertise of our IBM Global Services team. Also, we extend our IBM Software Services reach through IBM Business Partners to provide an unmatched portfolio of capabilities. Together, we provide the global reach, intellectual capital, industry insight, and technology leadership to support any critical business need.

To learn more about IBM Software Services or to contact a Software Services sales specialist, visit

http://www.ibm.com/software/sw-services/

IBM Tivoli Enhanced Value-Based Pricing

IBM Tivoli software products are priced using IBM Tivoli's Enhanced Value-Based Pricing. The Enhanced Value-Based Pricing system is based upon the IBM Tivoli Environment-Managed Licensing Model, which uses a managed-environment approach — whereby price is determined by what is managed rather than the number and type of product components installed. For example, all servers monitored with IBM Tivoli's monitoring product (IBM Tivoli Monitoring) require entitlements sufficient for those servers. Other IBM Tivoli products may manage clients, client devices, agents, network nodes, users, or other items, and are licensed and priced accordingly.

Unlike typical systems management licensing models that require entitlements of specific software components to specific systems, the IBM Tivoli Environment-Managed Licensing Model provides the customer flexibility to deploy its IBM Tivoli software products within its environment in a manner that can address and respond to the customer's evolving architecture. That is, as the architecture of a customer's environment changes, the customer's implementation of IBM Tivoli software can be altered as needed without affecting the customer's license requirements (as long as the customer does not exceed its entitlements to the software).

Under Enhanced Value-Based Pricing, licensing and pricing of server-oriented applications are determined based upon the server's use in the customer's environment. Typically, such applications are licensed and priced in a manner that corresponds to each installed and activated processor of the server managed by the IBM Tivoli application to help correlate price to value while offering a simple solution.

For servers with physical or logical partitions (sometimes called virtual), entitlements are required for all installed and activated processors on the server. For each IBM Tivoli application managing a clustered environment, licensing is based on the cumulative number of installed and activated processors on each server in the cluster.

Enhanced Value-Based Pricing recognizes the convergence of RISC/UNIX and Microsoft Windows/Intel technologies, in order to simplify the customers licensing requirements, and to provide a smoother, more scalable model. Pricing and licensing does not differentiate between non-zSeries server platforms or operating systems. For some products, this platform neutrality extends to zSeries and other host servers as well.

IBM Tivoli Enhanced Value-Based Pricing terminology definitions

Client device or client

A client device is a computer system that requests the execution of a set of commands, procedures, or applications from another computer system that is typically referred to as a server. Multiple client devices may share access to a common server. A client device generally has some processing capability or is programmable to allow a user to do work. Examples include, but are not limited to, notebook computers, desktop computers, desk side computers, technical workstations, appliances, automated teller machines, point-of-sale terminals, tills and

cash registers, and kiosks.

Engine

An engine is also referred to as a central processor (CP) or processor. Engines for traditional workloads are called General Purpose CPs. Engines for Linux workloads are called Integrated Facility for Linux (IFL) engines or Linux-only engines. Engines for Coupling Facility workloads are called Integrated Coupling Facility (ICF) engines.

IBM IFL

This optional facility enables additional processing capacity exclusively for Linux workload, with no effect on the model designation of a System z or OS/390 server. Consequently, executing Linux workload on the IBM IFL will not, in most cases, result in any increased IBM software charges for z/OS, OS/390, VM, VSE, or TPF operating systems/applications. There is, as indicated, a charge associated with the IFL, and there may also be a charge for applications which run on the IFL. The IFL may be dedicated to a single Linux-mode logical partition or it may be shared by multiple Linux-mode logical partitions. Installations should note that the Linux workspace enabled by this facility will not support any of the S/390 traditional operating systems (OS/390, TPF, VSE, or VM). Only Linux applications or Linux operating in conjunction with the Virtual Image Facility™, an environment that operates within a logical partition or in native S/390 mode and provides the capability to create multiple Linux images, are supported by the IBM S/390 IFL.

Managed processor (charging under full capacity in the managed environment)

Charges are based on the active processors on the machines in the computing environment affiliated with the program rather than on the server where the program is run. The managed processors which require PoE are defined in the License Information's program unique terms.

Notes:

1. IBM defines a physical processor in a computer as a functional unit that interprets and executes instructions. A physical processor consists of at least an instruction control unit and one or more arithmetic and logic units.

2. Multicore technology allows two or more processors (commonly called cores) to be active on a single silicon chip. With multicore technology, IBM considers each core to be a physical processor. For example, in a dual-core chip, there are two physical processors residing on the single silicon chip.

3. The program may **not run** on **some or all** of the processors for which PoEs are required for the program's valuation method.

4. In the System z IFL environment, each IFL engine is considered a single physical processor.

5. Threading, a technique that makes a single processor seem to perform as two or more, does **not** affect the count of physical processors.

6. Where blade technology is employed, each blade is considered a separate server and charging is based upon the total number of processors on the blades with which the program is affiliated.

7. Not all processors require the same number of Value Unit entitlements. To determine the number of Value Unit entitlements required, refer to the processor Value Unit conversion table on the Passport Advantage Web site

    http://www.ibm.com/software/passportadvantage

Partitions

A server's resources (CPU, memory, I/O, interconnects and buses) may be divided according to the needs of the applications running on the server. This partitioning can be implemented with physical boundaries (Physical Partitions) or logical boundaries (Logical Partitions).

Physical Partitions are defined by a collection of processors dedicated to a workload and can be used with systems that have either multiple cards or multiple frames, each of which can be configured independently. In this method, the partitions are divided along hardware boundaries and processors, and the I/O boards, memory, and interconnects are not shared.

Logical Partitions are defined by software rather than hardware and allocate a pool of processing resources to a collection of workloads. These partitions, while separated by software boundaries, share hardware components and run in one or more physical partitions.

Processor (per processor charging under full capacity)

In full capacity charging, PoEs must be acquired for all activated processors (available for use) that are on the server where the program or a component of the program is run.

Notes:

1. IBM defines a physical processor in a computer as a functional unit that interprets and executes instructions. A physical processor consists of at least an instruction control unit and one or more arithmetic and logic units.

2. Multicore technology allows two or more processors (commonly called cores) to be active on a single silicon chip. With multicore technology, IBM considers each core to be a physical processor. For example, in a dual-core chip, there are two physical processors residing on the single silicon chip.

3. In System z IFL environment, each IFL engine is considered a single physical processor.

4. Threading, a technique that makes a single processor seem to perform as two or more, does **not** affect the count of physical processors.

5. Where blade technology is employed, each blade is considered a separate server and charging is based upon the total number of processors on the blade on which the program is run.

6. When a server is shipped with six processors, but two of them are inactive, four processors are active for the customer.

7. Not all processors require the same number of Value Unit entitlements. To determine the number of Value Unit entitlements required, refer to the processor Value Unit conversion table on the Passport Advantage Web site

     http://www.ibm.com/software/passportadvantage

Server

A server is a computer system that executes requested procedures, commands, or applications to one or more user and/or client devices over a network. A PoE must be obtained for each server on which the program or a component of the program is run or for each server managed by the program. Where blade technology is employed, each blade is considered a separate server.

Terabytes (TB)

One TB of managed storage = 2 raised to the power of 40 bytes = 1,099,511,627,776 bytes, or approximately a trillion bytes.

IBM Tivoli Storage HSM for Windows TB capacity — Includes primary HSM disk storage pool size combined with the amount of utilized HSM removable media storage pool. Storage pools are configured on the IBM Tivoli Storage Manager server.

IBM System Storage Archive Manager TB capacity — Includes primary disk storage pool size combined with the amount of utilized primary removable media storage used by the IBM System Storage Archive Manager server.

Capacity notes

- Capacity does not include:
  - Copy storage pools for the space-managed data that reside on disk.
  - Copy storage pools for the space-managed data that reside on removable media.
  - Space used on the IBM Tivoli Storage Manager server for any purpose other than the primary storage of space-managed data.
  - Disk on the host being space managed.
- A virtual tape library (VTL) is considered a removable media device, so capacity is based on utilization.
- The minimum amount of capacity that can be purchased is 1 TB.
- Partial capacity will be rounded up to the next whole number of TB.
- Additional capacity must be added in increments of 1 TB

Standby or backup systems

For programs running or resident on backup machines, IBM defines three types of situations: cold, warm, and hot. In the cold and warm situations, a separate entitlement for the copy on the backup machine is normally not required and typically no additional charge applies. In a hot backup situation, the customer needs to acquire another license or entitlements sufficient for that server. All programs running in backup mode must be solely under the customer's control, even if running at another enterprise's location.

As a practice, the following are definitions and allowable actions concerning the copy of the program used for backup purposes.

Cold — A copy of the program may reside, for backup purposes, on a machine as long as the program is not started. There is no additional charge for this copy.

Warm — A copy of the program may reside for backup purposes on a machine and is started, but is idling, and is not doing any work of any kind. There is no additional charge for this copy.

Hot — A copy of the program may reside for backup purposes on a machine, is started, and is doing work. The customer must acquire a license or entitlements for this copy and there will generally be an additional charge.

Doing work includes, for example, production, development, program maintenance, and testing. It also could include other activities such as mirroring of transactions, updating of files, synchronization of programs, data or other resources (for example, active linking with another machine, program, database, or other resource, and so on), or any activity or configurations that would allow an active hot switch or other synchronized switch over between programs, databases, or other resources to occur.

In the case of a program or system configuration that is designed to support a high availability environment by using various techniques (for example, duplexing, mirroring of files or transactions, maintaining a heartbeat, active linking with another machine, program, database, or other resource, and so on), the program is considered to be doing work in the hot situation and a license or entitlement must be purchased.

Value Units

A Value Unit is a pricing charge metric for program license entitlements which is based upon the quantity of a specific designated measurement used for a given program. Each program has a designated measurement. The most commonly used designated measurements are processor cores and MSUs. However, for select programs, there are other designated measurements such as Servers, users, client devices, and messages. The number of Value Unit entitlements required for your specific implementation of the given program must be obtained from a conversion table associated with the program. You must obtain a PoE for the appropriate number of Value Unit entitlements for your implementation. The Value Unit entitlements of a given program cannot be exchanged, interchanged, or aggregated with Value Unit entitlements of another program. Whenever the designated measurement is a processor core, not all processors require the same number of Value Unit entitlements. To determine the number of Value Unit entitlements required, refer to the processor Value Unit conversion table on the Passport Advantage Web site

http://www.ibm.com/software/passportadvantage

Product and licensing Web sites

A complete list of IBM Tivoli products is available at Web site

http://www.ibm.com/software/tivoli

IBM Tivoli product licensing documents are available at Web site

http://www.ibm.com/software/tivoli/products/licensing.html

Passport Advantage

Through the Passport Advantage Agreement, customers may receive discounted pricing based on their total volume of eligible products, across all IBM brands, acquired worldwide. The volume is measured by determining the total Passport Advantage points value of the applicable acquisitions. Passport Advantage points are only used for calculating the entitled Passport Advantage discount.

To determine the required Tivoli product configuration under Passport Advantage, the Tivoli Enhanced Value-Based Pricing Model applies. The customer's environment is evaluated on a per-product basis.

Use the following two-step process to determine the total Passport Advantage points value:

1. Analyze the customer environment to determine the number of charge units for a product. The quantity of each product's part numbers to be ordered is determine by that analysis.

2. Order the Passport Advantage part numbers. A Passport Advantage point value, which is the same worldwide for a specific part number regardless of where the order is placed, is assigned to each Tivoli product part number. The Passport Advantage point value for the applicable part number multiplied by the quantity for that part number will determine the Passport Advantage points for that Tivoli product part number. The sum of these Passport Advantage points determines the Passport Advantage point value of the applicable Tivoli product authorizations which then may be aggregated with the point value of other applicable Passport Advantage product acquisitions to determine the total "Passport Advantage points value."

The discounted pricing available through Passport Advantage is expressed in the form of Suggested Volume Prices (SVPs), which vary depending on the SVP level. Each SVP level is assigned a minimum total Passport Advantage point value, which must be achieved, in order to qualify for that SVP level.

Media packs and documentation packs do not carry Passport Advantage points and are not eligible for SVP discounting.

For additional information on Passport Advantage, refer to the following Web site

http://www.ibm.com/software/passportadvantage

The following Passport Advantage part number categories may be orderable:

- License and Software Maintenance 12 Months — this is the product authorization with maintenance to the first anniversary date.

- Annual Software Maintenance Renewal — this is the maintenance renewal for one anniversary that applies when a customer renews their existing coverage period prior to the anniversary date at which it expires.

- Software Maintenance Reinstatement 12 months — this is for customers who have allowed their Software Maintenance to expire, and later wish to reinstate their Software Maintenance.

- Media packs — these are the physical media, such as CD-ROMs, that deliver the product's code.

- Documentation packs — these contain printed documentation such as the User's Guide and Release Notes.

Tivoli Storage Manager pricing examples (processor and processor Value Unit based)

The following examples are provided to illustrate the customer's licensing requirements.

References to processor-based licensing **do not** represent the actual number of entitlements required. Entitlement requirements are Value Unit-based. Processors referenced in these examples represent the designated measurement on which the required number of Value Unit entitlements will be calculated. The number of Value Units required per processor will depend on the processor type. For more information refer to the Value Unit definition in the IBM Tivoli Enhanced Value-Based Pricing terminology definitions. To determine the number of Value Unit entitlements required per processor, refer to the processor Value Unit conversion table on the Passport Advantage Web site

http://www.ibm.com/software/passportadvantage

Pricing examples: Notes:

- Licensing for Tivoli Storage Manager is per processor core in the servers where IBM Tivoli Storage Manager server code is installed **and** the servers from which data is being backed up.

- IBM Tivoli Storage Manager supports libraries with up to 4 drives and 48 slots. To use tape libraries using more than 4 drives and 48 slots, the customer must acquire a PoE for IBM Tivoli Storage Manager Extended Edition.

- No mixing of IBM Tivoli Storage Manager and IBM Tivoli Storage Manager Extended Edition

processor entitlements is permitted on servers residing at the same site. A site must have all Storage Management server processor entitlements at **either** the IBM Tivoli Storage Manager or IBM Tivoli Storage Manager Extended Edition level.

- Client entitlements (notebooks, desktops, technical workstations) for IBM Tivoli Storage Manager and IBM Tivoli Storage Manager Extended Edition are interchangeable.

- IBM Tivoli Storage Manager and IBM Tivoli Storage Manager Extended Edition charge for all servers and clients that feed into a managed server.

The following customer network (referred to as the core environment) applies to all of the examples to enable the reader to see where products tend to manage something less than the entire environment. The customer's overall core environment includes:

Distributed servers

- 20 uniprocessors

- 65 2-way servers

- 12 4-way servers

- One 8-way server

- One 12-way server with two virtual or logical partitions

- One 14-way server

- One 16-way Sun Ultra server with two 8-way physical partitions (only one of which is managed by IBM Tivoli applications)

- One 24-way server

- One z800 server with two uniprocessor IFLs running Linux (for example, Linux on System z)

    Note: Linux on System z offerings may not be available for all IBM Tivoli products. This licensing example assumes such availability. Linux on System z offerings have distinctly orderable part numbers in Passport Advantage, and should be used when ordering entitlements for IFLs running Linux.

    If pricing products without a Linux on System z offering, you should exclude the z800 server entitlement requirement indicated below.

The customer wants to manage the applicable distributed server environment, which requires Value Unit entitlements associated with the following number of processors:

Systems managed	Quantity in customer environment	Processors to be licensed
Uniprocessor	20	20
2-way	65	130
4-way	12	48
8-way	1	8
12-way (two logical partitions)	1	12
14-way	1	14
16-way (two physical partitions, one of which is managed by IBM Tivoli applications)	1	16
24-way	1	24
z800 server with 2 uniprocessor IFLs (requires Linux on System z availability)	1	2
Total processor to be licensed		274

The customer's overall environment also includes:

- 100 network nodes between Site 1 and Site 2

- Tape library with 3 drives and 36 slots at Site 2

Scenario 1: The customer wants to do basic archiving and retrieval for all of the LAN-connected servers in its network. One of the 4-way servers is the managing server at Site 1, and the z800 server acts as the managing server at Site 2. The customer plans to backup 20 clients (that is, technical workstations, desktops, and so forth) at Site 2. In addition, it wants to take advantage of the application-specific features required to backup ten 2-way database servers (five SQL servers and five Oracle servers).

The customer must obtain the following entitlements for IBM Tivoli Storage Manager:

Systems managed	Quantity in customer environment	Total Client entitlements required
Clients	20	20
Total client entitlements		20

The customer must obtain the following entitlements for IBM Tivoli Storage Manager for Databases:

Systems managed	Quantity in customer environment	Processor entitlements required
2-way	10	20
Total processor entitlements		20

Note: Licensing is valid for any database application supported by Tivoli Storage Manager for Databases. IBM Tivoli Storage Manager or Tivoli Storage Manager Extended Edition is required for each system with a database managed by Tivoli Storage Manager for Databases.

Scenario 2: The customer adds a SAN (IBM Tivoli Storage Manager for Storage Area Networks) to Site 1, and must obtain the following entitlements:

Systems managed	Quantity in customer environment	Processor entitlements required
Uniprocessor	20	20
2-way	65	130
4-way	12	48
Total processor entitlements		198

Notes:

- The customer is allowed to use IBM Tivoli Storage Manager for Storage Area Networks in an IBM Tivoli Storage Manager environment without the need to upgrade to Extended Edition. Licensing for IBM Tivoli Storage Manager for Storage Area Networks is in addition to IBM Tivoli Storage Manager or IBM Tivoli Storage Manager Extended Edition.

- LAN-free to disk support is available for specific IBM Tivoli Storage Manager systems, which are listed on the product Web pages. The customer's use of Tivoli SANergy components, included with IBM Tivoli Storage Manager for Storage Area Networks, is limited to use of LAN-free backup and restore to disk, in conjunction with its licensed use of IBM Tivoli Storage Manager for Storage Area Networks. The Tivoli SANergy components included with IBM Tivoli Storage Manager for Storage Area Networks may not be used for any other purpose.

Scenario 3: The customer wants to implement IBM Tivoli Storage Manager Extended Edition at Site 2 for access to features like disaster recovery and large library support. The customer also realizes a need for improved space management capabilities at Site 2 on the distributed and Linux servers. The customer must obtain the following entitlements for IBM Tivoli Storage Manager Extended Edition:

                         Quantity in   Processor

Systems managed	customer environment	entitlements required
8-way	1	8
12-way (two logical partitions)	1	12
14-way	1	14
16-way (two physical partitions, one of which is managed by Tivoli applications)	1	16
24-way	1	24
z800 server with 2 uniprocessor IFLs	1	2
Total processor entitlements		76

Notes

- The 68 processors to IBM Tivoli Storage Manager Extended Edition will be a **trade-up** from IBM Tivoli Storage Manager.

- The customer will not have to trade-up its 20 Tivoli Storage Manager clients for use with the Extended Edition, since the client entitlements for IBM Tivoli Storage Manager and IBM Tivoli Storage Manager Extended Edition are interchangeable.

The customer must obtain the following entitlements for IBM Tivoli Storage Manager for Space Management:

Systems managed	Quantity in customer environment	Processor entitlements required
8-way	1	8
12-way (two logical partitions)	1	12
14-way	1	14
16-way (two physical partitions, one of which is managed by Tivoli applications)	1	16
24-way	1	24
z800 server with 2 uniprocessor IFLs	1	2
Total processor entitlements		76

For pricing examples for IBM Tivoli Storage Manager HSM for Windows, refer to Software Announcement 205-209, dated September 6, 2005.

For pricing examples for IBM System Storage Archive Manager, refer to Software Announcement 205-210, dated September 6, 2005.

For pricing examples for IBM Tivoli Storage Manager for Copy Services and for Advanced Copy Services, refer to Software Announcement 206-058, dated March 14, 2006.

For pricing examples for IBM Tivoli Storage Manager Express products, refer to Software Announcement 206-060, dated March 14, 2006.

Ordering information

```
Product group: Tivoli Storage Manager
Product: IBM Tivoli Storage Manager (5608-ISM)
Product category: Tivoli Storage Manager
```

```
Product group: Tivoli Storage Manager
Product: IBM Tivoli Storage Manager Extended Edition (5608-ISX)
Product category: Tivoli Storage Manager Extended Edition

Product group: Tivoli Storage Manager
Product: IBM Tivoli Storage Manager for Storage Area Networks
        (5608-SAN)
Product category: Tivoli Storage Manager for SAN

Product group: Tivoli Storage Manager
Product: IBM Tivoli Storage Manager for Space Management (5608-HSM)
Product category: Tivoli Storage Manager for Space Management

Product group: Tivoli Storage Manager
Product: IBM Tivoli Storage Manager HSM for Windows (5608-SPM)
Product category: Tivoli Storage Manager HSM for Windows

Product group: IBM Tivoli Storage Manager
Product: IBM Tivoli Storage Manager for System Backup and Recovery
(5608-E08)
Product category: Tivoli Storage Manager for SysBack

Product group: IBM Tivoli Storage Manager
Product: IBM Tivoli System Storage Archive Manager (5608-ARM)
Product category: Tivoli System Storage Archive Manager

Product group: IBM Tivoli Storage Manager
Product: IBM Tivoli Storage Manager for Mail (5608-APE)
Product category: Tivoli Storage Manager for Mail

Product group: IBM Tivoli Storage Manager
Product: IBM Tivoli Storage Manager for Databases (5608-APD)
Product category: Tivoli Storage Manager for Databases

Product group: IBM Tivoli Storage Manager
Product: IBM Tivoli Storage Manager for Copy Services (5608-CSS)
Product category: Tivoli Storage Manager for Copy Services

Product group: IBM Tivoli Storage Manager
Product: IBM Tivoli Storage Manager for Advanced Copy Services (5608-ACS)
Product category: Tivoli Storage Manager for Advanced Copy Services

Product group: IBM Tivoli Storage Manager
Product: IBM Tivoli Storage Manager for Enterprise Resource Planning
        (5608-APR)
Product category: Tivoli Storage Manager for ERP

Product group: Tivoli Storage Manager
Product: IBM Tivoli Storage Manager for z/OS USS Client and API
        (5698-USS)
Product category: Tivoli Storage Manager for z/OS USS Client and API
```

Value Unit: A Value Unit is a pricing charge metric for program license entitlements, which is based upon the quantity of a specific designated measurement used for a given program. Each program has a designated measurement. The most commonly used designated measurement is a processor core. However, for select programs, there are other designated measurements such as users, client devices, and messages. The number of Value Unit entitlements required for a program depends on how the program is deployed in your environment and must be obtained from a Value Unit table. You must obtain a PoE for the calculated number of Value Unit entitlements for your implementation. The Value Unit entitlements are specific to a program and may not be exchanged, interchanged, or aggregated with Value Unit entitlements of another program.

A processor core is a functional unit within a computing device that interprets and executes instructions. A processor core consists of at least an instruction control unit and one or more arithmetic or logic unit. Not all processor cores require the same number of Value Unit entitlements. To calculate the number of Value Unit entitlements required, refer to the Value Unit Table on the following Web site

    http://www.ibm.com/software/sw
    -lotus/services/cwepassport.ns
    f/wdocs/pvu_table_for_customers

With full capacity licensing, a PoE must be acquired for the appropriate number of Value Units based on all activated processor cores available for use on the server.

Ordering z/OS through the Internet

ShopzSeries provides an easy way to plan and order your z/OS ServerPac or CBPDO. It will analyze your current installation, determine the correct product migration, and present your new configuration based on z/OS. Additional products can also be added to your order (including determination of whether all product requisites are satisfied). ShopzSeries is available in the U.S. and several countries in Europe. In countries where ShopzSeries is not available yet, contact your IBM representative (or IBM Business Partner) to handle your order via the traditional IBM ordering process. For more details and availability, visit the ShopzSeries Web site at

http://www.software.ibm.com/web
app/ShopzSeries/ShopzSeries.jsp

Passport Advantage customer: Media pack entitlement details

Customers with active maintenance or subscription for the products listed below are entitled to receive the corresponding media pack.

```
Media packs description and
entitled maintenance offerings                              Part number

IBM Tivoli Storage Manager V5.5
  Media Pack - Multilingual                                 BJ0LEML
    Tivoli Storage Mgr Proc zLinux
    Tiv Storage Mgr S/390 Lnx TMP
    Tivoli Storage Manager Client
    5697TSM TSM Client
    5697TSM TSM Nwk Enabler-Nt/OS2 Svr
    5697TSM TSM Extn Dev Spt-Nt/OS2 Svr
    5697Sma Tiv Dsg Storage Mgt Anl Svr
    5697TSM TSM Extn Dev Spt-Unix Svr
    5697TSM TSM Open Sys Env As/400 Svr
    5697TSM TSM Open Sys Env Nt/OS2 Svr
    5697TSM TSM Network Enabler-Unix Svr
    5697TSM TSM UNIX Svr
    5697TSM TSM Open Sys Env Unix Svr
    5697TSM TSM As/400 Server
    5697TSM TSM Nt/OS2 Server
    Tiv Storage Mgr TMP
    Tivoli Storage Mgr Proc
    Tivoli Storage Mgr Host Edition Proc
    Tiv Storage Manager zSeries 390 TMP
    Tivoli Storage Mgr 10 VU zLinux
    Tivoli Storage Mgr 10 VU

IBM Tivoli Storage Manager Extended Edition V5.5
  Media Pack - Multilingual                                 BJ0LFML
    Tivoli Data Protectn NDMP Tmp
    Tiv Disaster Recovery Mgr Tmp
    Tiv Stor Mgr Entpr Ed Client
    5697SPM Tivoli Space Mgr Nt/OS2 Server
    5697-DRM Tivoli Disaster Recovery Manager As/400 Server
    5697-DRM Tivoli Disaster Recovery Manager Unix Server
    5697-SPM Tivoli Space Manager As/400 Server
    5697-SPM Tivoli Space Manager Unix Server
    5697-DRM Tivoli Disaster Recovery Manager NT Server
    Tivoli Storage Manager Entpr Edition Host Edition Proc
    Tivoli Storage Manager Extended Proc
    Tivoli Storage Manager Extended Client
    Tivoli Storage Manager Extended zSeries Proc
    Tivoli Storage Manager Extended zSeries Client
    Tivoli Storage Manager Extend Proc zLinux
    Tivoli Storage Manager Extended 10 VU
    Tivoli Storage Manager Extend 10 VU zLinux
    Tivoli Space Manager TMP
    Tivoli Storage Manager TM
    Tivoli Storage Mgr Host Edition Proc
```

```
IBM Tivoli Storage Manager for Storage Area Networks V5.5
  Media Pack - Multilingual                              BJOLGML
   Tiv Sanergy File Sharing TMP
   Tiv Stor Mgr Str Area Ntwk Proc
   Tiv Stor Mgr Str Area Ntwk Cli
   Tiv Stor Mgr Str Area Ntwk 10 VU

IBM Tivoli Storage Manager for Space Management V5.5
  Media Pack - Multilingual                              BJOLHML
   Tiv Stor Mgr Entpr Ed Proc
   Tiv Stor Mgr Space Mgt Mgd Proc
   Tiv Stor Mgr Space Mgt Mgd 10 VU
   Tiv Space Mgr TMP

IBM Tivoli Storage Manager HSM for Windows V5.5
  Media Pack - Multilingual                              BJOLIML
   Tivoli Storage Manager HSM Windows Terabyte

IBM Tivoli Storage Manager for System Backup and Recovery
  V6.1
  Media Pack - English                                   BJOK2IE
   Tiv Stor Mgr Sys Bck Recov Proc
   Tiv Stor Mgr Sys Bck Recov 10 VU

IBM Tivoli System Storage Archive Manager V5.5
  Media Pack - Multilingual                              BJOLJML
   System Storage Archive Manager Terabyte
   System Storage Archive Manager Terabyte (1-12)
   System Storage Archive Manager Terabyte (13-32)
   System Storage Archive Manager Terabyte (33-64)
   System Storage Archive Manager Terabyte (65-100)
   System Storage Archive Manager Terabyte (101-250)
   System Storage Archive Manager Terabyte (251+)

IBM Tivoli Storage Manager for Mail V5.5
  Media Pack - Multilingual                              BJOLKML
   Tivoli Data Protection Lotus Domino TMP
   Tivoli Data Protection MicroSoft Exchange TMP
   5697-DPX Tivoli Data Protection Exchange Server
   5697-DPD Tivoli Data Protection Lotus Domino Unix Server
   5697-DPD Tivoli Data Protection Lotus Domino NT Server
   Tivoli Storage Manager Mail Mgd Proc zLinux
   Tivoli Storage Manager Mail Mgd Proc
   Tivoli Storage Manager Mail 10 VU zLinux
   Tivoli Storage Manager Mail 10 VU
   Tivoli Storage Manager Mail Host Edition Proc

IBM Tivoli Storage Manager for Databases V5.5
  Media Pack - Multilingual                              BJOLLML
   Tivoli Data Protection Informix™ TMP
   Tivoli Data Protection Microsoft SQL TMP
   Tivoli Data Protection Oracle TMP
   5697-DPO Tivoli Data Protection Oracle NT Server
   5697-DPI® Tivoli Data Protection Informix-Unix Server
   5697-DPS Tivoli Data Protection MicroSoft SQL Server
   5697-DPO Tivoli Data Protection Oracle Unix Server
   Tivoli Storage Manager Dbs Mgd Proc
   Tivoli Storage Manager Dbs 10 VU

IBM Tivoli Storage Manager for Copy Services V5.5
  Media Pack - Multilingual                              BJOLMML
   Tiv Storage Manager for CSS Mgd Prc
   Tiv Storage Manager for CSS 10 VU

IBM Tivoli Storage Manager for Advanced Copy Services V5.5
  Media Pack - Multilingual                              BJOLNML
   Tivoli Data Protect ESS Dbases Tmp
   Tivoli Data Protect Tdp ESS R3-Or Tmp
   Tivoli Storage Mgr ACS Managed Proc
   Tivoli Storage Mgr ACS 10 VU
   Tivoli Tdp EMC Symmetrix Oracle TMP
   Tivoli Tdp EMC Symmetrix R/3 TMP

IBM Tivoli Storage Manager for Enterprise Resource
```

```
   Planning V5.5
 Media Pack - Multilingual                                    BJOLPML
  Tivoli Data Protect Admin Assist Tmp
  Tivoli Storage Mgr ERP Extension
  5697DPR Tdp SAP Svr
  Tivoli Storage Mgr Enterprise Resource Planning Mgd Proc
  Tivoli Storage Mgr Enterprise Resource Planning 10 VU
```

Current licensees

Current licensees of the Tivoli Storage Manager products can order the new distribution medium via MES by specifying the desired distribution medium feature number.

New licensees

Orders for new licenses will be accepted now. Shipment will begin on the planned availability date.

Basic license

Ordering information for Passport Advantage

Passport Advantage allows you to have a common anniversary date for Software Maintenance renewals, which can simplify management and budgeting for eligible new versions and releases (and related technical support) for your covered products. The anniversary date, established at the start of your Passport Advantage Agreement, will remain unchanged while your Passport Advantage Agreement remains in effect. New software purchases will initially include twelve full months of maintenance coverage. Maintenance in the second year (the first year of renewal) can be prorated to be coterminous with your common anniversary date. Thereafter, all software maintenance will renew at the common anniversary date and include twelve full months of maintenance.

Refer to the IBM International Passport Advantage Agreement and to the IBM Software Maintenance Handbook for specific terms relating to, and a more complete description of, technical support provided through Software Maintenance.

Note: The ordering information in Passport Advantage is unchanged with the announcement of the Tivoli Storage Manager products, except for new Passport Advantage V5.5 media pack part numbers, or V6.1 media pack part numbers for SysBack. For complete ordering information, refer to Software Announcement 207-010, dated January 23, 2007.

To order a media pack for Passport Advantage, specify the part number in the desired quantity from the following table:

```
                                             Part      Media
Description                                  number    GA date

IBM Tivoli Storage Manager V5.5                        December 14, 2007
  Media Pack - Multilingual                  BJOLEML

IBM Tivoli Storage Manager Extended Edition V5.5       December 14, 2007
  Media Pack - Multilingual                  BJOLFML

IBM Tivoli Storage Manager for Storage Area            December 14, 2007
  Networks V5.5
  Media Pack - Multilingual                  BJOLGML

IBM Tivoli Storage Manager for Space Management        December 14, 2007
  V5.5
  Media Pack - Multilingual                  BJOLHML

IBM Tivoli Storage Manager HSM for Windows V5.5        December 14, 2007
  Media Pack - Multilingual                  BJOLIML

IBM Tivoli Storage Manager for System Backup           December 14, 2007
  and Recovery V6.1
  Media Pack - International English          BJOK2IE

IBM System Storage Archive Manager V5.5                December 14, 2007
  Media Pack - Multilingual                  BJOLJML

IBM Tivoli Storage Manager for Mail V5.5               December 14, 2007
  Media Pack - Multilingual                  BJOLKML
```

```
IBM Tivoli Storage Manager for Databases V5.5          December 14, 2007
  Media Pack - Multilingual              BJOLLML

IBM Tivoli Storage Manager for Copy Services V5.5      December 14, 2007
  Media Pack - Multilingual              BJOLMML

IBM Tivoli Storage Manager for                         April 25, 2008
  Advanced Copy Services V5.5
  Media Pack - Multilingual              BJOLNML

IBM Tivoli Storage Manager for Enterprise              December 14, 2007
  Resource  Planning V5.5
  Media Pack - Multilingual              BJOLPML
```

The products in this announcement, except Tivoli Storage Manager for z/OS USS Client and API (5698-USS), are also available via Web download from Passport Advantage.

Withdrawal of Passport Advantage part numbers

The following Passport Advantage part numbers will be withdrawn on December 21, 2007:

```
Description                                   Part number

IBM Tivoli Storage Manager V5.3
  Media Pack - Multilingual                   BJODSML

IBM Tivoli Storage Manager Extended Edition V5.3
  Media Pack - Multilingual                   BJODRML
  Doc Pack English                            BJOE1IE
  Doc Pack Brazilian Portuguese               BJOE1BP
  Doc Pack French                             BJOE1FR
  Doc Pack Italian                            BJOE1IT
  Doc Pack German                             BJOE1DE
  Doc Pack Spanish                            BJOE1ES
  Doc Pack Japanese                           BJOE1JA
  Doc Pack Korean                             BJOE1KO
  Doc Pack Simplified Chinese                 BJOE1SC
  Doc Pack Traditional Chinese                BJOE1TC
  Doc Pack Polish                             BJO1EPL
  Doc Pack Russian                            BJO1ERU
  Doc Pack Czech                              BJO1ECS
  Doc Pack Hungarian                          BJO1EHU

IBM Tivoli Storage Manager for Storage Area
  Networks V5.3
  Media Pack - Multilingual                   BJODUML

IBM Tivoli Storage Manager for Space Management
  V5.3
  Media Pack - Multilingual                   BJODVML

IBM Tivoli Storage Manager HSM for Windows V5.3
  Media Pack - Multilingual                   BJOG2NA

IBM System Storage Archive Manager V5.3.2
  Media Pack - Multilingual                   BJOG1ML

IBM Tivoli Storage Manager for Mail V5.3
  Media Pack - Multilingual                   BJODYML

IBM Tivoli Storage Manager for Databases V5.3
  Media Pack - Multilingual                   BJODTML

IBM Tivoli Storage Manager for Copy Services V5.3
  Media Pack - Multilingual                   BJOGLML

IBM Tivoli Storage Manager for Enterprise
  Resource  Planning V5.3
  Media Pack - Multilingual                   BJODWML
```

The following Passport Advantage part number will be withdrawn on May 9, 2008:

```
Description                                   Part number
```

```
IBM Tivoli Storage Manager for
  Advanced Copy Services V5.3
  Media Pack - Multilingual                      BJOGAML
```

Note: Because IBM Tivoli Storage Manager for System Backup and Recovery is moving to a new version (V6.1), it has a new license PID (5608-E08) and, therefore, new license feature numbers, which follow. AAS ordering information for the other products in this announcement, as well as the Software Maintenance PIDs and features for Tivoli Storage Manager for System Backup and Recovery, are unchanged. For complete ordering information for these products, refer to Software Announcement 207-010, dated January 23, 2007.

To order a basic license, specify the program number and the feature number of the desired distribution medium. Also, specify the one-time charge feature number in the quantity desired (maximum quantity of 250).

The quantity to be specified for the features in the following table is per 10 Value Units.

Use the following table to order the program products listed below:

```
Product                                 Feature number
number     Product name                 Qty 1     Qty 250

5608-E08   IBM Tivoli Storage Manager for
           System Backup and Recovery V6.1
  10 Value units:                        0001      0002

Distribution medium description  Medium feature number  Language

CD-ROM                           5809                   English
```

Software Maintenance

Software Maintenance is included with each product authorization acquired. Software Maintenance provides an easy and effective way by which the user has access, during the coverage period, to eligible new versions and releases and to remote technical support for the user's covered products.

The technical support included in Software Maintenance provides remote support during normal business hours in the user's country or location as well as access to escalation management 24 hours a day, 7 days a week, for mission-critical (Severity 1) problems.

With Software Maintenance, the user receives the following technical support benefits:

- Telephone access and/or electronic access via the Web to an IBM Customer Support Center.

- Support for routine, short duration installation and usage (how-to) questions and code-related problems.

- Support during normal country business hours, namely prime shift hours, Monday through Friday, excluding national or statutory holidays.

- Support for mission-critical (Severity 1) problems during non-prime shift hours, namely all hours outside normal country business hours including national and/or statutory holidays.

- Two hour response time objective during prime shift for voice and electronic submission. The response objective for critical/emergency problems during offshift is also two hours.

- Access to hints, tips, and frequently asked questions.

- Access to escalation management 24 hours a day, 7 days a week.

- Open Authorized Technical Caller list to submit problems to IBM Support Centers on the user's behalf. Open to any number of technical specialists within the user's IS organization. Each caller must be registered through the IBM problem submission Web site in order to submit problems. Problem submission is handled by the Site Technical Contact as listed on the Passport Advantage enrollment form.

- eCare for Software is an initiative designed to enhance the user's electronic support experience by providing the following advantages:

  – Single view of IBM distributed software that includes easy/integrated access to the following information and functions:

    -- Marketing

    -- Technical

- Developer

- Business Partner

- IBM Services

- Downloads

  http://www.ibm.com/software/support

– Comprehensive electronic (via the Web) self-help capabilities available 24 hours a day, 7 days a week.

– Advanced search capabilities.

– A single interface to the IBM problem submission/management system for IBM distributed software.

Software Maintenance renewals offer the user favorable pricing to continue the user coverage without interruption. Passport Advantage allows the user to have a common anniversary date for Software Maintenance renewals, which can simplify management and budgeting for eligible new versions and releases (and for related technical support) for the user's covered products. The anniversary date, established at the start of the user's your Passport Advantage Agreement, recurs on an annual basis while the user's Passport Advantage Agreement remains in effect. However, regardless of when Software Maintenance is acquired, the coverage period for Software Maintenance is always up to the anniversary date specified in the acquisition.

Refer to the IBM International Passport Advantage Agreement and to the IBM Software Maintenance Handbook for specific terms relating to, and a more complete description of, technical support provided through Software Maintenance.

Customization option for OS/390

Select the following feature number to customize your order if running on the OS/390 platform. This feature can be specified on the initial or MES orders.

```
Feature number          Description

3450                    Satellite Electronic Delivery
```

Customized Offerings

Product deliverables are shipped only via Customized Offerings (for example, CBPDO, ServerPac, SystemPac®).

CBPDO and ServerPac are offered for Internet delivery, where ShopzSeries product ordering is available. Internet delivery of ServerPac may help improve automation and software delivery time. For more details on Internet delivery, refer to the ShopzSeries help information at

  http://www.software.ibm.com/ShopzSeries

Media type for this software product is chosen during the Customized Offerings ordering process. Based on your customer environment, it is recommended that the highest possible density tape media is selected. Currently offered media types are:

- CBPDOs — 3480, 3480 Compressed, 3490E, 3590, 3592*

- ServerPacs — 3480, 3480 Compressed, 3490E, 3590, 3592*

- SystemPacs — 3480, 3480 Compressed, 3490E, 3590, 3592*

* 3592 is highest density media. Selecting 3592 will ship the fewest number of media.

Once a product becomes generally available, it will be included in the next ServerPac and SystemPac monthly update.

Production of software product orders will begin on the planned general availability date.

- CBPDO shipments will begin one week after general availability.

- ServerPac shipments will begin two weeks after inclusion in ServerPac.

- SystemPac shipments will begin four weeks after inclusion in SystemPac due to additional

customization, and data input verification.

Terms and conditions

The information provided in this announcement letter is for reference and convenience purposes only. The terms and conditions that govern any transaction with IBM are contained in the applicable contract documents such as the IBM International Program License Agreement, IBM International Passport Advantage Agreement, and the IBM Agreement for Acquisition of Software Maintenance.

Terms and conditions for distributed products

Licensing: IBM International Program License Agreement including the License Information document and PoE govern your use of the program. PoEs are required for all authorized use. Part number products only, offered outside of Passport Advantage, where applicable, are license only and do not include Software Maintenance.

This software license includes Software Maintenance, previously referred to as Software Subscription and Technical Support.

License information form number: L-CKAZ-77DP38

The program's License Information document will be available for review on the IBM Software License Agreement Web site

http://www.ibm.com/software/sla/sladb.nsf

Limited warranty applies: Yes

Limited warranty: IBM warrants that when the program is used in the specified operating environment, it will conform to its specifications. The warranty applies only to the unmodified portion of the program. IBM does not warrant uninterrupted or error-free operation of the program. IBM will correct all program defects. You are responsible for the results obtained from the use of the program.

IBM provides you with access to IBM databases containing information on know program defects, defect corrections, restrictions, and bypasses at no additional charge. Consult the IBM Software Support Handbook for further information at

http://www.ibm.com/software/support

IBM will maintain this information for at least one year after the original licensee acquires the program (warranty period).

Money-back guarantee: If for any reason you are dissatisfied with the program and you are the original licensee, you may obtain a refund of the amount you paid for it, if within 30 days of your invoice date you return the program and its PoE to the party from whom you obtained it. If you downloaded the program, you may contact the party from whom you acquired it for instructions on how to obtain the refund.

For clarification, note that (1) for programs acquired under the IBM International Passport Advantage offering, this term applies only to your first acquisition of the program and (2) for programs acquired under any of IBM's On/Off Capacity on Demand (CoD) software offerings, this term does not apply since these offerings apply to programs already acquired and in use by you.

Authorization for use on home/portable computer: You may not copy and use this program on another computer without paying additional license fees.

Other terms

Volume orders (IVO): No

IBM International Passport Advantage Agreement

Passport Advantage applies: Yes, and through the Passport Advantage Web site at

Usage restriction: Yes. Usage is limited to the quantity of Value Units, client devices, or TB licensed.

For additional information, refer to the License Information document that is available on the IBM Software License Agreement Web site

Software Maintenance applies: Yes. Software Maintenance is included with licenses purchased through Passport Advantage and Passport Advantage Express. Product upgrades and Technical Support are provided by the Software Maintenance offering as described in the Agreements. Product upgrades provide the latest versions and releases to entitled software and Technical Support provides voice and electronic access to IBM support organizations, worldwide.

IBM includes one year of Software Maintenance with each program license acquired. The initial period of Software Maintenance can be extended by the purchase of a renewal option that is available.

While your Software Maintenance is in effect, IBM provides you assistance for your routine, short duration installation and usage (how-to) questions; and code-related questions. IBM provides assistance via telephone and, if available, electronic access, only to your information systems (IS) technical support personnel during the normal business hours (published prime shift hours) of your IBM support center. (This assistance is not available to your end users.) IBM provides Severity 1 assistance 24 hours a day, 7 days a week. For additional details, consult your IBM Software Support Guide at

Software Maintenance does not include assistance for the design and development of applications, your use of programs in other than their specified operating environment, or failures caused by products for which IBM is not responsible under this agreement.

For additional information about the International Passport Advantage Agreement and the IBM International Passport Advantage Express Agreement, visit the Passport Advantage Web site at

System i Software Maintenance applies: No

Variable charges apply: No

Educational allowance available: Yes, 15% education allowance applies to qualified education institution customers.

Terms and conditions for 5698-USS

Licensing: IBM International Program License Agreement including the License Information document and PoE govern your use of the program. PoEs are required for all authorized use.

Agreement for Acquisition of Software Maintenance

The following agreement applies for maintenance and does not require customer signatures:

- IBM Agreement for Acquisition of Software Maintenance (Z125-6011)

This program is licensed under the IBM Program License Agreement (IPLA), and the associated Agreement for Acquisition of Software Maintenance, which provides for support with ongoing access to releases and versions of the program. This program has a one-time license charge for use of the program and an annual renewable charge for the enhanced support that includes telephone assistance (voice support for defects during normal business hours) as well as access to updates, releases, and versions of the program as long as support is in effect.

S/390 and System z IBM Operational Support Services — SoftwareXcel is an option for those customers who desire added services.

License information form number: L-CKAZ-77DP38

The program's License Information document will be available for review on the IBM Software License Agreement Web site

http://www.ibm.com/software/sla/sladb.nsf

Limited warranty applies: Yes

Limited warranty: IBM warrants that when the program is used in the specified operating environment, it will conform to its specifications. The warranty applies only to the unmodified portion of the program. IBM does not warrant uninterrupted or error-free operation of the program. IBM will correct all program defects. You are responsible for the results obtained from the use of the program.

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IBM will maintain this information for at least one year after the original licensee acquires the program (warranty period).

Program support: Enhanced support, called Subscription and Support, includes telephone assistance as well as access to updates, releases, and versions of the program as long as support is in effect. You will be notified of discontinuance of support with 12 months' notice.

Money-back guarantee: If for any reason you are dissatisfied with the program and you are the original licensee, you may obtain a refund of the amount you paid for it, if within 30 days of your invoice date you return the program and its PoE to the party from whom you obtained it. If you downloaded the program, you may contact the party from whom you obtained it for instructions on how to obtain the refund.

For clarification, note that for programs acquired under any of IBM's On/Off Capacity on Demand (CoD) software offerings, this term does not apply since these offerings apply to programs already acquired and in use by you.

Authorization for use on home/portable computer: You may not copy and use this program on another computer without paying additional license fees.

Other terms

Volume orders (IVO): No

International Passport Advantage Agreement

Passport Advantage applies: No

Usage restriction: Yes. Usage is limited to the quantity of Engines licensed.

Software Maintenance applies: No

For operating system software, the revised IBM Operational Support Services — SoftwareXcel offering will provide support for those operating systems and associated products that are not available with the newly announced Software Maintenance offering.

This will ensure total support coverage for your enterprise needs, including IBM and selected non-IBM products. For complete lists of products supported under both the current and revised SoftwareXcel offering, visit

http://www.ibm.com/services/sl/products

For additional information on the revised IBM Operational Support Services, refer to Services Announcement 601-023, dated July 10, 2001.

IBM Operational Support Services — SoftwareXcel: Yes

System i Software Maintenance applies: No

Variable charges apply: No

Educational allowance available: Yes, 15% education allowance applies to qualified education institution customers.

Prices

Business Partner information

If you are an IBM Business Partner — Distributor for Workstation Software acquiring products from IBM, you may link to Passport Advantage Online for resellers where you can obtain Business Partner pricing information. An IBM ID and password are required.

> https://www.ibm.com/software/howt
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Information on charges is available at Web site

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In the Electronic tools category, select the option for Purchase/upgrade tools.

Note: The prices are unchanged with the announcement of the Tivoli Storage Manager V5.5 products, with the exception of Tivoli Storage Manager HSM for Windows V5.5. The price features for this product are listed below. In addition, although the prices are unchanged for IBM Tivoli Storage Manager for System Backup and Recovery V6.1, the new License features are also listed below. For complete pricing information for the other V5.5 products, refer to Software Announcement 207-010, dated January 23, 2007.

Product name	Product number	Feature number qty 1	Charge	Feature number qty 250	Charge
Tivoli Storage Manager HSM for Windows	5608-SPM				
Terabytes:		3906	$4,000	3907	$1,000,000

Maintenance IASP PID 1 Year: 5608-SP2

Description		Feature number qty 1	Charge	Feature number qty 250	Charge
Terabytes:					
Software Maintenance 1 Year Renewal		3898	$800	3899	$200,000

Maintenance IASP PID 1 Year: 5608-SP1

Description		Feature number qty 1	Charge	Feature number qty 250	Charge
Terabytes:					
Software Maintenance 1 Year After License		3894	$2,400	3895	$600,000

Maintenance IASP PID 1 Year: 5608-SP3

Description		Feature number qty 1	Charge	Feature number qty 250	Charge
Terabytes:					
Software Maintenance 3 Year Registration		3900	$1,600	3901	$400,000

Maintenance IASP PID 1 Year: 5608-SP4

		Feature number		Feature number	

Description	qty 1	Charge	qty 250	Charge

Terabytes:

Software Maintenance 3 Year Renewal	3902	$2,400	3903	$600,000

Maintenance IASP PID 1 Year: 5608-SP5

Description	Feature number qty 1	Charge	Feature number qty 250	Charge

Terabytes:

Software Maintenance 3 Year After License	3904	$4,000	3905	$1,000,000

Product name	Product number	Feature number qty 1	Charge	Feature number qty 250	Charge
Tivoli Storage Manager for System Backup and Recovery 10 Value Units:	5608-E08	0001	$30	0002	$7,598

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