

Proof of Concept Guide for IBM Tivoli Storage Manager Version 5.3



Redbooks

ibm.com/redbooks



International Technical Support Organization

Proof of Concept Guide for IBM Tivoli Storage Manager Version 5.3

July 2005

Note: Before using this information and the product it supports, read the information in "Notices" on page vii.

First Edition (July 2005)

This edition applies to Version 5.3.0 of the IBM Tivoli Storage Manager (5608-ISM), IBM Tivoli Storage Manager Extended Edition (5608-ISX), and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

© Copyright International Business Machines Corporation 2005. All rights reserved. Note to U.S. Government Users Restricted Rights -- Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Contents

Notices	vii viii
Preface	ix ix xi xi
Chapter 1. Introduction to IBM Tivoli Storage Manager 1.1 IBM Tivoli Storage Manager 1.1.1 IBM Tivoli Storage Manager overview 1.1.2 IBM Tivoli Storage Manager architecture 1.1.3 IBM Tivoli Storage Manager server. 1.1.4 IBM Tivoli Storage Manager Backup/Archive client 1.1.5 IBM Tivoli Storage Manager storage agent. 1.1.6 IBM Tivoli Storage Manager complementary products 1.2.1 IBM Tivoli Storage Manager for Space Management 1.2.2 IBM Tivoli Storage Manager for Storage Area Network 1.2.3 IBM Tivoli Storage Manager for Data protection	1 2 3 5 6 6 8 8 9 9 9
1.3 New features and changes with Version 5.3. 1.3.1 ACSLS library support enhancements 1.3.2 Activity log management. 1.3.3 Collocation by group	11 11 11 11
1.3.4 Communications options. 1.3.5 Database reorganization. 1.3.6 Disk-only backup. 1.3.7 Enhancements for server migration	12 12 12 12
1.3.8 IBM 3592 WORM (Write Once Read Many) support 1.3.9 Increased block size for writing to tape 1.3.10 LAN-free environment configuration 1.3.11 NDMP operations 1.3.12 Now interface to manage sonvers: Administration Conter	12 13 13 13
1.3.12 New interface to manage servers. Administration Center 1.3.13 SCSI library enhancements 1.3.14 Simultaneous write inheritance improvements 1.3.15 Support for multiple IBM Tivoli Storage Manager client nodes 1.3.16 IBM Tivoli Storage Manager scheduling flexibility	13 13 14 14 14

1.4 Summary	14
Chapter 2. Planning for installation. 2.1 IBM Tivoli Storage Manager's system requirements. 2.1.1 Windows environment requirements. 2.1.2 AIX environment requirements. 2.1 IBM Integrated Solution Center and Administration Center requirements 2.2.1 Software requirements. 2.2.2 Hardware requirements. 2.3 Physical design considerations 2.4 Database and pools considerations 2.5 Preparing for Proof of Concept 2.6 Summary.	15 16 17 17 17 18 19 20 22 24
Chapter 3. Installation and configuration 3.1 Installing IBM Tivoli Storage Manager for Windows environment. 3.1.1 Installing IBM Tivoli Storage Manager Server. 3.1.2 Installing Tivoli Storage Manager licenses 3.1.3 Installing the Tivoli Storage Manager language packs 3.1.4 Installing the Tivoli Storage Manager Device Driver 3.1.5 Configuration of IBM Tivoli Storage Manager Device Driver 3.1.6 Configure License Options 3.1.7 Installation of IBM Tivoli Storage Manager Client 3.1.8 Configuring Tivoli Storage Manager Client 3.1.9 Configuring Tivoli Storage Manager for UNIX (AIX) environment 3.2.1 Installing IBM Tivoli Storage Manager Client for AIX 3.2.2 IBM Tivoli Storage Manager Client Configuration 3.3 Installing IBM Tivoli Storage Manager Client for AIX 3.2.1 Storage Manager Client Configuration 3.3.1 Configuring the Administration Center 3.3.1 Configuring the Administration Center 3.4 Summary	25 26 27 32 33 34 43 44 51 53 56 58 59 67 72
Chapter 4. Demonstration scenarios. 4.1 Client demonstration scenarios. 4.1.1 Client configuration for backup and archive functions. 4.1.2 Incremental (complete) backup. 4.1.3 Selective backup. 4.1.4 Creating an inactive copy 4.1.5 Manual backup using Backup-Archive Command Line. 4.1.6 Restore using GUI. 4.1.7 Restore using Backup-Archive Command Line 4.1.8 Archive using GUI. 4.1.9 Backup using schedule backup feature 4.2 Server scenarios	73 74 76 78 81 82 83 90 91 94 99

4.2.1 Migration of storage pool.	99
4.2.2 Reclamation of storage pool	100
4.2.3 Database reorganization	101
4.2.4 File Device Class to different directories	102
4.2.5 Activity log management	104
4.2.6 Creating copypool	104
4.2.7 Creating policy domain	106
4.2.8 Tivoli Storage Manager client remote access	108
4.2.9 Usage report	112
4.2.10 Daily report	114
4.2.11 Summary	115
Appendix A. Additional information	117
A.1 Browser access to Tivoli Storage Manager V5.3	118
A.2 Sample worksheets	119
Appendix B Additional material	123
Locating the Web material	123
Using the Web material	. 123
System requirements for downloading the Web material	. 124
How to use the Web material	124
Related publications	125
IBM Redbooks	125
Other publications	125
Online resources	126
How to get IBM Redbooks	126
Help from IBM	126
Index	127



Notices

This information was developed for products and services offered in the U.S.A.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing, IBM Corporation, North Castle Drive Armonk, NY 10504-1785 U.S.A.

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law: INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrates programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. You may copy, modify, and distribute these sample programs in any form without payment to IBM for the purposes of developing, using, marketing, or distributing application programs conforming to IBM's application programming interfaces.

Trademarks

The following terms are trademarks of the International Business Machines Corporation in the United States, other countries, or both:

AIX®
AIX 5L™
DB2®
Domino®
@server®
IBM®
ibm.com®

Informix® Lotus® Magstar® PartnerWorld® pSeries® Redbooks™ Redbooks (logo) @™ RISC System/6000® RS/6000® SysBack™ Tivoli® TotalStorage® WebSphere®

The following terms are trademarks of other companies:

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Microsoft, Windows, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

Intel, Intel Inside (logos), and Pentium are trademarks of Intel Corporation in the United States, other countries, or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Linux is a trademark of Linus Torvalds in the United States, other countries, or both.

Other company, product, and service names may be trademarks or service marks of others.

Preface

The primary objective of this IBM® Redbook is to provide step-by-step instructions about how to set up a stand-alone IBM Tivoli® Storage Manager (ITSM) environment to be used for demonstrating the functions and features of the products, using customer data and mapping customer infrastructure and workloads.

General knowledge is assumed of communication network architecture and design, basic sizing of IBM Tivoli Storage Manager database, and basic pool management of Tivoli Storage Manager servers.

This document is intended to be read and used by pre-sales systems engineers and services personnel to build customized demonstrations of the IBM Tivoli Storage Manager. A significant amount of knowledge of IBM Tivoli Storage Manager is expected, and the reader should ideally have attended the IBM Tivoli Storage Manager basic and advanced training classes.

The reader should be familiar with the following topics:

- Storage management concepts
- Network topologies
- Distributed systems architectures and configuration

This redbook is a valuable addition to the existing product documentation and can be read in conjunction with it. See the "Related publications" on page 125 for the entire list of the documents.

The team that wrote this redbook

This redbook was produced by a team of specialists from around the world working at the International Technical Support Organization, Austin Center.



The team from left Murat, Sanver

Sanver Ceylan is a certified Project Leader at the International Technical Support Organization, Austin Center. Sanver worked for IBM Turkey for 11 years and he joined to ITSO in September 2003. His main area of expertise is Tivoli Storage Management Products. He leads the projects for; Deployment, Proof of Concept, Certification Study guides, and workshop materials for Storage Manager products. Before ITSO, Sanver has worked in the Software Organization of IBM Turkey as an Advisory IT Specialist, where he was involved in numerous pre-sales projects for major customers of IBM Turkey.

Sanver holds Bachelor of Science degree in Engineering Physics from Ankara University and Master of Science degree in Computer Science from City University of New York.

Murat Hakan Yesilmen is an Advisory Software Services Specialist from IBM Turkey. He has 12 years experience including 6 years working for IBM. He holds a Master of Science degree in Electrical and Electronics Engineering from the University of Surrey, Guildford, UK. His areas of expertise include Disk Storage, Storage Area Network, DB2®, Linux®, Tivoli Storage Manager and TotalStorage® Productivity Center for Data, MQseries, AIX® and Z/OS, holding 16 certificates in these areas. Thanks to the following people for their contributions to this project:

Roland Tretau Yvonne Lyon, ITSO editor IBM, International Technical Support Organization

Elizabeth Purzer IBM, Austin TX

Become a published author

Join us for a two- to six-week residency program! Help write an IBM Redbook dealing with specific products or solutions, while getting hands-on experience with leading-edge technologies. You'll team with IBM technical professionals, Business Partners and/or customers.

Your efforts will help increase product acceptance and customer satisfaction. As a bonus, you'll develop a network of contacts in IBM development labs, and increase your productivity and marketability.

Find out more about the residency program, browse the residency index, and apply online at:

ibm.com/redbooks/residencies.html

Comments welcome

Your comments are important to us!

We want our Redbooks[™] to be as helpful as possible. Send us your comments about this or other Redbooks in one of the following ways:

Use the online Contact us review redbook form found at:

ibm.com/redbooks

Send your comments in an E-mail to:

redbook@us.ibm.com

Mail your comments to:

IBM Corporation, International Technical Support Organization Dept. JN9B; JN9B Building 905 11501 Burnet Road Austin, Texas 78758-3493



1

Introduction to IBM Tivoli Storage Manager

In this chapter we provide an overview of IBM Tivoli Storage Manager concepts. This includes a high-level technical introduction to IBM Tivoli Storage Manager, its architecture, and base concepts. The following topics are discussed:

- ► IBM Tivoli Storage Manager overview
- IBM Tivoli Storage Manager architecture
- Features of IBM Tivoli Storage Manager, Extended Edition
- IBM Tivoli Storage Manager Data protection family
- New features that come with Version 5.3

1.1 IBM Tivoli Storage Manager

IBM Tivoli Storage Manager, now a part of the IBM TotalStorage Open Software Family, is a strong management application built for the enterprise. IBM Tivoli Storage Manager provides a solution for data protection, archiving, disaster recovery planning, space management, database and application protection bare machine recovery, and record retention. The product also automates storage management tasks by eliminating labor-intensive and cost-intensive manual procedures for backup, archive, and recovery.

1.1.1 IBM Tivoli Storage Manager overview

IBM Tivoli Storage Manager is the core product of the IBM Tivoli Storage Management product set. It provides a solution for distributed data and storage management in an enterprise network environment. IBM Tivoli Storage Manager protects and manages data from more then 13 operating system platforms, covering mobile, desktop, and server systems over the entire distributed world. It supports hundreds of storage devices (including disk, tape, and optical) as well as LAN, WAN, and SAN infrastructures.

The base functions provided by IBM Tivoli Storage Manager and its complementary products are as follows:

- Data protection (periodic backup and restore as well as disaster recovery):
 - In operational backup and restore of data, the backup process creates a copy of the data to protect against the operational loss or destruction of file or application data. The customer defines how often to back up (frequency) and how many numbers of copies (versions) to hold.

The restore process places the backup copy of the data back into a customer-designated system or workstation.

- Disaster recovery means all activities required to organize, manage, and automate the recovery process from a major loss of IT infrastructure and data across the enterprise. It includes processes to move data offsite into a secure vault location, to rebuild IT infrastructure, and to reload data successfully in an acceptable time frame.
- > Data resource management (vital record retention, archive, and retrieval):
 - The archive process creates a copy of a file or a set of files representing an end point of a process for long term storage. Files can remain on the local storage media or can be deleted. The customer controls how long (via the retention period) an archive copy is to be retained.
 - The retrieval process locates the copies within the archival storage and places them back into a customer-designated system or workstation.

► Space management (or hierarchical storage management):

This process provides the automatic and transparent movement of operational data from the user system disk space to a central storage repository. If the user accesses this data, it is dynamically and transparently restored to the client storage.

The solution is network based, which means that these functions are available to the whole network environment. Administration costs are minimized by centralization of all of the management of IBM Tivoli Storage Manager components.

1.1.2 IBM Tivoli Storage Manager architecture

IBM Tivoli Storage Manager is a client server architecture as seen in Figure 1-1.

IBM Tivoli Storage Manager clients are the workstations, file servers, mobile computers, and other machines in a customer's environment that need to have their data protected. IBM Tivoli Storage Manager client software is installed on these machines.



Figure 1-1 IBM Tivoli Storage Manager V5.3 architecture

IBM Tivoli Storage Manager server is the "brains" of backup and archive. It has a unique architecture that empowers it. It is based on a relational database and transaction log. The database and transaction log track meta data, what is backed up, where it is stored, what are the policies, schedules, administrators.

The transaction log enables a two-phase commit, which not only protects the integrity of the database, but also allows for interrupted backups and restores to be restarted. The relational database empowers IBM Tivoli Storage Manager to perform tasks that are not possible when you use a flat file master catalog to track meta data. For example, the relational database can:

- Move data from one type of storage pool to another
- Retroactively update backed-up data when a policy changes
- Track files down to the file level
- Schedule any type of client or administrative process
- Reclaim expired dead space on tapes.

The IBM Tivoli Storage Manager client sends its data to the IBM Tivoli Storage Manager server either by the LAN or by the SAN. Most backups occur through schedules, but clients are can perform on-demand backups whenever they want. Clients are can also perform their own restores. Tivoli Storage Manager has a new Administration Center that comes with V5.3 and can be installed either on the same machine with Tivoli Storage Manager server or on a separate machine.

The actual data that the client sends over is stored in the storage pools. IBM Tivoli Storage Manager is unique in the fact that the storage pools can form a storage hierarchy made up of any of the over 500 devices that are supported. This allows for flexibility and longevity. Most importantly, this structure allows for fast backups and fast restores.

Most businesses will back up their data initially to disk storage. This allows for hundreds of clients to back up at the same time. Then, based on policies, the data migrates in a fashion that expedites restores to tape or CD. When the data migrates, all the data belonging to one client is moved together to the next pool. By keeping all that data together, restores are faster because not as much tape positioning is needed. This migration process can also accommodate movement to collocated tapes, which further expedite restores by just having one user's data on them.

The environment can be firewall protected, and you will still want to be able to use the GUI interfaces of an IBM Tivoli Storage Manager client. IBM Tivoli Storage Manager allows individual configuration of nearly every TCP port that it uses for communication:

TCP/IP port:

To enable the Backup/Archive client, command line Administrative Client, and the scheduler to run outside a firewall, the port specified by the tcpport server option must be opened by the firewall administrator. This port is set on the client and the server using the **tcpport** option. The setting must be the same on the client and server. The default TCP/IP port is 1500.

► TCP/IP ports for the remote workstation:

The two TCP/IP ports for the remote workstation client must be opened. Use the **webports** option in the remote workstations option file to specify these ports. If you do not specify the values for the **webports** option, the default zero (0) causes TCP/IP to randomly assign two free port numbers.

1.1.3 IBM Tivoli Storage Manager server

One of the principal architectural components of the IBM Tivoli Storage Manager server is its built-relational database. The IBM Tivoli Storage Manager database was especially designed for the task of managing data, and it implements zero-touch administration.

All policy information, logging, authentication and security, media management, and object inventory are managed through this database.

Most of the fields are externalized through IBM Tivoli Storage Manager high level administration commands, **SQL SELECT** statements, or for reporting purposes, by using an ODBC driver. Obviously, this database is fully protected with software mirroring, roll-forward capability, and its own management and online backup and restore functions.

For storing the managed data, the IBM Tivoli Storage Manager server manages a storage repository. The storage repository can be implemented in a hierarchy using any combination of supported media or magnetic or optical disk, tape, and robotic storage devices, which are locally connected to the server system or which are accessible through a SAN. To take advantage of SAN technology, the IBM Tivoli Storage Manager server has features implemented to dynamically share SAN-connected, automated tape library systems among multiple IBM Tivoli Storage Manager servers, as well as providing (as an option), LAN-free and server-free backup.

1.1.4 IBM Tivoli Storage Manager Backup/Archive client

Data is sent to the IBM Tivoli Storage Manager server using the IBM Tivoli Storage Manager Backup/Archive client and complementary Tivoli and non-IBM/Tivoli products. These products work together with the IBM Tivoli Storage Manager server base product to ensure that the data you need to store is managed as defined.

The IBM Tivoli Storage Manager Backup/Archive client, included with the server, provides the operational backup and archival function. The client implements the patented progressive backup methodology, adaptive sub-file backup technology, and unique record retention methods for backup and archive functions.

The Backup/Archive clients are implemented as multi-session clients, which means that they are able to take advantage of the multi-threading capabilities of modern operating systems.

1.1.5 IBM Tivoli Storage Manager storage agent

The IBM Tivoli Storage Manager storage agent supports LAN-free backup solutions using a SAN infrastructure. The storage agent dynamically shares SAN connected tape libraries and disks with the IBM Tivoli Storage Manager server, and it has the ability to write and read large amount of client data directly to and from server-owned storage media. This gives a great opportunity for lowering the backup window, reducing the traffic on the LAN and reducing the utilization of the TSM server.

1.1.6 IBM Tivoli Storage Manager Extended edition

The Extended Edition of IBM Tivoli Storage Manager expands on the features and possibilities of the Basic Edition described in the previous section.

IBM Tivoli Storage Manager, Extended Edition expands on the data backup and restore and the managed data archive and retrieve capabilities of the basic IBM Tivoli Storage Manager by adding disaster planning capability, Network Data Management Protocol (NDMP) control for network-attached storage (NAS) filers and support for large tape libraries.

Disaster Recovery Manager

Disaster Recovery Manager (DRM) is a feature of the IBM Tivoli Storage Manager, Extended Edition. It coordinates and automates the process of recovering from a disaster. It provides for extended offsite media management, automated restore of the IBM Tivoli Storage Manager server, and managed client recovery. It complements the already implemented robust protection features of IBM Tivoli Storage Manager and automates many already facilitated protection functions.

DRM automatically captures information required to recover the IBM Tivoli Storage Manager server after a disaster. It assists in preparing a plan that allows recovery in the most expedient manner. This disaster recovery plan contains information, scripts, and procedures needed to automate server restoration and helps ensure quick recovery of data after a disaster.

DRM also manages and tracks the movement of off-site media to reduce the time required to recover in the event of a disaster. It is able to track media that are stored on-site, in-transit, or off-site in a vault, no matter whether it is a manual or electronic vault, so your data can be easily located if disaster strikes.

Disaster recovery planning

This facilitates even more detailed tracking of the additional copies of your backed-up, archived, and space managed data that IBM Tivoli Storage Manager creates for safekeeping at an offsite location. IBM Tivoli Storage Manager Extended Edition also prepares and keeps up to date a text file with detailed recovery steps and automated computer-scripts — the "recovery plan". Should a disaster strike and destroy your storage and computers, this plan and the offsite data copies will get your business back up and running quickly.

NDMP support for Network Attached Storage

IBM Tivoli Storage Manager Extended Edition uses Network Data Management Protocol (NDMP) to perform high-performance, scalable backups and restores. The backups and restores minimize network traffic and transfer data outboard of the Tivoli Storage Manager client and server.

IBM Tivoli Storage Manager currently offers the ability to back up and restore data on NAS devices that support NDMP version 3.0. Full or differential backups can be performed at a directory or filesystem level, including snapshots that are stored as either filesystems or subdirectories. Restores can be performed of an entire file system or selected files/directories within the file system. Multiple backup and restore operations can be performed in parallel.

Currently, NDMP for full or differential backups can be performed at a directory or filesystem level, including snapshots that are stored as either filesystems or subdirectories to a Tivoli Storage Manager server running on AIX, Sun Solaris, HP-UX, Linux, or Windows®. This uses NDMP to back up a full file system image and to restore an entire file system image. Once a full backup image has been created, subsequent backups can be differential images. A differential image consists of all the files that have changed since the previous full image backup. The restore of a differential image automatically restores the differential image after the appropriate full image has been restored. Backup and restore operations can be scheduled using the administrative command scheduler.

During backup and restore operations, data flows directly between the tape drive and the Network Attached Storage (NAS) appliance. NDMP operations can be performed using SCSI or ACSLS tape libraries. Additionally, 349X tape libraries may be used with some NAS devices. Refer to the Tivoli Storage Manager device support Web page and your NAS vendor's documentation for complete NDMP device support. NDMP for NAS backup works with either a SCSI-attached tape device local to the NAS appliance, or with a SAN-attached SCSI or ACSLS device that can be shared with the Storage Manager server. Drives must be supported by both the NAS appliance and the NAS operating system. Drives can be dedicated to NDMP operations from a single NAS file server or can be shared. Multiple NAS appliances can share tape resources if they have FC access to the drive and if backups are performed via the same Storage Manager server. Depending on the configuration, drives can be shared with LAN-free backup/restore operations.

Database and application on-line protection

This feature protects a wide range of application data via the protection of the underlying databases and application management systems holding that data. This module automates data protection tasks and allows database and application servers to continue running their primary applications while they backup and restore data to and from offline storage

Data retention

IBM Tivoli Storage Manager for Data Retention facilitates compliance with the most stringent regulatory requirements in the most flexible and function-rich manner. It helps manage and simplify the retrieval of the ever increasing amount of data that organizations must retain for strict records retention regulations. Many of the regulations demand the archiving of records, e-mails, design documents, and other data for many years, in addition to requiring that the data is not changed or deleted.

Bare Machine Recovery

This feature backs up and automatically restores the operating system structures necessary to rebuild the operating system, as well as data files. It schedules regular operating system backups so a recovery brings back the latest information.

1.2 IBM Tivoli Storage Manager complementary products

IBM Tivoli Storage Manager can be integrated with several optional applications that together form a powerful integrated storage management solution. These include:

- ► IBM Tivoli Storage Manager for Space Management
- IBM Tivoli Storage Manager for Storage Area Networks
- IBM Tivoli Storage Manager for System Backup and Recovery
- IBM Tivoli Storage Manager for Data Protection product family

1.2.1 IBM Tivoli Storage Manager for Space Management

IBM Tivoli Storage Manager for Space Management provides hierarchical storage management to automatically migrate rarely accessed files to alternate storage without disrupting the most frequently used files in local storage.

Migrated files are automatically and transparently recalled to primary storage when needed by applications or users, freeing administrators and users from manual filing tasks.

Suppose that a certain percentage of your data is inactive and has not been accessed in weeks or months. If so, IBM Tivoli Storage Manager for Space Management (formerly known as hierarchical storage management, or HSM) can automatically move inactive data to less-expensive offline storage or near-line storage, freeing online disk space for more important active data. It migrates the files and recalls them automatically when they are needed.

1.2.2 IBM Tivoli Storage Manager for Storage Area Network

IBM Tivoli Storage Manager for Storage Area Network enables your SAN-connected IBM Tivoli Storage Manager servers and client computers to make maximum use of their direct network connection to storage. This software extension enables both servers and client computers to make the bulk of their backup/restore and archive/retrieve data transfers over the SAN instead of the LAN, either directly to tape or to the IBM Tivoli Storage Manager disk storage pool. This ability greatly reduces the impact of data protection on the LAN while also reducing CPU utilization on both client and server.

The core functions of IBM Tivoli Storage Manager for Storage Area Network are:

- LAN-free backup/restore
- SAN-connected tape library

1.2.3 IBM Tivoli Storage Manager for backup and recovery

IBM Tivoli Storage Manager for System Backup and Recovery (SysBack[™]) provides a flexible backup method for AIX systems to help protect data and provide bare machine recovery capabilities. It offers a comprehensive system backup, restore, and reinstallation tool. SysBack is a simple-to-use, yet highly effective, tool. Any feature may be executed from either the AIX command line or by using the SMIT menu interface.

For Windows platforms, bare machine recovery can be achieved with the TSM Backup/Archive client's Automated System Recovery capability.

In addition, Windows, Sun, and Linux bare machine recovery can be done with Cristie Bare Machine Recovery. This integrates directly with Tivoli Storage Manager to provide operating system recovery for these platforms.

1.2.4 IBM Tivoli Storage Manager for Data protection

IBM Tivoli Storage Manager provides data protection for a wide variety of applications, databases, mail, and hardware, ensuring that data is safe and secure no matter where it is located or how it is stored. These products interface directly with the applications using their backup-certified utilities and interfaces, simplifying online backup and restore procedures. These products are described in the following sections.

IBM Tivoli Storage Manager for Application Servers

IBM Tivoli Storage Manager for Application Servers (formerly Tivoli Data Protection for WebSphere® Application Servers) is a software module that works with IBM Tivoli Storage Manager to better protect the infrastructure and application data and improve the availability of WebSphere Application Servers.

IBM Tivoli Storage Manager for Databases

IBM Tivoli Storage Manager for Databases is a software module designed to work with IBM Tivoli Storage Manager to protect a wide range of application data through the protection of the underlying database management systems holding that data. IBM Tivoli Storage Manager for Databases exploits the various backup-certified utilities and interfaces provided for Oracle, Microsoft® SQL Server, and Informix®.

This same functionality is included in the IBM DB2 Universal Database package and Informix Dynamic Server, enabling them to work directly with IBM Tivoli Storage Manager without the need to buy any additional modules.

IBM Tivoli Storage Manager for Hardware

IBM Tivoli Storage Manager for Hardware improves the data protection of business-critical databases and Enterprise Resource Planning (ERP) applications that require 24x7 availability.

IBM Tivoli Storage Manager for Mail

IBM Tivoli Storage Manager for Mail is a software module for IBM Tivoli Storage Manager that automates the data protection of e-mail servers running either Lotus® Domino® or Microsoft Exchange. This module utilizes the APIs provided by e-mail application vendors to perform online backups without shutting down the e-mail server and improve data-restore performance. As a result, it can help protect the growing amount of new and changing data that should be securely backed up to help maintain Domino and Exchange application availability 24x7x365.

IBM Tivoli Storage Manager for Enterprise Resource Planning

IBM Tivoli Storage Manager for Enterprise Resource Planning is a software module that works with IBM Tivoli Storage Manager to better protect infrastructure and application data and improve the availability of SAP R/3 servers.

1.3 New features and changes with Version 5.3

The following features and functions have been added to IBM Tivoli Storage Manager Version 5.3.

1.3.1 ACSLS library support enhancements

Library support has been enhanced to allow the sharing of ACSLS libraries. This implementation will provide the basic support to share ACSLS libraries across IBM Tivoli Storage Manager servers in the same way that SCSI libraries are shared. Support for LAN-free data movement using libraries that are controlled by StorageTek's ACSLS interface has also been provided.

1.3.2 Activity log management

The activity log can now be managed based either on maximum size for the log or retention time. The new option for size-based activity log management gives administrators greater control over the amount of space the activity log occupies. Additional information about the activity log is now displayed when the server status is queried.

1.3.3 Collocation by group

Collocation by group is now supported. Groups of nodes can be defined, and the server can then collocate data based on these groups. Collocation by group can yield the following benefits:

- Reduce unused tape capacity by allowing more collocated data on individual tapes.
- Minimize mounts of target volumes.
- Minimize database scanning and reduce tape passes for sequential-to-sequential transfer.

For newly defined storage pools, the default storage pool collocation setting is now GROUP.

1.3.4 Communications options

There is now a shared memory communications option between the IBM Tivoli Storage Manager server for Windows and the Backup/Archive client for Windows. It can be used to perform backups, archives, restores, and retrieves. You can also enable the shared memory communication protocol in the Windows storage agent for communication with the Windows Backup/Archive client.

1.3.5 Database reorganization

Periodically reorganizing the Tivoli Storage Manager server's database can improve performance. A new command has been added allowing administrators to determine the estimated space saved by reorganization of the database. The process can be queried to monitor the command's progress and, when finished, the results can be viewed by querying the database in detailed format.

1.3.6 Disk-only backup

Disk-only backup has been enhanced in order to take advantage of the inexpensive disk storage currently available in the market. These improvements to sequential-access FILE device type and random-access DISK device class storage include:

- The ability to create large, sequential-access FILE-type storage pools using a single FILE device-class definition that specifies two or more directories.
- The ability to create and format FILE- or DISK device-type volumes in a single step.
- The ability to use enhanced space trigger functionality to automatically allocate space for private volumes in sequential-access FILE device type and random-access DISK device class storage pools. This will reduce the potential for disk fragmentation and maintenance overhead.

1.3.7 Enhancements for server migration

Administrators can now control and schedule routine server operations by scheduling the migration or reclamation command to run during convenient server activity times. The number of processes for migration and reclamation is also enhanced to allow multiple processes for the operations. These new features allow for better utilization of available tape drives and FILE volumes.

1.3.8 IBM 3592 WORM (Write Once Read Many) support

IBM Tivoli Storage Manager now supports the 3592 WORM tape device.

1.3.9 Increased block size for writing to tape

The maximum transfer length for all host bus adapters has increased. The block size used by the IBM Tivoli Storage Manager sever on Windows for writing data to certain types of tape drives has also increased. Increasing the transfer length increases the rate at which data is processed for backups, archives, restores, and retrieves. The maximum supported transfer length is now 256 KB.

1.3.10 LAN-free environment configuration

Enhancements have been made to allow you to quickly determine if your LAN-free environment has been configured correctly. You can request validation for one client node and one storage agent. When validation is requested, a detailed report is generated explaining why the storage pool is or is not LAN-free capable. As a result, you can determine if there is a setting or configuration issue on the server preventing LAN-free data movement.

1.3.11 NDMP operations

NDMP operations for backup of NAS file servers have been enhanced to support the following functions:

- Directory-level backup of NAS data, which enables the division of a file system backup operation among several NDMP backup operations as well as several tape drives. This enhancement will reduce backup and restore times.
- NDMP Directory Level Backup will enable IBM Tivoli Storage Manager to backup user created snapshots that are stored as sub-directories, specifically Network Appliance snapshots.

1.3.12 New interface to manage servers: Administration Center

The Administration Center is a Web-based interface that can be used to centrally configure and manage IBM Tivoli Storage Manager Version 5.3 servers. This new interface replaces the administrative Web interface. The Administration Center is installed as an IBM Integrated Solutions Console component. The Integrated Solutions Console allows you to install components provided by multiple IBM applications, and access them from a single interface. See the Installation Guide for installation information.

1.3.13 SCSI library enhancements

You can now define a 3592 drive to an SCSI library.

1.3.14 Simultaneous write inheritance improvements

The simultaneous write function lets you write data simultaneously to primary storage pools and up to three copy storage pools, increasing your level of data protection and reducing the time required for storage pool backup. In Version 5.3, when a data storage operation switches from a primary storage pool to the next primary storage pool in the storage pool hierarchy, the next storage pool inherits the list of copy storage pools and the value of the **COPYCONTINUE** parameter from the primary storage pool. One benefit of this design is that it reduces the likelihood that mount points have to be released and reacquired when the server switches from one primary storage pool to another.

1.3.15 Support for multiple IBM Tivoli Storage Manager client nodes

Backup from multiple nodes to be stored as a single target node in the server database is now allowed. With the consolidation of data under a single target node on the server, directories and files can be easily found when restore operations are necessary. It is also no longer necessary for physical machines to share password files, because password management and IBM Tivoli Storage Manager server authentication is now handled by clients (independent of relationships with other nodes).

1.3.16 IBM Tivoli Storage Manager scheduling flexibility

IBM Tivoli Storage Manager schedule capability now allows for more useful calendar-type administrative and client scheduling. There is now the flexibility to schedule most repetitive items and even some holidays, such as these:

- Run on the last Friday of every month
- Run on the first Sunday of every quarter
- Run on every day in the last week of the year

1.4 Summary

In conclusion, we have discussed the overview, architecture, complementary products, and new functions of IBM Tivoli Storage Manager, and now we are moving on to the planning, sizing, and designing functions.

2

Planning for installation

This chapter provides planning information about IBM Tivoli Storage Manager installation. The following topics are discussed:

- System requirements
- Design considerations
- Database and pool considerations
- Preparing customers for PoC

2.1 IBM Tivoli Storage Manager's system requirements

In this section we discuss the necessary hardware and software requirements needed to install and configure IBM Tivoli Storage Manager Extended Edition Version 5.3.

2.1.1 Windows environment requirements

Software requirements:

Microsoft Windows 2003 Server:

Standard, Enterprise, or Datacenter Edition

► 32-bit Microsoft Windows 2003 Server:

Enterprise or Datacenter Edition

► 64-bit Microsoft Windows 2000 Server:

Advanced Server or Datacenter Server

Web browser requirements:

- You need a Web browser to log in and use the console. The Web browser can be installed on the same or a separate system. The following browsers are supported:
 - Microsoft Internet Explorer 6.x (Windows systems only)
 - Mozilla 1.0.2, Mozilla 1.3 and Mozilla 1.4
 - Netscape 6.2 and Netscape 7

Your browser must support the server codepage. If not, the panels may be unreadable. If your browser meets these requirements but does not correctly display an IBM Tivoli Storage Manager Web-based interface, consider trying a different browser.

Hardware requirements:

- ► Intel® Pentium® compatible processor or multi-processor based computer
- At least 110 MB of free disk storage (for a typical installation)
- 128 MB (256 MB is recommended) memory
- At least one of the following features (installed by default with the current Windows operating systems):
 - Named Pipes
 - TCP/IP

2.1.2 AIX environment requirements

Software requirements:

IBM AIX: AIX 5L[™] 5.1 or later (32 bit or 64 bit), or AIX 5.2 (32 bit or 64 bit) and AIX 5.3 (32-bit or 64 bit)

Hardware requirements:

- ► RISC System/6000® or pSeries® computer
- At least 200 MB of free disk storage (for a typical installation)
- 1 GB of memory
- TCP/IP connection

2.2 IBM Integrated Solution Center and Administration Center requirements

The Administration Center is installed as an IBM Integrated Solutions Console (ISC) component. The Integrated Solutions Console allows you to install components provided by multiple IBM applications, and access them from a single interface.

The Tivoli Storage Manager server can require a large amount of memory, network bandwidth, and processor resources. In most cases, the server performs best when other applications are not installed on the same system. If the system meets the combined requirements for the server and the Administration Center (for example, it has at least 2 GB of physical memory), it can support both applications.

You may plan to use the Administration Center to manage an environment with a large number of servers or administrators; then you should consider installing the Administration Center on a separate system.

2.2.1 Software requirements

Here we list the software requirements for the following platforms:

- ► Windows:
 - Windows 2000 Professional, Server with SP4, Windows 2000 Advanced Server with SP4.
 - Windows 2003 Standard, Windows 2003 Enterprise, Windows 2003 Datacenter.

- CPU speeds: Speeds of late model, mid-range to high-end servers are recommended. Pentium 800 MHz or equivalent at a minimum. Production environments should consider the Pentium 4 processor at 1.4GHz or higher.
- Physical memory: 512 MB or more for runtime installations.
- File system: NTFS file system is recommended.
- ► AIX:
 - AIX 5.1 with ML4.
 - AIX 5.2 with ML1 + APAR IY44183.
 - AIX 5.3.
 - RS/6000® at 450MHz at a minimum; production environments should consider higher speeds.
 - Physical memory: 512 MB or more.
- ► Linux:
 - CPU speeds of late model, mid-range to high-end servers are recommended. Pentium 800MHz or equivalent at a minimum. Production environments should consider the Pentium 4 processor at 1.4GHz or higher.
 - Physical memory: 512 MB or more for runtime installations.
 - SUSE Linux Enterprise Server (SLES) 8 Powered by United Linux 1.0 on Intel.
- ► Solaris:
 - Solaris 8.
 - Ultra 60 at 450MHz at a minimum; Sun Blade 2000 workstation at 1 GHz or higher is recommended.
 - Physical memory: 512 MB or more.

2.2.2 Hardware requirements

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

- To install the console on a system for the first time, the user needs 982 MB to satisfy the installation program disk space check. Also needed are an additional 679 MB in the /tmp directory (which is also checked during the installation), as well as 500 MB for the completed installation.
- Equal to double the user's physical memory is required. At a minimum, this should be at least equal to the physical memory.

- Network adapter and connection to a physical network that can carry IP packets; for example, Ethernet, Token Ring, and ATM Static IP address.
- Configured fully qualified host name. Integrated Solutions Console 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.
- ► The IBM 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 1.4.1) Web browser:
 - MS Internet Explorer 6.0, or later with Java Plug-in 1.4.1
 - Mozilla 1.6, or later

2.3 Physical design considerations

In real implementation, it is important to have a proper architectural design to provide a high performance Tivoli Storage Manager solution to customers. In this section, we discuss what components are affecting to the IBM Tivoli Storage Manager's physical design.

Even though we are going to perform a Proof of Concept (PoC) with a Thinkpad, we need to consider some physical architecture tunings.

In order to plan a better design, we need the following information:

- What type of hardware and operating system will IBM Tivoli Storage Manager run on?
- What will be the network preferences?
- Should data be stored on disk or tape?
- How much data will be backed up every day?
- How much time do we need to complete the backup?

You need to talk with the customer about what is their expectation from this work. You need to agree with your customer, before planning this PoC, and you should involve your customer in every step of your work.

First of all, you should determine if the customer has any platform preferences; if not, choose one that you yourself feel comfortable with. Do not choose a system for which the customer doesn't have any machines or operating systems.

The next step is designing your storage pools. If you are planning to use any tape device, you should create your storage pools accordingly. If you will only use your disk space and pretend that you have a tape, carefully design your disk storage pools. You will find some more detailed information in the next section.

Now it is time to discuss network connectivity. Tivoli Storage Manager is a network application; data should move from clients to Tivoli Storage Manager server(s). We have several options to do this movement. We may choose to run our PoC on a standalone machine, or attached to any of the following networks: LAN, WAN, or SAN connected machines. In order to understand this better, you should be familiar with the network type and their throughputs. Table 2-1 explains the various type of networks and how fast they are.

Network Topology	MB/sec	GB/hr
10 Mb/sec Ethernet	1	3.6
100 Mb/sec Ethernet	10	36
Gigabit Ethernet	100	360
16 Mb/sec Token Ring	1.6	5.8
FDDI	10	36
ATM 155 Mb/sec	15.5	55.8

Table 2-1 Network throughputs

Let us explain this with an example; consider a customer who has:

- Two DB2 database servers, each with 5 GB needs fully backed up
- Two Windows 2003 file servers, each with 60 GB and 5% daily change rate
- One hour backup window for all servers
- A limited budget

Using the data in this table, calculate the network speed required as follows:

- (5+5) + (2*60*.05)=16GB
- Given that the backup window is 1 hour, then 16/1 = 16GB/hr.

For this environment, Ethernet (100 MB/sec) will be the proper choice.

For our demonstration, we should inform the customers about these network type choices.

2.4 Database and pools considerations

The Tivoli Storage Manager database contains information about client nodes, users, policies, schedules, and storage pools. The database also contains pointers to the locations of all backup versions and client files in the Tivoli Storage Manager storage pools. The client data itself is stored in storage pools, not in the database.

Using the Tivoli Storage Manager database, we are able to define storage management policies around business needs for individual clients or groups of clients. Client data attributes such as storage destination, number of versions, and retention period can be assigned at the individual file level and stored in the database.

The Tivoli Storage Manager database also ensures reliable storage management processes. To maintain data integrity, the database uses a recovery log to roll back any changes and updates made if a storage transaction is interrupted before it completes. This is known as a two-phase commit.

As we know, the Tivoli Storage Manager's database is extremely important for our Tivoli Storage Manager environment and there is no tolerance to lose it. Both the Tivoli Storage Manager database and recovery log can be mirrored for availability, providing automatic volume switching after a media failure.

For our demonstration environment, you should calculate the size of your Tivoli Storage Manager database; the first and the easiest is a rule of thumb. Given an environment consisting of mixed size files, a typical Tivoli Storage Manager Database will be 3-5% of the total amount of data in the environment. Table 2-2 explains that each file consumes database space.

Description	Size
Initial file/object backup	600 bytes
Each addition version	200 bytes
Copy storage pool copy	200 bytes

Table 2-2 TSM database sizes

Tivoli Storage Manager uses a logical construction which is called a Storage Pool to represent storage resources. Different storage pools are used to route client data to different kinds of storage resources. Storage pools can be arranged in a hierarchy, with one pointing to another, to allow for migration of data from one type of storage to another type.

If your demonstration will not have any tape attachments, then you may use the default storage hierarchy. When we are configuring the Tivoli Storage Manager Server, we have chosen the default configuration which is provided by Tivoli Storage Manager.

A default storage pool named DISKPOOL, which represents random-access storage space on the hard drive of the Tivoli Storage Manager server machine. During server initialization, Tivoli Storage Manager created one volume (representing a discrete amount of allocated space) in this storage pool. By default, this volume was configured to grow dynamically. You can add more volumes to expand this storage pool as required.

Tivoli Storage Manager also provides three other default storage pools, which are all set up to point to DISKPOOL. These three storage pools correspond to the three ways Tivoli Storage Manager manages client data: backup, archive, and space-management. The Client Node Configuration Wizard allows you to work with the backup storage pool, BACKUPPOOL.

By default, data for any client nodes you associate with BACKUPPOOL will be immediately transferred to DISKPOOL. You can store the data in DISKPOOL indefinitely, or just use DISKPOOL as a temporary cache and then migrate the data to any other storage devices represented in the storage pool hierarchy.

This configuration will not be sufficient if you are planning to show some tape and disk pool combinations. If you are planning to do so, then you should do the appropriate storage pool hierarchy design.

2.5 Preparing for Proof of Concept

To demonstrate to a customer how IBM Tivoli Storage Manager can be used in their environments, it is necessary to conduct a number of interviews with various specialists. Our main aim to do this PoC work is to satisfy customers' needs with the IBM Tivoli Storage Manager product(s). For that reason, we have to set the correct level of expectations with the customer.

Building an IBM Tivoli Storage Manager environment with all the architectural design can require a detailed level of information including, for example, IBM Tivoli Storage Manager Server preferences. What is the network type? Will PoC run in a production network or a private one? What type of data will we back up? What kind of applications does the customer have? The most important issue is to determine what the customer is really expecting from this work.

Note: Do not forget that you should shape and direct your PoC, based on your customer's needs and expectations.

For the purposes of a demonstration, it is not strictly necessary to gather the finest detail. However, this may be advisable so that any subsequent PoC project has a head start.
The initial interviews should determine the customer's objective with IBM Tivoli Storage Manager. During this PoC work, we recommend involving the customer in your demonstration and letting them to do some of the hands on functions by themselves.

It is always better if you can prepare some charts showing the demonstration environment, with some information about the process that you will show. For example, this could be a basic worksheet that shows client names, operating systems, data size on it, backup preferences, etc.

You will find some sample worksheets in A.2, "Sample worksheets" on page 119. You may use them directly or edit them for your own situation.

After completing your work, at the end of each day, it is best to summarize what you have done, and which functions or features of the product have been shown. Then you should document your work and explain each step of your demonstration and get approval from your customer.

Sometimes you need to leave the Tivoli Storage Manager environment on the customer site in order to let the customer get to know the product on their own. In this case, you should leave your contact information and follow up the process with your customer.

Here is a basic checklist that you should follow for the proper planning process.

- 1. Prepare yourself for the initial customer interview.
- 2. List all your questions that will shape your final demonstration to your customer.
 - a. What will be the server's platform?
 - b. How many clients will be in the PoC scenario?
 - c. What will be the OS for these clients?
 - d. What type of data will the clients have?
 - e. What will be the size of data and number of files?
 - f. How many backup versions will be kept?
 - g. Explain the network options in terms of speed and backup windows.
- 3. According to the answers to your questions, design your architecture.
- 4. Install your Tivoli Storage Manager server.
- 5. Install server license.
- 6. Install device drivers.

- 7. Configure your server:
 - a. Update server option file.
 - b. Create database and recovery log volumes.
 - c. Define tape library and tape drives, if you will perform PoC with tape drives.
 - d. Define storage pools and volumes.
 - e. Define policy domains, sets, and management classes.
 - f. Define copy groups.
 - g. Make the policy active.
 - h. Define Administrator ID and password.
- 8. Install clients.
- 9. Install clients' schedules.
- 10.Create client option file.
- 11. Register clients to server.
- 12. Relate clients to schedules and option file.
- 13.Install ISC and Administration Center.
- 14. Perform your PoC scenarios:
 - a. Perform ISC functions.
 - b. Show the backup and restore functions from B/A Client GUI.
 - c. Schedule backup and let customer see how backup can be done automatically.
 - d. Perform operational reports.

15. Document your work and share with your customer.

16.Ask your customer for the next step.

2.6 Summary

In this chapter we have discussed the IBM Tivoli Storage Manager system requirements, its physical design, and provided some hints for Proof of Concept. In the next chapter we will go into more detail regarding installation and configuration.

3

Installation and configuration

Installing IBM Tivoli Storage Manager consists of the following tasks:

- 1. Installing the IBM Tivoli Storage Manager server and related components on the server machine.
- 2. Installing the IBM Tivoli Storage Manager client code on every machine that will transfer data to IBM Tivoli Storage Manager server-managed storage.

This chapter describes the installation instructions for installing the IBM Tivoli Storage Manager server and related components for our PoC demonstration scenario.

The instructions given in this chapter are very detailed and explicit. These instructions are not the only way to install IBM Tivoli Storage Manager and its related prerequisites, and are meant to be followed to successfully install and set up an IBM Tivoli Storage Manager environment for both Windows and AIX platforms.

3.1 Installing IBM Tivoli Storage Manager for Windows environment

For successful installation of IBM Tivoli Storage Manager on a Windows system, Installable IBM Tivoli Storage Manager components include the following items:

- IBM Tivoli Storage Manager server
- IBM Tivoli Storage Manager licenses
- IBM Tivoli Storage Manager language packs
- IBM Tivoli Storage Manager device driver, or the IBMTape device driver (for IBM Magstar® and Ultrium devices)

If needed, you can also install the optional IBM Tivoli Storage Manager ODBC driver, which allows reporting applications to export data from the IBM Tivoli Storage Manager database.

Note: You cannot install the IBM Tivoli Storage Manager server and the storage agent on the same machine on the Windows platform.

Before starting the installation procedure, ensure that you are logged on to Windows with a user name having administrator authority.

Note: IBM Tivoli Storage Manager provides a minimal configuration option, which includes a quick-installation procedure.

Installation of IBM Tivoli Storage Manager will be stopped if an active server or storage agent process is detected, and an error message displayed. All active sever or storage agent processes must be halted before installation can proceed.

When you install or upgrade the server to IBM Tivoli Storage Manager V5.3, you must give your servers unique names. If all of your servers have the default name, SERVER1, you will only be able to add one of them to the Administration Center. Use the SET SERVERNAME command to specify the new server name. The maximum length of the name is 64 characters.

Example 3-1 shows the command to name a server WELLS_DESIGN_DEPT.

Example 3-1 set servername command

set servername Wells_design_dept

See the Administrator's Reference Guide for more details on this command.

3.1.1 Installing IBM Tivoli Storage Manager Server

Let's begin the install process for the basic IBM Tivoli Storage Manager installation. Please follow these instructions:

1. Insert the IBM Tivoli Storage Manager Windows Server CD.

First, the language option windows appear; choose the default language or choose a language from the list as shown in Figure 3-1.

Choose D	emonstration Language
	Select the language for this demonstration from the choices below.
	English (United States)
	OK Cancel

Figure 3-1 Language selection menu

2. The IBM Tivoli Storage Manager Server CD browser panel appears.

From the Main Menu (see Figure 3-2), click the Install Products option.



Figure 3-2 Main Menu

3. The Install Products dialog appears. Choose the **Tivoli Storage Manager Server** option (Figure 3-3).



Additional Installation:

Return to Main Menu

Figure 3-3 Product installation menu

- 4. When the welcome panel comes up, click **Next** to continue, then accept the terms in the license agreement and click **Next**.
- 5. Enter the user name and organization, then select the option, **Anyone who uses this computer**, and click **Next** to continue.

6. The Setup Type dialog appears (Figure 3-4).



Figure 3-4 Server setup type dialog

Select either a Complete or Custom installation and click Next.

Note: Custom installation allows you to select console and server features.

- If you select Complete: The Ready to Install the Program window appears.
- If you select Custom: The Custom Setup Dialog window appears.

7. We shall continue by choosing the custom installation (Figure 3-5).

BM Tivoli Storage Manager Server 5.3.	0.0 - InstallShield Wizard
Custom Setup Select the program features you want installed.	4
Click on an icon in the list below to change how a fee	ature is installed.
Console (32-Bit)	Feature Description
	This feature requires 21MB on your hard drive.
Install to: C:\Program Files\Tivoli\tsm\	Change
InstallShield Space < E	ack Next > Cancel

Figure 3-5 Custom setup features

You can choose the features from the list, or if you would like to install Tivoli Storage Manager using other than its default installation path, as shown in Figure 3-5.

8. Select Change and define installation path and click Next.

To begin installation, click **Install** from the Ready to Install the Program window (Figure 3-6).



Figure 3-6 Installation in progress

Installation will start, and you will get the InstallShield Wizard Completed panel.

9. Click **Finish** to complete the installation. The system will ask you to reboot the machine; click **Yes** (Figure 3-7).



Figure 3-7 Installation completed dialog

Note: After the machine is rebooted, you have to plan to install other Tivoli Storage Manager components locally, then return to the CD browser Install Products panel to complete these installations.

3.1.2 Installing Tivoli Storage Manager licenses

To install the Tivoli Storage Manager license package from the CD browser Install Products dialog, do the following steps:

1. Click **Tivoli Storage Manager Server Licenses**. Click **Next** on the welcome panel (Figure 3-8).

IBM Tivoli Stor	age Manager Serve Version 5.3.0.0
Install Products	
Recommended Installation Sequence: <u>TSM Server</u> <u>TSM Server Licenses</u> <u>TSM Language Packs</u> <u>TSM Device Driver</u>	The recommended sequence minimizes the number of reboots and ensures that everything you need is installed when you configure the server.
Additional Installation:	
Return to Main Menu	
ure 3-8 Install Products menu	

- 2. Enter User Name and Organization information and choose the option, **Anyone who uses this computer** and click **Next**.
- 3. Select Complete or Custom and click Next.
 - If you select **Typical**: The Ready to Install the Program window appears.
 - If you select **Custom**: The Custom Setup Dialog window appears.

Choosing the **Custom** installation will let you change the installation directory. Click **Next** to continue (Figure 3-9).

tom Setup	A 4-1
Select the program features you want installed.	
ck on an icon in th <mark>e list bel</mark> ow to change how a f	eature is installed.
License Files (32-bit)	Feature Description
	This feature requires 72KB on your hard drive.
stall to:	
:\Program Files\Tivoli\tsm\	Change
tallShield	
	Park Next > Canad

Figure 3-9 License File installation

You will receive the InstallShield Wizard Completed panel.

4. Click **Finish** to complete the IBM Tivoli Storage Manager Server license installation.

3.1.3 Installing the Tivoli Storage Manager language packs

You can install nine languages other than English. If you have to do your PoC in any other languages than English, you should use the instructions below. Each language pack (one for each language, 9 total) contains language-specific information for the server and the management console.

To install a Tivoli Storage Manager language pack from the CD browser Install Products dialog, do the following steps:

1. Click Tivoli Storage Manager Language Packs as shown in Figure 3-10.

IBM Tivoli Storage Manager Server Version 5.3.0.0

Language Packs

Chinese (PRC) Chinese (Taiwan) Install the Italian language support files. French German Italian Japanese Korean Portuguese (Brazil) Spanish

Return to Install Products Menu

Figure 3-10 Installation of Language packs

- 2. Click the appropriate language to install.
- 3. When the welcome panel appears, click Next.
- 4. You will receive the Ready to Install panel; click Install.
- 5. After the installation is completed, you will get the InstallShield Wizard Completed panel. Then click **Finish** to complete the language installation.

3.1.4 Installing the Tivoli Storage Manager Device Driver

The Tivoli Storage Manager device driver extends Tivoli Storage Manager media management capability. To install the Tivoli Storage Manager device driver from the CD browser Install Products dialog, do the following steps:

- 1. Click Tivoli Storage Manager Device Driver.
- 2. Enter User Name and Organization information and choose the option, **Anyone who uses this computer**; then click **Next**.
- 3. Select Complete or Custom installation option and click Next.

Choosing the **Custom** installation will let you change the installation directory. Click **Next** to continue (Figure 3-11).

BIBM Tivoli Storage Manager Device Drive	r 5.3.0.0 - InstallShield Wizard 🛛
Select the program features you want installed.	4
Click on an icon in the list below to change how a feat	ure is installed.
Device Driver Files (net32)	Feature Description
	This feature requires 1433KB on your hard drive.
Install to:	
C:\Program Files\Tivoli\tsm\	Change
Help Space < Ba	ck Next > Cancel

Figure 3-11 Device Driver installation

- 4. You will receive the InstallShield Wizard Completed panel.
- 5. Click **Finish** to complete the IBM Tivoli Storage Manager Server Device Driver installation.

The system will ask you to reboot the machine; click **Yes** if you are ready to reboot.

3.1.5 Configuration of IBM Tivoli Storage Manager Server

After installing IBM Tivoli Storage Manager, you must configure the Tivoli Storage Manager server. In order to do this, you should follow these instructions:

 Double-click the Tivoli Storage Manager Management Console icon on the desktop or Start → All Programs → Tivoli Storage Manager → Management Console.

If this is the first installation, the Tivoli Storage Manager Console window opens, with the Initial Configuration Task List displayed. Minimal configuration is selected by default, you can see this in Figure 3-12.

 Standard configuration Choose this option if yo with tape devices and r NDMP, and Server Free 	u want to initialize network clients. T e configuration.	e and configure a server that will be optimized for an environment his option also supports clustering, library sharing, LAN Free,
 Minimal configuration Choose this option if yo the server manually or option 	u want to initialize continue with the	e and configure a server to perform a test backup. You can then configure standard configuration.
Tasks to complete	State	Description
🗹 🚨 Server Initialization 👘	Not started	Initialize an instance of the TSM server
<]	Ш	

Figure 3-12 Initial configuration panel for minimal configuration

In order to have more options for initialization of the server, it is better to choose the standard configuration option.

If you choose to start with Standard Configuration, select the Standard Configuration icon. Additional tasks will be shown on the panel in Figure 3-13.

The following steps are for the Standard Configuration. Server Initialization, which is the only step for Minimal Configuration, is also included in Standard Configuration.

 Standard configuration Choose this option if you with tape devices and ne NDMP, and Server Free 	want to initialize stwork clients. T configuration.	e and configure a server that will be optimized for an environment his option also supports clustering, library sharing, LAN Free,
C Minimal configuration		
Choose this option if you the server manually or co	want to initialize Intinue with the	e and configure a server to perform a test backup. You can then configure standard configuration.
Tasks to complete	State	Description
A Define Fundament	Not started	Drouvide TSM with information on your onvironment
2 🛺 Denne Environment	HIOC STORED	Flovide I Sivi with information on your environment
Configure Performance	Not started	Test your computer's performance and update TSM accordingly
Configure Performance As Configure Performance As Server Initialization	Not started Not started	Test your computer's performance and update TSM accordingly Initialize an instance of the TSM server
Configure Environment Configure Performance Configure Performance Configure Clustering	Not started Not started Not started	Test your computer's performance and update TSM accordingly Initialize an instance of the TSM server Configure's TSM for a clustering environment
Configure Environment Configure Performance Server Initialization Configure Clustering Configure Devices	Not started Not started Not started Not started	Test your computer's performance and update TSM accordingly Initialize an instance of the TSM server Configure's TSM for a clustering environment Let TSM know which devices you want to use
Configure Chillonment Configure Performance Server Initialization Configure Clustering Configure Devices Configure Nodes	Not started Not started Not started Not started Not started	Todae ISM with information and unique and wipdate TSM accordingly Initialize an instance of the TSM server Configure's TSM for a clustering environment Let TSM know which devices you want to use Register nodes and define TSM policies
Configure Environment Configure Performance Server Initialization Configure Clustering Configure Devices Configure Nodes A Prepare Media	Not started Not started Not started Not started Not started Not started	Initialize an instance of the TSM server Initialize an instance of the TSM server Configure's TSM for a clustering environment Let TSM know which devices you want to use Register nodes and define TSM policies Label manual device volumes
Derine Chvitonment Configure Performance Configure Clustering Configure Clustering Configure Devices Configure Nodes Prepare Media Prepare Media	Not started Not started Not started Not started Not started Not started Not started	Total Sum with information and update TSM accordingly Initialize an instance of the TSM server Configure's TSM for a clustering environment Let TSM know which devices you want to use Register nodes and define TSM policies Label manual device volumes Label autochanger volumes and check them in with TSM

Figure 3-13 Initial configuration panel for standard configuration

- 2. Click Start.
- 3. During Standard Configuration, the following Wizards are run in sequence:
 - a. The Initial Configuration Environment Wizard is shown in Figure 3-14.

Here you must define if you are planning to use standalone (local machine) or network configuration. Usually Proof of Concept work is done in a network environment in order to show backups and restores in network attached computers.

nitial (onfiguration Environment Wizard	
Site	Environment Information TSM supports standalone and network environments.	Â
	TSM can be configured for standalone and network environments.	
	Which type of environment will you be configuring?	
	C Standalone (local machine with one local client)	
	Network (network connected clients)	
	TIP: The Standalone environment only supports a single computer. In a network environment you can install TSM client software on computers throughout your r and then back them up to a TSM server.	network
	< <u>B</u> ack <u>N</u> ext > Cancel	Help

Figure 3-14 Site environment information panel

b. The Performance Configuration Wizard is shown in Figure 3-15.

You must also define the number of clients that will be attached to the IBM Tivoli Storage Manager server, and the typical size of the files to be backed up.

Figure 3-15 IBM Tivoli Storage Manager performance options

- c. Server Initialization Wizard
- d. Device Configuration
- e. Client Node Configuration
- 4. Server Initialization Wizard:
 - a. Define the path for Server Instance Directory and click Next (Figure 3-16).

You are configuring TSM ser	ver # 1 on this system.	
Server instance key:	Server1	
Server base directory:	c:\program files\tivoli\tsm\server	
Type in the directory where y	rou would like this server's unique files to be placed	
Type in the directory where ye Server instance directory: c:\program files\tivoli\tsm\	vou would like this server's unique files to be placed	
Type in the directory where y Server instance directory: c:\program files\tivoli\tsm\	vou would like this server's unique files to be placed	
Type in the directory where y Server instance directory: c:\program files\tivoli\tsm\	vou would like this server's unique files to be placed	
Type in the directory where y Server instance directory: c:\program files\tivoli\tsm\	vou would like this server's unique files to be placed	

Figure 3-16 Defining Server files location

b. Server Volume Location

The Wizard will create and initialize Database Volume, Recovery Log Volume, and Disk Storage Pool Volume with default settings, which are 13MB, 9 13MB, and 4 MB respectively, as shown in Figure 3-17.

erver Initialization Wiz	ard				
Server Volume Location The location of the initia	l I server volumes o	can be specified.			
Type in the complete pa	th and size for the	initial volume of	each typ	в.	
Initial database volur	ne:			Size(MB)	
				13	
Initial recovery log vo	lume:			Size(MB)	
c:\tsmdata\server1\	log1.dsm			9	
Initial disk storage po	ol volume:			Size(MB)	
c:\tsmdata\server1\	disk1.dsm			4	
Automatically cre	ate additional DB	volumes as need	led (recor	mmended)	_
		volumes as need		initionada)	
 Automatically cre 	ate additional Log	volumes as nee	aea (reco	mmended)	
	< Back	Next >	Car		Help

Figure 3-17 Server Location and Database sizing

We believe these settings are good enough for standard Proof of Concept work, but according to your PoC plans, you may change the initial settings by editing the required fields.

5. Click the **Next** button to proceed through the wizard pages (Figure 3-16).

Ver Initialization Wizard Server Service Logon Parameters The account and password that the server will run under can be specified.				
Which account should the service use when logging on to) Windows?			
The System account	For domain accounts use:			
C This account T20W2KSVRSP4\Administra	domain\account_name			
Password	The server cannot access Active Directory when logged in under the System			
Verify password	account.			
When do you want the service to start?	To access Active Directory			
C Manually when I explicitly start the service	in under an account with			
Automatically when Windows boots	Administrative permissions.			
< Back Next>	Cancel Help			

Figure 3-18 Service logon parameters

Note: You must specify the account that IBM Tivoli Storage Manager service will use to login to Windows, and it is better to choose to start the server when Windows boots.

6. You know that your Tivoli Storage Manager Server is now up and running after you have received the following message (Figure 3-19).

Informa	tion 🛛 🔀
i	The TSM server has been initialized.
	OK

Figure 3-19 Server initialization completes

- 7. When all wizards have been run, select **Done** to finish the installation.
- 8. After this point, the Initial Configuration Wizard will guide you to do device configuration.

If you have any attached driver or tape library, you may configure at his time. if you would like to use your disk as a primary storage, then you don't have to do anything (Figure 3-20).

evices	Device Information
T20W2KSVRSP4	Basic Detailed
None None	Name:
	Туре:
	Manufacturer:
	Model:
	Revision:
	Status:
1	

Figure 3-20 IBM Tivoli Storage Manager Device Configuration

9. The next step is defining client nodes and policies (Figure 3-21).

torage pools	Associated node	s	
Storage Pool Hierarchy DISKPOOL BACKUPPOOL	Node Name	Policy Domain	Add Edit Delete Advanced
rad and drop storade pools to	Those nodes will	hask un thair data to]

Figure 3-21 Client node and policy configuration

IBM Tivoli Storage Manager storage pools are used to route client data to different kinds of storage resources, such as tape and file volumes. Storage pools can be arranged in a hierarchy to improve the performance of your storage management system.

10. To add a client node, click the Add button.

Node name:	Policy domain name:
Password: Verify password: Force password reset	New Edit Remove

Figure 3-22 Adding a client node

By default this node will be a part of a policy domain which the name is "Standard".

Whenever you want, you can run the required wizard to create, add or change any other components to run IBM Tivoli Storage Manager (Figure 3-23).



Figure 3-23 Server initialization panel

3.1.6 Configure License Options

Licensing in V5.3 has changed from previous versions. After installing the Version 5.3.0 server, you must register new licenses. The **REGISTER LICENSE** command has changed with this version, and its function is currently limited:

- You can register licenses for server components. This includes Tivoli Storage Manager (base), Tivoli Storage Manager Extended Edition, and Tivoli Data Retention Protection.
- You cannot register licenses for components that are licensed on the basis of processors (for example, Tivoli Storage Manager for Mail, Tivoli Storage Manager for Databases, Tivoli Storage Manager for ERP, Tivoli Storage Manager for Hardware, and Tivoli Storage Manager for Space Management).

Your license agreement determines what you are licensed to use, even if you cannot use the **REGISTER LICENSE** command to register all components. You are expected to comply with the license agreement and use only what you have purchased. Use of the **REGISTER LICENSE** command implies that you agree to and accept the license terms specified in your license agreement.

```
REGister LICense FILE=<license_file>
```

tsmbasic.lic — To license base IBM Tivoli Storage Manager.

tsmee.lic — To license base IBM Tivoli Storage Manager Extended Edition. This includes the Disaster Recovery Manager, large libraries, and NDMP.

dataret.lic — To license IBM Tivoli Storage Manager for Data Retention. This is required to enable Data IRetention Protection as well as Expiration and Deletion Suspension (Deletion Hold).

To check the license, you can user the query license command (Figure 3-24).

Last License Audit:	03/07/2005	12:00:28
Is Tivoli Storage Manager for Data Retention in use ?:	No	
Is Tivoli Storage Manager for Data Retention licensed ?:	No	
Is Tivoli Storage Manager Basic Edition in use:	Yes	
Is Tivoli Storage Manager Basic Edition licensed:	Yes	
Is Tivoli Storage Manager Extended Edition in use:	No	
Is Tivoli Storage Manager Extended Edition licensed:	Yes	
Server License Compliance:	Valid	

Figure 3-24 Output of query license command

3.1.7 Installation of IBM Tivoli Storage Manager Client

The Tivoli Storage Manager Backup/Archive client helps you protect information on your workstation. Using Tivoli Storage Manager, you can maintain backup versions of your workstation files that you can restore if the original files are damaged or lost. You can also archive workstation or server files that you do not currently need, preserve them in their current state, and retrieve them when necessary.

You can access Tivoli Storage Manager backup and archive features:

- Locally through the client command line interface
- Remotely or locally through the Web client interface

Follow these steps to install the software on your Windows 2000, Windows XP, or Windows Server 2003 workstations:

- Insert the CD-ROM that contains the Tivoli Storage Manager Windows client into your CD-ROM drive. If you have autorun enabled, the installation dialog should start when the CD loads. If the installation dialog does not start automatically, you can start it manually. Select **Run** from the Start menu and at the prompt, type: x:\setup (where x is your CD-ROM drive). Click OK.
- 2. Follow the instructions displayed on the panel.
- 3. First of all, you should choose your language for your menu selections, then you will receive the installation main menu (Figure 3-25).

	Version 5.3.0.0
Main Menu	
<u>Install Products</u> <u>View Release Notes</u>	Please choose on an option to the left.
<u>Visit Our Website</u> <u>Contact Us</u>	

Figure 3-25 IBM Tivoli Storage Manager Client installation main menu

Choose Install Products to continue.

4. Choose the proper client from the menu; clients are shown in Figure 3-26.



Figure 3-26 Choosing client type

- 5. You will be prompted for the language selection for your client. Then click **Next** on the welcome panel.
- 6. Choose the destination folder for Tivoli Storage Manager Client code and click **Next** to continue.

7. You will reach the Setup Type option menu (Figure 3-27).



Figure 3-27 Client setup options

In regard to the two setup types shown on this menu:

 Choosing Typical installs the minimum necessary to provide normal backup and archive functions. If you are upgrading from a Version 4.1 or 4.2 client, this updates the components that are currently installed.
 Otherwise, this includes the Backup/Archive client, the API Runtime files, and the Web Client.

At this point, choose Custom and click Next.

 Choosing Custom takes you to the Custom Setup window. From this window, you can click any program feature icon to modify that feature if it is not mandatory for installation.

You can select from the following program features:

- Backup/Archive client:
 - Backup/Archive client GUI Files (mandatory; cannot be deselected)
 - Backup/Archive client Web Files (mandatory; cannot be deselected)
 - Client API Runtime Files (mandatory; cannot be deselected)
 - Client API SDK Files (optional)
 - Administrative Client Command Line Files (optional; not enabled by default)
 - Image Backup (optional; not enabled by default)
 - Open File Support (optional; not enabled by default)

- Online information:
 - READMEs and Installation and User's Guide
 - Installation and User's Guide PDF (optional)
- 8. The installer displays the exact amount of disk space that is required for each program feature. Ensure that there is enough disk space on the destination drive for the files you choose to install. The installation program will not install to a destination drive with insufficient disk space.
- 9. Click Next to start the installation (Figure 3-28).

Select the program features you want installed.	Y A
k on an icon in the list below to change how a feature is in Backup-Archive Client Backup-Archive Client GUI Files Backup-Archive Client GUI Files Client API Runtime Files Client API Runtime Files Client API SDK Files Administrative Client Command Lir Image Backup Open File Support	Stalled. Feature Description TSM Client Files This feature requires 0KB on your hard drive. It has 4 of 7 subfeatures selected. The subfeatures require 8355KB on your hard drive.
stall to: \Program Files\Tivoli\TSM\	Change

Figure 3-28 Client custom setup options

You will receive the InstallShield Wizard Completed message; then click **Finish** to complete the installation.

3.1.8 Configuring Tivoli Storage Manager Client

Now it is time to configure your client. You can start your configuration wizard form your desktop, choosing Start \rightarrow All Programs \rightarrow Tivoli Storage Manager \rightarrow Backup-Achieve GUI.

Configuration can be done either from Tivoli Storage Manager Backup/Archive GUI or by editing the dsm.opt file directly.

From the Client Configuration Wizard, you can also configure WebClient, Client Scheduler, Journal Engine, and Online/Open file support features.

Click the first option and click Next to start the configuration (Figure 3-29).



Figure 3-29 IBM Tivoli Storage Manager Client configuration wizard

Here are the steps to follow:

- 1. If you do not have a dsm.opt file, a setup wizard is launched automatically when you start the GUI. The setup wizard can help you configure an initial options file.
- 2. Choose Create a new options file and click Next to continue.
- 3. Key in the Tivoli Storage Manager node name and click Next.
- 4. With Tivoli Storage Manager V5.3, it is possible for the client to connect to Tivoli Storage Manager server via four communication methods:
 - TCP/IP (same as previous releases.)
 - Named Pipes (same as previous releases)
 - Shared Memory (new for V5.3)
 - Use Active Directory to locate Tivoli Storage Manager server (new for V5.3)

Click **TCP/IP** and click **Next** to continue.

5. Enter the Tivoli Storage Manager server's IP address or DNS name and leave the port as 1500. Click **Next** (Figure 3-30).

SM Client Configuration Wizard		×
Recommended Include/Exclude List		
The following is a list of TSM recommended Include/Ex required for system recovery. Selected items will be add backups.	clude items for files which ed to your configuration fi	are not normally le, and excluded from
EXCLUDE.ARCHIVE "*:\\system32\dhcp*" INCLUDE.ARCHIVE "*:\\system32\dhcp\backup\ EXCLUDE.ARCHIVE "*:\\system32\dns*" INCLUDE.ARCHIVE "*:\\system32\dns\backup\\		
EXCLUDE.DIR "":\Temporary Internet Files" EXCLUDE.DIR "":\Recycled" EXCLUDE.DIR "":\Recycler"		
	Select All	Clear All
< <u>B</u> ack	Next > Can	cel Help

Figure 3-30 Default include/exclude list

- 6. With this release, the configuration wizard automatically adds recommended INCLUDE/EXCLUDE list statements.
- 7. Leave the list at the default values, or if you would like not to add any one of the lines, just click it, then select **Next** to continue.
- 8. The next panel is for the common file exclude selection menu. You can select the file extension to be excluded during the backup process. Click **Next**.

9. You need to choose your backup options from the Domain for Backup panel shown in Figure 3-31.

TSM Client Configuration	Wizard				×	l
Domain for Backu)					
Backup Type	Incremental					
🔽 Back up all local	file systems					
Domain List						
C: (\\\20w2ksvrsp SYSTEMOBJECT	4\c\$)					D
		< <u>B</u> ack	<u>N</u> ext >	Cancel	Help	

Figure 3-31 Backup options

10.Click **Next**, and you will receive the installation completion panel. Click **Finish** to complete the configuration.

You will receive a login window to login to the Client GUI. Enter the password which you entered while you were registering this node to Tivoli Storage Manager server.

3.1.9 Configuring Tivoli Storage Manager scheduler

In order to start the scheduler, you must configure the Tivoli Storage Manager Client Scheduler using the Setup Wizard.

1. Choose from the Utilities and Setup Wizard.

2. Click **Tivoli Storage Manager Client Scheduler** and click **Next** (Figure 3-32).

TSM Client Configuration Wizards		×
	TSM Client Configuration Wizard This wizard will help you create a client options file	
	Which components would you like to configure?	
NI II	☐ Help me configure the TSM Backup Archive Client	
10	 Help me configure the TSM Web client Help me configure the TSM Client Scheduler Help me configure the TSM Learned Scheduler 	
9816	Help me configure the TSM Journal Engine Help me configure 'Online' Image Support	
	L Help me configure Open File Support	
	< Back Next > Cancel Help	,

Figure 3-32 Setting the schedule option

- 3. Use the default options and enter the password as client.
- 4. Choose Automatically Start option for the server option.
- 5. Click **Finish** to close the dialog box.

You can use and demonstrate how the automatic backup schedule function works.

Now you are ready to show some IBM Tivoli Storage Manager functions using this client. Figure 3-33 shows the main panel for the Client GUI.



Figure 3-33 Backup - Archive GUI

You may also update your client node's preferences from your client GUI.

At this point we have completed the IBM Tivoli Storage Manager Server and Client installations for the Windows environment.

For more detailed installation and configuration information, please refer to the *IBM Tivoli Storage Manager Windows Server Installation Guide Version 5.3*, GC32-1602-00, and the *IBM Tivoli Storage Manager Windows Client Installation Guide Version 5.3*, GC32-0788-05.

3.2 Installing IBM Tivoli Storage Manager for UNIX (AIX) environment

In this section we discuss the important steps for installation and configuration for AIX operating systems. We recommend that you read the IBM Tivoli Storage Manager Quick Start publications for the requirements for other UNIX® flavors in the following link:

http://publib.boulder.ibm.com/infocenter/tivihelp/index.jsp?toc=/com.ibm. itstorage.doc/toc.xml

Next we explain the important steps of the IBM Tivoli Storage Manager server installation for AIX (see Figure 3-34). We will use the System Management Interface Tool (SMIT) procedure to install the server and device support.

Follow these installation procedures:

- 1. Log in as the root user.
- 2. Load the CD into the selected drive.
 - a. If you downloaded the code from PartnerWorld® or PasswordAdvantage site, then you should unzip the code by entering the following commands:

Gunzip code.tar.gz

tar -xvf code.tar

- b. Change directory to .../usr/sys/inst.images/.
- c. You may need to create TOC by entering the INUTOC command.
- 3. Select smitty → Software Installation and Maintenance → Install and Update Software → Install and Update from ALL Available Software.
 - a. Edit the install path for the Input Device/ Directory for software field.
- 4. Locate the line Software to Install. Press PF4.
- 5. Select the one of the file sets you want to install for your configuration, then click **OK**:
 - a. 32-bit hardware, 32-bit AIX kernel
 - b. 64-bit hardware, 64-bit AIX kernel
 - c. 64-bit hardware, 32-bit AIX kernel

		and the second se	
	Install Softwa	are	
	SOFTWARE to inst	all	
	and the state of the plant		
Move cursor to de	sired item and press Esc ⁴	 Use arrow keys to scr 	oll.
DRE OR MORE I	making all calestions		
FIESS LILLER HEICK	making art setections.		
[MORE10]			
tivoli.tsm.lice	nse.cert		ALL
> + 5.3.0.0 IBM	Tivoli Storage Manager L	icense Certificates	
	A CONTRACT PORT OF A CONTRACT OF		
tivoli.tsm.lice	nse.rte		ALL
> + 5.3.0.0 IBM	Tivoli Storage Manager 3	32 bit License Registrati	on
			011
tivoli.tsm.serv	er.alxb.rteb4	A bit Comme Dunting	HLL
+ 5.3.0.0 IBM	Tivoli Storage Manager (94 DIT SERVER KUNTIME	
[HOKE 0]			
F1=Help	F2=Refresh	F3=Cancel	
Esc+7=Select	Esc+8=Image	Esc+0=Exit	
Enter=Do	/=Find	n=Find Next	

Figure 3-34 IBM Tivoli Storage Manager AIX server installation

- 6. Click **OK**.
- 7. Check the default settings for the options on this window. To continue, click **OK** (Figure 3-35).

Session B - [24 x 80]	
e Edit View Communication Actions Window Help	
COMM	AND STATUS
Command: running stdout: yes	stderr: no
Before command completion, additional	instructions may appear below.
[MORE5]	
I:tivoli.tsm.license.rte 5.3	3.0.0
I:tivoli.tsm.server.com 5.3	3.0.0
I:tivoli.tsm.server.rte 5.3	3.0.0
I:tivoli.tsm.server.webcon 5.	3.0.0
******	*********
installp PREVIEW: installation will	not actually occur.
***************************************	********
+	
Pre-installation	Verification
Verifying selectionsdone	
Verifying requisites	
[ВОТТОМ]	
100	22/024
Connected to remote server (host 9 172 107 12 using port 23	trictf0d Open Area/17//stOffice on trictf0d

Figure 3-35 Default settings panel

- 8. You will receive the question ARE YOU SURE?... from SMIT.
- 9. To continue, click **OK**. This installation can take several minutes to complete (Figure 3-36).

Note: Some file sets are operating system-level-specific and will fail to install. This is normal behavior, and should not be interpreted as an error.

e Edit View Communication Action	ns Window Help						
	🛋 號 🛃 🗟	5 🚊 🔌 🤌					
COMMAND STATUS							
Command: OK	std	out: yes	stderr: no				
Before command o	completion,	additional	instructions ma	ay appear be	low.		
[MORE220]							
tivoli.tsm.serve	er.com	5.3.0.0	USR	APPLY	SUCCESS		
tivoli.tsm.server.com		5.3.0.0	ROOT	APPLY	SUCCESS		
tivoli.tsm.msg.en_US.server 5.3.0.0			USR	APPLY	SUCCESS		
tivoli.tsm.devices.aix5.rte 5.3.0.0			USR	APPLY	SUCCESS		
tivoli.tsm.devices.aix5.rte 5.3.0.0			ROOT	APPLY	SUCCESS		
tivoli.tsm.server.rte 5.3.0.0			USR	APPLY	SUCCESS		
tivoli.tsm.server.rte 5.3.0.0			ROOT	APPLY	SUCCESS		
tivoli.tsm.msg.en US.device 5.3.0.0			USR	APPLY	SUCCESS		
tivoli.tsm.license.rte 5.3.0.		5.3.0.0	USR	APPLY	SUCCESS		
tivoli.tsm.server.webcon 5.3		5.3.0.0	USR	APPLY	SUCCESS		
[BOTTOM]							
F1=Help	F2=Refresh		F3=Cancel	Esc+6=Command			
Esc+8=Image	age Esc+9=Shell		Esc+0=Exit	Esc+0=Exit /=Find			
n=Find Next							
100			18/001				
Connected to remote server/host 9.13	72.107.12 using port 23			tris	tl0d Open_Area/17/IstOffice on tristl0d		

Figure 3-36 Installation complete

10.After the installation is complete, click **Done**, remove the CD, and exit from SMIT.

Note: The Database, Recovery Log, and default storage pools are created (or should be) by the installation process.

11. To start the server from the /usr/tivoli/tsm/server/bin directory, enter:

nohup ./dsmserv

Or, run in the background with:

nohup ./dsmserv &

For detailed installation and configuration information, you should refer to the *IBM Tivoli Storage Manager Server for AIX Installation Guide Version 5.3*, GC32-1597-00.

3.2.1 Installing IBM Tivoli Storage Manager Client for AIX

To install Tivoli Storage Manager from the CD-ROM:

 Log in as the root user. Insert the CD-ROM into the CD-ROM drive device. You will need to manually mount the CD-ROM device for remote or NFS installations.

- 2. From the AIX command line, type smitty install and press Enter.
- 3. Select Install and Update Software and press Enter.
- 4. Select Install and Update From ALL Available Software and press Enter.
- 5. At the INPUT device/directory for software prompt, press the F4 key and select the CD-ROM device containing the installation CD-ROM, or specify the directory containing the installation images, and press Enter.
- 6. At the SOFTWARE to install prompt, press the F4 key. Select the Tivoli Storage Manager filesets you want to install and press Enter (Figure 3-37).



Figure 3-37 IBM Tivoli Storage Manager Client install options

- 7. Select the options you want and press Enter to begin the installation.
- 8. After installation completes, you should see a completion panel (Figure 3-38).

Session B - [24 x 80]						
e Edit View Communication Action	ns Window Help					
	🛋 🐮 🔝 💩 🛃 🚇 🥔					
COMMAND STATUS						
Command: OK	stdout: yes	stderr: no				
No. France Tarabase and Ta				- August and		
Before command o	completion, additional	instructions ma	y appear be	LOW.		
[MORE192]						
Name	Level	Part	Event	Result		
tivoli.tsm.clier	nt.api.32bit 5.3.0.0	USR	APPLY	SUCCESS		
tivoli.tivguid	1.3.0.0	USR	APPLY	SUCCESS		
tivoli.tivguid	1.3.0.0	ROOT	APPLY	SUCCESS		
tivoli.tsm.clier	nt.ba.32bit. 5.3.0.0	USR	APPLY	SUCCESS		
tivoli.tsm.clier	nt.ba.32bit. 5.3.0.0	USR	APPLY	SUCCESS		
tivoli.tsm.clier	nt.ba.32bit. 5.3.0.0	USR	APPLY	SUCCESS		
tivoli.tsm.clier	nt.ba.32bit. 5.3.0.0	USR	APPLY	SUCCESS		
tivoli.tsm.clier	nt.ba.32bit. 5.3.0.0	USR	APPLY	SUCCESS		
[BOTTOM]						
F1=Help	F2=Refresh	F3=Cancel	Esc+6=Command			
Esc+8=Image Esc+9=Shell		Esc+0=Exit	/=Find			
n=Find Next						
100		19/001				
Connected to remote server/host 9.13	72.107.12 using port 23	tristl0d Open_Area/17/IstOffice on tristl0d				

Figure 3-38 Installation completes

9. We have now completed the Client code installation. For detailed installation information, please refer to the *Linux Backup/Archive Clients Installation and User's Guide for AIX Version 5.3*, GC32-0789-05.

3.2.2 IBM Tivoli Storage Manager Client Configuration

After installing the IBM Tivoli Storage Manager AIX client code, you must complete the client configuration. The client configuration files, which are **dsm.sys** and **dsm.opt**, can be found at the installation directory:

/us/tivoli/tsm/client/ba/bin

To configure the client, you should do the following steps:

- 1. Copy dsm.sys.smp to dsm.sys and dsm.opt.smp to dsm.opt.
- 2. Edit the dsm.opt as follows:
 - a. Remove the comment in front of SERVERNAME.
 - b. Add servername stanza. (The value can be anything you want. It should match the value that you will insert in dsm.sys.)
- 3. Edit dsm.sys:
 - a. Change Server_a to the one in step 2.b
- b. Change **TCPSERVERADDRESS** to the real IP address of Tivoli Storage Manager server.
- c. You can add other client options.

In addition to this configuration, you may configure the following steps:

- Communication options
- Backup and archive processing options
- Restore and retrieve processing options
- Scheduling options
- Authorization options
- Error processing options
- Transaction processing option
- Web client options

For detailed configuration information, please refer to the *Linux Backup/Archive Clients Installation and User's Guide for AIX Version 5.3*, GC32-0789-05.

3.3 Installing ISC and configuring Administration Center

This section provides instructions for installing the ISC and Administration Center on Windows machines. Starting with the IBM Tivoli Storage Manager version 5.3, you can only access IBM Tivoli Storage Manager via the Administration Client or Administration Center.

Version 5.0.2 of the Integrated Solutions Console is required to use the Administration Center. This version of the Integrated Solutions Console is to be installed prior to installing the Administration Center. From the Administration Center on any platform, all Tivoli Storage Manager Servers on any platform can be accessed.

Note: The Integrated Solutions Console and the Administration Center can only manage Tivoli Storage Manager server 5.3 and up.

Access to Tivoli Storage Manager server V5.3 from a browser is no longer supported. If you try this, you will receive the message shown in Figure 3-39.

Not Supported

ANR4747W The web administrative interface is no longer supported. Begin using the Integrated Solutions Console instead.

Figure 3-39 Web GUI is not supported

Installing and configuring ISC-Admin center consists of the following tasks:

- Installing the ISC
- Installing Administration Center
- ► Adding Tivoli Storage Manager server to Admin Center
- ► Operating and configuring Tivoli Storage Manager server from Admin Center

Installation the IBM Integrated Solution Center (ISC)

Follow these steps (Figure 3-40):

- 1. Insert the ISC CD, or download code from Internet.
- 2. Run setupISC.exe.

BM Integrated Solutions Console	
woli Storage Manager	IBM
Welcome to the InstallShield Wi	zard for IBM Integrated Solutions Console
The InstallShield Wizard will install IBM Integrated S To continue, choose Next.	Solutions Console on your computer.
IBM Tivoli Storage Manager IBM Integrated Solutions Console	
stansment	< Back Next > Cancel

Figure 3-40 ISC installation welcome panel

- 3. Click Next. Accept the License and click Next.
- 4. Specify the Installation Directory (CD or the directory where you run SETUPISC.exe).
- 5. Specify the directory where you want to install ISC (Default C:\Program Files\IBM\ISC).

6. Specify Console User ID and password (default iscadmin) (Figure 3-41).

BM Integrated Solutions Console	
Tivoli Storage Manager	
Create a User ID and Password	
The Administration Center is installed as an IBM Integrated Solutions Console (ISC) compore a user ID and password are required to log in to the Integrated Solutions Console. After you administrator credentials defined for Tivoli Storage Manager servers to add them to the Adm * Integrated Solutions Console user ID	onent. To provide security, I log in, you can use the ninistration Center.
iscadmin	
* Integrated Solutions Console user password	
* Verify password	
) Janakall@dahdhd	
< Back	Next > Cancel

Figure 3-41 User ID and password creation

7. Specify HTTP and HTTPS ports (Default 8421, 8422).

8. The installation process can take approximately 1 to 2 hours. You can follow the installation by continuously checking the properties of the installation directory (Figure 3-42).

Ð	ISC	
Гуре:	Folder	
ocation:	C:\Program Files\IBM	
Size:	40.7 MB (42,695,191 bytes)	
Size on disk:	42.7 MB (44,822,528 bytes)	
Contains:	640 Files, 59 Folders	
Created:	Today, March 10, 2005, 10:16:31 AM	
Attributes:	Read-only Advanced	
	Hidden	

Figure 3-42 ISC properties

9. You will see the installation process panel as shown in Figure 3-43.



Figure 3-43 Installation starts

10. You will get the following message and URL for ISC, when the installation completes, as shown in Figure 3-44.



Figure 3-44 Installation completes

11. To verify the installation (Figure 3-45), open the browser and reach:

http://localhost:8421/ibm/console



Figure 3-45 Starting the ISC console

12. To run the ISC, enter the user ID and password that you defined in the installation step 6.

With this step we have successfully installed the ISC, and now we are going to install the Administration Center.

Installation of Administration Center

Follow these steps (Figure 3-46):

- 1. Insert the Administration center CD, or download code from Internet.
 - a. Downloaded code is in tar format. Extract it to a temporary directory.
- 2. Run setupAC.exe.
- 3. Click Next. Accept the license and click Next.



Figure 3-46 Administration Center welcome panel

- 4. The nstallation will ask whether ISC has been installed on the default paths. If the information is not correct, then select **I would like to update the information** and click **Next**.
- 5. Specify the directory where you installed ISC (Default C:\Program Files\IBM\ISC).
- 6. Specify Web administration port (default 8421).
- 7. Specify Console User ID (default iscadmin) and password.
- 8. Specify installation path where you run setupAc.exe.
- 9. Installation may take 30 minutes.

10. You will get the following message and the URL for ISC (Figure 3-47).



Figure 3-47 AC installation completes

11.Click Next, and you will be transferred to the ISC login page.

To get started, log in using the Integrated Solutions Console user ID and password you created during the installation. When you successfully log in, the Integrated Solutions Console welcome page is displayed as shown in Figure 3-48.

Integrated Solutions Console - Mi	crosoft Internet Explor	er	
File Edit View Favorites Tools Hi	elp		
😋 Back 🝷 🐑 - 💌 🛃 🏠	🔎 Search 👷 Favori	tes 🔮 Media 🧭 🔗 - 🖕 🚍	3
ddress 🕘 http://murat-yesilmen2:8421/ib	m/console/!ut/p/.scr/LoggedI	n	🖌 🄁 Go 🛛 Links
Welcome muraty		My Favorites 💌 🛛 Edit my	profile Help Log out
Integrated Solutions Console			
Work Status Settings			
Items	Welcome		
View : No group filter			
Welcome	Integrated Solutions Cor	asole provides a common administration or	ansole for multiple products
Tivoli Storage Manager	The table lists the produ	ct suites that can be administered through	this installation of the
	console.		
		Suite Name	Version
	Integrated Solutions Co	5.1	
	IBM Tivoli Storage Mana	5.3.0.0	
	Page 1 of 1	Total: 2 Displayed: 2	
	Click here for more infor components.	mation on the Integrated Solutions Consol	e and the installed

Figure 3-48 ISC login automatically start

12. Expand the Tivoli Storage Manager folder in the Work Items list and click Getting Started to display the Tivoli Storage Manager welcome page. This page provides instructions for using the Administration Center.

We have completed the installation of IBM Integrated Solution Center and Administrator Center. If you need more detail on this installation, you should read Chapter 23, "Administration Center", in the IBM Redbook, *IBM Tivoli Storage Manager Version 5.3 Technical Guide*, SG24-6638-00.

You may also refer to Chapter 4, "Installing the Administration Center", in *IBM Tivoli Storage Manager Installation Guide for Windows Version 5.3*, GC32-1602-00.

3.3.1 Configuring the Administration Center

After installing ISC and Administration Center, Tivoli Storage Manager servers should be added to the portal. Only Tivoli Storage Manager 5.3 and later releases can be added.

In the following sections we explain the configuration steps for the Administration Center.

Adding server to Administration Center

Follow these steps (Figure 3-49).

- 1. Open a browser and reach http://host:8421/ibm/console.
- 2. Enter Console user ID and password and click login.
- 3. Click Tivoli Storage Manager.
- 4. Click Storage Devices.
- 5. From the Servers window, select Action \rightarrow Add Server Connection \rightarrow Go.
- 6. Enter the necessary information, such as Admin Name, password, server address and server port:
 - a. If this is the first installation, Admin name and password is ADMIN.
 - b. In order help the monitor to check your Tivoli Storage Manager server, during installation, the ADMIN_CENTER admin name has been created. You have to unlock the Admin.
- 7. The health monitor default password is ADMIN_CENTER. Change the ADMIN_CENTER password. You can also change the refresh time for the health monitor. The default is 10 minutes.

Image: Deck + Original Status	File Edit View Favorites Tools	Help					
Address @ http://murat-yealmen2x842.l/bm/console/hut/p/_s7_0_CH/cmd/ad/ar/pa_T455d1ca6/hcfe_0_00/cd7_0_CK/ph5_0_00/d07PC_7_0_CK_puter1455d1ca64PC_7_V @ 6 Welcome murat yealines My Favorites W Pavorites W Pavo	🌀 Back 🝷 🕥 🕤 🛃 🛃 🦿	🏅 🔎 Search 👷 Favorites 🜒 Media 🍕	3 🖉 - 🍃 🗖 🚺				
Welcome murat yealimen My Pavorites Edit my profile Heigh Logi Integrated Solutions Console Integrated Solutions Console Integrated Solutions Console Werk Batus Storage Storage Integrated Solutions Console Werk No Storage Devices Clease Welcome Mode Connection and IDM Truch Storage Manager Server Add a connection and IDM Truch Storage Manager Server Add a connection and IDM Truch Storage Manager Server Add a connection and IDM Truch Storage Manager Server Add a connection and IDM Truch Storage Manager Server Add a connection and IDM Truch Storage Manager Server Add a connection and IDM Truch Storage Manager Server Add a connection and IDM Truch Storage Manager Server Add a connection and IDM Truch Storage Manager Server Add a connection and IDM Truch Storage Manager Server Add a connection and IDM Truch Storage Manager Server Add a connection and IDM Truch Storage Manager Server Add a connection and IDM Truch Storage Manager Server Add a connection and the server Beliny Domains and Client Beaserof Beaserof Beaserof Beaserof Beaserof Server Maintenarce Beaserof Beaserof Server Maintenarce Beaserof Beaserof	Address Address Address Address	ibm/console/!ut/p/_s.7_0_A/7_0_CH/.cmd/ad/.ar/sa.	T465d1ca6/.c/6_0_9D/.ce/7_0_CK/.	p/5_0_9D/.d/0?P	C_7_0_CK_wti=1	1465d1ca6#PC_7	❤ 🔁 Go
Integrated Solutions Console Storage Work Status Storage Velocine Storage Devices Core Wetwise Regroup filter Core Wetwise Core Core Catting Started Health Monitor Cores Health Monitor Description Number of the server must be installed and used as the connection name. Every connection you add must have a unique name. Policy Domains and Client Nodes Server Address Server address Policy Domains and Client Nodes Server port Server port Storage Devices Server port Server port Server port Social Server port Server port Server port Server port Server port	Welcome murat yesilmen		N	ly Favorites	C Edit	my profile H	elp Log
Vorkiters Settings Verex Rogroup filter Verex Sorage Devices Celeme Setting Started Health Montor Add a connection allow you to use the Administration Center to manage a Twoil Storage Manager Version 5.3 server. The server must be installed and started before you can add a connection name. Every connection you add must have a unique name. Betwing Started Description Health Montor Description Buttary TSM Server Add name Version 2 montor Reserver Administration canter to confirm Name Version Server address Solonalis Server port Version balance Server port Version Cancel Version full Server Server address Version full Servers Server address Version full Servers Server port Version Server port Version for All Servers Server to allow the health monitor to report server status. Verarete for All Servers<	Integrated Solutions Console						
Weiter Borgup filter Image: Construction for an IBM Trivel Storage Manager Server Medicare Add a Connection allow you use the Administration Center to manage a Trivel Storage Manager Version 3.3 server. The server manable for data tarted before you can add a connection name. Every connection you add must have a unique name. Getting Started Health Monitor Health Monitor Description Buildy Domains and Client Murager Server Murager YEM Murager Server Add a Connection allow you use the Administration Connection name. Every connection you add must have a unique name. Policy Domains and Client Description Murager YEM Murager Server Murager YEM Server Maintenance Reporting * Server address Option * Server address Ubscalabat * Server port ISSO Image: Server status. VK Cancel Ubscalabat * Server uses torge to poly allows to the data for data for data for data nodes. Ubscalabat the server to allow the health monitor to report server status. VK Cancel	Work Status Settings	Storagx					•
Welcome Add a Connection to an IBM Twole Storage Manager Server Add a Connection to an IBM Twole Storage Manager Server Getting Started Health Monitor Enterprise Management Storage Devices Policy Domains and Client Nodes Reporting * Password * Password * Server port ISO * Server port ISO * Server port ISO * Server port ISO * Ubractes for All Servers * Ubractes for All Servers * Ubractes for All Servers	View : No group filter	Storage Devices					Close
Chronic Storage Manager Getting Started Health Monitor Enterprise Management Storage Devices Policy Domains and Client Nodes Reporting Server Maintenance Reporting Unlock the ADMINICENTER administrator on the server to allow the health monitor to report server status. Of Cancel	Welcome	Servers					,
A server uses storage devices to store data for client nodes. Libraries and drives represent storage devices to the server. The table	Getting Started Health Monitor Enterprise Management Storage Devices Policy Domains and Client Nodes Server Maintenance Reporting	server must be installed and started befor name is automatically detected and used a Description Muraty TSM Server #Administrator name admin #Password #Password #Core and the server focult and the server locality #Server port 1500 © Unlock the ADMIN_CENTER administrate OK Cancel	you can add a connection. See s the connection name. Every o	the Installation	n Guide for inst add must have	tructions. The se	Twee
	(A) Deere					6 1.	and intranat

Figure 3-49 Adding TSM server to Admin Center

8. Your Tivoli Storage Manager server is now ready for the configuration.

Checking the Health of Tivoli Storage Manager server

Follow these steps (Figure 3-50):

- 1. Click Health Monitor.
- 2. Just under the Health column, you may see the following messages:
 - a. Normal (green): The server is running and the health monitor identified no problems.
 - b. Unknown (blue): The server could not be contacted. Possible causes include these:
 - The server is not currently running.
 - Network problems prevent communications with the server.
 - The administrator name that the health monitor uses, ADMIN_CENTER, is locked or does not exist on the server.
 - There were internal errors in the health monitor.

Click the server name to get more information about possible causes.

c. Warning or Needs Attention (yellow): The health monitor detected conditions that might develop into significant problems. You need to take preventive actions for the server's database, storage devices, or both. Click the server name for details.

Work Storag,				
View : No group filter View	Monitor			
Getting Started Health Monitor	ules, the server database and re- es access to the server activity lo	covery log, and the status of sto g, which allows you to view mess select Action 😿 Go	rage devices managed by ages generated during se	the server. The health more operations.
Enterprise Management	Select ^	Server ^		Health 🛆
Storage Devices	•	MURAT-YESILMEN2	SERVER1	A Warning
Policy Domains and Client Nodes	age 1 of 1 Tota	l: 1 Filtered: 1 Displayed: 1	Selected: 1	
Server Maintenance This p	ortlet will refresh in 0 minutes an	d 7 seconds.		
Reporting				
Policy Domains and Client Nodes Server Maintenance Reporting	age 1 of 1 Tota	MURAI-FEBLUMENA 3	Selected: 1	

Figure 3-50 Health monitor panel

d. Critical or Error (red): The health monitor detected significant problems in the server's database, storage devices, or both. The problems prevent the server from operating normally, as shown in Figure 3-51.

The database or recovery log is out of space, or a library is not functioning. Click the server name for details.



Figure 3-51 Detailed health information

- 3. Click the server name to get more information.
- 4. This window will give you the overall status of your Tivoli Storage Manager server (Figure 3-52). Identify the problem area and select the appropriate Detailed Report:
 - a. In this page, in the Database Information column, there is a "Need Attention" flag. Choose **Database and Recovery Log Information**.
 - b. Detailed Health report for Database and Recovery log, takes our attention to following points.
 - i. Cache Hit Ratio is less than its ideal value. Change the bufferpoolsize and wait for the next refresh. When the Health Monitor refreshes its information, you will see that the status of Tivoli Storage Manager server is now good.

File Edit View Favorites Tools I	Help		
🔇 Back 🔹 🕥 - 💌 🛃 🎸	Search 🥎 Favorites	🜒 Media 🛷 🔗 - چ 📄 🗾 💈	
Address Address Address Address Address	ibm/console/!ut/p/_s.7_0_A/7_0_FI		Go Links »
Welcome murat yesilmen		My Favorites	Edit my profile Help Log out
Integrated Solutions Console			IBM.
Work Items Status Settings	Healthx Health		4 > 6
View : No group filter	Health Monitor		Close page
Welcome Tivoli Storage Manager Getting Started	Health Monitor Use the health monitor to de schedules, the server databa provides access to the serve	starmine the overall status of server operations and to obtain detail ass and recovery log, and the status of storage devices managed b a chiuty log, which allows you to view messages generated during a	led information about client node by the server. The health monitor also server operations.
Health Monitor		Go	
Enterprise Management Storage Devices	e	MURAT-YESII MEN2 SERVER1	
Policy Domains and Client Nodes	Page 1 of 1	Total: 1 Filtered: 1 Displayed: 1 Selected: 1	
Server Maintenance Reporting	This portlet will refresh in 1 r	minutes and 52 seconds.	

Figure 3-52 Health monitor shows the server health

Adding database/recovery volumes

These are the steps to follow (Figure 3-52):

- 1. Select Storage Devices.
- 2. Click the server name to get the Server Properties windows.
- 3. Select Database and Log.
- 4. Select the **Add Volume** task from **Select Action** on top of the Database Section and click **Go**.
- 5. Fill in the Database Volume name, capacity, and click OK.

	2_SERVER1 Server Properties
dd a Database V	Volume
nter the volume i gainst data loss. *Volume name	name as a fully qualified directory path. You can create an active copy of the volume, called a mirror, to protect
disknew.dsm	
New volume size	e
100	мв
* 100	МВ
Mirror this v	rolume now to the location below
Mirror this v	volume now to the location below

Figure 3-53 Adding database volume

6. With this release, it is possible to extend the database while creating it.

Note: To create the volume using other than the system default path, fill in the Volume Name field with the fully qualified directory path name.

3.4 Summary

In summary, this chapter provided detailed steps for the basic installation and configuration of the IBM Tivoli Storage Manager and its components.

4

Demonstration scenarios

This chapter provides some IBM Tivoli Storage Manager demonstration scenarios you may use in your Proof of Concept work. These scenarios have been tested, and we believe that they cover most of the IBM Tivoli Storage Manager functions that will satisfy the customer's ideas about the product. You may add some more scenarios to your Proof of Concept work.

We describe the following topics:

- Client demonstration scenarios
- Server demonstration scenarios
- ISC and Administration Center scenarios

4.1 Client demonstration scenarios

In this chapter, we work on the PoC scenarios. We cover the basic backup and restore, the archive and retrieve functions, and some ISC functions as well.

4.1.1 Client configuration for backup and archive functions

Operating system object backup can be taken by using the Backup/Archive Client GUI interface. In order to take backup of any client, it should first be registered to Tivoli Storage Manager server. After that, you can follow this procedure:

- 1. Open the GUI by entering the DSM command or selecting Start \rightarrow All Programs \rightarrow Tivoli Storage Manager \rightarrow Backup-Archive GUI.
- 2. If this is the first time you are logging in, the Tivoli Storage Manager Client Configuration Wizard is started (Figure 4-1). Otherwise, you should skip to step 3.



Figure 4-1 IBM Tivoli Storage Manager client configuration wizard

- c. Click Next, and be sure this option is selected: Help me configure the Tivoli Storage Manager Backup Archive Client.
- d. Select Create a new option file and click Next.

- e. Enter the node name which you have defined in Tivoli Storage Manager server. The default name is your machine name.
- f. Select the communication method that you intend to use (TCP/IP, Named Pipes, Shared Memory, Use Active Directory to locate the Tivoli Storage Manager Server).
 - If the client and Tivoli Storage Manager server are on the same machine, select Shared Memory or Named Pipes. Otherwise, select TCP/IP.
- g. Assume that TCP/IP has been selected in the previous step. In the next panel, you are asked to enter the TCP/IP address of Tivoli Storage Manager server (Figure 4-2).

TCP/IP Parameters		
What is the TCP/IP address	s of the TSM server?	
Server Address:		
9.172.106.53	Browse	
Port:		
1500		

Figure 4-2 TCP/IP parameters for clients

- h. For the time being, do not change any INCLUDE/EXCLUDE, Common File Exclusion Selection, Domain for Backup settings, and just click **Next** until you reach the last panel.
- i. Click Finish.
- j. You are asked to enter the password, after which you will end up with the configuration (Figure 4-3).



Figure 4-3 Backup Archive GUI

4.1.2 Incremental (complete) backup

- Open the Backup-archive GUI from Start → Programs → Tivoli Storage Manager → Backup/Archive GUI. Login with a valid password.
- 2. Select Backup from the initialization panel.
- 3. Use the drop-down menu to select **Incremental** (**Complete**) as the type of backup.
- 4. Expand the directory until you find the critical directory.
- 5. Click the square box to the far left of the critical directory (Figure 4-4).

IBM Tivoli Storage Manager - [Backup] File Edit Actions Utilities View Window	Help				- 0 - 8
] < / ≡ E					
Backup Estimate Options	Incremental (complete)	▼ Help]		
- 6579W2KPRO	Name	Size	Modified	Created	
🗄 🔲 🖳 Distributed File System					<u></u>
🚊 🔚 🥅 Local					
🚊 🔚 📼 \\6579w2kpro\c\$ (C:)					
😟 🛄 🛅 Documents and Settings					
😟 🛄 🛅 DownloadDirector					
😟 🛄 🛄 Drivers					
😟 🔲 🛅 IBMTOOLS					
😟 🛄 🛄 lotus					
🔲 🧰 lotustmp.000					
🕀 🛄 🧰 Program Files					
RECYCLER					
E C educati					
E Storage Sandboy					
System Volume Information					
E System volume in on addit					
H- P Network					
E BAW					
- Removable					
🗄 🔲 🕞 System Object					
lauta WC570u Olaustat					
raaling (topsamskbiotc#					

Figure 4-4 Selecting files for backup

- 6. Click Backup.
- 7. IBM Tivoli Storage Manager will start to back up the files in the directory, and the following panel will show the data transfer rate and network utilization values, as seen in Figure 4-5.
- 8. You can check your backup process by clicking the report icon or the Tivoli Storage Manager server, by entering the **Q SESS** command.

👩 IBM Tivoli Storage Manager -					- [0] ×]	
File Edit Actions Utilities View Wind	low Help					
🗐 Backup Report				_ 🗆 ×	1	
	Detailed Stat	us Report				
Elapsed Time: 00:00:5	4					
- Performance						
Byt	es Transferred: 179.21	мв				
LanFi	ee Data Bytes: 0 B					
Server-fi	ee Data Bytes: 0 B					
	ompressed By: 1	0%				
Transfer Rate						
N 1	letwork (KB/s):	5,89	32.09			
Ag	ggregate(KB/s):	3,33	39.49			
- Object Count						
Inspected:	248	Backed Up:	248			
Updated:	0	Rebound:	0			
Marked Inactive:	0	Failed:	0	View		
Last Error Message						
Hab						
Limit of the second sec						
For Help, press F1					11.	

Figure 4-5 Detailed status report

9. When the backup finishes, the concluding panel will pop up.

4.1.3 Selective backup

In this exercise, you will perform a selective backup of the files in the critical directory that starts with the letter A using the find function.

- 1. In the backup window, select Always backup as the type of backup.
- 2. Expand the directory tree until you find the critical directory.
- 3. Click the box to the far left of the critical directory to select all files.
- 4. Click the folder icon to the right of the plus sign next to Critical to display the files illustrated in Figure 4-6.

IBM Tivoli Storage Manager - [Backup] IBM File Edit Actions Utilities View Window	Help			_ _ 1_2	×
■ 《 温 Ⅲ %					
Backup Estimate Options	Always backup	Help			
🗄 🔲 🖳 Distributed File System 📃	Name	Size	Modified	Created	
🛱 🔚 📼 Local	🗹 📄 Assessment Offer Ltr.doc	24.5	05/14/2003 10:3	05/14/2003 10:3	
🖻 – 🔚 📼 \\6579w2kpro\c\$ (C:)	🗹 📄 Assessment One Day Cou	87.5	04/16/2003 14:1	04/16/2003 14:1	
🕀 🛄 🧰 Documents and Settings	🗹 📄 Assessment Training Docs	2.42	05/16/2003 16:4	05/16/2003 16:4	
🕀 🛄 🧰 DownloadDirector	🗹 📄 Assessment Training pres	1.57	05/21/2003 10:4	05/21/2003 10:4	
Drivers	🗹 📄 Assessment training pres	1.33	05/21/2003 12:4	05/21/2003 12:4	
	🗹 📄 Assessment Two Day Cou	84.0	04/15/2003 08:1	04/15/2003 08:1	
ti intus	🗹 📄 Cd.zip	33.1	10/09/2003 11:3	10/09/2003 11:3	
Drogram Files	🗹 📄 How To Do an Assessmen	235.0	05/16/2003 14:4	05/16/2003 14:4	
	🗹 📄 ITSRM demoguide.doc 10	1.47	10/24/2002 14:1	10/24/2002 14:1	
	🗹 📄 NT_30dayReport.doc	565.5	04/21/2003 10:2	04/21/2003 10:2	
	NT_48HourQuickReport.doc	2.18	04/21/2003 10:2	04/21/2003 10:2	
	NT_UNIX_30dayReport.doc	1.09	04/21/2003 17:2	04/21/2003 17:2	
Storage Sandbox	POC Brief.doc	105.0	10/06/2003 14:1	05/14/2003 10:3	
I fin swd	🗹 📄 S150169400.pdf	561.5	06/28/2003 07:2	06/28/2003 07:2	
	🗹 🖹 5150169500.pdf	544.9	06/28/2003 07:2	06/28/2003 07:2	
😟 - 🛄 🦳 TSM Sandbox	SOW.doc	66.5	05/14/2003 10:2	05/14/2003 10:2	
😟 🛄 🚞 WINNT	🖌 📄 storage_infrastructure_re	3.10	05/14/2003 12:3	05/14/2003 12:3	
WUTemp	🗹 🖹 To download automated d	26.5	05/14/2003 10:4	05/14/2003 10:4	
🗄 🔲 🖳 Network					
🕀 🗖 🚰 RAW					
🕀 🔲 🖾 Removable					
🗄 – 🛄 🔚 System Object 📃 👻					
↓					
Displaying \\6579w2kpro\c\$\Storage Sandbox					-
For Help, press F1					1

Figure 4-6 Selective backup panel

- 5. Select Edit \rightarrow Find.
- 6. The Find Files (Backup) dialog box displays. Click the Name: shown in a drop-down list.
- 7. Select Starts With.
- 8. Tab to the next text box and type: A (Figure 4-7).

)		Find Files (Backup)	
	- Criteria		
	Start Path:	\\6579w2kpro\c\$\Storage Sandbox	
	Name:	starts with 💌 a	
	Size (KB):	larger or equal	
	Modified:	any date	Set Date
	Accessed:	any date	Set Date

Figure 4-7 Find a file window

9. Click the **Filter** button. You should get the following message:

Items currently selected will not be processed if they do not match the filter specification. Continue anyway?

- 10. Click the Yes button to close the Tivoli Storage Manager Dialog box.
- 11. The file view in Figure 4-8 shows that the right side should contain a list of files in the critical directory that begin with the letter A.



Figure 4-8 Result after selected the files

- 12.Run an estimate on the file you selected above for the backup process. Record the time here. Click the **Estimate** button.
- 13. Click **OK** to close the Estimated Time for Backup window seen in Figure 4-9.

Number of Selected Items:	7	
Total Size in Bytes:	5,799,648	
Estimated Transfer Time:	00:00:00	
OK Poor	. 1	Halp

Figure 4-9 Estimates backup time

14. Back up these files now and compare the actual time to the estimated time.

15. Click the **Backup** button.

16. View the Backup Report, then close the Backup Report window (Figure 4-10).

📕 IBM Tivoli Storage Manager -		
File Edit Actions Utilities View Window Help		
🖻 Backup Report		
Detailed	Status Report	
Elapsed Time: 00:00:04		
- Performance		
Bytes Transferred: LanFree Data Bytes:	5.53 MB 0 B	
Server-free Data Bytes:	0 B	
Lompressed By:	0%	
Network (KB/s):	5.752.42	
Aggregate(KB/s):	1,263.63	
Object Count	Partial line 9	
Inspected. 5	Backey up. 5	
	Nebuuru. o	
Marked Inactive: U	Failed: U	VIBW
Last Error Message		
Halp		
For Help, press F1		1.

Figure 4-10 Backup report panel

4.1.4 Creating an inactive copy

- 1. Edit one of the files that you have just backed up and perform another backup.
- 2. Now you have created an inactive backup copy of this file.
- 3. You will demonstrate how to restore the active and the inactive copies of any files that you have backed up.

4.1.5 Manual backup using Backup-Archive Command Line

Follow these steps:

- Open the command line interface either by entering the DSMC command or selecting Start → All Programs → Tivoli Storage Manager → Backup-Archive Command Line.
- 2. You can get the command syntax by entering help.
- 3. You can run incremental, selective backups.
- 4. To do selective backups, run the following command:

Selective c:\\$user\backup.txt

- 5. To do incremental backups, run the following command examples.
 - a. Incremental (backs up all files not excluded by you).
 - b. Incremental C: (backs up all files in directory C that are not excluded).
 - c. Incremental C: D: E: (backs up files in C:, D: and E:).
 - d. Incremental C:\\$user (backs up files in C:\\$user directory).
 - e. Incremental -sub=yes C:\\$user (backs up all files under all subdirectories).

Figure 4-11 shows the results of the command line backup process.

IBM Tivoli Storage Manager	- 🗆 ×
ANS1076E *** Directory path not fou tsm> selective c:\\$user\tsm\wp-tsm- Selective Backup function invoked.	ind **** Ito.pdf
Normal File> 51,783 \\ Sent] Selective Backup processing of '\\m inished without failure.	murat-yesilmen2\c\$\\$user\tsm\wp-tsm-lto.pdf [urat-yesilmen2\c\$\\$user\tsm\wp-tsm-lto.pdf'f
Iotal number of objects inspected: Iotal number of objects backed up: Iotal number of objects updated: Iotal number of objects rebound: Iotal number of objects deleted: Iotal number of objects failed: Iotal number of bytes transferred: Data transfer time: Network data transfer rate: Aggregate data transfer rate: Objects compressed by: Elapsed processing time:	1 1 0 0 0 50.88 KB 0.00 sec 0.00 KB/sec 25.02 KB/sec 00:00:002

Figure 4-11 Manual backup results

4.1.6 Restore using GUI

This section describes several methods of restoring using the GUI.

Restoring to the original location

- 1. To start restore files that have been backed up, click the **Restore** button from the GUI panel.
- 2. Click the file level and see all the directories you have already backed up to your system.
- 3. Expand the box of the critical directory to view the files.
- 4. In the File View of the Restore Window (the right side of the panel), click the check box to the left of the Tivoli Storage Manager Demoguide.com file to select it (Figure 4-12).

IBM Tivoli Storage Manager - [Restore]	Help		
	/ Trop		
Restore Estimate Options	Point In Time	Help	
□-□ 1 6579W2KPRO	Name	Size	Modified
🗄 🔲 🖫 Backup Sets	09 - Competitive.ppt	5.23 MB	10/08/2003 14:0
📮 🚍 📼 File Level	🔲 🖹 12 - Quiz.ppt	356.00 KB	10/20/2003 12:4
⊡-☐ \\6579w2kpro\c\$ (C:)	ITSM demoguide.doc	1.70 MB	11/10/2003 09:4
🕀 🛄 🧰 Storage Sandbox	🗹 🔂 ITSM demoguide.doc	984.00 KB	11/07/2003 14:3
B-H TSM Sandbox	ITSM52Wsetup.doc	1.81 MB	11/07/2003 09:2
E Final SB	ITSRM12Wsetup.doc	492.50 KB	11/10/2003 09:4
	ITSRM12Wsetup.doc	492.50 KB	11/07/2003 09:3
Tachnical	🔲 🔜 ~\$SM demoguide.doc	162 B	11/06/2003 15:4
E Gorneos	🔲 🖹 ~\$SM52Wsetup.doc	162 B	11/03/2003 17:0
	🔲 🖹 ~WRL0314.tmp	574.00 KB	11/04/2003 10:1
E-I TSM	🔲 🖹 ~WRL0796.tmp	574.00 KB	11/04/2003 11:1
1 Image	🔲 🗟 ~ WRL0805.tmp	1.95 MB	11/06/2003 16:5
🗄 🔲 🕞 System Object	🔲 🖹 ~WRL0860.tmp	682.50 KB	11/04/2003 15:2
	🔲 🗟 ~ WRL1363.tmp	1.51 MB	11/07/2003 10:2
	🔲 🖹 ~WRL1705.tmp	1.05 MB	11/05/2003 09:4
	🔲 🖹 ~WRL1720.tmp	1.16 MB	11/05/2003 10:2
	🔲 🗟 ~WRL1805.tmp	1.80 MB	11/06/2003 15:4
	🔲 🖹 ~WRL2220.tmp	1.03 MB	11/04/2003 16:0
	🔲 🗟 ~WRL2231.tmp	1.95 MB	11/07/2003 09:3
	🔲 🗟 ~ WRL2266.tmp	1.85 MB	11/07/2003 11:2
	🔲 🖹 ~WRL2572.tmp	1.03 MB	11/04/2003 16:1
	🔲 🔂 ~WRL2613.tmp	1.80 MB	11/06/2003 10:0
		574.50 KB	11/04/2003 13:5
	 	E74 00 VD	11/04/2002 11/2
Displaying \\6579w2kpro\c\$\TSM Sandbox\Final SB	Technical		
For Help, press F1			1

Figure 4-12 Restore files

- 5. Click the **Restore** button.
- 6. Select **Original location**. By selecting this, you will restore the file to where it has backed up. Figure 4-13 shows the restore options.

	Select destination for restored objects		
Re	store to	-1	
œ	Original location		
С	Following location		
	Select Destination Directory		
	Select c:\temp		
	C Restore complete path		
	Restore partial path		
	C Restore partial path without base directory		
	Do not preserve directory structure		

Figure 4-13 Selecting the destination for restore

- 7. Click the **Restore** button.
- 8. If the file exists in the restore location, you will receive the following message as shown in Figure 4-14.

	File already exi	sts - replace?	
Name:	Image1.jpg		
Local File Location:	\\6579w2kpro\c\$\TSM Sandbox	x\Screens\Scenarios	
Mod. Date:	67067200516:45:44		
Size:	74.50 KB		
TSM File			
Location:	\\6579w2kpro\c\$\TSM Sandbox	<\Screens\Scenarios	
Mod. Date:	6/06/2005 16:45:44		
Size:	74.50 KB		
Apply action to all re	maining files		

Figure 4-14 File replace options

- 9. Click the **Replace** button.
- 10. Click **OK** to close the Restore Completed message.

11.Close the Restore Report dialog box.

Restoring to another location

- 1. To start to restore files that have been backed up, click the **Restore** button from the GUI panel.
- 2. Click **File Level** and see all the directories you have already backed up to your system.
- 3. Expand the directory tree until you find the critical directory.
- 4. Click the box of the critical directory to view the files.
- 5. In Figure 4-15, showing a File View of the Restore Window (the right side of the panel), click the check box to the left of the Tivoli Storage Manager Demoguide.com file to select it.

Restore Estimate Options	Point In Time	Help	
⊡	Name	Size	Modified
🗄 🔲 🖫 Backup Sets	09 - Competitive.ppt	5.23 MB	10/08/2003 14:0.
🖻 🖷 🖨 File Level	🛄 📄 12 - Quiz.ppt	356.00 KB	10/20/2003 12:4.
⊡ 🔚 📼 \\6579w2kpro\c\$ (C:) \	ITSM demoguide.doc	1.70 MB	11/10/2003 09:4.
Storage Sandbox	ITSM demoguide.doc	984.00 KB	11/07/2003 14:3.
	ITSM52Wsetup.doc	1.81 MB	11/07/2003 09:2.
	ITSRM12Wsetup.doc	492.50 KB	11/10/2003 09:4.
The SRM Accelement	ITSRM12Wsetup.doc	492.50 KB	11/07/2003 09:3.
	🔲 🗋 ~\$5M demoguide.doc	162 B	11/06/2003 15:4.
€ Screens	SM52Wsetup.doc	162 B	11/03/2003 17:0.
🗄 🔲 🦳 SRM	WRL0314.tmp	574.00 KB	11/04/2003 10:1.
😟 🖳 🗋 TSM	WRL0796.tmp	574.00 KB	11/04/2003 11:1.
🗄 🔲 🕞 Image		1.95 MB	11/06/2003 16:5.
🗄 🔲 🛅 System Object		682.50 KB	11/04/2003 15:2.
		1.51 MB	11/07/2003 10:2.
		1.05 MB	11/05/2003 09:4
		1.16 MB	11/05/2003 10:2
		1.80 MB	11/06/2003 15:4
		1.03 MB	11/04/2003 16:0
		1.95 MB	11/07/2003 09:3
		1.85 MB	11/07/2003 11:2
		1.03 MB	11/04/2003 16:1
		1.80 MB	11/06/2003 10:0.
		574.50 KB	11/04/2003 13:5.
	10 101 2764 kmp	E74 00 VD	11/04/2002 11/2

Figure 4-15 Selecting files for restore

- 6. Click the Restore button.
- 7. Assume that we will restore to a different location.
- 8. Select **Following Location** and select the directory to which you want to restore, as seen in Figure 4-16.
- 9. There are four possible ways to restore the destination directory.
 - a. **Restore Complete Path:** Restores the entire path (starting from the root) of single backup versions or fully-selected directories and puts them in the specified directory.
 - Example: If you backed up c:\\$user\tsm\backup.txt and you have selected D:\Destination, then after restore, the file will be in D:\Destination\\$user\tsm\backup.txt.
 - b. Restore Partial Path: Restores single backup versions and puts them in the specified directory, and fully-selected directories to the specified directory.
 - Example: If you backed up c:\\$user\tsm\backup.txt and you have selected D:\Destination, then after restore, the file will be in D:\Destination\backup.txt.
 - c. **Restore Partial Path without base directory:** Restores a fully-selected directory and puts it in the specified directory without the base directory. The base directory is the directory next to the selection box that you checked in the Restore window. If you selected individual files in addition to fully-selected directories, the restore behavior is the same as that described for the Restore Partial Path radio button.
 - Example: If you backed up c:\\$user\tsm\backup.txt and you have selected D:\Destination, then after restore, the file will be in D:\Destination\backup.txt.
 - d. **Do not Preserver Directory Structure:** Restores any backup version and puts it in the specified directory and does not preserve the directory structure for the backup version.

ן נ	Select destination for restored objects	
_ Re	estore to	r i
С	Original location	
æ	Following location	
	Select Destination Directory	
	Select c:\temp	
	C Restore complete path	
	Restore partial path	
	C Restore partial path without base directory	
	C Do not preserve directory structure	

Figure 4-16 Destination selection for restore

10.Click the **Restore** button.

11.Click OK to close the Tivoli Storage Manager dialog.

12. Close the Restore Report dialog box.

13. Check the new directory and find the file has restored.

Restoring inactive versions

- 1. Select the Restore button on the backup archive GUI.
- By default, only active backed up files are displayed. You will need to indicate that you want both active and inactive files by selecting View → Display Active/Inactive files.
- 3. You will be prompted with a message saying the current selections will be lost (Figure 4-17). Click **Yes**.



Figure 4-17 Selection message

- 4. Expand the directory tree until you find the critical directory.
- 5. Click the + sign of the critical directory.
- 6. Click the check box to the left of the critical folder icon.
- 7. Select the files with the green diamond next to them (Figure 4-18).

Restore Estimate Options Point In Time Help ● 5579W2KPR0 ■ 09 - Competitive.ppt 5.23 MB 10/06/2003 14:0 ■ Backup Sets ■ 09 - Competitive.ppt 5.23 MB 10/06/2003 12:4 ■ W5579w2Kprolcf (C:) ■ 55crage Sandbox 1175M demoguide.doc 1.70 MB 11/0/2003 09:3 ■ Final S8 ■ 5 Final S8 ■ 1175M demoguide.doc 1.81 MB 11/0/2003 09:3 ■ Final S8 ■ 5 Storage Sandbox 1175M demoguide.doc 1.81 MB 11/0/2003 09:3 ■ TSM Sandbox ■ TSM demoguide.doc 1.81 MB 11/0/2003 09:3 ■ TSM M Assessment ■ TSMM Memoguide.doc 1.81 MB 11/0/2003 09:3 ■ SRM ■ ■ SRM 1/06/2003 15:4 ■ TSM <th>J File Edit Actions Utilities View Windo</th> <th>w Help</th> <th></th> <th>_ 8</th>	J File Edit Actions Utilities View Windo	w Help		_ 8
Restore Estimate Options Point In Time Help ● 6579W2KPR0 Size Modified ● Backup Sets 09 - Competitive.ppt 5.23 MB 10/08/2003 14:0 ● ● Storage Sandbox 12 - Quiz.ppt 366.00 KB 11/07/2003 09:3 ● ● Storage Sandbox 175M demoguide.doc 1.70 MB 11/07/2003 09:3 ● ● Final S8 11/07/2003 09:3 175MS2Wsetup.doc 1.81 MB 11/07/2003 09:3 ● ● Final S8 ● ● 175MS2Wsetup.doc 1.62 B 11/06/2003 10:3 ● ● Storage Sandbox ● ● 175MS2Wsetup.doc 1.62 B 11/06/2003 09:3 ● ● Storage Storage ● 11/07/2003 09:3 ● ● Storage ●				
Store Name Size Modified ● ● ● 0.9 - Competitive.ppt 5.23 MB 10/08/2003 14:0 ● ● ● 0.9 - Competitive.ppt 366.00 KB 10/20/2003 12:4 ● ● ● ● 12 - Quiz.ppt 366.00 KB 11/0/2003 04:3 ● ● ● ● ● ● ● 175M demoguide.doc 1.70 MB 11/0/2003 09:4 ●	Restore Estimate Options	Point In Time	Help	
		Name	Size	Modified
→ File Level 356.00 KB 10/20/2003 12:4 → → TSM demoguide.doc 1.70 MB 11/10/2003 09:4 → → TSM demoguide.doc 1.81 MB 11/07/2003 09:4 → → TSM Sandbox → TTSM Sandbox 1.81 MB 11/07/2003 09:4 → → Sales → TTSM2/seque.doc 492.50 KB 11/07/2003 09:4 → SRM Assessment → → → SSM2/seque.doc 492.50 KB 11/07/2003 09:4 → SRM Assessment → → → → SSM2/seque.doc 492.50 KB 11/07/2003 09:4 → SRM Assessment → → → → SSM2/seque.doc 162 B 11/06/2003 15:4 → SRM Assessment → → → > → SSM52Wsetup.doc 162 B 11/06/2003 15:5 → SRM → → > → > 11/06/2003 16:5 → SRM → → > > > 11/06/2003 16:5 → SWL0805.thp	🗄 🔲 🖫 Backup Sets	🔲 🖹 09 - Competitive.ppt	5.23 MB	10/08/2003 14:0
● (\0579w2kpro\c\$(C:)) ● ITSM demoguide.doc 1.70 MB 11/10/2003 09:4 ● ● Storage Sandbox ● TTSM demoguide.doc 994.00 KB 11/07/2003 19:3 ● ● Final SB ● ITSM Zwseup.doc 1.81 MB 11/07/2003 09:3 ● ● Sales ● ITSMNZWseup.doc 492.50 KB 11/07/2003 09:3 ● ● SAM Assessment ● TTSM/2Wseup.doc 492.50 KB 11/07/2003 09:3 ● ● SAM Assessment ● TSMSWseup.doc 492.50 KB 11/07/2003 09:3 ● ● SAM ● SAM Assessment ● SAM Assessment ● SAM Assessment ● ● SAM ● SAM ● SAM Assessment ● SAM Assessment ● ● SAM ● SAM ● SAM SWseup.doc 162 B 11/03/2003 19:3 ● ● SAM ● SAM ● SAMSWseup.doc 162 B 11/04/2003 10:1 ● ● SAM ● SAM ● WRL0314.tmp 574.00 KB 11/04/2003 10:1 ● ● SAM ● WRL0805.tmp 1.95 MB 11/06/2003 10:2 ● WRL0805.tmp 1.51 MB 11/06/2003 10:2 ● WRL0805.tmp 1.60 MB 11/06/2003 10:2 ● WRL0805.tmp 1.80 MB 11/06/2003 10:2 ● WRL2872.tmp 1.03 M	🔁 🚍 🚍 File Level	🛄 🖹 12 - Quiz.ppt	356.00 KB	10/20/2003 12:4
Image 984.00 KB 11/07/2003 14:3 Image ITSM 12Wsetup.doc 1.81 M6 11/07/2003 09:2 Image ITSM12Wsetup.doc 1.81 M6 11/07/2003 09:2 Image ITSM12Wsetup.doc 1.81 M6 11/07/2003 09:2 Image ITSM12Wsetup.doc 1492.50 KB 11/07/2003 09:3 Image ITSM12Wsetup.doc 162 B 11/07/2003 09:3 Image Image ITSM12Wsetup.doc 162 B 11/07/2003 19:3 Image Image Image 11/07/2003 11:1 10/07/2003 11:1 Image Image Image Image 11/07/2003 11:1 Image Image Image Image 11/07/2003 11:1 Image Image Image Image 11/07/2003 10:2 Image Image Image Image </td <td>⊡ 🔚 📼 \\6579w2kpro\c\$ (C:)</td> <td>🔲 🖹 ITSM demoguide.doc</td> <td>1.70 MB</td> <td>11/10/2003 09:4</td>	⊡ 🔚 📼 \\6579w2kpro\c\$ (C:)	🔲 🖹 ITSM demoguide.doc	1.70 MB	11/10/2003 09:4
Image Image <td< td=""><td>🕀 🛄 🥅 Storage Sandbox</td><td>🗹 🗟 ITSM demoguide.doc</td><td>984.00 KB</td><td>11/07/2003 14:3</td></td<>	🕀 🛄 🥅 Storage Sandbox	🗹 🗟 ITSM demoguide.doc	984.00 KB	11/07/2003 14:3
Image Image <t< td=""><td>E ISM Sandbox</td><td>ITSM52Wsetup.doc</td><td>1.81 MB</td><td>11/07/2003 09:2</td></t<>	E ISM Sandbox	ITSM52Wsetup.doc	1.81 MB	11/07/2003 09:2
Bill Stales 11/07/2003 09:3 Bill StM Assessment 12 B Bill StM Assessment 162 B Bill Streens 10/07/2003 10:1 Construction 10/07/2003 10:1 11/07/2003 10:2 Construction 10/07/2003 10:1 11/07/2003 10:2 Construction 10/07/2003 10:1 11/07/2003 10:2 Construction 10/07/2003 10:2 11/07/2003 10:2 Construction	E E Final SB	ITSRM12Wsetup.doc	492.50 KB	11/10/2003 09:4
Bit M Assessment. Im ~\$\$M demoguide.doc 162 B 11/06/2003 15:4 Image ~\$\$M\$SWsetup.doc 162 B 11/03/2003 17:0 Image ~WRL0314.tmp \$74.00 KB 11/04/2003 11:1 Image ~WRL0314.tmp \$74.00 KB 11/04/2003 11:1 Image ~WRL0305.tmp 1.95 MB 11/04/2003 11:1 Image ~WRL0805.tmp 1.95 MB 11/04/2003 15:2 Image ~WRL0805.tmp 1.95 MB 11/04/2003 15:2 Image ~WRL0805.tmp 1.95 MB 11/07/2003 10:2 Image ~WRL1605.tmp 1.05 MB 11/05/2003 09:4 Image ~WRL1720.tmp 1.05 MB 11/05/2003 09:4 Image ~WRL1720.tmp 1.05 MB 11/05/2003 09:4 Image ~WRL1720.tmp 1.60 MB 11/05/2003 09:4 Image ~WRL1720.tmp 1.80 MB 11/04/2003 16:1 Image ~WRL266.tmp 1.95 MB 11/04/2003 16:1 Image WRL266.tmp 1.95 MB 11/04/2003 16:1 Image WRL2613.tmp <td< td=""><td>E Som Assessment</td><td>ITSRM12Wsetup.doc</td><td>492.50 KB</td><td>11/07/2003 09:3</td></td<>	E Som Assessment	ITSRM12Wsetup.doc	492.50 KB	11/07/2003 09:3
 Streens ~\$\$M52Wsetup.doc 162 B 11/03/2003 17:0 SRM ~WRL0314.tmp 574.00 KB 11/04/2003 10:1 TSM ~WRL03060.tmp 682.50 KB 11/04/2003 10:2 ~WRL0305.tmp 1.55 MB 11/05/2003 10:2 ~WRL03060.tmp 682.50 KB 11/07/2003 10:2 ~WRL1363.tmp 1.16 MB 11/05/2003 10:2 ~WRL1305.tmp 1.66 MB 11/05/2003 10:2 ~WRL1305.tmp 1.66 MB 11/05/2003 10:2 ~WRL1305.tmp 1.80 MB 11/06/2003 10:3 ~WRL2206.tmp 1.95 MB 11/07/2003 10:2 ~WRL2266.tmp 1.03 MB 11/04/2003 16:1 ~WRL266.tmp 1.03 MB 11/04/2003 10:1 ~WRL266.tmp 1.03 MB 11/04/2003 16:1 ~WRL2661.tmp 1.03 MB 11/04/2003 16:1 ~WRL2661.tmp 1.03 MB 11/04/2003 16:1 ~WRL2672.tmp 1.03 MB 11/04/2003 16:1 ~WRL2676.tmp 574.50 KB 11/04/2003 16:1 		🔲 🗟 ~\$5M demoguide.doc	162 B	11/06/2003 15:4
•		🔲 🖹 ~\$SM52Wsetup.doc	162 B	11/03/2003 17:0
••••••••••••••••••••••••••••••••••••		🛄 🖹 ~WRL0314.tmp	574.00 KB	11/04/2003 10:1
B Image Ima			574.00 KB	11/04/2003 11:1.
B WRL0860.tmp 682.50 KB 11/04/2003 15:2 WRL1720.tmp 1.51 MB 11/07/2003 10:2 WRL1720.tmp 1.55 MB 11/05/2003 09:4 WRL1720.tmp 1.61 MB 11/05/2003 10:2 WRL1720.tmp 1.60 MB 11/05/2003 10:2 WRL1720.tmp 1.03 MB 11/06/2003 10:4 WRL1220.tmp 1.95 MB 11/07/2003 10:3 WRL220.tmp 1.95 MB 11/07/2003 19:3 WRL220.tmp 1.95 MB 11/07/2003 19:3 WRL2266.tmp 1.95 MB 11/07/2003 11:2 WRL2572.tmp 1.03 MB 11/06/2003 16:1 WRL266.tmp 1.03 MB 11/06/2003 16:1 WRL2672.tmp 1.03 MB 11/06/2003 10:5 WRL2672.tmp 1.03 MB 11/06/2003 10:5 WRL2676.tmp 574.50 KB 11/04/2003 16:1		🔲 🗟 ~ WRL0805.tmp	1.95 MB	11/06/2003 16:5.
Image: WRL1363.tmp 1.51 MB 11/07/2003 10:2 Image: WRL1705.tmp 1.05 MB 11/05/2003 09:4 Image: WRL1705.tmp 1.16 MB 11/05/2003 09:4 Image: WRL1702.tmp 1.16 MB 11/05/2003 10:2 Image: WRL1702.tmp 1.60 MB 11/06/2003 15:4 Image: WRL1202.tmp 1.03 MB 11/04/2003 16:0 Image: WRL2202.tmp 1.03 MB 11/07/2003 09:3 Image: WRL2266.tmp 1.85 MB 11/07/2003 09:3 Image: WRL2266.tmp 1.85 MB 11/07/2003 11:2 Image: WRL2266.tmp 1.80 MB 11/06/2003 10:0 Image: WRL2676.tmp 1.80 MB 11/06/2003 10:0	🗄 🔲 🕞 System Object		682.50 KB	11/04/2003 15:2.
Image: System in the		🔲 🗟 ~ WRL1363.tmp	1.51 MB	11/07/2003 10:2.
		🔲 🖹 ~WRL1705.tmp	1.05 MB	11/05/2003 09:4.
Image: WRL1805.tmp 1.80 MB 11/06/2003 15:4 Image: WRL2220.tmp 1.03 MB 11/04/2003 16:0 Image: WRL226.tmp 1.95 MB 11/07/2003 09:3 Image: WRL2266.tmp 1.05 MB 11/07/2003 11:2 Image: WRL2266.tmp 1.03 MB 11/04/2003 16:1 Image: WRL2266.tmp 1.03 MB 11/06/2003 10:1 Image: WRL2266.tmp 1.03 MB 11/06/2003 10:1 Image: WRL2613.tmp 1.80 MB 11/06/2003 10:1 Image: WRL266.tmp 574.50 KB 11/04/2003 13:5		🔲 🖹 ~WRL1720.tmp	1.16 MB	11/05/2003 10:2.
→WRL2220.tmp 1.03 MB 11/04/2003 16:0 →WRL2231.tmp 1.95 MB 11/07/2003 09:3 →WRL2266.tmp 1.85 MB 11/07/2003 11:2 →WRL2572.tmp 1.03 MB 11/04/2003 16:0 →WRL2531.tmp 1.80 MB 11/04/2003 10:0 →WRL2613.tmp 1.80 MB 11/06/2003 10:0 →WRL2676.tmp 574.50 KB 11/04/2003 13:5			1.80 MB	11/06/2003 15:4.
□ ¬wRL2231.tmp 1.95 MB 11/07/2003 09:3 □ ¬wRL2266.tmp 1.85 MB 11/07/2003 11:2 □ ¬wRL2256.tmp 1.03 MB 11/04/2003 16:0 □ ¬wRL2513.tmp 1.80 MB 11/06/2003 10:0 □ ¬wRL2613.tmp 1.80 MB 11/06/2003 10:0 □ ¬wRL2676.tmp 574.50 KB 11/04/2003 13:5			1.03 MB	11/04/2003 16:0.
□ ~WRL2266.tmp 1.85 MB 11/07/2003 11:2 □ ~WRL2572.tmp 1.03 MB 11/04/2003 16:1 □ □ ~WRL2613.tmp 1.80 MB 11/06/2003 10:0 □ □ ~WRL2676.tmp 574.50 KB 11/04/2003 13:5		🔲 🗟 ~ WRL2231.tmp	1.95 MB	11/07/2003 09:3.
□		🔲 🗟 ~WRL2266.tmp	1.85 MB	11/07/2003 11:2
□ № wRL2613.tmp 1.80 MB 11/06/2003 10:0 □ ▷ ~ wRL2676.tmp 574.50 KB 11/04/2003 13:5		🔲 🖹 ~WRL2572.tmp	1.03 MB	11/04/2003 16:1.
□ □ ~wRL2676.tmp 574.50 KB 11/04/2003 13:5		🔲 🗟 ~ WRL2613.tmp	1.80 MB	11/06/2003 10:0
			574.50 KB	11/04/2003 13:5
The same see the set of the set o			E74 00 VD	11/04/2002 11:2



- 8. Click the **Restore** button for the original location.
- 9. Click the Restore button, again.
- 10. Select the box Apply action to all Remaining files.
- 11. Click **Replace**, if you will replace with the existing file; otherwise choose the option, **Following Location**.
- 12. Close the Restore Report dialog box.

Restoring using point in time option

- 1. Select the **Restore** button on the backup archive GUI.
- 2. Click the **Point in Time** button and set the date and time you wish to restore files as of that date and time (Figure 4-19).

n Time Restore					? ×
	Enter a 'Poin	t in Time'	date		
NOTE: Enabling or disa	abling Point in Time rest	ore will cause all	selections to) be lost.	
🔽 Use a Point in Time	e date during restore				
Month	Day Year	Hour	Minute	Seconds	
May 💌	2005	÷ 9 ÷	53	50 📑	
OK	Cancel		Help		
	NOTE: Enabling or disa ✓ Use a Point in Time Month May OK	Time Restore Enter a 'Poin NOTE: Enabling or disabling Point in Time rest ✓ Use a Point in Time date during restore Month Day Year May ✓ ÎII 🚔 2005	Time Restore Enter a 'Point in Time' NOTE: Enabling or disabling Point in Time restore will cause all ✓ Use a Point in Time date during restore Month Day Year Hour May ✓ OK Cancel	Time Restore Enter a 'Point in Time' date NOTE: Enabling or disabling Point in Time restore will cause all selections to ✓ Use a Point in Time date during restore Month Day Year Hour May ✓ OK Cancel	Time Restore Enter a 'Point in Time' date NOTE: Enabling or disabling Point in Time restore will cause all selections to be lost. Iv Use a Point in Time date during restore Month Day Year Hour May Image: 2005 OK Cancel

Figure 4-19 Point in time restore options

3. In Figure 4-20 you will see the settings next to the **Point in Time** button and you will only choose from the snapshot of the system on that day and time.



Figure 4-20 Point in Time

4. Click the **Restore** button.

4.1.7 Restore using Backup-Archive Command Line

Follow these steps:

- Open command line interface either by entering DSMC command or selecting Start → All Programs → Tivoli Storage Manager → Backup-Archive Command Line.
- 2. You can get command syntax by entering help.
- 3. As in the GUI version, you can select destination:
 - a. To restore to the original location, restore c:\\$user\tsm\backup.txt
 - b. To restore to a different location, restore c:\\$user\tsm\backup.txt d:\Destination\backup.txt
 - c. To restore and rename the file, restore c:\\$user\tsm\backup.txt d:\destination\restore.txt
- 4. To restore an inactive version, you can either specify the date and time or you can pick from the list.

To pick the correct version of the file, issue following command:

```
Restore c:\$user\tsm\backup.txt -pi -ina
```

- pi means, the pick function will be used.
- ina means, the inactive version.

See Figure 4-21 for an example of this.



Figure 4-21 Manual restore file selection

- 5. Select the object by entering its line number.
- 6. Select **O** to start restoring.

You can show the archive and retrieve function; it will be the same as backup and restore. There will be only one difference: You do not have to specify version numbers, but you have to specify how long you want to keep the data.

4.1.8 Archive using GUI

This sections describes some archive methods using the GUI.

Archive files

Follow these steps:

- 1. Start the backup-archive GUI.
- 2. Reply Yes if asked about a one-time conversion of archived files.
- 3. Select a few files in the critical directory to be archived (Figure 4-22).

IBM Tivoli Storage Manager - [Archive] File Edit Actions Utilities View Window I	Help				
■ < />					
Archive Estimate Options	Heip	T			
	Name	Size	Modified	Created	Mamt Cla
B Distributed File System Cool V(5579#&pro)c¢ f(C:) B Documents and Settings B Divers B Divers B Ibuts Ibuts Ibutsmp.000 B Program Files B RecVCLER P Storage Sandbox System Volume Information System Volume Information Imp IstM Sandbox B IstM Sandbox B Storage B Storage	Cd.zip	33.1 544.9 561.5	10/09/2003 11:3 06/28/2003 07:2 06/28/2003 07:2	10/09/2003 11:3 06/28/2003 07:2 06/28/2003 07:2	DEFAULT DEFAULT DEFAULT
Displaying \\6579w2kpro\c4\TSM Sandboy					•
For Help, press F1					1

Figure 4-22 Archiving files

4. Click Archive and click OK for the dialog box.

Adding more files to an existing archive

Follow these steps:

- 1. Add these archived files to an existing archive package by clicking the select box to the right of the description field.
- 2. Pick an archive file from the list of archive files displayed (Figure 4-23).

IBM Tivoli Storage Manager - [Archive] File Edit Actions Utilities View Window	Help				
 ∎ < 2 ≣ %					
Archive Estimate Options	Help				
Description: Archive Date: 06/06/2005		•			
Archive Date: 06/06/2005		Size	Modified	Created	Mamt Cla
B Oistributed File System Clocal Image: System Image: System Documents and Settings Image: System Storage Sandbox Image: System System Volume Information Image: System Image: Settings Image: System Storage Sandbox Image: System System Image: Settings Image: Settings Image: Setings Image: Settings	Cd.2p TSM52Ux.pdf TSM52W.pdf	33.1 544.9 561.5	10/09/2003 11:3 06/28/2003 07:2 06/28/2003 07:2	10/09/2003 11:3 D6/28/2003 07:2 D6/28/2003 07:2	DEFAULT DEFAULT DEFAULT
					Þ
Displaying \\6579w2kpro\c\$\TSM Sandbox For Help, press F1					/

Figure 4-23 Adding more files to existing archive

- 3. Reply Yes if asked about a one-time conversion of archived files.
- 4. Click Archive and click OK for the dialog box.

Retrieve using GUI

- 1. Start the backup-archive GUI and select **Retrieve files** (Figure 4-24).
- 2. Select the archive to retrieve.
- 3. Click the + sign to the left of the Server1 node icon for listing the archive packages.

- 4. Click the + sign to the left of an archive package to list the files that make up the package. You may need to continue expanding the directory tree to get the entire package expanded.
- 5. Clicking the folder icon next to a directory name will display any archived files that are in that directory in the File View portion of the panel (the right side of the window).



Figure 4-24 Retrieve the archive files

- 6. Select some of the files or the entire package to retrieve.
- 7. Retrieve the files.
- 8. Click Retrieve for Original Location.
- 9. Click **Retrieve**, if you will replace with the existing file; otherwise, choose the **Following Location** option.
- 10. Select the box labeled Apply action to all remaining files.
- 11.Click Replace
- 12. When the retrieval is complete, click **OK**.

4.1.9 Backup using schedule backup feature

Schedule for Tivoli Storage Manager V5.3 is more flexible than ever before. Let us create a schedule such that backup will occur every first Sunday of each month.

Setting a schedule

- 1. First select Policy Domain and Client Nodes.
- 2. Click the domain (Figure 4-25).

Ele Edit Vjew Go Bookmarks Tools Help Image: Second Seco					
Googe Welcome murst yealinen My Favorites Integrated Solutions Console Policy Ormains and Clent Rodes Were it to group filter Policy Ormains and Clent Rodes Wulcome Folicy Ormains and Clent Rodes Getting Started Health Monitor Enterprise Management Select A Domain Name A Description A Backup Ret Storage Devices Policy Ormains and Clent Rodes Policy Opmains and Clent Rodes Sever Maintenance Reporting Storage Topografies Storage Devices Policy Opmains and Clent Rodes Policy Opmains and Clent Rodes Storage Devices Policy Opmains and Clent Rodes Storage Devices Policy Opmains and Clent Rodes Storage Topografies Storage Devices Storage Topografies Policy Opmains and Clent Rodes Storage Topografies C Storage Topografies C Storage Topografies C Clent Rodes Clent Rodes Domain Properties Clent Rodes Clent Rodes Clent Rodes Domain Rome Classes Management Classes	sU/.p/5 0 S ♥ Ø Go GL				
Welcome My Favorites Welcome Policyx Welcome Policyx Welcome Policyx Welcome Policyx Extraprise Manager Status Getting Started Health Montor Health Montor Select A Domain Name A Description A Backup Ret Storage Devices Policy Operation Policy Operation Soldary Server Maintenance Reporting STANDARD Poperties Client Hode Schedules Domain Properties Client Hode Schedules Option Sets Option Sets Option Sets Client Hode Schedules Management Classes					
Water mark ysiline My Pavorites Integrated Solutions Consol My Pavorites Work Status Settings View 1 No group filter Policy		1			
Work Status Status Status Status Status Views No group filter Welcome Citrivel is torage Manager Getting Stated Health Monitor Enterprise Management Storage Devices Policy Omains and Client nodes Policy Domains help you caply consistent rules for data management dasses. Oetting Stated Health Monitor Enterprise Management Storage Devices Server Maintenance Reporting StatuDARD Page 1 of 1 Total: 2 Piler Nodes Domain Properties Domain Properties Citent Nodes Domain Properties Citent Nodes Domain Properties Citent Nodes Citent Nodes Citent Nodes StatuDARD <td>Edit my profile Help</td> <td>Log ou</td>	Edit my profile Help	Log ou			
Workson Settings Views: Iko group filter Welcome PolicyX Otting Started PolicyX Heath Montor PolicyX Entryptise Management Storage Devices Policy Domains and Client Nodes. Policy Domains (Policy) Policy Domains (Policy) Policy Domains (Policy) Storage Devices Policy Domain Name (Policy) Policy Domains and Client Nodes Policy Domain Name (Policy) Sever Maintenance Reporting StanDARD Properties Policy Domains Properties Policy Domains Policy					
Views 1 No group filter Policy Domains and Client Rodes Welcome Image: Client Rodes Option 2 Stated Health Montor Enterprise Management Stated Bolicy Domains and Client Nodes Image: Client Rodes, option sets, Client Rodes, and management classes. Storage Devices Policy Domain Name ^ Description ^ Backup Ret Policy Domains and Client Nodes Storage Devices Policy Domains and Client Nodes Domain Name ^ Description ^ Backup Ret Storage Devices Storage Devices Page 1 of 1 Total: 2 Filtered: 2 Displayed: 2 Selected: 1 Storage Devices Option Sets Client Nodes Option Sets Client Nodes Management Classes <td></td> <td>4 1</td>		4 1			
Welcome MURATYYCSILMEN2_SERVER3_Policy bornains. Oritivoli Storage Manager Description for apply consistent rules for data management disases. Getting Started Health Monitor Enterprise Management Select A Domain Name A Description A Backup Ret Select A Domain Name A Description A Backup Ret Select A Domain Name A Description A Backup Ret Select A Domain Name A Description A Server Maintenance Reporting 30 days Page 1 of 1 Total: 2 Displayed; 2 Selected; 1 STANDARD Properties Domain Properties Domain Properties Domain Properties Domain Properties Client Nodes Domain Properties Management Classes		Close p			
Introdi Storage Manager Gatting Started Health Monitor Entropise Management Storage Devices Policy Jomains and Client, Nodes Nodes Server Maintenance Reporting StorApp Devices Domain Name ∧ Description ∧ Backup Ret Server Maintenance Reporting StorApp Devices Domain Properties Domain Properties Domain Properties Domain Properties Dimain Properties Description A Backup Ret Dimain Properties Management Classes		? -			
Enterprise Management C Base for the second	Retention Archive Retent	tion o			
Policy Domains and Client Nodas Server Maintenance Reporting Total: 2 Filtered: 2 Displayed: 2 Selected: 1 Server Maintenance Page 1 of 1 Total: 2 Filtered: 2 Displayed: 2 Selected: 1 Server Maintenance Domain Properties Domain Properties Domain Properties Domain Sets Client Node Schedules Management Classes	365 days				
Server Maintenance Reporting Page 1 of 1 Total: 2 Filtered: 2 Displayed: 2 Selected: 1 StrANDARD Properties Domain Properties Diamain Properties Client Nodes Option Sets Client Node Schedules Management Classes	365 days				
STANDARD Properties Domain Properties Client Nodes Option Sets Client Node Schedules Management Classes	Page 1 of 1 Total: 2 Filtered: 2 Displayed: 2 Selected: 1				
STANDARD Properties Domain Properties Otient Nodes Option Sets Client Node Schedules Management Classes					
 Domain Properties Client Nodes Option Sets Client Node Schedules Management Classes 		2 - 1			
 Client Nodes Option Sets Client Node Schedules Management Classes 					
Option Sets Otient Node Schedules Management Classes					
Client Hode Schedules Management Classes					
Management Classes					

Figure 4-25 Client nodes and policy domain selection

- 3. Select Client Node Schedules to expand the schedules.
- 4. Create a schedule by selecting Select Action \rightarrow Create a Schedule and Go.
- 5. The Create Schedule wizard will start.
- 6. Fill in the schedule name, description, and schedule type, such as backup, and then click **Next** (Figure 4-26).


Figure 4-26 Creating schedule

- 7. Select Incremental Backup for the sake of example.
- 8. The Select Repetition Options panel is displayed. And you can select several different schedules from the list. We will select **Repeat on one or more days** of week (Figure 4-27).



Figure 4-27 Select repetition options

9. Select only Sunday and also click **Select weeks in which the schedule runs** (Figure 4-28).



Figure 4-28 Repeating the schedule - day of week

- 10. Refine the Schedule Repetition-Weeks is displayed. Now select The First week of the month and click Next.
- 11. Define schedule priority, schedule expiration, and start duration and click **Next**.
- 12.Now select the client nodes for this schedule and click Next.
- 13.A summary panel will be displayed. Select **Finish** to end the Create Schedule task (Figure 4-29).



Figure 4-29 Summary panel

Schedule scenario

Let us create a schedule such that backup will occur only on 1st, 7th, 21st, and 26th of January, April, and August of the year:

- 1. First select Policy Domain and Client Nodes.
- 2. Click the domain.
- 3. Select Client Node Schedules to expand the schedules.
- 4. Create a schedule by selecting Select Action \rightarrow Create a Schedule and Go.
- 5. The Create Schedule wizard will start.
- 6. Fill in the schedule name, description and schedule type such as backup and then click **Next**.
- 7. Select Incremental Backup for the sake of example.
- 8. The Select Repetition Options panel is displayed, where you can select several different schedules from the list. We will select **Repeat on one or more days of month**.
- 9. On the Repeat the schedule Day of the month panel, select the 1st day and while pressing the Control Key, select 7th, 21st, and 26th day and click the option, **Select months in which the schedule runs** (Figure 4-30).



Figure 4-30 Repeating the schedule

10. Click only January, April, and August, and then click Next (Figure 4-31).



Figure 4-31 Selecting schedule by month

11.Define schedule priority, schedule expiration, and start duration and click **Next**.

12.Now select the client nodes for this schedule and click Next (Figure 4-32).



Figure 4-32 Schedule summary panel

13.A summary panel will be displayed. Select **Finish** to end the Create Schedule task.

4.2 Server scenarios

In this section we show scenarios done by the Tivoli Storage Manager Server.

4.2.1 Migration of storage pool

In previous releases, even with migration of the storage pool available, setting the correct time was a bit tedious. There were two ways to start migration. The first one was to set the high and low migration thresholds, and migration would start automatically when the high threshold was reached. When the environment was lacking available drives, starting migration automatically may cause problems for other backups, which would use a tape drive at the same time.

So we were using the second method, which was to set a high threshold to 100% in order not to start migration automatically. And when a drive is empty, threshold is set to a low value to start migration, and set back to 100% to prevent migration, and at the same time, cancel the migration process.

With V5.3, there is now a new migration command to do the same thing. With this command, there is no need to adjust high and low thresholds continuously. You can immediately start migration for any **stgpool** (storage pool) at any time,

and also you can define duration for the migration to end. For the sequential storage pools, it is also possible to start reclamation before migration. (We will see this in the next demonstration.)

The command syntax for the new command is:

```
MIGRATE STGPOOL poolname DURATION=minutes RECLAIM=(no,yes)
LOWMIG=number WAIT=(no,yes)
```

From ISC:

- 1. Select Storage Devices.
- 2. Select Tivoli Storage Manager server and click Use Command Line and Go.
- 3. Enter MIGRATE STGPOOL BACKUPPOOL DURATION=40.

You can monitor the status by using **Q PROC**.

4.2.2 Reclamation of storage pool

With the previous releases, as in migration, it was also difficult to set the correct time for reclamation. Reclamation needs at least two drives when using tape and one drive and one sequential disk pool when using **RECLAIM STGPOOL**. Automatic reclamation may cause problems if there are not enough drives in the environment.

So we were setting the reclamation threshold high and low continuously to start or stop reclamation.

With V5.3, there is a new reclamation command. You can now start reclamation whenever you want, and you can stop after certain duration. Also you can specify a reclamation threshold other than a storage pool reclaim threshold.

Note: Reclamation works on the storage pool base. So if you have a lot of tapes that need to be reclaimed, you had better use **MOVE** instead of **RECLAIM**. The **MOVE** command does the same operation on a volume base.

The command syntax for the new command is:

RECLAIM STGPOOL poolname DURATION=minutes THRESHOLD=number WAIT=(no,yes)

Example: Let us reclaim storage pool WINDOWSTAPEPOOL for 1 hour with threshold 80.

RECLAIM STGPOOL WINDOWSTAPEPOOL DURATION=60 THRESHOLD=80

4.2.3 Database reorganization

During daily backup, restore, and admin work, all actions have updates, inserts, or deletes of records in the Tivoli Storage Manager database. After a certain time, the database may become fragmented, and you should reorganize the database to recover the unused portion of the database.

Before V5.3, you can check whether DB needs to be reorganized by checking DB size, max reduction.

Example: Q DB F=*D will create such an output.*

```
Available space (MB):12
Assigned Capacity(MB):12
Maximum Extension(MB):0
Maximum Reduction(MB):8
Pct Util: 5.8
```

The above example shows that maximum reduction is 8 MB and the remaining will be 4 MB. So this database does not need to be reorganized.

```
Available space (MB):100
Assigned Capacity(MB):100
Maximum Extension(MB):0
Maximum Reduction(MB):70
Pct Util: 10
```

The above example shows that maximum reduction is 70 MB, while actually 10 MB is used. In this case, 20 MB of space is fragmented. This database needs to be reorganized.

With V5.3, there is no need to do such calculations. There is a new command which calculates and shows whether reorganization is needed and the amount of space that will be recovered. Also, the Q DB command has been changed such that its output reports the last estimated time and estimated recoverable space. The new command to use is ESTIMATE DBREORGSTATS.

The command syntax for the new command is:

```
ESTIMATE DBREORGSTATS Wait=(No,Yes)
```

The command output is as follows:

ANR1784I A database reorganization would reduce the database utilization by an estimated 70 MB.

Q DB F=D

The output is now as follows:

Available space (MB):100 Assigned Capacity(MB):100 Maximum Extension(MB):0 Maximum Reduction(MB):70 Pct Util : 10 Estimate of Recoverable Space (MB): 70Mb Last Estimate of Recoverable Space (MB): 03/31/2005 13:30:22

Hint: This command may degrade the performance of Tivoli Storage Manager and run for several hours. So you should plan to run the commands at an appropriate time.

4.2.4 File Device Class to different directories

Before Tivoli Storage Manager V5.3, you can define file device class which emulates the tape features on a specified operating system directory. If the environment has different disk storages that are mounted on different directories, then you have to define several file classes to access different directories.

With Tivoli Storage Manager V5.3, you can now define several directories within the same file device class:

DEFINE DEVCLASS deviceclassname DEVTYPE=FILE MOUNTLIMIT=number MAXCAPACITY=number DIRECTORY=directory1,directory2,directory3

From ISC:

- 1. Select Storage Device.
- 2. Select Tivoli Storage Manager server, click View Device Classes and Go.
- 3. Select Action, Create Device Class and Go.
- 4. Select File Device Class and click Next (Figure 4-33).

	Select Device Type	
 Select Device Type General Information 	To use a storage device, you must define several objects that are used to manage operations for t device.	the
Summary	Select the type of device this device class will use. A device class is used to associate media volume storage pool with a compatible storage device. A device class can be used by multiple storage pool each storage pool can use only one device class.	es in Is, but
	Device type	
	Select a Device Type	
and the second se		

Figure 4-33 Selecting the device class

5. Define device class name and directories separated by a comma (Figure 4-34).

 ✓ Select Device Type → General Information 	General Information A file device represents a series of files in a directory, which are treated as sequential access volumes. Enter a name for the device class and the directory location where this device class will store client node data.
	*Name filedevc
	+Path to store files c:\devc, e:\devc, f:\devc
	Allow other servers and storage agents to share access to volumes in the specified directories
	Consider adding a minimum of two mount points for every storage pool, server, or storage agent that will use this device class.
	Mount limit Maximum file size + 20 + 2 GB M
< Back Next > Fi	inish Cancel

Figure 4-34 Creating a new device class

4.2.5 Activity log management

With the previous releases, the size of the activity log can only be controlled by activity log retention period, which is in days.

With Tivoli Storage Manager V5.3, now it is possible to control the size by the size of the activity log. To set the size, the command has been changed as follows.

SET ACTLOGRETENTION nn MGMTSTYLE=(Date,Size)

The default is Date as before. When the management style is Date, **nn** is number of days. When the management style is Size, then **nn** is number of MB.

Example: To set the activitylog retention to 300 MB:

SET ACTLOGRET 300 MGMTSTYLE=SIZE

4.2.6 Creating copypool

Copy of the cartridge or disk can be created by using two methods. The first method is to update the Copy Storage Pool parameter of the storage pool. The second method is to run the backup **stgpool** command for the storage pool.

If the first method is used, then during backup to storage pool, data is written to primary and copy pool at the same time. And depending on the parameter, Continue Copy on Error, backup may fail or continue without copy. The disadvantage of the method is that you need two drives at the same time, and since data is written to two pools at the same time, performance is a bit affected. As an advantage, the copy of data is immediately available after backup.

If the second method is used, then you can make a copy of the storage pool whenever you want. The copy is created when the command is entered. As a disadvantage, your data is in a critical situation (without copy) between backup time and the time that you enter the copy command.

For the first method, you have to change the storage pool parameter as follows:

UPDATE STGPOOL poolname COPYSTGPOOLS=copypool1,copypool2,copypool3 COPYCONTINUE=(Yes,No)

If you want the entire transaction to fail, then select copycontinue=no.

From ISC:

- 1. Select Storage Devices.
- 2. Select Tivoli Storage Manager server, click View Storage Pools and Go.

- 3. Select the storage pool you want to copy and click **Modify Storage Pool** and **Go**.
- 4. Click Advanced Options.
- 5. Fill in the Copy Storage Pool parameter and click Apply (Figure 4-35).

eneral	Advanced Options
aration	You can specify how files in the storage pool can be accessed by client nodes and server processes.
lumes	Access Read-write
vanced option	5
	Maximum file size to accept from client nodes
	So limit
	Maximum size
	MB W
	During client node or Import operations, data can be written to the primary storage pool and up to three copy storage pools simultaneously. If you select more than one copy storage pool, each one must be unique.
	COPYPOOL V None V None V
	Select the option below to stop writing to failing copy pools for the remainder of the session, but continue writing to the primary pool and any remaining copy pools. If this option is not selected, the entire operation is discontinued, including writes to the primary pool.
	Storage pool data can be validated during audit processing.
	Enable data validation using a cyclic redundancy check

Figure 4-35 BACKUPPOOL properties advanced options

For the second method, you enter the backup command with syntax as follows:

BACKUP STGPOOL primarypoolname copypoolname PREVIEW=(Yes,No,Volumesonly)

Note: It is a good practice to run the preview=yes option first in order to see how many bytes will be copied.

From ISC:

- 1. Select Storage Devices.
- 2. Select Tivoli Storage Manager server, click View Storage Pools and Go.
- 3. Select the storage pool you want to copy and click **Backup Storage Pool** and **Go**.
- 4. Select copypool and click OK.
 - a. Optionally, you can click **Preview Backup** (Figure 4-36).

ick up storage Pool BACKU	UPPOOL	
ck Up Storage Pool		
king up a primary storage edule regular storage poo ore they are backed up. A	e pool copies its stored files to a copy storage pool. You can use the Server Maint of backups. If migration for a storage pool starts during a storage pool backup, fil As a best practice, do not back up a storage pool during migration processing.	enance work item to les can be migrated
Copy storage pool		
COPYPOOL		
laximum number of parall	illel processes to use for the backup	
Preview Backup Click Preview Backup to vie	riew the volumes that will need to be mounted to perform the backup	ease the
Preview Backup Click Preview Backup to vi Display the number processing time Preview Backup	iew the volumes that will need to be mounted to perform the backup r of files and amount of data that will be backed up. Selecting this option can incr	sase the

Figure 4-36 Creating copypool

4.2.7 Creating policy domain

In order for the client to back up its data, it should be defined in a Policy Domain. How Tivoli Storage Manager will react to the data of the client is defined by using Policy Domain attributes such as:

- Which storage pool to which that data will be first saved
- How long will it be retained
- How many versions Tivoli Storage Manager will keep
- What will be the HSM settings

Before starting to create the policy domain, you have to know which servers will back up and what policies are currently being used for different types of data.

To create the Policy Domain:

- 1. Select Policy Domains and Client Nodes.
- 2. Select the Tivoli Storage Manager server, click **View Policy Domains** and **Go**.
- 3. Click Create the Policy Domain and Go.
- 4. First enter the name of the policy domain and click Next.

- 5. Select storage pool for backup and archive data.
- 6. If you already defined clients, you can select **Yes** and click **Next**.
- 7. Since there are no clients defined, select No and click Next.
- 8. You will see the summary data for the Policy Domain; click **Finish**.
- 9. The domain is now being created. It is now time to add management class.
- 10. Select the policy you have just created and click **Modify Policy Domain** and **Go**.
- 11. You can change:
 - Domain Properties
 - Client Nodes
 - Option Sets
 - Client Node Schedules
 - Management Classes

12.Let us start to add the management class; select Management Class.

- 13.A standard management class is automatically created when you create a Policy Domain. The standard management class attributes are as follows:
 - Backup data are stored to the storage pool that you defined in step 5.
 - Modified is selected.
 - SHAREDSTATIC is selected.
 - Each time, backup can be taken.
 - Two versions are kept and stored for 30 days.
 - One version of each deleted file is kept and stored for 60 days.
 - Archive data is stored to the storage pool that you defined in step 5.
 - Archive data is kept for 365 days.
- 14. You can change or add new management classes.
- 15. Click Cancel on Standard Management class and click Create Management Class and Go.
- 16. Enter the Management Class name and definition and click Next.

17. Enter Backup settings and archive settings and click **Finish**.

- 18. You don't have to enter all the settings.
- 19. If you want to make your management class be the default, then select the management class and click **Make Management Class Default** and **Go**.
- 20. To add the client Node, click Client Nodes
- 21. Click Create a client node and Go.
- 22. Enter the client name, Web address, and optionally **Option Set** or **Schedule** and click **Next**.

- 23. Enter password and password expiration policy and click Next.
- 24.Click Finish.
- 25. You will see (?) at the platform column. Ignore this at the moment, because it will be filled in when the client first connects to Tivoli Storage Manager server.

You can make changes on the active policy in order not to jeopardize the status of client data immediately.

4.2.8 Tivoli Storage Manager client remote access

Sometimes you may need to access the client from remote location in order to do backup/restore without involving local server personnel. The server may be at a remote location where you cannot access the system easily, or local IT personnel may not be well skilled to do backup/restore.

Tivoli Storage Manager offers remote access to Client code via LAN and the Backup/Archive Web client can be used. In order to use this facility, you do not need to install any extra code. All you need to do is to configure the Client side. The following demonstration shows how to configure all of the necessary things to do.

- 1. For Tivoli Storage Manager BA Client running on Windows, you need two services on the Windows operating system: Tivoli Storage Manager Client Acceptor and Tivoli Storage Manager Remote Client Agent.
- 2. First check whether these services were defined:
 - a. If yes, be sure that the Tivoli Storage Manager Client Acceptor service has been started. (The Remote Client Agent will be started automatically by the Tivoli Storage Manager Client Acceptor service when you initiate the Web client.)
 - b. If no, or if you are not sure of the name of the service, follow the next step.
- 3. You can install, modify, or remove the necessary services by using the Tivoli Storage Manager Backup-Archive GUI.
- 4. Start the Backup-Archive GUI:
 - a. From the command line, run c:\program files\tivoli\tsm\baclient\dsm.exe.
 - b. Start the GUI from Start \rightarrow All Programs \rightarrow Tivoli Storage Manager \rightarrow Backup-Archive GUI.
- 5. When the GUI is up, select Utilities → Setup Wizard → Help me Configure the Web Client (Figure 4-37).

TSM Client Configuration	Wizards	X
	TSM Client Configuration Wizard This wizard will help you create a client options file	
	Which components would you like to configure?	
	✓ Help me configure the TSM Backup Archive Client ✓ Help me configure the TSM Web Client	
10	Help me configure the TSM Client Scheduler Help me configure the TSM lournal Engine	
9.81/0	Help me configure Online' Image Support Help me configure Open File Support	
	< <u>B</u> ack <u>N</u> ext > Cancel Help	

Figure 4-37 Client configuration options

- 6. Click Next. You will see three options:
 - a. Install a new Web Client agent skip to step 9.
 - b. Update a previously installed Web Client Agent continue.
 - c. Remove a previously installed Web Client Agent skip to step 8.
- 7. If the service has already been installed, but you don't know the name of the services:

You can remove the service or select **Update** to get the name of the services. Simply click **Next** and on the next panel, you can find the name of the service. Then you can continue from step 2.

- 8. To remove the service:
 - a. Select Remove and click Next.
 - b. Select previously installed service and click Next.
 - c. Click **Finish** to remove both Client Acceptor and remote client agent services.

- 9. To install the service, select Install and click Next.
- 10. Type the name of the client acceptor service (the default is Tivoli Storage Manager Client Acceptor).
- 11. Type the Tivoli Storage Manager BA Client option file path name. Or click **Browse** and find the dsm.opt file that you would like to use. (The default is c:\program files\tivoli\tsm\baclient\dsm.opt).
- 12. Type the port number for communication. It should not be used by any other service. (The default is 1581).
- 13. Type your node name and password.
- 14.Select the way you want your service to start. For demonstration, select **Automatically when Windows boots**.
- 15. Type the name for the remote client agent. (The default is Tivoli Storage Manager Remote Client Agent).
- 16.Select No.
- 17.Select Yes.
- 18.Click Finish.
- 19. You should see the following message: Web Client successfully installed.
- 20. If you checked the services, **My computer** \rightarrow right-click \rightarrow **Manage** \rightarrow **Services and Applications** \rightarrow **Services**, you should see two services with one of them running, as shown in Figure 4-38.

TSM Client Acceptor	Started	Automatic	Local System
TSM Remote Client Agent		Manual	Local System

Figure 4-38 Services shows Tivoli Storage Manager components

- 21. Up to now, we have installed the services and our client is ready to be accessed remotely. We can now access it in two ways:
 - a. Directly from the browser skip 29.
 - b. By using ISC continue.
 - c. Logon to ISC:

http://isc-ip-address:8421/ibm/defaultconsole/!ut/p/.scr/Login

- d. Select Tivoli Storage Manager.
- e. Select Policy Domains and Client Nodes.
- f. Click the Server name
- g. Click the Domain (the default is Standard) to expand the tree.

- 22. Figure 4-39 illustrates how to select a client you want to access remotely.
- 23. Then select Launch Backup-Archive Client... from the Select Action bar and click Go.

nt Nodes					
e client nodes	in the table a	re assigned	to the policy domain.	The server manages i	the data and operations for a client nor
www.wca.co					
		Launch	Backup-archive Client.		
Select ^	Name ^	Type 🔺	Platform A	Description ^	Web client address (URL) A
۲		Client	WinNT 5.01		http://127.0.0.1:1581
Page 1 of 1		Tota	al: 1 Filtered: 1 Disp	layed: 1 Selected: 3	1
ion Cote					
ion aets					

Figure 4-39 Client nodes

24. Then you will be able to access the client remotely using the Web as seen in Figure 4-40.



Figure 4-40 Client remote access

4.2.9 Usage report

From ISC, you can run a report to show the number of stored files and amount of storage space occupied by the client nodes.

To get such a report, follow these steps:

- 1. Logon to ISC console.
- 2. Select Reporting.
- 3. Click Usage Report.
- 4. Select the Tivoli Storage Manager server from which you would like to run your report. Click **Run report** (Figure 4-41).

ie Edt Vew Favorites Tode Hep Stade + O + State State State + New	Integrated Solutions Console - Micro	rosoft Internet Explorer		
Back Image: Second Secon	le Edit View Favorites Tools Help	2		
tdress http://murat-yesimen2:8421/bm/console/ut/p/_sr.7_0_1N0/.cm/de//ar/ss.T37970f96/.cfc_0_164/.ce/7_0_1N3/.p5_0_161/.dp2PC_7_0_1N3_DemLinkabeNar/	3 Back 🔹 🕥 - 💌 🛃 🚮	🔎 Search	🜒 Media 🚱 🎯 😓 🔜 📙 🚯 🔯 🖏	6
Welcome murat yesilmen My Favorites Edit my profile Help Log out tterns Status Settings Reporting Image: Settings Image: Setting Seting Setting Setting Seting Setting Setting Setting Setting Seting S	idress 🖉 http://murat-yesilmen2:8421/ibm	/console/!ut/p/_s.7_0_A/7_0_1	1N0/.cmd/ad/.ar/sa.T37970f96/.c/6_0_16A/.ce/7_0_1N3/.p/5_0_16I/	/.d/0?PC_7_0_1N3_DsmLinkLabelNar 🗙 🛃 Go 🛛 Link
ttgrated Solutions Console	Welcome murat yesilmen		My Favorites	Edit my profile Help Log out
Work Items Status Settings Wew Ite ogroup filter Reporting Welcome Cose os Citruol Storage Manager Reporting - Usage Report Getting Started Health Monitor Enterprise Management Storage Devices Policy Omains and Client Nodes Server A Storage Devices Policy Omains and Client Nodes Reporting Cose os Reporting MURAT-VESTIMENC Serversit Reporting MURAT-VESTIMENC Serversit Reporting MURAT-VESTIMENC Serversit Policy Omains and Client Nodes Report Getting Started Heage 1 of 1 Total 1 Filtered 1 Displayed 1 Selected 1 Reporting Cancel	tegrated Solutions Console			
Items Settings Items Settings Reporting Case and Case an	Work Real and Re	eporting		
Meene Importing Important	tems Status Settings			Chara and
Welcome Reporting-2 Usage Report The table shows the servers that can be included in the selected report. Select one or more servers from the list. Getting Starda Haalth Monitor Enterprise Management Storage Davices Policy Domains and Client, Nodes Server Maintenance Reporting	iew : No group filter	teporting		Close bag
Getting Started Health Monitor Enterprise Management Storage Devices Policy Domains and Client Reporting Server Maintenance Reporting	Welcome	Reporting - Usage Report	r that can be included in the colorted report. Select one or i	7 - D
Getting Started Health Monitor Entrprise Management Storage Devices Policy Domains and Client. Nodes Server Maintenance Reporting	Tivoli Storage Manager	The table shows the server	s that can be included in the selected report. Select one of it	note servers from the list.
Health Monitor Select ^ Server ^ Description ^ Enterprise Management V MURAT-VESILMEN2 SERVER1 tam-local Storage Devices Page 1 of 1 Total: 1 Filtered: 1 Displayed: 1 Selected: 1 Implayed: 1 Selected: 1 Page 1 of 1 Cancel Run Report Cancel	Getting Started		P Go	
Enterprise Management V MURAT-VESILVEN2 SERVERI tam-local Storage Davies Page 1 of 1 Totali 1 Filtered: 1 Displayed; 1 Selected; 1 Policy Domains and Client Nodes Report Cancel	Health Monitor	Select ^	Server ^	Description ^
Storage Davices Page 1 of 1 Totali 1 Filteredi 1 Displayedi 1 Selectedi 1 Nodes Server Maintenance Reporting	Enterprise Management		MURAT-YESILMEN2 SERVER1	tsm-local
Policy Domains and Client Nodes Server Maintenance Reporting	Storage Devices	Page 1 of 1	Total: 1 Filtered: 1 Displayed: 1 Selected: 1	
Nodes Server Maintenance Reporting	Policy Domains and Client			
Server Maintenance Reporting	Nodes Server Maletanance	Run Report Cancel		
Reporting	Server Maintenance			
	Reporting			

Figure 4-41 Usage report for TSM Server

5. As shown above in Figure 4-41, on the client basis, you can see the number of files, backup/archive, and amount of space occupied in Tivoli Storage Manager server. You can sort, filter on any column.

6. The same kind of report can also be taken by using the **Q OCCUPANCY** command (Figure 4-42).

e Edit View Favorites Tools I	Help			
🗿 Back 🔹 🐑 - 💌 😰 🐔	Search 🔶 Favorit	tes 💽 Media 🧭 🔗 - 头 🗐	a 🗔 🚯 🔝 🚳	
drace http://murat.uorilmon2:9471/		1 1NE/ md/ad/ ar/sa T2E40cfa9/ c/E 0 1E	R/ m/7 0 100/ n/5 0 161/ d/220C 7	0 1N0 wH-T2540cfs8+ W
a cas w mcp.//maiac-yesimeriz.o+zz/	uniconsole/indip/_s./_o_A//_c	5_1407.cm0/a07.ar/sa.15540cra07.cf0_0_10	0/.0e//_0_149/.0/5_0_105/.0/5FC_/	
Welcome murat yesilmen			My Favorites	Edit my profile Help Log out
tegrated Solutions Console				
Work Status Settings	Reporting × Usage ×			
tems	Usage Report			Close pa
'iew : No group filter 💌	obuge Report			0001000
Welcome	Usage Report for MURAT	FYESILMEN2_SERVER1		2-1
Tivoli Storage Manager	Client nodes backup usa	ge		
Getting Started	# # 2 2 1	Select Action 🖌 Go		
Health Monitor	Name ^	Physical (MB) ^	Logical (MB) 🛆	Number of Files ^
Enterprise Management	MURATY	0.02	0.02	4
Storage Devices	DENEME	0.57	0.57	
Policy Domains and Client	Page 1 of 1	Total: 2 Filtered: 2 Displa	yed: 2	
Nodes	Client nodes archive usa	ge		
Server Maintenance	# # 2 2 1	Select Action M Go		
Reporting	Name ^	Physical (MB) ^	Logical (MB) ^	Number of Files
	MURATY	0	0	
	Page 1 of 1	Total: 1 Filtered: 1 Displa	yed: 1	
	Client nodes space mana	agement usage		
	* * 2	Select Action 🖌 Go		
	Name ^	Physical (MB) ^	Logical (MB) ^	Number of Files ^
	None Found		VURMOOD I	
	Page 1 of 1	Total: 1 Filtered: 1 Displa	yed: 1	

Figure 4-42 Detailed usage report for TSM Server

4.2.10 Daily report

From the Management Console, you can run several different reports to see the activity of Tivoli Storage Manager server on an hourly or daily basis.

To get a daily report (Figure 4-43), follow these steps:

- 1. Start management console: Start \rightarrow All Programs \rightarrow Tivoli Storage Manager \rightarrow Management console.
- 2. Click the plus sign to the left of Tivoli Storage Manager.
- 3. Click the plus sign to the left of your Tivoli Storage Manager server.
- 4. Click the plus sign to the left of Server1.
- 5. Click the plus sign to the left of Reports.
- 6. Click the plus sign to the left of Operational Reports.



Figure 4-43 Daily report

- 7. Right-mouse click Operational Reports and select New.
- 8. Fill in the name of the report and click **OK**.
- 9. You will see all of the possible reports you may need (Figure 4-44).

B Custom Summary Administrative Schedules Status See	A <u>d</u> d
Administrative Schedules Status	
Client Schodulos Status	ttings
E Session Load Summary	Delete
Tape Mount Load Summary	
Expiration Load Summary	elect all
B Declamation Load Summary	lear all
Enclamation Load Summary	
Missed File Summary	
Missed File Details	

Figure 4-44 Properties panel

10. Check the lines which you would like to see on the report.

- 11.Click OK.
- 12. You can run the report created by selecting it and choosing **Refresh using current time**.
- 13. This may take a few minutes.

4.2.11 Summary

In this chapter we have showed Client, Server, and some Administration Center demonstration scenarios. You may enhance these demonstration steps according to your customer's areas of interest.



Α

Additional information

This appendix provides some useful additional information about products, usage, and functions.

A.1 Browser access to Tivoli Storage Manager V5.3

In response to customer transition needs, Tivoli Storage Manager Version 5.2 administrative Web interface can be used for a limited time to support customer migration activities to Tivoli Storage Manager Version 5.3.

Rules of use:

- 1. Customers may run concurrent instances of the Version 5.2 administrative Web interface and the Version 5.3 interfaces.
- 2. During the transition period, use of the Version 5.2 administrative Web interface for migration activities will be considered a supported environment; however, no functional enhancements will be made to the Version 5.2 interface, and any reported problems that require a code change to the Version 5.2 interface will not be corrected. Defects found in the base Tivoli Storage Manager server will be corrected.
- 3. The Version 5.2 interface does not support the new functions in the Version 5.3 interface. To take advantage of the new functions in the interface, customers must use the Version 5.3 interface.
- 4. The Version 5.2 interface will be available for migration purposes through March, 2006.

Installation instructions

Here are the installation instructions to follow:

- Download the necessary files. See the proper platform below. There are two sets of files: one set of gzipped tar files for UNIX or Linux systems, and a set of zip files for Windows. The contents of the two sets of files are identical. Use the one that is most convenient.
- Extract the contents of each archive into the appropriate directory, as specified below. The IDL and class files can be extracted into the server bin directory (the directory containing the dsmserv or dsmserv.exe executable). The image and help files should be extracted into the following directories, based on platform (in the following, SRVBIN = server bin directory):
- Platform: AIX

Images: /usr/tivoli/tsm/server/webimages/

Help: /usr/lib/nls/msg/en_US/

Platform: HP-UX
 Images: SRVBIN/webimages/
 Help: SRVBIN/webhelp/AMENG/

Platform: Linux

Images: SRVBIN/../webimages/

Help: SRVBIN/../webhelp/en_US

Platform: Windows

Images: SRVBIN\webimage\

Help: SRVBIN\webhelp\

Platform: Sun

Images: SRVBIN/../webimages/

Help: SRVBIN/../webhelp/en_US

3. Load the IDL for your platform into the server by executing the following command:

dsmserv runfile platform.idl

Where platform is one of 'aix', 'hp', 'linux', 'sun', or 'windows'.

To load the IDL on an AIX operating system, issue the following command:

dsmserv runfile aix.idl

Note: Do not attempt to load the IDL file without first extracting the image and help files. Doing so will result in errors, and the load will fail without accomplishing anything.

A.2 Sample worksheets

In this section we provide the sample worksheets you might need before you start the negotiations with your customer for PoC.

Category	Client 1	Client 2	Client 3
Client name			
Contact information			
Operating system			
Total storage available (GB)			
Total storage used (GB)			
GB changed per backed up			
Number of files backed up			
Data compression			
Backup window times			
Backup number of hours			
Required recovery times			
Required recovery time			
ITSM recovery time			
GB copied per archive			
Number of files archived			
Number of archives kept			
Archive frequency			
Archive windows times			
Archive number of hours			
Number of image backup			
Image backup frequency			
Number of backup sets			
Backup set frequency			
Policy domain			
Client option set			

Table 4-1Client requirements worksheet

Category	Example 1	Example 2	Example 3
Group name			
Number of backup versions			
Backup file retention period			
Number of deleted versions			
Last deleted file version retention period			
Archive retention period			
Offsite copies			
Onsite collocation			
Offsite collocation			
Image backup retention			
Backupset retention			

 Table 4-2
 Storage policy requirements worksheet



Β

Additional material

This redbook refers to additional material that can be downloaded from the Internet as described below.

Locating the Web material

The Web material associated with this redbook is available in softcopy on the Internet from the IBM Redbooks Web server. Point your Web browser to:

ftp://www.redbooks.ibm.com/redbooks/SG246762

Alternatively, you can go to the IBM Redbooks Web site at:

ibm.com/redbooks

Select the **Additional materials** and open the directory that corresponds with the redbook form number, SG246762.

Using the Web material

The additional Web material that accompanies this redbook includes the following files:

File nameDescriptionAddmat6762.zipZipped worksheet samples

System requirements for downloading the Web material

The following system configuration is recommended:

Hard disk space:	50 KB minimum
Operating System:	Windows OS
Processor:	No prerequisites
Memory:	No prerequisites

How to use the Web material

Create a subdirectory (folder) on your workstation, and unzip the contents of the Web material zip file into this folder.

Related publications

The publications listed in this section are considered particularly suitable for a more detailed discussion of the topics covered in this redbook.

IBM Redbooks

For information on ordering these publications, see "How to get IBM Redbooks" on page 126. Note that some of the documents referenced here may be available in softcopy only.

- ► IBM Tivoli Storage Management Concepts, SG24-4877-03
- ► IBM Tivoli Storage Manager Implementation Guide, SG24-5416-02
- ► IBM Tivoli Storage Manager 5.3 Technical Guide, SG24-6638-00

Other publications

These publications are also relevant as further information sources:

- IBM Tivoli Storage Manager for AIX Installation Guide Version 5.3, GC32-1597-00
- IBM Tivoli Storage Manager for AIX Administrator's Guide Version 5.3, GC32-0768-03
- IBM Tivoli Storage Manager for Windows Installation Guide Version 5.3, GC32-1602-00
- ► IBM Tivoli Storage Manager for Windows Administrator's Guide Version 5.3, GC32-0782-03
- IBM Tivoli Storage Manager for UNIX Backup-Archive Clients Installation and User's Guide V5.2, GC32-0789
- ► IBM Tivoli Storage Manager for UNIX and Linux
- Backup-Archive Clients Installation and User's Guide Version 5.3, GC32-0789-05
- IBM Tivoli Storage Manager for Windows Backup-Archive Clients Installation and User's Guide Version 5.3, GC32-0788-05

Online resources

These Web sites and URLs are also relevant as further information sources:

► IBM Tivoli Storage Manager:

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

► IBM Tivoli Storage Manager Extended Edition:

http://www-306.ibm.com/software/tivoli/products/storage-mgr-extended/

IBM Tivoli Storage Manager information center

http://publib.boulder.ibm.com/infocenter/tivihelp/index.jsp?topic=/com.ibm. itspmgr.doc/ansh0000.htm

How to get IBM Redbooks

You can search for, view, or download Redbooks, Redpapers, Hints and Tips, draft publications and additional materials, as well as order hardcopy Redbooks or CD-ROMs, at this Web site:

ibm.com/redbooks

Help from IBM

IBM Support and downloads

ibm.com/support

IBM Global Services

ibm.com/services

These publications are also relevant as further information sources:

Index

Α

activity log 104 adding database volume 71 TSM Server 67 administration center 4, 59, 65, 67 archive 2, 91 adding files 92

В

backup 2 incremental backup 76 manual backup 82 schedule backup 94 selective backup 78 backup/archive client 5 browser access web access 118

С

checklist 23 client demo scenarios 74 client schedule 51 command **REGISTER LICENSE** 44 communications option 12 configuration administration center 67 IBM Tivoli Storage Manager client 48 IBM Tivoli Storage Manager client for AIX 58 IBM Tivoli Storage Manager server 35 IBMTivoli Storage Manager client schedule 51 initial configuration 35, 37 standard configuration 36 wizards 37 copy storage pool 104 custom installation 30, 47

D

daily report 114 data protection 10 database 3, 101 calculation 21 considerations 20 relational 4–5 reorganization 101 TSM database sizes 21 volume 39, 71 demonstration scenarios 73 design considerations 19 device class 102 disaster recovery 2 disaster recovery 2 disaster recovery manager 6 disk storage pool volume 39 dsm.opt file 49

F

firewall 4

Н

health monitor 69 hierarchical storage management 3, 8 HTTP port 5

IBM Tivoli Storage Manager application servers 10 components 26 Databases 10 ERP 11 Extended Edition 6 Hardware 10 Mail 10 space management 3 System Backup and Recovery 9 inactive copy 81 incremental backup 76 initial configuration 35, 37 installation administration center 65 custom 47 custom installation 30 IBM Tivoli Storage Manager 25 IBM Tivoli Storage Manager client for AIX 56 IBM Tivoli Storage Manager server 27 IBM Tivoli Storage Manager server for AIX 53 Tivoli Storage Manager client for Windows 44 Tivoli Storage Manager device driver 34 Tivoli Storage Manager language packs 33 typical 47 web access 118 installing IBM Tivoli Storage Manager license package 32 ISC 59 ITSM architecture 3

L

LAN-free backup 6 language option 27 licensing 43

Μ

manual backup 82 migration of storage pool 99

Ν

NAS 7 NDMP 7 Network Attached Storage 7 Network Data Management Protocol 7

0

ODBC 5 online resources 126

Ρ

planning 23 point in time restore 88 policies 21 policy domain 106

R

reclamation of storage pool 100 recovery log volume 39 Redbooks Web site Contact us xi redbooks Web site 126 REGISTER LICENSE 43 relational database 5 remote access 108 report 112, 114 restore 2, 83, 85, 87–88 another location 85 inactive version 87 original location 83 point in time 88 using command line 90 retrieve 92 roll-forward 5

S

scenarios 73 client demo scenarios 74 server scenarios 99 schedule backup 94 selective backup 78 server scenarios 99 shared memory 12 SQL SELECT 5 standard configuration 36 starting ISC console 64 storage agent 6 storage pool 22 copy storage pool 104 migration of storage pool 99 reclamation of storage pool 100 storage pools 4 storage repository 5 sysback 9

T

TCP/IP port 4 tcpport 4 transaction log 4 two-phase commit 4 typical installation 47

U

usage report 112

W

Web interface access 118 webports 5 wizards 37

(0.2"spine) 0.17"<->0.473" 90<->249 pages

Proof of Concept Guide for IBM Tivoli Storage Manager Version 5.3

E Redbooks


Proof of Concept Guide for IBM Tivoli Storage Manager Version 5.3



Installation and configuration

Including new administrative user interface

Demonstration scenarios

This IBM Redbook provides advice for Business Partners or other technical people about how to plan, implement, and demonstrate IBM Tivoli Storage Manager Version 5.3 in a proof-of-concept simulated environment.

This environment can be used to demonstrate the capabilities of the IBM Tivoli Storage Manager solutions using customer data, in order to gain customer acceptance for the next phase of the sell cycle to engage the Business Partner in a real proof-of-concept of IBM Tivoli Storage Manager.

INTERNATIONAL TECHNICAL SUPPORT ORGANIZATION

BUILDING TECHNICAL INFORMATION BASED ON PRACTICAL EXPERIENCE

IBM Redbooks are developed by the IBM International Technical Support Organization. Experts from IBM, Customers and Partners from around the world create timely technical information based on realistic scenarios. Specific recommendations are provided to help you implement IT solutions more effectively in your environment.

For more information: ibm.com/redbooks

SG24-6762-00

ISBN 0738490059