Tivoli® Storage Manager for Windows

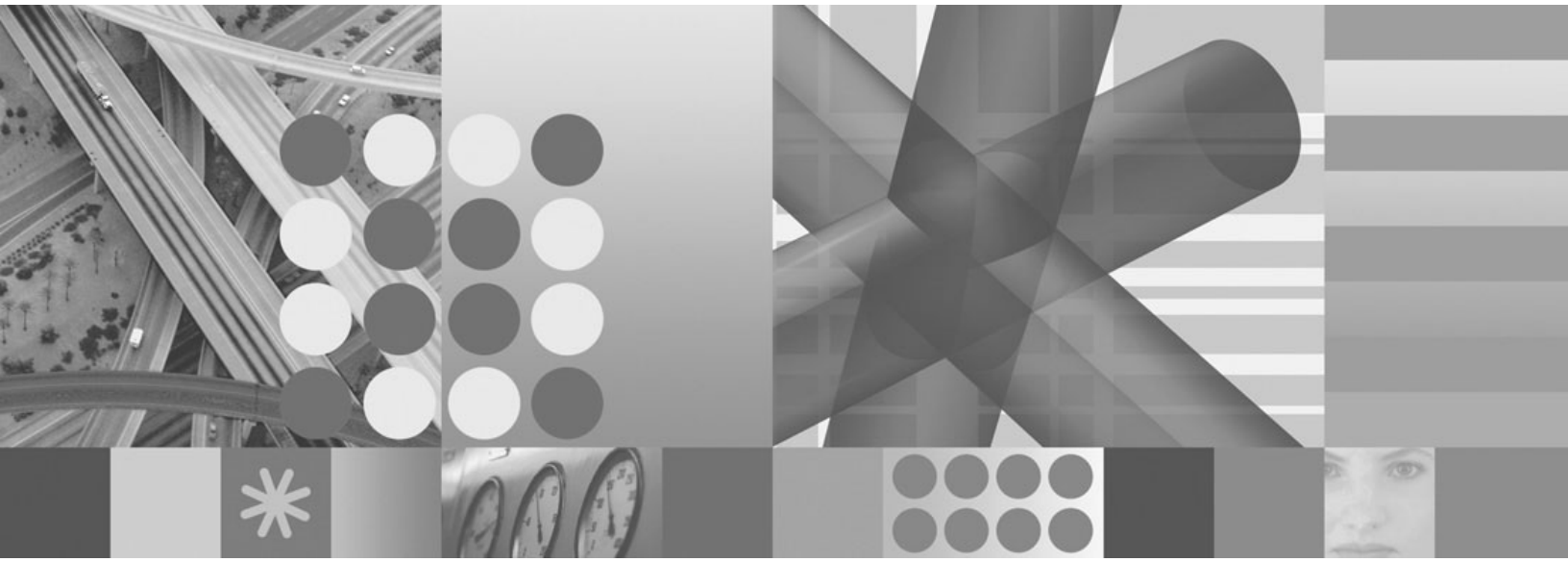
Version 6.1

Installation Guide

GC23-9785-01

Tivoli® Storage Manager
for Windows

Version 6.1



Installation Guide

GC23-9785-01

Note
Before using this information and the product it supports, read the information in "Notices" on page 73.

This edition applies to Version 6.1 of IBM Tivoli Storage Manager and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

Contents

Preface

This publication contains installation and configuration instructions for the Tivoli® Storage Manager server and client API, server languages, and other Tivoli Storage Manager components.

Instructions for installing the Tivoli Storage Manager license, device driver, storage agent, the Integrated Solutions Console and Administration Center, and the reporting and monitoring feature are also included in this publication.

Who should read this guide

This publication is intended for a system administrator installing and configuring Tivoli Storage Manager Version 6.1.

If you are upgrading an existing server to Tivoli Storage Manager Version 6.1, see the *Server Upgrade Guide*.

Publications

Tivoli Storage Manager publications and other related publications are available online.

You can search all publications in the Tivoli Storage Manager Information Center: http://publib.boulder.ibm.com/infocenter/tsminfo/v6.

You can download PDF versions of publications from the Tivoli Storage Manager Information Center or from the IBM® Publications Center at http://www.ibm.com/shop/publications/order/.

You can also order some related publications from the IBM Publications Center Web site. The Web site provides information for ordering publications from countries other than the United States. In the United States, you can order publications by calling 800-879-2755.

Tivoli Storage Manager publications

Publications are available for the server, storage agent, client, and Data Protection.

Table 1. Tivoli Storage Manager server publications

Publication title	Order number
IBM Tivoli Storage Manager Messages	GC23-9787
IBM Tivoli Storage Manager Performance Tuning Guide	GC23-9788
IBM Tivoli Storage Manager Problem Determination Guide	GC23-9789
IBM Tivoli Storage Manager for AIX Installation Guide	GC23-9781
IBM Tivoli Storage Manager for AIX Administrator's Guide	SC23-9769
IBM Tivoli Storage Manager for AIX Administrator's Reference	SC23-9775
IBM Tivoli Storage Manager for HP-UX Installation Guide	GC23-9782
IBM Tivoli Storage Manager for HP-UX Administrator's Guide	SC23-9770
IBM Tivoli Storage Manager for HP-UX Administrator's Reference	SC23-9776

Table 1. Tivoli Storage Manager server publications (continued)

Publication title	Order number
IBM Tivoli Storage Manager for Linux Installation Guide	GC23-9783
IBM Tivoli Storage Manager for Linux Administrator's Guide	SC23-9771
IBM Tivoli Storage Manager for Linux Administrator's Reference	SC23-9777
IBM Tivoli Storage Manager for Sun Solaris Installation Guide	GC23-9784
IBM Tivoli Storage Manager for Sun Solaris Administrator's Guide	SC23-9772
IBM Tivoli Storage Manager for Sun Solaris Administrator's Reference	SC23-9778
IBM Tivoli Storage Manager for Windows Installation Guide	GC23-9785
IBM Tivoli Storage Manager for Windows Administrator's Guide	SC23-9773
IBM Tivoli Storage Manager for Windows Administrator's Reference	SC23-9779
IBM Tivoli Storage Manager Server Upgrade Guide	SC23-9554
IBM Tivoli Storage Manager for System Backup and Recovery Installation and User's Guide	SC32-6543

Table 2. Tivoli Storage Manager storage agent publications

Publication title	Order number
IBM Tivoli Storage Manager for SAN for AIX Storage Agent User's Guide	SC23-9797
IBM Tivoli Storage Manager for SAN for HP-UX Storage Agent User's Guide	SC23-9798
IBM Tivoli Storage Manager for SAN for Linux Storage Agent User's Guide	SC23-9799
IBM Tivoli Storage Manager for SAN for Sun Solaris Storage Agent User's Guide	SC23-9800
IBM Tivoli Storage Manager for SAN for Windows Storage Agent User's Guide	SC23-9553

Table 3. Tivoli Storage Manager client publications

Publication title	Order number
IBM Tivoli Storage Manager for UNIX and Linux: Backup-Archive Clients Installation and User's Guide	SC23-9791
IBM Tivoli Storage Manager for Windows: Backup-Archive Clients Installation and User's Guide	SC23-9792
IBM Tivoli Storage Manager for Space Management for UNIX and Linux: User's Guide	SC23-9794
IBM Tivoli Storage Manager for HSM for Windows Administration Guide	SC23-9795
IBM Tivoli Storage Manager Using the Application Program Interface	SC23-9793
Program Directory for IBM Tivoli Storage Manager z/OS Edition Backup-Archive Client	GI11-8912
Program Directory for IBM Tivoli Storage Manager z/OS Edition Application Program Interface	GI11-8911

Table 4. Tivoli Storage Manager Data Protection publications

Publication title	Order number
IBM Tivoli Storage Manager for Advanced Copy Services: Data Protection for Snapshot Devices Installation and User's Guide	SC33-8331
IBM Tivoli Storage Manager for Databases: Data Protection for Microsoft SQL Server Installation and User's Guide	SC32-9059
IBM Tivoli Storage Manager for Databases: Data Protection for Oracle for UNIX and Linux Installation and User's Guide	SC32-9064
IBM Tivoli Storage Manager for Databases: Data Protection for Oracle for Windows Installation and User's Guide	SC32-9065
IBM Tivoli Storage Manager for Enterprise Resource Planning: Data Protection for SAP Installation and User's Guide for DB2	SC33-6341
IBM Tivoli Storage Manager for Enterprise Resource Planning: Data Protection for SAP Installation and User's Guide for Oracle	SC33-6340
IBM Tivoli Storage Manager for Mail: Data Protection for Lotus Domino® for UNIX, Linux, and OS/400® Installation and User's Guide	SC32-9056
IBM Tivoli Storage Manager for Mail: Data Protection for Lotus Domino for Windows Installation and User's Guide	SC32-9057
IBM Tivoli Storage Manager for Mail: Data Protection for Microsoft Exchange Server Installation and User's Guide	SC23-9796
Program Directory for IBM Tivoli Storage Manager for Mail (Data Protection for Lotus Domino)	GI11-8909

Support information

You can find support information for IBM products from a variety of sources.

Getting technical training

Information about Tivoli technical training courses is available online.

Go to http://www.ibm.com/software/tivoli/education/.

Searching knowledge bases

If you have a problem with Tivoli Storage Manager, there are several knowledge bases that you can search.

You can begin with the Tivoli Storage Manager Information Center at http://publib.boulder.ibm.com/infocenter/tsminfo/v6. From this Web site, you can search all Tivoli Storage Manager publications.

Searching the Internet

If you cannot find an answer to your question in the Tivoli Storage Manager information center, search the Internet for the latest, most complete information that might help you resolve your problem.

To search multiple Internet resources, go to the support Web site for Tivoli Storage Manager at http://www.ibm.com/software/sysmgmt/products/support/IBMTivoliStorageManager.html. From there, you can search a variety of resources including:

- IBM technotes
- IBM downloads

- IBM Redbooks®

If you still cannot find the solution to the problem, you can search forums and newsgroups on the Internet for the latest information that might help you resolve your problem. To share your experiences and learn from others in the user community, go to the Tivoli Storage Manager wiki at http://www.ibm.com/developerworks/wikis/display/tivolistoragemanager/Home.

Using IBM Support Assistant

At no additional cost, you can install on any workstation the IBM Support Assistant, a stand-alone application. You can then enhance the application by installing product-specific plug-in modules for the IBM products that you use.

The IBM Support Assistant helps you gather support information when you need to open a problem management record (PMR), which you can then use to track the problem. The product-specific plug-in modules provide you with the following resources:

- Support links
- Education links
- Ability to submit problem management reports

For more information, see the IBM Support Assistant Web site at http://www.ibm.com/software/support/isa/.

Finding product fixes

A product fix to resolve your problem might be available from the IBM Software Support Web site.

You can determine what fixes are available by checking the Web site:

1. Go to the IBM Software Support Web site at http://www.ibm.com/software/tivoli/products/storage-mgr/product-links.html.
2. Click the **Support Pages** link for your Tivoli Storage Manager product.
3. Click **Download**, and then click **Fixes by version**.

Getting e-mail notification of product fixes

You can get notifications about fixes and other news about IBM products.

To receive weekly e-mail notifications about fixes and other news about IBM products, follow these steps:

1. From the support page for any IBM product, click **My support** in the upper-right corner of the page.
2. If you have already registered, skip to the next step. If you have not registered, click **Register** in the upper-right corner of the support page to establish your user ID and password.
3. Sign in to **My support**.
4. On the My support page, click **Edit profiles** in the left navigation pane, and scroll to **Select Mail Preferences**. Select a product family and check the appropriate boxes for the type of information you want.
5. Click **Submit**.
6. For e-mail notification for other products, repeat steps 4 and 5.

Contacting IBM Software Support

You can contact IBM Software Support if you have an active IBM software maintenance contract and if you are authorized to submit problems to IBM.

Before you contact IBM Software Support, follow these steps:

1. Set up a software maintenance contract.
2. Determine the business impact of your problem.
3. Describe your problem and gather background information.

Then see "Submit the problem to IBM Software Support" on page x for information on contacting IBM Software Support.

Setting up a software maintenance contract

Set up a software maintenance contract. The type of contract that you need depends on the type of product you have.

- For IBM distributed software products (including, but not limited to, Tivoli, Lotus®, and Rational® products, as well as IBM DB2® and IBM WebSphere® products that run on Microsoft® Windows® or UNIX® operating systems), enroll in IBM Passport Advantage® in one of the following ways:
  - **Online:** Go to the Passport Advantage Web page at http://www.ibm.com/software/lotus/passportadvantage/, click **How to enroll**, and follow the instructions.
  - **By Phone:** For the phone number to call in your country, go to the IBM Software Support Handbook Web page at http://www14.software.ibm.com/webapp/set2/sas/f/handbook/home.html and click **Contacts**.
- For server software products, you can purchase a software maintenance agreement by working directly with an IBM sales representative or an IBM Business Partner. For more information about support for server software products, go to the IBM Technical support advantage Web page at http://www.ibm.com/servers/.

If you are not sure what type of software maintenance contract you need, call 1-800-IBMSERV (1-800-426-7378) in the United States. For a list of telephone numbers of people who provide support for your location, go to the Software Support Handbook page at http://www14.software.ibm.com/webapp/set2/sas/f/handbook/home.html.

Determine the business impact

When you report a problem to IBM, you are asked to supply a severity level. Therefore, you need to understand and assess the business impact of the problem you are reporting.

Severity 1	**Critical** business impact: You are unable to use the program, resulting in a critical impact on operations. This condition requires an immediate solution.
Severity 2	**Significant** business impact: The program is usable but is severely limited.
Severity 3	**Some** business impact: The program is usable with less significant features (not critical to operations) unavailable.
Severity 4	**Minimal** business impact: The problem causes little impact on operations, or a reasonable circumvention to the problem has been implemented.

Describe the problem and gather background information

When explaining a problem to IBM, it is helpful to be as specific as possible. Include all relevant background information so that IBM Software Support specialists can help you solve the problem efficiently.

To save time, know the answers to these questions:

- What software versions were you running when the problem occurred?
- Do you have logs, traces, and messages that are related to the problem symptoms? IBM Software Support is likely to ask for this information.
- Can the problem be recreated? If so, what steps led to the failure?
- Have any changes been made to the system? For example, hardware, operating system, networking software, and so on.
- Are you currently using a workaround for this problem? If so, be prepared to explain it when you report the problem.

Submit the problem to IBM Software Support

You can submit the problem to IBM Software Support online or by phone.

Online

Go to the IBM Software Support Web site at http://www.ibm.com/software/support/probsub.html. Enter your information into the appropriate problem submission tool.

By phone

For the phone number to call in your country, go to the contacts page of the IBM Software Support Handbook at http://www14.software.ibm.com/webapp/set2/sas/f/handbook/home.html.

If the problem that you submit is for a software defect or for missing or inaccurate documentation, IBM Software Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. If a workaround is possible, IBM Software Support provides one for you to implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the Tivoli Storage Manager product support Web site at http://www.ibm.com/software/sysmgmt/products/support/IBMTivoliStorageManager.html, so that users who experience the same problem can benefit from the same resolutions.

New for IBM Tivoli Storage Manager Version 6.1

Tivoli Storage Manager Version 6.1 includes many new features. Changes that affect Tivoli Storage Manager installation, packaging, and configuration are described in this section.

New for the server in Version 6.1.2

Server fix pack 6.1.2 contains several new features. This section summarizes changes that have been made to Tivoli Storage Manager that affect the installation process.

The following features are new for Tivoli Storage Manager in Version 6.1.2:

Administration Center packaging

With Tivoli Storage Manager Version 6.1.2, the Administration Center is packaged on its own DVD instead of with the other Tivoli Storage Manager components. See Chapter 5, "Installing and configuring the Administration Center," on page 53 to install and configure the Administration Center.

Licensing changes

Following the release of Tivoli Storage Manager Version 6.1.2, Tivoli Storage Manager Version 6.1.0 will no longer be available for download or purchase. Due to this unique circumstance, certain 6.1.2 packages will be available with a license module. See the following information for details on how this situation affects your environment.

Existing Version 6.1.0 and 6.1.1 users

If you have installed Version 6.1.0 and are using a Version 6.1.0 license, you can download the 6.1.2 package from the Service FTP site: ftp://ftp.software.ibm.com/storage/tivoli-storage-management/. You can install the 6.1.2 package using the instructions in Chapter 7, "Installing a Tivoli Storage Manager fix pack," on page 63.

Version 5 users

If you have not yet installed a version of the V6.1 server, when you upgrade, you must upgrade directly to Version 6.1.2. Version 6.1.2 is available with a license module from Passport Advantage or from your Tivoli Storage Manager sales representative. You can upgrade from V5 to V6.1.2 using the instructions in the *Server Upgrade Guide*.

New users

Version 6.1.2 is available from Passport Advantage or from your Tivoli Storage Manager sales representative. You can install Version 6.1.2 using the instructions in Chapter 2, "Installing Tivoli Storage Manager," on page 11.

New for the server in Version 6.1.0

This section summarizes changes that have been made to Tivoli Storage Manager that affect the installation process.

The following features are new for Tivoli Storage Manager in Version 6.1.0:

Graphical user interfaces

With Tivoli Storage Manager Version 6.1.0, there are now graphical user interfaces used for installing and configuring Tivoli Storage Manager. These are consistent across the Windows, AIX®, Linux®, and UNIX platforms.

Server database

The Tivoli Storage Manager Version 6.1.0 server integrates enterprise-class, IBM DB2 database technology that performs database management functions for the server database.

DB2 Version 9.5 is installed during the installation of a Tivoli Storage Manager Version 6.1.0 server and other components. Advantages include full-function SQL queries and elimination of the need for offline audits of the database.

Reporting and monitoring feature

The reporting and monitoring feature uses a combination of the Tivoli Common Reporting tool, IBM Tivoli Monitoring, and the Tivoli Data Warehouse to offer you reports and real time monitoring information about Tivoli Storage Manager servers and client activity.

Tivoli Storage Manager supports reporting on historical data as well as real-time data by allowing you to create a Tivoli Storage Manager monitoring agent instance on an IBM Tivoli Monitoring server.

Chapter 1. Planning to install IBM Tivoli Storage Manager

Install the Tivoli Storage Manager server component on the computer that manages storage devices and the Tivoli Storage Manager client code on every workstation that will transfer data to Tivoli Storage Manager server-managed storage.

Tivoli Storage Manager server maintenance releases, client software, and publications are available from the Tivoli Storage Manager Web site at http://www.ibm.com/software/sysmgmt/products/support/IBMTivoliStorageManager.html.

What you should know first

Before installing IBM Tivoli Storage Manager for the first time, be familiar with your operating systems, storage devices, communication protocols, and system configurations.

If you are upgrading an existing Tivoli Storage Manager server to Tivoli Storage Manager Version 6.1, see the *Server Upgrade Guide*.

If you are upgrading an existing Tivoli Storage Manager Version 6.1 server to a later level of Version 6.1, see Chapter 7, "Installing a Tivoli Storage Manager fix pack," on page 63.

Before you install IBM Tivoli Storage Manager for the first time, familiarize yourself with the following items:

- The Windows operating system that is running on the Tivoli Storage Manager server workstation.
- The operating systems that are running on any Tivoli Storage Manager client workstations.
- Storage devices that will be available to Tivoli Storage Manager.
- Communication protocols that are installed on your clients and servers.
- Any special system configurations you plan to use, such as Microsoft Active Directory or Microsoft Cluster Server (MSCS).

Restriction: You cannot install and run the Version 6.1 server on a system that already has DB2 installed on it, whether DB2 was installed by itself or as part of some other application. The Version 6.1 server requires the installation and use of the DB2 version that is packaged with the Version 6.1 server. No other version of DB2 can exist on the system.

Users who are experienced DB2 administrators can choose to perform advanced SQL queries and use DB2 tools to monitor the database. However, do *not* use DB2 tools to change DB2 configuration settings from those that are that are preset by Tivoli Storage Manager, or alter the DB2 environment for Tivoli Storage Manager in other ways, such as with other products. The Tivoli Storage Manager Version 6.1 server has been built and tested extensively using the data definition language (DDL) and database configuration that Tivoli Storage Manager deploys.

Installable components

The Tivoli Storage Manager server, client API, and licenses are required components. Other, optional components are also available with Tivoli Storage Manager.

You can install the following components for Tivoli Storage Manager Version 6.1:

- Tivoli Storage Manager server
- Tivoli Storage Manager server languages
- Tivoli Storage Manager licenses
- Tivoli Storage Manager device driver
- Tivoli Storage Manager storage agent
- Tivoli Storage Manager Administration Center
- Tivoli Storage Manager reporting and monitoring

Table 5 describes all the installable components.

Table 5. Tivoli Storage Manager installable components

Tivoli Storage Manager component:	**Description:**	**Additional information:**
Server (REQUIRED)	Includes the Tivoli Storage Manager database, management console, client API, and tools to help you configure and manage Tivoli Storage Manager.	Refer to the Tivoli Storage Manager server overview in the *Administrator's Guide*.
Language pack (OPTIONAL)	Each language pack (one for each language) contains language-specific information for the server and the management console.	See "Server language locales" on page 15.
Licenses (REQUIRED)	Includes support for all Tivoli Storage Manager licensed features. After you install this package, you must configure the licenses you have purchased.	Refer to the chapter on managing server operations in the *Administrator's Guide*.
Device driver (OPTIONAL)	Extends Tivoli Storage Manager media management capability.	The Tivoli Storage Manager device driver is generally preferred for use with the Tivoli Storage Manager server. It is required for use with automated library devices and optical disk devices, unless you are using Windows Removable Storage Manager to manage media. Refer to the chapter on adding devices in the *Administrator's Guide*. A list of devices supported by this driver is available from the Tivoli Storage Manager Web site, at http://www.ibm.com/software/sysmgmt/products/support/IBMTivoliStorageManager.html

Table 5. Tivoli Storage Manager installable components (continued)

Tivoli Storage Manager component:	Description:	Additional information:
Storage agent (OPTIONAL)	Installs the component that allows client systems to write data directly to, or read data directly from, storage devices attached to a SAN.	Refer to the *Storage Agent User's Guide*.
Administration Center (OPTIONAL)	Installs the following components automatically to help you configure and manage Tivoli Storage Manager: • Integrated Solutions Console • eWAS • Tivoli Common Reporting • TCR BIRT Reports **Note:** The Administration Center is on a separate DVD.	Refer to "Administration Center system requirements" on page 53.
Reporting and monitoring feature (OPTIONAL)	Provides reports and real time monitoring information about Tivoli Storage Manager servers and client activity. **Note:** This feature is on a separate DVD.	Refer to Chapter 4, "Installing the Tivoli Storage Manager reporting and monitoring feature," on page 33.

System requirements

The Tivoli Storage Manager server can require a large amount of memory, network bandwidth, and processor resources. In many cases, the server performs best when other applications are not installed on the same system.

Hardware requirements

Table 6 describes the minimum hardware requirements needed for your Windows system. For more details about planning disk space, see "Capacity planning" on page 5.

Table 6. Hardware requirements

Type of hardware	Hardware requirements
Hardware	Intel® Pentium® compatible processor or multiprocessor-based computer

Table 6. Hardware requirements (continued)

Type of hardware	Hardware requirements
Disk Space	• At least 3 GB of free disk storage (for a typical installation) • 200 MB temporary directory space • 200 MB partition size in the C:\ drive • 300 MB in the instance directory Additional disk space might be required for database and log files. The server is installed in the drive you select, and the database and logs can be installed in another drive.
Memory	At least 2 GB. A minimum of 4 GB for production servers. 8 GB is optimal.

Software requirements

Table 7 describes the minimum software requirements needed for your Windows system.

Table 7. Software requirements

Type of software	Minimum software requirements
Operating System	One of the following operating systems: • Microsoft Windows Server 2003: Standard, Enterprise, or Datacenter Edition • Microsoft Windows Server 2003: Standard, Enterprise or Datacenter x64 Edition (64-bit) • Microsoft Windows Storage Server 2003 • Microsoft Windows Storage Server 2003 x64 • Microsoft Windows Server 2008: Standard, Enterprise, or Datacenter Edition • Microsoft Windows Server 2008: Standard, Enterprise, or Datacenter x64 Edition (64-bit)
Communication protocol	At least one of the following communication protocols (installed by default with the current Windows operating systems): • Named Pipes • TCP/IP Version 4 or Version 6
Web browser	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 6.0 SP1 • Microsoft Internet Explorer 7.0 • FireFox 1.5 • FireFox 2.0 • FireFox 3.0 • Mozilla 1.7.8 Your browser must support the server code page. If your browser does not support the server code page, the windows might be unreadable. If your browser meets these requirements but does not correctly display a Tivoli Storage Manager Web-based interface, consider trying a different browser.

Table 7. Software requirements (continued)

Type of software	Minimum software requirements
System functions	The Windows system functions, such as Device Manager, are supported on the 64-bit Tivoli Storage Manager Console. Normal Windows system functions are available for both the 32-bit and 64-bit server using the Manage Computer function of the Windows system.

Capacity planning

Planning for Tivoli Storage Manager includes determining the number of client nodes to be managed by the Tivoli Storage Manager server, the backup and recovery needs of those clients, and the number and general size of client data files.

Estimating database space requirements

The size of the database depends on the number of client files to be stored and the method by which the server manages them.

If you can estimate the maximum number of files that might be in server storage at any time, you can estimate the database size from the following information:

- Each stored version of a file requires about 600 - 1000 bytes of database space.
- Each cached file, copy storage pool file, and active-data pool file, and deduplicated file requires about an additional 100 - 200 bytes of database space.
- Overhead can require up to 50% in additional space.

In the following example for a single client, the computations are probable maximums. In addition, the numbers are not based on using file aggregation. In general, aggregation of small files reduces the required database space. Assume the following numbers for a Tivoli Storage Manager system:

Versions of files

Backed up files
Up to 500,000 client files might be backed up. Storage policies call for keeping up to three copies of backed up files:

```
500,000 files x 3 copies = 1,500,000 files
```

Archived files
Up to 100,000 files might be archived copies of client files.

Space-managed files
Up to 200,000 files migrated from client workstations might be in server storage.

Note: File aggregation does not affect space-managed files.

At 1000 bytes per file, the space required for these files is:

```
(1 500,000 + 100,000 + 200,000) x 1000 = 1.8GB
```

Cached, copy storage pool, active-data pool files, and deduplicated files

Cached copies
Caching is enabled in a 5 GB disk storage pool. The high and low

migration thresholds of the pool are 90% and 70%. Thus, 20% of the disk pool, or 1 GB, is occupied by cached files.

If the average file size is about 10 KB, about 100,000 files are in cache at any one time.

```
100,000 files x 200 bytes = 19MB
```

Copy storage pool files

All primary storage pools are backed up to the copy storage pool:

```
(1,500,000 + 100,000 + 200,000) x 200 bytes = 343MB
```

Active-data pool files

All the active client-backup data in primary storage pools is copied to the active-data pool. Assume that 500,000 versions of the 1 500 000 backup files in the primary storage pool are active.

```
500,000 x 200 bytes = 95 MB
```

Deduplicated files

Assume that a deduplicated storage pool contains 50,000 files.

```
50,000 x 200 bytes = 10 MB
```

Therefore, cached files, copy storage pool files, and active-data pool files, and deduplicated storage pool files require about an additional 0.5 GB of database space.

Overhead

About 2.3 GB is required for file versions, cached copies, copy storage pool files, and active-data pool files. Allow up to 50% additional space (or 1.2 GB) for overhead.

The database should then have at least 3.5 GB per client.

During SQL queries of the server, intermediate results are stored in temporary tables that require space in the free portion of the database. Therefore, using SQL queries requires additional database space. The more complicated the queries, the greater the space that is required.

Tip:

- In the preceding examples, the results are estimates. The actual size of the database might differ from the estimate because of factors such as the number of directories and the length of the path and file names. As a best practice, periodically monitor your database and adjust its size as necessary.
- If you cannot estimate the numbers of files, you can roughly estimate the database size as from 1% to 5% of the required server storage space. For example, if you need 100 GB of server storage, your database should be 1 - 5 GB.

Recovery log space requirements

The recovery log space that you require depends on the amount of client activity with the server.

Active log space

Ensuring that the recovery log has enough space is essential for a V6.1 server.

The minimum size of the active log is the default, 2048 MB (2 GB). Under normal server operations, you are likely to need an active log that is larger than the default. The maximum size of the active log is 128 GB The maximum size is 131,072 MB (128 GB). When estimating the size of the active log, ensure that the active log is large enough to handle not only the amount of concurrent activity that the server typically handles, but also higher workloads that can occur occasionally or under unusual conditions. Try to anticipate the greatest amount of workload that the server might need to handle.

For simple backup and archive activity with no data deduplication, 20 GB for the active log is adequate. If you use data deduplication, and if you deduplicate large objects (for example, image backups), use an active log size that is 20% of the database size.

Monitor the space usage and adjust the size of the active log as needed. To change the size of the active log, see the *Administrator's Guide* and search for increasing the active log size.

Active log mirror space

The active log mirror is a copy of the active log that can be used if the active log files cannot be read. There can be only one active log mirror.

Creating a log mirror is optional. If you increase the size of the active log, the log mirror size is increased automatically. Be aware that mirroring the log can affect performance because of the doubled I/O activity that is required to maintain the mirror. The additional space that the log mirror requires is another factor to consider when deciding whether to create a log mirror.

Archive log space

The size of the archive log depends on the number of objects stored by client nodes between full backups of the database.

To recover space, a full backup of the database causes obsolete archive log files to be pruned. The archive log files that are included in a backup are automatically pruned on a full database backup cycle. Therefore, the archive log must be large enough to contain the logs generated since the previous two full backups.

If you perform a full backup of the database every day, the archive log must be large enough to hold the log files for client activity that occurs over two days. Typically 600 - 4000 bytes of log space are used when an object is stored in the server. Therefore you can estimate a starting size for the archive log using the following calculation:

```
objects stored per day x 3000 bytes per object x 2 days
```

For example:

```
5,000,000 objects/day x 3000 bytes/object x 2 days = 30,000,000,000 bytes,
or 30 GB
```

It is important to maintain adequate space for the archive log directory. If the drive or file system where the archive log directory is located becomes full and there is no archive failover log directory, the data remains in the active log directory. This condition can cause the active log to fill up, which causes the server to stop.

Archive failover log space

The archive failover log is used by the server if the archive log directory runs out of space.

Specifying an archive failover log directory can prevent problems that occur if the archive log runs out of space. If both the archive log directory and the drive or file system where the archive failover log directory is located become full, the data remains in the active log directory. This condition can cause the active log to fill up, which causes the server to halt.

Work sheet for planning space for the Tivoli Storage Manager server

You can use the work sheet to help you plan the amount and location of storage needed for the Tivoli Storage Manager server.

Item	Space required	Location
The *instance directory* for the server, which is a directory that contains files specifically for this server instance (the server options file and other server-specific files)		
The database		
Active log		
Archive log		
Optional: Log mirror for the active log		
Optional: Secondary archive log (failover location for archive log)		

Server naming best practices

Coordinating the names for the different items associated with a server instance can make your life easier.

Instance user ID

The instance user ID is used as the basis for other names related to the server instance. The instance user ID is also called the instance owner.

For example: tsminst1

The instance user ID is the user ID that must have ownership or read/write access authority to all directories that you create for the database and the recovery log. If you run the server under the instance user ID, that user ID must also have read/write access to the directories that are used for any **FILE** device classes.

Database instance name

The database instance name is the name of the server instance as it appears in the registry.

For example: `Server1`

Instance directory

The instance directory can have any name that you want. For easier identification, use a name that ties the directory to the instance name.

You can use a name that includes the name of the server instance as it appears (or will appear) in the registry. Default server instance names have the form Server*x*.

For example: `d:\tsm\server1`

Database name

The database name is always TSMDB1, for every server instance. This name cannot be changed.

Server name

The server name is an internal name for Tivoli Storage Manager, and is used for operations that involve communication among multiple Tivoli Storage Manager servers. Examples include server-to-server communication and library sharing. The server name is also used when you add the server to the Administration Center so that it can be managed using that interface.

Use a unique name for each server. For easy identification in the Administration Center (or from a QUERY SERVER command), use a name that reflects the location or purpose of the server.

If you use the wizard, the default name that is suggested is the host name of the system that you are using. You can use a different name that is meaningful in your environment. If you have more than one server on the system and you use the wizard, you can use the default name for only one of the servers. You must enter a unique name for each server.

For example:

TUCSON_SERVER1
TUCSON_SERVER2

For more information about server names, see *Tivoli Storage Manager Administrator's Guide*.

Directories for database space and recovery log

The directories can be named according to local practices. For easier identification, consider using names that tie the directories to the server instance.

For example, for the archive log:

```
f:\server1\archlog
```

Chapter 2. Installing Tivoli Storage Manager

To install Tivoli Storage Manager 6.1, you can use the graphical installation wizard, the console wizard, or the command line in silent mode.

Using the Tivoli Storage Manager installation software, you can install the following components:

- Tivoli Storage Manager Server

  Tip: The Tivoli Storage Manager client application programming interface (API) is automatically installed when you select the server component.
- Tivoli Storage Manager Server Languages
- Tivoli Storage Manager License
- Tivoli Storage Manager Device Driver
- Tivoli Storage Manager Storage Agent

1. If you are installing the products using the Tivoli Storage Manager DVD, complete the following steps:

   Log on as an administrator. Insert the Tivoli Storage Manager server DVD. Use Windows Explorer to go to the DVD drive, double-click the DVD, and then double-click install.exe. To access Windows Explorer, go to **Start** → **Programs** → **Accessories** or right-click the Start button. The Tivoli Storage Manager server DVD browser window opens.
2. If you downloaded the program from Passport Advantage as an executable file, complete the following steps.

   a. Verify that you have enough space to store the installation files when they are extracted from the product package. See the download document for the space requirements:

      Tivoli Storage Manager: http://www.ibm.com/support/docview.wss?uid=swg24018518

      Tivoli Storage Manager Extended Edition: http://www.ibm.com/support/docview.wss?uid=swg24018521

      System Storage™ Archive Manager: http://www.ibm.com/support/docview.wss?uid=swg24018524

   b. Change to the directory where you placed the executable file.

      Tip: In the next step, the files are extracted to the current directory. Ensure that the executable file is in the directory where you want the extracted files to be located.

   c. Either double-click the executable file, or enter the following command on the command line to extract the installation files. The files are extracted to the current directory.

      ```
      package_name.exe
      ```

      The *package_name* is typically a name such as `CZ1N9ML`. The package is large, so the extraction takes some time.
3. Select one of the following ways of installing Tivoli Storage Manager:

Installation wizard
"Installing Tivoli Storage Manager using the installation wizard"

Command-line console wizard
"Installing Tivoli Storage Manager using the console installation wizard" on page 13

Silent mode
"Installing Tivoli Storage Manager in silent mode" on page 13

4. After you install Tivoli Storage Manager and before you customize it for your use, go to the Tivoli Storage Manager Web site: http://www.ibm.com/software/sysmgmt/products/support/IBMTivoliStorageManager.html. Click **Download** and apply any applicable fixes.

Installing Tivoli Storage Manager using the installation wizard

Using the installation wizard is one method of installing Tivoli Storage Manager.

To install Tivoli Storage Manager using the installation wizard, complete the following steps:

1. Select a method to start the installation wizard:
   - To start the wizard without saving your responses, double-click the install.exe file or enter the following command:
     ```
     install.exe
     ```
   - To start the wizard and save your responses, enter the following command, and specify the -r option:
     ```
     install.exe -r C:\response.rsp
     ```

   The Tivoli Storage Manager installation wizard starts.
2. Select the language for your installation and follow the wizard directions, selecting **Next** to step through the wizard. You must accept the license agreement to proceed.

   Select the components that you want to install (server, languages, licenses, device driver, storage agent). There is no default so you must make a selection or you will receive an error message and be returned to the components' page.

   The Tivoli Storage Manager client application programming interface (API) and DB2 Version 9.5, fix pack 2, are automatically installed when you select the server component.
   - If you previously installed a server, ensure that you select the same directory when you install a language pack, license, or device driver. If you previously installed a storage agent, ensure that you select the same directory if you return to install a device driver.
   - A server and a storage agent cannot be installed on the same workstation.

At the end of the installation, a message is displayed on the summary page that Tivoli Storage Manager successfully installed and a summary is provided. If there were any errors during the installation, another summary page lists the errors and directs you to an error log file. Fix the errors before continuing. The installation log is stored in the following location:

The directory that was chosen for installation (look for the files log.txt and logs.zip).

To continue on and configure Tivoli Storage Manager, see Chapter 3, "Taking the first steps after you install Tivoli Storage Manager," on page 17.

Installing Tivoli Storage Manager using the console installation wizard

Using the console installation wizard is one method of installing Tivoli Storage Manager.

To install Tivoli Storage Manager using the console installation wizard, complete the following steps:

1. To start the wizard without saving your responses, enter the following command:

   ```
   install.exe -i console
   ```

   To start the wizard and save your responses, enter the following command, and specify the -r option:

   ```
   install.exe -i console -r C:\response.rsp
   ```

2. Select the language for your installation and follow the wizard directions, selecting **Next** to step through the wizard. You must accept the license agreement to proceed.

   Select the components that you want to install (server, languages, licenses, device driver, storage agent). There is no default so you must make a selection or you will receive an error message and be returned to the components' page.

   The Tivoli Storage Manager client application programming interface (API) and DB2 Version 9.5, fix pack 2, are automatically installed when you select the server component.

   - If you previously installed a server, ensure that you select the same directory when you install a language pack, license, or device driver. If you previously installed a storage agent, ensure that you select the same directory if you return to install a device driver.
   - A server and a storage agent cannot be installed on the same workstation.

At the end of the installation, a message is displayed on the summary page that Tivoli Storage Manager successfully installed and a summary is provided. If there were any errors during the installation, another summary page lists the errors and directs you to an error log file. Fix the errors before continuing. The installation log is stored in the following location:

The directory that was chosen for installation (look for the files log.txt and logs.zip).

To continue on and configure Tivoli Storage Manager, see Chapter 3, "Taking the first steps after you install Tivoli Storage Manager," on page 17.

Installing Tivoli Storage Manager in silent mode

Running an installation in the background is one method of installing Tivoli Storage Manager.

To install Tivoli Storage Manager in silent mode, select one of the following options and enter the following commands:

Tip: After you start the silent installation, it immediately closes the foreground window and runs in the background. To receive a return code from the silent installation, run it using a batch script. See "Installing silently using a batch script" on page 15.

- To start the silent installation, enter the following command on a single line:

Restriction: You must include LICENSE_ACCEPTED=true or the installation fails.

```
install.exe -i silent -DLICENSE_ACCEPTED=true -DUSER_INSTALL_DIR=install_dir
-DINSTALL_SERVER=1  -DINSTALL_LICENSE=1 -DINSTALL_DEVICES=1
-DINSTALL_STAGENT=1
```

You can install the following server language-packs during the silent installation, using these variables:

- INSTALL_GERMAN
- INSTALL_SPANISH
- INSTALL_FRENCH
- INSTALL_ITALIAN
- INSTALL_BRPORTUGUESE
- INSTALL_KOREAN
- INSTALL_JAPANESE
- INSTALL_RUSSIAN
- INSTALL_SCHINESE
- INSTALL_TCHINESE

For example, to install the German language pack, issue the following command:

```
install.exe -i silent -DLICENSE_ACCEPTED=true -DUSER_INSTALL_DIR=install_dir
-DINSTALL_SERVER=1 -DINSTALL_GERMAN=1 -DINSTALL_LICENSE=1
```

- To use an existing response file, enter the following command:

  ```
  install.exe -i silent -DLICENSE_ACCEPTED=true -f response_file
  ```

  where the *response_file* is the full directory path to a file that you previously created in the Tivoli Storage Manager installation process. The response file contains variables you selected in a prior installation, using the GUI or console wizard.

  If you include LICENSE_ACCEPTED=true in the response file manually, then issue this command:

  ```
  install.exe -i silent -f response_file
  ```

  You might see a difference between response files, depending on which installation mode you used (GUI or console).

Remember: If you previously installed a server, ensure that you select the same directory when you install a language pack, license, or device driver. If you previously installed a storage agent, ensure that you select the same directory if you return to install a device driver. Check the path in this registry: HKEY_LOCAL_MACHINE\SOFTWARE\IBM\ADSM\CurrentVersion. If the value for Path is set, you must select that same path to install other components.

At the end of the installation, a message is displayed on the summary page that Tivoli Storage Manager was successfully installed and a summary is provided. If there were any errors during the installation, another summary page lists the errors and directs you to an error log file. Fix the errors before continuing. The installation log is stored in the following location:

The directory that was chosen for the installation (look for the files log.txt and logs.zip).

To continue on and configure Tivoli Storage Manager, see Chapter 3, “Taking the first steps after you install Tivoli Storage Manager,” on page 17.

Installing silently using a batch script

To receive a return code from the silent installation, run it using a batch script.

To run the silent installation so that you can see the progress of the installation, create a batch script by completing the following steps:

1. Create a file and name it `install.bat`. The file name must end with .bat, not .bat.txt.
2. Choose an installation option (with or without a response file) and enter the command into the install.bat file. Save it. For example:

   ```
   install.exe -i silent -DLICENSE_ACCEPTED=true -f response_file
   ```

3. Open a command prompt to run the batch file. Issue this command:

   ```
   install.bat
   ```

4. After the installation is complete, issue the following command to retrieve the return code:

   ```
   echo %ERRORLEVEL%
   ```

If there were any errors during the installation, a summary page lists the errors and directs you to an error log file. Fix the errors before continuing. The installation log is stored in the directory that was chosen for the installation (look for the files log.txt and logs.zip).

To continue on and configure Tivoli Storage Manager, see Chapter 3, "Taking the first steps after you install Tivoli Storage Manager," on page 17.

Server language locales

Translations for the IBM Tivoli Storage Manager server allows the server to display messages and help in languages other than U.S. English. It also allows for the use of locale conventions for date, time, and number formatting.

You can use the following languages:

Table 8. Server languages for Windows

Language	LANGUAGE option value
Chinese, Simplified	chs
Chinese, Traditional	cht
English	ameng
French	fra
German	deu
Italian	ita
Japanese	jpn
Korean	kor
Portuguese, Brazilian	ptb
Russian	rus
Spanish	esp
Table note: Refer to the *Administrator's Reference* for further information on setting the LANGUAGE option.	

Tivoli Storage Manager Console language support

With the Microsoft Management Console (MMC) snap-in, you can manage

Tivoli Storage Manager Windows and non-Windows resources across your network. To use the Tivoli Storage Manager Management Console with Windows 2003 or later, install the Version 1.2 or later MMC package. Tivoli Storage Manager includes only the American English version of the MMC package, which is installed automatically with the Tivoli Storage Manager server. To enable other language support for the Tivoli Storage Manager Console, you must install the appropriate language version of MMC.

Restriction: For Administration Center users, some characters might not display properly if the Web browser version is not the same language as the server. If this problem occurs, use a browser version that uses the same language as the server.

Installing a language package

If you install a language package, the IBM Tivoli Storage Manager server displays messages and help in languages other than U.S. English. Installation packages are provided with Tivoli Storage Manager.

To enable support for a given locale, complete one of the following tasks:

- Set the LANGUAGE option in the server options file to the name of the locale that you want to use. For example:

  To use the ita locale, set the LANGUAGE option to ita. See "Server language locales" on page 15.

  If the locale successfully initializes, it controls the date, time, and number formatting for the server. If the locale does not successfully initialize, the server uses the U.S. English message files and the date, time, and number format.

  If an administrative client connects to the server and specifies a locale that is different from the one that is specified at the server, the server tries to initialize that specified locale for returning messages to the client.
- Set the LC_MESSAGES environment variable to match the value that is set in the server options file. To set a system environment variable, complete the following steps:
  1. Right-click the **My Computer** icon.
  2. Select **Properties**.
  3. Click **Advanced**.
  4. Click **Environment Variables**.
  5. Select **New** below the System Variables panel. Complete the information required and reboot your system.

Chapter 3. Taking the first steps after you install Tivoli Storage Manager

After installing Tivoli Storage Manager Version 6.1, prepare for the configuration. Then, either use the configuration wizard to configure the Tivoli Storage Manager instance or configure the instance manually.

Create the necessary directories, then configure the Tivoli Storage Manager server instance by completing the following steps:

1. Create the directories and user ID for the server instance. See "Creating the directories and the user ID for the server instance" on page 18.
2. Configure a Tivoli Storage Manager instance. Select one of the following options:
   - Use the Tivoli Storage Manager configuration wizard on your local system. See "Configuring Tivoli Storage Manager using the configuration wizard" on page 20.
   - Use the Management Console for a quick configuration. See "Configuring the server instance using the Management Console" on page 20.
   - Manually configure the new Tivoli Storage Manager instance. See "Configuring the server instance manually" on page 21. Complete the following steps during a manual configuration.
     a. Set up your directories and create the Tivoli Storage Manager instance. See "Creating the server instance" on page 21.
     b. Create a new server options file by copying the sample file in order to set up communications between the server and clients. See ."Configuring server and client communications" on page 22.
     c. Issue the DSMSERV FORMAT command to format the database. See "Formatting the database and log" on page 25.
     d. Create a Windows service. See "Creating a Windows service for the server instance" on page 25.
     e. Configure your system for database backup. See "Preparing the database manager for backup" on page 26.
3. Start the Tivoli Storage Manager server instance. See "Starting the server instance" on page 27.
4. Register your license. See "Registering licenses" on page 29.
5. Prepare your system for database backups. See "Preparing the system for database backups" on page 29.
6. Monitor the server. See "Monitoring the server" on page 30.

Creating the directories and the user ID for the server instance

Create the directories that the Tivoli Storage Manager server instance needs for database and recovery logs, and create the user ID for the Tivoli Storage Manager server instance.

Review the information about planning space for the server before completing this task.

1. Create directories that the server requires. You need unique, empty directories for each of the items shown in the following table. Create the database directories, the active log directory, and the archive log directory on different physical volumes. See the planning information for details.

Item	Example commands for creating the directories	Your directories
The *instance directory* for the server, which is a directory that will contain files specifically for this server instance (the server options file and other server-specific files)	`mkdir d:\tsm\server1`	

The database directories	`mkdir d:\tsm\db001`
	`mkdir e:\tsm\db002`
	`mkdir f:\tsm\db003`
	`mkdir g:\tsm\db004`	

Active log directory	`mkdir h:\tsm\log`	
Archive log directory	`mkdir i:\tsm\archlog`	
Optional: Directory for the log mirror for the active log	`mkdir j:\tsm\logmirror`	
Optional: Secondary archive log directory (failover location for archive log)	`mkdir k:\tsm\archlogfailover`	

2. Create the user ID that will own the server instance. You use this user ID when you create the server instance in a later step.

   Create a user ID and group that will be the owner of the Tivoli Storage Manager server instance. A user ID can own more than one Tivoli Storage Manager server instance. Identify the user account that will own the Tivoli Storage Manager server instance.

   When the server is started as a Windows service, this is the account that the service will log on to. The user account must have administrative authority on the system. One user account can own more than one server instance.

   If you have multiple servers on one system and want to run each server with a different user account, create a new user account in this step.

   a. Create the user ID and group.

      Restriction: The user ID must comply with the following rules:

- In the user ID, only lowercase letters (a-z), numerals (0-9), and the underscore character (_) can be used. The user ID must be 8 characters or less, and cannot start with *ibm*, *sql*, *sys*, or a numeral.

Use the following command to create the user ID:

```
net user user_ID */add
```

You are prompted to create and verify a password for the new user ID.

Next, issue the following commands to create groups and add the new user ID to the groups:

```
net localgroup Administrators user_ID /add
net localgroup DB2ADMNS /add
net localgroup DB2USERS /add
net localgroup DB2ADMNS user_ID /add
net localgroup DB2USERS user_ID /add
```

b. Log in to your system, using the new user ID and password.

c. For all directories that were created for the server instance, ensure that the user ID for the server instance has read/write access. The directories to check include the instance directory and all database and log directories.

Configuring the server instance

After you have installed Tivoli Storage Manager Version 6.1 and prepared for the configuration, configure the Tivoli Storage Manager server instance.

Configure a Tivoli Storage Manager server instance by selecting one of the following options:

- Use the Tivoli Storage Manager configuration wizard on your local system. See "Configuring Tivoli Storage Manager using the configuration wizard" on page 20.
- Use the Management Console for a quick configuration. See "Configuring the server instance using the Management Console" on page 20.
- Manually configure the new Tivoli Storage Manager instance. See "Configuring the server instance manually" on page 21. Complete the following steps during a manual configuration.
  1. Set up your directories and create the Tivoli Storage Manager instance. See "Creating the server instance" on page 21.
  2. Create a new server options file by copying the sample file in order to set up communications between the server and clients. See ."Configuring server and client communications" on page 22.
  3. Issue the DSMSERV FORMAT command to format the database. See "Formatting the database and log" on page 25.
  4. Configure your system for database backup. See "Preparing the database manager for backup" on page 26.

Configuring Tivoli Storage Manager using the configuration wizard

The wizard offers a guided approach to configuring a server. By using the wizard, you can avoid some configuration steps that are complex when done manually. Start the wizard on the system where you installed the Version 6.1 server program.

Before beginning the configuration wizard, you must complete all preceding steps to prepare for the configuration, including installing the Version 6.1 server program, creating the database and log directories, and creating the directories and user ID for the server instance.

1. Ensure that the following requirements are met:

   - The system must have one of the following protocols enabled. Ensure that the port that the protocol uses is not blocked by a firewall.
     - Secure shell (SSH). Ensure that the port is set to the default value, 22.
     - Remote shell (RSH).
     - Remote Execution Protocol (REXEC).
     - Windows server message block (SMB)

       SMB is the interface used by File and Print Sharing (also known as CIFS). To use the SMB protocol, you must ensure that File and Print Sharing is enabled, and that port 445 is not blocked by your firewall. If you are running on Windows Server 2008 or Windows Vista, you might also need to disable User Account Control (at least while running this wizard). If you choose not to disable User Account Control, you must ensure that one of the other protocols is configured to allow the wizard to run.
   - You must be able to log on to the system using a protocol that is enabled on the system, using either the user ID that you created for the server instance, or some other user ID that exists on the system. When using the wizard, you must provide the user ID and password to access the system.

2. To start the local version of the wizard:

   Double-click the dsmicfgx.exe program in the `C:\Program Files\Tivoli\TSM\server` directory.

   Follow the instructions to complete the configuration. The wizard can be stopped and restarted, but the server will not be operational until the entire configuration process is complete.

Configuring the server instance using the Management Console

It is possible to configure the Tivoli Storage Manager server instance by using the Management Console.

To configure the Tivoli Storage Manager server using the Management Console, complete the following steps after installing the server and client. For detailed instructions, refer to *Performing the Initial Configuration* in the *Administrator's Guide*.

1. From the Start menu, click **Programs > Tivoli Storage Manager > Management Console**.

The **Tivoli Storage Manager Console** window opens, with the **Initial Configuration Task List** displayed. **Standard configuration** is selected by default.

2. Click **Start**.

   The **Server Initialization Wizard** opens.

3. Click **Next** to proceed through the wizard pages, accepting the default settings provided. Refer to the *Server Initialization Wizard* topic in the *Administrator's Guide* for detailed instructions.

   Note: The amount of data you can back up during your test is determined by the free space available on the drive where the initial disk storage pool volume is placed.

Configuring the server instance manually

After installing Tivoli Storage Manager Version 6.1, you can configure Tivoli Storage Manager manually instead of using the configuration wizard.

Creating the server instance

Create a Tivoli Storage Manager instance by issuing the db2icrt command.

You can have one or more server instances on one workstation.

Important: Before you run the db2icrt command, ensure that the user and the instance directory of the user exists. If there is no instance directory, you must create it.

The instance directory stores the following files for the server instance:

- The server options file, `dsmserv.opt`
- The `dsmserv.v6lock` file
- Device configuration file, if the DEVCONFIG server option does not specify a fully qualified name
- Volume history file, if the VOLUMEHISTORY server option does not specify a fully qualified name
- Volumes for **DEVTYPE=FILE** storage pools, if the directory for the device class is not fully specified, or not fully qualified
- User exits
- Trace output (if not fully qualified)

1. Log in as an administrator and create a Tivoli Storage Manager instance, using the db2icrt command. Enter the following command on one line. The user account that you specify becomes the user ID that owns the Version 6.1 server (the instance user ID).

   ```
   db2icrt -u user_account instance_name
   ```

   For example, if the user account is tsminst1 and the server instance is Server1, enter the following command:

   ```
   db2icrt -u tsminst1 server1
   ```

   You are prompted for the password for user ID tsminst1. Later, when you create and format the database, you use the instance name that you specified with this command, with the -k option.

2. Change the default path for the database to be the drive where the instance directory for the server is located. Complete the following steps:

a. Click **Start** → **Programs** → **IBM DB2** → **DB2TSM1** → **Command Line Tools** → **Command Line Processor**.
b. Enter `quit` to exit the command line processor.

   A window with a command prompt should now be open, with the environment properly set up to successfully issue the commands in the next steps.
c. From the command prompt in that window, issue the following command to set the environment variable for the server instance that you are working with:

   ```
   set db2instance=instance_name
   ```

   The *instance_name* is the same as the instance name that you specified when you issued the db2icrt command. For example, to set the environment variable for the Server1 server instance, issue the following command:

   ```
   set db2instance=server1
   ```
d. Issue the command to set the default drive:

   ```
   db2 update dbm cfg using dftdbpath instance_location
   ```

   For example, if the instance directory is `d:\tsm\server1`, the instance location is drive `d:`. Enter the command:

   ```
   db2 update dbm cfg using dftdbpath d:
   ```
3. Create a new server options file. See "Configuring server and client communications."

Configuring server and client communications

After installing Tivoli Storage Manager, you can set up client and server communications by specifying options in the Tivoli Storage Manager server and client options files.

Set these server options before you start the server. When you start the server, the new options go into effect. If you modify any server options after starting the server, you must stop and restart the server to activate the updated options.

Use the Server Options utility that is available from the Tivoli Storage Manager Console to view and specify server communications options. This utility is available from the **Service Information** view in the server tree. By default, the server uses the TCP/IP and Named Pipes communication methods.

Tip: If you start the server console and see warning messages that a protocol could not be used by the server, either the protocol is not installed or the settings do not match the Windows protocol settings.

For a client to use a protocol that is enabled on the server, the client options file must contain corresponding values for communication options. From the Server Options utility, you can view the values for each protocol.

For more information about server options, see the *Administrator's Reference*.

TCP/IP options:

Select from a range of TCP/IP options for the Tivoli Storage Manager server or retain the default.

The following is an example of a list of TCP/IP options you can use to set up your system.

```
commmethod        tcpip
  tcpport         1500
  tcpwindowsize   0
  tcpnodelay      yes
```

Tip: You can use TCP/IP Version 4, Version 6, or both.

TCPPORT
The server TCP/IP port address. The default value is 1500.

TCPWINDOWSIZE
Specifies the size of the TCP/IP buffer that is used when sending or receiving data. The window size that is used in a session is the smaller of the server and client window sizes. Larger window sizes use additional memory but can improve performance.

To use the default window size for the operating system, specify zero.

TCPNODELAY
Specifies whether or not the server sends small messages or lets TCP/IP buffer the messages. Sending small messages can improve throughput but increases the number of packets sent over the network. Specify YES to send small messages or NO to let TCP/IP buffer them. The default is YES.

TCPADMINPORT
Specifies the port number on which the server TCP/IP communication driver is to wait for requests other than client sessions. The default value is 1500.

SSLTCPPORT
(SSL-only) Specifies the Secure Sockets Layer (SSL) port number on which the server TCP/IP communication driver waits for requests for SSL-enabled sessions for the command-line backup-archive client and the command-line administrative client.

SSLTCPADMINPORT
Specifies the port address on which the server TCP/IP communication driver waits for requests for SSL-enabled sessions for the command-line administrative client.

Named Pipes options:

The Named Pipes communication method is ideal when running the server and client on the same Windows machine. Named Pipes require no special configuration.

Here is an example of a Named Pipes setting:

```
commmethod                  namedpipe
     namedpipename          \\.\pipe\adsmpipe
```

Shared memory options:

You can use shared memory communications between clients and servers on the same system. To use shared memory, TCP/IP Version 4 must be installed on the system.

The following example shows a shared memory setting:

```
commmethod     sharedmem
   shmport     1510
```

In this example, SHMPORT specifies the TCP/IP port address of a server when using shared memory. Use the SHMPORT option to specify a different TCP/IP port. The default port address is 1510.

SNMP DPI subagent options:

Tivoli Storage Manager implements a simple network management protocol (SNMP) subagent. You can configure the SNMP subagent to send traps to an SNMP manager, such as NetView®, and to provide support for a Management Information Base (MIB).

For details about configuring SNMP for use with Tivoli Storage Manager, see the *Administrator's Guide*.

The subagent communicates with the snmp daemon, which in turn communicates with a management application. The snmp daemon must support the DPI® protocol. The subagent process is separate from the Tivoli Storage Manager server process, but the subagent gets its information from a server options file. When the SNMP management application is enabled, it can get information and messages from servers.

Use the following list of SNMP DPI options as an example of a SNMP setting. You must specify the COMMMETHOD option. For details about the other options, see the *Administrator's Reference*.

```
commmethod                    snmp
   snmpheartbeatinterval      5
   snmpmessagecategory        severity
```

Formatting the database and log

Use the DSMSERV FORMAT command to initialize a server instance. No other server activity is allowed while initializing the database and recovery log.

After you have completed setting up server communications, you are ready to initialize the database. Do not place the directories on file systems that might run out of space. If certain directories (for example, the archive log) become unavailable or full, the server stops. See the *Administrator's Reference*.

Important: The installation program creates a set of registry keys. One of these keys points to the directory where a default server, named SERVER1, is created. To install an additional server, create a new directory and use the DSMSERV FORMAT utility, with the -k parameter, from that directory. That directory becomes the location of the server. The registry tracks the installed servers.

Example: Format a database

```
dsmserv -k server2 format dbdir=d:\tsmserv2\db
activelogdir=e:\tsmserv2\activelog archlogdir=f:\tsmserv2\archlog
```

Creating a Windows service for the server instance

Install the Tivoli Storage Manager server as a Windows service during manual configuration of the Tivoli Storage Manager server.

After you have completed formatting the database and log, you are ready to create a Windows service for your server instance.

1. Change to the `C:\Program Files\Tivoli\TSM\console` directory, or if you installed Tivoli Storage Manager in a different location, go to the console subdirectory in your main installation directory. An executable (install.exe) in this directory installs the Tivoli Storage Manager server as a Windows service.
2. Install the Windows service, using the same server name that you used to start the Tivoli Storage Manager server. Issue the following command:

   ```
   install "TSM server#"
   "C:\Program Files\Tivoli\TSM\server\dsmsvc.exe"
   windowsacctname windowsacctpassword
   ```

   Fox example, if the server instance is Server1, enter the following command on one line:

   ```
   install "TSM server1"
   "C:\Program Files\Tivoli\TSM\server\dsmsvc.exe"
   windowsacctname windowsacctpassword
   ```

   If a different name was used or there are multiple server instances running on the system, modify the service name.

   When you are installing the Windows service, you have to manually change the service to an automatic startup type. Do this by going to Windows Administrative Tools -> Services.

Example 1. If you are installing the Windows service using an administrator account to log on, issue the following command:

```
install "TSM Server1"
"C:\Program Files\Tivoli\TSM\server\dsmsvc.exe"
admin_name admin_password
```

The *admin_name* is the Windows administrator name and the *admin_password* is the password for that administrator.

Example 2. If you are installing the Windows service using LocalSystem as the logon account, issue the following command:

```
install "TSM Server1"
"C:\Program Files\Tivoli\TSM\server\dsmsvc.exe"
localsystem ""
```

The LocalSystem account does not have a password so use the double quotes (″ ″) to specify a NULL password.

Preparing the database manager for backup

To back up the data in the database to Tivoli Storage Manager, you must enable the database manager and configure the Tivoli Storage Manager application programming interface (API).

If you use the Tivoli Storage Manager Server Instance Configuration wizard to create a Tivoli Storage Manager server instance, you do not need to complete these steps. If you are configuring an instance manually, complete the following steps before issuing either the BACKUP DB or the RESTORE DB commands.

In the following commands, the examples use `server1` for the database instance and `d:\tsmserver1` for the Tivoli Storage Manager server directory. Replace these values with your actual values in the commands.

1. Create a file called `tsmdbmgr.env` in the `d:\tsmserver1` directory with the following contents:

   ```
   DSMI_CONFIG=d:\tsmserver1\tsmdbmgr.opt
   DSMI_LOG=d:\tsmserver1
   ```

2. Set the DSMI_ api environment-variable configuration for the database instance:
   a. Open a DB2 command window. One method of doing this is by going to the `C:\Program Files\Tivoli\TSM\db2\bin` directory, or if you installed Tivoli Storage Manager in a different location, go to the `db2\bin` subdirectory in your main installation directory. Then, issue this command:

      ```
      db2cmd
      ```

   b. Issue this command:

      ```
      db2set -i server1 DB2_VENDOR_INI=d:\tsmserver1\tsmdbmgr.env
      ```

3. Create a file called `tsmdbmgr.opt` in the `d:\tsmserver1` directory with the following contents:

   ```
   ************************************************
   nodename $$_TSMDBMGR_$$
   commmethod tcpip
   tcpserveraddr localhost
   tcpport 1500
   passwordaccess generate
   errorlogname d:\tsmserver1\TSMDBMGR_TSMSERVER1.log
   ```

4. Stop and start the database instance:
   a. Open a DB2 command window. One method of doing this is by going to the `C:\Program Files\Tivoli\TSM\db2\bin` directory, or if you installed Tivoli Storage Manager in a different location, go to the `db2\bin` subdirectory in your main installation directory. Then, issue this command:

      ```
      db2cmd
      ```

   b. Set the database instance:

      ```
      set db2instance=server1
      ```

   c. Stop DB2:

      ```
      db2stop
      ```

   d. Start DB2:

```
db2start
```

5. Enter the following command on one line:

```
"c:\program files\tivoli\tsm\server\dsmsutil.exe"
UPDATEPW /NODE:$$_TSMDBMGR_$$ /PASSWORD:TSMDBMGR /VALIDATE:NO /OPTFILE:
"d:\tsmserver1\tsmdbmgr.opt"
```

Starting the server instance

Verify that the server instance is correctly set up by starting the Tivoli Storage Manager instance.

Remember: Starting the server is an operating system-level operation and has certain restrictions. If you do not have the permissions to use the dsmserv program, you can't start it. If you do not have authority to read/write files in the instance directory, you can't start that instance of the server.

To start the server from the C:\Program Files\Tivoli\TSM server directory, enter:

```
dsmserv -k server_instance
```

where *server_instance* is the name of your server instance. Server1 is the default for the first instance of the Tivoli Storage Manager server.

Note: If you receive a Windows error 216 message when you try to start the server, it is a result of using a 64-bit package on 32-bit Windows. Retrieve the 32-bit Windows package and reinstall Tivoli Storage Manager.

Starting the server using Windows services

You can use the Tivoli Storage Manager Management Console (a Microsoft Management Console snap-in), or the DSMSERV utility to start the server.

Start the server using one of the following methods.

- To start the server using the Management Console, complete the following steps:
  1. From the Start menu, click **Program Files** → **Tivoli Storage Manager** → **Management Console**.
  2. In the list of servers on this system, look for the server instance that was created. Select it to start it.
- To start the server as a service, first start the console monitor, then start the service. You can also set the server start mode and options.
  1. Start the console monitor. Because the Tivoli Storage Manager server can issue requests that require action, it is important to monitor server activity with the administrative client using the console monitor.
     a. Double-click the **IBM Tivoli Storage Manager Console** icon on the desktop.
     b. Expand the tree until the server that you want to work with is displayed. Expand the server, and then expand the **Reports** tree under the selected server.
     c. Select **Monitor**, and then **Start**.
  2. Start the server as a Windows service.
     a. Double-click the **IBM Tivoli Storage Manager Console** icon on the desktop.

b. Expand the tree until the server that you want to work with is displayed. Expand the server, and then expand the **Reports** tree under the selected server.
c. Select **Service Information**.
d. Select the server in the right pane.
e. Click **Start**.

3. Optional: Set the server start mode and options.
   a. Double-click the **IBM Tivoli Storage Manager Console** icon on the desktop.
   b. Expand the tree until the server that you want to work with is displayed. Expand the server, and then expand the **Reports** tree under the selected server.
   c. Select **Service Information**.
   d. Select the server in the right pane.
   e. Click **Properties**.
   f. Click **Automatic**.
   g. Select the **Log on as** account information as appropriate. The default selection is the System account.
   h. Check the **Log output to file** check box. Use the default `console.log` file name or specify another file name.
4. Optional: To view start and stop completion messages that are logged in the Windows Application log, you can use the Windows Event Viewer in Administrative Tools.
5. Optional: If you plan to use the Tivoli Storage Manager device driver (tsmscsi), you might also need to start the device driver at this time. See the information about starting and stopping the device driver in the *Administrator's Guide*.

- To start the server using DSMSERV, enter the command:

  ```
  "c:\Program Files\Tivoli\TSM\server\dsmserv" -k server_instance
  ```

  where *server_instance* is the name of your server instance. Server1 is the default for the first instance of the Tivoli Storage Manager server on a system.

Stopping the server

You can stop the server without warning if an unexpected problem requires you to return control to the operating system. To avoid losing administrative and client node connections, stop the server only after current sessions have completed or been canceled.

To stop the server, issue the following command from the Tivoli Storage Manager command prompt:

```
halt
```

.

The server console stops.

Tip: If you start the Tivoli Storage Manager server as a service, after you stop it, the database service continues to run.

Registering licenses

Immediately register any Tivoli Storage Manager licensed functions that you purchase so you do not lose any data after you start server operations, such as backing up your data. Use the REGISTER LICENSE command for this task.

Preparing the system for database backups

To prepare the system for automatic and manual database backups, you must specify the device class to be used.

Before you begin the setup, ensure that you have defined a tape or file device class. See the defining device classes section of the *Administrator's Guide*.

To set up your system for database backups, issue the SET DBRECOVERY command to specify a device class to be used for the backups. You can also change the device class to be used for database backups with the SET DBRECOVERY command.

Perform the following setup procedure:

1. If you did not use the configuration wizard (`dsmicfgx`) to configure the server, ensure that you have completed the steps to manually configure the system for database backups.
2. Select the device class to be used for backups of the database. Issue the following command from a IBM Tivoli Storage Manager administrative command line.

   ```
   set dbrecovery device_class_name
   ```

   The device class that you specify is used by the database manager for database backups. If you do not specify a device class with the SET DBRECOVERY command, the backup fails.

For example, to specify that the DBBACK device class is to be used, issue this command:

```
set dbrecovery dbback
```

When you are ready to back up your database, see the *Administrator's Reference*.

Running multiple server instances on a single system

It is possible to create more than one server instance on your system. Each server instance has its own instance directory, and database and log directories.

The set of files for one instance of the server are stored separately from those used by another server instance on the same system. Use the steps in "Creating the server instance" on page 21 for each new instance, optionally creating the new instance user.

To manage the system memory that is used by each server, use the DBMEMPERCENT server option to limit the percentage of system memory that can be used by the database manager of each server. If all servers are equally important, use the same value for each server. If one server is a production server and other servers are test servers, set the value for the production server to a higher value than the test servers.

Monitoring the server

When you start using server in production operation, monitor the space used by the server to ensure that the amount of space is adequate. Make adjustments as needed.

1. Monitor the active log, to ensure that the size is correct for the workload that is handled by the server instance.

   When the server workload is up to its typical expected level, and the space that is used by the active log is 80 - 90% of the space that is available to the active log directory, you might need to increase the amount of space. Whether you need to increase the space depends on the types of transactions in the server's workload, because transaction characteristics affect how the active log space is used.

   The following transaction characteristics can affect the space usage in the active log:

   - The number and size of files in backup operations
     - Clients such as file servers that back up large numbers of small files can cause large numbers of transactions that complete during a short period of time. The transactions might use a large amount of space in the active log, but for a short period of time.
     - Clients such as a mail server or a database server that back up large chunks of data in few transactions can cause small numbers of transactions that take a long time to complete. The transactions might use a small amount of space in the active log, but for a long period of time.
   - Network connection types
     - Backup operations that occur over fast network connections cause transactions that complete more quickly. The transactions use space in the active log for a shorter period of time.
     - Backup operations that occur over relatively slower connections cause transactions that take a longer time to complete. The transactions use space in the active log for a longer period of time.

   If the server is handling transactions with a wide variety of characteristics, the space that is used for the active log might go up and down by a large amount over time. For such a server, you might need to ensure that the active log typically has a smaller percentage of its space used. The extra space allows the active log to grow for transactions that take a very long time to complete, for example.

2. Monitor the archive log to ensure that space is always available.

   Remember: If the archive log becomes full, and the failover archive log becomes full, the active log can become full and the server will stop. The goal is to make enough space available to the archive log so that it never uses all its available space.
   You are likely to notice the following pattern:

   a. Initially, the archive log grows rapidly as typical client-backup operations occur.
   b. Database backups occur regularly, either as scheduled or done manually.
   c. After at least two, full database backups occur, log pruning occurs automatically. The space used by the archive log decreases when the pruning occurs.
   d. Normal client operations continue, and the archive log grows again.

e. Database backups occur regularly, and log pruning occurs as often as full database backups occur.

With this pattern, the archive log grows initially, then decreases, then might grow again. Over a period of time, as normal operations continue, the amount of space used by the archive log should reach a relatively constant level.

If the archive log continues to grow, consider taking one or both of these actions:

- Add space to the archive log. This might mean moving the archive log to a different file system.

  For information about moving the archive log, see the *Tivoli Storage Manager Administrator's Guide*.
- Increase the frequency of full database backups, so that log pruning occurs more frequently.

3. If you defined a directory for the failover archive log, determine whether any logs get stored in that directory during normal operations. If the failover log space is being used, consider increasing the size of the archive log. The goal is that the failover archive log is used only under unusual conditions, not in normal operation.

Chapter 4. Installing the Tivoli Storage Manager reporting and monitoring feature

IBM Tivoli Storage Manager reporting and monitoring provides information and reports about the IBM Tivoli Storage Manager servers and client activity.

The Tivoli Storage Manager reporting and monitoring feature installs the following components:

- IBM Tivoli Monitoring, which includes of the following components:
  - IBM Tivoli Monitoring
  - IBM DB2
  - Tivoli Enterprise Portal
  - Tivoli Data Warehouse
  - Tivoli Enterprise Management Server
- Tivoli Storage Manager monitoring agent
- Tivoli Common Reporting

To view historical reports only, (no access to current data on the Tivoli Enterprise Portal) you have to install the Administration Center. For details on installing the Administration Center, see Chapter 5, "Installing and configuring the Administration Center," on page 53.

For more details on how the Tivoli Storage Manager data flows between components see the *IBM Tivoli Storage Manager, V 6.1, Administrator's Guide* for your operating system.

If you are interested in creating your own reports, you are also required to install the Business Intelligence and Reporting Tools (BIRT) software. The Tivoli Storage Manager reporting and monitoring feature does not have an option to create custom reports using Tivoli Storage Manager.

For more details on using custom reporting, see the following link."Installing software for custom reporting" on page 49

Related tasks

"Installing software for custom reporting" on page 49
The Tivoli Storage Manager reporting and monitoring feature does not have an option to create custom reports for Tivoli Storage Manager, but you can create your own reports using the Business Intelligence and Reporting Tools (BIRT) software.

Planning to install the Tivoli Storage Manager reporting and monitoring feature

Before installing the Tivoli Storage Manager reporting and monitoring feature, there are some decisions you must make.

You have IBM Tivoli Monitoring currently installed on a server

If you are currently using IBM Tivoli Monitoring, the Tivoli Storage Manager reporting and monitoring feature can be installed on your existing IBM Tivoli Monitoring server but the following requirements must be met:

- The IBM Tivoli Monitoring server must be a fully-licensed version of IBM Tivoli Monitoring.
- The IBM Tivoli Monitoring server must be at the **6.2 FP1** level.
- Because the Tivoli Enterprise Monitoring Server (TEMS) controls the Tivoli Storage Manager monitoring agent, the monitoring agent must be installed on your existing Tivoli Enterprise Monitoring server. You can install the monitoring agent on any Tivoli Monitoring server, but it is required on the Tivoli Enterprise Monitoring server.

For this type of Tivoli Storage Manager reporting and monitoring installation, the IBM Tivoli Monitoring option would not be checked on the installation wizard and the IBM Tivoli Monitoring server is identified when prompted by the installation script.

The version of IBM Tivoli Monitoring that you install with the Tivoli Storage Manager reporting and monitoring feature can only be used for Tivoli Storage Manager reporting functions.

You cannot upgrade or downgrade your existing IBM Tivoli Monitoring installation using the Tivoli Storage Manager reporting and monitoring installation wizard.

You do not have IBM Tivoli Monitoring installed on a server

In this situation, you must install all components of the Tivoli Storage Manager reporting and monitoring feature on one server.

The Tivoli Storage Manager server must be installed on a separate system.

Besides the IBM Tivoli Monitoring component, the Tivoli Storage Manager monitoring agent is also required as part of data collection and monitoring and will be installed on the Tivoli Storage Manager reporting and monitoring server.

Requirements for the Tivoli Storage Manager monitoring agent configuration

The only time you configure the Tivoli Storage Manager monitoring agent on the server where you installed the IBM Tivoli Monitoring component is when you have the following conditions:

- If you have an IT environment that has less than 10 Tivoli Storage Manager servers.
- If you want to establish a prototype of the Tivoli Storage Manager reporting and monitoring server to test the installation first.

Collecting data from multiple Tivoli Storage Manager servers using this configuration requires creation of multiple agent monitoring instances and results in using large amounts of memory. You need at least 4 GB of memory on the Tivoli Storage Manager reporting and monitoring server for optimum performance.

For an IT environment that has more than 10 Tivoli Storage Manager servers, install the Tivoli Storage Manager monitoring agent on each Tivoli Storage Manager server that you want to monitor. This configuration allows for the most efficient use of memory on both the Tivoli Storage Manager server and the IBM Tivoli Monitoring server.

Installation scenarios for the reporting and monitoring feature

Depending on the type of reporting installation you are performing, you will install different components. The following situations describe three installation scenarios and list the components you install for each scenario:

- You have Tivoli Storage Manager, version 5.5 and you want to install the Tivoli Storage Manager reporting and monitoring feature only.
  - You install the Tivoli Storage Manager monitoring agent on your Tivoli Storage Manager server.
  - You install the following components on a different system which will be your Tivoli Storage Manager reporting and monitoring server:
    - IBM Tivoli Monitoring
    - Tivoli Storage Manager monitoring agent
    - Tivoli Storage Manager reporting and monitoring languages
    - Tivoli Storage Manager Administration Center

      For details on installing the Administration Center, see Chapter 5, "Installing and configuring the Administration Center," on page 53. It is not available through the Tivoli Storage Manager reporting and monitoring feature installation wizard.
- You are installing Tivoli Storage Manager, version 6.1 for the first time and you want to install both Tivoli Storage Manager server and the Tivoli Storage Manager reporting and monitoring feature.
  1. You install Tivoli Storage Manager, version 6.1 and the Tivoli Storage Manager monitoring agent on one system.
  2. You install the following components on a different system which will be your Tivoli Storage Manager reporting and monitoring server:
     - IBM Tivoli Monitoring
     - Tivoli Storage Manager monitoring agent
     - Tivoli Storage Manager reporting and monitoring languages
     - Tivoli Storage Manager Administration Center

       For details on installing the Administration Center, see Chapter 5, "Installing and configuring the Administration Center," on page 53. It is not available through the Tivoli Storage Manager reporting and monitoring feature installation wizard.
- You have Tivoli Storage Manager, version 5.5 installed and you want to upgrade to Tivoli Storage Manager, version 6.1.
  1. You upgrade your Tivoli Storage Manager, version 5.5 server to Tivoli Storage Manager, version 6.1 and install the Tivoli Storage Manager monitoring agent on this system.
  2. You install the following components on a different system which will be your Tivoli Storage Manager reporting and monitoring server:
     - IBM Tivoli Monitoring
     - Tivoli Storage Manager monitoring agent
     - Tivoli Storage Manager reporting and monitoring languages
     - Tivoli Storage Manager Administration Center

       For details on installing the Administration Center, see Chapter 5, "Installing and configuring the Administration Center," on page 53. It is not available through the Tivoli Storage Manager reporting and monitoring feature installation wizard.

System requirements for Tivoli Storage Manager reporting and monitoring

There are hardware and software requirements your system must meet before the Tivoli Storage Manager reporting and monitoring feature is installed.

Hardware requirements

Table 9 describes the hardware requirements for the Tivoli Storage Manager reporting and monitoring feature.

Table 9. Hardware requirements

Type of hardware	Hardware requirements
Hardware	• Dual core Intel® Pentium® compatible processor or multiprocessor-based computer with a 2Ghz or greater processor • Minimum 64-bit system for AIX • Network interface card • Graphic display adapter
Disk space	• 30 GB free disk space (minimum). Requirements increase as historical data is gathered and stored in Tivoli Data Warehouse. • At least 10 GB free space should be made available in the home directory where the warehouse data is stored.
Memory	• 3 GB minimum • If Tivoli Storage Manager monitoring agents are installed on the Tivoli Monitoring server, memory requirements increase quickly as the number of Tivoli Storage Manager servers are monitored from that one IBM Tivoli Monitoring server. • If a Tivoli Storage Manager monitoring agent is installed on a Tivoli Storage Manager server, there is only a single instance of the agent is running on the Tivoli Storage Manager server and no increases in memory requirements are needed by the IBM Tivoli Monitoring server.
Monitor	Set your monitor resolution to 1024 x 768 (minimum) in order to view the entire window.

Software requirements

Table 10 describes the minimum software requirements for the Tivoli Storage Manager reporting and monitoring feature.

Table 10. Software requirements

Type of software	Minimum software requirements
Operating System	See Table 11 on page 37 for a complete list of supported operating systems and components.

Table 10. Software requirements (continued)

Type of software	Minimum software requirements
Web browser	A Web browser to log on and use the console. The Web browser can be installed on the same or a separate system. The following browsers can be used: • Microsoft Internet Explorer 6.x (Windows systems only) • Mozilla 1.0.2 • Mozilla 1.3 • Mozilla 1.4 Mozilla has published some fixes you might need to run on AIX systems • Netscape 6.2 • Netscape 7 Your browser must support the server code page. If your browser does not support the server code page, the windows might be unreadable. If your browser meets these requirements but does not correctly display a Tivoli Storage Manager Web-based interface, consider using a different browser.
Communication Protocol	At least one of the following communication protocols: • Named Pipes • TCP/IP Version 4 or Version 6
Optional software	The following optional software is required for creating your own custom reports: • Business Intelligence and Reporting Tools (BIRT), version 2.2.1, All-In-One software • IBM Java 1.5 Java Developer's Kit/Java Runtime Environment (JDK/JRE) installed on the server where you are creating custom reports

Table 11 lists the operating systems that are supported by Tivoli Monitoring and the Tivoli Storage Manager reporting and monitoring feature.

Table 11. Supported operating systems

Operating systems	IBM Tivoli Monitoring, version 6.2 FP1	Tivoli Storage Manager reporting and monitoring feature
Windows 2000	X	X
Windows 2003	X	X
Windows 2003 64-bit	X	X
Windows 2008		X
Windows 2008 64 bit		X
AIX 5.3 64 bit	X	X
RHEL 5 32-bit Intel	X	X
RHEL 5 32-bit Intel Xeon	X	X
RHEL 5 32-bit Intel AMD		X
SLES 10 32-bit Intel		X

Table 11. Supported operating systems (continued)

Operating systems	IBM Tivoli Monitoring, version 6.2 FP1	Tivoli Storage Manager reporting and monitoring feature
SLES 10 32-bit Intel Xeon		X
SLES 10 32-bit Intel AMD		X
RHEL 5 64-bit Intel		X
RHEL 5 64-bit Intel Xeon		X
RHEL 5 64-bit AMD		X
SLES 10 64-bit Intel		X
SLES 10 64-bit Intel Xeon		X
SLES 10 64-bit Intel AMD		X
Important: If you are installing a monitoring agent, and you previously installed an IBM Tivoli Monitoring server, you must install the monitoring agent on the existing Tivoli Enterprise Monitoring server. The Tivoli Storage Manager reporting and monitoring feature is only supported with IBM Tivoli Monitoring, version 6.2 FP1.		

Related tasks

"Installing a Tivoli Storage Manager monitoring agent" on page 46
You can install the Tivoli Storage Manager monitoring agent on any remote Tivoli Storage Manager server where you want a single instance of the agent running.

"Installing software for custom reporting" on page 49
The Tivoli Storage Manager reporting and monitoring feature does not have an option to create custom reports for Tivoli Storage Manager, but you can create your own reports using the Business Intelligence and Reporting Tools (BIRT) software.

Worksheet for installation information

Use the worksheet to record information that you need during installation and administration of the Tivoli Storage Manager reporting and monitoring feature.

Table 12. Worksheet for installation information for Tivoli Storage Manager reporting and monitoring

Item	Description	Default value*
db2 user ID	The user name and password for the administrator for the IBM Tivoli Data Warehouse database. This user has permission to do all the administrative tasks in DB2.	**User name:** db2admin **Password:**
encryption key	The encryption key needs to be the same for any agent trying to access the Tivoli Enterprise Monitoring server.	IBMTivoliMonitoringEncryptionKey
sysadmin	User name and password for access to the Tivoli Enterprise Portal.	**User name:** sysadmin **Password:**

Table 12. Worksheet for installation information for Tivoli Storage Manager reporting and monitoring (continued)

Item	Description	Default value*
ITMUser	User name and password for access to the Tivoli Data Warehouse. This user has access to read the information from the WAREHOUS database.	**User name:** ITMuser **Password:**
iscadmin	User name and password for access to the Integrated Solutions Console (ISC) where historical reports and the Administration Center reside.	**User name:** iscadmin **Password:**
ISC port	default port numbers	**9043**
DB2 port		**50000**
*Best practices are to use the default values listed here. If you change these values ensure that you document them because they are needed later.		

Installing the Tivoli Storage Manager reporting and monitoring feature using the GUI installation

You can install the Tivoli Storage Manager reporting and monitoring feature using the Tivoli Storage Manager reporting and monitoring installation wizard.

Confirm your system meets the system hardware and software and component requirements. See "System requirements for Tivoli Storage Manager reporting and monitoring" on page 36.

Confirm you have the required access privileges. See "Worksheet for installation information" on page 38.

To install the Tivoli Storage Manager reporting and monitoring feature, complete the following steps:

1. Insert the Tivoli Storage Manager reporting and monitoring feature DVD. The Tivoli Storage Manager reporting and monitoring installation wizard starts.

   If the installation wizard does not automatically start, click the **install.exe** file located in the directory where the Tivoli Storage Manager reporting and monitoring feature DVD is located. The default directory is *D://*.
2. Select the language for the wizard at the bottom of the page and click **OK**.
3. Accept the license agreement to proceed. Click **Next**.
4. On the **Component Selection** page, select the components that you want to install and click **Next**.

   To view the wizard in a language other than English, you must install the Tivoli Storage Manager reporting and monitoring Agent Languages.
5. If you selected the option to install the **IBM Tivoli Monitoring** component, accept the Tivoli Monitoring license agreement to proceed. Click **Next**.
6. The DB2 Enterprise Server Edition page is displayed. In the **DB2 password** field, enter a password twice, it cannot be longer than 8 characters. Leave all other selections with the default. Click **Next**.

7. The Encryption page is displayed. Enter the encryption key and click **Next**. Make note of this key for later use.
8. The Monitor Data Access Setup page is displayed. In the **Sysadmin ID password** field, enter the password twice. Click **Next**. This is the user ID and password for the Tivoli Enterprise Portal, where you can monitoring real-time data.
9. The Database Access Setup page is displayed. In the **Database user ID password** field, enter the password twice and click **Next**. This is the user ID and password for the Tivoli Enterprise Portal server database.
10. Accept the default installation location and click **Next**.
11. You are presented with the pre-installation summary of your configuration. Perform one of the following tasks:
    - To start the installation, click **Install**.
    - To make corrections or changes, click **Previous**.

    At the end of the installation, the Installation Results page presents a message with the installation results. If there were any errors during the installation, the summary page lists the errors and directs you to an error log file.

To view historical reports only, (no access to current data on the Tivoli Enterprise Portal) you have to install the Administration Center. If you have not installed the Administration Center, install it next. See Chapter 5, "Installing and configuring the Administration Center," on page 53 for details.

After the Tivoli Storage Manager reporting and monitoring installation wizard has completed the installation, you must complete the following tasks before you can collect historical data. If you plan to install the Tivoli Storage Manager monitoring agent on the Tivoli Storage Manager server, that must be done before continuing to the other configuration steps.

1. If you want to collect and view historical data, configure the Tivoli Enterprise Portal server.
2. Create and configure the Tivoli Data Warehouse database.
3. Configure the Tivoli Storage Manager monitoring agent on the system you identified for your environment during planning.
4. Configure and activate the summarization and pruning agent using Manage Tivoli Enterprise Monitoring Services (TEMS). The summarization and pruning agent schedules the data that the historical reports use.
5. Create and configure the historical data collection configuration using the Tivoli Enterprise Portal. The historical configuration allows real-time data in the Tivoli Enterprise Portal to be stored in the Tivoli Data Warehouse.

Related tasks

"Configuring the Tivoli Enterprise Portal server" on page 42
Configure the Tivoli Enterprise Portal server so that you can collect and view historical data.

"Configuring Tivoli Data Warehouse" on page 43
After installing the Tivoli Storage Manager reporting and monitoring feature and configuring the Tivoli Enterprise Portal server, you must manually configure the IBM Tivoli Data Warehouse for historical reporting.

"Installing a Tivoli Storage Manager monitoring agent" on page 46
You can install the Tivoli Storage Manager monitoring agent on any remote Tivoli Storage Manager server where you want a single instance of the agent running.

"Configuring and activating the Warehouse Summarization and Pruning agent" on page 43
After installing the Tivoli Storage Manager reporting and monitoring feature, you must configure and activate the summarization and pruning agent to accumulate and monitor historical data.

Taking the first steps after you install the Tivoli Storage Manager reporting and monitoring feature

After you install the Tivoli Storage Manager reporting and monitoring feature there are several configuration tasks that you need to perform to enable reporting for historical data collection.

1. Configure the Tivoli Enterprise Portal server to view real-time monitoring information for the configured Tivoli Storage Manager servers and clients. You must also configure the portal in order to collect and view historical data.
2. Configure the IBM Tivoli Data Warehouse and the Summarization and Pruning Agent in order to collect and view reports on the historical data using the Manage Tivoli Enterprise Monitoring Services application.
3. Configure the Tivoli Enterprise Portal to actually start the historical data collection.
4. Install the Tivoli Storage Manager monitoring agent on each of the Tivoli Storage Manager servers where you plan to configure a monitoring agent instance to run.

   Tip: This is the best practice if you want the Tivoli Storage Manager reporting and monitoring server to receive information on more than 10 Tivoli Storage Manager servers.

   When you have less than 10 Tivoli Storage Manager servers to monitor, use the Tivoli Storage Manager monitoring agent that is already installed on your Tivoli Monitoring server to get information from the Tivoli Storage Manager servers.
5. Configure each Tivoli Storage Manager monitoring agent instance using the Manage Tivoli Enterprise Monitoring Services application on the Tivoli Storage Manager server.
6. Configure the data source for the monitoring agent instance using the Integrated Solution Console

Configuring the Tivoli Enterprise Portal server

Configure the Tivoli Enterprise Portal server so that you can collect and view historical data.

Tivoli Enterprise Portal allows you to monitor real-time data. By default, the Tivoli Enterprise Portal server is configured for you to monitor the real-time data. You do not have to do anything with the server to be able to view the real-time data in the portal.

You must configure the portal server to send the historical data to the IBM Tivoli Data Warehouse database, so you can view the historical data.

Complete the following steps to configure and start the portal server:

1. Click **Start** → **Programs** → **IBM Tivoli Monitoring** → **Tivoli Enterprise Monitoring Services**.
2. Right-click **Tivoli Enterprise Portal Server** and select **Reconfigure**. The Connection Information window opens.
3. Click **OK** to open the Configure Tivoli Enterprise Portal Server window.
4. Click **Yes** to the question, **Do you want to reconfigure the warehous connection information**.
5. The Warehouse Proxy Database Selection window opens. Select **DB2** and click **OK**.
6. Type the following passwords in the password fields:
   a. The **DB2 admin ID** `db2admin`
   b. The **TEPS DB user ID** `itmuser`
   c. The **Warehouse DB user ID** `itmuser`
7. The message: **Successfully Configured warehouse data source** displays. If you do not receive this message, you did not enter the correct passwords. Check your passwords and re-enter.
8. Click **OK** when the Common Event Console Configuration window opens.
9. Click **OK** to return to the Tivoli Enterprise Monitoring Services window.
10. Double-click on **Tivoli Enterprise Portal** to start the portal.

After configuring the portal, continue to the section on configuring the Tivoli Data Warehouse. See Related tasks.

Related tasks

"Configuring Tivoli Data Warehouse" on page 43
After installing the Tivoli Storage Manager reporting and monitoring feature and configuring the Tivoli Enterprise Portal server, you must manually configure the IBM Tivoli Data Warehouse for historical reporting.

Configuring Tivoli Data Warehouse

After installing the Tivoli Storage Manager reporting and monitoring feature and configuring the Tivoli Enterprise Portal server, you must manually configure the IBM Tivoli Data Warehouse for historical reporting.

Ensure that you have configured the Tivoli Enterprise Portal server before completing this task.

To configure Tivoli Data Warehouse for historical reporting, complete the following steps:

1. To start the Tivoli Enterprise Monitoring Services application, click **Start → All Programs → IBM Tivoli Monitoring → Manage Tivoli Monitoring Services**.
2. Right-click the **Warehouse Proxy** and click **Reconfigure**.
3. Click **OK** when both windows titled Agent Advanced Configuration open.
4. Click **Yes** to **Would you like to configure your IBM Warehouse ODBC data source**.
5. In the Warehouse Proxy Database Selection window, accept the default, **DB2**, as the type of database to use and click **OK**. There are other choices listed, but DB2 is the database that is required for the Tivoli Storage Manager reporting and monitoring feature.
6. In the Configure DB2 Data Source for Warehouse Proxy window, keep the default name in the **Database Name** field. The default value is `Warehous`.
7. Enter the DB2 database administrator user's name and password in the **Admin User ID** and **Admin Password** fields to access the DB2 database. The default user ID is **db2admin**.
8. Enter the user ID and password for the Warehouse data source connection in the **Database User ID** and **Database Password** fields and click **OK**. The default for this user ID is **ITMUser**.

To complete historical data setup continue to the section on configuring and activating the summarization and pruning agent. See Related tasks.

Related tasks

"Configuring and activating the Warehouse Summarization and Pruning agent"
After installing the Tivoli Storage Manager reporting and monitoring feature, you must configure and activate the summarization and pruning agent to accumulate and monitor historical data.

Configuring and activating the Warehouse Summarization and Pruning agent

After installing the Tivoli Storage Manager reporting and monitoring feature, you must configure and activate the summarization and pruning agent to accumulate and monitor historical data.

Many of the historical reports for Tivoli Storage Manager that are stored in the Tivoli Data Warehouse must have the Warehouse Summarization and Pruning agent configured and started. Complete the following steps in the Tivoli Enterprise Monitoring Services application:

1. To start the Tivoli Enterprise Monitoring Services application, click **Start → All Programs → IBM Tivoli Monitoring → Manage Tivoli Monitoring Services**.
2. Right-click **Warehouse Summarization and Pruning Agent** and select **Reconfigure** from the list.

If **Reconfigure** is not available, double-click **Warehouse Summarization and Pruning Agent** in the Manage Tivoli Monitoring Services application, which starts the initial configuration wizard.

3. Click **OK** on the Primary TEMS Connection and Advance Configuration windows.
4. Click **Yes** to **Would you like to configure this Summarization and Pruning Agent**.
5. In the Configure Summarization and Pruning Agent window, complete the following tasks:
   a. In the **JDBC Drivers** field, ensure the correct drivers are listed.
   b. In the **Database** field, take `DB2` as the default.
   c. In the **Warehouse URL** field, the value of the IP address must meet the following criteria:
      - This URL should be similar to this example: `jdbc:db2://ip-address:50000/WAREHOUS`.
      - The IP address can be an IP address, a host name, or `LOCALHOST`.
   d. 50000 is the default DB2 port number.
   e. The default Tivoli Warehouse database name is `WAREHOUS`, which is the default used when installing the Tivoli Storage Manager reporting and monitoring feature.
   f. In the **Warehouse Driver** field, ensure the driver name is correct.
   g. In the **Warehouse User** field, use `ITMUser`, which is the default user ID.
   h. In the **Warehouse Password** field, enter the password that you specified for the Tivoli Data Warehouse during the IBM Tivoli Monitoring installation.
   i. Click **Test database connection** to test the connection. If everything is set up correctly, a message is issued that the database connection was successful. If the setup was not successful, an error message is issued. Click **OK** to close this message.
   j. In the **TEP Server Host** field, accept the default `localhost`.
   k. In the **TEP Server Port** field, accept the default server port or enter a different port number.
   l. Select the **Scheduling** tab at the top the Summarization and Pruning window. From this window, select **Flexible**. In the **Run every field** , set the number of minutes. The default value is 60. As you use the reporting feature, you can change this value as needed.
   m. Click **Save → Close** to close the Configure Summarization and Pruning Agent window.
6. Start the agent by double-clicking **Warehouse Summarization and Pruning Agent**.

Next, configure the historical data collection in order to start collecting historical data.

Related tasks

"Configuring historical data collection using the Tivoli Enterprise Portal" on page 45

Historical data collection requires accumulating historical data after installing the Tivoli Storage Manager reporting and monitoring feature and configuring the Tivoli Storage Manager monitoring agent.

Configuring historical data collection using the Tivoli Enterprise Portal

Historical data collection requires accumulating historical data after installing the Tivoli Storage Manager reporting and monitoring feature and configuring the Tivoli Storage Manager monitoring agent.

Historical data collection is collected in the Tivoli Enterprise Portal. If you do not start collecting your historical data, you cannot see any historical reports. Use the following steps to start your data collection.

1. Click **Start** → **Programs** → **IBM Tivoli Monitoring** → **Tivoli Enterprise Portal** or click the Tivoli Enterprise Portal icon on the desktop.
2. The Logon window opens. In the **Logon ID** field, enter `sysadmin`. In the **Password** field, enter the password that you specified for Tivoli Enterprise Portal during the Tivoli Storage Manager reporting and monitoring feature installation. Click **OK**.
3. The Tivoli Enterprise Portal opens. Expand **Window Systems** → *Server Name* → **Tivoli Storage Manager** in the **Navigator** view. The names of the monitoring workspaces are displayed.
4. Click **History Configuration**  on the top menu of the portal window. Icons at the top of the menu appear only when **ViewToolbars** is checked. Otherwise, use **Edit** → **History Configuration**.
5. The History Collection Configuration window opens. Complete the following steps in this window:
   - In the **Select a product** field, select **Tivoli Storage Manager**.
   - All the Tivoli Storage Manager attribute groups are displayed. Select all of these groups.
   - In the **Collection interval** field, use the default value of 15 minutes.
   - In the **Collection location** field, select Tivoli Enterprise Monitoring Server, **TEMS**. This is where the historical data files are stored.
   - In the **Warehouse interval** field, select **1 day** for how often you want the warehouse to store data.
   - In the **Summarization** field, choose **Yearly, Monthly, Weekly, Quarterly, Daily** and **Hourly** for the summarization and levels of data that you want to keep.
   - In the **Pruning** field, choose **Yearly** for **keep:** and enter **1** and select **year** from the list.
   - Select **Configure groups** to configure all selected groups.
   - To start the data collection on all the configured groups, select all of the Tivoli Storage Manager data groups. Click **Start collection**. Data collection is collected every 15 minutes and stored hourly in the warehouse.
   - Click **Close** to save your configurations and close this window.

   Important: These settings are examples. Your selections depend on how you want to collect and prune your data. To test your data that is collected, start with a short interval. Once you know the data is being collected correctly, you can adjust the collection interval for production data. Depending on the intervals that you chose, it may be a few days before your data is available for reports.

For more details on the collection parameters and how they affect the Tivoli Storage Manager server, see the Tivoli Storage Manager 6.1 white paper on the Tivoli Storage Manager Wiki. http://www.ibm.com/developerworks/wikis/display/tivolistoragemanager/Home

6. Exit the Tivoli Enterprise Portal.

Related information

http://publib.boulder.ibm.com/infocenter/tivihelp/v15r1/topic/com.ibm.itm.doc/welcome.htm
See the IBM Tivoli Monitoring Information Center for more information on using the Tivoli Enterprise Portal.

Installing a Tivoli Storage Manager monitoring agent

You can install the Tivoli Storage Manager monitoring agent on any remote Tivoli Storage Manager server where you want a single instance of the agent running.

The Tivoli Storage Manager monitoring agent gathers data and sends it to the Tivoli Monitoring server. By installing a single instance of the agent on the Tivoli Storage Manager server, instead of the monitoring server, you avoid increases in memory requirements on the monitoring server.

To use the Tivoli Storage Manager reporting and monitoring feature in an existing Tivoli Monitoring environment, you must install the monitoring agent on the existing Tivoli Enterprise Monitoring server. You can install the monitoring agent on any other Tivoli Monitoring server too, but it must be on the Tivoli Enterprise Monitoring server, as this is the server that controls the monitoring agent.

Attention: The Tivoli Storage Manager reporting and monitoring feature is only supported with IBM Tivoli Monitoring, **version 6.2 FP1**. See "System requirements for Tivoli Storage Manager reporting and monitoring" on page 36 for other supported software and hardware.

To install the Tivoli Storage Manager monitoring agent on the Tivoli Storage Manager server, complete the following steps:

1. Insert the Tivoli Storage Manager reporting and monitoring feature DVD into the DVD drive. The Tivoli Storage Manager reporting and monitoring installation wizard starts.
2. Accept each license agreement presented to proceed. Click **Next**.
3. On the **Component Selection** page, select only **Tivoli Storage Manager reporting and monitoring agent**. Click **Next**.
4. Follow the wizard instructions for installation location, and languages and encryption. You must use the encryption key that you entered during installation of the monitoring server for each separate agent that you install on any Tivoli Storage Manager server.
5. Enter the password for the Tivoli Enterprise Management Server and click **Next**.
6. You are presented with the installation summary of your configuration. Select one of the following tasks:
   - To start the installation, click **Next**.
   - To make corrections or changes, click **Previous**.

   At the end of the installation, the Installation Results page displays a message with the installation results. If there were any errors during the installation, the summary panel lists the errors and directs you to an error log file.

7. Click **Finish**.

You must configure a monitoring agent instance. After configuring the monitoring agent instance, you must also configure the data source that the monitoring agent instance uses if you plan to view the historical reports using the Administration Center.

Creating and configuring the Tivoli Storage Manager monitoring agent instance

After installing the Tivoli Storage Manager reporting and monitoring feature, you must manually create and configure a Tivoli Storage Manager monitoring agent instance for historical reporting.

To monitor multiple Tivoli Storage Manager servers from the same Tivoli Monitoring server, create an instance of the Tivoli Storage Manager monitoring agent using the following method for each Tivoli Storage Manager server you want to monitor. If you install the monitoring agent on your Tivoli Storage Manager server, you do this task once, for the Tivoli Storage Manager server that the monitoring agent is installed on.

To configure the monitoring agent instance for historical reporting, log on to Tivoli Enterprise Monitoring Services by completing the following steps:

1. Click **Start** → **All Programs** → **IBM Tivoli Monitoring** → **Manage Tivoli Monitoring Services**.
2. In the Manage Tivoli Enterprise Monitoring Services - TEMS Mode window, double-click **Monitoring Agent forTivoli Storage Manager.**
3. In the Input window, enter the instance name and click **OK**.
4. In the Agent Configuration window, complete the following fields for the Tivoli Storage Manager server to be monitored:
   a. In the **Server Address** field, enter the server address for the Tivoli Storage Manager server.
   b. In the **Port Number** field, enter the port number that is used to communicate with the Tivoli Storage Manager server.
   c. In the **TSM Administrator** field, enter the Tivoli Storage Manager administrator ID used to access the Tivoli Storage Manager server.
   d. In the **TSM Administrator Password** field, enter the password, twice for the Tivoli Storage Manager administrator ID.
   e. Click **OK** to save the settings.
5. The Manage Tivoli Enterprise Monitoring Services page opens with the new monitoring agent. **Task/Subsystem** has the unique instance name for the monitoring agent that you configured. Start the monitoring agent instance by completing one of the following tasks:
   - In the Manage Tivoli Enterprise Monitoring Services window, select the monitoring agent instance that you want to start and click the green light icon in the tool bar at the top of the window.
   - If you do not have the tool bar enabled, double-click the monitoring agent instance in the list. This toggles the **service/application** field to **Stopped** or **Started** status.

If you want to use the Administration Center to view the historical reporting, after configuring the monitoring agent, configure the data source.

Related tasks

"Configuring a data source for the Tivoli Storage Manager monitoring agent instance using the Integrated Solutions Console"
To view historical reports using the Administration Center, after creating a Tivoli Storage Manager monitoring agent instance, configure the data source.

Configuring a data source for the Tivoli Storage Manager monitoring agent instance using the Integrated Solutions Console

To view historical reports using the Administration Center, after creating a Tivoli Storage Manager monitoring agent instance, configure the data source.

You must configure the data sources for historical reporting. Configuring a data source for one report propagates throughout all the historical reports that are available through the Tivoli Storage Manager reporting and monitoring feature. To configure a monitoring agent instance, using the Administration Center, complete the following steps:

1. To access the Administration Center, start the Integrated Solutions Console (ISC) by running the following command from a command line:

   ```
   cd <tsm_home>\AC\ISCW61\profiles\TsmAC\bin
   startServer.bat tsmServer
   ```

   where *tsm_home* is the default directory where you installed the Administration Center.
2. To open the ISC window, open a Web browser and enter the following address: `https://localhost:port/ibm/console`

   where *port* is the port number that is specified when you installed the Tivoli Storage Manager reporting and monitoring feature. The default is 9043.

   If you are using a remote system, you can access the ISC by entering the IP address or fully qualified host name of the remote system. You might have to authenticate to the remote system if there is a firewall that exists.
3. In the **User ID** field, enter the ISC user ID that was defined when you installed the Tivoli Storage Manager Administration Center.
4. In the **Password** field, enter the ISC password you defined for the user ID and click **Log in**.
5. On the left side of the window, select **Tivoli Common Reporting → Work with Reports**.
6. After the Tivoli Common Reporting window opens, select **Tivoli Products → Tivoli Storage Manager → Client Reports** or **Server Reports**.
7. Select one of the reports, right click, and select **Data Sources** from the context menu.
8. Select the first data source and click **Edit**.
9. The Edit Data Source window opens. The fields are populated with the following values:
   a. In the **Name** field, DB2 WAREHOUS is the name for the IBM Tivoli Data Warehouse data source.
   b. In the **User ID** field, `ITMuser` is the user ID.
   c. In the **Password** field, enter the password that you defined for the user ID.
   d. In the **JDBC Driver** and the **JDBC URL** fields, is the information that matches your JDBC information. Click **Save**.

10. The Reports window opens. To test the data, select a report and click **HTML** or **PDF**.
11. Depending on the report you have selected to test, fill in the fields indicating the data that the report should contain.
12. Click **Run**. The selected report displays.
13. Click **Log out** to end the session.

Installing software for custom reporting

The Tivoli Storage Manager reporting and monitoring feature does not have an option to create custom reports for Tivoli Storage Manager, but you can create your own reports using the Business Intelligence and Reporting Tools (BIRT) software.

Ensure that you have fulfilled the IBM JDK/JRE requirements listed in the software requirements section for installing optional software. See "System requirements for Tivoli Storage Manager reporting and monitoring" on page 36

To create your own custom reports using BIRT and Tivoli Common Reporting from your data that is stored in Tivoli Data Warehouse, complete the following steps:

1. Download and install BIRT, version 2.2.1, All-In-One software using one of the following Web sites:
   - Go to the following IBM Tivoli Open Process Automation Library (OPAL) Web site for the BIRT software that you need to download and install: http://www.ibm.com/software/brandcatalog/portal/opal/details?catalog.label=1TW10OT02
   - If you cannot access OPAL, go to the following BIRT Web site: http://download.eclipse.org/birt/downloads/index2.2.2.php
2. Import the data, configure the data source, and customize the reports following the directions in the *Customizing Tivoli Common Reporting Report Designs* document found at: http://www.ibm.com/developerworks/tivoli/library/t-tcr/ibm_tiv_tcr_customizing_report_designs.pdf

Related reference

"System requirements for Tivoli Storage Manager reporting and monitoring" on page 36
There are hardware and software requirements your system must meet before the Tivoli Storage Manager reporting and monitoring feature is installed.

More details on using Tivoli Common reporting:

http://www.ibm.com/developerworks/spaces/tcr

See the **Reporting documentation** link under the **Key Resources** section.

Uninstalling the Tivoli Storage Manager reporting and monitoring feature

Use this procedure to uninstall the Tivoli Storage Manager reporting and monitoring feature.

Before starting the reporting and monitoring uninstall wizard, stop all agents from the Tivoli Enterprise Monitoring Server (TEMS). To stop the agents, complete the following steps:

1. Go to **Start** → **Programs** → **IBM Tivoli Monitoring** → **Manage Tivoli Enterprise Monitoring Services**

2. In the Manage Tivoli Enterprise Monitoring Services window, stop the agents by double-clicking on the agents that are started (running). If the toolbar is enabled, you can also click on the green light to stop the agents.
3. If you have previously run the uninstall wizard and it failed, after stopping the agents, the IBM Tivoli Monitoring product has to be removed from the Add/Remove Programs menu: **Start → Control Panel → Add Remove Programs**.
4. If the Add/Remove Programs tool fails to remove the IBM Tivoli Monitoring product, reboot your system and try to remove the IBM Tivoli Monitoring product again.

To uninstall the Tivoli Storage Manager reporting and monitoring feature, complete the following steps:

1. Change to the directory where the software is installed, for example:

   ```
   cd /opt/tivoli/tsm/reporting
   ```

   The default path is `/opt/tivoli/tsm/reporting`.
2. Change to the directory, `_uninst`, for example:

   ```
   cd _uninst
   ```
3. To uninstall the product, run one of the following commands:

   If you use a GUI, issue the following command:

   ```
   Uninstall_Tivoli_Storage_Manager_for_Reporting_and_Monitoring
   ```

   If you use the Command Line, issue the following command:

   ```
   Uninstall_Tivoli_Storage_Manager_for_Reporting_and_Monitoring –i console
   ```

   a. To continue the uninstall, click **Enter**.
   b. Enter the type of uninstall you are performing. If you are uninstalling the entire product, type **1**. Click **Enter**.
   c. Once the uninstallation is complete, a message displays stating that all items were successfully uninstalled.
4. After uninstalling the Tivoli Storage Manager reporting and monitoring feature, certain components of IBM DB2 may still exist on the system. Complete the following steps to remove these components:
   a. Stop any remaining DB2 service
   b. Remove any DB2 users
   c. Remove any remaining DB2 associated files and directories
5. After you perform an uninstallation, the DB2 entry, `db2_tsm1 <portnumber>/tcp` is left over in the `/etc/services` file. Complete the following steps to remove the entry:
   a. `cd /etc`
      `cp services services.mmddyy`

      where mm = month dd = day and yy = year. For example: `cp services services.041209`
   b. Open the Services file: `vi services` and search for the line:

      ```
      db2_tsm1 portnumber/tcp
      ```

      where the port number is the DB2 port number you set during the install of the DB2 database. For example: `db2_tsm1 50022/tcp`
   c. Delete the entry.
   d. Save the file.
6. You must also remove the DB2 database data. By default these files are located in the`/home/db2inst1` and the `/home/db2fenc1` directories.

CAUTION:
By removing these files, you remove any database data and all of the files stored under this directory

```
rm -r /home/db2inst1
rm -r /home/db2fenc1
```

7. Restart the system.

Chapter 5. Installing and configuring the Administration Center

Use the Administration Center to administer Tivoli Storage Manager and the reporting and monitoring feature from a supported browser anywhere in your network.

The time required to install the Integrated Solutions Console and Administration Center depends on the speed of your processor and the memory in your machine. Use the following steps to install the Integrated Solutions Console and Administration Center.

1. Install your Tivoli Storage Manager Version 6.1 servers. See Chapter 2, "Installing Tivoli Storage Manager," on page 11. Give each server a unique name.
2. Download and install the Administration Center. See "Installing the Administration Center" on page 54.
3. Start your Tivoli Storage Manager Version 6.1 server. See "Starting the server instance" on page 27.
4. Verify the Administration Center installation. See "Verifying your installation" on page 57.
5. Define your ISC users. See "Defining ISC users to the Administration Center" on page 58.
6. Add connections for the Tivoli Storage Manager servers you want to manage.

For more details about the Administration Center, see http://www.ibm.com/support/.

Administration Center system requirements

The Tivoli Storage Manager server can require a large amount of memory, network bandwidth, and processor resources. In many 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, it can support both applications.

If you plan to use the Administration Center to manage an environment with a large number of servers or administrators, consider installing the Administration Center on a separate system.

For Administration Center system requirements, see the following Web site: http://www.ibm.com/support/docview.wss?uid=swg21328445.

Installing the Administration Center

To install the Administration Center , you can use the graphical installation wizard, the console wizard, or the command line in silent mode.

Using the Administration Center installation software, you can install the following component:

- Tivoli Storage Manager Administration Center

1. If you are installing the Administration Center using the DVD, complete the following steps:

   Log on as an administrator. Insert the Tivoli Storage Manager Administration Center DVD. Use Windows Explorer to go to the DVD drive, double-click the DVD, and then double-click install.exe. To access Windows Explorer, go to **Start** → **Programs** → **Accessories** or right-click the Start button. The DVD browser window opens.
2. If you are installing the Administration Center from the Tivoli Storage Manager FTP downloads site, obtain the package file here: ftp://ftp.software.ibm.com/storage/tivoli-storage-management/maintenance/admincenter/. Change to the directory where you placed the executable file and complete the following steps:

   Tip: The files are extracted to the current directory. Ensure that the executable file is in the directory where you want the extracted files to be located.

   Either double-click the following executable file or enter the following command on the command line to extract the installation files.

   ```
   6.1.x.x-TIV-TSMAC-platform.exe
   ```

   where *platform* denotes the operating system that the Administration Center is to be installed on.
3. Select one of the following ways of installing the Administration Center:

   Installation wizard
   "Installing the Administration Center using the installation wizard"

   Command-line console wizard
   "Installing the Administration Center using the console installation wizard" on page 55

   Silent mode
   "Installing the Administration Center in silent mode" on page 56

Installing the Administration Center using the installation wizard

Using the installation wizard is one method of installing the Administration Center.

To install the Administration Center using the installation wizard, complete the following steps:

1. Select a method to start the installation wizard:
   - To start the wizard without saving your responses, double-click the install.exe file or enter the following command:

     ```
     install.exe
     ```
   - To start the wizard and save your responses, enter the following command, and specify the -r option:

```
install.exe -r C:\response.rsp
```

The Administration Center installation wizard starts.

2. Select the language for your installation and follow the wizard directions, selecting **Next** to step through the wizard. You must accept the license agreement to proceed. Select the Administration Center component. There is no default so you must make a selection or you will receive an error message and be returned to the component page.

   When you select the Administration Center component, you are prompted for an Integrated Solutions Console user name and password. The default Integrated Solutions Console user name is iscadmin and you must specify a password for this ID, or for a new ID you create. You will use these later to log onto the Integrated Solutions Console and Administration Center.

   Restriction: Save the user name and password or you are unable to uninstall the Administration Center.
   You can create additional Integrated Solutions Console user IDs and passwords for any other administrators who will access the Administration Center.

At the end of the installation, a message is displayed on the summary page that the Administration Center successfully installed and a summary is provided. If there were any errors during the installation, another summary page lists the errors and directs you to an error log file. Fix the errors before continuing. The installation log is stored in the following location:

The directory that was chosen for installation (look for the files log.txt and logs.zip).

Installing the Administration Center using the console installation wizard

Using the console installation wizard is one method of installing the Administration Center.

To install the Administration Center using the console installation wizard, complete the following steps:

1. To start the wizard without saving your responses, enter the following command:

   ```
   install.exe -i console
   ```

   To start the wizard and save your responses, enter the following command, and specify the -r option:

   ```
   install.exe -i console -r C:\response.rsp
   ```

2. Select the language for your installation and follow the prompts. You must accept the license agreement to proceed. Select the Administration Center component. There is no default so you must make a selection or you will receive an error message and be returned to the component page.

   After you select the Administration Center component, you are prompted for an Integrated Solutions Console user name and password. The default Integrated Solutions Console user name is iscadmin and you must specify a password for this ID, or for a new ID you create. You will use these later to log onto the Integrated Solutions Console and Administration Center.

   Restriction: Save the user name and password or you are unable to uninstall the Administration Center.
   You can create additional Integrated Solutions Console user IDs and passwords for any other administrators who will access the Administration Center.

At the end of the installation, a message is displayed on the summary page that the Administration Center successfully installed and a summary is provided. If there were any errors during the installation, another summary page lists the errors and directs you to an error log file. Fix the errors before continuing. The installation log is stored in the following location:

The directory that was chosen for installation (look for the files log.txt and logs.zip).

Installing the Administration Center in silent mode

Running an installation in the background is one method of installing the Administration Center.

To install the Administration Center in silent mode, select one of the following options and enter the following commands:

Restriction:

You must include LICENSE_ACCEPTED=true or the installation fails.

WAS_PW=password is not encrypted and ISC_PASSWORD=B9B0D3E5F0D6D3DDEECADCE5 is encrypted.

After you start the silent installation, it immediately closes the foreground window and runs in the background. To receive a return code from the silent installation, run it using a batch script. See "Installing silently using a batch script" on page 15 for more details.

- To start the silent installation, enter the following command on a single line:

  ```
  install.exe -i silent -DLICENSE_ACCEPTED=true
  -DINSTALL_ADMINCENTER=1
  ```

  Enter either these variables:

  ```
  -DIAGLOBAL_WASUserID=iscadmin
  -DISC_PASSWORD=B9B0D3E5F0D6D3DDEECADCE5
  -DIAGLOBAL_WASPort=9043
  ```

  Or these variables:

  ```
  -DWAS_USER=user_name -DWAS_PW=password
  -DWAS_PORT=port
  ```

- To use an existing response file, enter the following command:

  ```
  install.exe -i silent -DLICENSE_ACCEPTED=true -f response_file
  ```

  where the *response_file* is the full directory path to a file that you previously created in the Administration Center installation process. The response file contains variables you selected in a prior installation, using the GUI or console wizard.

  If you include LICENSE_ACCEPTED=true in the response file manually, then issue this command:

  ```
  install.exe -i silent -f response_file
  ```

  You might see a difference between response files, depending on which installation mode you used (GUI or console).

During the silent installation, the following items are automatically checked:

- WAS_USER - This must be privileged. If the user name is new, installation continues.

- WAS_PW - If the user name exists, the installation validates the credentials. If the user name is new, the password is checked to ensure it meets the Windows password-complexity requirements.

If either of these checks fails, the silent installation stops with a warning message.

At the end of the installation, a message is displayed on the summary page that Tivoli Storage Manager was successfully installed and a summary is provided. If there were any errors during the installation, another summary page lists the errors and directs you to an error log file. Fix the errors before continuing. The installation log is stored in the following location:

The directory that was chosen for the installation (look for the files log.txt and logs.zip).

Verifying your installation

After installing the Administration Center, complete several procedures to verify your installation.

Complete the following steps:

1. Enter the following address in a supported Web browser: https://*workstation_name*:9043/ibm/console. The *workstation_name* is the network name or IP address of the workstation on which you installed the Administration Center. The default Web administration port (HTTPS) is 9043.
2. To get started, log in, using the Integrated Solutions Console user ID and password that you created during the Administration Center installation. Save this password in a safe location because you need it not only to log in but also to uninstall the Administration Center.
3. After you successfully log in, the Integrated Solutions Console welcome page is displayed. 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.

Starting and stopping the Integrated Solutions Console server

The Integrated Solutions Console server is automatically started after a successful installation. If you shut down the system after the initial installation, any Integrated Solutions Console servers that were started will be stopped.

Use the Windows Services utility or the command line to start and stop Integrated Solutions Console servers.

Tip: Start and stop the Integrated Solutions Console server by using the Windows Services utility if you are connecting to the production environment through Terminal Services. If you start the Integrated Solutions Console server from the command line, the Integrated Solutions Console server stops when you log off the Terminal Services session.

To start or stop Integrated Solutions Console system servers using the Windows Services utility, go to **Settings** → **Control Panel** → **Administrative Tools** → **Services**. Select the following Integrated Solutions Console service:

- TSM Administration Center - TsmAC

When you start and stop the Integrated Solutions Console using the command line, the variables in the commands have these meanings:

- *tsm_home* is the root directory for your Tivoli Storage Manager installation.
  The default for *tsm_home* is C:\Program Files\tivoli\tsm.
- *iscadmin* is the administrator user ID for the Administration Center.
- *iscpass* is the password for the administrator.

First, change to the *tsm_home*\AC\ISCW61\profiles\TsmAC\bin subdirectory in the Tivoli Storage Manager installation directory. Then, start or stop the Integrated Solutions Console server by issuing one of the following commands.

- To **start** an Integrated Solutions Console server using the command line, issue this command:

  ```
  startServer.bat tsmServer
  ```

- To **stop** an Integrated Solutions Console server using the command line, issue one of the following commands:
  - `stopServer.bat tsmServer -username iscadmin -password iscpass`
  - You are prompted to enter the user ID and the password:

    ```
    stopServer.bat tsmServer
    ```

Defining ISC users to the Administration Center

You can create a separate Integrated Solutions Console user ID for each Tivoli Storage Manager Version 6.1 administrator, or for a group of administrators.

Creating separate ISC administrator IDs can help you control access for administrators who manage different servers or who have different privilege classes. After logging in using their IDs, they can use their Tivoli Storage Manager administrator name and password to manage connections for the servers they manage.

1. In the navigation tree, expand **Users and Groups**.
2. Click **Manage Users**.
3. Click **Create**.
4. Click **Group Membership**.
5. Select **Group name**, then click **Search**.
6. Add TSM_AdminCenter to the Current groups list.
7. Click **Close**.
8. Complete the form and click **Create**.

Chapter 6. Upgrading the Administration Center

To administer Tivoli Storage Manager Version 6.1 servers, you must install or upgrade to the Administration Center Version 6.1.

The Administration Center provides wizards to help guide you through common configuration tasks. The Administration Center is installed as an IBM Integrated Solutions Console component. The Integrated Solutions Console lets you install components provided by multiple IBM applications, and access them from a single interface.

There has been a significant change in the technologies on which the Administration Center is built. As a consequence, you must manually complete the upgrade from an earlier version of the Administration Center to Version 6.1. You must define your Integrated Solutions Console user IDs to the new Administration Center. In addition, you must provide credentials for each of the Tivoli Storage Manager servers.

Note: The Administration Center Version 6.1 is only compatible with the Integrated Solutions Console Advanced Edition Version 7.1. If you currently have downlevel versions of the Administration Center and Integrated Solutions Console installed, you must upgrade both.

Overview of upgrade and coexistence

Upgrading involves collecting the configuration information from a previous version of the Administration Center and duplicating it in the new version. Coexistence involves running the Administration Center V6.1 on the same machine at the same time as you run the previous version.

To support coexistence, you need to provide non-default port assignments. For upgrade scenarios involving the possibility of rolling back to the previous version, you can choose to have the same port definitions and run either one version or the other.

If your disk space permits, having the two versions of the Administration Center coexist is the recommended upgrade strategy. It lets users have a functioning Administration Center during the time that it takes for the upgrade to complete. It also ensures that the configuration of the previous Administration Center is still accessible during the upgrade procedure.

Upgrade does not uninstall the previous version, which is still functional. After the upgrade completes successfully, you can uninstall the previous Administration Center using its documented process.

Upgrade procedure

Use the upgrade procedure to upgrade from a previous version of the Tivoli Storage Manager Administration Center to the Administration Center Version 6.1.

1. If the current version of Administration Center is to be uninstalled, first obtain information about users and server credentials, then save the tsmservers.xml file which is located in the install directory on the Administration Center.
2. Install Administration Center Version 6.1. Note the following items:
   - ISC user IDs are not recreated in the new Administration Center.
   - The Tivoli Storage Manager server's database file and tsmservers.xml are copied from the earlier Administration Center.
   - Tivoli Storage Manager server credentials are not recreated in the new Administration Center.
3. Manually duplicate the user configuration of your earlier Administration Center. You start with a clean slate and build up a new environment for Version 6.1:
   a. Obtain the information about users and server credentials from the earlier Administration Center.
   b. Define each ISC user previously defined to the earlier Administration Center.
   c. Define to each ISC user its set of Tivoli Storage Manager server connections.
4. Uninstall the earlier Administration Center.

Obtaining information about ISC users

In the previous version of the Administration Center, you can use the Settings tab of the Integrated Solutions Console (ISC) to view information for users. The ISC help for the tab assists you when navigating the tab and its pages.

To obtain information about the defined Integrated Solutions Console user IDs, follow this procedure:

1. Expand the **Console Settings** item in the navigation tree.
2. Click **User and Group Management**.
3. In the Search drop-down list, click **Users**.
4. In the Search by drop-down list table, click uid.
5. In the Search entry field, enter *.
6. Click **Search**. The table is filled with all known ISC user IDs. Capture this information for later use.
7. Determine the password for each of these IDs.

Defining ISC users to the Administration Center

You can create a separate Integrated Solutions Console user ID for each Tivoli Storage Manager Version 6.1 administrator, or for a group of administrators.

Creating separate ISC administrator IDs can help you control access for administrators who manage different servers or who have different privilege classes. After logging in using their IDs, they can use their Tivoli Storage Manager administrator name and password to manage connections for the servers they manage.

1. In the navigation tree, expand **Users and Groups**.

2. Click **Manage Users**.
3. Click **Create**.
4. Click **Group Membership**.
5. Select **Group name**, then click **Search**.
6. Add TSM_AdminCenter to the Current groups list.
7. Click **Close**.
8. Complete the form and click **Create**.

Server connections to the Administration Center

A Manage Servers section is new to the ISC navigation tree of the Version 6.1 Administration Center. When you open this section, you are presented with a table of servers defined to the Administration Center for your ISC user ID.

From the Manage Servers section, you can quickly provide server connection information to the Administration Center. To facilitate this configuration step, the table of servers contains an action that lets you upload to the Administration Center an XML file that contains connection information and, optionally, a set of credentials for each Tivoli Storage Manager server.

This action can be used as an alternative method for defining the Tivoli Storage Manager servers of the earlier Administration Center to the Version 6.1 Administration Center. If you chose not to have the two versions of the Administration Center coexist, you can upload the tsmservers.xml file saved from the previous Administration Center. This operation makes the servers known to the Version 6.1 Administration Center, but the server credentials must be provided for each server. Optionally, you can choose to edit the tsmserver.xml file and add Tivoli Storage Manager server credentials to the connections of the user that is performing the file upload operation. Refer to the Administration Center help for more information on uploading a connections file.

If you choose to have the two versions of the Administration Center coexist, the installation of the Version 6.1 Administration Center copies the tsmservers.xml file from the earlier Administration Center. You do not need to use the upload action in this case. The Tivoli Storage Manager servers are known to the Version 6.1 Administration Center, but the server credentials must be provided for each server.

For both scenarios, the server connections for each ISC user ID do not include Tivoli Storage Manager server credentials. Such a connection is considered to be an incomplete or partial server connection by the Version 6.1 Administration Center. In the Manage Servers section, the table of servers defined to the Administration Center contains a column that indicates if a server connection contains Tivoli Storage Manager server credentials.

You can handle the partial server connections in two ways. You can either leave the connections in the partial state. When the ISC user later attempts to use a partial server connection, the user is prompted to complete the server connection information. Or, you can use the Change Password action of the Manage Servers table to display a form that lets you quickly define Tivoli Storage Manager server credentials for one or more server connections.

In general, partial server connections result in the display of the Incomplete Server Connection form. However, there are cases when the form cannot be displayed. In these cases, an error message is displayed indicating that the use should complete

the server connection by performing a detailed action. For example, the table of libraries attempts to obtain information about all the libraries across a set of servers. The user cannot be presented with the form for each server that has the issue.

ANRW0017E The server connection currently does not include the credentials required to access the server.
Explanation
An administrative session could not be started with the server because the server connection does not contain an administrator ID and password. The Administration Center will continue to deny access attempts to the server until a valid administrator ID and password are provided.
Administrator response
To complete the server connection information for this server: In the navigation tree, click Manage Servers. Select the server from the list of servers. Click Select Action > Modify Server Connection.

Chapter 7. Installing a Tivoli Storage Manager fix pack

Tivoli Storage Manager maintenance updates, also referred to as fix packs, bring your server up to the current maintenance level. The Tivoli Storage Manager server must not be running during maintenance updates.

To install a fix pack or interim fix to the server, you must have the Tivoli Storage Manager license package installed. The license package is provided with the purchase of a Version 6.1.0 base release.

To see a list of the latest maintenance and download fixes, visit this Web site: http://www.ibm.com/software/sysmgmt/products/support/IBMTivoliStorageManager.html. For information about obtaining a Version 6.1 license package, click the ″How to buy″ link.

For information about supported platforms and system requirements, see this page: http://www.ibm.com/software/tivoli/products/storage-mgr/platforms.html.

To install a 6.1.x.x fix pack or interim fix, complete the following steps.

Attention: In order to preserve your server instances and database, do not uninstall your previous version of Tivoli Storage Manager.

1. Obtain the package file for the fix pack or interim fix you want to install from the Tivoli Storage Manager FTP downloads site: ftp://ftp.software.ibm.com/storage/tivoli-storage-management/.
2. Change to the directory where you placed the executable file. Then, either double-click the following executable file or enter the following command on the command line to extract the installation files.

   Tip: The files are extracted to the current directory. Ensure that the executable file is in the directory where you want the extracted files to be located.

   ```
   6.1.x.x-TIV-TSMALL-platform.exe
   ```

   where *platform* denotes the operating system that Tivoli Storage Manager is to be installed on.
3. Ensure that you have backed up your Tivoli Storage Manager database. See the *Administrator's Guide* for more details.
4. Halt the server before installing a fix pack or interim fix.
5. Select one of the following ways of installing Tivoli Storage Manager:

   Installation wizard
   "Installing Tivoli Storage Manager using the installation wizard" on page 12

   Command-line console wizard
   "Installing Tivoli Storage Manager using the console installation wizard" on page 13

   Silent mode
   "Installing Tivoli Storage Manager in silent mode" on page 13

Chapter 8. Uninstalling Tivoli Storage Manager

You can use the following procedures to uninstall Tivoli Storage Manager. Before you remove Tivoli Storage Manager, there are several steps to complete to ensure that you do not lose your backup and archive data.

If you are running on 64-bit Windows Server 2008, ensure that you have created at least one Tivoli Storage Manager server instance before uninstalling Tivoli Storage Manager, or the uninstallation of DB2 might fail. See Chapter 3, "Taking the first steps after you install Tivoli Storage Manager," on page 17 for details about creating a server instance.

CAUTION:
Do not use the Add/Remove Programs tool in the Windows Control Panel to uninstall Tivoli Storage Manager. Use only the uninstallation procedure described in this section.

Complete the following steps before you uninstall Tivoli Storage Manager:

- Complete a full database backup.
- Save a copy of the volume history and device configuration files.
- Store the output volumes in a safe location.

Important: Uninstalling Tivoli Storage Manager removes all components of the Tivoli Storage Manager server Version 6.1. It is not possible to uninstall a single component of the product by itself. For example, you cannot uninstall only the Tivoli Storage Manager Administration Center and leave the Tivoli Storage Manager server.

- To uninstall Tivoli Storage Manager using the standard method, complete the following steps:
  1. Change to this directory: `C:\Program Files\Tivoli\TSM\_uninst`
  2. Use one of the following methods to uninstall Tivoli Storage Manager:
     - To use the installation wizard (GUI) to uninstall Tivoli Storage Manager, double-click the .exe file or enter the following command:

       ```
       "Uninstall Tivoli Storage Manager.exe"
       ```

       Tip: Ensure that you have your Administration Center user name and password to uninstall the Administration Center.
     - To use the console to uninstall Tivoli Storage Manager, enter this command:

       ```
       "Uninstall Tivoli Storage Manager.exe" -i console
       ```

       Tip: Ensure that you have your Administration Center user name and password to uninstall the Administration Center. The uninstallation closes if your user name and password are invalid, and you must start over.
     - To silently uninstall Tivoli Storage Manager, enter this command:

       ```
       "Uninstall Tivoli Storage Manager.exe" -i silent
       ```

       Restriction: The user name and password for the Administration Center are already stored and you do not need to provide them again. If they are no longer valid, however, the uninstallation closes and you must uninstall

the Administration Center using the GUI or console method. The user name and password might be invalid if you installed other components or if you changed the password for the Administration Center.

3. Follow the prompts to uninstall Tivoli Storage Manager.

- To uninstall Tivoli Storage Manager using silent mode with a batch script, complete the following steps:

  Tip: If you do not use a batch script, this uninstallation method immediately closes the foreground window and runs in the background. You will not receive a return code.

  1. Create a file and name it `uninstall.bat`. The file name must end with .bat, not .bat.txt.
  2. Type this command into the uninstall.bat file and save it:
     ```
     "Uninstall Tivoli Storage Manager.exe" -i silent
     ```
  3. Double-click the uninstall.bat file or start it using a command prompt.
  4. If you are using a command prompt, after the uninstallation is complete, issue the following command to retrieve the return code:
     ```
     echo %ERRORLEVEL%
     ```

See Chapter 2, "Installing Tivoli Storage Manager," on page 11 for Tivoli Storage Manager Version 6.1 installation steps to reinstall the components.

Uninstalling and reinstalling Tivoli Storage Manager

If you plan to reinstall Tivoli Storage Manager, there are a number of steps to take to preserve your server instance names and database directories. During an uninstallation, any server instances you had set up are removed, but the database catalogs for those instances still exist.

To uninstall and reinstall Tivoli Storage Manager complete the following steps:

1. Make a list of your current server instances before proceeding to the uninstallation.
   a. Open Windows Services. Go to **Start** → **Programs** → **Administrative Tools** → **Services**
   b. Find your existing server instances by looking for DB2-TSMDB2 names, for example: DB2-TSMDB2-server1. Keep a record of each server name and each user ID associated with that server instance. The user ID is the name that is listed under **Log On As**.
2. Run the following command for every server instance:
   ```
   db2 attach to server1
   db2 get dbm cfg show detail
   db2 detach
   ```

   Keep a record of the database path for each instance.
3. Uninstall Tivoli Storage Manager. See Chapter 8, "Uninstalling Tivoli Storage Manager," on page 65.

   After uninstalling Tivoli Storage Manager, check the **Control Panel** → **Add or Remove Programs** to verify that Tivoli Storage Manager DB2 is uninstalled.
4. Reinstall Tivoli Storage Manager. See Chapter 2, "Installing Tivoli Storage Manager," on page 11.
5. Recreate your server instances. See "Creating the server instance" on page 21.

6. Catalog the database. Log in to each server instance as the instance user, one at a time, and issue the following commands:

```
set db2instance=server1
db2 catalog database tsmdb1
db2 attach to server1
db2 update dbm cfg using dftdbpath instance_drive
db2 detach
```

7. Verify that Tivoli Storage Manager recognizes the server instance by listing your directories. Your home directory will appear if you didn't change it. Your instance directory will appear if you used the configuration wizard. Issue this command:

```
db2 list database directory
```

   If you see TSMDB1 listed, you can start the server.

Appendix A. Services associated with the Tivoli Storage Manager server

When you start the Tivoli Storage Manager server as a service, other services automatically start. These services are associated with the database manager, DB2.

The following services are associated with the Tivoli Storage Manager server.

Service name	Purpose	Comments
TSM *Server_instance*	The service for the Tivoli Storage Manager server instance that is named *Server_instance*. For example: TSM Server1	Set the start and stop options for this service to start and stop the server instance automatically. Each server instance runs as a separate service.
DB2 - DB2TSM1 - *SERVER_INSTANCE*	The DB2 service for the server instance that is named *Server_instance*. For example: DB2 - DB2TSM1 - SERVER1	This service is automatically started when the service for the Tivoli Storage Manager server instance is started. The DB2 service is not stopped automatically when you stop the service for the server. The system has one of these services for each server-instance service that is started on the system.
DB2 Governor (DB2TSM1)	A DB2 service that is created at installation time, and is required for all server instances.	Do not change the options for this service.
DB2 License Server (DB2TSM1)	A DB2 service that is created at installation time, and is required for all server instances.	Do not change the options for this service.
DB2 Management Server (DB2TSM1)	A DB2 service that is created at installation time, and is required for all server instances.	Do not change the options for this service.
DB2 Remote Command Server (DB2TSM1)	A DB2 service that is created at installation time, and is required for all server instances.	Do not change the options for this service.

Appendix B. Accessibility features for Tivoli Storage Manager

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully. The major accessibility features of Tivoli Storage Manager are described in this topic.

Accessibility features

The following list includes the major accessibility features in Tivoli Storage Manager:

- Keyboard-only operation
- Interfaces that are commonly used by screen readers
- Keys that are discernible by touch but do not activate just by touching them
- Industry-standard devices for ports and connectors
- The attachment of alternative input and output devices
- User documentation provided in HTML and PDF format. Descriptive text is provided for all documentation images.

The Tivoli Storage Manager Information Center, and its related publications, are accessibility-enabled.

Keyboard navigation

The Tivoli Storage Manager for Windows Console follows Microsoft conventions for all keyboard navigation and access. Drag and Drop support is managed using the Microsoft Windows Accessibility option known as MouseKeys. For more information about MouseKeys and other Windows accessibility options, please refer to the Windows Online Help (keyword: MouseKeys).

Vendor software

Tivoli Storage Manager includes certain vendor software that is not covered under the IBM license agreement. IBM makes no representation about the accessibility features of these products. Contact the vendor for the accessibility information about its products.

Related accessibility information

You can view the publications for Tivoli Storage Manager in Adobe® Portable Document Format (PDF) using the Adobe Acrobat Reader. You can access these or any of the other documentation PDFs at the IBM Publications Center at http://www.ibm.com/shop/publications/order/.

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Glossary

A glossary is available with terms and definitions for the IBM Tivoli Storage Manager server and related products.

The glossary is located in the Tivoli Storage Manager Version 6.1 information center:
http://publib.boulder.ibm.com/infocenter/tsminfo/v6

Index

S

T

U

W

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