Tivoli Data Protection for Microsoft Exchange Server
Installation and User’s Guide
Version 2  Release 2
Third Edition (March 2001)

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About This Book

Tivoli Data Protection for Microsoft Exchange Server performs online backups of Microsoft Exchange Server databases to Tivoli Storage Manager (TSM) storage. This integration with the Microsoft Exchange Server application program interface (API) maximizes the protection of data, thus providing a comprehensive storage management solution.

Who Should Read This Publication

The target audience for this document are system installers and system administrators.

Before You Read This Publication

In this publication, it is assumed you know how to use a Windows NT or Windows 2000 Server and you understand the general concepts of the operating system. It is also assumed you know how to use and administer Microsoft Exchange Server.

The most significant change associated with Exchange 2000 Server is the relocation of the Directory database to the Windows 2000 Active Directory and the subdivision of the Information Store database into separately manageable storage groups. Unless specified, the term storage group is used throughout this document to represent an Exchange 2000 Server storage group, the Exchange Server 5.5 Directory, or the Exchange Server 5.5 Information Store.

Tivoli Data Protection for Microsoft Exchange Server must be installed on the same machine as Microsoft Exchange Server, and runs on Windows NT Server or Windows 2000 Server operating systems only.

Throughout this document, the term Windows refers to both Windows NT Server and Windows 2000 Server.
TSM is a separate client-server licensed product that provides
storage management services in a multi-platform computer
environment.

What This Publication Contains

The Tivoli Data Protection for Microsoft Exchange Server
Installation and User's Guide contains the following sections:

- Chapter 1, Overview
  This chapter provides an overview of Tivoli Data Protection for
  Microsoft Exchange Server.

- Chapter 2, Installing and Configuring
  This chapter explains the steps necessary to install and configure
  Tivoli Data Protection for Microsoft Exchange Server in a
  Windows NT or Windows 2000 environment.

- Chapter 3, Using the Graphical User Interface
  This chapter explains how to perform Tivoli Data Protection for
  Microsoft Exchange Server functions from a graphical user
  interface.

- Chapter 4, Using the Command Line Interface
  This chapter explains how to perform Tivoli Data Protection for
  Microsoft Exchange Server functions from a command line
  interface.

- Appendix A, Silent Installation
  This appendix explains how to install Tivoli Data Protection for
  Microsoft Exchange Server on multiple machines.

- Appendix B, Advanced Restore Procedures
  This appendix explains how to restore Exchange Server data that
  has been lost or destroyed.

- Appendix C, Using the TSM Scheduler
  This appendix explains how to use the TSM central scheduler
  service with Tivoli Data Protection for Microsoft Exchange
  Server to automate backups of Exchange Server data.

- Appendix D, Problem Determination Aids
  This appendix provides information on how to determine the
  cause of a problem should an error condition occur while using
  Tivoli Data Protection for Microsoft Exchange Server.
Appendix E, Client Messages
This appendix lists the messages that can appear in Tivoli Data Protection for Microsoft Exchange Server.

Glossary
The glossary contains terms and definitions relevant to Tivoli Data Protection for Microsoft Exchange Server.

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For support for this or any Tivoli product, you can contact Tivoli Customer Support in one of the following ways:

<table>
<thead>
<tr>
<th>Contact Method</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tivoli Storage Manager technical support Web site</td>
<td><a href="http://www.tivoli.com/support/storage_mgr/tivolimain.html">http://www.tivoli.com/support/storage_mgr/tivolimain.html</a></td>
</tr>
<tr>
<td>Submit a problem management record (PMR) using IBMSERV/IBMLINK</td>
<td><a href="http://www2.ibmlink.ibm.com">http://www2.ibmlink.ibm.com</a></td>
</tr>
<tr>
<td>Submit a problem management record (PMR) using the Internet</td>
<td><a href="http://www.tivoli.com/support">http://www.tivoli.com/support</a></td>
</tr>
<tr>
<td>E-mail</td>
<td><a href="mailto:support@tivoli.com">support@tivoli.com</a></td>
</tr>
<tr>
<td>Telephone (United States)</td>
<td>1-800-TIVOLI8 (1-800-848-6548)</td>
</tr>
<tr>
<td>Telephone (international)</td>
<td>Consult the Web site for customer support telephone numbers</td>
</tr>
<tr>
<td>Telephone for product numbers 5697-TS9, 5697-DRS or 5697-DPM</td>
<td>1-800-237-5511</td>
</tr>
</tbody>
</table>

You can review the Customer Support Handbook at the following URL: http://www.tivoli.com/support/handbook/

When you contact Tivoli Customer Support, be prepared to provide identification information for your company so that support personnel can readily assist you. Company identification information may also be needed to access various online services available on the Web site.

The support Web site offers extensive information, including:
Customer Support Handbook (a guide to support services).
- Frequently Asked Questions (FAQs).
- Documentation for all Tivoli products, including Release Notes, Redbooks, and Whitepapers.

The documentation for some product releases is available in both PDF and HTML formats. Translated documents are also available for some product releases. You can order documentation by e-mail at swdist@tivoli.com. Please provide the publication number, part number, or order number of the desired document. Alternatively, you can provide the document title, version number, and date of publication.

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- Complete our customer feedback survey at URL: http://www.tivoli.com/support/feedback

Conventions Used in This Book

This document uses the following typographical conventions:

<table>
<thead>
<tr>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>restore</td>
<td>Boldface type indicates a command that you type on a command line.</td>
</tr>
<tr>
<td>/logprune</td>
<td>Boldface type preceded by a forward slash indicates a command line parameter. The command line parameter can be a positional parameter or an optional parameter.</td>
</tr>
<tr>
<td>dateformat</td>
<td>Italic type indicates a variable used with a command line parameter. Occasionally, italic type is used to emphasize a term or concept.</td>
</tr>
</tbody>
</table>

Version 2 Release 2
Table 1. Typographical Conventions (continued)

<table>
<thead>
<tr>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refresh</td>
<td>Boldface type that begins with a capital letter indicates a button, tab, or file menu item you select or click on as in a graphical user interface.</td>
</tr>
<tr>
<td>dsm.opt</td>
<td>A series of bold italic lowercase letters with an extension indicates a filename.</td>
</tr>
<tr>
<td>PASSWORDACCESS</td>
<td>Upper case type indicates an option located in an option file or in the graphical user interface.</td>
</tr>
<tr>
<td>maxcmdretries</td>
<td>Monospaced type represents information as it would appear on a display screen, such as an example of a command line output. This type is also used to indicate a URL, Email address, or directory path.</td>
</tr>
</tbody>
</table>

Reading Syntax Diagrams

This section describes how to read the syntax diagrams used in this publication.

To read a syntax diagram, follow the path of the line. Read from left to right and top to bottom.

- The ➔ symbol indicates the beginning of a syntax diagram.
- The ➔ symbol at the end of a line indicates the syntax diagram continues on the next line.
- The ➔ symbol at the beginning of a line indicates a syntax diagram continues from the previous line.
- The ➔ symbol indicates the end of a syntax diagram.

Syntax items, such as a keyword or variable, can be:
- On the line (required element)
- Above the line (default element)
- Below the line (optional element)
Abbreviations

Uppercase letters denote the shortest acceptable truncation. If an item appears entirely in uppercase letters, it cannot be truncated.

You can type the item in any combination of uppercase or lowercase letters.

In this example, you can enter KEYWO, KEYWOR, or KEYWORD.

Simple Keyword

```
<KEYWORD>-----------------------------
```

Symbols

Enter these symbols exactly as they appear in the syntax diagram.

* Asterisk
{ Braces
: Colon
= Equal sign
- Hyphen
() Parentheses
. Period
Space

Variables

Italicized lowercase items (var_name) denote variables.

In this example, you can specify a var_name when you enter the KEYWORD command.

Simple Keyword

```
<KEYWORD>-----------------------------
```

Repetition

An arrow returning to the left means you can repeat the item.
Repetition

A character within the arrow means you must separate repeated items with that character.

Required Choices
When two or more items are in a stack and one of them is on the line, you must specify one item.

In this example, you must choose A, B, or C.

Optional Choice
When an item is below the line, that item is optional. In the first example, you can choose A or nothing at all.
When two or more items are in a stack below the line, all of them are optional. In the second example, you can choose A, B, C, or nothing at all.

Optional choice

---

**Defaults**

Defaults are above the line. The default is selected unless you override it. You can override the default by including an option from the stack below the line.

In this example, A is the default. You can override A by choosing B or C. You can also specify the default explicitly.

Optional choice

---

**Repeatable Choices**

A stack of items followed by an arrow returning to the left means you can select more than one item or, in some cases, repeat a single item.

In this example, you can choose any combination of A, B, or C.

Optional choice
Related Publications

You might need further assistance using Tivoli Storage Manager (TSM) after you have installed Tivoli Data Protection for Microsoft Exchange Server. The following publications provide additional information.

These publications are available online at the following URL: http://www.tivoli.com/support/storage_mgr/pubs/admanual.htm

Table 2. Related Publications

<table>
<thead>
<tr>
<th>Title</th>
<th>Order Number</th>
</tr>
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<tbody>
<tr>
<td>Tivoli Storage Manager for Windows Using the Backup-Archive Clients</td>
<td>SH26-4117</td>
</tr>
<tr>
<td>Tivoli Storage Manager Installing the Clients</td>
<td>SH26-4119</td>
</tr>
<tr>
<td>Tivoli Storage Manager for Windows NT Administrator’s Guide</td>
<td>GC35-0410</td>
</tr>
<tr>
<td>Tivoli Storage Manager for Windows Administrator’s Reference</td>
<td>GC35-0411</td>
</tr>
<tr>
<td>Managed System for SAN Storage Agent User’s Guide</td>
<td>GC35-0434</td>
</tr>
</tbody>
</table>
Overview

This section provides introductory information about Tivoli Data Protection for Microsoft Exchange Server (TDP for Exchange). Unless specified, the term storage group is used throughout this document to represent an Exchange 2000 Server storage group, the Exchange Server 5.5 Directory, or the Exchange Server 5.5 Information Store.

TDP for Exchange is an application that allows you to perform online backups and restores of Microsoft Exchange Server storage groups to Tivoli Storage Manager (TSM) storage using command-line or graphical user interfaces (GUI) on Windows NT or Windows 2000. Refer to your Exchange Server documentation for complete, detailed information regarding the backup and restore of Microsoft Exchange Servers.

New Support

TDP for Exchange Version 2 supports Microsoft Exchange Server 5.5 and Microsoft Exchange 2000 Server. TDP for Exchange Version 2 features automatic expiration and version control of backup objects by policy. These features are implemented using object naming conventions. As a result, users are no longer required to explicitly delete backup objects on the TSM server. However, users are required to have different management class settings in order to properly manage their backups. See "TDP for Exchange Version 2 Policy Recommendations" on page 26 for details on new policy management requirements.
Version Migration and Coexistence

TDP for Exchange Version 2 uses backup object and file space naming conventions that are different from those used by TDP for Exchange Version 1. As a result, TDP for Exchange Version 2 is completely incompatible with TDP for Exchange Version 1. You cannot query or restore backup objects created by one version with the other version.

**Both versions of TDP for Exchange can coexist with each other.** However, if you are storing backup objects created by TDP for Exchange Version 1, you must retain TDP for Exchange Version 1 for as long as you retain those backup objects. The TDP for Exchange Version 2 installation program will not replace any parts on TDP for Exchange Version 1.

No migration tool is provided to convert TDP for Exchange Version 1 command scripts to TDP for Exchange Version 2 syntax requirements.

It is recommended that separate node names be used for TDP for Exchange Version 1 and TDP for Exchange Version 2 due to different management class policies for each version. If you do not use separate node names, you must set the INCLUDE option in the dsms.opt files to bind all TDP for Exchange Version 1 backups and TDP for Exchange Version 2 backups to different management classes. Failure to properly configure management class settings can produce unpredictable results, such as backups being removed from TSM storage too early or not being removed at all. See “TDP for Exchange Version 2 Policy Recommendations” on page 26 and “TDP for Exchange Version 2 INCLUDE/EXCLUDE Processing” on page 27 for details.

It is strongly recommended that you DO NOT use both TDP for Exchange Version 1 and TDP for Exchange Version 2 backup procedures at the same time. Transaction log truncations from a backup performed on one version of TDP for Exchange may interfere with transaction logging on the other version of TDP for Exchange.
Note: It is strongly recommended that you analyze your backup and restore procedures to assess how and where TDP for Exchange Version 2 capabilities can best be applied BEFORE converting to TDP for Exchange Version 2.

TDP for Exchange Features

TDP for Exchange helps protect and manage Exchange Server data by making it easy to perform the following actions:

- Back up Exchange Server storage groups and transaction logs
- Maintain multiple versions of Exchange Server storage group and transaction log backups
- Restore storage group and transaction log backups and replay the transaction log files
- Automatically inactivate previous backups when a full backup is performed
- Automate scheduled backups (see “Using the TSM Scheduler” on page 115)
- Set automatic expiration of backup objects based on version limit and retention period (see “TDP for Exchange Version 2 Policy Recommendations” on page 26)
- Monitor results through the TDP for Exchange activity log and automatically prune the activity log
- Query any local Exchange Server or any connected TSM server for configuration information
- Participate in Microsoft Cluster Server (MSCS) fail-over environments (see “Running TDP for Exchange on a Microsoft Cluster Server (MSCS)” on page 12)
- Obtain online context-sensitive, task, and concept help (see “Online Help” on page 11)
- View online documentation for TDP for Exchange

Operating Environment

TDP for Exchange communicates with the TSM Server using the TSM application program interface (API) and with the Exchange Server using the Exchange API.
TDP for Exchange must be installed on the same machine as the Exchange Server. The TSM server may be on the same machine as the Exchange Server. TDP for Exchange must be able to connect to a TSM server (Version 3.7 or higher) running on any supported operating system platform. The TSM server does not need to run on Windows NT or 2000. TDP for Exchange also supports operations in an MSCS environment.

**TDP for Exchange Functions**

This section gives an overview of the following TDP for Exchange functions:

- Backup
- Restore

In addition, this section identifies security requirements, performance considerations, backup strategy considerations, and MSCS considerations.

**Exchange Server Backup**

A backup performed by TDP for Exchange creates a copy of an Exchange Server database or storage group on TSM server storage. The backup includes any associated transaction logs.

TDP for Exchange provides selection mechanisms and the logic required to back up and restore Exchange data. For example, when a backup operation is initiated, TDP for Exchange performs the following actions:

1. Begins a session with a TSM server.
2. Informs the Exchange Server a backup is about to begin.
3. Reads data from the Exchange Server and forwards this data to the TSM server.
4. Informs the Exchange Server the backup has completed.
5. Ends the TSM server session.
TDP for Exchange provides five types of backup:

**Full Backup**

A full backup backs up the specified storage group as well as its associated transaction logs. After the storage group and logs are *successfully* backed up, the log files are deleted. For Exchange 2000 Server, if any of the databases in the storage group are not mounted, the log files are *not* deleted.

**Incremental Backup**

An incremental backup only backs up transaction logs, and then deletes them. If the backup fails, the log files will not be deleted. Restoration of an Exchange Server storage group from an incremental backup requires the following:

- Restore of the last full backup
- Restore of any other incremental backups performed between the full backup and this incremental backup
- Restore of this incremental backup

For Exchange 2000 Server, if any of the databases in the storage group are not mounted, the log files are *not* deleted.

**Differential Backup**

A differential backup only backs up transaction logs, but does not delete them. If you perform a full backup and then perform only differential backups, the last full backup plus the latest differential backup has all data needed to bring the storage group back to the most recent state. This type of backup is also called a *cumulative incremental* backup.

Restoring an Exchange Server storage group from a differential backup requires the following:

- Restore of the last full backup
- Restore of this differential backup, but *no other* differential backups

**Copy Backup**

A copy backup is similar to a full backup except that transaction log files are not deleted after the backup. A copy backup is used to make a full backup of the Exchange
Server storage group without disrupting any backup procedures that use incremental or differential backups.

Database Copy Backup (Exchange 2000 Server only)
A database copy backup is a special type that backs up only the specified database as well as its associated transaction logs. The transaction log files are not deleted after the backup. A database copy backup is used to make a special full backup of the Exchange 2000 Server database without disrupting any backup procedures that use incremental or differential backups.

Note: When circular logging is enabled, you cannot use differential or incremental backups. This is because data loss could occur if the log wrapped before an incremental or differential backup is done. If you choose a backup strategy that involves incremental or differential backups, you must disable circular logging for the Exchange storage group from the Exchange Administrator program.

For more information on circular logging, see your Microsoft Exchange Server documentation.

Exchange Server Restore
A restore obtains backup copies of Exchange storage groups, databases, and transaction logs, and returns them to the Exchange Server.

For Exchange Server 5.5
The Exchange service corresponding to the storage group being restored must be stopped.

For Exchange 2000 Server
The Exchange store must be running but the databases being restored within the storage group must be dismounted.

For a restore, TDP for Exchange:
1. Exchange Server 5.5 prompts the user to either stop any running services (Exchange Directory, Information Store, or both) and
proceed with the restore operation or cancel the restore operation entirely. Exchange 2000 Server prompts the user to dismount the databases or cancel the restore operation entirely. This prompt occurs in the GUI only. Exchange Server 5.5 command line interface users must manually stop any running services. Exchange 2000 Server command line interface users must dismount necessary databases.

2. Starts a session with a TSM server.
3. Informs the Exchange Server that a restore is about to begin.
4. Restores the specified storage group(s) and logs from the TSM server. In a restore performed with Exchange 2000 Server, the logs are restored to a temporary location as specified by the user.
5. Informs the Exchange Server that the restore has completed. For Exchange 2000, at this point you have the option of:
   - starting recovery
   - mounting the databases (when recovery completes)
6. Ends the TSM server session.

Depending on the backup strategy you choose, restoring an Exchange storage group can involve restoring multiple backup objects from the TSM server. See [TDP for Exchange Backup Strategy Considerations](#) on page 8.

### TDP for Exchange Security

TDP for Exchange must be registered to the TSM server and use the appropriate node name and password when connecting to the TSM server. Standard TSM security requirements apply to TDP for Exchange.

For Exchange Server 5.5, TDP for Exchange must be running under an account that has Read/Write access to the local registry and has backup and restore authority to the Exchange Server.

For Exchange 2000 Server, TDP for Exchange must be running under an account that has Domain Administrator privileges.
TDP for Exchange Performance

Many factors can affect the backup and restore performance of your Exchange Server. Some of these, such as hardware configuration, network type, and capacity, are beyond the control of TDP for Exchange. These factors are not within the scope of this document. However, some parameters that are related to TDP for Exchange can be tuned for optimum performance.

Buffering

TDP for Exchange is a multithreaded application that uses asynchronous execution threads to transfer data between the Exchange servers and TSM servers. To accomplish this, multiple data buffers are used to allow one thread to receive data from one side, while another thread sends data to the other side. For example, one thread reads data from an Exchange Server while another thread sends data to the TSM server. The number and size of buffers that are allocated for this can be configured through the Settings dialog in the TDP for Exchange GUI. The number and size of buffers can also be specified in the BUFFERS and BUFFERSIZE parameters on the command line interface. For more information, see "Using the Command Line Interface" on page 43.

LAN Free


TDP for Exchange Backup Strategy Considerations

Depending on your specific requirements regarding network traffic, backup window, and acceptable restore times, you might choose to follow different backup strategies. It is important to completely understand all aspects of Exchange Server disaster recovery as well as backup considerations recommended by Microsoft. Refer to your Exchange Server documentation for this information.
Some commonly used strategies are described below:

**Full backups only**
This approach is best for Exchange Servers that are relatively small because each backup contains enough data to restore the entire storage group. Each backup takes longer to perform, but the restore process is the most efficient because only the most recent (or other appropriate) full backup needs to be restored.

**Full backup plus incremental backups**
This strategy is commonly used when the normal backup window or network capacity cannot support a full backup each time. In such cases, a periodic full backup followed by a series of incremental backups allows the backup window and network traffic to be minimized during peak usage times. For example, you can perform full backups on the weekend and incremental backups during the week. The full backups can be done during low usage times when a larger backup window and increased network traffic can be tolerated. The restore process becomes more complex, however, because a full backup, as well as subsequent incremental backups, must be restored. In addition, transactions within the logs must be applied which increases process time. As a result, the more transactions applied, the longer the recovery process.

If you use this backup strategy, you must decide whether the TSM storage management policies are modified, to ensure all incremental backups are stored together on the TSM server (collocated). This helps improve restore performance by reducing the number of media mounts necessary for restoring a series of incremental backups. See “TDP for Exchange Version 2 Policy Recommendations” on page 26 for more information.

**Full backup plus differentials**
This process provides an easier restore than the full plus incremental backup. This approach might be useful if your backup window and network capacity can handle the backup of all transaction logs that accumulate between full backups.
This is because it requires the transfer of only one differential plus the last full backup to accomplish a restore. However, the same amount of data must be transferred in the differential image, as in the series of incremental backups.

Therefore, a full backup plus differential backup policy increases network traffic and TSM storage usage. This assumes that the differential backups are performed with the same frequency as the incremental backups.

You should carefully consider whether there is sufficient advantage to justify the additional resource necessary to resend all prior transaction logs with each subsequent differential backup.

**Additional TDP for Exchange Backup Strategy Considerations**

The list below provides additional information to consider when choosing a backup strategy.

- If you choose a strategy that involves incremental or differential backups, circular logging must be disabled on the storage groups of the Exchange Server.

- You should not mix incremental and differential backups. Differential backups will only back up changes made since the last incremental backup. Incremental backups performed after differential backups contain all changes since the last incremental or full backup. Restores are more complicated when using a mixed strategy. You need to determine on an individual basis which transaction log backups (differential or incremental) to restore along with the full backup.

- TDP for Exchange provides backup and restore functions for the Exchange storage groups and associated transaction logs. TDP for Exchange does not provide a complete disaster recovery solution for an Exchange Server. In a disaster recovery situation, TDP for Exchange only backs up and restores the Exchange Server 5.5 Directory and Information Store or Exchange 2000 Server storage groups and databases. Other files need to be restored in a disaster recovery situation. You can obtain a
comprehensive disaster recovery solution by using TDP for Exchange with the TSM backup-archive client for Windows. Refer to your Microsoft Exchange Server documentation for a comprehensive discussion of disaster recovery considerations.

- Personal folders and personal address books that are stored on Exchange clients are not protected by TDP for Exchange. The TSM backup client can be used on the Exchange client platform to back up and restore these files. However, the Exchange client normally keeps these files locked when it is running. The Exchange client should be stopped before backing up or restoring these files.

- To restore an individual item such as a message, mailbox, or folder, use TDP for Exchange to restore the entire Private or Public Information Store (for Exchange Server 5.5) or database containing the desired mailbox or public folder (for Exchange 2000 Server) to an alternate Exchange Server. From the alternate Exchange Server, use the Exchange Administrator program to access and copy the item you want. See "Advanced Restore Procedures" on page 109 for details on performing this procedure.

With Microsoft Exchange Server, you can also use the item Recovery feature of the Exchange Client to recover messages and folders which are accidentally deleted. Exchange 2000 Server also provides a "deleted mailbox" feature to recover deleted mailboxes. For more information, see your Microsoft Exchange Server documentation.

**Online Help**

TDP for Exchange provides online help in addition to an online version of this *User’s Guide* in HTML and PDF format. Online help provides concept and reference information.
Running TDP for Exchange on a Microsoft Cluster Server (MSCS)

TDP for Exchange supports an Exchange Server running in an MSCS environment. Exchange Server 5.5 supports MSCS mode "Active/Passive" and Exchange 2000 Server supports MSCS mode "Active/Active." The list below provides information you should consider when running TDP for Exchange in an MSCS environment.

**Note:** References to the Exchange Server in this section pertain to the virtual Exchange Server name in an MSCS environment.

- TDP for Exchange must be installed on both nodes of the cluster. In addition, when installing TDP for Exchange, it must be installed on a disk local to each node (not a shared cluster disk).

- Use identical configurations in the TSM options file when configuring TDP for Exchange on each node of the cluster. You must specify CLUSTERNODE YES in the TDP for Exchange options file.

- When using the TSM scheduler for automating backups, you must install the scheduler service on both nodes of the cluster to enable failover support. See “Using the TSM Scheduler” on page 115 for more information.

- The TSM server treats backups as coming from a single server (the virtual Exchange server) regardless of the cluster node on which the backup was performed.

**Note:** If you are using Exchange Server 5.5 and performing a full recovery of your Exchange Cluster Server, consider the following:

- The Exchange Server virtual server name MUST be the same as the server to which you are restoring.

- The Exchange Server must be installed using the same organization and site name which was used prior to the restore operation.
After the restore is complete, the Windows Control Panel must be used to start the services instead of the Cluster Administrator.
Installing and Configuring

This section provides information on the client environment that must exist before you install TDP for Exchange. Detailed instructions are also provided on installing and setting up TDP for Exchange on a Windows NT or Windows 2000 server.

TDP for Exchange Environment Requirements

This section contains client environment information, including space and software requirements, that are required for the proper installation of TDP for Exchange.

Hardware Requirements

The approximate hardware requirements are:

- 8 MB of free disk space
- 48 MB of RAM (96 MB or more is highly recommended)
- Any Intel Pentium or equivalent 166 (or higher) processor

See the readme1st.txt file that is shipped on the product installation media for current information.
Operating System
The operating system required is Microsoft Windows NT Server (Server or Enterprise Edition) Version 4.0 with Service Pack 4 (SP4) or Microsoft Windows 2000 Server (Server, Advanced Server, Datacenter Server) with Service Pack 1 (SP1) or later. It is recommended you install the latest Windows service packs available from Microsoft.

Note: For Windows 2000, clustering capabilities are supported only by Advanced Server and Datacenter Server.

Software Requirements
TDP for Exchange currently supports the following

- Exchange Server 5.5 (Windows NT 4.0 with SP4 or later and Windows 2000 with SP1 or later)
- Exchange 2000 Server (Windows 2000 with SP1 or later)
- MSCS Active/Passive Configuration (Exchange Server 5.5)
- MSCS Active/Active Configuration (Exchange 2000 Server)

Microsoft Internet Explorer Version 4.01 (or later) is required to obtain online information such as product documentation and links to support Web sites.

TDP for Exchange communicates with a TSM Version 3.7 (or higher) server running on any supported operating system. A TSM server can reside on a different machine than TDP for Exchange.

The latest requirements for TDP for Exchange can be obtained at the following URL:
http://www.tivoli.com/support/storage_mgr/tivolimain.html
TSM clients and the latest PTFs can also be obtained at this site.

The TSM Backup/Archive Client for Windows must be installed in order to take advantage of TSM scheduling and a comprehensive disaster recovery plan.
Communication Protocols

TDP for Exchange supports the same communication methods as the installed level of the TSM API.

**Note:** When using the NetBIOS communication protocol on a secondary LAN adapter, specify LANADAPTER n where n represents the adapter number. Refer to the TSM server being used to determine which protocols it supports.

Installing and Configuring TDP for Exchange

These instructions step you through the installation of TDP for Exchange. Make sure to read the Installation Considerations section for important installation information.

The installation steps are:

- **Step 1**—Installing TDP for Exchange
- **Step 2**—Registering the client workstation with the TSM Server
- **Step 3**—Configuring TDP for Exchange (see [Step 3: Configuring the TDP for Exchange Options File](#) on page 19)

Installation Considerations

Consider the following installation information:

- See the readme1st.txt file.
- TDP for Exchange must be installed from an account having administrator privileges to the local system.
- Installing all TSM products and components into the same base directory is HIGHLY RECOMMENDED.
- To uninstall TDP for Exchange (Version 1 or Version 2), open the **Control Panel** on your Windows workstation and select the **Add/Remove Programs** item.

If no prior version of TDP for Exchange exists on the system:

- TDP for Exchange Version 2 installs to the default installation directory (Program Files\Tivoli\TSM\TDPExchange).
You can override the default installation directory and specify a different installation directory.
You cannot override sub-directory names.

If TDP for Exchange Version 1 exists on the system:
- TDP for Exchange Version 2 is installed into a different directory than TDP for Exchange Version 1.
  - The TDP for Exchange Version 1 default installation directory is: Program Files\Tivoli\TSM\MSExc.
- If you are storing backup objects created by TDP for Exchange Version 1, you must retain TDP for Exchange Version 1 for as long as you retain those backup objects.

**Step 1: Installing TDP for Exchange**

The following instructions assume that Windows NT Version 4.0 or Windows 2000 is running on the client workstation.

Follow these steps to install TDP for Exchange:

1. Insert the TDP for Exchange CD-ROM into the CD-ROM drive.
   - If autostart is not enabled, perform the following steps:
     a. Select **Run** from the Start menu.
     b. Enter `x:\setup` where `x` is your CD-ROM drive letter.
     c. Click **OK** to start the installation program.
2. Follow the installation instructions contained in the prompt windows.
3. Click **Finish** to complete the setup.

If you are installing TDP for Exchange in a Microsoft Cluster Server environment, repeat the installation procedure on the secondary node of your cluster.

**Step 2: Registering TDP for Exchange with a TSM Server**

Before you can begin requesting services from a TSM server, you must have a registered node name. After TDP for Exchange is registered with a TSM server, you can begin using TDP for Exchange to back up and restore your Exchange databases.
A TSM administrator must register TDP for Exchange as a client node with the server. Your TSM administrator can define a number of parameters for you. The following parameters are related to TDP for Exchange:

- **Your node name**
  
  *Note:* If you are running TDP for Exchange on a Microsoft Cluster Server, it is recommended that the node name match the Exchange virtual server name.

- **The initial password, if required**

- **The policy domain to which TDP for Exchange belongs;** see "TDP for Exchange Version 2 Policy Recommendations" on page 26 for more information about policy domains

- **TSM schedules**

- **Whether you are allowed to choose if files should be compressed before sending them to the server**

- **The TSM parameter, MAXNUMMP.** This parameter determines the maximum number of mount points a client node is allowed to use on the TSM server during a backup operation. See the **query node** command in the TSM Administrator’s Reference for more information regarding this parameter.

- **The TSM parameter, TXNGROUPMAX.** This parameter determines the number of files transferred as a group between the client and server between transaction commit points. The TXNGROUPMAX parameter MUST have a value of 12 or greater. See the TSM Administrator’s Reference for more information regarding this parameter.

**Step 3: Configuring the TDP for Exchange Options File**

Once TDP for Exchange is registered to TSM, several TDP for Exchange parameters need to be configured. The TSM administrator should have provided you with the node name, password, and the communications method with the appropriate parameters to connect to the TSM server.
These values, together with other parameters, are stored in an options file in the TDP for Exchange directory. The default options file name is `dsm.opt`. To modify the initial `dsm.opt` file, display `dsm.opt` using a text editor.

The options file includes the following parameters, which are required for initial configuration:

**NODename xxx**

The TSM node name is the unique name by which TSM knows the machine running TDP for Exchange.

**TSM server name (e.g. TCPServeraddress yyy)**

This is the name of the TSM server to which you backup Exchange databases.

**Communication Options (e.g. COMMethod TCPIp, TCPPort 1500)**

The communication protocols link the TDP for Exchange node with the TSM Server. TDP for Exchange supports the same set of communication protocols supported by other TSM clients on Win 32 platforms.

The following additional options are not required for initial configuration. By default they are not specified, but you can modify the default settings:

**PASSWORDAccess generate**

This option instructs the TSM API to store the current password (encrypted) in the Windows registry and automatically generates a new one when the current one expires. This method of password management is recommended when running scheduled, unattended backups since it ensures that the backup never fails because of an expired password. The default is PROMPT.

A utility program named `dsmcutil.exe` allows you to manage (update or display) the password as stored in the registry. This utility program is distributed with the TSM Backup-Archive Client package. For more information on using the `dsmcutil` program, see the `dsmcutil.hlp` file or the `dsmcutil.txt` file which are distributed with the TSM Backup-Archive Client package. TSM clients can be
This option instructs the TSM API to compress data before sending it to the TSM server; this reduces traffic and storage requirements. If you enable compression, it affects performance in two ways:

- CPU utilization is higher on the machine on which TDP for Exchange is running.
- Network bandwidth utilization is lower because fewer bytes are sent.
- Storage usage on the TSM server is reduced.

You may want to turn compression ON if any of the following conditions exist:

- The network adapter has a data overload.
- Communications between the TDP for Exchange and TSM server are over a low bandwidth connection.
- There is heavy network traffic.

Considerations:

It may be better to leave compression OFF in the following cases:

- The computer running TDP for Exchange has a CPU overload; the added CPU usage can impact other applications including the Exchange Server. You can monitor CPU and network resource utilization using the Performance Monitor program shipped with Windows.
- You are not constrained by network bandwidth; in this case, you can achieve the best performance by leaving compression OFF and enabling hardware compaction on the tape drive, which also reduces storage requirements.

Note: The TSM administrator can override the compression option setting for the TDP for Exchange node when registering or updating the node by specifying, on the TSM server side, that a particular node:

- Always uses compression.
Never uses compression.
- Leaves the decision up to the client (default value).

**CLUSTERnode yes**
This option directs the TSM API and TDP for Exchange to be cluster-aware when running in a MSCS environment. This option must be specified for TDP for Exchange to function properly on a MSCS.

**ENABLELANFREE YES**
This option allows TDP for Exchange to run in a LAN-free environment (if you are equipped to do so). To perform a LAN-free backup with TDP for Exchange, a TSM Storage Agent must be installed on the same machine and ENABLELANFREE YES must be specified in the options file. See *Managed System for SAN Storage Agent User’s Guide* for detailed information about LAN-free environments.

**Notes:**

1. If you are running TDP for Exchange on a Microsoft Cluster Server, the options file on both nodes of the cluster must be identical.

2. You can create additional TDP for Exchange options files to point to other TSM servers. You can also create more than one options file, each with different parameters, to use with a single TSM server.

**TDP for Exchange Configuration File**
TDP for Exchange configuration parameters are defined in the TDP for Exchange configuration file (*tdpexc.cfg* by default). You can set the values of the TDP for Exchange configuration parameters in three ways:

- The **Configuration** task in the **Edit Menu** of the TDP for Exchange GUI. See “Edit Menu” on page 32.

- The **tdpexc set** command in the TDP for Exchange Command Line Interface. See “TDPEXCC SET” on page 94.
- Edit the specified configuration file with a text editor.

**Considerations**
- The value of a configuration parameter specified on a command line invocation overrides (but does not change) the value of the configuration parameter specified in the TDP for Exchange configuration file.
- During a command line invocation that does not specify an overriding value for a configuration file parameter, the values in the default TDP for Exchange configuration file (tdpexc.cfg) are used.

**Configuration Parameters**
The list below contains the TDP for Exchange configuration parameters and their values:

**BUFFers\=numbuffers**
Specifies the number of data buffers to use for moving data between the Exchange Server and the TSM API. Value of numbuffers: 2 thru 8.

**BUFFERSIze\=buffersize**
Specifies the size of data buffers used to move data between the Exchange Server and the TSM API. Value of buffersize: 64 thru 8192 kilobytes (KB). The default value is 1024.

**DATEformat\=dateformatnum**
Specifies the format you want to use to display dates. Enter the format number that corresponds to the format you want to use:

1  MM/DD/YYYY. This is the default.
2  DD-MM-YYYY.
3  YYYY-MM-DD.
4  DD.MM.YYYY.
5  YYYY.MM.DD.
**LOGFile=logfile**

Specifies the name of the activity log file generated by TDP for Exchange. The `logfile` variable identifies the name of the activity log file. If the specified log file does not exist, a new log file is created. If the specified log file exists, new log entries are appended to the file. The `logfile` variable can include a fully-qualified path. However, if no path is specified, the log file is assigned to the TDP for Exchange installation directory.

**LOGPrune=numdays|No**

Specifies log pruning parameters. The `numdays` variable represents the number of days to save log entries. Value of `numdays`: 0 thru 9999. You can specify a value of `No` to disable log pruning. By default, log pruning is enabled, performed once per day, and 60 days of log entries are saved in the prune process.

**MOUNTWait=Yes|No**

Specifies whether TDP for Exchange should wait for removable media to mount (such as tapes or CD-ROMs) or to stop the current operation. This situation occurs when the TSM server is configured to store backup data on removable media and waits for a required storage volume to be mounted.

Specify `Yes` if a media mount is required in order to complete an operation. A `Yes` value instructs TDP for Exchange to wait for the media mounts to occur before completing the operation.

Specify `No` for TDP for Exchange to terminate the command (if removable media are required). An error message will display.
**NUMberformat=finnum**

Specifies the format you want to use to display numbers. Enter the format number that corresponds to the format you want to use.

1. n,n.nn.dd. This is the default.
2. n,n.nn,dd.
3. n nnn,dd
4. n nnn,dd.
5. n.nnn,dd
6. n’n’nn,dd

**TEMPLOGRESTorepath=path-name**

*This is for Exchange 2000 Server only.* Specifies the default temporary path to use when restoring logs and patch files. For best performance, the path specified in the *path-name* should be on a different physical device than the current active logger. If the *path-name* variable includes spaces, the entire TEMPLOGRESTorepath parameter entry must be placed in double quotes. For example:

TEMPLOGRESTorepath="c:\Program Files\file.log"

**TIMEformat=formatnumber**

Specifies the format in which you want system time displayed. Enter the format number that corresponds to the format you want to use.

1. HH:MM:SS This is the default.
2. HH,MM,SS
3. HH.MM,SS
4. HH:MM:SSA/P
TDP for Exchange Version 2 Policy Recommendations

TDP for Exchange Version 2 differs significantly from TDP for Exchange Version 1 in the manner backup objects stored on the TSM server are named. This difference allows exploitation of automatic, policy-based expiration capabilities provided by the TSM server. As a result, do not use TDP for Exchange Version 1 recommended management class parameters with TDP for Exchange Version 2. Use the following recommended policy settings for TDP for Exchange Version 2:

- TDP for Exchange stores all objects as backup objects on TSM in backup storage pools, so an archive copy group is not required, although an archive copy group can exist.
- Set the following copy group parameters as desired to define the version limit and retention periods for Exchange Server database backup objects:
  - Versions Data Exists
  - Versions Data Deleted
  - Retain Extra Versions
  - Retain Only Version

It is recommended that you discuss these parameters with your TSM Server Administrator in order to accomplish your backup strategy.

- You can accept default values for the following backup copy group parameters as they are not applicable to TDP for Exchange:
  - Copy mode
  - Copy serialization
  - Copy frequency

- Incremental backups are always uniquely named. As a result, incremental backups do not participate in expirations (due to version limit) because there is never more than one version of an incremental backup object. However, all backup objects for an Exchange Server storage group are inactivated when a new full backup of that Exchange Server storage group is performed. Therefore, the retention period set in the Retain Only Version parameter controls the expiration of incremental backup objects.
When setting the value of the Retain Only Version parameter for incremental backups, the value must be (at a minimum) as long as the value set for the full backup objects to which the incremental backups are associated. You can use the same management class for incremental backups and the full backup objects (that are retained the longest) to be sure an adequate value is used.

A single restore can require a full backup, a differential backup, and/or multiple incremental backups. It is recommended to use collocation if these backups are stored on removable media. Use collocation by filespace if you plan to restore multiple storage groups in parallel. This is recommended because all data for any one storage group is stored within one TSM Server filespace.

See your TSM administrator or see TSM for Windows Administrator's Guide for more information on defining or updating TSM policy domains and copy groups.

**TDP for Exchange Version 2 INCLUDE/EXCLUDE Processing**

A TDP for Exchange Version 2 backup object name is composed of a series of qualifiers, each either an Exchange name or a Tivoli Data Protection constant, where the qualifiers are separated by a backslash (\).

The general include/exclude syntax is:

- include "objectNameSpecification" [ManagementClassName]
- exclude "objectNameSpecification"

where `objectNameSpecification` is:

```
ExchangeServerName\ExchangeStorageGroupName\datatype\...\backupType
```

where `datatype` is one of the following:

- meta, data, logs

and `backupType` is one of the following:

- full, copy, incr, diff, dbcopy

- The wildcard character (*) matches zero or more characters.
- The wildcard character (?) matches any one character.
- The wildcard character (*) within a qualifier replaces zero or more characters only within that qualifier. The qualifier itself must exist in the matching object name. To match zero or more qualifiers, use ellipses (\...\).
- Incremental object names are always unique. These names contain qualifiers whose values make them unique. Incremental object names are generated at the time of the backup and therefore are not predictable and cannot be specified.
- Include/exclude lists are processed from the bottom up and processing stops at the first match. To ensure that more specific specifications are processed at all, the more general specification should be listed before the more specific ones, so as to be processed after the more specific specifications. Otherwise, the more general specification will match the target before the more specific specifications are seen.
- When a match is found, processing of the list stops and the statement that matches is examined.
  - If it is an exclude statement, the matching object name is not backed up.
  - If it is an include statement, the matching object name is backed up.

If the include statement contains a ManagementClassName, that management class is associated with the object name, for this backup and for all backups of the same name on the current node.
- If a match is not found, the object is backed up using the default management class for the current node.
- If a match is found for an include that specifies a management class but the specified management class is not valid for the current node, the default management class for the current node is used.
- Exchange storage group names must be of the correct case, as shown by the displayed results from the query exchange or query tsm. Tivoli Data Protection constants must be lower case: meta, data, logs. However, at this time the Windows TSM API assumes the specifications are for a Windows file system
and ignores case. Because they may be honored in the future, the correct case should always be used.

**INCLUDE/EXCLUDE Examples**

The following example excludes Storage Group 1 from a backup:

```plain
EXCLUDE "SERVER1\Storage Group 1\...\*
```

The following example binds all objects for storage group SG2 to management class CLASS1:

```plain
INCLUDE "SERVER1\SG2\...\*" CLASS1
```

The following example binds all Directory backups to management class CLASS2:

```plain
INCLUDE "SERVER2\Directory\...\*" CLASS2
```

The following example binds all incremental objects to management class CLASS3:

```plain
INCLUDE "SERVER3\...\incr" CLASS3
```
This section provides information on how to use the TDP for Exchange GUI to do the following:

- Back up Exchange storage groups and transaction logs
- Restore Exchange storage groups and transaction logs
- Modify the TDP for Exchange configuration
- Select short cuts from the TDP for Exchange Toolbar

**Note:** The term **Tree View** refers to the directory tree view in the left frame of a backup or restore window. The term **List View** refers to the scrollable list of objects in the right frame of a backup or restore window.

**GUI Overview**

The TDP for Exchange GUI consists of a main window with the following:

- Common menu bar
- Toolbar
- Backup window
- Restore window

Each of the backup and restore windows contain a directory tree and operation controls.
Menu Bar

The TDP for Exchange GUI Menu Bar consists of the following items and menu list functions:

File  Exit the program.
Edit  Configure TDP for Exchange. The default configuration settings are contained in the tdpexc.cfg file.
View  Refresh the Tree View.
Utilities  Change the TSM password or display TSM server information.
Help  Obtain TDP for Exchange help, view online books, TSM Web access, and information about TDP for Exchange.

Edit Menu

Configuration
This allows you to modify the TDP for Exchange configuration file. If a configuration file is not specified, the tdpexc.cfg file is used. If no configuration file is found, a default file is created which contains all the default settings for the options. A different configuration file can be specified by invoking the GUI from the command line with the /configfile parameter.

Clicking this menu item displays the TDP for Exchange Settings dialog with the following four tabs and their settings:

General
- Temporary Log Restore Path (Exchange 2000 Server only. If no path is specified, TDP for Exchange uses the TEMP environment variable.
- Wait for Tape Mounts for Backup or Restore (default value: selected)

Performance
- TDP Buffers (default value: 3)
- TDP Buffer Size (default value: 1024)
Logging
- Log File Name (default value: *tdpexc.log*)
- Prune Old Entries (default value: selected)
- Keep Old Entries for Last (default value: 60) Days
- Prune Now

Regional
- Date Format (default value: *mm/dd/yyyy*)
- Time Format (default value: *hh:mm:ss*)
- Number Format (default value: *xxx,xxx.dd*)

For specific considerations related to these configuration settings, see “TDPEXCC SET” on page 94.

View Menu

Refresh tree view

When the tree is refreshed, the GUI will:
- clear all selections
- clear all List View information for all Storage Groups
- rebuild the directory tree
- completely expand the directory tree

If you simply move back and forth between the Backup and Restore tabs without refreshing, you do not lose the current selections or Tree View. If you switch from the Restore tab to the Backup tab, perform a new backup, then switch back to the Restore tab, you must refresh the Restore directory tree to see the new backup.

Utilities Menu

Change TSM Password

This dialog prompts you to enter the old password, then enter the new password twice, in order to verify the new password. See “Other Commands” on page 90 for additional information.
TSM Server Information
This window displays the following TSM Server connection information:
- Nodename
- Server Network Host Name
- TSM API Version
- Server Name
- Server Type
- Server Version
- Compression Mode
- Domain Name
- Active Policy Set
- Default Management Class

Help Menu
- Online help information
- Books online; including this publication
- TSM Web Access
- About TDP for Exchange

Toolbar
The Toolbar provides short cuts to frequently used tasks such as:
- Refresh the Tree View
- Edit TDP for Exchange configuration
- Display TSM website links
- Online books
GUI Invocation

The following parameters can be entered at the time that the GUI is started:

/configfile

Specify this parameter to override the default TDP for Exchange configuration file (tdpexc.cfg).

For example, to specify the file.cfg configuration file located in the \temp\test directory during the GUI invocation, you would enter the following command in the TDP for Exchange command line interface:

tdpexc /CONFIGfile=c:\temp\test\file.cfg

/excserv

Specify this parameter to override the default Exchange server. The default Exchange server is the local Exchange server. IMPORTANT! If you are running TDP for Exchange in a MSCS, you MUST invoke the GUI with the /excserv parameter from the TDP for Exchange command line.

For example, to specify the Exchanger server exc1 during the GUI invocation, you would enter the following command in the TDP for Exchange command line interface:

tdpexc /EXCSERVer=exc1

/tsmoptfile

Specify this parameter to override the default TSM option file (dsm.opt).

For example, to specify the file.opt option file located in the \temp\test directory during the GUI invocation, you would enter the following command in the TDP for Exchange command line interface:

tdpexc /TSMOPTFile=c:\temp\test\file.opt
Backup and Restore Window

The TDP for Exchange Version 2 provides separate windows for backup and restore operations. Each window contains its own directory tree, list, and tab controls. In TDP for Exchange Version 1, the backup and restore contents of the directory tree did not change.

Considerations

- The backup window is the initial window visible upon startup of the GUI.
- You cannot close, minimize, or move the backup or restore window independently of the main GUI window.

Highlighting and Selecting

- When an item is highlighted in the Tree, information about all the items one level under the highlighted item is displayed in the List View. For example, if a Storage Group is highlighted in the Restore Tree, all TSM backups for that Storage Group are displayed in the List View.

  The following list contains exception

  - If the Site, Organization, or Domain name is highlighted in the Backup Tree, information about the Site, Organization, or Domain, Exchange server, and version level are displayed in the List View.
  - If the Information Store item for an Exchange 2000 Server is highlighted in the Backup Tree, the List View displays status for all Storage Groups and associated Databases.
  - If the server name is highlighted in the Restore Tree, the List View displays all Storage Groups and their backups (indented under the Storage Group).

- Highlighting the List View has no effect.

- To select an item for backup or restore, click on the square selection box to the left of the item name. Clicking on a selection box in the Tree will also highlight that item, displaying associated information in the List View.
Double-clicking on a selection box in the Tree will select that item and collapse or expand the Tree at that point. An item can be selected from both the Tree and the List View.

If a selection box contains an "X", the selection is disabled for that item. You can still backup or restore the item. For example:

- If you select the Information Store item from the tree on an Exchange 5.5 server, the Private and Public items will be displayed in the List View with disabled selection boxes. Because the Information Store item is selected, the entire Information Store will be backed up. The Private and Public items cannot be individually backed up, so their selection boxes are disabled.

- If a Storage Group item has a disabled selection box in the Tree and all the List View items also have disabled selection boxes, then those items cannot be selected for backup or restore. This can happen only if you have an empty TSM filesystem.

See the restore option **Auto Select** for additional information on selecting items in the Tree and List View.

Note that some selectable items, such as inactive TSM Backups, can only be selected in the List View.

**Messages**

Please be aware of the following IMPORTANT messages when performing backup or restore operations:

- Selecting multiple Copy, Full, or Database Copy backups, or any combination of these backups, for restore, a warning message will ask you if you want to continue. If you continue, all backups will be restored but only the latest backup will take affect. All the time spent restoring the earlier backups will be wasted.

- When you request a backup to be restored, TDP for Exchange will first check to make sure any associated Exchange Server 5.5 services have been stopped or that any associated Exchange 2000 Server Databases have been dismounted. If they have not,
you will be prompted to stop them or cancel the restore. After a restore for an Exchange Server 5.5, you will need to restart the services from outside TDP for Exchange. After a restore for an Exchange 2000 Server, you can check the Mount Databases After Restore option, or mount them from outside TDP for Exchange.

### Backing Up Exchange Storage Groups

Perform the following steps to back up an Exchange Server storage group:

1. Start the TDP for Exchange GUI.

   **Note:** IMPORTANT! If you are running TDP for Exchange in a MSCS, you MUST invoke the GUI with the `/excserver` parameter from the TDP for Exchange command line.

2. From the Tree View, select one or more storage groups or databases to back up. You can also select one or more storage groups or databases to back up in the List View.

3. Select the type of backup to perform.

   **Note:** A Database Copy backup is only available when backing up an Exchange 2000 Server.

4. Click on the **Backup** button to begin the backup operation.

### Restoring Exchange Storage Groups

When you restore a storage group, be aware that data which exists in the storage group is overwritten and is no longer available after the restore is complete.

Perform the following steps to restore an Exchange server storage group:

1. Start the TDP for Exchange GUI.
2. Click on the **Restore** tab.
3. From the Tree View, select the Exchange server storage group to restore. To restore a particular database, first highlight the storage group in the Tree View. Then select the database to be restored.
in the List View. To restore all available storage groups and databases, highlight the Exchange server in the Tree View.

4. Select the appropriate restore options. These options are based on the version of Exchange server you are restoring.

5. Click on the Restore button to begin the restore operation.

**Restore Options**

**Run Recovery**
(Exchange 2000 Server only) Select this option to determine whether your restore will **Replay Restored AND Current Logs** or **Replay Restored Logs ONLY**. The default value is to **Replay Restored AND Current Logs**.

**Note:** If you do not run recovery, the storage group will remain in a state where the databases are unmountable.

**Mount Database After Restore**
(Exchange 2000 Server only) Select this option to automatically mount databases within the storage group after the recovery completes.

**Erase Existing Logs**
(Exchange Server 5.5 only) Select this option to erase existing transaction log files for the database **before** the restore operation begins.

**Show:** Select this option to determine whether the List View displays **Only Active Objects** or both active and inactive objects (**All Objects**). The default value is to display **Only Active Objects** in the List View. When the **Show** option is first selected, TDP for Exchange:
- Queries the TSM server for both active and inactive objects.
- Clears the view tree of any selections.
- Returns the view tree to an initial state after the query.

**Auto Select**
Select this option to quickly select the backup objects to restore. When **Auto Select** is off, you must click on all options to select them.
objects to be restored. When Auto Select is on (the default value), additional selections are automatically made as you click.

The following is characteristic of Auto Select:

- Operates when you click on a FULL, DIFFERENTIAL, or INCREMENTAL backup in the List View. Auto Select also operates when you click on a storage group or server name in the Tree View.
- Ignores COPY and DATABASE COPY backups.
- If you click on a FULL backup, the latest associated DIFFERENTIAL or all associated INCREMENTAL backups are selected.
- If you click on a DIFFERENTIAL backup, the associated FULL backup is also selected.
- If you click on an INCREMENTAL backup, the associated FULL backup and all associated earlier INCREMENTAL backups are also selected.
- Operates when you de-select a FULL, DIFFERENTIAL, INCREMENTAL, storage group, or server name.

Auto Select will not make additional selections in the following two situations:

- If a combination of DIFFERENTIAL and INCREMENTAL backups exist for a FULL backup. For example, if you clicked on a FULL backup that had associated INCREMENTAL and DIFFERENTIAL backups, only the FULL backup is selected.
- If a DIFFERENTIAL or INCREMENTAL backup is selected and no associated FULL backup can be found.

To override the characteristics of Auto Select, uncheck the Auto Select checkbox and manually select what you need.
TDP for Exchange in a MSCS Environment

Consider the following information when running TDP for Exchange in a MSCS environment:

- The GUI MUST be invoked from the command line with the `/excserver` parameter. For example, if the Exchange virtual server name on the Microsoft Cluster is `exc1`, the command line entry (GUI invocation) is:
  
  `tdpexc /excserver=exc1`

- The Start menu shortcut for the TDP for Exchange GUI application MUST be modified. Modify the Start menu shortcut for the TDP for Exchange GUI application by performing the following steps:
  1. Right-mouse click on the TDP for Exchange GUI icon.
  2. Select Properties.
  3. Select Shortcut.
  4. Enter the following text in the Target window:

     "C:\Program Files\Tivoli\TSM\TDPMExchange\tdpexc.exe /excserver=exc1"

     where TDP for Exchange is installed in the default installation directory and the Exchange virtual server name is `exc1`. 

Using the Command Line Interface

This chapter describes how to use the TDP for Exchange command line interface. Each command includes a syntax diagram and a description. See “Reading Syntax Diagrams” on page xvii for more information.

The next section is an overview of the command line interface. The commands are described in the following categories:

- Query
- Backup
- Restore
- Changetsmpassword
- Set
- Help

The TDP for Exchange command line interface can also be used when scheduling automatic backups of Exchange databases. See “Using the TSM Scheduler” on page 115 for a discussion of using the TSM scheduler with TDP for Exchange.
Overview

The name of the TDP for Exchange command line interface is `tdpexcc.exe`. This program is located in the directory where TDP for Exchange is installed.

The command line parameters have the following characteristics:
- positional parameters do not include a leading slash (/) or dash (-)
- optional parameters can appear in any order after the required parameters
- optional parameters begin with a forward slash (/) or a dash (-)
- minimum abbreviations for keywords are indicated in upper case text
- some keyword parameters require a value
- for those keyword parameters that require a value, the value is separated from the keyword with an equal sign (=)
- if a parameter requires more than one value after the equal sign, the values are separated with commas
- each parameter is separated from the others by using spaces
- if a parameter’s value includes spaces, the value must be enclosed in double quotes
- a positional parameter can appear only once per command invocation

Issue the `tdpexcc ?` or `tdpexcc help` command to display help for the command line interface.
Query Commands

There are three basic query commands: one command for the Exchange Server, one command to view TDP for Exchange configuration information, and one command for the TSM server. The query commands allow you to:

- Query the status of the local Exchange Server
- Query a list of TDP for Exchange configuration information
- Query a list of Exchange backups in TSM storage and TSM server connection information.

TDPEXCC QUERY EXCHANGE

Use this command to query the local Exchange Server for general information.

The `query exchange` command returns the following information for Exchange Server 5.5:

- Version and level of the Exchange Server
- Organization, Site, and Server Names
- Status of the Directory and Information Store services and whether circular logging is enabled

The `query exchange` command returns the following information for Exchange 2000 Server:

- Version and level of the Exchange Server
- Domain and Server Names
- Storage groups and all database names with status of each
- Whether the storage group has circular logging enabled
Optional Parameters

/CONFIGfile=filename

Use the /configfile parameter to specify the name of the TDP for Exchange configuration file that contains the values for the TDP for Exchange configuration options. See “TDPEXCC SET” on page 94 for details about the contents of the file.

The filename variable can include a fully qualified path. If the filename variable does not include a path, the TDP for Exchange installation directory is used.

Considerations

- If the filename variable includes spaces, the entire /configfile parameter entry must be placed in double quotes. For example:
  /CONFIGfile="c:\Program Files\file.cfg"

- If the /configfile parameter is not specified, the default value is tdpexc.cfg.
If the `/configfile` parameter is specified but the `configfilename` variable is not specified, the default value is `tdpexc.cfg`.

/EXCSERVer=server-name

Use the `/excserver` parameter to specify the name of the Exchange Server to query.

The `server-name` variable specifies the name of the Exchange Server to query.

Considerations

- If the Exchange Server to query is a member of a Microsoft Cluster Server, this parameter must be specified and should be set to the name of the Exchange virtual server.
- The default value is the local Exchange Server.

/LOGFile=logfilename

Use the `/logfile` parameter to specify the name of the activity log file generated by TDP for Exchange.

The `logfilename` variable identifies the name of the activity log file.

If the specified log file does not exist, a new log file is created. If the specified log file exists, new log entries are appended to the file. The `logfilename` variable can include a fully-qualified path. However, if no path is specified, the log file is written to the TDP for Exchange installation directory.

If the `logfilename` variable includes spaces, the entire `/logfile` parameter entry must be placed in double quotes. For example:

```
/LOGFile="c:\Program Files\mytdpexchange.log"
```

If the `/logfile` parameter is not specified, log records are written to the default log file, `tdpexc.log`.

The `/logfile` parameter cannot be turned off. You always get logging.
/LOGPrune=numdays|No

Use the /logprune parameter to disable log pruning or to explicitly request a prune of the log for one command run. By default, log pruning is enabled and performed once per day. The numdays variable represents the number of days to save log entries. By default, 60 days of log entries are saved in the prune process. You can use the TDP for Exchange GUI or the set command to change the defaults so that log pruning is disabled, or so that more or less days of log entries are saved. The command line user may use the /logprune parameter to override these defaults for one command run. Note that when the value of the /logprune variable numdays is a number in the range 0 to 9999, a prune is performed even if one has already been performed for the day.

Examples

Example 1

The tdpxecc query exchange command queries the Exchange server. An example of the output when this command is performed on Exchange Server 5.5 is displayed below.

Tivoli Storage Manager
Tivoli Data Protection for Microsoft Exchange Server
Version 2, Release 2, Level 0.0
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Microsoft Exchange Server Information
-------------------------------------

Organization Name: IBM
Site Name: SHEBADOMAIN
Server Name: KRISTINAGEOFF
Exchange Server Version: 5.5.1960.5

Directory: Running (circular logging disabled)
Information Store: Running (circular logging disabled)
Example 2

The `tdpexcc query exchange` command queries the Exchange server. An example of the output when this command is performed on Exchange 2000 Server is displayed below.

Tivoli Storage Manager
Tivoli Data Protection for Microsoft Exchange Server
Version 2, Release 2, Level 0.0
(C) Copyright IBM Corporation 1998, 2001. All rights reserved.

Microsoft Exchange Server Information
---------------------------------------
Server Name: KEYWEST
Domain Name: HANGTEN.tdp.endicott.ibm.com
Exchange Server Version: 6.0.4417.0

Storage Groups with Databases and Status
----------------------------------------
First Storage Group
Circular Logging - Disabled
  Public Folder Store (KEYWEST) Online
  Mailbox Store (KEYWEST) Online

sg3.sg3
Circular Logging - Disabled
  A Public Store Online
  AMAILBOX Online
  DB3 Online
  DB4 Online

XYZ ABC
Circular Logging - Disabled
  INNOMP Online
  new mail Online

New Storage Group
Circular Logging - Enabled
  A MailBox Offline
TDPEXCC QUERY TDP

Use this command to query a list of the current values set in the configuration file for TDP for Exchange.

Syntax

```
TDPEXCC Query TDP
```

```
/CONFIGfile=
```

```
/LOGFile=
```

```
/LOGPrune=
```

Optional Parameters

```
/CONFIGfile=filename
```

Use the /configfile parameter to specify the name of the TDP for Exchange configuration file that contains the values for the TDP for Exchange configuration options. See “TDPEXCC SET” on page 94 for details about the contents of the file.

The configfilename variable can include a fully qualified path. If the configfilename variable does not include a path, the TDP for Exchange installation directory is used.

Considerations

- If the configfilename variable includes spaces, the entire /configfile parameter entry must be placed in double quotes. For example:
  ```
  /CONFIGfile="c:\Program Files\file.cfg"
  ```

- If the /configfile parameter is not specified, the default value is tdpexc.cfg.

- If the /configfile parameter is specified but the configfilename variable is not specified, the default value is tdpexc.cfg.
Use the /logfile parameter to specify the name of the activity log file generated by TDP for Exchange.

The logfilename variable identifies the name of the activity log file.

If the specified log file does not exist, a new log file is created. If the specified log file exists, new log entries are appended to the file. The logfilename variable can include a fully-qualified path. However, if no path is specified, the log file is written to the TDP for Exchange installation directory.

If the logfilename variable includes spaces, the entire /logfile parameter entry must be placed in double quotes. For example:

/LOGFile="c:\Program Files\mytdpexchange.log"

If the /logfile parameter is not specified, log records are written to the default log file, tdpexc.log.

The /logfile parameter cannot be turned off. You always get logging.

Use the /logprune parameter to disable log pruning or to explicitly request a prune of the log for one command run. By default, log pruning is enabled and performed once per day. The numdays variable represents the number of days to save log entries. By default, 60 days of log entries are saved in the prune process. You can use the TDP for Exchange GUI or the set command to change the defaults so that log pruning is disabled, or so that more or less days of log entries are saved. The command line user may use the /logprune parameter to override these defaults for one command run. Note that when the value of the /logprune variable numdays is a number in the range 0 to 9999, a prune is performed even if one has already been performed for the day.
Example

The tdpexc query tdp command queries the values set in the TDP for Exchange configuration file. An example of the output is displayed below.

Tivoli Storage Manager
Tivoli Data Protection for Microsoft Exchange Server
Version 2, Release 2, Level 0.0
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TDP for Microsoft Exchange Preferences
--------------------------------------

BUFFers ............................ 3
BUFFERSIze .......................... 1024
DATEformat .......................... 4
LOGFile ............................ tdpexc.log
LOGPrune ........................... 60
MOUNTWait .......................... Yes
NUMBERformat ....................... 2
TEMPLOGRESTOREPath ................. d:xxx
TIMEformat .......................... 3
TDPEXCC QUERY TSM

Use this command to query TSM for information about the TSM API and the TSM server. This command can also display a list of backups that are stored on the TSM server that match the storage groups entered. Active and inactive objects can be displayed.

By default, only the active backup objects are displayed. To include inactive backup versions in the list, use the /all optional parameter.

**Syntax**

```
TDPEXCC Query TSM
  -FULL
  -COPY
  -INCREMENTAL
  -DIFFERENTIAL
  -DBCopy-db-name

  /ACTIVE
  /ALL

  /CONFIGfile=configfilename

  /FROMEXCServer=server-name

  /LOGFile=logfilename
  /LOGPrune=numdays

  /TSMNODE=tsmnodename
```
Positional Parameters

The following positional parameters specify the object to query. If none of these positional parameters are specified, only the TSM API and TSM server information is displayed:

* | DIR | IS | sg-name

* Query all backup objects for all storage groups

DIR Query all Directory backup objects (Exchange Server 5.5 only)

IS Query all backup objects (Exchange Server 5.5 only)

sg-name Query all backup objects for the specified storage group. Multiple entries are separated by commas. For Exchange Server 5.5, sg-name represents the DIR and IS storage groups.

The following positional parameters specify the type of backup to query. If this parameter is not specified, all backup types will be displayed:

FULL | COPY | INCReMental | DIFFerentical | DBCopy db-name

FULL Query only Full backup types

COPY Query only Copy backup types

INCReMental Query only Incremental backup types
DIFFerential
Query only Differential backup types

DBCopy db-name
Query only database copy backups for database db-name. This is only available on Exchange 2000.

Optional Parameters

/ACTIVE
Use the /active parameter to display active backup objects only. This is the default.

/ALL
Use the /all parameter to display both active and inactive backup objects. If the /all parameter is not specified, only active backup objects are displayed.

/CONFIGfile= configfilename
Use the /configfile parameter to specify the name of the TDP for Exchange configuration file that contains the values for the TDP for Exchange configuration options. See "TDPEXCC SET" on page 94 for details about the contents of the file.

The configfilename variable can include a fully qualified path. If the configfilename variable does not include a path, the TDP for Exchange installation directory is used.

Considerations

- If the configfilename variable includes spaces, the entire /configfile parameter entry must be placed in double quotes. For example:
  /CONFIGfile="c:\Program Files\file.cfg"

- If the /configfile parameter is not specified, the default value is tdpxc.cfg.

- If the /configfile parameter is specified but the configfilename variable is not specified, the default value is tdpxc.cfg.
/FROMEXCSERVer=server-name
Use the /fromexcserver parameter to specify the name of the Exchange Server where the original backup was performed.

The default is the local Exchange Server. However, you must specify the name if the Exchange Server is not the default or is a member of an MSCS.

/LOGFile=logfilename
Use the /logfile parameter to specify the name of the activity log file generated by TDP for Exchange.

The logfilename variable identifies the name of the activity log file.

If the specified log file does not exist, a new log file is created. If the specified log file exists, new log entries are appended to the file. The logfilename variable can include a fully-qualified path. However, if no path is specified, the log file is written to the TDP for Exchange installation directory.

If the logfilename variable includes spaces, the entire /logfile parameter entry must be placed in double quotes. For example:

/LOGFile="c:\Program Files\mytdpexchange.log"

If the /logfile parameter is not specified, log records are written to the default log file, tdexc.log.

The /logfile parameter cannot be turned off. You always get logging.

/LOGPrune=numdays|No
Use the /logprune parameter to disable log pruning or to explicitly request a prune of the log for one command run. By default, log pruning is enabled and performed once per day. The numdays variable represents the number of days to save log entries. By default, 60 days of log entries are saved in the prune process. You can use the TDP for Exchange GUI or the set command to change the defaults so that log pruning is disabled, or so that more or less days of log...
entries are saved. The command line user may use the 
/logprune parameter to override these defaults for one command run. Note that when the value of the /logprune variable numdays is a number in the range 0 to 9999, a prune is performed even if one has already been performed for the day.

/TSMNODE=tsmnodename
The tsmnodename variable refers to the TSM node name TDP for Exchange uses to log on to the TSM server. You can also store the node name in the TSM options file. The command line parameter overrides the value in the TSM options file if PASSWORDACCESS is set to PROMPT. This parameter is not valid when PASSWORDACCESS is set to GENERATE.

/TSMOPTFile=tsmoptfilename
The tsmoptfilename variable identifies the TDP for Exchange options file.

The file name can include a fully qualified path name. If no path is specified, the directory where TDP for Exchange is installed is searched.

If the tsmoptfilename variable includes spaces, the entire /tsmoptfile parameter entry must be placed in double quotes.
For example:
/TSMOPTFile="c:\Program Files\file.opt"

The default is dsm.opt.

/TSPassword=tsmpassword
The tsmpassword variable refers to the TSM password TDP for Exchange uses to log on to the TSM server. If you specified PASSWORDACCESS GENERATE in the TDP for Exchange options file, then the password need not be provided here because the one stored in the registry is used. However, in order to store the password in the registry, you must specify the TSM password the first time TDP for Exchange connects to the TSM server.
If you do specify a password on the command line when PASSWORDACCESS GENERATE is in effect, then the command line value is ignored unless the password for this node has not yet been stored in the registry. In that case, the specified password is the one that is stored in the registry and used for the current command execution.

If PASSWORDACCESS PROMPT is in effect, and a password value is not specified on the command line, then you are prompted for a password.

The TSM password TDP for Exchange uses to log on to the TSM server can be up to 63 characters in length.

**Examples**

**Example 1**

The tdpexcc query tsm command displays information about the TSM API and TSM server. An example of the output is displayed below.

Tivoli Storage Manager
Tivoli Data Protection for Microsoft Exchange Server
Version 2, Release 2, Level 0.0
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Tivoli Storage Manager Server Connection Information
---------------------------------------------

Nodename ......................... DENISEEXCHANGE
NetWork Host Name of Server ............... HANGTEN.ENDICOTT.IBM.COM
TSM API Version ...................... Version 4, Release 1, Level 2

Server Name ......................... HANGTEN
Server Type ........................ Windows NT
Server Version ...................... Version 3, Release 7, Level 4.0
Compression Mode ..................... Client Determined
Domain Name ......................... STANDARD
Active Policy Set .................... STANDARD
Default Management Class .............. STANDARD
**Example 2**

The `tdpexcc query tsm * /all` command displays information about the list of backups on the TSM server. An example of the output when this command is performed on Exchange Server 5.5 is displayed below.

_Tivoli Storage Manager_  
_Tivoli Data Protection for Microsoft Exchange Server_  
_Version 2, Release 2, Level 0.0_  
_(C) Copyright IBM Corporation 1998, 2001. All rights reserved._

```
 Backup List

---

**Exchange Server: KRISTINAGEOFF**

<table>
<thead>
<tr>
<th>Backup Date</th>
<th>Size</th>
<th>A/I</th>
<th>B/U Type</th>
<th>Object Name/Database Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/12/2001</td>
<td>12:48:20</td>
<td>8,208.17KB</td>
<td>I</td>
<td>full</td>
</tr>
<tr>
<td>01/12/2001</td>
<td>15:46:39</td>
<td>8,208.17KB</td>
<td>I</td>
<td>copy</td>
</tr>
<tr>
<td>01/13/2001</td>
<td>11:46:09</td>
<td>10.00MB</td>
<td>I</td>
<td>incr</td>
</tr>
<tr>
<td>01/15/2001</td>
<td>09:40:03</td>
<td>8,208.17KB</td>
<td>A</td>
<td>full</td>
</tr>
</tbody>
</table>

**Storage Group: Information Store**

<table>
<thead>
<tr>
<th>Backup Date</th>
<th>Size</th>
<th>A/I</th>
<th>B/U Type</th>
<th>Object Name/Database Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/12/2001</td>
<td>12:48:33</td>
<td>8,200.28KB</td>
<td>I</td>
<td>full</td>
</tr>
<tr>
<td>01/13/2001</td>
<td>11:59:39</td>
<td>10.00MB</td>
<td>I</td>
<td>incr</td>
</tr>
<tr>
<td>01/14/2001</td>
<td>11:59:25</td>
<td>10.00MB</td>
<td>I</td>
<td>incr</td>
</tr>
<tr>
<td>01/15/2001</td>
<td>09:40:18</td>
<td>7,200.28KB</td>
<td>A</td>
<td>full</td>
</tr>
<tr>
<td>01/15/2001</td>
<td>12:03:51</td>
<td>10.00MB</td>
<td>A</td>
<td>incr</td>
</tr>
</tbody>
</table>
```
Example 3

The `tdpexcc query tsm * /all` command displays information about the list of backups on the TSM server. An example of the output when this command is performed on Exchange 2000 Server is displayed below.

Tivoli Storage Manager
Tivoli Data Protection for Microsoft Exchange Server
Version 2, Release 2, Level 0.0
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<table>
<thead>
<tr>
<th>Backup Date</th>
<th>Size</th>
<th>A/I</th>
<th>B/U Type</th>
<th>Object Name/Database Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/05/2001 11:41:46</td>
<td>16.05MB</td>
<td>I</td>
<td>full</td>
<td>20010105114146</td>
</tr>
<tr>
<td></td>
<td>7,184.37KB</td>
<td></td>
<td></td>
<td>Mailbox Store (KEYWEST)</td>
</tr>
<tr>
<td></td>
<td>4,112.36KB</td>
<td></td>
<td></td>
<td>Public Folder Store (KEYWEST)</td>
</tr>
<tr>
<td>01/05/2001 11:42:18</td>
<td>16.05MB</td>
<td>A</td>
<td>full</td>
<td>20010105114218</td>
</tr>
<tr>
<td></td>
<td>7,184.37KB</td>
<td></td>
<td></td>
<td>Mailbox Store (KEYWEST)</td>
</tr>
<tr>
<td></td>
<td>4,112.36KB</td>
<td></td>
<td></td>
<td>Public Folder Store (KEYWEST)</td>
</tr>
</tbody>
</table>

Storage Group : New Storage Group

<table>
<thead>
<tr>
<th>Backup Date</th>
<th>Size</th>
<th>A/I</th>
<th>B/U Type</th>
<th>Object Name/Database Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/05/2001 11:41:52</td>
<td>10.02MB</td>
<td>I</td>
<td>full</td>
<td>20010105114152</td>
</tr>
<tr>
<td></td>
<td>5,136.49KB</td>
<td></td>
<td></td>
<td>A MailBox</td>
</tr>
<tr>
<td>01/05/2001 11:42:23</td>
<td>10.02MB</td>
<td>A</td>
<td>full</td>
<td>20010105114223</td>
</tr>
<tr>
<td></td>
<td>5,136.49KB</td>
<td></td>
<td></td>
<td>A MailBox</td>
</tr>
</tbody>
</table>

Storage Group : sg3.sg3

<table>
<thead>
<tr>
<th>Backup Date</th>
<th>Size</th>
<th>A/I</th>
<th>B/U Type</th>
<th>Object Name/Database Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/05/2001 12:05:47</td>
<td>31.10MB</td>
<td>I</td>
<td>full</td>
<td>20010105120547</td>
</tr>
<tr>
<td></td>
<td>8,208.44KB</td>
<td></td>
<td></td>
<td>A Public Store</td>
</tr>
<tr>
<td></td>
<td>5,136.39KB</td>
<td></td>
<td></td>
<td>AMAILBOX</td>
</tr>
<tr>
<td>01/05/2001 12:06:24</td>
<td>31.10MB</td>
<td>I</td>
<td>copy</td>
<td>20010105120624</td>
</tr>
<tr>
<td></td>
<td>8,208.44KB</td>
<td></td>
<td></td>
<td>A Public Store</td>
</tr>
<tr>
<td></td>
<td>5,136.39KB</td>
<td></td>
<td></td>
<td>AMAILBOX</td>
</tr>
<tr>
<td>Date/Time</td>
<td>Size</td>
<td>Type</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>----------</td>
<td>--------</td>
<td>----------------------</td>
<td></td>
</tr>
<tr>
<td>01/05/2001 12:06:47</td>
<td>36.10MB</td>
<td>full</td>
<td>A Public Store</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8,208.44KB</td>
<td></td>
<td>A Public Store</td>
<td></td>
</tr>
<tr>
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<td>5,136.39KB</td>
<td></td>
<td>AMAILBOX</td>
<td></td>
</tr>
<tr>
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<td>5,136.36KB</td>
<td></td>
<td>DB4</td>
<td></td>
</tr>
</tbody>
</table>

### 4. Using the Command Line Interface
Backup Command

The backup command is shown below.

**TDPEXCC BACKUP**

The backup command performs Exchange Server storage group (including Exchange 5.5 Directory and Information Store) backups from the Exchange Server to TSM server storage.

When a full backup is performed, all active backups previous to this full backup are automatically inactivated for the particular storage group that is being backed up.

**Note:** Microsoft Exchange Server considers the wildcard character (*) to be an invalid character when used in database and storage group names. As a result, database and storage groups that contain the wildcard character (*) in their name will not be backed up.

See "TDP for Exchange Backup Strategy Considerations" on page 8 for additional information related to the backup command.

TDP for Exchange supports the following types of backup:

**Full** Back up the entire storage group and transaction logs, and if a successful backup is obtained, truncate the transaction logs

**Incremental** Back up the transaction logs, and if a successful backup is obtained, truncate the transaction logs

**Differential** Back up the transaction logs but do NOT truncate them

**Copy** Back up the entire storage group and transaction logs, do NOT truncate the transaction logs

**Database Copy** Back up only the specified database and transaction logs, do NOT truncate the transaction logs (Exchange 2000 Server only)
Note: On an Exchange 2000 Server, if there are databases within a storage group that are not mounted at the time of the backup, the transaction logs will NOT be truncated.

Syntax

```
TDPEXCC BACKup +
   -DIR
   -IS
   -sg-name, sg-nameN
   -FULL
   -COPY
   -INCRemental
   -DIFFerential
   -DBCopy db-name

   /BUFFers= numbuffers

   /BUFFERSize= buffersize

   /CONFIGfile= configfilename

   /EXCSERVer= server-name

   /LOGFile= logfilename
   /LOGPrune= numdays
```

4. Using the Command Line Interface
Positional Parameters
The following positional parameters specify the object to back up:

* | DIR | IS | sg-name


DIR Back up the Directory on Exchange Server 5.5
IS Back up the Information Store on Exchange Server 5.5

sg-name Back up the specified storage group. Multiple entries are separated by commas. If any storage group contains commas or blanks, enclose the storage group name in quotes. For Exchange Server 5.5, sg-name represents the DIR and IS storage groups.

The following positional parameters specify the type of backup to perform:

FULL | COPY | INCREMENTAL | DIFFERENTIAL | DBCopy db-name

FULL Back up the entire storage group and transaction logs, and if a successful backup is obtained, truncate the transaction logs.
COPY
Back up the entire storage group and transaction logs, do NOT truncate the transaction logs

INCRemental
Back up the transaction logs, and if a successful backup is obtained, truncate the transaction logs

DIFFerential
Back up the transaction logs but do NOT truncate them

DBCopy db-name
Back up only the specified database and transaction logs, do NOT truncate the transaction logs
(Exchange 2000 Server only)

On an Exchange 2000 Server, if there are databases within a storage group that are not mounted at the time of the backup, the transaction logs will NOT be truncated.

Optional Parameters

/BUFFers=numberbuffers
Use the /buffers parameter to specify the number of data buffers used for moving data between the Exchange Server and the TSM API. Separate, asynchronous execution threads are used by TDP for Exchange for communicating with the Exchange Server and TSM APIs. Increasing the number of data buffers improves throughput by reducing the possibility of one thread having to wait for another thread.

The numberbuffers variable refers to the number of data buffers to use. The number of data buffers can be from 2 to 8. The default number of data buffers is 3.

/BUFFERSIze=buffersize
Use the /buffersize parameter to specify the size of data buffers used to move data between the Exchange Server and the TSM API.
The `buffersize` variable refers to the size of the data buffers in kilobytes. The size of the data buffers can be from 64 to 8192 kilobytes. The default size of the data buffers is 1024 kilobytes.

`/CONFIGfile=filename`
Use the `/configfile` parameter to specify the name of the TDP for Exchange configuration file that contains the values for the TDP for Exchange configuration options. See “TDP.EXCC SET” on page 94 for details about the contents of the file.

The `filename` variable can include a fully qualified path. If the `filename` variable does not include a path, the TDP for Exchange installation directory is used.

**Considerations**
- If the `filename` variable includes spaces, the entire `/configfile` parameter entry must be placed in double quotes. For example:
  `/CONFIGfile="c:\Program Files\file.cfg"
- If the `/configfile` parameter is not specified, the default value is `tdpexc.cfg`.
- If the `/configfile` parameter is specified but the `filename` variable is not specified, the default value is `tdpexc.cfg`.

`/EXCSERVER=server-name`
Use the `/excserv` parameter to specify the name of the Exchange Server to be backed up.

The `server-name` variable specifies the name of the Exchange Server to be backed up.

**Considerations**
- If the Exchange Server to be backed up is a member of a Microsoft Cluster Server, this parameter must be specified and must be set to the Exchange virtual server name.
- The default value is the local Exchange Server.
/LOGFile=logfilename
Use the /logfile parameter to specify the name of the activity log file generated by TDP for Exchange.

The logfilename variable identifies the name of the activity log file.

If the specified log file does not exist, a new log file is created. If the specified log file exists, new log entries are appended to the file. The logfilename variable can include a fully-qualified path. However, if no path is specified, the log file is written to the TDP for Exchange installation directory.

If the logfilename variable includes spaces, the entire /logfile parameter entry must be placed in double quotes. For example:
/LOGFile="c:\Program Files\mytdpexchange.log"

If the /logfile parameter is not specified, log records are written to the default log file, tdpexc.log.

The /logfile parameter cannot be turned off. You always get logging.

/LOGPrune=numdays|No
Use the /logprune parameter to disable log pruning or to explicitly request a prune of the log for one command run. By default, log pruning is enabled and performed once per day. The numdays variable represents the number of days to save log entries. By default, 60 days of log entries are saved in the prune process. You can use the TDP for Exchange GUI or the set command to change the defaults so that log pruning is disabled, or so that more or less days of log entries are saved. The command line user may use the /logprune parameter to override these defaults for one command run. Note that when the value of the /logprune variable numdays is a number in the range 0 to 9999, a prune is performed even if one has already been performed for the day.
/MOUNTWait=Yes|No
If the TSM server is configured to store the backup data on removable media (such as tapes), then it is possible that the TSM server might indicate to TDP for Exchange that it is waiting for a required storage volume to be mounted. If that occurs, this parameter allows you to specify whether TDP for Exchange should wait for the media mount or stop the current operation.

You can specify:
Yes Wait for tape mounts. This is the default.
No Do not wait for tape mounts.

/Quiet This parameter prevents status information from being displayed. This does not affect the level of information written to the activity log.

/TSMNODE=tsmnodename
The tsmnodename variable refers to the TSM node name TDP for Exchange uses to log on to the TSM server. You can also store the node name in the TSM options file. The command line parameter overrides the value in the TSM options file if PASSWORDACCESS is set to PROMPT. This parameter is not valid when PASSWORDACCESS is set to GENERATE.

/TSMOPTFile=tsmoptfilename
The tsmoptfilename variable identifies the TDP for Exchange options file.

The file name can include a fully qualified path name. If no path is specified, the directory where TDP for Exchange is installed is searched.

If the tsmoptfilename variable includes spaces, the entire /TSMOPTFile parameter entry must be placed in double quotes. For example:
/TSMOPTFile="c:\Program Files\file.opt"

The default is dsm.opt.
/TSMPassword=tsmpassword

The tsmpassword variable refers to the TSM password TDP for Exchange uses to log on to the TSM server. If you specified PASSWORDACCESS GENERATE in the TDP for Exchange options file, then the password need not be provided here because the one stored in the registry is used. However, in order to store the password in the registry, you must specify the TSM password the first time TDP for Exchange connects to the TSM server.

If you do specify a password on the command line when PASSWORDACCESS GENERATE is in effect, then the command line value is ignored unless the password for this node has not yet been stored in the registry. In that case, the specified password is the one that is stored in the registry and used for the current command execution.

If PASSWORDACCESS PROMPT is in effect, and a password value is not specified on the command line, then you are prompted for a password.

The TSM password TDP for Exchange uses to log on to the TSM server can be up to 63 characters in length.
Examples

Example 1
The tdpxcc backup DIR differential command performs a differential backup of the Exchange Server 5.5 Directory Store. An example of the output is displayed below.

Tivoli Storage Manager
Tivoli Data Protection for Microsoft Exchange Server
Version 2, Release 2, Level 0.0
(C) Copyright IBM Corporation 1998, 2001. All rights reserved.

Starting storage group backup...

Beginning diff backup of Directory, 1 of 1.
  Full: 1  Read: 10485883  Written: 10485883  Rate: 681.36 Kb/Sec
Backup of Directory completed successfully.

Total storage groups requested for backup:  1
Total storage groups backed up:       1
Total storage groups expired:         0
Total storage groups excluded:        0

Throughput rate: 667.15 Kb/Sec
Total bytes transferred: 10,485,883
Elapsed processing time: 15.35 Secs

Example 2
The tdpxcc backup * full command performs a full backup of the Exchange Server 5.5 Directory Store and Information Store. An example of the output is displayed below.

Tivoli Storage Manager
Tivoli Data Protection for Microsoft Exchange Server
Version 2, Release 2, Level 0.0
(C) Copyright IBM Corporation 1998, 2001. All rights reserved.

Starting storage group backup...

Beginning full backup of Directory, 1 of 2.
  Full: 1  Read: 8405167  Written: 8405167  Rate: 606.26 Kb/Sec
Backup of Directory completed successfully.

Beginning full backup of Information Store, 2 of 2.
  Full: 1  Read: 7373088  Written: 7373088  Rate: 649.96 Kb/Sec
Backup of Information Store completed successfully.
Expanding backup [KRISTINAGEOFF\Information Store], [incr]
Expanding backup [KRISTINAGEOFF\Directory], [diff]

Total storage groups requested for backup: 2
Total storage groups backed up: 2
Total storage groups expired: 2
Total storage groups excluded: 0

Throughput rate: 623.47 Kb/Sec
Total bytes transferred: 15,778,255
Elapsed processing time: 24.71 Secs

Example 3
The tdpexcc backup "First Storage Group",sg3.sg3
incremental command performs an incremental backup of
Exchange 2000 Server storage groups identified as First Storage
Group and sg3.sg3. An example of the output is displayed below.

Tivoli Storage Manager
Tivoli Data Protection for Microsoft Exchange Server
Version 2, Release 2, Level 0.0
(C) Copyright IBM Corporation 1998, 2001. All rights reserved.

Starting storage group backup...

Beginning incr backup of First Storage Group, 1 of 2.
Full: 1 Read: 10485970 Written: 10485970 Rate: 3,405.46 Kb/Sec
Backup of First Storage Group completed successfully.

Beginning incr backup of sg3.sg3, 2 of 2.
Full: 1 Read: 10485970 Written: 10485970 Rate: 2,558.13 Kb/Sec
Backup of sg3.sg3 completed successfully.

Total storage groups requested for backup: 2
Total storage groups backed up: 2
Total storage groups expired: 0
Total storage groups excluded: 0

Throughput rate: 2,711.56 Kb/Sec
Total bytes transferred: 20,971,940
Elapsed processing time: 7.55 Secs
Example 4

The tdpexcc backup "sg3.sg3" dbc "A Public Store" command performs a database copy backup of Exchange 2000 Server database A Public Store, located in storage group sg3.sg3. An example of the output is displayed below.

Tivoli Storage Manager
Tivoli Data Protection for Microsoft Exchange Server
Version 2, Release 2, Level 0.0
(C) Copyright IBM Corporation 1998, 2001. All rights reserved.

Starting storage group backup...

Beginning dbcopy backup of storage group <sg3.sg3>, database <hello>, 1 of 1.
Full: 1  Read: 10511010  Written: 10511010  Rate: 2,922.74 Kb/Sec
Backup of sg3.sg3 completed successfully.

Total storage groups requested for backup: 1
Total storage groups backed up: 1
Total storage groups expired: 0
Total storage groups excluded: 0

Throughput rate: 2,912.79 Kb/Sec
Total bytes transferred: 10,511,010
Elapsed processing time: 3.52 Secs
Restore Command

The restore command is shown below.

TDPEXCC RESTORE

Use this command to restore a storage group backup from TSM storage to an Exchange Server.

When using the restore command, keep the following points in mind:

- When restoring inactive backups or active incremental backups, use the /object parameter to specify the name of the backup object to restore. This object name uniquely identifies the backup instance in TSM storage. You can issue a tdpexcc query tsm command to obtain a list of the object names.

  Note: If the tdpexcc restore sgname incr command is entered (without the /object parameter) to restore multiple active incremental backups, all multiple active incremental backups are restored sequentially. The /object parameter is used to restore only one incremental backup at a time.

- When restoring a full or copy type backup on Exchange Server 5.5, you can use the /partial parameter to restore only the Public or Private database.

- IMPORTANT Exchange 2000 Server Information: To initiate recovery, you MUST use the /recover parameter when restoring the last backup object of a storage group. In addition, the value of /templogrestorepath should not be the same value as the current location for the storage group. If the value is the same, corruption can occur.

  • Specify /recover=applyalllogs to replay the restored transaction log entries AND the current active transaction log entries.

  • Specify /recover=applyrestoredlogs to replay ONLY the restored transaction log entries. The current active transaction log entries will NOT be replayed.
**Note:** When choosing this option for a restore, your next backup MUST be a full or copy backup.

Failure to use the `/recover` parameter when restoring the last backup set of a storage group leaves the databases unmountable. If this occurs, you can either restore the last backup again and specify the `/recover=value` option or you can use the Microsoft ESEUTIL `/cc` command to run recovery manually.

- Under Exchange 2000 Server, specify `/mountdatabases=yes` if you are restoring the last backup set and you want the databases within the storage group automatically mounted after the recovery completes.

- **IMPORTANT Exchange Server 5.5 Information!** Use the `/eraseexistingdata` parameter to determine whether active transaction logs are erased before the restore operation begins.
  - Specify `/eraseexistingdata=yes` to erase the existing transaction log files for the database being restored before the restore operation begins.
  - Specify `/eraseexistingdata=no` if you want the existing transaction log files to remain and be replayed before the restore operation begins.

The GUI provides an easy-to-use, flexible interface to help you perform a restore operation. The interface presents information in a way that allows multiple selection and, in some cases, automatic operation.

**Note:** Microsoft Exchange Server considers the wildcard character (*) to be an invalid character when used in database and storage group names. As a result, database and storage groups that contain the wildcard character (*) in their name will not be backed up.
TDP for Exchange supports the following types of restore:

**Full**  
Restore a Full type backup

**Copy**  
Restore a Copy type backup

**Incremental**  
Restore an Incremental type backup

**Differential**  
Restore a Differential type backup

**Database copy**  
Restore a Database Copy type backup. This is available only on Exchange 2000 Server.

**Syntax**

The following parameters can be used with Exchange Server 5.5 or Exchange 2000 Server:

```
TDPEXCC REStore * FULL
DIR COPY
IS INCREMENTAL
sg-name, sg-nameN
DIFFERENTIAL
DBCopy db-name

/BUFFers= numbuffers

/BUFFERSize= buffersize

/CONFIGfile= configfilename
```
The following parameters can be used with **Exchange Server 5.5 only**:
The following parameters can be used with Exchange 2000 Server only:

```
/DATABASE=No /PARTial=dbname1, dbnameN
/RECOVER=APPLYRESToredlogs
/TEMPLOGRESTorepath=path-name
```

**Positional Parameters**

The following positional parameters specify the object to restore:

* | **DIR** | **IS** | **sg-name**


**DIR** Restore the Directory on Exchange Server 5.5

**IS** Restore the Information Store on Exchange Server 5.5

**sg-name** Restore the specified storage group. Multiple entries are separated by commas. If any storage group contains commas or blanks, enclose the storage group name in quotes. For Exchange Server 5.5, **sg-name** represents the DIR and IS storage groups.

The following positional parameters specify the type of restore to perform:

**FULL | COPY | INCRemental | DIFFerential | DBCopy db-name**

**FULL** Restore a Full type backup
COPY
  Restore a Copy type backup

INCRemental
  Restore an Incremental type backup

DIFFerential
  Restore a Differential type backup

DBCopy db-name
  Restore the db-name database copy backup. This is available only on Exchange 2000 Server.

Optional Parameters

/BUFFers=numbuffers
  Use the /buffers parameter to specify the number of data buffers used for moving data between the Exchange Server and the TSM API. Separate, asynchronous execution threads are used by TDP for Exchange for communicating with the Exchange Server and TSM APIs. Increasing the number of data buffers improves throughput by reducing the possibility of one thread having to wait for another thread.

  The numbuffers variable refers to the number of data buffers to use. The number of data buffers can be from 2 to 8. The default number of data buffers is 3.

/BUFFERSSize=buffersize
  Use the /buffersize parameter to specify the size of data buffers used to move data between the Exchange Server and the TSM API.

  The buffersize variable refers to the size of the data buffers in kilobytes. The size of the data buffers can be from 64 to 8192 kilobytes. The default size of the data buffers is 1024 kilobytes.

/CONFIGfile=configfilename
  Use the /configfile parameter to specify the name of the TDP for Exchange configuration file that contains the values
for the TDP for Exchange configuration options. See [TDPEXCC SET on page 92] for details about the contents of the file.

The `configfilename` variable can include a fully qualified path. If the `configfilename` variable does not include a path, the TDP for Exchange installation directory is used.

**Considerations**

- If the `configfilename` variable includes spaces, the entire `/configfile` parameter entry must be placed in double quotes. For example:

  `/CONFIGfile="c:\Program Files\file.cfg"

- If the `/configfile` parameter is not specified, the default value is `tdpexc.cfg`.

- If the `/configfile` parameter is specified but the `configfilename` variable is not specified, the default value is `tdpexc.cfg`.

/ERASEexistingdata:Yes|No

This is for Exchange Server 5.5 only. The `/eraseexistingdata` parameter directs TDP for Exchange to erase the existing transaction log files for the database being restored before restoring the specified database. If you do not erase existing data, then any existing transaction logs could be reapplied when the Exchange services are started. This results in a database that might not match the backup version just restored. If you do not specify this parameter, existing transaction logs are not erased.

This parameter is valid only when restoring a full or copy backup of the Directory or Information Store database. It is not valid for incremental or differential backup objects or when restoring only the public or private portion of the Information Store database.

You can specify:

- **Yes** Erase the existing transaction log files.
- **No** Do not erase the existing transaction log files. This is the default.
/EXCSERVer=server-name
Use the /excserver parameter to specify the name of the Exchange Server to restore to.

The server-name variable specifies the name of the Exchange Server to be restored to.

Considerations

- If the Exchange Server to be restored is a member of a Microsoft Cluster Server, this parameter must be specified and must be set to the name of the Exchange virtual server.
- The default value is the local Exchange Server.

/FROMEXCSERVer=server-name
Use the /fromexcserver parameter to specify the name of the Exchange Server where the original backup was performed.

The default is the local Exchange Server. However, you must specify the name if the Exchange Server is not the default or is a member of an MSCS.

/LOGFile=logfilename
Use the /logfile parameter to specify the name of the activity log file generated by TDP for Exchange.

The logfilename variable identifies the name of the activity log file.

If the specified log file does not exist, a new log file is created. If the specified log file exists, new log entries are appended to the file. The logfilename variable can include a fully-qualified path. However, if no path is specified, the log file is written to the TDP for Exchange installation directory.

If the logfilename variable includes spaces, the entire /logfile parameter entry must be placed in double quotes. For example:

/LOGFile="c:\Program Files\mytdpexchange.log"
If the `/logfile` parameter is not specified, log records are written to the default log file, `tdpexc.log`.

The `/logfile` parameter cannot be turned off. You always get logging.

`/LOGPrune=numdays|No`
Use the `/logprune` parameter to disable log pruning or to explicitly request a prune of the log for one command run. By default, log pruning is enabled and performed once per day. The `numdays` variable represents the number of days to save log entries. By default, 60 days of log entries are saved in the prune process. You can use the TDP for Exchange GUI or the `set` command to change the defaults so that log pruning is disabled, or so that more or less days of log entries are saved. The command line user may use the `/logprune` parameter to override these defaults for one command run. Note that when the value of the `/logprune` variable `numdays` is a number in the range 0 to 9999, a prune is performed even if one has already been performed for the day.

`/MOUNTDAtabases=No|Yes`
This is for Exchange 2000 Server only. Use the `/mountdatabases` parameter to specify whether to mount the databases after the restore operation completes. You MUST specify one of the following values:
- **Yes** Mount the databases after the restore operation completes.
- **No** Do not mount the databases after the restore operation completes. This is the default.

`/MOUNTWait=Yes|No`
If the TSM server is configured to store the backup data on removable media (such as tapes), then it is possible that the TSM server might indicate to TDP for Exchange that it is waiting for a required storage volume to be mounted. If that occurs, this parameter allows you to specify whether TDP for Exchange should wait for the media mount or stop the current operation.
You can specify:

Yes  Wait for tape mounts. This is the default.
No   Do not wait for tape mounts.

/OBJect=object-name

Use the /object parameter to specify the name of the backup object you want to restore. The object name uniquely identifies each backup object and is created by TDP for Exchange.

Use the TDP for Exchange query tsm command to view the names of the backup objects.

If the tdpexec restore sgnane incr command is entered (without the /object parameter) to restore multiple active incremental backups, all multiple active incremental backups are restored sequentially. The /object parameter is used to restore only one incremental backup at a time.

/PARTial=dbname1,dbnameN

Use the /partial parameter to specify that only the named databases (dbname1,dbnameN) within the full or copy backup should be restored. For Exchange Server 5.5, the value of the dbname1,dbnameN variables can be the Public or Private databases.

Considerations

- If you specify this option, you must include at least one valid database name.
- If you do not specify this option, all databases within the backup are restored.

/Quiet

This parameter prevents status information from being displayed. This does not affect the level of information written to the activity log.

/RECOVER=APPLYRESToredlogs|APPLYALLlogs

This is for Exchange 2000 Server only. Use this parameter to specify whether or not you want to run recovery after you restore an object. It is recommended this parameter be specified on the last backup object restored for any particular storage group. To initiate recovery, you MUST use the
/recover parameter when restoring the last backup object of a storage group. In addition, the value of
/templogrestorepath should not be the same value as the current location for the storage group. If the value is the same, corruption can occur. Failure to use the /recover parameter when restoring the last backup set of a storage group leaves the databases unmountable. If this occurs, you can either restore the last backup again and specify the /recover=value option or you can use the Microsoft ESEUTIL /cc command to run recovery manually.

You MUST specify one of the following values when using this parameter:

**APPLYALLlogs**
Specify /recover=applyalllogs to replay the restored transaction log entries AND the current active transaction log entries. Any transaction logs entries that appear in the current active transaction log are replayed. This is the default.

**APPLYRESToredlogs**
Specify /recover=applyrestoredlogs to replay ONLY the restored transaction log entries. The current active transaction log entries will NOT be replayed.

**Note:** When choosing this option for a restore, your next backup MUST be a full or copy backup.

**Considerations**
- When restoring multiple backup objects, the /recover option should be used on the restore of the last object.

**Note:** If you specify /recover=applyrestoredlogs when performing a restore, the next backup of the storage group MUST be a full backup.

/TEMPLOGRESTorepath=path-name
This is for Exchange 2000 Server only. Use the /templogrestorepath parameter to specify the default temporary path to use when restoring logs and patch files.
For best performance, this should be on a different physical device than the current active logger.

If the /templogrestorepath parameter is not specified, the default value is the value specified by the TEMPLGRESTOREPATH option in the TDP for Exchange configuration file. The default TDP for Exchange configuration file is tdpexc.cfg.

If the /templogrestorepath parameter is not specified and the value does not exist in the TDP for Exchange configuration file, the TEMP environment variable value is used.

Note: When performing a full, copy, or dbcopy restore, all log files residing in the path specified by the /templogrestorepath parameter are erased.

In addition, the value of /templogrestorepath should not be the same value as the current location for the storage group. If the value is the same, corruption can occur

/TSMNODE=tsmnodename
The tsmnodename variable refers to the TSM node name TDP for Exchange uses to log on to the TSM server. You can also store the node name in the TSM options file. The command line parameter overrides the value in the TSM options file if PASSWORDACCESS is set to PROMPT. This parameter is not valid when PASSWORDACCESS is set to GENERATE.

/TSMOPTFile=tsmoptfilename
The tsmoptyfilename variable identifies the TDP for Exchange options file.

The file name can include a fully qualified path name. If no path is specified, the directory where TDP for Exchange is installed is searched.

If the tsmoptyfilename variable includes spaces, the entire /tsmoptyfie parameter entry must be placed in double quotes. For example:
The default is *dsm.opt*.

**/TSMPassword=tsmpassword**

The *tsmpassword* variable refers to the TSM password TDP for Exchange uses to log on to the TSM server. If you specified PASSWORDACCESS GENERATE in the TDP for Exchange options file, then the password need not be provided here because the one stored in the registry is used. However, in order to store the password in the registry, you must specify the TSM password the first time TDP for Exchange connects to the TSM server.

If you do specify a password on the command line when PASSWORDACCESS GENERATE is in effect, then the command line value is ignored unless the password for this node has not yet been stored in the registry. In that case, the specified password is the one that is stored in the registry and used for the current command execution.

If PASSWORDACCESS PROMPT is in effect, and a password value is not specified on the command line, then you are prompted for a password.

The TSM password TDP for Exchange uses to log on to the TSM server can be up to 63 characters in length.
Examples

Example 1

The tdpexc restore IS copy command restores a copy type backup of the Exchange Server 5.5 Information Store. An example of the output is displayed below.

Tivoli Storage Manager
Tivoli Data Protection for Microsoft Exchange Server
Version 2, Release 2, Level 0.0
(C) Copyright IBM Corporation 1998, 2001. All rights reserved.

Starting Microsoft Exchange restore...

Logging on to the Tivoli Storage Manager server, please wait...

Beginning copy restore of storage group Information Store <02/15/2001 10:11:12>, 1 of 1, to Information Store
Full: 1 Read: 7373088 Written: 7373088 Rate: 832.02 Kb/Sec
Restore of Information Store completed successfully.

Total backups inspected: 1
Total backups requested for restore: 1
Total backups restored: 1

Throughput rate: 766.15 Kb/Sec
Total bytes transferred: 7,373,088
Elapsed processing time: 9.40 Secs
Example 2

The tdpexcc restore dir incr /object=20010116111412 command restores an incremental type backup of the Exchange Server 5.5 Directory Store identified as 20010116111412. An example of the output is displayed below.

Tivoli Storage Manager
Tivoli Data Protection for Microsoft Exchange Server
Version 2, Release 2, Level 0.0
(C) Copyright IBM Corporation 1998, 2001. All rights reserved.

Starting Microsoft Exchange restore...

Logging on to the Tivoli Storage Manager server, please wait...

Beginning incr restore of storage group Directory <02/15/2001 10:15:16>, 1 of 1, to Directory
Full: 1 Read: 10485883 Written: 10485883 Rate: 1,049.30 Kb/Sec
Restore of Directory completed successfully.

Total backups inspected: 1
Total backups requested for restore: 1
Total backups restored: 1
Throughput rate: 1,048.55 Kb/Sec
Total bytes transferred: 10,485,883
Elapsed processing time: 9.77 Secs
Example 3

The tdpexcc restore sg3.sg3 full /recover=applyalllogs command restores a full type backup of the Exchange 2000 Server storage group identified as sg3.sg3, and replays the restored transaction log entries AND the current active transaction log entries. An example of the output is displayed below.

Tivoli Storage Manager
Tivoli Data Protection for Microsoft Exchange Server
Version 2, Release 2, Level 0.0
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Starting Microsoft Exchange restore...

Logging on to the Tivoli Storage Manager server, please wait...

Beginning full restore of storage group sg3.sg3 <01/16/2001 11:14:12>, 1 of 1, to sg3.sg3

Full: 1  Read: 26314796  Written: 26314796  Rate: 3,589.11 Kb/Sec
Restore of sg3.sg3 completed successfully.

| Total backups inspected: | 1 |
| Total backups requested for restore: | 1 |
| Total backups restored: | 1 |
| Throughput rate: | 1,054.11 Kb/Sec |
| Total bytes transferred: | 26,314,796 |
| Elapsed processing time: | 24.38 Secs |
Example 4

The tdpxcc restore sg3.sg3 dbcopy "A Public Store" /recover=applyalllogscommand restores a database copy backup of Exchange 2000 Server database A Public Store, located in storage group sg3.sg3, and replays the restored transaction log entries AND the current active transaction log entries. An example of the output is displayed below.

Tivoli Storage Manager
Tivoli Data Protection for Microsoft Exchange Server
Version 2, Release 2, Level 0.0
(C) Copyright IBM Corporation 1998, 2001. All rights reserved.

Starting Microsoft Exchange restore...

Logging on to the Tivoli Storage Manager server, please wait...

Beginning dbcopy restore of storage group sg3.sg3 <02/15/2001 10:25:26>, 1 of 1, to sg3.sg3
Full: 1   Read: 10511010   Written: 10511010   Rate: 4,015.91 Kb/Sec
Restore of sg3.sg3 completed successfully.

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total backups inspected:</td>
<td>1</td>
</tr>
<tr>
<td>Total backups requested for restore:</td>
<td>1</td>
</tr>
<tr>
<td>Total backups restored:</td>
<td>1</td>
</tr>
<tr>
<td>Throughput rate:</td>
<td>1,024.52 Kb/Sec</td>
</tr>
<tr>
<td>Total bytes transferred:</td>
<td>10,511,010</td>
</tr>
<tr>
<td>Elapsed processing time:</td>
<td>10.02 Secs</td>
</tr>
</tbody>
</table>
Other Commands

**TDPEXCC CHANGETSMPASSWORD**

Use this command to change the TSM password used by TDP for Exchange to log on to the TSM server. If you do not enter the old and new passwords, TDP for Exchange prompts you for the old and new passwords. TDP for Exchange does not display the password on the screen.

The TSM password TDP for Exchange uses to log on to the TSM server can be up to 63 characters in length.

**Syntax**

```
TDPEXCC
  CHANGETSMPassword
    oldpassword
    newpassword
    verifypassword
  /CONFIGfile=configfilename
  /LOGFile=logfilename
  /LOGPrune=numdays
  /TSMNODE=tsmnodename
  /TSMOPTFile=tsmoptfilename
```

Version 2 Release 2
Positional Parameters

The following positional parameters specify required password information:

- `oldpassword`  
  Specifies the current password used by TDP for Exchange.

- `newpassword`  
  Specifies the new password used by TDP for Exchange.

- `verifypassword`  
  Specifies the new password again for verification.

If any of these values are not entered during a command invocation, you are prompted for them.

Optional Parameters

- `/CONFIGfile`=`configfilename`
  Use the `/configfile` parameter to specify the name of the TDP for Exchange configuration file that contains the values for the TDP for Exchange configuration options. See "TDPEXCC SET" on page 94 for details about the contents of the file.

  The `configfilename` variable can include a fully qualified path. If the `configfilename` variable does not include a path, the TDP for Exchange installation directory is used.

Considerations

- If the `configfilename` variable includes spaces, the entire `/configfile` parameter entry must be placed in double quotes. For example:
  `/CONFIGfile="c:\Program Files\file.cfg"

- If the `/configfile` parameter is not specified, the default value is `tdpexc.cfg`. 
If the /configfile parameter is specified but the configfilename variable is not specified, the default value is *tdpexc.cfg*.

/LOGFile=logfilename

Use the /logfile parameter to specify the name of the activity log file generated by TDP for Exchange.

The logfilename variable identifies the name of the activity log file.

If the specified log file does not exist, a new log file is created. If the specified log file exists, new log entries are appended to the file. The logfilename variable can include a fully-qualified path. However, if no path is specified, the log file is written to the TDP for Exchange installation directory.

If the logfilename variable includes spaces, the entire /logfile parameter entry must be placed in double quotes. For example:

/LOGFile="c:\Program Files\mytdpexchange.log"

If the /logfile parameter is not specified, log records are written to the default log file, *tdpexc.log*.

The /logfile parameter cannot be turned off. You always get logging.

/LOGPrune=numdays|No

Use the /logprune parameter to disable log pruning or to explicitly request a prune of the log for one command run. By default, log pruning is enabled and performed once per day. The numdays variable represents the number of days to save log entries. By default, 60 days of log entries are saved in the prune process. You can use the TDP for Exchange GUI or the set command to change the defaults so that log pruning is disabled, or so that more or less days of log entries are saved. The command line user may use the /logprune parameter to override these defaults for one command run. Note that when the value of the /logprune
variable `numdays` is a number in the range 0 to 9999, a prune is performed even if one has already been performed for the day.

`/TSMNODE=tsmnodename`

The `tsmnodename` variable refers to the TSM node name TDP for Exchange uses to log on to the TSM server. You can also store the node name in the TSM options file. The command line parameter overrides the value in the TSM options file if PASSWORDACCESS is set to PROMPT. This parameter is not valid when PASSWORDACCESS is set to GENERATE.

`/TSMOPTFile=tsmoptfilename`

The `tsmoptfilename` variable identifies the TDP for Exchange options file.

The file name can include a fully qualified path name. If no path is specified, the directory where TDP for Exchange is installed is searched.

If the `tsmoptfilename` variable includes spaces, the entire `/tsmoptfile` parameter entry must be placed in double quotes. For example:

`/TSMOPTFile="c:\Program Files\file.opt"

The default is `dsm.opt`.

**Example**

The `tdpexcc changetsmspassword oldpw newpw newpw` command changes the TSM password used by TDP for Exchange. An example of the output is displayed below.
**TDPEXCC SET**

Use this command to set the TDP for Exchange configuration parameters defined in the TDP for Exchange configuration file, `tdpexc.cfg` by default.

The value of a configuration parameter specified on a command line invocation overrides (but does not change) the value of the configuration parameter specified in the TDP for Exchange configuration file.

During a command line invocation that does not specify an overriding value for a configuration file parameter, the values in the default TDP for Exchange configuration file (`tdpexc.cfg`) are used.

**Syntax**

```
TDPEXCC SET BUFFers=numbuffers
BUFFersize=buffersize
DATEformat=dateformatnum
LOGFile=logfilename
LOGPrune=0
MOUNTWait=No
NUMBERformat=numformatnum
TEMPLOGRestorepath=path
TIMEformat=timeformatnum
```

**Positional Parameters**

The following positional parameters specify the values in the TDP for Exchange configuration file. You can set only one value for each `tdpexc set` command run:

**BUFFers=numbuffers**

Use the BUFFers positional parameter to specify the number of data buffers used for moving data between the Exchange Server and the TSM API. Increasing the number of data buffers can improve throughput. You can specify a value of 2 thru 8 in the `numbuffers` value.
BUFFERSIZE\textit{=buffersize}
Use the BUFFERSIZE positional parameter to specify the size of data buffers used to move data between the Exchange Server and the TSM API.

The \textit{buffersize} variable refers to the size of the data buffers in kilobytes. The size of the data buffers can be from 64 to 8192 kilobytes. The default size of the data buffers is \textbf{1024} kilobytes.

\textbf{DATEformat\textit{=dateformatnum}}
Use the DATEformat positional parameter to select the format you want to use to display dates.

The \textit{dateformatnum} variable displays the date in one of the following formats. Select the format number that corresponds to the format you want to use.

\begin{itemize}
\item \textbf{1} MM/DD/YYYY. This is the default.
\item \textbf{2} DD-MM-YYYY.
\item \textbf{3} YYYY-MM-DD.
\item \textbf{4} DD.MM.YYYY.
\item \textbf{5} YYYY.MM.DD.
\end{itemize}

\textbf{LOGFile\textit{=logfilename}}
Use the LOGFile positional parameter to specify the name of the activity log file generated by TDP for Exchange. The TDP for Exchange activity log records significant events, such as completed commands and error messages.

The \textit{logfilename} variable identifies the name of the activity log file. If the specified log file does not exist, a new log file is created. If the specified log file exists, new log entries are appended to the file. The \textit{logfilename} variable can include a fully-qualified path. However, if no path is specified, the log file is assigned to the TDP for Exchange installation directory.

\textbf{LOGPrune\textit{=numdays}|No}}
Use the LOGPrune positional parameter to disable log pruning or to set log pruning parameters. By default, log
pruning is enabled and performed once per day. The `numdays` variable represents the number of days to save log entries. You can specify a value of `No` or `0` thru `9999`. By default, **60** days of log entries are saved in the prune process.

**MOUNTWait=Yes|No**

Use the `MOUNTWait` positional parameter to specify whether TDP for Exchange should wait for removable media to mount (such as tapes or CD-ROMs) or to stop the current operation. This situation occurs when the TSM server is configured to store backup data on removable media and waits for a required storage volume to be mounted.

Specify **Yes** for TDP for Exchange to wait until all initial volumes of any required removable media are made available to the TSM server before completing the command.

Specify **No** for TDP for Exchange to terminate the command (if removable media are required). An error message will display.

**NUMberformat=fmtnum**

Use the `NUMberformat` positional parameter to specify the format you want to use to display numbers.

The `fmtnum` variable displays numbers using one of the following formats. Select the format number that corresponds to the format you want to use.

1. `n,nnn.dd`. This is the default.
2. `n,nnn.dd`.
3. `n nnn,dd`
4. `n nnn,dd`
5. `n.nn,dd`
6. `n’n,nn,dd`

**TEMPLOGRESTorepath=path-name**

This is for **Exchange 2000 Server only**. Use the `TEMPLOGRESTorepath` positional parameter to specify the
default temporary path to use when restoring logs and patch files. For best performance, the path specified in the
path-name should be on a different physical device than the current active logger. If the path-name variable includes
spaces, the entire TEMPLOGRESTorepath positional parameter entry must be placed in double quotes. For example:
TEMPLOGRESTorepath="c:\Program Files\file.log"

TIMEformat=formatnumber
Use the TIMEformat positional parameter to specify the format in which you want system time displayed.

The formatnumber variable displays time in one of the following formats. Select the format number that corresponds
to the format you want to use.

1     HH:MM:SS This is the default.
2     HH.MM,SS
3     HH.MM.SS
4     HH:MM:SSA/P

Optional Parameters

/CONFIGfile=configfilename
Use the /configfile parameter to specify the name of the TDP for Exchange configuration file in which these values
will be set.

The configfilename variable can include a fully qualified path. If the configfilename variable does not include a path, the TDP for Exchange installation directory is used.

Considerations

- If the configfilename variable includes spaces, the entire /configfile parameter entry must be placed in double
  quotes.
- If the /configfile parameter is not specified, the default value is tdpexc.cfg.
If the `/configfile` parameter is specified but the `configfilename` variable is not specified, the default value is `tdpexc.cfg`.

Example

The `tdpexc set logfile=d:\tsm\tdpexchange\exchange.log` command specifies `exchange.log`, in the `d:\tsm\tdpexchange` directory, as the TDP for Exchange log file instead of the default TDP for Exchange log file, `tdpexc.log`, located in the directory where TDP for Exchange is installed. An example of the output is displayed below.

ACNS054I The preference has been set successfully.
TDPEXCC HELP

Use this command to display help for TDP for Exchange commands. This command lists one or more commands and their parameters.

Syntax

TDPEXCC

HELP

*|command

Identifies the specific TDP for Exchange command that is to be displayed. If the wildcard character (*) is used, help for all TDP for Exchange commands is displayed.

The valid command names are shown below:

- BACKup
- CHANGETSMPassword
- HELP
- Query
- RESTore
- SET

*|subcommand

Help can be displayed for commands that have several subcommands, for example, the query command. If you do not specify a subcommand or the wildcard character (*), help for all TDP for Exchange query commands is displayed.

The valid subcommand names for the query command are shown below:

- EXCHange
- TDP
- TSM

Optional Parameters

The following optional parameters specify the help to be displayed:

*|command

Identifies the specific TDP for Exchange command that is to be displayed. If the wildcard character (*) is used, help for all TDP for Exchange commands is displayed.

The valid command names are shown below:

- BACKup
- CHANGETSMPassword
- HELP
- Query
- RESTore
- SET

*|subcommand

Help can be displayed for commands that have several subcommands, for example, the query command. If you do not specify a subcommand or the wildcard character (*), help for all TDP for Exchange query commands is displayed.

The valid subcommand names for the query command are shown below:

- EXCHange
- TDP
- TSM
Examples

Example 1

The tpdexc help command displays available help for TDP for Exchange. The following output is displayed:

Tivoli Storage Manager
Tivoli Data Protection for Microsoft Exchange Server
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Choose from the following commands:

TDPEXCC BACKup +|DIR|IS|sgname1,...,sgnameN backuptype
where backuptype can be:
   FULL|COPY|INCRemental|DIFferential|DBCopy dbname
   [/BUFFers=numbuffers] (default: 3)
   [/BUFFERSIZE=buffersize] (default: 1024)
   [/CONFIGfile=tdpexc.cfg|filename] (default: tdpexc.cfg)
   [/EXCSERVER=servername] (default: local exchange server)
   [/LOGFile=tdpexc.log|logfile] (default: tdpexc.log)
   [/LOGPrune=60[n|No] (default: 60)
   [/MOUNTWait=Yes|No] (default: Yes)
   [/Quiet]
   [/TSMName=node[name]
   [/TSMOPTFile=dsm.opt|filename] (default: dsm.opt)
   [/TSMPassword=password]

TDPEXCC CHANGETSMPassword [oldpw [newpw [verifypw]]]
   [/CONFIGfile=tdpexc.cfg|filename] (default: tdpexc.cfg)
   [/LOGFile=tdpexc.log|logfile] (default: tdpexc.log)
   [/LOGPrune=60[n|No] (default: 60)
   [/TSMName=node[name]
   [/TSMOPTFile=dsm.opt|filename] (default: dsm.opt)

TDPEXCC [ HELP|? [*|command [*|subcommand]] ]
Valid command names: Valid subcommands:
   BACKup           EXChange
   HELP             TDP
   CHANGETSMPassword TSM
   Query
   RESTore
   SET

TDPEXCC Query EXChange
   [/CONFIGfile=tdpexc.cfg|filename] (default: tdpexc.cfg)
   [/EXCSERVER=servername] (default: local exchange server)
   [/LOGFile=tdpexc.log|logfile] (default: tdpexc.log)
   [/LOGPrune=60[n|No] (default: 60)
TDPEXCC Query TDP
[/CONFIGfile=tdpexc.cfg|filename] (default: tdpexc.cfg)
[/LOGFile=tdpexc.log|logfilename] (default: tdpexc.log)
[/LOGPrune=60|n|No] (default: 60)

TDPEXCC Query TSM [*|DIR|IS|sgname1,...,sgnameN [backuptype]]
where backuptype can be:
  FULL|COPY|INCREMENTAL|DIFFERENTIAL|DBCopy dbname
[/ACTIVE]
[/ALL]
[/CONFIGfile=tdpexc.cfg|filename] (default: tdpexc.cfg)
[/FROMEXCserver=servername] (default: local exchange server)
[/LOGFile=tdpexc.log|logfilename] (default: tdpexc.log)
[/LOGPrune=60|n|No] (default: 60)
[/TSMNode=nodename]
[/TSMOPTFile=dsm.opt|filename] (default: dsm.opt)
[/TSMPassword=password]

TDPEXCC RESTORE [*|DIR|IS|sgname1,...,sgnameN backuptype]
where backuptype can be:
  FULL|COPY|INCREMENTAL|DIFFERENTIAL|DBCopy dbname
[/BUFFers=numbuffers] (default: 3)
[/BUFFERSize=buffersize] (default: 1024)
[/CONFIGfile=tdpexc.cfg|filename] (default: tdpexc.cfg)
[/EXCserver=servername] (default: local exchange server)
[/FROMEXCserver=servername] (default: local exchange server)
[/LOGFile=tdpexc.log|logfilename] (default: tdpexc.log)
[/LOGPrune=60|n|No] (default: 60)
[/MOUNTWait=Yes|No] (default: Yes)
[/OBJECT=object] (default: current active object)
[/quiet]
[/TSMNode=nodename]
[/TSMOPTFile=dsm.opt|filename] (default: dsm.opt)
[/TSMPassword=password]

Exchange Server 5.5 ONLY Options:
[/ERASEexistingdata=No|Yes] (default: No)
[/PARTial=Public|Private] (default: NONE)

Exchange Server 2000 ONLY Options
[/MOUNTDATABASES=No|Yes] (default: No)
[/PARTial=dbname1,...,dbnameN] (default: NONE)
[/RECOVER=APPLYALLlogs|APPLYRESToredlogs] (default: APPLYALLlogs)
[/TEMPLOGRESTorepath=pathname] (default: TEMP environment var)

TDPEXCC SET PARMname=value
[/CONFIGfile=tdpexc.cfg|filename] (default: tdpexc.cfg)

where PARMname and default values are:
BUFFers=3 (2..8)
BUFFERSize=1024 (64..8192)
DATEformat=1
  1  MM/DD/YYYY
  2  DD-MM-YYYY
  3  YYYY-MM-DD
  4  DD.MM.YYYY
  5  YYYY.MM.DD
LOGFile=tdpexc.log (filename)
LOGPrune=60 (0..9999) | No
MOUNTWait=Yes (Yes|No)
NUMBERformat=1
  1  n,nnn.dd
  2  n,nmn,dd
  3  n nmn,dd
  4  n nmn,dd
  5  n,nmn,dd
  6  n‘nnn,dd
TEMPLOGRestorepath=path (pathname)
TIMEformat=1
  1  HH:MM:SS
  2  HH,MM,SS
  3  HH.MM.SS
  4  HH:MM:SSA/P

EXAMPLES:

TDPEXCC Backup DIR full
TDPEXCC Query TSM
Example 2
This command displays available help for TDP for Exchange query commands:

tdpexc help q

The following output is displayed:

Tivoli Storage Manager
Tivoli Data Protection for Microsoft Exchange Server
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TDPEXCC Query EXCHange
[/CONFIGfile=tdpexc.cfg|filename] (default: tdpexc.cfg)
[/EXCSERVER=servername] (default: local exchange server)
[/LOGFile=tdpexc.log|logfilename] (default: tdpexc.log)
[/LOGPrune=60|n|No] (default: 60)

TDPEXCC Query TDP
[/CONFIGfile=tdpexc.cfg|filename] (default: tdpexc.cfg)
[/LOGFile=tdpexc.log|logfilename] (default: tdpexc.log)
[/LOGPrune=60|n|No] (default: 60)

TDPEXCC Query TSM [*|DIR|IS|sgname1,...,sgnameN [backuptype]]
where backuptype can be:
FULL|COPY|INCREmental|DIFFerential|DBCopy dbname
[/ACTIVE]
[/ALL]
[/CONFIGfile=tdpexc.cfg|filename] (default: tdpexc.cfg)
[/FROMEXCSERVER=servername] (default: local exchange server)
[/LOGFile=tdpexc.log|logfilename] (default: tdpexc.log)
[/LOGPrune=60|n|No] (default: 60)
[/TSMNODE=nodename]
[/TSMOPTFile=dsm.opt|filename] (default: dsm.opt)
[/TSMPassword=password]
Silent Installation

Administrators can install TDP for Exchange using silent installation. A silent installation runs on its own, without any intervention, so administrators are freed from the task of monitoring the installation and providing input to dialog boxes. This method is especially useful when TDP for Exchange must be installed on a number of different computers with identical hardware. For example, a company may have 25 Exchange Servers spread out across 25 different sites. To ensure a consistent configuration and to avoid having 25 different people enter TDP for Exchange parameters, an administrator may choose to produce an unattended install and make it available to the 25 sites by burning and sending out 25 CDs or by placing the unattended install package on a file server. Silent installation is enabled by the setup command using the command-line invocation and special silent installation switches. The steps for silent installation are:

- Create a Batch file to enable users to silently install and configure TDP for Exchange
- Create a silent install package and place the package on CD or on a file server
- Run the silent install package

Setting Up Command Line Switches

Silent installation uses several files:
- Setup Program (setup.exe)

This file supports silent installation when it is invoked from the command-line with the -s (silent) and -v switches.
To install to the default directory path, enter the following:

```
setup.exe /s /v/qn
```

To install to a location other than the default installation directory, enter the following:

```
setup.exe /s /v"INSTALLDIR=\"X:\Desired Install Path\" /qn"
```

Please note the following formatting requirements when invoking the `/v` command line option:

- A backslash (\) must be placed in front of any quotation marks (" ") that reside within existing quotation marks.
- Do not include a space between the `/v` command line option and its arguments.
- Multiple parameters entered with the `/v` command line option must be separated with a space.

### Creating Batch Files

A batch file can be created to begin silent install with desired parameters.

- `c:\setup.bat` — sample script to demonstrate unattended installation.

```bash
@echo off
rem ===================================
rem sample silent install script
rem
setup /s /v "INSTALLDIR=\"X:\Desired Install Path\" /qn"
rem ===================================
rem code could be added after the
rem installation completes to
rem customize the dsm.opt files
rem if desired
rem ===================================
```

### Creating the Package on a CD or a File Server

The administrator has a choice of making the package available in different ways including burning a CD or placing the package in a shared directory on a file server. Typically, the package contains the TDP for Exchange code distribution files and a batch file for silent install.
Creating a Silent Install Package

To create a silent install package, choose a location for the package. If you are burning a CD it is convenient to use a staging directory. If you are placing the package on a file server you may want to use a staging directory or you may want to build the package directly on the file server. The following example uses \c:\tdpepkg as a staging directory. It is recommended you have a minimum of 14 MB of free space in the staging directory. The following commands can be performed to create the package.

- mkdir c:\tdpepkg
- cd /d c:\tdpepkg
- xcopy g:\*.* . /s
- copy c:\setup.bat

At this point the silent install should be tested. When testing is complete the package can be placed on CD or it can be made available from a shared directory.

Playing Back the Silent Installation

Once the package is available on CD or from a shared directory it can be played back (run) on another machine. Allow enough time for the unattended setup to complete. No visual cues exist to inform you when the installation has finished, although this could be added in the batch file.

- From a silent install package on CD:
  - If autostart is enabled the silent install will begin as soon as the CD is inserted into the drive. If autostart is not enabled then the silent install can be run by activating the setup.bat file from the root of the CD.
    - cd /d g:\
    - setup.bat

- From a distribution directory:
  - If the package was placed in a shared directory called tdpepkg located at \machine1\d$ then another computer could execute...
the command: **net use x:\machine1\d$** to share the drive as drive x. A person could then issue:

```
cd /d x:\tdpdpkg
setup.bat
```

In either case the silent install will begin.

### Setup Error Messages

The **setup.exe** program may produce error messages if it cannot start properly. In most cases you encounter these messages when a severe error occurs. Rarely do your end users see these messages. When you get an error message, it appears in a message box. Every error message has a number. These are system error messages and there is no way to suppress them in your script.

If you encounter an error, you can go to the InstallShield support Web site: [http://support.installshield.com/default.asp](http://support.installshield.com/default.asp), and use the Search facility to obtain information on the error.
Advanced Restore Procedures

TDP for Exchange can be used to:
- restore a single mailbox
- completely restore a server that has been destroyed
- move Exchange data from an old server to a newer replacement server

Note: Please refer to your Microsoft documentation for a more complete discussion of advanced restore procedures for Exchange servers.

The following procedure explains how to restore your Exchange data once the rest of the machine is recovered or installed.

Note: This explanation does not go into details on how to restore the entire machine or even your Exchange Server. To back up your Windows server and configuration files, including the Exchange Server program and configuration files, you must rely on some other backup facility. An example of a backup facility is located in the TSM for Windows Using the Backup-Archive Clients publication.
Exchange Server 5.5

Complete Restore or Replacement

**Note:** To successfully complete this procedure, you must have access to the Windows domain controller in which the Exchange Site Services Account is defined.

To perform a complete restore of an Exchange Server, whether to a new machine or to the same machine, complete the following steps.

1. If you are replacing an old machine that is still in service, perform a full backup of the Exchange data and remove the old machine from the network.
2. Using the Windows server manager, delete and recreate the account of the machine being recovered.

**Note:** If you have a full backup of the Windows server system including the Exchange Server and the TDP for Exchange files, you can accomplish steps 3 through 7 by restoring your Windows system and then continuing with step 8. The Windows system backup and recovery can be done using the TSM Backup/Archive Client for Windows.

3. Install the same version of Windows server at the same or higher service level onto the new or repaired machine. Use the same machine name.
4. Install the same version of the Exchange Server at the same service level. Use the same organization and site names. However, when installing the Exchange Server, be sure to specify **Create a New Site** rather than join an existing site. When the server is restarted after the restoration of the databases, the restored server automatically synchronizes with existing servers in the site, even though you selected **Create a New Site** during the server installation.
5. Install the same version of TDP for Exchange at the same or later service level.
6. If the old server had a Microsoft Mail Connector, configure it now.
7. If the old machine had a Key Management Server, configure it now.
8. Using TDP for Exchange, restore the Directory and Information Store databases. The Directory and Information Store Services must be stopped to do this.
9. Restart the Exchange services.

Note: If you are running in a Microsoft Cluster Server environment, be sure to read “Running TDP for Exchange on a Microsoft Cluster Server (MSCS)” on page 12 and “TDP for Exchange in a MSCS Environment” on page 41 for complete information.

Individual Mailbox Restore

The procedure to restore one or more individual mailboxes (or messages or folders within a mailbox) requires the use of an Exchange Server that is separate from your current Exchange site. This separate server must have sufficient disk space to restore the entire Information Store. The procedure is as follows:

1. Set up a Windows server to be your individual mailbox recovery server. This server should have the same version of Windows with the same or higher service level. Ensure you use a unique machine name within your Windows domain.
2. Install the same version of Exchange Server at the same or higher service level. You must configure the Exchange Server with the same organization and site name (but you will have a unique server name). Also, it is important that you do not select Join Existing Site during the installation. Select Create a New Site. Otherwise, you could end up with two sets of mailbox data for the same users after completing this procedure.
3. Install the same version of TDP for Exchange at the same or higher service level.
4. Use TDP for Exchange to restore the Information Store for the Exchange Server containing the individual mailbox to be recovered. Follow these steps:
   a. Create a TSM options file with the same node name and parameters as used by TDP for Exchange on the original Exchange Server. If PASSWORDACCESS GENERATE is used by TDP for Exchange on that server, you might need to run the dsmcutil.exe file on that system to obtain the current
password for that node. You should not use PASSWORDACCESS GENERATE on this machine.

b. In the TDP for Exchange GUI:
   1) Select the Restore tab.
   2) Select the Information Store database you want to restore. This includes any associated incremental backups or differential backups as required.
   3) Select the Restore button.

5. Run the DSIS consistency checker, which populates the Directory Service with information from the restored Information Store database. For more information on the DSIS consistency checker, see your Microsoft Exchange Server documentation.

6. Log onto the administration program and assign permission to the mailbox or public folder you want.

7. Log into that mailbox on the Exchange client.

8. Copy all mailbox information to an Export file to give to the user for whom you are doing the restore.

9. Instruct the user on how to load the mailbox from the Export file.

Special Notes for Exchange Server 5.5

The Exchange Server 5.5 at the SP3 level includes a new client extension for Item Recovery known as Restore Deleted Items. When selected from the tools menu, it displays an undelete dialog similar to that of the recycle bin. From there, you can restore messages and folders that have been accidentally deleted (although not deleted mailboxes).

Exchange 2000 Server

Microsoft has published white papers that detail the steps necessary for recovering an Exchange 2000 Server or recovering Exchange 2000 Server mailboxes. It is recommended you review these whitepapers as well as the current Exchange 2000 Server documentation.
Complete Restore or Replacement
For information on how to recover an Exchange 2000 Server, see the Microsoft white paper "Disaster Recovery for Microsoft Exchange 2000 Server" at the following URL:
http://www.microsoft.com/Exchange/techinfo/e2krecovery.htm

Individual Mailbox Restore
For information on how to recover an Exchange 2000 Server mailbox, see the Microsoft white paper "Mailbox Recovery for Microsoft Exchange 2000 Server" at the following URL:
http://www.microsoft.com/Exchange/techinfo/mailboxrecover.htm
Using the TSM Scheduler

This section shows an example on how to use the TSM scheduler with TDP for Exchange to automate an incremental backup of Exchange Server storage groups. You can automate a full backup of Exchange Server storage groups as well. This example illustrates the use of the TSM Version 3 central scheduler client.

Note: To ensure that this example works, you should obtain and install the latest TSM 32-Bit client. The latest TSM client PTFs (service packs) are available at the following URL: http://www.tivoli.com/support/storage_mgt

Once TDP for Exchange has been registered to a TSM server and installed on the Exchange Server, the procedure involves the following steps:

1. **On the TSM server:**
   a. Define a schedule to run a Windows command file in the policy domain to which TDP for Exchange is registered.
   b. Associate the TDP for Exchange node to the defined schedule.

2. **On the machine where TDP for Exchange and the Exchange Server are installed:**
   a. Install the TSM scheduler client as a Windows service for TDP for Exchange. If a scheduler service already exists for the regular TSM backup client, install another one for TDP for Exchange.
b. Define a command file that contains TDP for Exchange commands to do the desired backup.

c. If you are running in a cluster server environment, install the TSM scheduler client as a Windows service on the secondary node of the cluster.

d. If you are running in a cluster server environment, create a new cluster resource that represents the TSM scheduler client.

e. Start the scheduler service installed in step 2a (this is step 2.1 in some HTML browsers).

**Example of TSM Scheduler Procedure**

This example assumes that:

- TDP for Exchange is registered to a TSM server with a node name of **mars** and a password of **marspwd** in policy domain **exagents**.

- The event to be scheduled is a daily incremental backup of both the Directory and Information Store databases. The backups are to begin between 9:00 and 9:15 pm.

**Note:** The TSM scheduler procedure shown below is for Exchange Server 5.5 on a Windows NT 4 system. You should make appropriate changes when operating in a Windows 2000 or Exchange 2000 Server environment.

This method is flexible because you can define a command file with any set of commands you choose.
On the TSM server:

1. Enter the following command to define the schedule. You can enter this command on the server console or from an administrative client. The administrative client does not have to be running on the same system as the TSM server.

   `def sched exagents exc_daily_incr desc="Exchange Daily Incremental Backup" action=command objects="c:\excincr.cmd" priority=2 starttime=21:00 duration=15 duru=minutes period=1 perunits=day dayofweek=any`

   TSM displays this message:

   `ANR2500I Schedule EXC_DAILY_INCR defined in policy domain EXAGENTS.`

2. To associate TDP for Exchange to this schedule, issue the following command:

   `define association exagents exc_daily_incr mars`

   TSM displays this message:

   `ANR2510I Node MARS associated with schedule EXC_DAILY_INCR in policy domain EXAGENTS.`

At this point, a schedule has been defined on the TSM server that runs a command file called `c:\excincr.cmd`. The schedule starts at 9:00 pm. The schedule is re-executed once a day and can start on any day of the week. Use the Query Schedule and Query Association TSM administrative commands to confirm that the schedule and association have been set correctly.

In Steps 1 and 2 above, if you are setting up the scheduler service for an Exchange Server running in a cluster environment, your command file should reside on the Exchange Server File Share. The schedule you define on the TSM server needs to match this command file. So, instead of `c:\excincr.cmd`, it could be `x:\excincr.cmd`, where `x` is the Exchange Server File Share.
On the Exchange Server:

This example assumes that you have installed the TSM client on the Exchange Server in the directory: d:\Program Files\Tivoli\TSM\baclient and TDP for Exchange in the directory: d:\Program Files\Tivoli\TSM\TDPExchange. It assumes that the options files in each of these directories has been updated so that the communication parameters point to the TSM server.

1. Login using a Windows account that has administrative privileges.
2. Open a Windows command prompt window.
3. In the window, issue the following command:
   
   cd /d d:\Program Files\Tivoli\TSM\baclient

   **Tips:**

   If a TSM scheduler service is already installed on your machine (for the regular backups of the Windows system), you need to install another one (with a unique name) to run the schedules defined for TDP for Exchange. The TSM scheduler service should have a different node name from the regular TSM backup client.

   You must place quotation marks around the section of a directory pathname that contains a space (for example: d:\"Program Files\"\Tivoli\TSM\baclient. You can also use the short form of a pathname by placing a tilde (~) and unique identifier after the first six characters in the pathname. An example of the short form of the pathname is shown below:

   d:\Progra~1\Tivoli\TSM\baclient

4. In the window, issue the following command:

   dsmcutil inst /name:"TDP for Exchange Scheduler" /node:mars /password:marspswd /autostart:yes /clientdir:"d:\Program Files\Tivoli\TSM\baclient" /optfile:"d:\Program Files\Tivoli\TSM\TDPExchange\dsm.opt" /startnow:no
Note: If you are setting up the scheduler service for an Exchange Server running in a cluster environment, you need to change the /autostart option to no. For example:

```
/autostart:no
```

An example of the output is shown below:

TSM Windows Client Service Configuration Utility
Command Line Interface Version 3.00.a
Last Updated Sep 20 1999
TSM Api Version 3.7.1

Command: Install TSM Client Service
Machine: MARS (Local Machine)

Installing TSM Client Service:

```
Machine : MARS
Service Name : TDP for Exchange Scheduler
Client Directory : d:\Program Files\Tivoli\TSM\baclient
Automatic Start : Yes
Local System : LocalSystem
```

The service was successfully installed.

Creating Registry Keys ...

Updated registry value 'ImagePath'.
Updated registry value 'EventMessageFile'.
Updated registry value 'TypesSupported'.
Updated registry value 'OptionsFile'.
Updated registry value 'EventLogging'.
Updated registry value 'ClientNodeName'.
Updated registry value 'ADSMClientKey'.

Generating registry password ...

Authenticating password with TSM for node MARS ....

Connecting to TSM Server via client options file 'd:\Program Files\Tivoli\TSM\TDPExchange\dsm.opt' ...

Password authentication successful.

The Registry password for node MARS has been updated .

Note that the options file that is defined for TDP for Exchange is used by the scheduler when validating the node and password. The options files are also used when contacting the
TSM server for schedule information. This example assumes that the *dsm.opt* file is updated so that the communication parameters point to the TSM server to which the Exchange databases are to be backed up.

If you see the following message:

```
A communications error occurred connecting to the TSM server
```

You should ensure that the *dsm.opt* file contains entries that point to the correct TSM server. You should also ensure that the TSM server is running. If you have to correct one of these, issue the following command:

```
dsmcutil remove /name:"TDP for Exchange Scheduler"
```

Then reissue the command given in Step 4.

**Note:** If you are setting up the scheduler service for an Exchange Server running in a cluster environment, repeat Steps 1 through 4 on the secondary node of the cluster. The service name you use must be the same on both nodes of the cluster.

5. Create a command file called `c:\excincr.cmd`. A sample command file `excincr.smp` is provided with TDP for Exchange in the directory where TDP for Exchange is installed. This sample file contains commands necessary to perform a scheduled incremental backup of all Exchange Server storage groups to TSM storage.

**Note:** If you are setting up this scheduler service for an Exchange Server running in a cluster environment, your command file should reside on the Exchange Server File Share. Instead of `c:\excincr.cmd`, this command file could be `x:\excincr.cmd`, where `x` is the Exchange Server File Share.

**Tip:**

The key to using the TSM scheduler to execute the commands in a command file is that COMPLETE PATHNAMES must be given for all file names and non-system commands. This is
because the Central Scheduler Service runs from the Windows system directory. The Windows system directory is where the scheduler service looks for input and produces its output by default.

6. At this point the TSM scheduler service is installed, but has not been started. To start the service IN A NON-CLUSTER ENVIRONMENT, issue the following command in the Windows command prompt window:
   `net start "TDP for Exchange Scheduler"

   The following output is displayed:
   The TDP for Exchange Scheduler service is starting.
   The TDP for Exchange Scheduler service was started successfully.

   Note that because the `/autostart:yes` option is used, the TSM scheduler service is automatically started each time the Windows system is rebooted.

   **Note:** Steps 8 through 15 only apply when running TDP for Exchange in a cluster environment.

   The newly created scheduler service is tied to a cluster group. This allows the TSM scheduler service to correctly fail over between the nodes and also manage automatic password changes.

7. Start the Cluster Administrator.

8. Select the Exchange Server Cluster Group and create a new Resource to represent the TDP for Exchange scheduler ([File->New->Resource]). For example:

   Name: TDP for Exchange Scheduler
   Description: TDP for Exchange Scheduler
   Resource Type: Generic Service
   Group: MARSEXCI

   Dependencies: Microsoft Exchange Directory
   Microsoft Exchange Information Store

   Service Name: TDP for Exchange Scheduler
Registry Replication: None

IMPORTANT! Do NOT set up Registry Replication at this time. This action is performed in a later step.

9. In the Windows command prompt window, change to the TDP for Exchange installation directory.
   cd /d d:\Program Files\Tivoli\TSM\TDPExchange

10. Verify that the CLUSTERNODE option in the dsm.opt file is set to YES. After this is verified, enter a command that connects with the TSM server. Specify the /tsmpassword=yourpassword parameter to ensure the correct password is stored in the registry. This allows the scheduler service to properly connect automatically to the TSM Server.
   tdpexcc query tsm /tsmpassword=marspswd

11. From the Cluster Administrator, select the new resource and bring it online (File-> Bring Online).

12. Select the new resource and modify its properties (File-> Properties). Under the Registration Replication tab, add a new entry for the TDP for Exchange node name password registry entry. For example:
   SOFTWARE\IBM\ADSM\CurrentVersion\BackupClient\NODES\<nodename>

   Replace <nodename> with your TDP for Exchange node name. For example:
   SOFTWARE\IBM\ADSM\CurrentVersion\BackupClient\NODES\MARS

13. From the Cluster Administrator, select the new resource and take it offline (File->Take Offline). This stores the encrypted password in the quorum device so that a failover will pick up the correct registry entries.

14. From the Cluster Administrator, select the new resource and bring it online again (File->Bring Online).

Your system is now ready to run automatic daily incremental backups of the Exchange Directory and Information Store databases.
Scheduler Notes

1. If you want to use the TSM server-prompted scheduling mode, you must ensure that the TDP for Exchange option file has the TCPCLIENTADDRESS and TCPCLIENTPORT options specified. If you want to run more than one scheduler service, use the same TCPCLIENTADDRESS. However, you must use different values for TCPCLIENTPORT (in addition to the different node names). An example of running more than one scheduler service is when you are scheduling TDP for Exchange as well as the regular Windows backup client.

Server-prompted scheduling is supported only when TCP/IP communication is being used. By default, TDP for Exchange uses the client polling schedule mode.

2. If any changes that affect the scheduler service are made to the TDP for Exchange options file, the scheduler service has to be restarted in order to pick up the changes. An example of this is the TSM server address, the schedule mode, or the client TCP address or port. This can be done by issuing the following commands:

   net stop "TDP for Exchange Scheduler"
   net start "TDP for Exchange Scheduler"

   Note: IMPORTANT! If you are running the scheduler service in a cluster environment, use the Cluster Administrator to stop and restart your scheduler service. Do NOT use the net stop and net start commands.

3. The default TSM scheduler log file, dsmsched.log, contains status information for the TSM scheduler service. In this example, the file is located in this path:

d:\Program Files\Tivoli\TSM\TDPExchange\dsmsched.log

   You can override this file name by specifying the SCHEDLOGNAME option in the TDP for Exchange options file.

4. TDP for Exchange creates its own log file with statistics about the backed up database objects when the LOGFILE parameter is specified on the tdpexec command. In the sample file
excincr.smp, the log file is excsch.log. This file is different from the TSM scheduler log file and must also be different from the file to which the tdpexcc command output is redirected. In the example above, this file is excincr.log.

**Note:** Output from scheduled commands are sent to the scheduler log file (dsmsched.log). After scheduled work is performed, check the log to ensure the work completed successfully.

When a scheduled command is processed, the scheduler log might contain the following entry:

Scheduled event eventname completed successfully

This is merely an indication that TSM successfully issued the scheduled command associated with the eventname. No attempt is made to determine the success or failure of the command. You should assess the success or failure of the command by evaluating the return code from the scheduled command in the scheduler log. The scheduler log entry for the command’s return code is prefaced with the following text:

Finished command. Return code is:

5. If PASSWORDACCESS GENERATE is not specified in the dsm.opt file, then the TSM password needs to be specified on the tdpexcc command. To specify the password, use the /tsmpassword parameter in the command file being run by the scheduler (excincr.cmd). You can also specify the password on the TDP for Exchange command line. For example:

```
tdpexcc query tsm /tsmnode=mars1 /tsmpassword=newpassword
```
Problem Determination Aids

If an error condition occurs during a TDP for Exchange event, there are several sources of information you can view to help determine what the problem might be. The sources of information are listed below:

- TDP for Exchange logs information on backup and restore commands to the TSM server activity log. A TSM administrator can view this log for you if you do not have a TSM administrator userid and password.

- TDP for Exchange logs information, by default, to the `tdpexc.log` file in the directory where TDP for Exchange is installed. This file indicates the date and time of a backup, data backed up, and any error messages or completion codes. This file is very important and should be monitored daily.

- The TSM API logs API error information, by default, to the `dsierror.log` file in the directory where TDP for Exchange is installed. The `dsierror.log` file must not be marked as Read Only. There are no backup statistics in this file.

- The Exchange Server logs information to the Windows Event Log. Exchange Server error information can be obtained by viewing the Windows Event Log.

- The TSM scheduler logs information to both the `dmsched.log` and the `dsmerror.log` files. By default, these files are located in the directory where the TSM Backup client is installed.
Note: Output from scheduled commands are sent to the scheduler log file (`dsmsched.log`). After scheduled work is performed, check the log to ensure the work completed successfully.

When a scheduled command is processed, the scheduler log might contain the following entry:

```
Scheduled event eventname completed successfully
```

This is merely an indication that TSM successfully issued the scheduled command associated with the `eventname`. No attempt is made to determine the success or failure of the command. You should assess the success or failure of the command by evaluating the return code from the scheduled command in the scheduler log. The scheduler log entry for the command’s return code is prefaced with the following text:

```
Finished command. Return code is:
```

- If backups are failing, try using NTBACKUP to create a COPY or DIFFERENTIAL backup. If NTBACKUP fails in a similar fashion as TDP for Exchange, it most likely indicates a problem with the Exchange Server.

If none of the sources of information listed above helps provide an answer to your problem, contact your IBM service representative. The IBM service representative can provide additional ways to gather diagnostic information.

**Installation Problems: Creating an Installation Log File**

In the event a silent installation fails, gather the following information to assist Customer Support when evaluating your situation:

- operating system level
- service pack
- hardware description
- installation package (CD-ROM or electronic download) and level
Any Windows event log relevant to the failed installation.

- Windows services active during the failed installation (for example, anti-virus software).
- Whether you are logged on to the local machine console (not via terminal server).
- Whether you are logged on as a local administrator, not a domain administrator (Tivoli does not support cross-domain installs).

You can create a detailed log file (setup.log) of the failed installation. Run the setup program (setup.exe) in the following manner:

```
setup /v"/l*v setup.log"
```
Client Messages

ACN0003S  An internal processing error has occurred.
Explanation:  An internal processing error has occurred.
System Action:  Processing ends.
User Response:  Retry the operation. If this error persists, contact your service representative.

ACN0004E  An unknown error has been detected.
Explanation:  An internal processing error has occurred that prevents the generation of a message for a return code.
System Action:  Processing continues.
User Response:  Retry the operation. If this error persists, contact your service representative.

ACN0005E  Out of memory. Stop other processes and retry the operation.
Explanation:  The machine has run out of memory.
System Action:  Processing continues.
User Response:  Free up some system memory and retry the operation.

ACN0053E  License file (licensefile) could not be opened.
Explanation:  An attempt was made to read from the license file. This attempt failed.
System Action:  Processing ends.
User Response:  Reinstall the product. This will ensure that the correct license file is installed.

ACN0054E  Read failure on license file (licensefile).
Explanation:  An attempt was made to read from the license file. This attempt failed.
System Action:  Processing ends.
**User Response:** Reinstall the product. This will ensure that the correct license file is installed.

**ACN0055E** Write failure on license file (*licensefile*).
**Explanation:** An attempt was made to write to the license file. This attempt failed.
**System Action:** Processing ends.
**User Response:** Be sure that there is enough space on the workstation to write the file. If there is, try running the command again.

**ACN0056E** Data in the license file (*licensefile*) is not in a valid format.
**Explanation:** An attempt was made to read information from the license file. This attempt failed.
**System Action:** Processing ends.
**User Response:** Reinstall the product.

**ACN0057E** The checksum in the license file (*licensefile*) does not match the license string text.
**Explanation:** An attempt was made to read information from the license file. The checksum was not valid so it appears that the license file is not at the correct level.
**System Action:** Processing ends.
**User Response:** Reinstall the product.

**ACN0058E** The 'Try and Buy' license has expired.
**Explanation:** This is an error message that indicates that the 'Try and Buy' license that was detected has expired.
**System Action:** Processing ends.
**User Response:** This product is no longer valid for use. A valid license must be obtained before running the product.

**ACN0100E** Incomplete command:
**Explanation:** This message displays the incomplete command that was entered.
**System Action:** Processing ends.
**User Response:** Re-enter the complete command.

**ACN0101E** Invalid argument:
**Explanation:** This message displays the command that was entered, up to and including the invalid command or option argument that was detected.
**System Action:** Processing ends.
**User Response:** Re-enter the command specifying a valid argument for the command or option.
ACN0102E Invalid command:
Explanation: This message displays the invalid command that was entered.
System Action: Processing ends.
User Response: Re-enter a valid command.

ACN0103E Invalid option for the specified command:
Explanation: This message displays the command that was entered, up to and including the option that was detected as invalid for the command.
System Action: Processing ends.
User Response: Re-enter the command specifying valid command options.

ACN0104E Invalid option:
Explanation: This message displays the command that was entered, up to and including the invalid option that was detected.
System Action: Processing ends.
User Response: Re-enter the command specifying valid command options.

ACN0105E Missing argument:
Explanation: This message displays the command that was entered, up to and including the command or option whose required argument is missing.
System Action: Processing ends.
User Response: Re-enter the command specifying a valid argument for the command or option.

ACN0106E The following options cannot be specified together:
Explanation: This message displays the conflicting command options that were entered.
System Action: Processing ends.
User Response: Re-enter the command specifying valid command options.

ACN0107E This command requires one of the following options:
Explanation: This message displays the options that were missing from the command entered.
System Action: Processing ends.
User Response: Re-enter the command specifying one of the command options required by the command.

ACN0108E Multiple dbnames are not allowed.
Explanation: A Restore command was issued and either multiple dbnames were specified for the dbname positional parameter into, relocate or to options or a wildcard character was part of the specified dbname, into, relocate or to option.
System Action: Processing ends.
User Response: Re-enter the command either specifying a single value for the positional parameter or option in error.

ACN0109E  Equal numbers of the relocate and to options must be specified.
Explanation: Unequal numbers of the relocate and to options were specified on a restore command.
System Action: Processing ends.
User Response: Re-enter the command specifying the same number of relocate and to options.

ACN0110E  Wildcards are not allowed as part of the following parameters/options:
Explanation: This message displays the positional parameters and/or options that were specified incorrectly.
System Action: Processing ends.
User Response: Re-enter the command specifying the correct parameters and/or options.

ACN0132W  Tracing could not be started. Processing will continue.
Explanation: There was a problem trying to begin tracing.
System Action: Processing will continue with the command entered.
User Response: There should be other messages along with this one. Refer to the other messages to determine the problem.

ACN0133W  Could not locate installation directory. Attempting to continue...
Explanation: An attempt was made to read the registry to determine where the Tivoli Data Protection application client was installed. This attempt failed.
System Action: Processing will continue with the command entered.
User Response: There should be other messages along with this one. Refer to the other messages to determine the problem. If the problem can not be determined, it may be necessary to reinstall the application client code. This will ensure that the registry entries are set up correctly.

ACN0134W  Could not locate log directory. Processing will continue...
Explanation: An attempt was made to read the registry to determine where the Tivoli Data Protection application client log is located. This attempt failed.
System Action: Processing will continue with the command entered.
User Response: There should be other messages along with this one. Refer to the other messages to determine the problem. If the problem can not be determined, it may be necessary to reinstall the application client code. This will ensure that the registry entries are set up correctly.
<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
</table>
| ACN0150I | **Operation canceled by user.**  
Explanation: The user has requested that the Tivoli Data Protection application client end by entering ctrl-C.  
System Action: Processing ends.  
User Response: None |
| ACN0151E | **Errors occurred while processing the request.**  
Explanation: Attempting to process the request entered, an error occurred.  
System Action: Processing ends.  
User Response: Attempt to determine the source of the errors from viewing the log file. Correct the problems and try running the command again. |
| ACN0152I | **Performance stats:** seconds seconds spent in apicall API calls  
Explanation: The indicated number of seconds were spent making API calls for the indicated system.  
System Action: Processing continues.  
User Response: None |
| ACN0153I | **Performance stats:** seconds seconds spent in function  
Explanation: The indicated number of seconds were spent the named function.  
System Action: Processing continues.  
User Response: None |
| ACN0154E | **The Tivoli Data Protection application client cannot work with the version of the Tivoli Storage Manager API you have installed. Please install version version.release.level or greater.**  
Explanation: The version of the Tivoli Storage Manager API currently installed on the system is older than the version used to build the Tivoli Data Protection application client.  
System Action: Processing ends.  
User Response: Install a version of the Tivoli Storage Manager API at or later than the indicated level. A copy is distributed with the Tivoli Data Protection application client. |
| ACN0155E | **The Tivoli Data Protection application client cannot work with the release of Tivoli Storage Manager API you have installed. Please install release version.release.level or greater.**  
Explanation: The release of the Tivoli Storage Manager API currently installed on the system is older than the release used to build the Tivoli Data Protection application client.  
System Action: Processing ends. |
User Response: Install a release of the Tivoli Storage Manager API at or later than the indicated level. A copy is distributed with the Tivoli Data Protection application client.

**ACN0156E** Could not load the Tivoli Storage Manager API.
Explanation: The Tivoli Storage Manager API could not be loaded.
System Action: Processing ends.
User Response: Ensure the Tivoli Storage Manager API is correctly installed. Run the Tivoli Data Protection application client with the /TRACEFLAGS=API /TRACEFILE=filename options and view the tracefile to determine why it could not be loaded. Another possible cause is that the TSMAPI.DLL does not exist in the system directory. Re-install the Tivoli Storage Manager API, if this is the case.

**ACN0160E** An authentication error occurred with your stored Tivoli Storage Manager password.
Explanation: You were unable to log on to the Tivoli Storage Manager server due to an authentication error.
System Action: Processing stops.
User Response: The stored Tivoli Storage Manager password may have become corrupted. Contact your Tivoli Storage Manager server administrator.

**ACN0161E** Authentication error. The password entered is not valid. You are not logged on to the Tivoli Storage Manager server.
Explanation: An incorrect password was entered.
System Action: Processing stops.
User Response: Enter the correct Tivoli Storage Manager password and try again.

**ACN0162E** The passwords entered do not match. Please enter them again.
Explanation: An incorrect password was entered.
System Action: Processing stops.
User Response: Enter the passwords again.

**ACN0163E** The directory path needs to be fully-qualified.
Explanation: The /intopath option was specified. However, this path needs to be fully-qualified.
System Action: Processing stops.
User Response: Re-enter the command again giving a fully-qualified /intopath.

**ACN0167E** The fully-qualified file name is too long.
Explanation: An attempt was made to use a fully-qualified file name that was too long. This attempt failed.
System Action: Processing ends.
User Response: None
<table>
<thead>
<tr>
<th>Error Code</th>
<th>Description</th>
<th>Explanation</th>
<th>System Action</th>
<th>User Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACN0200E</td>
<td>File <em>(filename)</em> could not be opened for reading.</td>
<td>An attempt was made to open a file for reading. This attempt failed.</td>
<td>Processing ends</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACN0201E</td>
<td>File <em>(filename)</em> could not be opened for writing.</td>
<td>An attempt was made to open a file for writing. This attempt failed.</td>
<td>Processing ends</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACN0202E</td>
<td>Read failure on file <em>(filename)</em>.</td>
<td>An attempt was made to read from a file. This attempt failed.</td>
<td>Processing ends</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACN0203E</td>
<td>Write failure on file <em>(filename)</em>.</td>
<td>An attempt was made to write to a file. This attempt failed.</td>
<td>Processing ends</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACN0204E</td>
<td>File <em>(filename)</em> could not be closed.</td>
<td>An attempt was made to close a file. This attempt failed.</td>
<td>Processing ends</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACN0205E</td>
<td>File <em>(filename)</em> statistics could not be obtained.</td>
<td>An attempt was made to obtain file statistics. This attempt failed.</td>
<td>Processing ends</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACN0206E</td>
<td>Directory <em>(directory)</em> could not be created.</td>
<td>An attempt was made to create a directory. This attempt failed.</td>
<td>Processing ends</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACN0207E</td>
<td>Directory path <em>(directorypath)</em> is too long.</td>
<td>An attempt was made to use a directory path that was too long. This attempt failed.</td>
<td>Processing ends</td>
<td>None</td>
</tr>
</tbody>
</table>
ACN0208E  There is not enough disk space for the operation attempted.
Explanation:  An attempted operation required more disk space than was available.
The attempt failed.
System Action:  Processing ends.
User Response:  None

ACN0209E  The rename of file (filename1) to (filename2) failed.
Explanation:  An attempt was made to rename a file. This attempt failed.
System Action:  Processing ends.
User Response:  None

ACN0210E  The Tivoli Storage Manager high level qualifier is too long.
Explanation:  An attempt was made to use a Tivoli Storage Manager high level qualifier that was too long. This attempt failed.
System Action:  Processing ends.
User Response:  None

ACN0211E  The Tivoli Storage Manager low level qualifier is too long.
Explanation:  An attempt was made to use a Tivoli Storage Manager low level qualifier that was too long. This attempt failed.
System Action:  Processing ends.
User Response:  None

ACN0212E  The Tivoli Storage Manager filespace name is too long.
Explanation:  An attempt was made to use a Tivoli Storage Manager filespace name that was too long. This attempt failed.
System Action:  Processing ends.
User Response:  None

ACN0213E  The maximum number of objects allowed per Tivoli Storage Manager transaction is too small.
Explanation:  In order to maintain backup data integrity, multiple backup objects are sent to the Tivoli Storage Manager server in a single transaction. The Tivoli Storage Manager server has indicated that the maximum number of objects allowed per transaction is less than the minimum required by the Tivoli Data Protection application client.
System Action:  Processing ends.
User Response:  Increase the maximum number of objects allowed per transaction on the Tivoli Storage Manager server and retry the operation.
**ACN0214E** The backup object’s management class backup copy group does not exist.

Explanation: The Tivoli Storage Manager server has indicated that the backup object’s management class backup copy group does not exist.

System Action: Processing ends.

User Response: Contact your Tivoli Storage Manager server administrator.

**ACN0215E** All backup objects do not have the same management class backup copy destination.

Explanation: In order to maintain backup data integrity, multiple backup objects are sent to the Tivoli Storage Manager server within a single transaction. All backup objects within a single transaction are required to have the same management class backup copy destinations.

System Action: Processing ends.

User Response: Contact your Tivoli Storage Manager server administrator.

**ACN0216E** Unable to obtain space information for volume (volumename).

Explanation: An attempt was made to obtain space information for a volume. This attempt failed.

System Action: Processing ends.

User Response: None

**ACN0217E** The Tivoli Storage Manager filespace name is invalid.

System Action: Processing ends.

User Response: Contact your service representative.

**ACN0218E** The Tivoli Storage Manager high level qualifier is invalid.

System Action: Processing ends.

User Response: Contact your service representative.

**ACN0219E** The Tivoli Storage Manager low level qualifier is invalid.

System Action: Processing ends.

User Response: Contact your service representative.

**ACN0256E** The password in your Tivoli Storage Manager options file has expired. Please change your password on the Tivoli Storage Manager server using the 'change password' command and then either change or remove the password value in your options file.

Explanation: Your Tivoli Storage Manager password has expired. You need to change your password.

System Action: Processing ends.
User Response: Obtain a new password for your Tivoli Storage Manager node using the change password command or by asking your Tivoli Storage Manager Administrator to change your password.

ACN0257E Your password has expired.
Explanation: Your Tivoli Storage Manager password has expired. A new password needs to be obtained.
System Action: Processing ends.
User Response: Obtain a new password for your Tivoli Storage Manager node using the change password command or by asking your Tivoli Storage Manager Administrator to change your password.

ACN0258E You did not enter a valid password. Processing ends.
Explanation: The password that was entered was not a valid password.
System Action: Processing ends.
User Response: Re-enter the command specifying a valid password.

ACN0259E The password you entered for verification does not match the password you entered for your new password. Your password will not be changed.
Explanation: The password you entered for verification of your new password does not match the new password that was entered.
System Action: Processing ends.
User Response: Try again to change your password being sure to enter the same password for the new password and for the verification password.

ACN0260I Password successfully changed.
Explanation: The change password command completed successfully
System Action: Processing ends.
User Response: None

ACN0261I There are no backups for the server named servername.
Explanation: There are no backups on the Tivoli Storage Manager server for the specified server name.
System Action: Processing ends.
User Response: None

ACN0263E Failed to start Web browser with a return code of returncode.
Explanation: An attempt was made to start the web browser to view the TSM HTML book. This attempt failed.
System Action: Processing ends.
User Response: Start your web browser manually and point it to bookfrm.htm in the agent htm directory.
<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACN0264I</td>
<td>Could not find the default browser defined. An attempt will be made to use Microsoft’s Internet Explorer.</td>
</tr>
<tr>
<td></td>
<td><strong>Explanation:</strong> An attempt was made to read the registry to determine the default browser. However, there was not one defined. It will be determined where Microsoft Internet Explorer is installed.</td>
</tr>
<tr>
<td></td>
<td><strong>System Action:</strong> Processing continues.</td>
</tr>
<tr>
<td></td>
<td><strong>User Response:</strong> It is possible that a default browser is not defined for the system. This is okay. An attempt will be made to use Microsoft’s Internet Explorer.</td>
</tr>
<tr>
<td>ACN0265E</td>
<td>Could not find Internet Explorer.</td>
</tr>
<tr>
<td></td>
<td><strong>Explanation:</strong> An attempt was made to read the registry to determine where Microsoft’s Internet Explorer was installed. This attempt failed.</td>
</tr>
<tr>
<td></td>
<td><strong>System Action:</strong> Processing ends.</td>
</tr>
<tr>
<td></td>
<td><strong>User Response:</strong> Make sure that the registry is set up correctly for Internet Explorer.</td>
</tr>
<tr>
<td>ACN0266E</td>
<td>Could not find the Tivoli Storage Manager HTML books.</td>
</tr>
<tr>
<td></td>
<td><strong>Explanation:</strong> An attempt was made to read the registry to determine where the Tivoli Storage Manager books were installed. This attempt failed.</td>
</tr>
<tr>
<td></td>
<td><strong>System Action:</strong> Processing ends.</td>
</tr>
<tr>
<td></td>
<td><strong>User Response:</strong> It may be necessary to reinstall the application client code. This will ensure that the registry entries are set up correctly.</td>
</tr>
<tr>
<td>ACN0267E</td>
<td>The verify password entered does not match the new password entered.</td>
</tr>
<tr>
<td></td>
<td><strong>Explanation:</strong> The verify password does not match the new password.</td>
</tr>
<tr>
<td></td>
<td><strong>System Action:</strong> Processing ends.</td>
</tr>
<tr>
<td></td>
<td><strong>User Response:</strong> Retry the command with a matching verify password.</td>
</tr>
<tr>
<td>ACN0300E</td>
<td>Invalid restore type.</td>
</tr>
<tr>
<td></td>
<td><strong>Explanation:</strong> The type of restore requested is invalid.</td>
</tr>
<tr>
<td></td>
<td><strong>System Action:</strong> Processing ends.</td>
</tr>
<tr>
<td></td>
<td><strong>User Response:</strong> Re-enter the command specifying a valid restore type.</td>
</tr>
<tr>
<td>ACN0301E</td>
<td>Invalid backup type.</td>
</tr>
<tr>
<td></td>
<td><strong>Explanation:</strong> The type of backup requested is invalid.</td>
</tr>
<tr>
<td></td>
<td><strong>System Action:</strong> Processing ends.</td>
</tr>
<tr>
<td></td>
<td><strong>User Response:</strong> Re-enter the command specifying a valid backup type.</td>
</tr>
<tr>
<td>ACN0302E</td>
<td>A failure occurred on stripe number (stripe number), rc = return code</td>
</tr>
<tr>
<td></td>
<td><strong>Explanation:</strong> A failure occurred on the numbered stripe.</td>
</tr>
<tr>
<td></td>
<td><strong>System Action:</strong> Processing ends.</td>
</tr>
</tbody>
</table>
### User Response:
There should be other messages along with this one. Refer to the other messages to determine the problem.

### ACN0255E
**Explanation:**
Password Access is Generate. Either the stored password is incorrect or there is no stored password. If you do not have a stored password, use of the `-TSMPassword=xxx` option will set and store your password.

**System Action:**
Processing ends.

**User Response:**
Invoke the command again using the `-TSMPassword` option. Any subsequent commands should now complete without specifying a password.

### ACN0262I
**Explanation:**
There are no backups matching the filespec `directorypath` and the server name `servername`.

**System Action:**
Processing ends.

**User Response:**
None

### ACN3500I
**Explanation:**
This is an informational message that is written to the Tivoli Storage Manager Server activity log when a backup is started.

**System Action:**
None

**User Response:**
None

### ACN3501I
**Explanation:**
This is an informational message that is written to the Tivoli Storage Manager Server activity log when a backup completes successfully.

**System Action:**
None

**User Response:**
None

### ACN3502E
**Explanation:**
This is an informational message that is written to the Tivoli Storage Manager Server activity log when a restore fails.

**System Action:**
None

**User Response:**
None
ACN3503I  TDP for Microsoft Exchange: backup type backup of storage group name from server server name was canceled by the user.
Explanation: This is an informational message that is written to the Tivoli Storage Manager Server activity log when a storage group backup was canceled by the user.
System Action: None
User Response: None Centrally logged

ACN3504I  TDP for Microsoft Exchange: Starting restore for server servername.
Explanation: This is an informational message that is written to the Tivoli Storage Manager Server activity log indicating the start of a restore.
System Action: None
User Response: None Centrally logged

ACN3505I  TDP for Microsoft Exchange: Restore from server servername to servername is complete. Total backups restored: Total bytes transferred: Elapsed processing time: Secs Throughput rate: Kb/Sec
Explanation: This is an informational message that is written to the Tivoli Storage Manager Server activity log indicating the end of a restore.
System Action: None
User Response: None Centrally logged

ACN3506I  TDP for Microsoft Exchange: Starting backup type restore of storage group storage group name to server server name.
Explanation: This is an informational message that is written to the Tivoli Storage Manager Server activity log indicating the start of a storage group restore.
System Action: None
User Response: None Centrally logged

ACN3507E  TDP for Microsoft Exchange: backup type restore of storage group storage group name to server server name completed successfully.
Explanation: This is an informational message that is written to the Tivoli Storage Manager Server activity log when a storage group restore completes successfully.
System Action: None
User Response: None Centrally logged

ACN3508E  TDP for Microsoft Exchange: backup type restore of storage group storage group name to server server name failed, rc = return code.
Explanation: This is an informational message that is written to the Tivoli Storage Manager Server activity log when a storage group restore fails.
System Action: None
User Response: None Centrally logged
ACN3509I  TDP for Microsoft Exchange: backup type restore of storage group storage group name to server server name was canceled by the user.
Explanation: This is an informational message that is written to the Tivoli Storage Manager Server activity log when a storage group restore was canceled by the user.
System Action: None
User Response: None Centrally logged

ACN3510I  TDP for Microsoft Exchange: Attempting to inactivate the object: filespace - [filespace name], hl - [high level], ll - [low level]
Explanation: This is an informational message that is written to the Tivoli Storage Manager Server activity log indicating the attempt to inactivate an object.
System Action: None
User Response: None Centrally logged

ACN3511I  TDP for Microsoft Exchange: Inactivation of the previous objects succeeded.
Explanation: This is an informational message that is written to the Tivoli Storage Manager Server activity log indicating the success of the inactivation of objects.
System Action: None
User Response: None Centrally logged

ACN3512E  TDP for Microsoft Exchange: Inactivation of the previous objects failed.
Explanation: This is an informational message that is written to the Tivoli Storage Manager Server activity log indicating the failure of the inactivation of objects.
System Action: None
User Response: None Centrally logged

ACN3513E  TDP for Microsoft Exchange: Inactivation of the previous objects was canceled.
Explanation: This is an informational message that is written to the Tivoli Storage Manager Server activity log indicating the failure of the inactivation of objects because the task was canceled by the user.
System Action: None
User Response: None Centrally logged

ACN3514I  TDP for Microsoft Exchange: Starting backup for server servername.
Explanation: This is an informational message that is written to the Tivoli Storage Manager Server activity log indicating the start of a backup.
System Action: None
User Response: None Centrally logged
ACN3516I TDP for Microsoft Exchange: Backup of server *servername* is complete. Total storage groups backed up: Total bytes transferred: Elapsed processing time: Secs Throughput rate: Kb/Sec
Explanation: This is an informational message that is written to the Tivoli Storage Manager Server activity log indicating the end of a backup request.
System Action: None
User Response: None Centrally logged

ACN3517E TDP for Microsoft Exchange: Backup of server *servername* failed, rc = *returncode*.
Explanation: This is an informational message that is written to the Tivoli Storage Manager Server activity log indicating the failure of a backup request.
System Action: None
User Response: None Centrally logged

ACN3518I TDP for Microsoft Exchange: Backup of server *servername* failed. The request was canceled by the user.
Explanation: This is an informational message that is written to the Tivoli Storage Manager Server activity log indicating the failure of a backup request. The user canceled the backup.
System Action: None
User Response: None Centrally logged

ACN5050I A new configuration file has been created.
Explanation: The /configfile value specified a file name that didn’t already exist. A new file has been created.
System Action: Processing continues.
User Response: None.

ACN5051W The configuration file cannot be found, using default settings.
Explanation: The /configfile value specified a file that can’t be found, so default settings are being used.
System Action: Processing continues.
User Response: Ensure the file name intended is specified, then re-enter the command.

ACN5052E An error occurred trying to set the preference preference.
Explanation: An error occurred while writing to the preferences file.
System Action: Processing ends.
User Response: View any other messages that were displayed. After reviewing the messages and fixing any of the problems indicated, try running the command again.
<table>
<thead>
<tr>
<th>Message ID</th>
<th>Description</th>
<th>Explanation</th>
<th>System Action</th>
<th>User Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACN5053E</td>
<td>The value for the preference preference is not valid. See the TDPEXCC HELP SET output or the User’s Guide for valid SET command parameters.</td>
<td>The preference being set is not valid.</td>
<td>Processing ends.</td>
<td>Run ”tdpexcc help set” or look at the User’s Guide for valid SET command parameters.</td>
</tr>
<tr>
<td>ACN5054I</td>
<td>The preference has been set successfully.</td>
<td>The preference was set successfully.</td>
<td>Processing ends.</td>
<td>None</td>
</tr>
<tr>
<td>ACN5055E</td>
<td>The Microsoft Exchange API could not be loaded.</td>
<td>If running on Microsoft Exchange 5.5, the dll that is attempting to load is edbbcli.dll. If running on a later version of Microsoft Exchange, the dll that is attempting to load is esebcli2.dll.</td>
<td>Processing ends.</td>
<td>Ensure that the Microsoft Exchange Server has been correctly installed.</td>
</tr>
<tr>
<td>ACN5056I</td>
<td>The logfile log file could not be pruned. Processing will continue.</td>
<td>An attempt was made to prune the log. This attempt was unsuccessful.</td>
<td>Processing continues.</td>
<td>It could be that the log file does not exist. If this is not the case, view the log for indications of what the problems may be.</td>
</tr>
<tr>
<td>ACN5057I</td>
<td>The logfile log file has been pruned successfully.</td>
<td>The log mentioned pruned successfully.</td>
<td>Processing continues.</td>
<td>None.</td>
</tr>
<tr>
<td>ACN5058W</td>
<td>The logfile name is greater than the maximum allowed. Processing will continue using a logfile name of logfile in the current directory.</td>
<td>The logfile name entered was not fully qualified. When the fully qualified logfile name was created, it was longer than the possible length of a logfile.</td>
<td>Processing continues creating and using a logfile in the current directory.</td>
<td>You may want to consider updating the logfile name using a fully qualified path.</td>
</tr>
</tbody>
</table>
ACN5059W  The log file cannot be opened for writing. There will be no logging of events.
Explanation:  The log mentioned could not be opened for append. Therefore, there will be no logging done.
System Action:  Processing continues without logging.
User Response:  Determine why the log could not be opened. It could be that the log file is going to a non-existent drive or partition. Or, that the file is read-only and cannot be written to.

ACN5060E  A Tivoli Storage Manager API error has occurred.
Explanation:  A Tivoli Storage Manager API api error has occurred.
System Action:  Processing ends.
User Response:  Retry the operation. If the error persists, contact your service representative.

ACN5061E  A Microsoft Exchange api error has occurred.
Explanation:  A Microsoft Exchange api error has occurred.
System Action:  Processing ends.
User Response:  Retry the operation. If the error persists, contact your service representative.

ACN5062E  The version of Microsoft Exchange that is running is not a supported version for Tivoli Data Protection for Microsoft Exchange.
Explanation:  Tivoli Data Protection for Microsoft Exchange supports Microsoft Exchange 5.5 or Microsoft Exchange 2000.
System Action:  Processing ends.
User Response:  Update your Microsoft Exchange server to a supported platform.

ACN5063E  An error occurred trying to get the Microsoft Exchange version information. It could be a problem with the registry. Or, a Microsoft Exchange Server is not installed on this machine.
Explanation:  An attempt was made to read the registry to determine the level of Microsoft Exchange that is currently running. This attempt failed.
System Action:  Processing ends.
User Response:  Determine if the registry has been corrupted. Or, it is possible that the Microsoft Exchange Server is not installed on this machine.

ACN5064W  The service cannot be started when doing a restore.
Explanation:  A request was made to restore the listed database. However, the service associated with this database is started. It needs to be stopped in order to do this restore.
System Action:  Processing ends.
User Response:  Stop the associated service and reenter the restore command.
ACN5065E All of the services associated with this restore are running.
Explanation: A request was made to restore some databases. However, all of the services associated with these databases are running. The services need to be stopped in order to do this restore.
System Action: Processing ends.
User Response: Stop the associated services and reenter the restore command.

ACN5066W The storage group <storagegroup> does not exist.
Explanation: A storage group was entered that does not exist on the server specified. In particular, the one that is listed in the message.
System Action: Processing ends.
User Response: Reenter the command giving a storage group that exists.

ACN5067E None of the storage groups and/or databases entered exist. Or, if they do exist, and you are using Exchange 2000, it could be that the databases have not been dismounted.
Explanation: None of the storage groups that were entered, exist on the Microsoft Exchange Server. Or, this could mean that of the storage groups entered, it is possible that there are some databases that are being restored that are not dismounted.
System Action: Processing ends.
User Response: Verify that all of the databases have been dismounted in order to do the restore. Or, verify that all of the storage groups exist that were entered on the command line.

ACN5068W The database <databasename> in the storage group <storagegroup> is not dismounted.
Explanation: While looking at the list to restore, it was determined that not all of the databases within the storage groups were dismounted.
System Action: Processing continues skipping over the listed databases and storage groups.
User Response: If a restore needs to be done for one of the databases skipped, reenter the command being sure that these databases are now dismounted.
ACN5070W  The Directory Service is not running. The Directory will not be backed up.
Explanation: A request was made to backup the Directory service. However, the Directory service needs to be running in order to do the backup.
System Action: Processing ends.
User Response: Start the Directory service and reenter the backup command.

ACN5071W  The Information Store is not running. The Information Store will not be backed up.
Explanation: A request was made to backup the Information Store. However, the Information Store needs to be running in order to do the backup.
System Action: Processing ends.
User Response: Start the Information Store and reenter the backup command.

ACN5072W  Databases in storage group <storage group> are dismounted -- skipping.
Explanation: A request was made to backup a set of storage groups. However, there are databases in this storage group that are not mounted. All of the databases need to be mounted in order to backup this storage group.
System Action: Processing continues, but skips this particular database.
User Response: Mount all of the databases for this particular storage group and reissue the backup for this storage group.

ACN5073E  None of the storage groups entered are in a state to be backed up.
Explanation: A request was made to backup a set of storage groups. However, each of the storage groups entered has at least one database that is dismounted.
System Action: Processing ends.
User Response: Mount all of the databases for the particular storage groups and reissue the backup command.

ACN5074E  None of the databases/storage groups entered exist.
Explanation: A request was made to backup a set of storage groups or databases. However, none exist. It could be that the name was typed in without the correct casing.
System Action: Processing ends.
User Response: Be sure that the correct casing was used when entering the list to be backed up. Then, reissue the backup command.

ACN5076W  Unable to inactivate all previous backup objects.
Explanation: A request was made to inactivate some previous backup objects. This attempt failed.
System Action: Processing ends.
User Response: When the next full of the database is done, another attempt will be made to inactivate the failed objects.
ACN5083I All of the storage groups entered have been excluded.
Explanation: An attempt was made to do a backup. However, the storage groups or databases entered have been excluded by an exclude statement in the options file.
System Action: Processing ends.
User Response: If you want this storage group or database backed up, you need to modify the exclude statements in your options file.

ACN5084W IS was not input as one of the parts to restore. The partial option will be ignored.
Explanation: A request was made to restore either/or the private or public part of the Information Store. However, the IS was not input as one of the parts to restore.
System Action: Processing continues ignoring the partial option.
User Response: If you really want to restore either/or the public or private part of the Information Store, you need to enter IS as an input.

ACN5086W None of the storage groups entered exist. Or, if doing a DBCOPY backup, the database entered does not exist.
Explanation: A storage group was entered that does not exist on the server specified. Or, if a DBCOPY backup was entered, the dbname specified does not exist on the Microsoft Exchange Server.
System Action: Processing ends.
User Response: Reenter the command giving a storage group or dbname that exists.

ACN5140I Storage Group <storagegroup> does not exist - skipping.
Explanation: The storage group that was specified by the user is not found on this Exchange server.
System Action: This storage group is ignored.
User Response: Check for misspelled input and re-enter command.

ACN5141I Database <database>, Storage Group <storagegroup> does not exist - skipping.
Explanation: This combination of storage group and database name that was specified by the user is not found on this Microsoft Exchange server.
System Action: This combination is ignored.
User Response: Check for misspelled input and re-enter command.

ACN5142E No storage group was found that matches the request.
Explanation: The storage groups or databases could not be found on this Microsoft Exchange server.
System Action: Execution ends.
User Response: Check for misspelled input and re-enter command.
ACN5237E Unable to communicate with the Microsoft Exchange Server.
Explaination: An attempt was made to communicate the with the Microsoft Exchange Server that was entered. This attempt failed.
System Action: Processing ends.
User Response: Be sure that the Microsoft Exchange server that was entered is valid. Also, be sure that the Microsoft Exchange server is running.

ACN5238E Unable to retrieve the domain information for the Microsoft Exchange Server.
Explaination: An attempt was made to retrieve the domain information for the Microsoft Exchange Server. This attempt failed.
System Action: Processing ends.
User Response: Be sure that the Microsoft Exchange server is running.

ACN5239E Unable to retrieve the storage group information.
Explaination: An attempt was made to retrieve the storage group information for the Microsoft Exchange Server. This attempt failed.
System Action: Processing ends.
User Response: Be certain that the Microsoft Exchange Server is running properly.

ACN5240E Unable to retrieve the database information.
Explaination: An attempt was made to retrieve the database information for the storage group of the Microsoft Exchange Server. This attempt failed.
System Action: Processing ends.
User Response: Be certain that the Microsoft Exchange Server is running properly.

ACN5241E The Microsoft Exchange Information Store is currently not running.
Explaination: An attempt was made to retrieve the Microsoft Exchange Server information. This attempt failed.
System Action: Processing ends.
User Response: In order to retrieve the Microsoft Exchange Server information, the Microsoft Exchange Information Store needs to be running. Start this service to get the requested information.

ACN5301E Unable to get the value for the Organization from the registry.
Explaination: An attempt was made to read the registry to determine the organization for the Microsoft Exchange Server. This attempt failed.
System Action: Command ends.
User Response: Determine if there is a problem with the registry. Or, Microsoft Exchange may not be installed properly.
ACN5302E Unable to get the value for the Site from the registry.
Explanation: An attempt was made to read the registry to determine the site for the Microsoft Exchange Server. This attempt failed.
System Action: Command ends.
User Response: Determine if there is a problem with the registry. Or, Microsoft Exchange may not be installed properly.

ACN5303E Unable to get the value for Circular Logging from the registry.
Explanation: An attempt was made to read the registry to determine the Circular Logging setting for either the IS or the DIR of the Microsoft Exchange Server. This attempt failed.
System Action: Command ends.
User Response: Determine if there is a problem with the registry. Or, Microsoft Exchange may not be installed properly.

ACN5304E Unable to open service to determine if running or not.
Explanation: An attempt was made to open a service. This attempt failed.
System Action: Command ends.
User Response: Determine if there is a problem with the Microsoft Exchange server.

ACN5305E Unable to query service information.
Explanation: An attempt was made to query specific service information. This attempt failed.
System Action: Command ends.
User Response: Determine if there is a problem with the Microsoft Exchange server.

ACN5350E An unknown Exchange API error has occurred.
Explanation: An Exchange api error has occurred but the associated error message could not be found. The Windows NT event log may contain more information.
System Action: Processing ends.
User Response: If the Windows NT event log does not help resolve the problem, verify the Exchange Server installation and retry the operation. If the error persists, contact your service representative.

ACN5351E The Exchange server application is not registered for backup.
Explanation: The Exchange server application must be registered for backup with the Windows Server. The Windows NT event log may contain more information.
System Action: Processing ends.
User Response: If the Windows NT event log does not help resolve the problem, verify the Exchange Server installation and retry the operation. If the error persists, contact your service representative.
ACN5352E The Exchange server application is not registered for offline restore.
Explanation: The Exchange server application must be registered for offline restore with the Windows Server. The Windows NT event log may contain more information.
System Action: Processing ends.
User Response: If the Windows NT event log does not help resolve the problem, verify the Exchange Server installation and retry the operation. If the error persists, contact your service representative.

ACN5353E The Exchange server application is not registered for online restore.
Explanation: The Exchange server application must be registered for online restore with the Windows Server. The Windows NT event log may contain more information.
System Action: Processing ends.
User Response: If the Windows NT event log does not help resolve the problem, verify the Exchange Server installation and retry the operation. If the error persists, contact your service representative.

ACN5354E The storage group was not found.
Explanation: The specified storage group name was not found.
System Action: Processing ends.
User Response: Verify the command input and retry the operation. If the error persists, contact your service representative.

ACN5355E The database was not found.
Explanation: The specified database name was not found.
System Action: Processing ends.
User Response: Verify the command input and retry the operation. If the error persists, contact your service representative.

ACN5356E The database file name is undefined.
Explanation: Every Microsoft Exchange database must specify a database file name.
System Action: Processing ends.
User Response: Verify the database properties and retry the operation. If the error persists, contact your service representative.

ACN5357W The truncation of the transaction log failed.
Explanation: The truncation of the transaction log failed.
System Action: Processing continues.
User Response: There should be other messages along with this one. Refer to the other messages to determine the problem.
| ACN5358E | A Microsoft Exchange API protocol error has occurred.  
Explanation: An unrecoverable Microsoft Exchange API protocol error has occurred.  
System Action: Processing ends.  
User Response: Contact your service representative. |
| --- | --- |
| ACN5359E | An attempt was made to get the TEMP environment variable. This attempt failed.  
Explanation: The TEMPLGRESTOREPATH option was not set for the restore. So, an attempt was made to get the TEMP environment variable for the machine. This attempt failed.  
System Action: Processing ends.  
User Response: Be sure that the TEMP environment variable is set for this machine. Or, you can use the TEMPLGRESTOREPATH option with the restore. |
| ACN5360E | The /ERASEexistingdata option is not allowed during a partial restore.  
Explanation: A partial storage group restore was requested with the /ERASEexistingdata option. The /ERASEexistingdata option is not allowed during a partial restore.  
System Action: Processing ends.  
User Response: Reissue the command to restore the entire storage group or reissue the command without the /ERASEexistingdata option. |
| ACN5361E | It is invalid to have an '*' within a storage group name.  
Explanation: An attempt was made to backup a storage group that contains an '*' in a storage group name. It is invalid to have an '*' within a storage group name.  
System Action: Processing continues, but this storage group will not be backed up.  
User Response: Either rename the storage group or this storage group cannot be backed up. |
| ACN5362W | The filespace <filespace> in an invalid filespace name.  
Explanation: When getting the filespaces, it was noted that the filespace displayed in the message existed, but is an invalid filespace.  
System Action: Processing continues, but this filespace will not be used.  
User Response: It is possible that there is a storage group that exists that contains invalid characters within its name. Refer to the Microsoft Exchange documentation as to the list of invalid characters. |
| ACN5500E | The MultiByteToWideChar() function failed.  
Explanation: This is an internal error.  
System Action: Processing ends.  
User Response: Retry the operation. If this error persists, contact your service representative. |
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<tr>
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<th>Message Description</th>
</tr>
</thead>
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<td>ACN5501E</td>
<td>The WideCharToMultiByte() function failed.</td>
</tr>
<tr>
<td></td>
<td><strong>Explanation:</strong> This is an internal error.</td>
</tr>
<tr>
<td></td>
<td><strong>System Action:</strong> Processing ends.</td>
</tr>
<tr>
<td></td>
<td><strong>User Response:</strong> Retry the operation. If this error persists, contact your service representative.</td>
</tr>
<tr>
<td>ACN5705W</td>
<td>An error was encountered with Tivoli Storage Manager API initialization, rc = returncode. Examine the dsierror.log for more information or determine if the TSM API is installed properly.</td>
</tr>
<tr>
<td></td>
<td><strong>Explanation:</strong> An attempt was made to run setup for the Tivoli Storage Manager API. However, errors were encountered.</td>
</tr>
<tr>
<td></td>
<td><strong>System Action:</strong> Processing continues.</td>
</tr>
<tr>
<td></td>
<td><strong>User Response:</strong> Examine the dsierror.log file to determine the problem. If this file does not exist, it is possible that the TSM API is not installed properly. If this is the case, reinstall the TSM API and try running the command again.</td>
</tr>
<tr>
<td>ACN5706I</td>
<td>The logfile_name log file did not need pruning.</td>
</tr>
<tr>
<td></td>
<td><strong>Explanation:</strong> The log file specified did not need to be pruned.</td>
</tr>
<tr>
<td></td>
<td><strong>System Action:</strong> Processing continues.</td>
</tr>
<tr>
<td></td>
<td><strong>User Response:</strong> The log file will automatically be pruned at a later date. If the log file is too large now, lower the number of days the log entries are retained.</td>
</tr>
<tr>
<td>ACN5707W</td>
<td>The logfile_name log file could not be opened for writing. The log was not pruned and there will be no logging of events.</td>
</tr>
<tr>
<td></td>
<td><strong>Explanation:</strong> The log mentioned could not be opened for append. Therefore, there will be no logging done and the request to prune was not done.</td>
</tr>
<tr>
<td></td>
<td><strong>System Action:</strong> Processing continues without logging and without pruning.</td>
</tr>
<tr>
<td></td>
<td><strong>User Response:</strong> Determine why the log could not be opened. It could be that the log file is going to a non-existent drive or partition, or that the file is marked read-only.</td>
</tr>
<tr>
<td>ACN5724I</td>
<td>No databases have been selected for backup.</td>
</tr>
<tr>
<td></td>
<td><strong>Explanation:</strong> The backup button was pressed but no databases have been selected in the list in the graphical user interface.</td>
</tr>
<tr>
<td></td>
<td><strong>System Action:</strong> Processing stops.</td>
</tr>
<tr>
<td></td>
<td><strong>User Response:</strong> Select a database then press the backup button.</td>
</tr>
<tr>
<td>ACN5725I</td>
<td>No Storage Groups have been selected for backup.</td>
</tr>
<tr>
<td></td>
<td><strong>Explanation:</strong> The backup button was pressed but no Storage Groups have been selected in the tree or list in the graphical user interface.</td>
</tr>
<tr>
<td></td>
<td><strong>System Action:</strong> Processing stops.</td>
</tr>
<tr>
<td></td>
<td><strong>User Response:</strong> Select a Storage Group then press the backup button.</td>
</tr>
</tbody>
</table>
ACN5741I  No Backups have been selected to be Restored.
Explanation: The restore button was pressed but nothing was selected in the tree or list view.
System Action: Processing stops.
User Response: Select something then press the restore button again.

ACN5771W  At least one of the database's services that is selected for restore is running. Do you want to stop the service(s)?
Explanation: It has been detected that a service you are trying to restore is running.
System Action: None

ACN5772W  At least one of the databases that is selected for restore is mounted. Do you want to dismount the database(s)?
Explanation: It has been detected that a database you are trying to restore is mounted.
System Action: None

ACN5779E  Unable to dismount database database in storage group storage group. Do you want to continue the restore process?
Explanation: An error was received while trying to dismount a database.
System Action: None.
User Response: Press OK to try to continue with the restore process or cancel to stop.
Term definitions in this glossary pertain to the TSM library. If you do not find a term you are looking for, you can refer to the following publications:

- *IBM Dictionary of Computing*, at URL:
  http://www.ibm.com/networking/nsg/nsgmain.htm
- *Tivoli Software Glossary*, at URL:

This glossary may include terms and definitions from:

- The *Information Technology Vocabulary*, developed by Subcommittee 1, Joint Technical Committee 1, of the International Organization for Standardization and the International Electrotechnical Commission (ISO/IEC JTC2/SC1).

### A

**active policy set**
The policy set within a policy domain that contains the most recently activated policy. This policy set is used by all client nodes assigned to the current policy domain. See *policy set*.

**active version**
The most recent backup copy of a file stored in TSM storage for a file that currently exists on a file server or workstation. An active version remains active and exempt from deletion until:
- Replaced by a new backup version.
- TSM detects, during an incremental backup, that the user has deleted the original file from a file server or workstation.

**administrative client**
A program that runs on a file server, workstation, or mainframe. This program lets administrators monitor and control TSM servers using TSM administrator commands. Contrast with *backup-archive client*. 
administrator
A user who is registered to the server as an administrator. Administrators may possess one or more privilege classes. Administrators can use the administrative client to enter TSM server commands and queries according to their privileges.

application program interface (API)
A set of functions that applications running on a client platform can call to store, query, and retrieve objects from TSM storage.

archive
A function permitting users to copy one or more files to a long-term storage device. Archive copies can:
- Accompany descriptive information
- Imply data compression software usage
- Be retrieved by archive date, file name, or description

Contrast with retrieve.

archive copy
A file or group of files residing in an archive storage pool in TSM storage.

archive copy group
A policy object containing attributes that control the generation, destination, and expiration of archived files. The archive copy group belongs to a management class.

archive retention grace period
The number of days TSM retains an archived copy when the server is unable to rebind the file to an appropriate management class.

authentication
The process of checking and authorizing a user’s password before permitting user access to the TSM server. An administrator with system privilege can enable or disable authentication.

authorization rule
A specification permitting another user to either restore or retrieve a user’s files from TSM storage.

backup
A function permitting users to copy one or more files to a storage pool to protect against data loss. Contrast with restore.
backup-archive client
A program that runs on a file server, PC, or workstation and provides a means for TSM users to back up, archive, restore, and retrieve files. Contrast with administrative client.

backup copy group
A policy object containing attributes that control the generation, destination, and expiration of backup files. A backup copy group belongs to a management class.

backup version
A backed up file, directory, or file space that resides in a backup storage pool in TSM storage. The active version is the most recent backup version. See active version and inactive version.

client
A program running on a file server, PC, workstation, or terminal that requests services of another program called the server. There are two types of TSM clients: administrative and backup-archive. See administrative client and backup-archive client.

client domain
The set of drives, file systems, or volumes selected by a user for processing during a backup or archive operation.

client node
A file server or workstation registered with the server on which the backup-archive client program is installed.

client options file
A file that a client can edit, containing a default set of processing options that identify the server, communication method, backup and archive options, space management options, and scheduling options.

client/server
A communications network architecture in which one or more programs (clients) request computing or data services from another program (the server).

closed registration
A registration process in which an TSM administrator must register workstations as client nodes with the server. Contrast with open registration.

command line interface
A type of user interface where commands are specified on the command line. Contrast with graphical user interface.
commit
To make changes permanent in the databases files. Changes made to the database files are not permanent until they are committed.

communication method
The method by which a client and server exchange information.

communication protocol
A set of defined interfaces that permits computers to communicate with each other.

compression
The process of saving storage space by eliminating empty fields or unnecessary data to shorten the length of the file. In TSM, compression can occur at a workstation before files are backed up or archived to server storage. On some types of tape drives, hardware compression can be used.

copy backup
A copy backup is similar to a full backup except that transaction log files are not cleared after the backup. A backup copy can be used to make a full backup of the Exchange Server database without disrupting any backup procedures that use incremental or differential backups.

copy group
An TSM policy object that determines how TSM backs up or archives files. Copy groups belong to management classes. There are two copy groups:
- Backup copy group—determines how TSM backs up or archives files.
- Archive copy group—determines how TSM archives files.

default management class
A management class assigned to a policy set. This class is used to govern backed up or archived files when a user does not explicitly associate a file with a specific management class through the include-exclude list.

differential backup
A differential backup backs up only transaction logs, but does not clear them. If you perform a full backup and then perform only differential backups, the last full backup plus the latest differential backup has all data needed to bring the database back to the most recent state. This type of backup is also called a cumulative incremental backup.

domain
See policy domain or client domain.

dsm.opt file
See options file. Also called client options file.
error log
A text file written on disk that contains TSM processing error messages. These errors are detected and saved by the TSM server.

exclude
The process of identifying files in an include-exclude list. This process prevents the files from being backed up or migrated whenever a user or schedule enters an incremental or selective backup operation.

expiration
The process in which files are identified for deletion because their expiration date or retention period has passed. Backed up or archived files are marked for deletion based on the criteria defined in the backup or archive copy group.

file server
A dedicated computer and its peripheral storage devices connected to a local area network that stores both programs and files shared by users on the network.

file space
A logical space on the TSM server that contains a group of files. In TSM, users can restore, retrieve, or delete file spaces from TSM storage.

full backup
A full backup backs up the specified database as well as its associated transaction logs. After the database and logs are backed up, the log files are deleted.

generate password
Processing that stores a new password in an encrypted password file when the old password expires. Automatic generation of a password prevents password prompting. Password generation can be set in the options file (passwordaccess option). See options file.

gigabyte (GB)
(1) One billion \(10^9\) bytes. (2) When referring to memory capacity, 1,073,741,824 in decimal notation.
graphical user interface (GUI)
A type of user interface that takes advantage of a high-resolution monitor, includes a
combination of graphics, the object-action paradigm, and the use of pointing
devices, menu bars, overlapping windows, and icons. Contrast with command line
interface.

GUI
Graphical user interface.

inactive version
A copy of a backup file in TSM storage that either is not the most recent version, or
the corresponding original file was deleted from the client file system. Inactive
backup versions are eligible for expiration according to the management class
assigned to the file.

include-exclude file
A file containing statements to determine the files to back up and the associated
management classes to use for backup or archive. See include-exclude list.

include-exclude list
A list of include and exclude options that include or exclude selected files for
backup. An exclude option identifies files that should not be backed up. An include
option identifies files that are exempt from the exclusion rules or assigns a
management class to a file or a group of files for backup or archive services. The
include-exclude list is defined in one or more include-exclude files or in the client
options file. The include-exclude list may contain entries from any or all of the
following sources: the client options file, separate include-exclude files, or the TSM
server. See options file.

incremental backup
An incremental backup only backs up the transaction logs and then clears them.
Restoration of an Exchange Server database from an incremental backup requires a:
- Restore of the last full backup.
- Restore of any other incremental backups performed between the full backup
  and this incremental backup.
- Restore of this incremental backup.

LAN
Local area network.
Local Area Network (LAN)
A variable-sized communications network placed in one location. LAN connects servers, PCs, workstations, a network operating system, access methods, and communications software and links.

management class
A TSM policy object that is a named collection of copy groups. A management class is associated with a file to specify how the server should manage backup versions or archive copies of workstation files.

Named Pipe
A type of interprocess communication that permits message data streams to pass between peer processes, such as between a client and a server.

NetBIOS
Network Basic Input/Output System.

Network Basic Input/Output System (NetBIOS)
An operating system interface for application programs used on IBM personal computers that are attached to the IBM Token-Ring Network.

node
See client node.
	node name
A unique name used to identify a workstation, file server, or PC to the server.

open registration
A registration process in which users can register their own workstations or PCs as client nodes with the server. Contrast with closed registration.

options file
A file that contains processing options. Identifies TSM servers, specifies communication methods, defines scheduling options, selects backup, archive, restore, and retrieve options. Also called the client options file.
**P**

**policy domain**
A TSM policy object that lets TSM group client nodes by the policies that govern their files and by the administrator who manages the policies. The policy domain contains one or more policy sets.

**policy set**
A TSM policy object that specifies the management classes that are available to groups of users. More than one policy set can exist. However, only one policy set at a time can be active.

**progress indicator**
A control used to inform a user about the progress of a process.

**R**

**recovery log**
A log of updates that are about to be written to the databases. The log can be used to recover from system and media failures.

**registration**
The process of identifying a client node or administrator to the server by specifying a user ID, password, and contact information. For client nodes, a policy domain, compression status, and deletion privileges are also specified.

**registry**
A central database in Windows that contains information about hardware, applications, and operating system settings for each machine on the network. Provides security and control over system, security, and account settings.

**restore**
A function that permits users to copy a version of a backup file from the storage pool to a workstation or file server. The backup copy in the storage pool is not affected. Contrast with backup.

**retention**
The amount of time, in days, that inactive backed up or archived files are retained in the storage pool before they are deleted. The following copy group attributes define retention: retain extra versions, retain only version, retain version.

**retrieve**
A function permitting users to copy an archived file from the storage pool to the workstation or file server. The archive copy in the storage pool is not affected. Contrast with archive.
scheduling
A function permitting an administrator to schedule backup and archive operations from a central location. Operations can be scheduled on a periodic basis or on an explicit date.

scheduling mode
The type of scheduling operation for the client-server node. TSM supports two scheduling modes: client-polling and server-prompted.

scroll
Move through a list of items in a window by operating the scrollbars with the mouse cursor.

select
Choose an item from a list or group of items.

selective backup
A function permitting users to back up files from a client domain. These files are not excluded in the include-exclude list and meet the requirement for serialization in the backup copy group of the management class assigned to each file. Contrast with incremental backup.

server
A program running on a mainframe, workstation, or file server that provides shared services such as backup and archive to other various (often remote) programs (called clients).

server-prompted scheduling
A client-server communication technique where the server contacts the client node when tasks need to be done.

session
A period of time in which a user can communicate with a server to perform backup, archive, restore, or retrieve requests.

space management
The process of keeping sufficient free storage space available on a local file system for new data and making the most efficient and economical use of distributed storage resources.

storage pool
A named set of storage volumes used as the destination of backup, archive, or migrated copies.
TCP/IP


timeout

A time event involving:
- An event that happens at the end of a predetermined period of time that began at the happening of another specified event.
- A time interval allotted for certain operations to happen. For example, response to polling or addressing before system operation is interrupted and must be restarted.
- A terminal feature that logs off a user if an entry is not made within a specified period of time.

Tivoli Storage Manager (TSM)

A client/server program that provides storage management to customers in a multivendor computer environment.

Transmission Control Protocol/Internet Protocol (TCP/IP)

A set of communication protocols that support peer-to-peer connectivity functions for both local and wide area networks.

version

Storage management policy may allow back-level copies of backed up objects to be kept at the server whenever an object is newly backed up. The most recent backed up copy is called the ‘active’ version. Earlier copies are ‘inactive’ versions. The following backup copy group attributes define version criteria: versions data exists, and versions data deleted.

wildcard character

An asterisk (*) or question mark (?) character used to represent multiple (*) or single (?) characters when searching for various combinations of characters in alphanumeric and symbolic names.

workstation

A programmable high-level workstation (usually on a network) with its own processing hardware such as a high-performance personal computer. In a local area network, a personal computer that acts as a single user or client. A workstation can also be used as a server.
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