

ADSTAR Distributed Storage Manager
for VM



Quick Start

Version 2

Note!

Before using this information and the product it supports, be sure to read the general information under Appendix E, "Notices" on page 63.

This book is also available in a softcopy form that can be viewed with the IBM BookManager READ licensed program.

First Edition (September 1996)

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Before You Begin

ADSTAR Distributed Storage Manager (ADSM) is a client/server program that provides storage management services to customers in a multivendor computer environment. ADSM provides an automated, centrally scheduled, policy-managed backup, archive, and space-management facility for file servers and workstations. The term *workstation* will be used in this book to denote workstations, file servers, and PCs.

This publication helps you to get up and running with a usable, practical ADSM system. It explains how to:

- Install the server on VM/ESA
- Define the communication network for server and clients
- Customize ADSM for your environment

What You Should Know before Reading This Publication

Before using this publication, you should be familiar with:

- VM/ESA operating system
- Devices that will be available to ADSM
- Workstation operating systems on which backup-archive clients reside
- Workstation operating system on which the administrative client resides
- Communication protocols required for the client/server environment

You also need to understand the storage management practices of your organization, such as how you are currently backing up your workstation files and how you are using disk and tape storage.

This section provides an overview of the tasks covered in this book. It also presents an overview of ADSM concepts that are useful in performing those tasks. The steps for each task are described in detail beginning with Chapter 1, "Installing ADSM" on page 1.

Conventions Used in This Book

This section describes the conventions used in this book to make finding and understanding information easier.

Note: If you are viewing this book online, identifying text appears instead of icons.

Types of Information

The following conventions help you to identify types of information.



Important tips or cautions



Detailed information that is useful, but not essential, in performing a task



Tips to help you avoid or correct problems

Where Tasks Are Performed

The following conventions identify where to perform the associated tasks:



VM/ESA command line



ADSM command line. This can be either the server console or the administrative client command line.



ADSM administrative client graphical user interface



ADSM end user client command line



ADSM end user client graphical user interface

How to Use This Book

This book takes you through the tasks for setting up a basic, practical ADSM system. The approach is to take advantage of most defaults supplied by the ADSM commands or graphical user interface.

Installation and Setup Results

After you complete the tasks in Chapter 1, “Installing ADSM” on page 1, “Installing the CMS Administrative Client” on page 15, and Chapter 2, “Setting Up the Server” on page 17, your ADSM system will look like this:

Database and Recovery Log

Sized to fit your needs.

Disk Storage Pools

Three default disk storage pools for backup, archive, and space-managed client data with volumes sized to fit your needs.

Clients

Installed and registered administrative and backup-archive clients.

Standard Policy

Objects for a default storage policy are defined (all are named STANDARD). This policy specifies the following:

- When a backed up file is no longer associated with a backup copy group, it remains in server storage for 30 days.
- When an archived file is no longer associated with an archive copy group, it remains in server storage for 365 days.
- Client files are not space managed.
- For backup operations:
 - Files are backed up to the default disk storage pool, BACKUPPOOL.
 - An incremental backup is performed only if the file has changed since the last backup.
 - Files cannot be backed up while they are being modified.
 - Up to two backup versions of a file on the client's system are retained in server storage. The most recent backup version is retained for as long as the original file is on the client file system. All other versions are retained for up to 30 days.
 - One backup version of a file that has been deleted from the client's system is retained in server storage for 60 days.
- For archive operations:
 - Files are backed up to the default disk storage pool, ARCHIVEPOOL.
 - Files cannot be archived while they are being modified.
 - An archive copy is kept for up to 365 days.

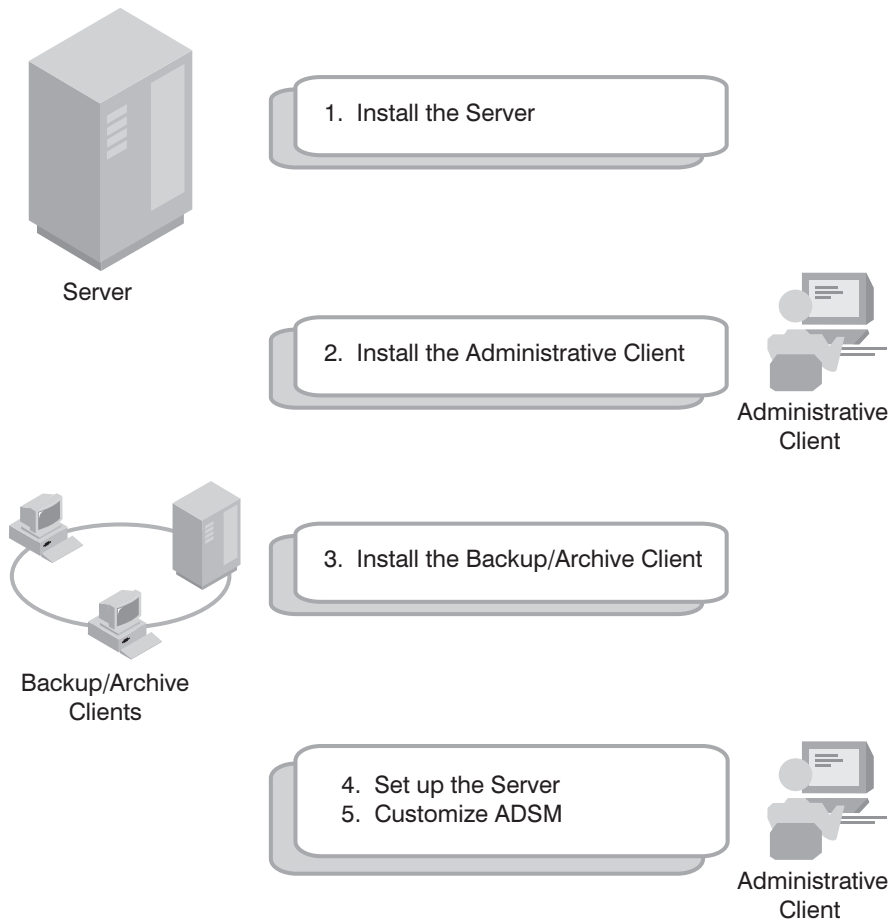
Chapter 3, "Customizing Your ADSM System" on page 25 describes how to do following:

- Add manual tape devices and automatic tape libraries
- Add storage pools for tape volumes
- Arrange disk and tape storage pools in a hierarchy so that client data migrates from disk to tape based on criteria that you specify
- Create a new storage policy to meet the needs of a specific group of users in your installation
- Create an include/exclude list template that clients can use to exclude specified data from policy operations
- Define schedules to automate client operations such as backup and archive.

- Define schedules to automate commands issued from the administrative client.

Basic Tasks

The following figure presents an overview of the tasks of installing, setting up, and customizing ADSM.



The following list names each task and points to the details of the procedures:

- 1** Installing the server (page 1)
- 2** Installing the administrative client (page 15)
- 3** Installing backup-archive clients (see page 15 and *ADSM Installing the Clients*)

4 Setting up the server (page 17)

- a** Assigning administrators (page 17)
- b** Starting the administrative client (page 17)
- c** Stopping the server (page 19)
- d** Stopping an administrative client session (page 20)
- e** Defining disk volumes (page 20)
- f** Registering client nodes (page 22)
- g** Verifying server installation (page 23)

5 Customizing ADSM (page 25)

- a** Using tape drives with ADSM (page 25)
- b** Verifying storage management (page 29)
- c** Creating a new policy (page 30)
- d** Automating Client Operations (page 35)
- e** Automating Administrative Commands (page 39)
- f** Adjusting database, recovery log, and storage pool space (page 40)

Advanced Tasks

To take greater advantage of the power of ADSM, you may want to perform other tasks described in the *ADSM Administrator's Guide*, including the following:

Server and storage pool protection

You can:

- Mirror your database and recovery log
- Back up your database and storage pools
- Recover lost or damaged database and storage pool data

Storage Pools and Volumes

You can:

- Enhance your storage pool definitions
- Move files from one volume to another

Storage Policies

You can enhance your storage policy definitions to:

- Customize policies for groups of clients
- Provide clients on some platforms with space management services
- Provide additional functions to backup and archive services

Automation of Client Operations and Administrative commands

You can:

- Enhance your schedule definitions
- Optimize the timing of scheduled operations

Security

You can:

- Let clients access ADSM without requiring passwords
- Modify the password expiration interval
- Assign levels of administrator authority

Server Operations

You can monitor and control:

- Server processes
- Client sessions
- ADSM activity log
- ADSM accounting records

Server Data

You can copy all or part of the server data to removable media and transfer it to a second server.

Before You Continue

Here are some questions that you should answer before you start to install and customize your ADSM system:

- Which workstations in my network will require ADSM services and what communications method will they use to attach to the server?
- Who will I need to administer ADSM?
- What devices do I want to include in my ADSM system?
 - What are the device types of each?
 - What are the capacities of the device media?
- What are the backup, archive, and space management needs of the ADSM users? Are there groups that have different needs? Within groups should some files be managed differently? For example:
 - How often should client files be backed up?
 - How many versions of client files should be retained?
 - How long should those versions be retained?

- What types of data require quick access and what types do not?
- Which client operations do I want to automate and when should they be scheduled?
- Which administrative commands do I want to automate and when should they be scheduled?

ADSM Concepts

The rest of this section describes some basic ADSM concepts that can help you in your installation and customization. If you are already familiar with ADSM, you can go directly to Chapter 1, “Installing ADSM” on page 1.

How ADSM Can Change the Way You Work

This book introduces you to a different way of managing your data storage. ADSTAR Distributed Storage Manager (ADSM) provides centrally administered services based on a set of defined policies. Many services can be automated and scheduled to make the best use of your data processing resources.

After you tailor your ADSM system to the needs of your installation, it will run with a minimum of intervention from you. Your initial effort will be to define to ADSM the devices and media it has access to, the clients it will supply services to, the policies that will govern those services, and schedules for automating your operations.

The benefits of this effort include increasing your productivity, eliminating error-prone, repetitive tasks, and providing a flexible, consistent set of policies to govern many types of data owned by a wide variety of user groups.

This section introduces you to some ADSM concepts that will help you perform the tasks described in the rest of the book. It also includes an overview of those tasks and the more advanced tasks described in the ADSM Administrator's Guide. Finally, this section provides some questions to consider when you are planning the installation and customization of ADSM.

System-Managed Storage

ADSTAR Distributed Storage Manager (ADSM) includes the following components:

Server

Provides ADSM services to client workstations. The server maintains a database and recovery log for ADSM resources, users, and user data.

Server Storage

Consists of storage pools of random and sequential access media. The storage pools contain files that are backed up, archived, and migrated from client nodes.

Server Utilities

Provides an interface to help configure the ADSM server.

Administrative client

Provides an interface for controlling the ADSM server.

Backup-archive client

Provides backup-restore and archive-retrieve services to workstations and file servers.

Hierarchical storage management (HSM) client

Provides space management services for workstations on some platforms.

Server Storage Migration

One goal of system-managed storage is to ensure the most efficient use of your storage resources. You can structure server storage into a hierarchy. You can then define criteria by which data is migrated from faster, more expensive storage pools (disk, for example) to slower, less expensive storage pools (tape, for example).

ADSM Policy

ADSM policy governs storage management, including:

Backup

Copying files from client workstations to server storage to ensure against loss of data. Copies of multiple versions of a file can be stored.

Archiving

Copying files from client workstations to server storage for long-term storage.

Space Management

Freeing client storage space by copying a file from client workstations to server storage. The original file is replaced with a much smaller file that points to the location of the original in server storage. This is also called **migration**.

Policy is defined by administrators in policy objects: policy domains, policy sets, management classes, and backup and archive copy groups.

Figure 1 on page xiii shows an overview of the ADSM process for storing client data.

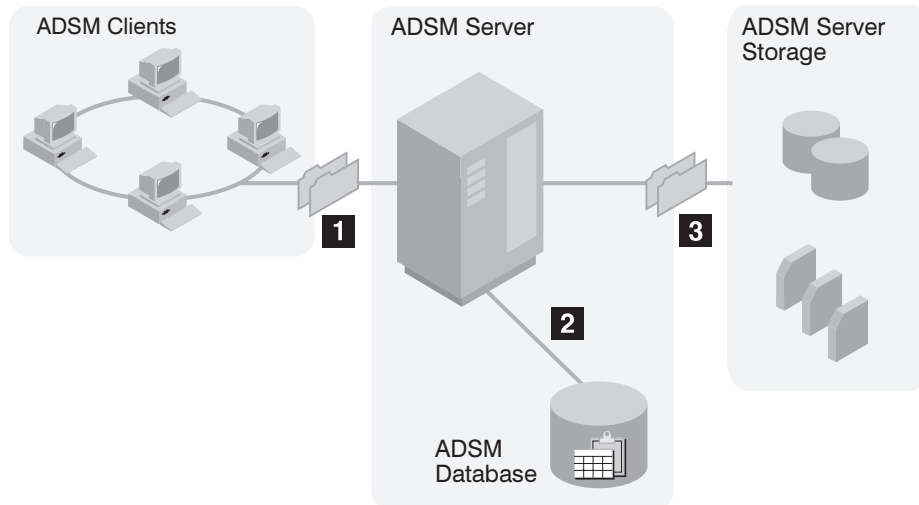


Figure 1. Overview of How ADSM Stores Client Data

When clients back up, archive, or migrate files, ADSM:

1 Determines where to store the file

ADSM checks the management class bound to the file to determine the destination of the file, that is, where the file should be stored. A destination might be a group of disk or tape volumes. These groups of volumes are called storage pools. Copy groups, which are within management classes, specify destinations for backed up and archived files. Management classes specify destinations for space-managed files.

2 Stores information about the file in the ADSM database

ADSM saves information in the database about each file in server storage. For example, ADSM saves the name and location of the file.

3 Stores the file in ADSM server storage

ADSM stores the client files in disk or tape storage pools.

Figure 2 on page xiv shows the interaction between ADSM policy objects and ADSM backup, archive, and space management services.

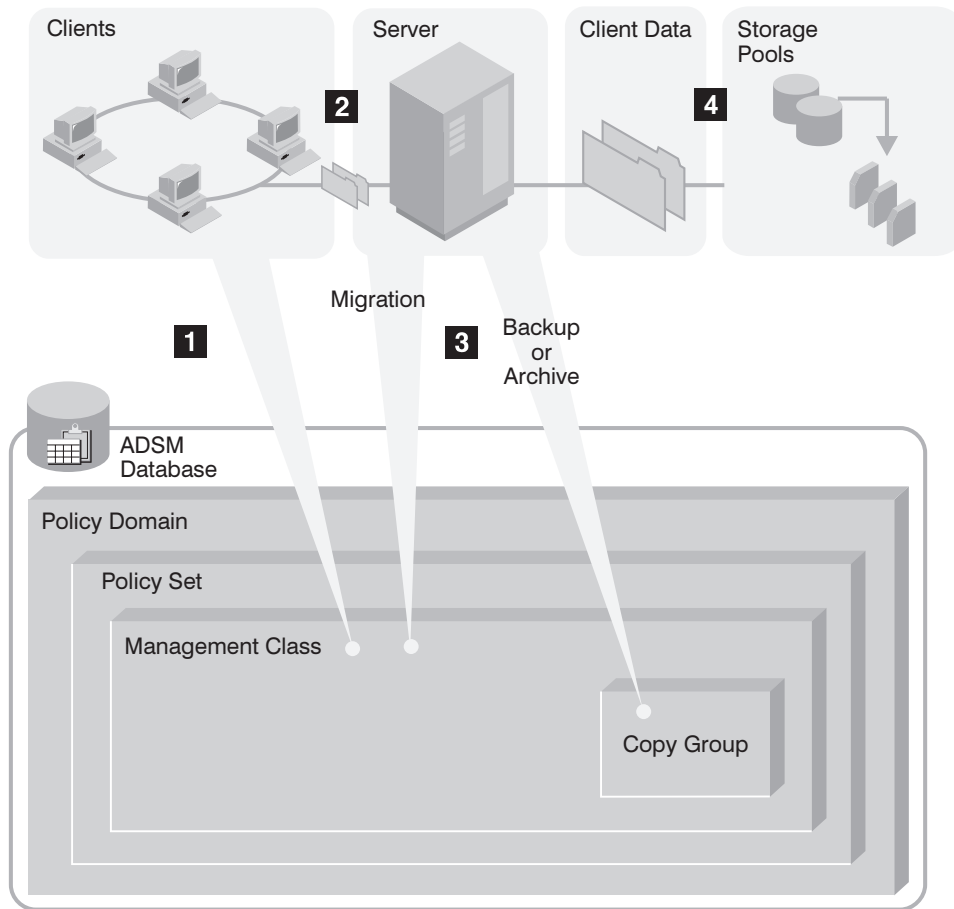


Figure 2. How ADSM Controls Backup, Archive, and Space Management

- 1** An ADSM client backs up, archives, or migrates a file. The file is bound to either the default management class or a management class specified in the client's include-exclude list.
- 2** If, according to the management class, the file is eligible for backup, archive, or space management, the client sends the file and file information to the server.
- 3** The server checks the management class or copy group to determine where in server storage to store the file initially.
- 4** The server stores the file in the appropriate storage pool and information about the file in the database.

When files in server storage are migrated from one pool to another, the server updates the file information in the database.

Expiration

Files remain in server storage until they expire and expiration processing occurs. A file expires based on criteria set in ADSM policy. For example, backup policy may specify that up to two backup versions of a file can be kept in server storage. If a third backup version of a file is created, the oldest version in server storage expires. Backup policy may also specify that if a file is deleted from a client file system, it expires after 60 days.

During expiration processing, ADSM deletes from the database those files that have expired.

Storage Devices and Media

ADSM represents physical storage devices and media with the following administrator-defined storage objects:

- Device class
- Storage pool
- Storage volume

Device Class

Each device is associated with a device class that specifies the device type and how the device manages its media. ADSM has a predefined device class (DISK) for random access devices. Administrators can also define device classes for sequential access devices, such as 3490 tape drives.

Storage Pools

A storage pool is a named collection of storage volumes that are associated with one device class. Each storage pool represents a collection of volumes sharing the same media type. For example, a 3490 tape storage pool contains only 3490 tape volumes.

Storage Pool Volumes

A storage pool volume is associated with a specific storage pool and represents a unit of space available for ADSM client data.

Figure 3 on page xvii summarizes the relationships among the physical device environment, ADSM storage objects, and ADSM clients. The numbers below correspond to the numbers in the figure.

- 1** When clients are registered, they are associated with a policy domain. Within the policy domain are the other ADSM policy objects.
- 2**, **3** When a file is backed up, archived, or migrated from a client, it is bound to a management class. A management class and the backup and archive copy groups within it specify where files are stored and how they are managed when they are backed up, archived, or migrated from a client (space-managed files).
- 4**, **5** Storage pools are the destinations for backed up, archived, or space-managed files. Copy groups specify storage pools for backed up or archived files. Management classes specify storage pools for space-managed files.

Storage pools are mapped to device classes, which represent devices. The storage pool contains volumes as indicated in the device type associated with the device class. For example, a storage pool that is mapped to a device class with a device type of CARTRIDGE contains only cartridge tapes.

All devices require a device class that specifies a device type.

- 6** Files that are initially stored on disk storage pools can migrate to tape storage pools if the pools are set up in a storage hierarchy.

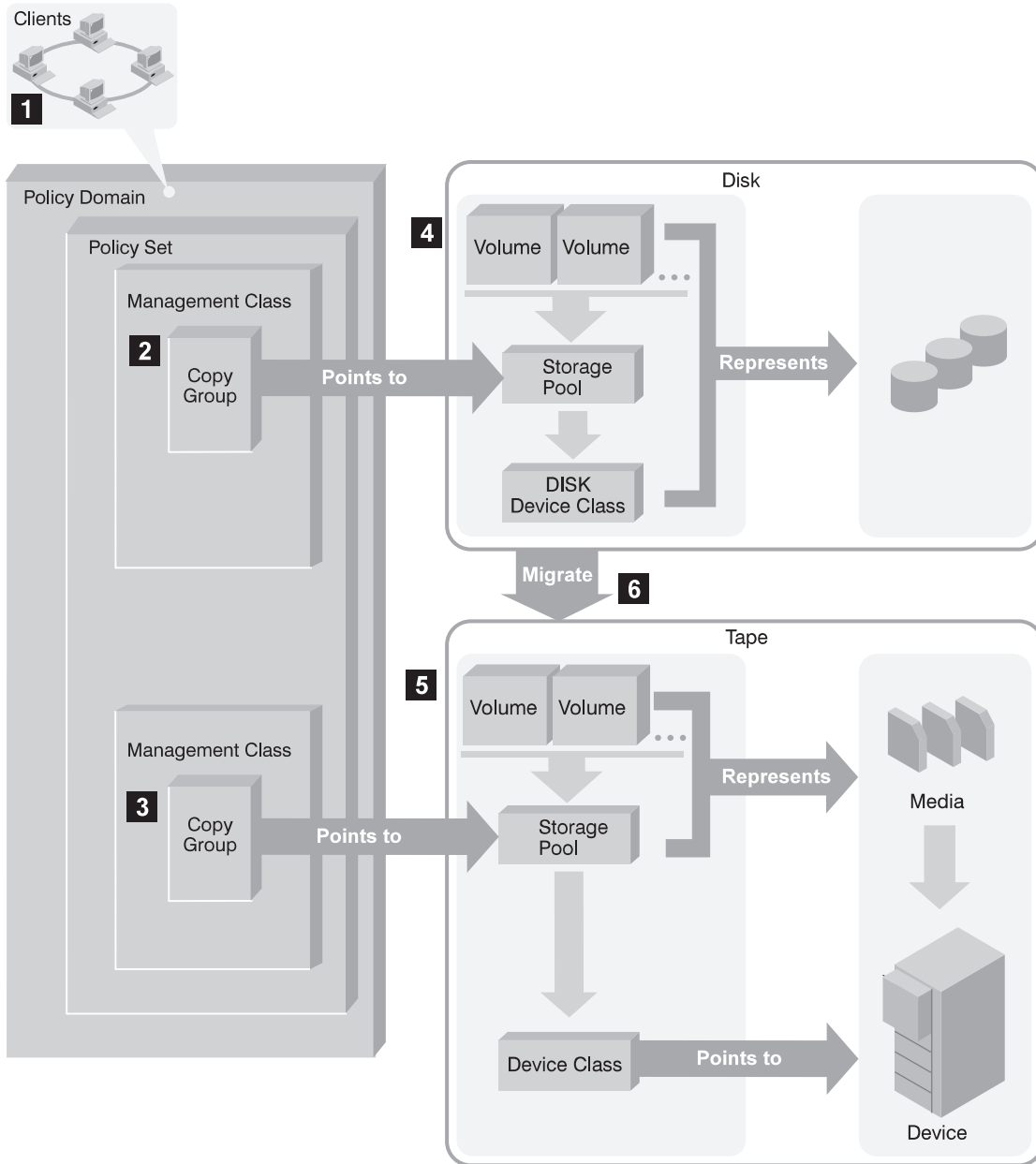


Figure 3. Putting it All Together

Automating Client Operations

You can automate client operations, such as backup and archive. Figure 4 on page xix shows the ADSM objects that may be involved in automated client operations. They are:

Include-exclude criteria on each ADSM client

Determines which files are backed up, archived, or space-managed, and binds files to management classes

Management class

Determines where client files are stored and how they are managed

Schedule

Determines when client operations such as backup occur

Association defined between client and schedule

Determines which schedules are run for a client

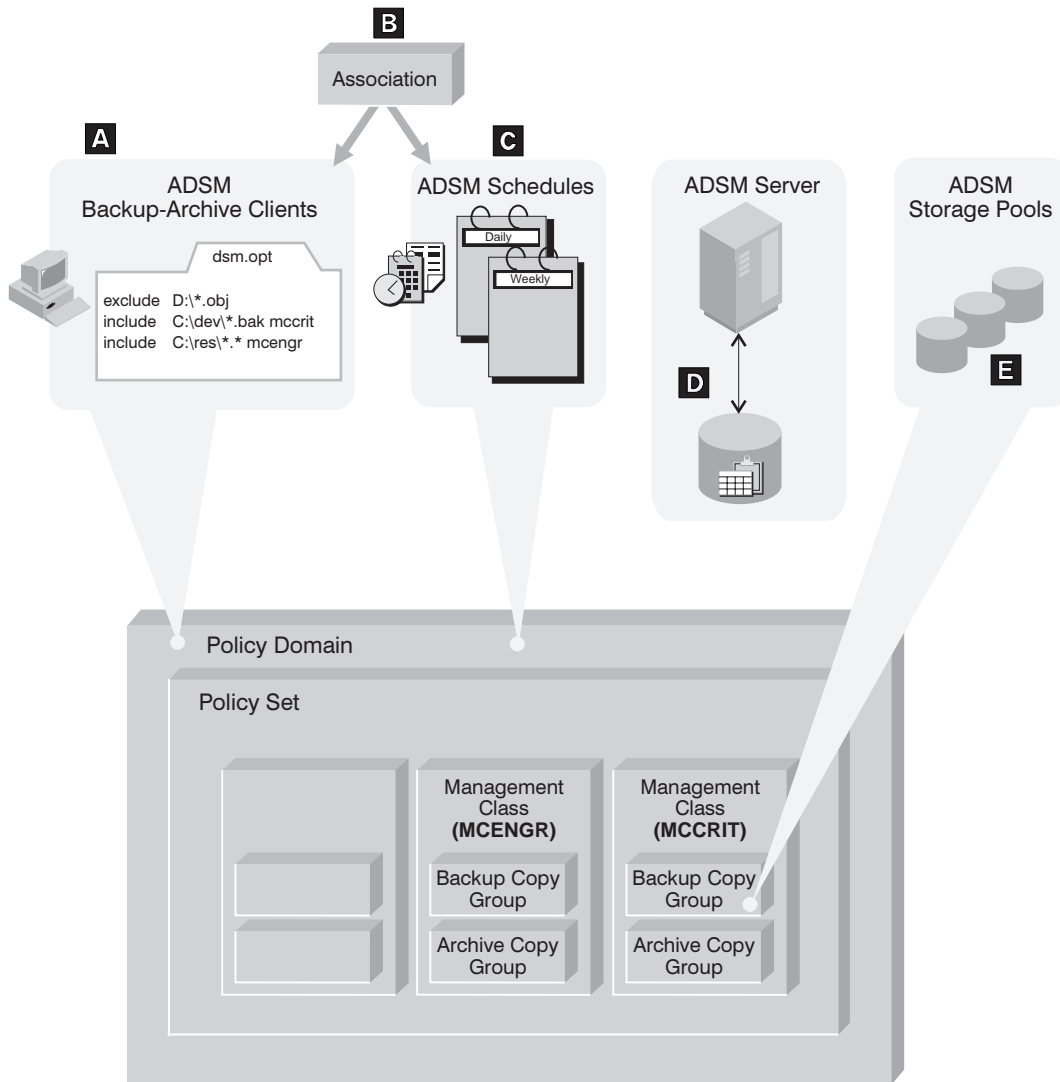


Figure 4. Automating Client Operations

The client can specify a management class for a file or set of files, or can use the default management class for the policy domain. The client specifies a management class by using an **INCLUDE** option in the client's include-exclude list or file. (See **A** in Figure 4.)

The management class contains information that determines how ADSM handles files that clients backup, archive, or migrate. For example, the management class contains the backup copy group and the archive copy group. Each copy group points to a *destination*, a storage pool where files are stored when they are backed up or archived. (See **E** in Figure 4.)

Clients are assigned to a policy domain when they are registered. Schedules that can automate client operations are also associated with a policy domain. (See **C** in Figure 4.) To automate client operations, you define schedules for a domain. Then you define associations between schedules and clients in the same domain. (See **B** in Figure 4 on page xix.)

For a schedule to work on a particular client, the client machine must be turned on and must be running the client scheduler.

The scheduled client operations are called *events*, and information about events are stored in the ADSM database. (See **D** in Figure 4 on page xix.) For example, you can query the server to determine which scheduled events completed successfully and which failed.

Chapter 1. Installing ADSM

If you already have ADSM Version 1 installed on your system, go to “Installing ADSM Version 2 Over ADSM Version 1.” If you do not have ADSM installed on your system, go to “Installing ADSM for the First Time” on page 5.

Installing ADSM Version 2 Over ADSM Version 1

The following steps are based on the assumptions that you already have ADSM Version 1 installed and operational and that you have:

- Database, recovery log, and disk storage pool volumes initialized and defined
- One or more administrative clients installed, registered, and granted the appropriate authority levels
- Backup-archive clients installed and registered

To install an ADSM Version 2 server over an ADSM Version 1, do the following:

1 Install the ADSM Version 2 server software.

The software is installed on the production disk; the default owning user ID is U655119A; and the default virtual address is 491. See the *Program Directory* for details.

2 Dump the server database to tape.

From an administrative client connected to the Version 1 server, issue the following online ADSM command:



```
dump db devclass=cartridge consistent=yes scratch=yes
```

Store the output volumes in a safe location. You will need these volumes if you want to return to Version 1 after you have installed Version 2.

3 Modify directory definition LINK statements.

Change the LINK statements in the ADSM server and exit machine directory definitions from the Version 1 user ID (the default is U5648020) to the Version 2 user ID (the default is U655119A). For example, change:

```
LINK U5548020 491 491 RR
```

to:

```
LINK U655119A 491 491 RR
```

4 Update the new link definitions:

```
VM > logon dsmserv
ADMIN > halt
VM > logoff
VM > logon dsmserv
```



Do not restart the server until step 8 on page 4.

5 Access the ADSM production build disk.

This disk has the files needed to by the server.

```
VM > access 491 c
```

6 Update the PROFILE EXEC.

A sample PROFILE EXEC, DSMSERV PROFILE, is supplied with ADSM Version 2. Do the following:

- a** Copy DSMSERV PROFILE from the production build disk to the A-disk:

```
VM > copyfile dsmserv profile c = = a1
```

- b** If you have customized your PROFILE EXEC for ADSM Version 1, you can copy those changes into DSMSERV PROFILE (see “DSMSERV PROFILE” on page 43 for details).

- C** Rename the Version 1 PROFILE EXEC and DSMSERV PROFILE, and invoke the new PROFILE EXEC:



```
rename profile exec a = vlexec =  
rename dsmserv profile a profile exec =  
profile
```

7 Edit the server options file.

There are new server options for ADSM Version 2. A sample server options file, DSMSERV SAMPOPTS, is supplied with ADSM Version 2. The sample file includes instructions for editing the file and brief descriptions of each option. See *ADSM Administrator's Reference* for more detailed descriptions of each option.

Set at least the following options:

- VOLUMEHISTORY and DEVCONFIG

These options specify backup files in which the server stores information needed to restore the database.

- LICENSE

You can use this option multiple times to set the terms of your ADSM license. The default license is for an unlimited number of administrative clients, one backup-archive client on OS/2, and support for any devices in Device Support Modules 1 and 2.

Note: For current information about supported devices, check with your authorized reseller. You can also call the IBM Information Support Center at 1-800-IBM-3333 and ask for STAR 20, or you can send an E-mail note to askibm-rsvp@info.ibm.com with STAR 20 in the body of the note.

To change the terms of your license, after starting the ADSM server, you can edit DSMSERV OPT again. However, you must halt server before editing the file and then restart the server before the changes are effective. However, if you issue the REGISTER LICENSE command from the server console or an administrative client, you do not have to halt and restart the server. For details about the REGISTER LICENSE command, see the *ADSM Administrator's Reference*.

- a** Copy DSMSERV SAMPOPTS to the DSMSERV A-disk.



```
copyfile dsmserv sampopts c = = a1
```

- b** If you have customized your server options file (DSMSERV OPT) for ADSM Version 1, you can copy those changes into DSMSERV SAMPOPTS and make any other changes you wish.

- c** After you have updated DSMSERV OPTS, rename the Version 1 DSMSERV OPT and save it. Then rename DSMSERV SAMPOPTS to DSMSERV OPT.



```
rename dsmserv opt a = v1opt =
```

```
rename dsmserv sampopts a = opt =
```

- 8** Start the server and, if the ADSM and CP messages indicate that the upgrade was successful, disconnect DSMSERV:



```
dsmserv /upgradedb
```

```
#cp disc
```



Use the UPGRADEDB parameter only once.

- 9** Verify your server installation (see “Verifying Your Server Installation” on page 23 for details), and then continue at step 10.

- 10** Back up the current device configuration information.

The information is stored in the files defined in step 7 on page 3.



```
backup devconfig
```




1. Double click on **Server**
2. Click on **Server** from the menu bar
3. Click on **Backup device configuration** from the pull-down menu
4. The **Device Configuration - Backup** window is displayed
5. Click on the **Backup** push button

11 As an experienced ADSM user, you may have no further need of this book. However, you may refer to Chapter 3, “Customizing Your ADSM System” on page 25 if you want to:

- Use tape drives with ADSM
- Modify your storage policy
- Create sample include-exclude lists
- Define schedules to automate client operations or server commands

Installing ADSM for the First Time

When you install the ADSM code on your system, you are installing the code for both the ADSM server and the CMS administrative client.

1 Install the ADSM Version 2 server software.

The software is installed on the production disk; the default owning user ID is U655119A; and the default virtual address is 491. See the *Program Directory* for details.

2 Define the ADSM virtual machine.

You can create the DSMSERV user ID by using VM/DIRMAINT or the equivalent. Place the directory definition in the system directory. This step requires authority to update the system directory.

You can use the sample directory definition, DSMSERV SAMPDIR, found on the production disk (U655119A 491 disk), to help you complete this step. See “DSMSERV SAMPDIR” on page 41 for the contents of this file. Selected statements from DSMSERV SAMPDIR are explained below:

```
USER DSMSERV password 28M 48M AG
```

DSMSERV The recommended user ID for the ADSM server virtual machine.

password The DSMSERV password.

- 28M** The recommended minimum virtual storage for the ADSM server program. However, the server can run in smaller virtual storage. If MACHINE 370 is specified or is the default, the minimum storage size must be 16M or less.
- 48M** The maximum virtual storage size. It can be changed as necessary.
- AG** The minimum privilege classes needed by the server. Class A is for the CP commands AUTOLOG, XAUTOLOG, and FORCE Class G is for general user privileges.

If your installation assigned different privilege classes to the CP commands used by ADSM, use your installation-defined privilege classes.

```
MACHINE ESA
```

This statement indicates that the ADSM server virtual machine can run a program above the 16M line. To define the virtual machine as 370 replace ESA with 370. If this statement is deleted or commented out (an asterisk * in column 1), the virtual machine is defined as 370 by default.

```
OPTION MAXCONN 50 ACCT
```

- MAXCONN** The maximum number of IUCV connections that can be active at one time. Specify one IUCV connection for each minidisk (191 not included) for I/O using the *BLOCKIO service, plus the number of IUCV sessions that can be active at one time.
- ACCT** Indicates to CP that the server will create accounting records.

```
IUCV ALLOW
```

This statement indicates that any virtual machine can establish a communication path with the server. It is needed for CMS administrative clients that use IUCV to establish a session with the ADSM server.

```
LINK U655119A 491 491 RR
LINK U655119A 4E2 4E2 RR
```

- U655119A** The default user ID that owns the 491 and 4E2 disks. Yours may be different.
- 491** The production disk default virtual address. Yours may be different.

- 491** The virtual address by which the server knows the production disk.
- 4E2** The virtual address of the test build disk. Yours may be different.
This disk will have the serviced ADSM software that should be used for testing the serviced product. After testing is completed, the files on this disk are copied to the production build disk (491) by the service process.
- 4E2** The virtual address by which the server knows the test build disk.
The MDISK directory statements described below are in the following format:

```
MDISK vaddr devtype startcyl size vvvvvv MR
```

vaddr Virtual address
devtyp Device type, for example, 3380
startcyl Starting cylinder
size Number of cylinders
vvvvvv DASD volume serial number

```
MDISK 191 3380 0000 010 vvvvvv MR
MDISK 200 3380 0000 022 vvvvvv MR
MDISK 201 3380 0000 035 vvvvvv MR
MDISK A00 3380 0000 020 vvvvvv MR
MDISK A01 3380 0000 020 vvvvvv MR
MDISK A02 3380 0000 015 vvvvvv MR
```



At this time, use CMS FORMAT to format only the 191 disk. Do not format the other; you will do it later with DSMINST.

Disk	Description
191	The ADSM server's A-disk where the PROFILE EXEC and the DSMSERV OPT file reside. Tracing information and other files created by the server may be stored on this disk.
200	Recovery log volume Only one is required, but you can define additional volumes. The recommended size is at least 13MB. The size depends on a number of factors, including the number of concurrent client sessions.
201	Database volume Only one is required, but you can define additional volumes. The recommended size is at least 21MB. The size is largely determined by the number of client files being stored on server storage.

A00-A02 Storage pool volumes

Storage pool volume virtual addresses must be in the range A00-FFF. The recommended size is at least 32MB. ADSM has three default disk storage pools: BACKUPPOOL, ARCHIVEPOOL, and SPACEMGPOOL. The backup storage pool should be at least large enough to contain one night's backup of client data. You can then migrate the data to a tape storage pool.

If you want to mirror your recovery log and database volumes, you should add MDISK statements for volumes of the same size as the originals. For example,

```
MDISK 300 3380 0000 022 vvvvvv MR
MDISK 301 3380 0000 035 vvvvvv MR
```

3 Define the ADSM exit machines.

You can define up to 32 virtual machines for running the ADSM tape mount (DSMMOUNT EXEC) and tape deletion (DSMDELET EXEC) exits. You can define an exit machine user ID directory entries by using VM/DIRMAINT or its equivalent. Follow these procedures for each exit machine you want to define.

Place the directory definition in the system directory. This step requires authority to update the system directory.

You can use the sample directory definition, DSMEXIT SAMPDIR, on the production disk (U655119A 491 disk) to help you complete this step. Selected statements from DSMEXIT SAMPDIR are explained below (see "DSMEXIT SAMPDIR" on page 42 for the complete file).

```
USER DSMEXIT1 password 3M 3M G
```

DSMEXIT1 The recommended user ID for the exit machine. Each virtual machine must have a unique user ID.

password The exit machine password.

3M The minimum size of virtual storage needed by the exit machine. Specify a larger virtual storage value as needed.

3M This is the maximum size of virtual storage needed by the exit machine. Specify a larger virtual storage value as needed.

G This is the minimum privilege class that can be defined. Include additional privilege classes as needed.

```
LINK U655119A 491 491 RR readpw
LINK U655119A 4E2 4E2 RR
```

- U655119A** The default user ID that owns the 491 and 4E2 disks. Yours may be different.
- 491** The production disk default virtual address. Yours may be different.
- 491** The virtual address by which the server knows the production disk.
- 4E2** The virtual address of the test build disk. Yours may be different.
This disk will have the serviced ADSM that should be used for testing the serviced product. After testing is completed, the files on this disk are copied to the production build disk (491) by the service process.
- 4E2** The virtual address by which the server knows the test build disk.
- readpw* The read password.

```
MDISK 191 3380 0000 001 vvvvvv MR
```

The exit machine's A-disk where the PROFILE EXEC and other required files reside.

You should format at least 1 cylinder for the 191 disk.


4 Set up DSMEXIT1.

Logon to DSMEXIT1, and access the ADSM production build disk, which contains DSMEXIT PROFILE.

```
 logon dsmexit
VM access 491 c
```

a Get the exit machine PROFILE EXEC.

Copy DSMEXIT PROFILE from the production build disk to the exit machine A-disk as PROFILE EXEC and modify it as needed:

```
 copyfile dsmexit profile c profile exec a1
VM
```

- b** Copy DSMMOUNT EXEC and DSMDELETE EXEC from the production build disk to the exit machine A-disk:



```
copyfile dsmmount exec c = = a1
```

```
copyfile dsmdelct exec c = = a1
```

You will need to modify these execs to suit your needs. See *ADSM Administrator's Guide* for details.

- c** Logoff the exit machines.



```
logoff
```

You will need to modify these execs to suit your needs. See *ADSM Administrator's Guide* for details.

5 Set up DSMSERV.

Logon to DSMSERV, and access the ADSM production build disk, which contains the files needed to initialize the server volumes and start the server.



```
logon dsmserv
```

```
access 491 c
```

6 Set up the server PROFILE EXEC.

- a** Copy DSMSERV PROFILE from the production build disk to the A-disk as PROFILE EXEC:



```
copyfile dsmserv profile c profile exec a1
```

- b** Determine the default CMS setting for the number of loader tables:



```
query ldrtbls
```

C Edit the PROFILE EXEC.

Make changes as needed, but ensure the following:

- A CMS GLOBAL command indicates the appropriate run-time libraries.
 - To use the LE/370 libraries, ensure that the PROFILE EXEC links to and accesses the LE/370 libraries' minidisks, and include the following statement:

```
global loadlib sceerun
```

- To use the C/370 libraries, ensure that the PROFILE EXEC links to and accesses the C/370 libraries' minidisks, and include the following statement:tn

```
global txtlib ibmlib  
global loadlib edclink
```

- If the CMS default loader tables setting is not at least 25, set them to at least that number in the PROFILE EXEC:

```
set ldrtbls 25
```

d Invoke the PROFILE EXEC:



profile

7 Create the server options file.

Copy DSMSERV SAMPOPTS to the A-disk as DSMSERV OPT:



copyfile dsmserv sampopts c = opt a1

This is the sample server options file and includes instructions for editing the file and brief descriptions of each option. Review the file and refer to *ADSM Administrator's Reference* for more detailed descriptions of each option. At this time you should set at least the following options:

- Communications method options

For an ADSM client to establish a session with the server, you must specify one or more communications options. The supported communication methods and their definitions are described in "Setting Server Communications Options" on page 47.

- VOLUMEHISTORY and DEVCONFIG

These options specify backup files in which the server stores information needed to restore the database.

- LICENSE

The default ADSM license is for an unlimited number of administrative clients, one backup-archive client on OS/2, and support for any devices in Device Support Modules 1 and 2.

Note: For current information about supported devices, check with your authorized reseller. You can also call the IBM Information Support Center at 1-800-IBM-3333 and ask for STAR 20, or you can send an E-mail note to askibm-rsvp@info.ibm.com with STAR 20 in the body of the note.

You can add, delete, or change LICENSE statements to define your ADSM license terms. To change license terms after starting the ADSM server, halt the server, edit DSMSERV OPT, and restart the server. However, you can change license terms with halting and restarting the ADSM server, by issuing the REGISTER LICENSE command from the server console or an administrative client. DSMSERV OPT must reside on a read/write minidisk for the command to work. For details about the REGISTER LICENSE command, see the *ADSM Administrator's Reference*.

8 Initialize the recovery log, database, and storage pool minidisks.

The examples in this book are based on the following disks:

200	Recovery log
300	Recovery log mirror
201	Database
301	Database mirror
A00-A02	Storage pool volumes

a Enter:



dsminst

b You are prompted for the following:

- The virtual addresses of the disks to be used for the volumes in this sequence:
 - Recovery log volumes
 - Database volumes
 - Additional volumes for recovery log and database mirror volumes and for storage pool volumes
- If the disks require CMS FORMAT (Enter “yes”)

Here is an example of the prompt for a recovery log volume:

```
ANR9052I Enter the virtual addresses of one or more disks to use
ANR9052  for RECOVERY LOG volumes:
ANR9098I (enter a valid address format, Quit, or a null line)
200
ANR9111I Disk address 0200 accepted; total = 1

ANR9053I Does RECOVERY LOG disk 0200 require CMS FORMAT?
ANR9099I Enter Yes, No, or Quit
yes
```

After initialization is complete, the results are displayed. For example:

Storage Type	Minidisk Address	CMS FORMAT?
-----	-----	-----
(1) Recovery Log	0200	Yes
(1) Database	0201	Yes
(1) Additional Vol.	0300	Yes
(2) Additional Vol.	0301	Yes
(3) Additional Vol.	0A00	Yes
(4) Additional Vol.	0A01	Yes
(5) Additional Vol.	0A02	Yes

C You are prompted to proceed with the installation or quit.



If you proceed, the DSMINST EXEC clears the database and resets it to an initial state, thus destroying the previous installation.

If you respond “Yes,” the minidisks are formatted and reserved, and DSMSERV is invoked to complete the initialization. When initialization completes, DSMSERV terminates and returns to CMS.

9 Start the server.



`dsmserv`

A message is displayed when the server is ready to communicate with clients. This completes the initialization process.

You are now in the ADSM server console, and from it you can issue any of the administrative commands described in this book.

10 If you wish, you can install any of the following at this point:

- A CMS administrative client (see “Installing the CMS Administrative Client” on page 15)
- An administrative client with a graphical user interface (GUI), OS/2 for example
- Backup-archive clients



To complete some of the tasks in Chapter 2, “Setting Up the Server” on page 17 and Chapter 3, “Customizing Your ADSM System” on page 25 you must install at least one backup-archive client.

- Hierarchical storage manger (HSM) clients

See “Installing the CMS Administrative Client” for instructions on installing the CMS client and *ADSM Installing the Clients* for instructions on installing all other clients.

11 Go to Chapter 2, “Setting Up the Server” on page 17 to complete the set up of your server.

Installing the CMS Administrative Client

The DSMADMC program, the CMS administrative client, can run in either of the following configurations:

- On the same VM system as the ADSM server.
- On a remote VM system with SNA LU6.2 or TCP/IP connectivity to the ADSM server.

To start the CMS administrative client in a virtual machine, the following files, which are on the U655119A 491 minidisk, must be available:

DSMADMC MODULE	Executable client module
DSCAMENG TXT	American English messages repository
DSM SAMPOPT	Client options file

To install the CMS administrative client, do the following:

1 To ensure the administrative client files (listed above) are in the CMS search order:

- a** If you are on the same VM system as the ADSM server, link to the ADSM product disk (the default product disk is U655119A 491). Edit the PROFILE EXEC to include the following:

```
CP LINK U655119A 491 491 RR readpw
ACCESS 491 C
```

Where *readpw* is the read password assigned when the minidisk was defined.

- b** If you are on a remote VM system and cannot link to the product disk, copy the client files to a local disk.

2 You must have access to the appropriate run-time libraries.

- To use the LE/370 libraries, ensure that the PROFILE EXEC links to and accesses the LE/370 libraries' minidisks, and include the following statement:


```
global loadlib sceerun
```

- To use the C/370 libraries, ensure that the PROFILE EXEC links to and accesses the C/370 libraries' minidisks, and include the following statement:tn

```
global txtlib ibmlib  
global loadlib edclink
```

3 Create the client options file.

ADSM includes a sample client options file, DSM SAMPOPTS, on the ADSM product disk, U655119A 491. Copy DSM SAMPOPTS to the A-disk as DSM OPT and edit as needed:

```
 VM copyfile dsm sampopts c = opt a1
```

If the administrative client is on a remote VM system, configure one of the following communication methods:

- APPC
- TCP/IP

See "Setting Client Communication Options" on page 50 for details.

Chapter 2. Setting Up the Server

This section describes how to set up and start your server.

Here are some ADSM terms in this chapter:

client node A file server or workstation on which the backup-archive client program has been installed, which has been registered to the server.

selective backup A back up of specific client files or directories.

storage pool A named set of volumes for storing client data.

Registering an Administrative Client

You can register one or more administrative clients and give them different authority levels. In this example, the administrator is given the highest authority level, system. For details about the other authority levels, see the *ADSM Administrator's Guide*.



The user ID of SERVER_CONSOLE cannot be given to an administrative client.

For example, from the server console register an administrator with a user ID of MARK and a password of MISSOURI and grant system authority.



```
register admin mark missouri
```

```
grant authority mark classes=system
```



1. Double click on **Administrators**
2. Click on **Edit** from the menu bar
3. Click on **Add** from the pull-down menu
4. In the **Administrator name** field, enter MARK.
5. Click on the **Privilege** tab, and in the **Privilege class** field, click on the SYSTEM radio button
6. Click on the **Password** tab, and in the **Password** and **Reenter password** fields, enter MISSOURI
7. Click on the **Add** push button

Starting an Administrative Client

To set up the server, you issue ADSM commands from the server console or an administrative client. This section describes how to start the CMS and OS/2

administrative clients. The remaining examples of administrative tasks in this book are performed from an administrative client (either command line or GUI).



The CMS administrative client provides a command line interface only. The OS/2 administrative client provides a graphical user interface and a command line interface.

The command line examples in this book are for the CMS administrative client. If you are using a different client, check the requirements regarding the use of continuation characters.

You can perform most tasks from either the command line or the GUI (for example, registering client nodes). The description of these tasks includes both command line and GUI; choose whichever one is more convenient for you. You can perform some tasks only from the command line (for example, defining libraries). For information about the administrative client interfaces, see Appendix C, "Using ADSM Administrative Interfaces" on page 55.

For information on starting all other clients, see the *ADSM Installing the Clients*.

Starting the CMS Administrative Client

To start the CMS administrative client, enter the following command:

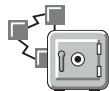
```
dsmdmc
```

You will be prompted for a node name and a password.

Starting the OS/2 Administrative Client

1 To start the OS/2 **administrative client GUI**, do either of the following:

- If your OS/2 desktop has the administrative GUI icon,



double click on the icon, or select the icon and press *Enter*.

- At the command prompt in an OS/2 window enter:

```
start dsmdm
```

- 2** To start the OS/2 **administrative client command line interface**, enter the following at the command prompt in an OS/2 window:

```
dsmadm
```

Changing the Administrative Client Password

If you wish, you can change the password of the DSMADMIN client at this point. To change the password to TUCSON, for example, do the following:



```
update admin dsmadmin tucson
```



1. Double click on **Administrators**
2. From the list of administrator names, click on ADMIN
3. Click on **Selected**
4. Click on **Open as properties** from the pull-down menu
5. Click on the **Password** tab
6. Enter the following:
New password tucson
Reenter new password tucson
7. Click on the **Apply** push button

Stopping the Server

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



For most tasks in this book, your server must be running. This procedure is explained here only if an unusual situation requires that you stop the server.

To stop the server, do one of the following:



```
halt
```



1. Double click on **Server**
2. Click on **Server** from the menu bar
3. Click on **Halt** from the pull down menu

This shuts down the server immediately and cancels all client sessions, even if activity has not completed.

Ending an Administrative Client Session

To end an administrative client session do one of the following:



From a command line client in interactive mode:

```
quit
```



From a CMS command line client in console mode:

```
hx
```



From a GUI client, either:

- Double click on the system menu symbol

OR

- Click on the system menu symbol, and click on **Close** from the pull down menu

Defining Disk Volumes

When you installed ADSM, you initialized disk volumes for the recovery log, database, and storage pools. As part of that process, ADSM defines the first database volume and first recovery log volume. However, you must define any additional database volumes or recovery log and any storage pool volumes.

Defining Additional Recovery Log and Database Volumes

To define additional recovery log and database volumes, for example, mirror volumes 301 and 300, do one of the following:



```
define logcopy 200 300
```

```
define dbcopv 201 301
```




Define the mirror recovery log volume:

1. Expand **Recovery Log**
2. Double click on **Recovery Log Volumes**
3. Select volume 200 by clicking on it
4. Click on **Edit** from the menu bar
5. Click on **Add Mirrored Volume** from the pull down menu
6. Enter the following:

Volume 2 300

7. Click on the **Add** push button

Define the database volume:

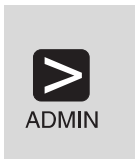
1. Expand **Database**
2. Double click on **Database Volumes**
3. Select volume 201 by clicking on it
4. Click on **Edit** from the menu bar
5. Click on **Add Mirrored Volume** from the pull down menu
6. Enter the following:

Volume 2 301

7. Click on the **Add** push button

Defining Storage Pool Volumes

To define storage pool volumes (for example, A00, A01, and A02) and assign them to storage pools, do the following:



```
define volume backuppool a00
```

```
define volume archivepool a01
```

```
define volume spacemgpool a02
```



1. Expand **Storage Pools**
2. Double click on **Storage Pool Volumes**
3. Click on **Edit** from the menu bar
4. Click on **Add** from the pull down menu
5. Enter the following:

Storage pool	backuppool (from the pull-down list)
Volume name	a00
6. Click on the **Add** push button, which also returns you to the **Storage Pool Volumes** menu
7. Click on **Edit** from the menu bar
8. Click on **Add** from the pull down menu
9. Enter the following:

Storage pool	archivepool (from the pull-down list)
Volume name	a01
10. Click on the **Add** push button, which also returns you to the **Storage Pool Volumes** menu
11. Click on **Edit** from the menu bar
12. Click on **Add** from the pull down menu
13. Enter the following:

Storage pool	spacemgpool (from the pull-down list)
Volume name	a02
14. Click on the **Add** push button

Registering Client Nodes

You are now ready to register the backup-archive clients that you have previously installed. For example, register a node named MERCEDES with the password MONTANA.



```
register node mercedes montana
```



1. Double click on **Nodes**
2. Click on **Edit** from the menu bar
3. Click on **Add** from the pull down menu
4. Enter the following:

Node name	mercedes
------------------	----------
5. Click on the **Password** tab, and enter the following:

Password	montana
Reenter password	montana
6. Click on the **Add** push button

Verifying Your Server Installation

To verify your server installation, do the following:

- 1** Start the backup-archive client command line or GUI. When you start the backup-archive client, you must enter a node name and password.

- To start the **GUI** do one of the following:

- If your OS/2 desktop has the backup-archive GUI icon,



double click on the icon, or select the icon and press *Enter*.

OR

- Issue the following command:



start dsm

- To start the **command line interface**, issue the following command:



dsmc

- 2** Back up several files.



A drive must be labeled before files on that drive can be backed up.

For example, to back up all the files in the **c:\devel** directory that begin with **proj**, do the following:



END USER

```
dsmc selective c:\devel\proj*.*
```



END USER

1. From the **Drives for Backup/Archive** section of the **Drive Information**, select drive c: by clicking on the drive (you can also deselect a drive by clicking on it)
2. Click on **ADSM**
3. Click on **Backup, File specification** from the pull-down menu
4. From the **Backup by File Specification** window, enter **c:\devel\proj*.***
5. Click on the **List Files** push button to see the selected files
6. Click on the files you want from this list, or click on the **Select All** push button
7. Click on **Backup** push button

Chapter 3. Customizing Your ADSM System

At this point you have installed, set up, and started the ADSM server, and one or more administrative clients and backup-archive clients. This chapter describes customizing ADSM by doing the following:

- Adding tape drives to your ADSM system
- Automating some client operations and administrative commands

The customization described here still does not take advantage of all the options available to you as an ADSM administrator. However, it does provide a flexible, powerful ADSM system that can meet most customers' needs.



The ADSM server must be running to perform the tasks described here. Start the server if it is not running.

Here are some ADSM terms that you will find in this chapter:

collocation	A process by which the server attempts to keep all files belonging to a client on a minimal number of tape volumes.
device class	A group of storage devices of the same type, for example, disk or cartridge.
expiration	The process by which files in server storage are marked for deletion because their retention period has passed.
validation	The process of ensuring that the active policy set contains a default management class and reporting on copy group definition errors.

Using Tape Drives with ADSM

This section shows you how to use tape drives with your ADSM system. After adding the tape drives to ADSM, you can migrate data in server storage from disk storage pools to tape storage pools. This section describes the following tasks on the pages indicated:

Task	Page
Add tape drives to your ADSM environment	26
Prepare tape volumes for use	27
Use policy to back up and archive client data	30
Work with backup-archive clients	34
Verify that storage management works	29

If you want to use a tape management system with ADSM see the *ADSM Administrator's Guide* for details.



Here are some concepts that can help you to set up your tape environment:

Storage pool migration

To prevent disk storage pools from becoming filled with client data, you can specify that client data be automatically migrated to the tape storage pool.

A disk's *high migration threshold* (default value: 90%) determines when data is migrated. The *low migration threshold* (default value: 70%) Determines when migration stops. Thus with the defaults, data migration from BACKUPPOOL to CART_POOL begins when BACKUPPOOL is 90% full and continues until BACKUPPOOL is at 70% full or less.

Another default is to cache data (leave the data on the storage pool) even after the data has been migrated. Cached data stays on disk for quick access until the space is needed for new data.

See *ADSM Administrator's Guide* for details.

Mount limit

Mount limit (number of drives available in this device class) has a default value of 2. The mount limit should be equal to the number of available drives of the same type.

Scratch volumes

A scratch volume is a volume that is available for ADSM use. The volume is labeled, is either blank or contains no valid data, and is not defined to ADSM. You can specify the number of scratch volumes that ADSM can request for this pool (MAXSCRATCH parameter in the command or the **Maximum scratch volumes** field in the GUI). If you do not specify a value, no scratch volumes can be requested, and you must define each volume to be used.

Collocation

Collocation is turned off by default. Once clients begin storing data in a storage pool with collocation off, you cannot easily change the data in the storage pool so that it is collocated. To understand the advantages and disadvantages of collocation, see the *ADSM Administrator's Guide*.

Adding Tape Drives to Your ADSM Environment

The following scenario shows how to include two IBM 3490 tape drives into the ADSM environment. ADSM provides a default device class, called CARTRIDGE, for 3480 and 3490 tape drives. If you wish to use another type of tape drive, you must define the appropriate device class. See the *ADSM Administrator's Guide* for details.

Defining a Tape Storage Pool

Define a storage pool named CART_POOL for the device class.



```
define stgpool cart_pool cartridge -  
maxscratch=100 collocate=no
```



1. Double click on **Storage Pools**
2. Click on **Edit** from the menu bar
3. Click on **Add Primary Storage Pool** from the pull-down menu
4. In the **Storage pool name** field, enter CART_POOL
5. Click on the **Device class** tab, and enter the following:
Device class cartridge (from the drop-down list)
Maximum scratch volumes 100
6. Click on the **Add** push button

Preparing Tape Volumes for Use

All tape volumes must have standard tape labels before ADSM can use them. You can use tapes as scratch volumes, up to the number of scratch volumes you specified for the storage pool. Using scratch volumes allows ADSM to acquire volumes as needed.

You can also use private volumes in a storage pool. You must define any private volumes to ADSM, assigning each to a specific storage pool. However, if a storage pool contains only private volumes and runs out of them, storage operations to that pool stop until more volumes are defined.

- 1** Label your volumes with standard labels according to your local procedures. For example:



You can use the CMS TAPE WVOL1 command to write the labels.

- 2** Define any volumes that are to be used as private volumes. For example, define volume DSM001, which you just labeled:



```
define volume cart_pool dsm001
```



1. Expand **Storage Pools**
2. Double click on **Storage Pool Volumes**
3. Click on **Edit** from the menu bar
4. Click on **Add** from the pull-down menu
5. Enter the following:

Storage pool name	CART_POOL (from the drop-down list)
Volume name	DSM001
6. Click on the **Add** push button

Including Tape in the Server Storage Hierarchy

Now that ADSM can use your tape drives, you can update your disk storage pools so that client data can be migrated to tape. This section describes how to change BACKUPPOOL and ARCHIVEPOOL so that data migrates to CART_POOL.



```
update stgpool backuppool nextstgpool=cart_pool
update stgpool archivepool nextstgpool=cart_pool
```



1. Double click on **Storage Pools**
2. Click on BACKUPPOOL
3. Click on **Selected**
4. Click on **Open as properties** from the pull-down menu
5. Click on the **Migration** tab, go to page 2, and for **Next storage pool**, do the following:
 - a. Deselect (by clicking on) the **None** check box
 - b. Click on CART_POOL from the **Next pool** drop-down list
6. Click on the **Apply** push button
7. Click on ARCHIVEPOOL
8. Click on **Selected**
9. Click on **Open as properties** from the pull-down menu
10. Click on the **Migration** tab, go to page 2, and for **Next storage pool**, do the following:
 - a. Deselect (by clicking on) the **None** check box
 - b. Click on CART_POOL from the **Next pool** drop-down list
11. Click on the **Apply** push button

Verifying the Tape Device Environment

Do the following to verify that the tape devices have been integrated into your ADSM system.

1 Migrate data from a disk storage pool.

Migration from a storage pool requires tape mounts. By default, mount messages are directed to the server console (see *ADSM Administrator's Guide* for other ways of handling mount messages).

Trigger migration from a disk storage pool (BACKUPPOOL, for example) by setting the high and low migration thresholds to 0. After migration occurs, reset the thresholds to their original settings.



```
update stgpool backuppool highmig=0 lowmig=0
```



1. Double click on **Storage Pools**
2. Click on BACKUPPOOL
3. Click on **Selected** from the menu bar
4. Click on **Open as properties** from the pull-down menu
5. Click on the **Migration** tab, go to page 2, and enter the following:

Migration Thresholds Low	0
Migration Thresholds High	0

6. Click on the **Apply** push button

2 After migration occurs, reset the thresholds to their original settings.



```
update stgpool backuppool highmig=90 lowmig=70
```



1. Double click on **Storage Pools**
2. Click on BACKUPPOOL
3. Click on **Selected** from the menu bar
4. Click on **Open as properties** from the pull-down menu
5. Click on the **Migration** tab, go to page 2, and enter the following:

Migration Thresholds Low	70
Migration Thresholds High	90
6. Click on the **Apply** push button



Controlling when migration occurs

Because migration from a disk to a tape storage pool uses resources such as drives and operators, you may want to ensure that migration occurs at a time that is best for your situation. You can control when migration occurs by leaving the high migration threshold set to 100 most of the time, and lowering it when you want migration to occur.

In the preceding step, you lowered both migration thresholds to 0 to verify that migration occurred. You may not want to empty the disk storage pool by setting the low migration threshold to 0 every time you want migration to occur. Normally, you may want to keep the low threshold at 40%, and vary the high threshold from as high as 90% to as low as 50%. See *ADSM Administrator's Guide* for details.

Creating a New Policy

The ADSM default policy specifies how ADSM manages client files. For example, it specifies that ADSM retains up to two backup versions of active client files (files that exist on the client). Two versions may be satisfactory for most clients. However, assume that a group of clients needs the last ten versions to be kept. You can do either of the following:

- Create a new policy domain and assign these clients to that domain (described in this section).
- Create a new management class within the default policy domain. Then the include-exclude lists for all the affected clients must be updated.



Storing Directly to Tape

The default policy directs that client files are stored directly to disk. You have just defined a tape storage pool, and updated your disk storage pools so that they migrate the client data to that tape pool. If you wished, you could define policies that store client files directly to tape by specifying in a copy group a tape pool as the destination.

However, it is usually preferable to store client files to disk and let server migration move the data to tape. When you store directly to tape, the number of available tape drives limits the number of concurrent client sessions that can do meaningful work.

To create a new policy, you can start by copying policy domain STANDARD. This operation also copies the associated policy set, management class, and copy groups. You then assign clients to the new domain.

- 1 Copy the default policy domain, STANDARD, to the new policy domain, NEWDOMAIN.



copy domain standard newdomain



1. Double click on **Policy Domains**
2. Click on the STANDARD policy domain
3. Click on **Edit** from the menu bar
4. Click on **Add Using** from the pull-down menu
5. Enter the following:
Policy domain NEWDOMAIN
6. Click on the **Add** push button

This operation copies the policy domain, and all associated policy sets, management classes, and copy groups. Within the policy domain named NEWDOMAIN and the policy set named STANDARD, you have:

- Management class named STANDARD
- Backup copy group named STANDARD
- Archive copy group named STANDARD

For our example, you update only the backup copy group.

- 2 Update the backup copy group by specifying that ten versions of backed up files are to be kept.



update copygroup newdomain standard standard standard -
type=backup verexists=10



1. Expand **Policy Domains**
2. Double click on **Backup Copy Groups**
3. Select the copy group from policy domain NEWDOMAIN and policy set STANDARD (you cannot update a copy group from policy set ACTIVE)
4. Click on **Selected** from the menu bar
5. Click on **Open as properties** from the pull-down menu
6. Click on the **Copy control** tab, go to page 2, and enter the following:
Number of backup versions to keep if client data exists 10
7. Click on the **Apply** push button

3 Validate the STANDARD policy set in NEWDOMAIN.



validate policyset newdomain standard



1. Expand **Policy Domains**
2. Double click on **Policy Sets**
3. Click on the STANDARD policy set in NEWDOMAIN
4. Click on **Selected** from the menu bar
5. Click on **Validate** from the pull-down menu (**Policy Sets - Validate** is displayed)
6. Click on the **Validate** push button (**Policy Sets - Validate Results** is displayed)
7. Click on the **OK** push button



The following conditions result in warning messages during validation:

- A destination storage pool is not a defined storage pool.
- The default management class does not contain a backup or archive copy group.
- The current ACTIVE policy set names a management class that is not defined in the policy set being validated.
- The current ACTIVE policy set contains copy groups that are not defined in the named policy set.
- A management class specifies that a backup version must exist before a file can be migrated from a client node, but the management class does not contain a backup copy group.

4 Activate the STANDARD policy set for the NEWDOMAIN policy domain.



activate policysset newdomain standard



1. Expand **Policy Domains**
2. Double click on **Policy Sets**
3. Click on the STANDARD policy set in NEWDOMAIN
4. Click on **Selected** from the menu bar
5. Click on **Activate** from the pull-down menu (**Policy Sets - Activate** is displayed)
6. Click on the **Activate** push button (**Policy Sets - Activate Results** is displayed)
7. Click on the **OK** push button

To verify that the modified backup copy group is now active, do the following:

8. Click on **Backup Copy Groups**
9. View copy group STANDARD for policy set ACTIVE in NEWDOMAIN by double clicking on that line
10. Click on the **Copy control** tab, go to page 2, and verify that the number of backup versions to keep if client data exists is set to 10

- 5** Assign client nodes to the NEWDOMAIN policy domain by either updating existing client nodes or registering new nodes. For example, to update client node CHLOE, do either of the following:



```
update node chloe domain=newdomain
```



1. Double click on **Nodes**
2. Click on CHLOE from the list of node names
3. Click on **Selected** from the menu bar
4. Click on **Open as properties** from the pull-down menu
5. Select NEWDOMAIN in the **Policy domain** field from the drop-down list
6. Click on the **Apply** push button

ADSM will now keep up to ten versions of backed up files for client node CHLOE because it is assigned to the NEWDOMAIN policy domain.

Invoking Expiration Processing

Expired files are not deleted from server storage until expiration processing occurs. You can invoke expiration processing in a number of ways:

- The expiration interval server option can specify that processing be invoked at a set interval from the time the server is started. The default is a 24 hour interval.
- You can issue the EXPIRE INVENTORY command manually whenever you wish (see the following example)
- You can schedule the EXPIRE INVENTORY command to be issued regularly at a specific time (see “Automating Administrative Commands” on page 39). If you schedule expiration processing, set the expiration interval server option to 0. See “Setting Server Communications Options” on page 47 for information on setting server options.



```
expire inventory
```

Creating A Sample Include-Exclude List for Clients

To make the best use of ADSM storage and policies, each client can exclude certain files from some policy operations and include certain files in other operations. A client includes and excludes files with statements in an include-exclude list (called an include-exclude file on UNIX clients). For example, clients come with a default

include-exclude list that exclude system files that, if recovered, could corrupt the operating system. Consult the appropriate ADSM client user's guide for details.

To help clients get started, you can supply them with additional include-exclude statements tailored to your installation. For example:

- A user may want all files with the extensions **sct** or **drw** in the **spec** directory included for backup services but all other files in that directory excluded. The user could add the following statements to the include-exclude file:

```
exclude d:\eng\spec\*.*
include d:\eng\spec\*.drw
include d:\eng\spec\*.sct
```



An include-exclude list is read from the bottom up until a match is found. In the preceding example, no match is found on either include statement for a file in the d:\eng\spec directory with an extension of **obj**. The exclude statement is read, a match is found, and the file is excluded.

- For a file or group of files, you can also override the default management class.

```
exclude d:\eng\spec\*.*
include d:\eng\spec\*.drw monthly
include d:\eng\spec\*.sct
```

In this example,

- Files in the **spec** directory with an **sct** extension are bound to the default management class.
- Files with the **drw** extension are bound to the management class **MONTHLY**.
- All other files in the **spec** directory are excluded from backup or archive.

Automating Client Operations

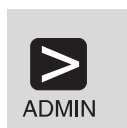
You can automate client operations such as backup to ensure that the clients' data is protected by ADSM. You can automate the following on most clients:

- ADSM backup, archive, restore, and retrieve operations
- Operating system commands
- Macros (files that can contain operating system and ADSM commands)

In this section, you are guided through the steps necessary to automate backup and archive operations for clients by creating schedules. The example assumes that you have registered three client nodes named **BILL**, **MARK**, and **MERCEDES**.

1 Define a schedule for an incremental backup operation and associate the schedule with clients BILL, MARK, and MERCEDES. The schedule, named DAILY_INCR, is for the STANDARD policy domain. The STANDARD policy domain is the ADSM default policy and specifies backup to the disk storage pool BACKUPPOOL. This schedule calls for a schedule window that:

- Begins on the date the schedule is defined (the default) at 11:00 p.m.
- Lasts for 1 hour (the default)
- Is repeated daily (the default)
- Stays in effect indefinitely (the default)



```
define schedule standard daily_incr action=incremental -
starttime=23:00
```

```
define association standard daily_incr bill,mark,mercedes
```



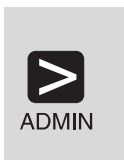
1. Expand **Central Scheduler**
2. Double click on **Backup/Archive Schedules**
3. Click on **Edit** from the menu bar
4. Click on **Add** from the pull-down menu
5. Enter the following:

Policy domain	STANDARD (from the drop-down list)
Schedule name	DAILY_INCR
6. Associate nodes by doing the following:
 - a. Click on the **Add nodes** push button
 - b. Click on the **Include** push button
 - c. Click on BILL, MARK, and MERCEDES
 - d. Click on the **Add** push button
7. Click on the **Operation** tab, and click on INCREMENTAL from the **Action** drop-down list
8. Click on the **Timing** tab, and specify the **Start time** as 23:00
9. Click on the **Add** push button

2 Define a schedule for an archive operation and associate the schedule with clients BILL, MARK, and MERCEDES. The schedule, named ARC, is for the STANDARD policy domain. The STANDARD policy domain is the ADSM default policy and specifies archive to the disk storage pool ARCHIVEPOOL. This schedule calls for a schedule window that:

- Applies to all files in the c: and d: file spaces
- Begins on the date the schedule is defined (the default) at 11:00 p.m.
- Lasts for 1 hour (the default)
- Is repeated every Friday

- Stays in effect indefinitely (the default)



```
define schedule standard arc action=archive -
objects="c:\* d:\*" starttime=23:00 -
period=1 perunits=weeks dayofweek=friday
```

```
define association standard arc bill,mark,mercedes
```



1. Expand **Central Scheduler**
2. Double click on **Backup/Archive Schedules**
3. Click on **Edit** from the menu bar
4. Click on **Add** from the pull-down menu
5. Enter the following:

Policy domain	STANDARD (from the drop-down list)
Schedule name	ARC
6. Associate nodes by doing the following:
 - a. Click on the **Add nodes** push button
 - b. Click on the **Include** push button
 - c. Click on BILL, MARK, and MERCEDES
 - d. Click on the **Add** push button
7. Click on the **Operation** tab, and do the following:
 - a. Click on ARCHIVE from the **Action** drop-down list
 - b. In the **Objects** field, specify c:* d:*
8. Click on the **Timing** tab, and enter the following:

Start time	23:00
Period	1
Period units	WEEKS (from the drop-down list)
Day of week	FRIDAY (from the drop-down list)
9. Click on the **Add** push button

- 3 Start the client scheduler. For the schedules to become active for a workstation, a user must start the scheduler from the node.



```
dsmc schedule
```



To help ensure that the scheduler is running on the clients, clients can include the SCHEDULE command in their system start-up commands.

The include-exclude list (file on UNIX clients) on each client also affects which files are backed up or archived by the two schedules defined in the preceding steps. For example, if a file is excluded from backup with an EXCLUDE statement, the file will not be backed up when the DAILY_INCR schedule runs.

- 4** Because the DAILY_INCR schedule is to run daily, you can verify that the automation is working as it should on the day after you define the schedule and associate it with clients. If the schedule has run successfully, the status will be *Completed*.



```
query event standard daily_incr begindate=today-1
```



1. Expand the **Central Scheduler** object
2. Double click on **Backup/Archive Events**
3. Look for the DAILY_INCR schedule and check its status



You can limit the query of events to display only schedules that did not run as expected. For example, you can use the following command daily to see which clients did not run the DAILY_INCR schedule the previous day:

```
query event standard daily_incr begindate=today-1 -  
exceptiononly=yes
```

Schedules that did not complete successfully have a status of *Failed, Missed, or Severed*.

- 5** Check the results of the schedule DAILY_INCR on one of the clients that was associated with that schedule. For most clients, including OS/2 clients, information about what happens when a schedule runs is stored in the file dsmsched.log.

Automating Administrative Commands

You can automate ADSM administrative tasks by scheduling administrative commands. For example, you can automate commands that need to be run regularly or that require significant processing or other system resources. In this section, you define a schedule to run expiration processing.

- 1 Define a schedule named EXPPROC that invokes expiration processing every night at 2:00 a.m.

This schedule calls for a schedule window that:

- Begins on the date the schedule is defined (the default) at 2:00 a.m .
- Lasts for 1 hour (the default)
- Is repeated every day
- Takes effect immediately
- Stays in effect indefinitely (the default)



```
define schedule expproc type=administrative -  
cmd='expire inventory' active=yes starttime=02:00
```



1. Expand the **Central Scheduler** object
2. Double click on **Administrative Command Schedules**
3. Click on **Edit** from the menu bar
4. Click on **Add** from the pull-down menu
5. Enter the following:

Schedule name	EXPPROC
Administrative Command	expire inventory
6. Click on the **Timing** tab, and specify the **Start time** as 02:00
7. Click on the **Add** push button

- 2 Because the EXPPROC schedule is to run daily, you can verify that the automation is working as it should on the day after you define the schedule. If the schedule has run successfully, the status will be *Completed*.



```
query event expproc type=administrative -  
begindate=today-1
```



1. Expand the **Central Scheduler** object
2. Click on **Administrative Command Events**
3. Check the status of the EXPPROC schedule

Making the Most of Your Space

After you begin operations using ADSM, monitor the utilization of the database, recovery log, and storage pools (see “Verifying Your Server Installation” on page 23 for details). Based on this information, you may want to increase or decrease the amount of space assigned to each.

- To change the size of the database or recovery log, see the *ADSM Administrator's Guide*.
- To change the size of a disk storage pool, see “Defining Disk Volumes” on page 20.
- To change the size of a tape storage pool, see “Preparing Tape Volumes for Use” on page 27.

Protecting Your ADSM Investment

Your ADSM system has been installed, customized, and verified. However, there is still one more crucial task: protecting your investment.

The database, recovery log, and storage pools are critical to the operation of the server. If the database or recovery log is unusable, the entire server is unavailable. If a database is lost and cannot be recovered, the backup, archive, and space-managed data for that server is lost. If a storage pool volume is lost and cannot be recovered, the data on the volume is also lost.

ADSM provides a number of ways to protect your data. See the *ADSM Administrator's Guide* for a description of your options.

Appendix A. Sample Files

This section shows the contents of some of the sample files provided with ADSM.

DSMSERV SAMPDIR

```
USER DSMSERV xxxxxxxx 28M 48M AG
MACHINE ESA
OPTION MAXCONN 50 ACCT
IUCV ALLOW
IPL CMS
*-----*
* The following are standard console and spool definitions required *
* for a CMS virtual machine. Change these statements as needed to *
* conform to your installation's requirements. *
*-----*
CONSOLE 009 3215 T
SPOOL 00C 2540 READER *
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403 A
*-----*
* The following LINK statements are standard for accessing the CMS *
* program product. Change these statements as needed to conform *
* to your installation's requirements. *
*-----*
LINK MAINT 190 190 RR
LINK MAINT 19D 19D RR
LINK MAINT 19E 19E RR
*-----*
* 491 (production build disk - has ADSM for VM Version 2 product) *
* 4E2 (test build disk - has serviced ADSM for VM Version 2 product *
* prior to being placed on the 491 disk) *
* U655119A is the default install user ID. *
*-----*
LINK U655119A 491 491 RR
LINK U655119A 4E2 4E2 RR
```

Figure 5 (Part 1 of 2). Sample Directory Entry for the DSMSERV Virtual Machine

```

*-----*
* 191 - Server A disk          *
*-----*
MDISK 191 3380 0000 010 vvvvvv MR
*-----*
* 200 - Recovery log volume   *
*-----*
MDISK 200 3380 0000 022 vvvvvv MR
*-----*
* 201 - Database volume       *
*-----*
MDISK 201 3380 0000 035 vvvvvv MR
*-----*
* Storage pool volumes        *
*-----*
MDISK A00 3380 0000 020 vvvvvv MR
MDISK A01 3380 0000 020 vvvvvv MR
MDISK A02 3380 0000 015 vvvvvv MR

```

Figure 5 (Part 2 of 2). Sample Directory Entry for the DSMSERV Virtual Machine

DSMEXIT SAMPDIR

```

USER DSMEXIT xxxxxxxx 3M 3M G
IPL CMS
*-----*
* The following are standard console and spool definitions required *
* for a CMS virtual machine. Change these statements as needed to   *
* conform to your installation's requirements.                       *
*-----*
CONSOLE 009 3215 T
SPOOL 00C 2540 READER *
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403 A

```

Figure 6 (Part 1 of 2). Example Directory Entry for an Exit Virtual Machine

```

*-----*
* The following LINK statements are standard for accessing the CMS *
* program product. Change these statements as needed to conform *
* to your installation's requirements. *
*-----*
LINK MAINT 190 190 RR
LINK MAINT 19D 19D RR
LINK MAINT 19E 19E RR
*-----*
* 491 (production build disk - has ADSM for VM Version 2 product) *
* 4E2 (test build disk - has serviced ADSM for VM Version 2 product *
* prior to being placed on the 491 disk) *
* U655119A is the default install user ID. *
*-----*
LINK U655119A 491 491 RR
LINK U655119A 4E2 4E2 RR
*-----*
* 191 - Exit Machine A disk *
*-----*
MDISK 191 3380 0000 001 vvvvvv MR

```

Figure 6 (Part 2 of 2). Example Directory Entry for an Exit Virtual Machine

DSMSERV PROFILE

```

/*****
* ADSTAR Distributed Storage Manager *
* *
* Licensed Materials - Property of IBM *
* *
* 5654-A02 (C) Copyright IBM Corporation 1990, 1996. *
* All rights reserved. *
* *
* Refer to Copyright Instructions. *
*****/

/* PROFILE EXEC for DSMSERV virtual machine */
Address Command

```

Figure 7 (Part 1 of 3). Sample PROFILE EXEC for the DSMSERV Virtual Machine

```

/* The LDRTBLS should be at least 25. Use the      */
/* QUERY LDRTBLS CMS command to see what the setting*/
/* is for your system. If it is less than 25,      */
/* remove the comments to enable the SET LDRTBLS   */
/* command.                                        */
/*                                                */
/* Set the number of loader tables needed to 25    */
/* 'SET LDRTBLS 25'                                */

/* GLOBAL commands for either SAA AD/Cycle Language */
/* Environment/370 (LE/370), C/370 Library (C/370), */
/* or IBM Language Environment for MVS & VM (LE)    */
/* Remove the comments to enable the proper commands*/
/* for your system.                                */
/*                                                */
/* GLOBAL commands for the C/370 loadlib and txtlib */
/* 'GLOBAL LOADLIB EDCLINK'                         */
/* 'GLOBAL TXTLIB IBMLIB'                           */
/*                                                */
/* or                                              */
/* GLOBAL commands for the LE/370 or LE loadlib    */
/* 'GLOBAL LOADLIB SCEERUN'                         */

/* ACCESS the production code disk                */
'ACCESS 491 C'

/*                                                */
'CP SET CONCEAL ON'
'SET AUTOREAD OFF'
'CP SET PF12 RETRIEVE'

/*                                                */
/* Determine if AUTOLOGed or not                  */
/* If so, start DSMSERV automatically             */
/* If not, ask if DSMSERV is to be started      */
/*                                                */

```

Figure 7 (Part 2 of 3). Sample PROFILE EXEC for the DSMSERV Virtual Machine

```

address 'COMMAND' 'EXECIO 1 CP (STRING QUERY CONSOLE'
pull . . disc grf .
IF DISC = 'DISCONNECTED' THEN 'DSMSERV'
else do
  SAY 'Would you like to start ADSM/VM?'
  pull ans
  IF ABBREV('YES',ANS,1) THEN 'DSMSERV'
  END
EXIT

```

Figure 7 (Part 3 of 3). Sample PROFILE EXEC for the DSMSERV Virtual Machine

DSMEXIT PROFILE

```

/*****
* ADSTAR Distributed Storage Manager *
* Licensed Materials - Property of IBM *
* * *
* 5654-A02 (C) Copyright IBM Corporation 1990, 1996. *
* All rights reserved. *
* * *
* Refer to Copyright Instructions. *
*****/

Trace Off
Address Command

/* ----- */
/* Make sure something is on the stack. */
/* ----- */
If Queued() = 0 Then Do
  'CP MSG OP No parms passed on AUTOLOG -- contact ADSM Administrator.'
  'CP LOGOFF'
End

```

Figure 8 (Part 1 of 2). Sample PROFILE EXEC for an Exit Virtual Machine

```

/* ----- */
/* Get the parms passed on the AUTOLOG. */
/* ----- */
Parse Upper Pull function parms

/* ----- */
/* Stack a call to the appropriate EXEC. */
/* ----- */
Select
  When function = 'MOUNT' Then
    Push 'EXEC DSMMOUNT' parms
  When function = 'DELETE' Then
    Push 'EXEC DSMDELET' parms

  Otherwise Do
    'CP MSG OP Invalid function "'function'" passed to ADSM Exit VM.'
    'CP LOGOFF'
  End
End

Exit 0

```

Figure 8 (Part 2 of 2). Sample PROFILE EXEC for an Exit Virtual Machine

Appendix B. Setting Server and Client Communications

The ADSM for VM server support the following methods for communicating with ADSM clients:

- 3270
- IUCV
- TCP/IP
- APPC

To enable client-server communications, you must set the ADSM communication options in the server options file (DSMSERV OPT) and the client options file (DSM OPT).

In this section, if a default value is available for an option, it is shown in **bold**. If no default exists, a brief description of the option is provided, For a full description of the options, see:

Server options	<i>ADSM Administrator's Reference</i>
Client options	<i>ADSM Installing the Clients</i>

Setting Server Communications Options

To set server communications, edit the server options file (DSMSERV OPT). This section shows examples of the options for each communication method.

3270

The 3270 communication method uses 3270 dialup to establish communication between clients and the server. There is no server option for this method.

IUCV

The inter-user communications vehicle (IUCV) provides communication between the server and CMS administrative clients. There is no server option for this method.

TCP/IP

Transmission Control Protocol/Internet Protocol (TCP/IP) is the default communications method in the server options file.

tcpport	1500
tcpname	tcpip

APPC

Application programs under Systems Network Architecture (SNA) communicate with each other by using a layer of SNA called Advanced Program-to-Program Communication (APPC) also known as LU6.2.

- 1** Before you start the VM server, add the following statement in the CP directory of the server virtual machine:

```
IUCV *IDENT ADSM GLOBAL REVOKE
```

- 2** Include the following entry in the server options file:

```
appcresource adsm
```

The name must be unique in the TSAF or CS collection. When ADSM starts, the server code identifies itself to VM/ESA CP as the manager of the global resource ADSM. This is done by submitting a request to Identify System Services (*IDENT). See *Connectivity Planning, Administration, and Operation* for details.

For the following steps, you may need to see a VTAM administrator.

- 3** Use the APPL macro to define the AVS gateway (LU) name to VTAM. For example:

```
ADSMGATE APPL APPC=YES,  
              AUTHEXIT=YES,  
              AUTOSSES=10,  
              DLOGMOD=INDLU62,  
              DMINWNL=50,  
              DMINWNR=50,  
              DSESLIM=100,  
              EAS=100,  
              MODETAB=LCMODE,  
              PARSESS=YES,  
              SYNCLVL=SYNCPT,  
              SECACPT=ALREADYV
```

- 4** Mode table LCMODE must be defined and available to VTAM. The table must include a logon mode entry named INDLU62:

```
INDLU62  MODEENT LOGMODE=INDLU62,
          PSNDPAC=X'00',      PRIMARY SEND PACING COUNT
          SRCVPAC=X'00',      SECONDARY RECEIVE PACING COUNT
          SSNDPAC=X'00',      SECONDARY SEND PACING COUNT
          TYPE=0,             NEGOTIATED BIND
          FMPROF=X'13',       FM PROFILE 19 LU 6.2
          TSPROF=X'07',       TS PROFILE 7 LU 6.2
          PRIPROT=X'B0',      PRIMARY NAU PROTOCOL
          SECPROT=X'B0',      SECONDARY NAU PROT
          RUSIZES=X'8989',    8 X 2**9 = 4096
          COMPROT=X'78A5',    COMMON NAU PROT
          PSERVIC=X'06020000000000000000122F00'  SYMSG/Q MODEL
```

- 5** Ensure that the following mode entry is included in the default logon mode table (ISTINCLM):

```
#INTER  MODEENT LOGMODE=#INTER,
          ENCR=B'0000',
          SSNDPAC=7,
          SRCVPAC=7,
          PSNDPAC=7
```

- 6** Issue the following command that identifies the LU name associated with the ADSM server to the AVS virtual machine:

```
AGW ACTIVATE GATEWAY ADSMGATE GLOBAL
```

The AGW ACTIVATE command notifies VTAM that the AVS virtual machine is the owner of the gateway, or LU. Any requests that VTAM receives with LU name ADSMGATE are forwarded to the AVS virtual machine. AVS then uses the TP name submitted with the request as the global resource name in an APPC/VM CONNECT request.

- 7** To check that the gateway has been activated, enter:

```
AGW QUERY GATEWAY ADSMGATE
```

- 8** If VTAM has not activated the application, log on to the VTAM virtual machine to display information about ADMSGATE. Activate the application by entering:

```
vtam vary net,act,id=adsmgate
```

- 9** Define a communications controller (for example a 3174) as the local major node with independent LUs:

```
DSM3174  VBUILD TYPE=LOCAL
PU3174   PU    CUADDR=708,
          DISCNT=NO,
          DELAY=0,
          ISTATUS=ACTIVE,
          MAXBFRU=9,
          PACING=8,
          PUTYPE=2,
          VPACING=8,
          XID=YES,
          SECNET=NO
* Independent LUs
T001MS99 LU  LOCADDR=0,ISTATUS=ACTIVE
.
.
.
```

The name in columns 1-8 of the LU statement is used in the DEFINE_LOCAL_CP statement of the OS/2 Communications Manager.

You do not need to define the LU if the PU statement includes the DYNLU=YES parameter. VTAM dynamically defines an LU when an undefined LU is received.

Note: This definition is valid only until VTAM is shut down.

Setting Client Communication Options

To set client communications, edit the client options file (DSM OPT). This section shows examples of the options for each communication method.

3270

3270 is available for DOS, OS/2, and Windows clients.

commmethod	3270
3270logicalterminalid	a
3270hostcommand	cmd_string
3270buffersize	4000
3270hostcmdpause	1
3270hosttimeout	10
3270checksum	yes

3270hostcommand

A sequence of commands used to start a 3270 client/server session. This command string is limited to 255 characters. Up to 20 control characters are allowed in the string.

3270buffersize

The size of the buffer in bytes. The default is obtained from the emulator file transfer buffer size. Up to 20 control characters are allowed in the string.

IUCV

IUCV is available for communication between the server and a VM CMS administrative client.

servername	dsmserv
------------	---------

The SERVRNAME option, which is required, is the 1 to 8 character user ID for the ADSM server

TCP/IP

TCP/IP is available for all ADSM clients.

commmethod	tcpip
tcpserveraddress	9.115.46.78
tcpport	1500
tcpbuffersize	32
tcpwindowsize	24

tcpserveraddress

A 1 to 64 character TCP/IP address for the ADSM server.

APPC

APPC is available for all clients except Apple. Clients may connect to the server using the SNA LU6.2 communication method and by specifying this resource name as the value for the transaction program name (TPNAME) client option.

commethod	sna1u6.2
tpname	symbolic_name
partnerluname	logical_unit_name
cpicmodename	mode_name
cpicbuffersize	15

tpname

A 1 to 64 character transaction program name of the ADSM server.

partnerluname

A 1 to 64 character logical unit name used by the transaction program to identify the ADSM server in the SNA network.

cpicmodename

The mode name for SNA LU6.2

DOS, OS/2, UNIX, and Windows clients may also connect to the server by specifying a symbolic destination name, using the SYMBOLICDESTINATION client option.

commethod	sna1u6.2
symbolicdestination	sym_dest_name

symbolicdestination

A 1 to 8 character symbolic destination name for the ADSM server.

Configuring APPC for the OS/2 Client

Perform the following steps to set up APPC communications between an ADSM OS/2 client and an ADSM for VM server.

Note: This example is based on the assumptions stated in "APPC" on page 48 and the name in the DEFINE_LOCAL_CP statement below comes from columns 1-8 of the LU statement.

Create and modify the OS/2 Communications Manager's **ndf** file. For example:

```
DEFINE_LOCAL_CP  FQ_CP_NAME(MYVMSYS.T001MS99)
                  CP_ALIAS(T001MS99)
                  NAU_ADDRESS(INDEPENDENT_LU)
                  NODE_TYPE(EN)
                  NODE_ID(X'05D00000')
                  NW_FP_SUPPORT(NONE)
                  HOST_FP_SUPPORT(YES)
                  MAX_COMP_LEVEL(NONE)
                  MAX_COMP_TOKENS(0);
DEFINE_LOGICAL_LINK LINK_NAME(LINK3174)
                   ADJACENT_NODE_TYPE(NN)
                   PREFERRED_NN_SERVER(YES)
                   DLC_NAME(IBMTRNET)
                   ADAPTER_NUMBER(0)
                   DESTINATION_ADDRESS(X'400030010001')
                   ETHERNET_FORMAT(NO)
                   CP_CP_SESSION_SUPPORT(YES)
                   SOLICIT_SSCP_SESSION(YES)
                   NODE_ID(X'05D00000')
                   ACTIVATE_AT_STARTUP(YES)
                   LIMITED_RESOURCE(NO)
                   LINK_STATION_ROLE(USE_ADAPTER_DEFINITION)
                   EFFECTIVE_CAPACITY(USE_ADAPTER_DEFINITION)
                   COST_PER_CONNECT_TIME(USE_ADAPTER_DEFINITION)
                   COST_PER_BYTE(USE_ADAPTER_DEFINITION)
                   SECURITY(USE_ADAPTER_DEFINITION)
                   PROPAGATION_DELAY(USE_ADAPTER_DEFINITION)
                   USER_DEFINED_1(USE_ADAPTER_DEFINITION)
                   USER_DEFINED_2(USE_ADAPTER_DEFINITION)
                   USER_DEFINED_3(USE_ADAPTER_DEFINITION);
```

```

DEFINE_PARTNER_LU  FQ_PARTNER_LU_NAME(MYVMSYS.ADSMGATE)
                   DESCRIPTION(AVS gateway on VM)
                   PARTNER_LU_ALIAS(ADSMGATE)
                   PARTNER_LU_UNINTERPRETED_NAME(ADSMGATE)
                   MAX_MC_LL_SEND_SIZE(32767)
                   CONV_SECURITY_VERIFICATION(NO)
                   PARALLEL_SESSION_SUPPORT(YES);

DEFINE_MODE  MODE_NAME(#INTER )
             DESCRIPTION(APPC mode name on VM)
             COS_NAME(#INTER )
             DEFAULT_RU_SIZE(NO)
             MAX_RU_SIZE_UPPER_BOUND(4096)
             RECEIVE_PACING_WINDOW(7)
             MAX_NEGOTIABLE_SESSION_LIMIT(8)
             PLU_MODE_SESSION_LIMIT(8)
             MIN_CONWINNERS_SOURCE(4)
             COMPRESSION_NEED(PROHIBITED)
             PLU_SLU_COMPRESSION(NONE)
             SLU_PLU_COMPRESSION(NONE);

DEFINE_DEFAULTS  IMPLICIT_INBOUND_PLU_SUPPORT(YES)
                 DEFAULT_MODE_NAME(#INTER )
                 MAX_MC_LL_SEND_SIZE(32767)
                 DIRECTORY_FOR_INBOUND_ATTACHES(*)
                 DEFAULT_TP_OPERATION(NONQUEUED_AM_STARTED)
                 DEFAULT_TP_PROGRAM_TYPE(BACKGROUND)
                 DEFAULT_TP_CONV_SECURITY_RQD(NO)
                 MAX_HELD_ALERTS(10);

DEFINE_CPIC_SIDE_INFO  SYMBOLIC_DESTINATION_NAME(ADSM )
                       DESCRIPTION(ADSM/VM Server )
                       FQ_PARTNER_LU_NAME(MYVMSYS.ADSMGATE)
                       MODE_NAME(#INTER )
                       TP_NAME(ADSM );

```

Supporting Multiple Network Adapters

Multiple network adapter support lets an administrator increase server throughput by providing multiple connections to the same network or to several physically distinct networks with the same server:

- TCP/IP** No additional server configuration is required for TCP/IP support of multiple adapters. Each adapter must have a separate TCP/IP address. Clients are given one address for their client options file. The server accepts sessions from each of the adapters. The session limit is placed on the accumulated count from all of the adapters.
- APPC** No additional ADSM server configuration is required for APPC support of multiple adapters.

Appendix C. Using ADSM Administrative Interfaces

This chapter describes how to use the following ADSM administrative interfaces:

- Graphical user interface (GUI) (see page 55)
- Administrative command-line interface (see page 57)

Using the Graphical User Interface

You can manage the server from a graphical user interface.

Note: The GUI is not available on the VM/ESA administrative client.

For instructions on starting the OS/2 GUI, see “Starting an Administrative Client” on page 17.

You can use the GUI to do the following tasks:

- Define, change, or delete an ADSM object
- View ADSM server and database information
- Invoke other ADSM functions, for example, activating a policy set

Defining an Object

The following example shows how to define an ADSM client node:

- 1** Double click on the **Nodes** icon.
- 2** Click on **Edit** from the menu bar and then **Add** from the pull down menu.
The **Node - Add** notebook appears.
- 3** The **Node - Add** notebook contains notebook tabs and arrow buttons. Click on the tabs and arrow buttons to page through the notebook.
- 4** Define the node by entering data, clicking on radio buttons, selecting check boxes, and selecting from drop-down lists.
- 5** When you have completed your definition, click on the **Add** push button.

Changing an Object

The following example shows how to change information for an ADSM client node:

- 1** Double click on the **Nodes** icon.
The **Nodes - Details** screen appears.
- 2** Click on a node.
- 3** Click on **Selected** from the menu bar and then **Open as properties** from the pull down menu.

The **Properties** notebook appears.

- 4** The **Properties** notebook contains notebook tabs and arrow buttons. Click on the tabs and arrow buttons to page through the notebook.
- 5** Make your changes by entering data, clicking on radio buttons, selecting check boxes, and selecting from drop-down lists.
- 6** When you have made all your changes, click on the **Apply** push button.

Deleting an Object

The following example shows how to delete an ADSM client node:

- 1** Double click on the **Nodes** icon.
- 2** Click on the node or nodes that you want to delete.
- 3** Click on **Edit** from the menu bar and then **Delete** from the pull down menu.
The **Nodes - Delete** notebook appears.
- 4** Verify the node name or names and click on the **Delete** push button.

Using Online Help

The administrative client GUI provides the following types of online help:

Task help	Step-by-step information on how to complete the task associated with a selected object.
General help	An overview of the function of a window. For example, general help for the Nodes—Icons window explains how to use the window, lists the tasks you can complete with the Nodes object, and displays links where you can obtain more information.
Contextual help	Specific information for a selectable object, menu choice, notebook tab, field, and control or push button in a window.
Help index	An index of all the help topics. You can access help for an entry directly from the index.
Using help	Information about the types of help.
Hypertext links	Links to more information about words that appear in a different color from the rest of the help text.
Search	Under Services on a help window, you can search for occurrences of a text string in the online help.

Using the Administrative Command-Line Interface

The administrative command-line client lets administrators control and monitor the server through administrative commands. For more information on using the command-line interface, see *ADSM Administrator's Reference*.

On VM/ESA, the administrative client invokes ADSM by using the DSMADMC command. This section shows VM/ESA examples. For more details and examples of other platform invocations, see *ADSM Administrator's Reference*.

Using Interactive Mode

To enter a series of administrative commands, start the administrative client in interactive mode by entering:

```
dsmadmc
```

You are then prompted to enter your user ID and password. If you do not want to be prompted for that information, you can enter your user ID and password with the DSMADMC command by using the -ID and -PASSWORD options. For example, enter:

```
dsmadmc -id=smith -password=secret
```

To end an administrative client session in interactive mode, use the QUIT command:

```
quit
```

Appendix D. Where to Look for More Information

This section shows you where to look for more information.

ADSM Publications

The following table lists the ADSM publications available in hardcopy and CD-ROM.

Short Title	Publication Title	Order Number
Hardcopy Publications		
ADSM General Information	<i>ADSTAR Distributed Storage Manager: General Information</i>	GH35-0131
ADSM Messages	<i>ADSTAR Distributed Storage Manager: Messages</i>	SH35-0133
ADSTAR Distributed Storage Manager for VM: Administrator's Guide	<i>ADSTAR Distributed Storage Manager for VM: Administrator's Guide</i>	GC35-0228
ADSTAR Distributed Storage Manager for VM: Administrator's Reference	<i>ADSTAR Distributed Storage Manager for VM: Administrator's Reference</i>	GC35-0229
ADSTAR Distributed Storage Manager for VM: Licensed Program Specifications	<i>ADSTAR Distributed Storage Manager for VM: Licensed Program Specifications</i>	GC35-0226
ADSM Using the UNIX HSM Clients	<i>ADSTAR Distributed Storage Manager: Using the UNIX Hierarchical Storage Management Clients</i>	SH26-4030
ADSM V2 Using the Apple Macintosh Backup-Archive Client	<i>ADSTAR Distributed Storage Manager Version 2: Using the Apple Macintosh Backup-Archive Client</i>	SH26-4051
ADSM Using the UNIX Backup-Archive Clients	<i>ADSTAR Distributed Storage Manager Version 2: Using the UNIX Backup-Archive Clients</i>	SH26-4052
ADSM V2 Using the OS/2 Backup-Archive Client	<i>ADSTAR Distributed Storage Manager Version 2: Using the OS/2 Backup-Archive Client</i>	SH26-4053
ADSM V2 Using the DOS Backup-Archive Client	<i>ADSTAR Distributed Storage Manager Version 2: Using the DOS Backup-Archive Client</i>	SH26-4054
ADSM V2 Using the Novell NetWare Backup-Archive Client	<i>ADSTAR Distributed Storage Manager Version 2: Using the Novell NetWare Backup-Archive Client</i>	SH26-4055
ADSM V2 Using the Microsoft Windows Backup-Archive Clients	<i>ADSTAR Distributed Storage Manager Version 2: Using the Microsoft Windows Backup-Archive Clients</i>	SH26-4056

Short Title	Publication Title	Order Number
ADSM Using the Lotus Notes Backup Agent	<i>ADSTAR Distributed Storage Manager: Using the Lotus Notes Backup Agent</i>	SH26-4047
ADSM Installing the Clients	<i>ADSTAR Distributed Storage Manager: Installing the Clients</i>	SH26-4049
ADSM Client Reference Cards	<i>ADSTAR Distributed Storage Manager: Client Reference Cards</i>	SX26-6013
ADSM Using the Application Programming Interface	<i>ADSTAR Distributed Storage Manager: Using the Application Programming Interface</i>	SH26-4002
CD-ROM		
ADSM Online Library		SK2T-1893
IBM Online VM Collection		SK2T-2067

IBM Redbooks

The International Technical Support Center (ITSC) publishes redbooks, books on specialized topics such as using ADSM to back up databases. You can order publications through your IBM representative or the IBM branch office serving your locality. You can also search for and order books of interest to you by visiting the IBM Redbooks home page on the World Wide Web at this address:

<http://www.redbooks.ibm.com/redbooks>

Software Developer's Program

The IBM Storage Systems Division (SSD) Software Developer's Program provides a range of services to software developers who want to use the ADSM application program interface (API). Information about the SSD Software Developer's Program is available in:

- IBMSTORAGE forum on CompuServe
- SSD Software Developer's Program Information Package

To obtain the Software Developer's Program Information Package:

1. Call 800-4-IBMSSD (800-442-6773). Outside the U.S.A., call 408-256-0000.
2. Listen for the Storage Systems Division Software Developer's Program prompt.
3. Request the Software Developer's Program Information Package.

Related VM/ESA System Publications

The following table lists related VM/ESA publications.

Publication Title	Order Number
<i>To Be Determined.</i>	TBD

Do You Have Comments or Suggestions?

If you have difficulty using this publication or if you have comments and suggestions for improving it, please complete and mail the readers comment form found in the back of this publication. Your comments and suggestions can contribute to the quality and usability of this publication.

Translations

Selected ADSM publications have been translated into languages other than American English. For a complete list of the available translations and their order numbers, see *IBM ADSTAR Distributed Storage Manager General Information*. Contact your IBM representative for more information about the translated publications and whether these translations are available in your country.

Appendix E. Notices

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AIXwindows	Language Environment	SP2
Application System/400	Library Reader	System/370
APPN	MVS/DFP	System/390
AS/400	MVS/ESA	Systems Application Architecture
AT	MVS/SP	SystemView
BookManager	MVS/XA	Virtual Machine/Enterprise Systems Architecture
C/370	OpenEdition	Virtual Machine/Extended Architecture
CICS	Operating System/2	VM/ESA
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CompuServe	CompuServe, Inc.	Open Desktop	The Santa Cruz Operation, Inc.
dBASE	Borland International, Inc.	OpenWindows	Sun Microsystems, Inc.
DECstation	Digital Equipment Corporation	PARADOX	Borland International, Inc.
DLT	Quantum Corporation	PC/TCP	FTP Software, Inc.
DPX/20	Groupe Bull	PTX	Sequent Computer Systems
Dynatek	Dynatek Automation Systems	SCO	The Santa Cruz Operation, Inc.
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Exabyte	Exabyte Corporation	SINIX	Siemens Nixdorf Information Systems, Inc.
Extra!	Attachmate Corporation		
FOXPRO	Microsoft Corporation	Solaris	Sun Microsystems, Inc.
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HP-UX	Hewlett-Packard Company	SPARC	SPARC International, Inc.
Ice Box	Software International Microsystems	StorageTek	Storage Technology Corporation
iFOR/LS	Gradient Technologies, Inc.	Sun	Sun Microsystems, Inc.
INGRES	ASK Group, Inc.	Sun Microsystems	Sun Microsystems, Inc.
Intel	Intel Corporation	SunOS	Sun Microsystems, Inc.
lomega	lomega Corporation	Sun-3	Sun Microsystems, Inc.
IPX/SPX	Novell, Inc.	Sun-4	Sun Microsystems, Inc.
IRIX	Silicon Graphics, Inc.	SureStore	Hewlett-Packard Company
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Lotus Notes	Lotus Development Corporation	WangDAT	Tecmar Technologies, Inc.
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Glossary

The terms in this glossary are defined as they pertain to the ADSM library. If you do not find the term you are looking for, refer to the *IBM Dictionary of Computing*, New York: McGraw-Hill, 1994.

This glossary may include terms and definitions from:

- The *American National Standard Dictionary for Information Systems*, ANSI X3.172-1990, copyright (ANSI). Copies may be purchased from the American National Standards Institute, 11 West 42nd Street, New York 10036.
- 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

absolute. A backup copy group mode value indicating that a file is considered for incremental backup even if the file has not changed since the last backup. See also *mode*. Contrast with *modified*.

access mode. A storage pool and storage volume attribute that specifies whether data can be written to or read from storage pools or storage volumes. The access mode can be read/write, read-only, or unavailable. Volumes in primary storage pools can also have an access mode of destroyed. Volumes in copy storage pools can also have an access mode of offsite.

accounting facility. A facility that records statistics about client session activity.

accounting records. Files that record session resource usage at the end of each client session.

action choice. A choice in a pull-down menu that causes an action. See also *routing choice*.

activate. The process of validating the contents of a policy set and copying the policy set to the ACTIVE policy set.

active policy set. The policy set within a policy domain that contains the most recently activated policy currently in use by all client nodes assigned to that policy domain. See *policy set*.

active version. The most recent backup copy of a file stored by ADSM. Such a file is exempt from deletion until a backup detects that the user has either replaced the file with a newer version, or has explicitly deleted the file from the workstation. Contrast with *inactive version*.

activity log. A log that records normal activity messages generated by the server. These messages include information about server and client operations, such as the start time of sessions or device I/O errors. Each message includes a message ID, date and time stamp, and a text description. The number of days to retain messages in the activity log can be specified.

administrative client. A program that runs on a file server, workstation, or mainframe that allows administrators to control and monitor the server through administrator commands. Contrast with *backup-archive client*.

administrative command schedule. A database record that describes the planned processing of an administrative command during a specific time period. See also *client schedule*.

administrative privilege class. A permission granted to an administrator that controls the commands that the administrator can issue. See *system privilege class*, *analyst privilege class*, *operator privilege class*, *policy privilege class* or *storage privilege class*.

administrative session. A period of time in which an administrator user ID can communicate with a server to perform administrative tasks. Contrast with *client node session*.

administrator. A user who has been registered to the server. Administrators can be authorized to one or more of the following administrative privilege classes: system, policy, storage, operator, or analyst. Administrators can use the administrative client to enter server commands and queries in accordance with their privileges.

administrator definition. Server control information that includes the administrator's name, password, contact information, administrative privilege classes, policy domains and storage pools assigned to an administrator, and whether the administrative ID is locked from the server. An administrator definition can be exported from a source server and imported to a target server at a later date.

ADSM. ADSTAR Distributed Storage Manager.

ADSM application program interface (API). A set of functions that applications running on a client platform can call to store, query, and retrieve objects from ADSM storage.

ADSTAR Distributed Storage Manager (ADSM). A client/server program that provides storage management to customers in a multivendor computer environment.

Advanced Interactive Executive (AIX). An operating system used in the RISC System/6000 computers. The AIX operating system is IBM's implementation of the UNIX operating system.

Advanced Peer-to-Peer Networking (APPN). An extension to the LU6.2 peer orientation for end-user services. See *SNA LU6.2* and *Systems Network Architecture*.

Advanced Program-to-Program Communication (APPC). An implementation of the SNA/SDLC LU6.2 protocol that allows interconnected systems to communicate and share the processing of programs. See *SNA LU6.2*, *Systems Network Architecture*, and *Common Programming Interface Communications*.

AFS. Andrew file system.

AIX. Advanced Interactive Executive.

analyst privilege class. An administrative privilege class that allows an administrator to reset statistics.

Andrew file system (AFS). A distributed file system developed for UNIX operating systems.

API. Application program interface.

APPC. Advanced Program-to-Program Communication.

APPN. Advanced Peer-to-Peer Networking.

archive. A function that allows users to copy one or more files to a storage pool for long-term storage. Archive copies may be accompanied by descriptive information and may be retrieved by archive date, by file name, or by description. Contrast with *retrieve*.

archive copy. A user file that has been archived to an ADSM storage pool.

archive copy group. A policy object containing attributes that control the generation, destination, and expiration of archive files. An archive copy group belongs to a management class.

ARCHIVEPOOL. A disk storage pool defined by ADSM at installation. It can be the destination for client files that are archived to the server. See *storage pool*.

archive retention grace period. The number of days ADSM retains an archive copy when the server is unable to rebind the file to an appropriate management class.

AS/400. Application System/400.

assigned capacity. The portion of available space that can be used to store database or recovery log information. See also *available space*.

association. The relationship between a client node and a client schedule. An association identifies the name of a schedule, the name of the policy domain to which the schedule belongs, and the name of a client node that performs scheduled operations.

audit. The process of checking for logical inconsistencies between information that the server has and the actual condition of the system. ADSM has processes for auditing volumes, the database, libraries, and licenses. For example, in auditing a volume ADSM checks for inconsistencies between information about backed up or archived files stored in the database and actual data associated with each backup version or archive copy in server storage.

authentication. The process of checking a user's password before allowing that user access to the server. Authentication can be turned on or off by an administrator with system privilege.

autochanger. A small multislot tape device that has a mechanism that automatically puts tape cartridges into the tape drive or drives. Also called *medium* or *media changer*, or a *library*.

available space. The amount of space, in megabytes, that is available to the database and recovery log. This space can be used to extend the capacity of the database or recovery log, or to provide sufficient free space before a volume is deleted from the database or recovery log.

B

background process. A server process that runs in the background, allowing the administrative client to be used for other work.

backup. The process of copying information for safekeeping. ADSM has processes for backing up user files, the database, and storage pools. For example, users can back up one or more files to a storage pool to ensure against loss of data. Contrast with *restore*. See also *database backup series* and *incremental backup*.

backup-archive client. A program that runs on a workstation or file server and provides a means for users to back up, archive, restore, and retrieve files. Contrast with *administrative client*.

backup copy. A user file that has been backed up to an ADSM storage pool.

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.

BACKUPPOOL. A disk storage pool defined by ADSM at installation. It can be the destination for client files that are backed up to the server. See *storage pool*.

backup retention grace period. The number of days ADSM retains a backup version after the server is unable to rebind the file to an appropriate management class.

backup series. See *database backup series*.

backup version. A file, directory, or file space that a user has backed up, which resides in ADSM server storage. There may be more than one backup version of a file in the storage pool, but at most only one is an active backup version. See *active version* and *inactive version*.

binding. The process of associating a file with a management class name. See *rebinding*.

buffer. Storage used to compensate for differences in the data rate flow, when transferring data from one device to another.

buffer pool. Temporary space used by the server to hold database or recovery log pages. See *database buffer pool* and *recovery log buffer pool*.

buffer pool size. The size of an area in memory used to store database or recovery log pages.

bus converter. A device that translates between different Hewlett-Packard internal I/O bus architectures.

C

cache. The process of leaving a duplicate copy on random access media when the server migrates a file to another storage pool in the hierarchy.

cartridge. A sequential storage media that contains magnetic tape in a protective housing. Contrast with *tape reel*.

CARTRIDGE. On ADSM servers that support it, a device class that is used to categorize tape devices that support tape cartridges, such as the 3495 Tape Library Dataserver.

cartridge system tape (CST). The base tape cartridge media used with 3480 or 3490 Magnetic Tape Subsystems. When specified as a media type in ADSM, CST identifies standard length tape. Contrast with *enhanced capacity cartridge system tape*.

central scheduler. A function that allows an administrator to schedule client operations and administrative commands. The operations can be scheduled to occur periodically or on an explicit date. See *client schedule* and *administrative command schedule*.

CID. Configuration Installation and Distribution.

client. A program running on a PC, workstation, file server, LAN server, or mainframe that requests services of another program, called the server. There are three types of ADSM clients: administrative, backup-archive, and space management. See *administrative client*, *backup-archive client*, and *space management client*.

Client Access/400. A software product that supports advanced program-to-program communications (APPC) in the DOS, OS/2, and Microsoft Windows environments and provides a set of end user services.

client domain. The set of drives, file systems, or volumes selected by a backup-archive client user during a backup or archive operation.

client migration. The process of copying a file from a client node to ADSM storage and replacing the file with

a stub file on the client node. The process is controlled by the user and by space management attributes in the management class. See also *space management*.

client node. A file server or workstation on which the backup-archive client program has been installed, which has been registered to the server.

client node definition. Server control information that includes the client's user ID, password, contact information, policy domain, file compression status, deletion authority, and whether the user ID is locked from the server. A client node definition can be exported from a source server so that it can be imported to a target server at a later date.

client node session. A period of time in which a user can communicate with a server to perform backup, archive, restore, or retrieval requests. Contrast with *administrative session*.

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. Also called the *dsm.opt* file.

client polling scheduling mode. A client/server communication technique where the client queries the server for work.

client schedule. A database record that describes the planned processing of a client operation during a specific time period. The client operation can be a backup, archive, restore, or retrieve operation, a client operating system command, or a macro. See also *administrative command schedule*.

client/server. A system architecture in which one or more programs (clients) request computing or data services from another program (server).

client system options file. A file, used on UNIX clients, containing a default set of processing options that identify the ADSM servers to be contacted for services. This file also specifies communication methods and options for backup, archive, space management, and scheduling. Also called the *dsm.sys* file. See also *client user options file*.

client user options file. A user-created file, used on UNIX clients, containing a default set of processing options that identify the server, communication method, backup and archive options, space management options,

and scheduling options. Also called the *dsm.opt* file. See also *client system options file*.

closed registration. A registration process in which an administrator must register workstations as client nodes with the server. Contrast with *open registration*.

collocation. A process that attempts to keep all data belonging to a single client node on a minimal number of sequential access media volumes within a storage pool. The purpose of collocation is to minimize the number of volumes that must be accessed when a large amount of data must be restored.

command line interface. A type of user interface where commands are specified on the command line when the backup-archive or administrative client is started. Contrast with *graphical user interface*.

commit. To make changes permanent in the database files. Changes made to the database files are not permanent until they are committed.

Common Programming Interface Communications (CPI-C). A programming interface that allows program-to-program communication using SNA LU6.2. See also *Systems Network Architecture*.

Common User Access (CUA). Guidelines for the dialog between a human and a workstation or terminal. One of the three SAA architectural areas.

communication manager. A component of OS/2 that allows a workstation to connect to a host computer and use the host resources as well as the resources of other personal computers to which the workstation is attached, either directly or through a host.

communication method. The method used by a client and server for exchanging information.

communication protocol. A set of defined interfaces that allow 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 ADSM, 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.

Configuration Installation and Distribution (CID). IBM's term for capabilities to automate installation. CID-enabled products are capable of unattended, remote installation.

contextual help. A type of online help that provides specific information for each selectable object, menu choice, notebook tab, field, and control or push button in a window.

conversion. On VM servers, the process of changing from WDSF/VM to ADSM.

copy group. A policy object that contains attributes that control the generation, destination, and expiration of backup and archive files. There are two kinds of copy groups: backup and archive. Copy groups belong to management classes. See also *frequency*, *destination*, *mode*, *serialization*, *retention*, and *version*.

copy status. The status of volume copies defined to the database or recovery log. The copy status can be synchronized, stale, off-line, or undefined.

copy storage pool. A named set of volumes that contains copies of files that reside in primary storage pools. Copy storage pools are used to back up the data stored in primary storage pools. A copy storage pool cannot be a destination for a backup copy group, an archive copy group, or a management class (for space-managed files). See *primary storage pool* and *destination*.

CPI-C. Common Programming Interface Communications.

CST. Cartridge system tape.

CUA. Common User Access.

D

daemon. In the AIX operating system, a program that runs unattended to perform a standard service. Some daemons are triggered automatically to perform their tasks; others operate periodically.

daemon process. In the AIX operating system, a process begun by the root user or by the root shell that can be stopped only by the root user. Daemon processes generally provide services that must be available at all times, such as sending data to a printer.

damaged file. A file for which ADSM has detected data-integrity errors.

DASD. Direct access storage device.

database. A collection of information about all objects managed by the server, including policy management objects, users and administrators, and client nodes.

database audit. A utility that checks for and optionally corrects inconsistent database references.

database backup series. One full backup of the database, plus up to 32 incremental backups made since that full backup. Each full backup that is run starts a new database backup series. A backup series is identified with a number.

database backup trigger. A set of criteria that defines when and how database backups are run automatically. The criteria determine how often the backup is run, whether the backup is a full or incremental backup, and where the backup is stored.

database buffer pool. Storage that is used as a cache to allow database pages to remain in memory for long periods of time, so that the server can make continuous updates to pages without requiring input or output (I/O) operations from external storage.

database dump. A utility that copies database entries to media for later reload in case a catastrophic error should occur.

database load. A utility that copies database entries from media to a newly installed database.

database volume. A volume that has been assigned to the database.

dataserver. See *Tape Library Dataserver*.

data set. See *linear data set*.

data storage. The primary and copy storage pools used by the server to store users' files: backup versions, archive copies, and files migrated from client nodes (space-managed files). Synonymous with *server storage*. See *primary storage pool*, *copy storage pool*, *storage pool volume*, and *volume*.

DDM. Distributed Data Management.

default management class. A management class assigned to a policy set, which is used to govern backed up or archived files when a user does not explicitly bind a file to a specific management class.

definition. Server control information that includes administrator, client node, and policy definitions. A definition can be exported from a source server to

external media so that it can be imported to a target server at a later date.

deletion exit. An installation-wide exit that informs a tape management system or operator that the server has deleted a sequential access media volume from its database.

delimiter. (1) A character used to indicate the beginning and end of a character string. (2) A character that groups or separates words or values in a line of input.

density. On MVS and VM servers, a device class attribute that identifies the bits per inch that can be stored on tape reels. ADSM supports 1600 and 6250 bits per inch (bpi).

desktop. On-screen representation of a desk top.

desktop client. The group of clients supported by ADSM that are not UNIX-based and are not OpenEdition MVS. For example, a DOS client is a desktop client.

destination. A copy group or management class attribute that specifies the primary storage pool to which a client file will be backed up, archived, or migrated. At installation, ADSM provides storage destinations named BACKUPPOOL, ARCHIVEPOOL, and SPACEMGPOOL.

device class. A named group of storage devices. Each device class has a unique name and represents a device type of disk, file, optical disk, or tape.

device configuration file. A file that contains information about defined device classes, and, on AIX servers, defined libraries and drives. The file can be created by using an ADSM command or by using an option in the server options file. The information is a copy of the device configuration information in the ADSM database.

device driver. A collection of subroutines that control the interface between I/O device adapters and the processor.

device type. A category of storage device. Each device class must be categorized with one of the supported device types, for example, DISK or CARTRIDGE.

direct access storage device (DASD). A device in which access time is effectively independent of the location of the data.

DISK. A device class that is defined by ADSM at installation. It is used to categorize disk drives, such as 3390 DASD or 3380 DASD.

diskette. A small, magnetic disk enclosed in a jacket.

disk operating system (DOS). An operating system used in IBM PC, PS/2, and compatible computers.

Distributed Data Management (DDM). A feature of the System Support Program Product that allows an application program (client) to use server program functions to work on files that reside in a remote system.

DLL. Dynamic link library.

DLT. Digital linear tape.

domain. See *policy domain* or *client domain*.

DOS. Disk operating system.

drive. A device used to read and write data on a medium such as a disk, diskette, or tape.

dsm.opt file. See *client options file* and *client user options file*.

dsm.serv.opt. See *server options file*.

dsm.sys file. See *client system options file*.

dynamic. A copy group serialization value that specifies that ADSM accepts the first attempt to back up or archive a file regardless of whether the file is modified during the backup or archive process. See also *serialization*. Contrast with *shared dynamic*, *shared static*, and *static*.

dynamic link library. A file containing executable code and data bound to a program at load time or run time, rather than during linking. The code and data in a dynamic link library can be shared by several applications simultaneously.

E

ECCST. Enhanced capacity cartridge system tape.

enhanced capacity cartridge system tape (ECCST). Cartridge system tape with increased capacity that can only be used with 3490E tape subsystems. Contrast with *cartridge system tape*.

error log. A character file written on random access media that contains information about errors detected by the server or client.

estimated capacity. The available space, in megabytes, of a storage pool.

Ethernet. A data link protocol and LAN that interconnects personal computers and workstations via coaxial cable.

event. Administrative commands or client operations that are scheduled to be executed at a particular time.

event record. A database record that describes actual status and results for events.

exclude. The process of identifying files or directories in an include-exclude list to prevent these objects from being backed up whenever a user or schedule issues an incremental or selective backup operation, or to prevent these objects from being migrated off the client node via ADSM space management.

exclude-include list. See *include-exclude list*.

exit. To execute an instruction within a portion of a computer program in order to terminate the execution of that portion.

exit machine. On a VM server, a virtual machine that runs the mount and deletion installation-wide exits on VM systems.

expiration. The process by which files are identified for deletion because their expiration date or retention period has passed. Backed up or archived files are marked expired by ADSM based on the criteria defined in the backup or archive copy group.

expiration date. On MVS, VM, and VSE servers, a device class attribute used to notify tape management systems of the date when ADSM no longer needs a tape volume. The date is placed in the tape label so that the tape management system does not overwrite the information on the tape volume before the expiration date.

export. The process of copying administrator definitions, client node definitions, policy definitions, server control information or file data to external media.

export/import facility. See *import/export facility*.

extend. The process of increasing the portion of available space that can be used to store database or recovery log information. Contrast with *reduce*.

F

file data. File space definitions, authorization rules, backed up files, archive copies, and space-managed files. File data can be exported from a source server to external media so that it can be imported to a target server at a later date.

file record extent. The extent of the file enumerated in number of records.

file space. A logical space in a client's storage that can contain a group of files. For clients on systems such as OS/2, a file space is a logical partition and is identified by a volume label. For clients on systems such as AIX and UNIX, a file space can consist of any subset of directories and subdirectories stemming from a virtual mount point. Clients can restore, retrieve, or delete their file spaces from ADSM server storage. ADSM does not necessarily store all the files from a single file space together, but can identify all the files in server storage that came from a single file space.

File Transfer Protocol (FTP). In TCP/IP, the protocol that makes it possible to transfer data among hosts and to use foreign hosts indirectly.

format. A device class attribute that specifies the recording format used to read or write to sequential access media, for example to cartridge tape.

frequency. A copy group attribute that specifies the minimum interval, in days, between incremental backups.

FTP. File Transfer Protocol.

full backup. An ADSM function that copies the entire database. A full backup begins a new database backup series. Contrast with *incremental backup*. See *database backup series*.

fuzzy copy. A backup version or archive copy of a file that might not accurately reflect what is currently in the file because ADSM backed up or archived the file while the file was being modified.

G

general help. A type of online help that provides an overview of the function of the window.

graphical user interface (GUI). A type of user interface that takes advantage of a high-resolution monitor, including some combination of graphics, the object-action paradigm, the use of pointing devices, menu bars, overlapping windows, and icons. See *windowed interface*. Contrast with *command line interface*.

group of mirrored volumes. One, two, or three volume copies defined to the database or recovery log. Each volume copy in the group contains exactly the same portion of the database or recovery log. See *mirroring*.

GUI. Graphical user interface.

H

handle. A data structure that is a temporary local identifier for an object. A handle identifies an object at a specific location by binding it.

HDA. Head-disk assembly.

head-disk assembly (HDA). A field replaceable unit in a direct access storage device containing the disks and actuators.

help index. A type of online help that provides an alphabetic listing of all help topics.

hierarchical storage management (HSM) client. A program that runs on workstations to allow users to maintain free space on their workstations by migrating and recalling files to and from ADSM storage. The HSM client allows use of ADSM space management functions. Synonymous with *space management client*.

high migration threshold. A percentage of the storage pool capacity that identifies when ADSM can start migrating files to the next available storage pool in the hierarchy. Contrast with *low migration threshold*. See *server migration*.

HP-UX. Hewlett-Packard UNIX operating system. HP-UX is one of the operating systems that ADSM supports as a client environment and a server environment.

HSM client. Hierarchical storage management client.

I

import. The process of copying administrator definitions, client node definitions, policy definitions, server control information or file data from external media to a target server.

import/export facility. The facility that allows system administrators to copy definitions and file data from a source server to external media to move or copy information between servers. Any subset of information can be imported to a target server from the external media.

inactive version. A backup version of a file for which a more recently backed up version exists. Inactive backup versions are eligible for expiration processing according to the management class assigned to the file. Contrast with *active version*.

include-exclude file. On UNIX clients, a file containing statements that ADSM uses to determine whether to back up or migrate certain files, and to determine the associated management classes to use for backup, archive, and space management. See *include-exclude list*.

include-exclude list. A group of include and exclude option statements in a file. ADSM uses the statements to determine whether to back up or migrate certain files, and to determine the associated management classes to use for backup, archive, and space management. The exclude options identify files that should not be backed up or migrated off the client node. The include options identify files that are exempt from the exclusion rules, or assign a management class to a file or group of files for backup, archive, or space management services. The include-exclude list is defined either in the include-exclude file (for UNIX clients) or in the client options file (for other clients).

inconsistencies. Any discrepancy between the information recorded in the database about backed up or archived files and the actual data associated with backed up or archived files residing in server storage.

incremental backup. (1) A function that allows users to back up files or directories that are new or have changed since the last incremental backup. With this function, users can back up files or directories from a client domain that are not excluded in the include-exclude list and that meet the requirements for

frequency, mode, and serialization as defined in the backup copy group of the management class assigned to the files. Contrast with *selective backup*. (2) An ADSM function that copies only the pages in the database that are new or changed since the last full or incremental backup. Contrast with *full backup*. See *database backup series*.

internal mounting facility. On a VM server, a VM facility that allows the server to request tape mounts by sending a message to a mount operator. The message is repeated until the tape is mounted or until the mount wait time is exceeded.

inter-user communication vehicle (IUCV) facility. On a VM server, a VM communication method used to pass data between virtual machines and VM components.

IPX/SPX. Internetwork Packet Exchange/Sequenced Packet Exchange. IPX/SPX is Novell NetWare's communication protocol.

IUCV. Inter-user communication vehicle.

K

KB. Kilobyte.

kernel. The part of an operating system that performs basic functions such as allocating hardware resources.

kernel extension. A program that modifies parts of the kernel that can be customized to provide additional services and calls. See *kernel*.

kilobyte (KB). 1024 bytes.

L

LAN. Local area network.

length. A device class attribute that specifies the length of cartridge tape by specifying one of the following media types: CST for standard length tape or ECCST for double length tape.

library. (1) A repository for demountable recorded media, such as magnetic tapes. (2) In ADSM, a collection of one or more drives, and possibly robotic devices (depending on the library type), which can be used to access storage volumes. (3) In the AS/400 system, a system object that serves as a directory to

other objects. A library groups related objects, and allows the user to find objects by name.

linear data set. A type of MVS data set that ADSM uses for the database, the recovery log, and storage pools. The data set must be preallocated using VSAM IDCAMS and formatted by ADSM for its use. See *minidisk*.

load. See *mount*.

local area network (LAN). A network in which a set of devices are connected to one another for communication and that can be connected to a larger network.

log pool size. The size of an area in memory used to store recovery log pages.

logical volume. The combined space from all volumes defined to either the database or the recovery log. In ADSM, the database is one logical volume and the recovery log is one logical volume.

low migration threshold. A percentage of the storage pool capacity that specifies when ADSM can stop the migration of files to the next storage pool. Contrast with *high migration threshold*. See *server migration*.

M

macro file. An optional file that contains one or more administrative commands and is invoked from an administrative client.

management class. A policy object that users can bind to each file to specify how the server manages the file. The management class can contain a backup copy group, an archive copy group, and space management attributes. The copy groups determine how the ADSM server manages backup versions or archive copies of files. The space management attributes determine whether files are eligible for migration from client nodes to ADSM storage, and under what conditions. See also *copy group*, *binding* and *rebinding*.

mask. A pattern of characters that controls the keeping, deleting, or testing of positions of another pattern of characters or bits.

maximum extension. Specifies the maximum amount of storage space, in megabytes, that you can extend the database or recovery log.

maximum reduction. Specifies the maximum amount of storage space, in megabytes, that you can reduce the database or recovery log.

maximum utilization. The highest percentage of assigned capacity used by the database or recovery log.

MB. Megabyte.

megabyte (MB). (1) For processor storage and real and virtual memory, 2²⁰ or 1 048 576 bytes. (2) For disk storage capacity and transmission rates, 1 000 000 bytes.

migrate. (1) To move data from one storage pool to the storage pool specified as the next pool in the hierarchy. The process is controlled by the high and low migration thresholds for the first storage pool. See *high migration threshold* and *low migration threshold*. (2) To copy a file from a client node to ADSM storage. ADSM replaces the file with a stub file on the client node. The process is controlled by the include-exclude list and by space management attributes in management classes.

migration. The process of moving data from one storage location to another. See *client migration* and *server migration*.

minidisk. A logical subdivision of a VM physical disk that provides storage on contiguous cylinders of DASD. On a VM server, a minidisk can be defined as a disk volume that can be used by the database, recovery log, or a storage pool. See also *linear data set*.

mirroring. A feature that protects against data loss within the database or recovery log by writing the same data to multiple disks at the same time. Mirroring supports up to three exact copies of each database or recovery log volume. See *group of mirrored volumes*.

mm. Millimeter.

mode. A copy group attribute that specifies whether to back up a file that has not been modified since the last time the file was backed up. See *modified* and *absolute*.

modified. A backup copy group mode value indicating that a file is considered for incremental backup only if it has changed since the last backup. A file is considered changed if the date, size, owner, or permissions have changed. See *mode*. Contrast with *absolute*.

Motif. A graphical user interface that performs window management and contains a high level toolkit for application program development. It provides an icon view of the UNIX file system. Also known as X-Windows/Motif or Motif X—Toolkit.

mount. To place a data medium (such as a tape cartridge) on a drive in a position to operate.

mount exit. On a VM server, an installation-wide exit (DSMMOUNT EXEC) that requests tape mounts on behalf of the server on VM systems.

mount limit. A device class attribute specifying the maximum number of volumes that can be simultaneously accessed from the same device class, that is, the maximum number of mount points. See *mount point*.

mount operator. On a VM server, a VM user ID that can receive tape mount messages from the server.

mount point. A logical drive through which ADSM accesses volumes in a sequential access device class. For a device class with a removable media device type (for example, CARTRIDGE), a mount point is a logical drive associated with a physical drive. For a device class with the device type of FILE, a mount point is a logical drive associated with an I/O stream. The number of mount points for a device class is determined by the mount limit for that class. See *mount limit*.

mount request. A server request to mount a sequential access media volume so that data can be read from or written to the sequential access media.

mount retention period. A device class attribute that specifies the maximum amount of time, in minutes, that the server retains a mounted sequential access media volume that is not being used before it dismounts the sequential access media volume.

mount wait period. A device class attribute that specifies the maximum amount of time, in minutes, that the server waits for a sequential access volume mount request to be satisfied before canceling the request.

Multiple Virtual Storage (MVS). One of the family of IBM operating systems for the System/370 or System/390 processor, such as MVS/ESA. MVS is one of the supported server environments.

MVS. Multiple Virtual Storage.

N

Named Pipes. A communication protocol that is built into the OS/2 operating system. It can be used to establish communications between an ADSM/2 server and OS/2 clients. The client and ADSM/2 server must reside on the same system.

NetBIOS. Network Basic Input/Output System.

network adapter. A physical device, and its associated software, that enables a processor or controller to be connected to a network.

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.

Network File System (NFS). A protocol defined by Sun Microsystems that extends TCP/IP network file services. NFS permits remote node files to appear as though they are stored on a local workstation.

Networking Services/DOS (NS/DOS). A software product that supports advanced program-to-program communications (APPC) in the DOS and Microsoft Windows 3.1 environments. With NS/DOS, communications applications on your workstation "talk to" partner applications on other systems that support APPC.

NFS. Network File System.

node. A unique name used to identify a workstation to the server. See also *client node*.

notebook. A graphical representation that resembles a spiral-bound notebook that contains pages separated into sections by tabbed divider-pages. A user can "turn" the pages of a notebook to move from one section to another.

notify operator. A VM user ID that specifies an operator who receives messages about severe errors and abnormal conditions.

O

object. A collection of data managed as a single entity.

offsite volume. A removable media volume that is at a location where it cannot be mounted for use.

OpenEdition MVS. MVS/ESA services that support an environment within which operating systems, servers, distributed systems, and workstations share common interfaces. OpenEdition MVS supports standard application development across multivendor systems and is required to create and use applications that conform to the POSIX standard.

open registration. A registration process in which users can register their own workstations as client nodes with the server. Contrast with *closed registration*.

Operating System/2 (OS/2). An operating system used in IBM PC AT, PS/2, and compatible computers. OS/2 is one of the supported client environments and one of the supported server environments.

operator privilege class. An administrative privilege class that allows an administrator to issue commands that control the operation of the server. This privilege class allows disabling or halting the server to perform maintenance, enabling the server, canceling server processes, and managing tape.

optical disk. A disk that contains data readable by optical techniques.

optical drive. A drive mechanism that rotates an optical disc.

optical library. A disk storage device that houses optical disk drives and optical disks, and contains a mechanism for moving optical disks between a storage area and optical disk drives.

OS/2. Operating System/2.

OS/400. Operating System/400.

owner. The owner of backup-archive files sent from a multiuser client node, such as AIX.

P

page. (1) A block of instructions, data, or both. (2) In ADSM, a unit of space allocation within database volumes. (3) In a virtual storage system, a fixed block that has a virtual address and is transferred as a unit between real storage and auxiliary storage.

paging. (1) The action of transferring instructions, data, or both, between real storage and external page storage. (2) Moving data between memory and a mass storage device as the data is needed.

pattern-matching expression. A string expression that uses wildcard characters to specify one or more ADSM objects. See also *wildcard character*.

PC Support/400. A software product that supports advanced program-to-program communications (APPC) in the DOS, OS/2, and Microsoft Windows environments and provides a set of end user services.

platform. The operating system environment in which a program runs.

policy definition. Server control information that includes information about policy domains, policy sets (including the ACTIVE policy set), management classes (including the default management class), copy groups, schedules, and associations between client nodes and schedules. A policy definition can be exported from a source server so that it can be imported to a target server at a later date.

policy domain. A policy object that contains policy sets, management classes, and copy groups that is used by a group of client nodes. See *policy set*, *management class*, and *copy group*.

policy privilege class. An administrative privilege class that allows an administrator to manage policy objects, register client nodes, and schedule client operations (such as backup services) for client nodes. Administrators can be authorized with unrestricted or restricted policy privilege. See *unrestricted policy privilege* or *restricted policy privilege*.

policy set. A policy object that contains a group of management class definitions that exist for a policy domain. At any one time there can be many policy sets within a policy domain but only one policy set can be active. See *management class* and *active policy set*.

premigration. For an HSM client, the process of copying files that are eligible for migration to ADSM storage, but leaving the original file intact on the local system.

primary storage pool. A named set of volumes that ADSM uses to store backup versions of files, archive copies of files, and files migrated from client nodes via ADSM space management. A primary storage pool may be backed up to a copy storage pool either automatically or by command. See *destination* and *copy storage pool*.

privilege class. A level of authority granted to an ADSM administrator. ADSM has five privilege classes: system, policy, storage, operator, and analyst. The privilege class determines which ADSM administrative tasks the administrator can perform. For example, an administrator with system privilege class can perform any administrative task.

programmable workstation communication services (PWSCS). A product that provides transparent high performance communications between programs running on workstations or on host systems.

protection status. A device class attribute that specifies whether to update the RACF profile to identify which users have access to cartridge tapes associated with this device class on MVS servers.

PWSCS. Programmable workstation communication services.

Q

QIC. Quarter-inch cartridge (a type of magnetic tape media).

R

random access media. Any volume accessed in a nonsequential manner. In ADSM, volumes are accessed in a nonsequential manner if they reside in the DISK device class.

randomization. The percentage of the startup window that the server can use to randomize start times for different client nodes associated with a schedule.

rebinding. The process of associating a file with a new management class name. For example, rebinding occurs when the management class associated with a file is deleted. See *binding*.

recall. A function that allows users to access files that have been migrated from their workstations to ADSM storage via ADSM space management. Contrast with *migrate*.

reclamation. A process of consolidating the remaining data from many sequential access media onto a single new sequential access media.

reclamation threshold. A value that specifies a percentage of space on sequential access media volumes that can be occupied by reclaimable space. The remainder of the space is for active data. (Space becomes reclaimable when files are expired.)

recovery log. A log of updates that are about to be written to the database. The log can be used to recover from system and media failures.

recovery log buffer pool. Used to hold new transactions records until they can be written to the recovery log.

reduce. The process of freeing up enough space to allow you to delete a volume from the database or recovery log. Contrast with *extend*.

REEL. On ADSM servers that support it, a device class that is used to categorize tape devices that support tape reels, such as the 3420 9-track tape device.

register. Defines a client node or administrator who can access the server. See *registration*.

registration. The process of identifying a client node or administrator to the server.

reply operator. On a VM server, a VM user ID that specifies an operator who will reply to tape mount requests by the server.

restore. The process of returning a backup copy to an active storage location for use. ADSM has processes for restoring its database, storage pools, storage pool volumes, and users' backed-up files. For example, users can copy a backup version of a file from the storage pool to the workstation. The backup version in the storage pool is not affected. Contrast with *backup*.

restricted policy privilege. An administrative privilege class that enables an administrator to manage policy objects only for the policy domains for which the administrator has been authorized.

restricted storage privilege. An administrative privilege class that enables an administrator to control the allocation and use of storage resources only for the storage pools for which the administrator has been authorized.

retention. The amount of time, in days, that inactive backed up or archived files will be retained in the storage pool before they are deleted. The following copy group attributes define retention: retain extra versions, retain only version, retain version.

retention period. On an MVS server, a device class attribute that specifies how long files are retained on sequential access media. When used, ADSM passes this information to the MVS operating system to ensure that other tape management systems do not overwrite tape volumes that contain retained data.

retrieve. A function that allows users to copy an archive copy from the storage pool to the workstation. The archive copy in the storage pool is not affected. Contrast with *archive*.

RLIO. Record Level Input/Output.

rollback. To remove changes that were made to database files since the last commit point.

root. In the AIX and UNIX environments, the user name for the system user with the most authority.

root user. In the AIX and UNIX environments, an expert user who can log in and execute restricted commands, shut down the system, and edit or delete protected files. Also called the *superuser*.

routing choice. A choice in a pull-down menu that, when selected, brings up another window. See also *action choice*.

S

SAA. Systems Application Architecture.

schedule. A database record that describes scheduled client operations or administrative commands. See *administrative command schedule* and *client schedule*.

scheduling mode. The type of scheduling operation set for the server and client. ADSM supports two scheduling modes for client operations: client-polling and server-prompted.

scratch volume. A volume that is available for ADSM use. The volume is labeled, is either blank or contains no valid data, and is not defined to ADSM.

SCSI. Small computer system interface.

selective backup. A function that allows users to back up specific files or directories from a client domain. With this function, users can back up files or directories that are not excluded in the include-exclude list and that meet the requirement for serialization as defined in the backup copy group of the management class assigned to the files. Contrast with *incremental backup*.

sequential access media. Any volume that is accessed in a sequential manner, as opposed to a random manner. In ADSM, volumes are accessed sequentially if they reside in a device class other than DISK.

serialization. A copy group attribute that specifies what ADSM does if files are modified during back up or archive processing. The value of this attribute determines whether processing continues, is retried, or is stopped. See *static*, *dynamic*, *shared static*, and *shared dynamic*.

server. A program that provides services to other programs (clients).

server migration. The process of moving data from one storage pool to the next storage pool as controlled by the high and low migration thresholds. See *high migration threshold* and *low migration threshold*.

server options file. A file that specifies processing options for communication methods, tape handling, pool sizes, language, and date, time, and number formats.

server program. The program that provides backup, archive, space management, and administrative services to clients. The server program must be at the necessary level to provide all of these services.

server-prompted scheduling mode. A client/server communication technique where the server contacts the client when work needs to be done.

server storage. The primary and copy storage pools used by the server to store users' files: backup versions, archive copies, and files migrated from client nodes (space-managed files). Synonymous with *data storage*. See *primary storage pool*, *copy storage pool*, *storage pool volume*, and *volume*.

session resource usage. The amount of wait time, CPU time, and space used or retrieved during a client session.

shared dynamic. A copy group serialization value that specifies that a file must not be modified during a backup or archive operation. ADSM attempts to retry the backup or archive operation a number of times; if the file is in use during each attempt, ADSM will back up or archive the file on its last try even though the file is in use. See also *serialization*. Contrast with *dynamic*, *shared static*, and *static*.

shared static. A copy group serialization value that specifies that the file must not be modified during backup or archive. ADSM will retry the backup or archive operation a number of times; if the file is in use during each attempt, ADSM will not back up or archive the file. See also *serialization*. Contrast with *dynamic*, *shared dynamic*, and *static*.

shell. In the AIX and UNIX environments, a software interface between a user and the operating system of a computer. Shell programs interpret commands and user interactions on devices such as keyboards, pointing devices, and touch-sensitive screens and communicate them to the operating system.

signal. (1) A simple method of communication between two processes. One process can inform the other process when an event occurs. (2) In operating system operations, a method of inter-process communication that simulates software interrupts.

signal handler. A subroutine called when a signal occurs.

SMIT. System Management Interface Tool.

SNA LU6.2. Systems Network Architecture Logical Unit 6.2.

socket. (1) An endpoint for communication between processes or applications. (2) A pair consisting of TCP port and IP address, or UDP port and IP address.

space-managed file. A file that is migrated from and recalled to a client node via ADSM space management.

space management. The process of keeping sufficient free storage space available on a client node by migrating files to ADSM storage. The files are migrated based on criteria defined in management classes to which files are bound, and the include-exclude list.

Synonymous with *hierarchical storage management*. See also *migration*.

space management client. A program that runs on workstations to allow users to maintain free space on their workstations by migrating and recalling files to and from ADSM storage. Synonymous with *hierarchical storage management client*.

SPACEMGPPOOL. A disk storage pool defined by ADSM at installation. It can be the destination for files that are migrated from client nodes via ADSM space management. See *storage pool*.

stale copy status. Specifies that a volume copy is not available to the database or recovery log.

STANDARD copy group. A backup or archive copy group that is defined by ADSM at installation. See *copy group*.

STANDARD management class. A management class that is defined by ADSM at installation. See *management class*.

STANDARD policy domain. A policy domain that is defined by ADSM at installation. See *policy domain*.

STANDARD policy set. A policy set that is defined by ADSM at installation. See *policy set*.

stanza. A group of lines in a file that together have a common function or define a part of the system. Stanzas are usually separated by blank lines or colons, and each stanza has a name.

startup window. A time period during which a schedule must be initiated.

static. A copy group serialization value that specifies that the file must not be modified during backup or archive. If the file is modified during the attempt, ADSM will not back up or archive the file. See also *serialization*. Contrast with *dynamic*, *shared dynamic*, and *shared static*.

storage hierarchy. A logical ordering of primary storage pools, as defined by an administrator with system privilege. Generally, the ordering is based on the speed and capacity of the devices that the storage pools use. In ADSM, the storage hierarchy is defined by

identifying the *next* storage pool in a storage pool definition. See *storage pool*.

storage management services. A component that allows a central system to act as a file backup and archive server for local area network file servers and workstations.

storage pool. A named set of storage volumes that ADSM uses to store client data. A storage pool is either a primary storage pool or a copy storage pool. See *primary storage pool* and *copy storage pool*.

storage pool volume. A volume that has been assigned to an ADSM storage pool. See *volume*, *copy storage pool*, and *primary storage pool*.

storage privilege class. An administrative privilege class that allows an administrator to control the allocation and use of storage resources for the server, such as monitoring the database, recovery log, and server storage. Administrators can be authorized with unrestricted or restricted storage privilege. See *restricted storage privilege* or *unrestricted storage privilege*.

stub file. A file that replaces the original file on a client node when the file is migrated from the client node to ADSM storage.

superuser. See *root user*.

synchronized copy status. Specifies that the volume is the only volume copy or is synchronized with other volume copies in the database or recovery log. When synchronized, mirroring has started.

system privilege class. An administrative privilege class that allows an administrator to issue all server commands.

Systems Application Architecture (SAA). Software interfaces, conventions, and protocols that provide a framework for designing and developing applications that are consistent across systems.

Systems Network Architecture (SNA). A set of rules for data to be transmitted in a network. Application programs communicate with each other using a layer of SNA called advanced program-to-program communications (APPC).

T

tape. A recording medium consisting of a long, narrow, flexible strip with a magnetic coating wound onto a reel or into a cartridge. See *cartridge* and *tape reel*.

tape library. (1) A term used to refer to a collection of tape cartridges. (2) An automated device that performs tape cartridge mounts and demounts without operator intervention.

Tape Library Dataserver. An automated tape library consisting of mechanical components, cartridge storage frames, IBM tape subsystems, and controlling hardware and software. The tape library dataserver performs tape cartridge mounts and demounts without operator intervention.

tape reel. A cylinder with flanges on which magnetic tape is wound. Devices such as the 3420 9-track tape device support tape reels. Contrast with *cartridge*.

tape volume prefix. A device class attribute that is the high-level-qualifier of the file name or the data set name in the standard tape label.

task help. A type of online help that provides a list of tasks that can be completed with a selected object. When you select a task, the help provides step-by-step information on how to complete the task.

TCP/IP. Transmission Control Protocol/Internet Protocol.

Telnet. In TCP/IP, the protocol that opens the connection to the system.

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.

trusted communication agent. A program that performs communication tasks on behalf of the client or server, and ensures the security of the communications.

U

unit name. On an MVS server, a device class attribute that specifies a group of tape devices used with the MVS server. A unit name can be a generic device type, an esoteric unit name, or a physical device.

unrestricted policy privilege. An administrative

privilege class that enables an administrator to manage policy objects for any policy domain.

unrestricted storage privilege. An administrative privilege class that enables an administrator to control the database, recovery log, and all storage pools.

utilization. The percent of assigned capacity used by the database or recovery log at a specific point of time.

V

validate. The process of ensuring that the active policy set contains a default management class and reporting on copy group definition errors.

version. The maximum number of backup copies retained for files and directories. The following copy group attributes define version criteria: *versions data exists* and *versions data deleted*.

Virtual Machine (VM). One of the family of IBM operating systems for the System/370 or System/390 processor, including VM/ESA, VM/XA, VM/SP, and VM/HPO. VM is one of the supported server environments.

Virtual Storage Extended (VSE). One of the family of IBM operating systems for the System/370 or System/390 processor, including VSE/ESA. VSE is one of the supported server environments.

VM. Virtual Machine.

volume. The basic unit of storage for the database, recovery log, or a storage pool. A volume can be an LVM logical volume, a standard file system file, a tape cartridge, or an optical cartridge. Each volume is identified by a unique volume identifier. See *database volume*, *scratch volume*, and *storage pool volume*.

volume history file. A file that contains information about: volumes used for database backups and database dumps; volumes used for export of administrator, node, policy, or server data; and sequential access storage pool volumes that have been added, reused, or deleted. The information is a copy of the same types of volume information in the ADSM database.

volume set. An entire image of the database or recovery log, as displayed on the administrative graphical user interface.

VSE. Virtual Storage Extended.

W

WDSF/VM. Workstation Data Save Facility/Virtual Machine.

wildcard character. A character or set of characters used to specify an unknown number or set of characters in a search string. Also called *pattern-matching character*.

window. A part of a display screen with visible boundaries in which information is displayed.

windowed interface. A type of user interface that is either a graphical user interface or a text based interface. The text based interface maintains a close affinity to the graphical user interface, including action

bars and their associated pull-downs and windows. See *graphical user interface*.

workstation. A personal computer system capable of maintaining data files.

Workstation Data Save Facility/Virtual Machine (WDSF/VM). The predecessor product to ADSTAR Distributed Storage Manager.

WORM. A type of optical media that can only be written to and cannot be erased.

X

X Windows. A network transparent windowing system developed by MIT. It is the basis for other products, such as Enhanced X Windows which runs on the AIX operating system.

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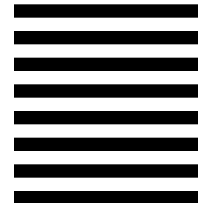
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