ADSTAR Distributed Storage Manager
for AIX

Installing the Server and Administrative Client

Version 2

SH35-0136-01

Note!

Before using this information and the product it supports, be sure to read the general information under “Notices” on page ix.

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

Second Edition (March 1996)

This edition applies to Version 2 of ADSTAR Distributed Storage Manager, program number (5765-564), and to any subsequent release until otherwise indicated in new editions or technical newsletters.

| Changes since the July 1995 edition are marked with a vertical bar ‘|’ at the left margin in this release. Ensure that you are using the correct edition for the level of the product.

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Programming Interface

This publication is intended to help the customer plan for and manage the ADSM server.

This publication also documents Diagnosis, Modification or Tuning Information which is provided to help you and your service representative diagnose ADSTAR Distributed Storage Manager problems.

Attention: Do not use this Diagnosis, Modification or Tuning Information as a programming interface.

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Preface

ADSTAR Distributed Storage Manager (ADSM) is a client/server program that provides storage management and data access services to customers in a multivendor computer environment. ADSM provides an automated, centrally scheduled, policy-managed backup and archive facility for file servers and workstations. ADSM also offers a space management function that automatically migrates files to ADSM storage, maintaining specific levels of free space in local file systems.

This publication provides installation information for administrators of ADSM. It explains how to:

- Install the server on an AIX workstation
- Tailor options and install administrative clients
- Customize ADSM for your environment
- Install maintenance updates to the ADSM server on AIX
- Set up device drivers for use by ADSM on AIX operating systems.

Administrators can define and manage ADSM processes by using ADSM commands from the command line interface or the graphical user interface.

For information on using the graphical user interface, refer to the *ADSM Administrator's Guide*.

Who Should Read This Publication

This publication is intended for anyone who has been assigned as a storage administrator. It defines the steps required to install the ADSM server and administrative clients.

You should read this publication if you want to:

- Install the ADSM server on AIX
- Install the administrative client
- Perform basic installation of the ADSM server and administrative client by using the ADSM defaults
- Customize options after installation
- Attach devices to the operating system
- Install maintenance updates to the ADSM server on AIX

All of the administrator commands you need to operate and maintain ADSM can be invoked from a workstation or from a terminal connected to the server called the server console.

What You Should Know before Reading This Publication

You should be familiar with the following before reading this publication:

- AIX operating system on which the server resides
- Workstation operating systems on which backup-archive clients reside
- Workstation operating systems on which the administrative clients reside
- Communication protocols required for the client/server environment
- Device planning and attachment for disk, tape, libraries, and optical storage

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.

For additional information on installing the ADSM server and administrative clients, refer to the README files shipped with ADSM. The README is stored in the /usr/lpp/adsmserv directory.

ADSTAR Distributed Storage Manager Publications

The ADSM library is available in softcopy on the IBM Online Library, Omnibus Edition: AIX Collection, (SK2T-2066), and the ADSTAR Distributed Storage Manager Collection, (SK2T-1878).

The following table lists ADSM publications:

Short Title	Title	Order Number
ADSM General Information	*ADSTAR Distributed Storage Manager: General Information*	GH35-0131
ADSM Licensed Program Specifications	*ADSTAR Distributed Storage Manager for AIX: Licensed Program Specifications*	GH35-0132
ADSM Administrator's Guide	*ADSTAR Distributed Storage Manager for AIX: Administrator's Guide*	SH35-0134
ADSM Administrator's Reference	*ADSTAR Distributed Storage Manager for AIX: Administrator's Reference*	SH35-0135
ADSM Messages	*ADSTAR Distributed Storage Manager: Messages*	SH35-0133
ADSM Using the UNIX Backup-Archive Clients	*ADSTAR Distributed Storage Manager Version 2: Using the UNIX Backup-Archive Clients*	SH26-4052
ADSM V2 Using the Microsoft Windows Backup-Archive Clients	*ADSTAR Distributed Storage Manager Version 2: Using the Microsoft Windows Backup-Archive Clients*	SH26-4056
ADSM V2 Using the OS/2 Backup-Archive Client	*ADSTAR Distributed Storage Manager Version 2: Using the OS/2 Backup-Archive Client*	SH26-4053

Short Title	Title	Order Number
ADSM V2 Using the DOS Backup-Archive Client	*ADSTAR Distributed Storage Manager Version 2: Using the DOS Backup-Archive Client*	SH26-4054
ADSM Using the UNIX HSM Clients	*ADSTAR Distributed Storage Manager: Using the UNIX Hierarchical Storage Management Clients*	SH26-4030

Related AIX System Publications

The following table lists publication titles and order numbers for related publications.

Publication Title	Order Number
Getting Started: Managing RISC System/6000	GC23-2378
AIX and Related Products Documentation Overview	SC23-2456
AIX Version 3.2 General Programming Concepts	SC23-2205
AIX Version 3.2 Licensed Program Specification	GC23-2194
AIX Getting Started	GC23-2521
AIX Version 3.2 System User's Guide: Communication Networks	GC23-2523
AIX Version 3.2 System User's Guide: Operating System and Devices	GC23-2522
AIX Version 3.2 Installation Guide	SC23-2341
AIX System Management Guide: Communications and Networks	GC23-2487
AIX Version 4.1 Getting Started	SC23-2712
AIX Version 4.1 Communications Programming Concepts	SC23-2610
AIX Version 4.1 System User's Guide: Operating System and Devices	SC23-2544
AIX Version 4.1 System User's Guide: Communications and Networks	SC23-2545
AIX Version 4.1 Commands Reference	SC23-2639
IBM AIX NETBIOS on Token Ring/6000	SC23-2336
NetBIOS and IPX Support Version 2.1 Licensed Program Specifications	NETBIOSLPS
NetWare for AIX/6000 from IBM v3.11 System Administration Guide	SC23-2420
NetWare for AIX/6000 from IBM v3.11 System Messages	SC23-2424
NetWare for AIX/6000 from IBM v3.11 Transports V1.01	SC23-2566
NetWare for AIX/6000 from IBM v3.11 User Basics	SC23-2423
NetWare for AIX/6000 from IBM v3.11 Utilities Reference	SC23-2421
NetWare for AIX/6000 from IBM v3.11 Licensed Program Specification	GC23-2418

Related Hardware Product Publications

Short Title	Title	Order Number
IBM 3490 Tape Subsystem User's Guide	IBM 3490 Magnetic Tape Subsystem Enhanced Capability Models E01 and E11 User's Guide	GA32-0298
IBM 3494 Operator's Guide	IBM 3494 Tape Library Dataserver Operator's Guide	GA32-0280
IBM 3590 Tape Subsystem User's Guide	IBM 3590 High Performance Tape Subsystem User's Guide	GA32-0330
IBM 3495 Operator's Guide	IBM 3495 Tape Library Dataserver Models L20, L30, L40, and L50 Operator's Guide	GA32-0235
IBM AIX Parallel Channel Tape Attachment/6000 Installation and User's Guide	IBM AIX Parallel Channel Tape Attachment/6000 Installation and User's Guide	GA32-0311
IBM SCSI Tape Drive, Medium Changer, and Library Device Drivers	IBM SCSI Tape Drive, Medium Changer, and Library Device Drivers Installation and User's Guide	GC35-0154

IBM ITSC Publications (Redbooks)

Publication Title	Order Number
ADSM Version 2 Presentation Guide	SG24-4532
ADSM Implementation Examples	GG24-4034
ADSM Advanced Implementation Examples	GG24-4221
Getting Started with ADSM/2	GG24-4321
Getting Started with ADSM/6000	GG24-4421
Getting Started with the NetWare Client	GG24-4242
Getting Started with the AIX/6000 Client	GG24-4243
ADSM API Examples for OS/2 and Windows	SG24-2588
Using ADSM to Back Up Databases	GG24-4335
AIX Storage Management Products Comparison	GG24-4495
Easy Access to Host Data with Distributed File Manager	GG24-4427
ADSM/VSE Implementation	GG24-4266
Setting Up and Implementing ADSM/400	GG24-4460
&aixstopl.	&aixstopo.
ADSM/6000 on 9076 SP2	GG24-4499

Internet, IBMLink, and Compuserve Assistance

Online help is available through Internet, IBMLink/ServiceLink, and CompuServe. See “Internet, IBMLink, and Compuserve Assistance” on page 225 for instructions on accessing these services.

APPC, APPN, and CPI-C Publications

The following CD-ROM contains publications intended to help you use APPC, APPN, and CPI-C.

Title	Order Number
The Best of APPC, APPN, and CPI-C Collection Kit	SK2T-2013

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 programming interface (API). Information about the SSD Software Developer’s Program is available:

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

To obtain the Software Developer’s Program Information Package:

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

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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 *ADSM General Information*. Contact your IBM representative for more information about the translated publications and whether these translations are available in your country.

Summary of Changes for ADSTAR Distributed Storage Manager

This section summarizes changes made for this and previous editions of this book.

Changes for Version 2—March 1996

The following summarizes changes made for ADSM Version 2 in March 1996.

Shared Memory

Shared Memory provides more efficient communications between the client and server when both are on the same machine (node). See "Setting Options for the Shared Memory Communication Method" on page 60 for additional information.

Language availability

ADSM 2.1.5.6 for AIX is now available in Japanese and simplified Chinese, in addition to English. Simplified Chinese is available on AIX 4.1.4 and later. See "LANGuage" on page 79 for additional information.

Changes for Version 2—December 1995

The following summarizes changes made for ADSM Version 2 in December 1995. This book is available only in softcopy format.

Disaster Recovery Manager

The Disaster Recovery Manager (DRM) feature allows you to prepare for and helps you to recover from disasters that destroy the ADSM server and clients.

See "Using Disaster Recovery Manager (DRM)" on page 190 and the *ADSM Administrator's Guide* for details.

Device support enhancements

Device class types now include support for digital linear tape (DLT) drives and libraries, and write-once read-many (WORM) optical drives. See Chapter 6, "Configuring Devices for the ADSM Server" on page 85 for available devices.

This release incorporates the *ADSM: Device Configuration Guide* at Chapter 6, "Configuring Devices for the ADSM Server" on page 85. Sample device configuration scenarios are included in this chapter.

Changes for Version 2—July 1995

The new functions for ADSM Version 2 are:

Administrative command scheduling

You can define schedules for automatically issuing administrative commands once or periodically.

See "Scheduling Administrative Commands" on page 195 for more information.

Configuration and administration enhancements

You can use the ADSM utilities interface to make ADSM configuration and administration tasks easier.

See “After the Basic Installation and Configuration” on page 23 for more information.

Database backup and recovery

You can perform full and incremental backups of the server database to protect against loss or damage. You can use the backup copies to restore the database to its current state or to a specific point in time. You can back up the database while the server is available to clients.

Note: To allow for recovery of the database to its most current state, you may have to extend your recovery log space significantly.

The online DUMP DB command is removed.

See “Using Database Backup and Recovery” on page 190 for more information.

Device support enhancements

Device class types now include support for 4mm tape drives, quarter-inch cartridge (QIC) tape drives, and IBM 3590 tape drives. Library device support now allows the following:

- The user can select whether media labels are read when volumes are checked in and checked out.
- ADSM can initiate a swap operation when an empty library slot is not available during check-in processing.

ADSM can operate in conjunction with external media management systems.

See the Chapter 6, “Configuring Devices for the ADSM Server” on page 85 for more information.

Hierarchical storage management

Hierarchical storage management (HSM) provides space management services to HSM clients. HSM clients can automatically migrate user files to storage pools to free up client storage space. A user can access a migrated file as if it were on local storage.

See “Hierarchical Storage Management (HSM) Function” on page 195 for more information.

Storage pool backup and recovery

You can back up client files stored on storage pools to sequential media. These media can be either onsite, to protect against media loss, or offsite, for disaster recovery purposes.

See “Managing Storage Pool Backup and Recovery Volumes” on page 194 for more information.

Chapter 1. Introduction

ADSM installation consists of installing ADSM component programs on the computers in your computing environment. After ADSM component programs have been installed, ADSM is configured by defining devices, schedules, and policy to ADSM.

See the *ADSM General Information* manual for general ADSM information and the *ADSM Administrator's Guide* for detailed information on ADSM.

This introduction directs you to installation choices, general helps, and basic installation and configuration extensions.

Start Here

- ADSM offers these installation choices:

  Chapter 3, "Basic Installation and Configuration" on page 13
  Used for first-time ADSM installations. The basic installation includes a basic configuration of ADSM as well as the installation of the ADSM component programs (for example, server, AIX client, online books).

  See **"Results of the Basic Installation and Configuration" on page 2** for the expected results of the basic installation and configuration.

  "Upgrading Installation from ADSM Version 1 to ADSM Version 2" on page 4
  Required for ADSM Version 2 installation over an existing ADSM Version 1 installation. This upgrade procedure requires that the Version 1 data is backed up before Version 2 is installed. You must follow the procedure in this section to prevent loss of data when upgrading from ADSM Version 1 to Version 2.

  "Reinstalling a Version 2 ADSM Server" on page 5
  Used if you are reinstalling a Version 2 server over a previous Version 2 server (for example, ADSM 2.1.5.6 over ADSM 2.1.0.2).

  Chapter 4, "Manual Configuration for the ADSM Server on AIX" on page 33
  Used if you encountered problems with the basic installation and configuration or if you want additional information about the tasks included in the basic installation and configuration. In most cases, you will not need to manually configure ADSM on your system.

- Certain ADSM considerations apply for:
  - **"Stopping an Existing Server, Removing the Server, and Removing the Online Books" on page 6**
  - **"Returning from ADSM Version 2 to ADSM Version 1" on page 6**
  - **"Starting ADSM" on page 24**
  - **"Using Help" on page 28.**

  - **"Exiting a Server Session Using QUIT and HALT Commands" on page 30**
- Extend the basic installation and configuration with:
  - **Chapter 5, "Setting the Communication Method and Server Options" on page 57**
  - **Chapter 6, "Configuring Devices for the ADSM Server" on page 85**
  - **Chapter 7, "Installing Clients from Images on the Installation Media" on page 135**
  - **Chapter 8, "Installing Remote Administrative Clients" on page 155**
  - **Chapter 9, "Setting Client Options" on page 177**
  - **Appendix A, "Additional Post-Installation and Customization" on page 189**
- Test ADSM functions by using **Appendix B, "ADSM Test Drive" on page 201.**
- Apply maintenance fixes by using **Appendix C, "Applying ADSM Updates on AIX" on page 225.**

Results of the Basic Installation and Configuration

This section gives you the expected results of the basic installation and configuration.

What the Basic Installation Does Automatically

- Installs the server component program (files) in the /usr/lpp/adsmserv/bin directory path.

  Read the README files in the root directory for the latest product updates.
- Installs the ADSM Utilities program in the /usr/lpp/adsmserv/ezadsm directory path.
- Installs the language-dependent portions of the program depending on the locale values selected for CULTURAL_CONVENTION and MESSAGES in the *bosinst.data* file.

  Notes:

  1. At this time, only U.S. English, Japanese, and simplified Chinese are supported.
  2. NLS translations are not available on ADSM 2.1.0.6.
  3. Simplified Chinese is only supported on AIX 4.1.4 and later versions.
- Installs (optionally) the online books and a DynaText viewer (if not already present) in the /usr/ebt directory path.
- Installs the AIX administrator and backup-archive client component programs (files) in the /usr/lpp/adsm/bin directory path.

What the Basic Configuration Does Automatically

- Adds an entry to the /etc/inittab file so the server automatically starts in quiet mode after a system reboot.
- Adds an entry to the /etc/inittab file so the kernel extension automatically loads after a system reboot.

  Note: This is not applicable to ADSM 2.1.5.x (feature codes 5717, 5718, or 5719).
- Defaults the communication method to TCP/IP with a TCPPORT of 1500.
- Creates a dsmserv.opt server options file that contains server configuration options. If the dsmserv.opt server options file already exists, it is used as it is.
- Creates a db.dsm database (5MB) and a log.dsm recovery log (9MB). See the notes following "Minimum Requirements for Basic Installation and Configuration" on page 13.
- Creates Standard domain and backup-archive policies.
- Creates backup (backup.dsm), archive (archive.dsm), and HSM (spacemg.dsm) storage pool volumes at 8MB each if they do not already exist. See the notes following "Minimum Requirements for Basic Installation and Configuration" on page 13.
- Registers an initial administrative client (system administrator) and backup-archive client as shown here:

Client	Name	Password
Backup-archive	client	client
Administrative	admin	admin

- Creates the client system options file, /usr/lpp/adsm/bin/dsm.sys, that is set up to include a list of stanzas representing ADSM servers.

  If dsm.sys already exists, the installation script will first save a copy as dsm.sys.save, and then proceed to add two ADSM server stanzas to dsm.sys. One stanza is added for the default server on the local machine and another is added for the ADSM test drive. If a new stanza's parameters conflict with an existing stanza of the same name, the original stanza is commented out, and the new one is added.
- Creates the default client user options file, /usr/lpp/adsm/bin/dsm.opt, that is set up to point to the localSrv stanza in dsm.sys. This allows the local client to communicate with the local ADSM server.

  If dsm.opt already exists, the installation script will first save a copy as dsm.opt.save and will then add a servername entry to dsm.opt that points to the localSrv stanza in dsm.sys. If there is a conflict with an existing servername statement, the original will be commented out and replaced with the new entry. All other options will be preserved.

- Defaults the license option to one AIX client. Licensing is based on device support modules and client environment packs.
- Displays the ADSM Utilities graphical user interface screen if Motif 1.2 is available on the system where ADSM is installed. See Figure 3 on page 22 for an example of this screen.

Upgrading Installation from ADSM Version 1 to ADSM Version 2

Ensure that you follow the instructions listed in this section to prevent loss of data from your system if you are migrating from Version 1 to Version 2.

Follow this procedure to migrate from ADSM Version 1 to ADSM Version 2:

1. Before installing the Version 2 server, use the online DUMP DB command with your Version 1 server to dump the contents of the server database to sequential media.
2. Store the output volumes in a safe location. You will need these volumes if you want to return to the Version 1 server after you have installed Version 2.
3. Stop the server using the *halt* command if it is currently running.

   Attention

   Step 4 does not apply when applying ADSM Version 2 PTFs.

4. Remove the ADSM devices currently defined.

   Note: You do not need to remove the non-ADSM devices that ADSM uses (3480, 3490, and 3590 drives, and 3494 and 3495 tape libraries).

   To remove the ADSM devices, use SMIT and follow the *Devices* sequence through the screens.

   Do not keep the configurations in the database, but record the device SCSI address as you will use them later to redefine the devices. (On the SMIT screen for defining devices, change the *yes* to *no* on the *KEEP DEVICES* screen.)

5. Remove the Version 1 server software *adsm.server.base.obj* (if the server software has been committed, see the note following step 6 by entering:

   ```
   /usr/sbin/installp -r adsmserv
   ```

   Note: This applies only to ADSM 2.1.0.x.

6. Install the Version 2 server software. See Chapter 3, “Basic Installation and Configuration” on page 13.

   If the server software has been committed, you will need to force the installation of the Version 2 server over the committed server software by using this command:

   ```
   /usr/sbin/installp -F -d /dev/cd0/cdrom adsmserv
   ```

   where *-F* indicates forcing the installation and *-d* indicates device.

   Note: This applies only to ADSM 2.1.0.x.

7. Define ADSM devices as required. See Chapter 6, “Configuring Devices for the ADSM Server” on page 85.
8. The server disk file (dsmserv.dsk) identifies the set of recovery log and database volumes that will be used by the server.
9. Start the server.

   When the Version 2 server is started over a database that was written by a Version 1 server program, you must specify the UPGRADEDB parameter with the DSMSERV command.

   ```
   dsmserv upgradedb
   ```

   Note: You need to issue this command only one time. Therefore, do not include the UPGRADEDB in any automated programs that start your server.

Reinstalling a Version 2 ADSM Server

Ensure that you follow the instructions listed in this section to prevent loss of data from your system if you are reinstalling ADSM over a previous version.

Follow this procedure to reinstall a Version 2 server over a previous Version 2 server, for example, ADSM 2.1.0.6 over ADSM 2.1.0.2.

Stop the server by using the *halt* command and enter:

- For a non-committed previous Version 2 server:
  1. Remove the previous version of ADSM 2.1.0.x by entering:

     ```
     /usr/sbin/installp -r adsmserv
     ```

  2. Install by using SMIT. See Chapter 3, “Basic Installation and Configuration” on page 13.
- For a committed previous Version 2 server:

  Force the installation over the committed version of ADSM 2.1.0.x with this command:

  ```
  /usr/sbin/installp -F -d /dev/cd0/cdrom adsmserv
  ```

  where *-F* indicates forcing the installation and *-d* indicates device.

Note: You must enter the command from the AIX command prompt because SMIT does not overwrite existing committed versions.

Stopping an Existing Server, Removing the Server, and Removing the Online Books

- To stop the server and its processes, enter:

  ```
  halt
  ```

  If you make any changes to the ADSM server options file when the server is running, you must stop the server (by using HALT) and then restart the server (by using DSMSERV) to get the changes to take effect.

  For more information on the HALT command, see "Exiting a Server Session Using QUIT and HALT Commands" on page 30.

  For more information on the DSMSERV command, see "Starting the ADSM Server" on page 44.

- To remove an existing non-committed ADSM server from your system, enter:

  ```
  /usr/sbin/installp -r adsmserv
  ```

  Note: This applies only to ADSM 2.1.0.x.

  If you are returning to the Version 1 server, continue at "Returning from ADSM Version 2 to ADSM Version 1."

- To remove existing non-committed online books from your system, enter:

  ```
  /usr/sbin/installp -r adsmbook
  ```

Returning from ADSM Version 2 to ADSM Version 1

If you decide to return to the Version 1 server:

1. Use the online BACKUP DB command to take a full backup of your Version 2 database (to be restored if you return to Version 2). Refer to *ADSM Administrator's Guide* for detailed information on this command. For example,

   ```
   BACKUP DB DEV=<device class> TYPE=FULL
   ```

2. Stop the Version 2 server by using the *halt* command after the database backup has successfully completed.
3. Save a copy of one or more of the volume history files. See "VOLumeHistory" on page 83 and "Maintaining Volume History Backup Files" on page 192.
4. Save a copy of one or more of the device configuration files. See "DEVCONFig" on page 81 and "Maintaining Device Configuration Backup Files" on page 193.

   Attention

   Step 5 does not apply when applying ADSM Version 2 PTFs.

5. Remove the ADSM devices currently defined.

   Note: You do not need to remove the non-ADSM devices that ADSM uses (3480, 3490, and 3590 drives, and 3494 and 3495 tape libraries).

To remove the ADSM devices, use SMIT and follow the *Devices* sequence through the screens.

Do not keep the configurations in the database, but record the device SCSI address as you will use them later to redefine the devices. (On the SMIT screen for defining devices, change the *yes* to *no* on the *KEEP DEVICES* screen.)

6. Remove the Version 2 server software *adsm.server.base.obj* (applicable on ADSM 2.1.0.x) by entering:

   ```
   /usr/sbin/installp -r adsmserv
   ```

   If the Version 2 server has been committed, see the note at step 7.

7. Install the Version 1 server software (and the most recent maintenance).

   Note: If the server software has been committed, you will need to force the installation of the Version 2 server over the committed server software by using this command: (applicable on ADSM 2.1.0.x)

   ```
   /usr/sbin/installp -F -d /dev/cd0/cdrom adsmserv
   ```

   where *-F* indicates forcing the installation and *-d* indicates device type.

8. Define the ADSM devices. See Chapter 6, “Configuring Devices for the ADSM Server” on page 85.

9. Reinitialize the server database and recovery log using the DSMSERV INSTALL parameter. See “Using the DSMSERV INSTALL Command to Initialize the Database and Recovery Log” on page 40 for details.

10. Reload the Version 1 database using the LOADDB function.

    Refer to the *ADSM Administrator's Guide* for details on this command.

11. Start the Version 1 server.

12. Issue an AUDIT VOLUME FIX=YES command for each sequential storage pool volume that has a volume type of STGDELETE or STGREUSE to audit all disk storage pool volumes.

Note: This procedure can result in a loss of client files originally referenced by the Version 1 database. Some client files may have moved or been overwritten or deleted by the Version 2 server program.

Chapter 2. ADSM National Language Version (NLV) Feature Considerations

National language support for the ADSM server allows the server to display messages and help in languages other than U.S. English. It also allows for the use of culture-specific conventions for date, time, and number formatting. The locales supported are:

Locale	Language	Code Set
en_US	English	ISO8859-1
ja_JP	Japanese	IBM-eucJP
Ja_JP	Japanese	IBM-932
zh_CN	Simplified Chinese[1]	IBM-eucCN

Note: [1] Requires AIX 4.1.4 and later

The SMIT install of the server automatically installs the language defined in the bosinst.data file. If a different language is desired, it should be explicitly selected during the SMIT install process. If ADSM does not support the language used on your system, U.S. English is used.

If you are not receiving messages in the language expected on your system, check the values of the CULTURAL_CONVENTION and MESSAGES variables. You can either edit the bosinst.data file and reinstall, or you can install the language file sets from SMIT (see “SMIT Installation Procedure for NLS Feature” on page 10).

To enable support for a given locale, the LANGUAGE option in the server options file must be set to the name of the locale to use. For example, to use the ja_JP locale, the LANGUAGE option should be set to ja_JP. If the locale is successfully initialized, the date, time, and number formatting for the server will be controlled by the locale. This overrides the server option file definitions for date, time, and number formatting. If the locale is not successfully initialized, the server defaults to U.S. English message files, and the date, time, and number formats are still controlled by the server options file.

The server supports the use of many different languages. The server console uses the locale/language defined by the server options language variable. However, if an ADSM administrative client connects to the server and specifies a locale that is different from the server, the server will try to initialize the administrative client’s specified locale for returning messages to the client.

If you want to use a language other than the one defined at installation, or if you want to add translation of ADSM messages and online help, continue at “SMIT Installation Procedure for NLS Feature” on page 10.

SMIT Installation Procedure for NLS Feature

Attention

If you are upgrading from ADSM Version 1 to Version 2, read "Upgrading Installation from ADSM Version 1 to ADSM Version 2" on page 4. If you are reinstalling ADSM Version 2 over a previous Version 2, read "Reinstalling a Version 2 ADSM Server" on page 5.

Read "Minimum Requirements for Basic Installation and Configuration" on page 13 and "ADSM Space Requirements" on page 14 before installation.

Before issuing the SMIT command, you must be logged on as the root user.

SMIT can be run from either:

- X Windows
  or
- Command-line

Note: The ADSM Utilities GUI displays when the installation completes if you are using X Windows with Motif 1.2 installed.

Complete the procedure outlined in "Installing the NLS Feature for the Server, AIX Client, and Online Documentation" on page 11 to perform the basic installation and configuration by using SMIT to change or add the language selection.

For information on SMIT, refer to the IBM publication, *Getting Started: Managing IBM RISC System/6000*, and read the SMIT windows during your installation.

See "LANGuage" on page 79 for additional information on language support.

Installing the NLS Feature for the Server, AIX Client, and Online Documentation

Attention

If you are running with the default mouse behavior, be sure to have the cursor arrow in the active window in which you are performing system actions.

This section covers installation for AIX 4.1.4 and later.

Step 1. Log in as the root user.

Note: To access the X Windows environment, enter *xinit*.

Step 2. Enter:

```
smit &
```

Step 3. Choose the following selections from within SMIT to install, change, or add language capability.

For AIX 4.1.x:

```
Software Installation and Maintenance
     Install and Update Software
          Install / Update Selectable Software (Custom Install)
               Install/Update from All Available Software
```

Make your selections and if necessary, continue at step 4 on page 16 in the "Basic Installation and Configuration" procedure to complete your installation.

Chapter 3. Basic Installation and Configuration

Attention

If you are upgrading from ADSM Version 1 to Version 2, read “Upgrading Installation from ADSM Version 1 to ADSM Version 2” on page 4. If you are reinstalling ADSM Version 2 over a previous Version 2, read “Reinstalling a Version 2 ADSM Server” on page 5.

Complete the procedure in “Installing the Server, AIX Client, and Online Documentation (Optional)” on page 16 to install and set up a basic configuration for an ADSM server, an administrative client, a backup-archive client, and optional online documentation on a RISC System/6000 workstation. The basic configuration can later be extended and tailored to support your site’s particular requirements.

Minimum Requirements for Basic Installation and Configuration

The expected results of this installation are listed in “Results of the Basic Installation and Configuration” on page 2.

Following are the minimum requirements for the basic installation and configuration:

- AIX 3.2.5 or later
- Motif 1.2 (X11 Release 5) for the ADSM Utilities
- X Windows for Motif
- TCP/IP installed and activated (TCP/IP is the default)
- A RISC System/6000 with at least 32MB of memory and at least 95MB of available disk space (this includes space for one AIX client). See “Installing the Online Books and DynaText Viewer (Optional)” on page 21 for space requirements for online documentation.
- Tape drive configured with a blocksize of 512 bytes or CD-ROM to load the installation media.
- One of these language environment variables is selected:
  ISO8859-1 (en_US) U.S. English
  IBM-eucCN (zh_CN) Simplified Chinese (requires AIX 4.1.4 and later)
  IBM-eucJP (ja_JP) Japanese
  IBM-932 (Ja_JP) Japanese

  Note: The value of the CULTURAL_CONVENTION and MESSAGES variables in the locale stanza of the */var/adm/ras/bosinst.data* file controls the automatic installation of the National Language Version of messages and online help.

  If you are not receiving messages in the language expected, check the values of these two variables. You can either edit the *bosinst.data* file and reinstall or you can install the language file sets from SMIT. See Chapter 2, “ADSM National Language Version (NLV) Feature Considerations” on page 9.

ADSM Space Requirements

ADSM space is used **approximately** as shown in this table. The ADSM/AIX 3.2.5.x package requires more space than the ADSM/AIX 4.1.x package.

ADSM Object	Space Needed	Directory Location
Server Component Program	12MB	/usr/lpp/adsmserv/bin
AIX Client Files	20MB	/usr/lpp/adsm/bin
ADSM Utilities	5MB	/usr/lpp/adsmserv/ezadsm
ADSM Database	5MB	/var/adsmserv/bin or /usr/lpp/adsmserv/bin
Recovery Log	9MB	/var/adsmserv/bin or /usr/lpp/adsmserv/bin
Backup Storage Pool Volume	8MB	/var/adsmserv/bin or /usr/lpp/adsmserv/bin
Archive Storage Pool Volume	8MB	/var/adsmserv/bin or /usr/lpp/adsmserv/bin
HSM Storage Pool Volume	8MB	/var/adsmserv/bin or /usr/lpp/adsmserv/bin
Temporary Space	15MB	/usr/lpp/adsm/bin

Attention

Ensure that you have the required space available for your installation to prevent the necessity of manually configuring ADSM. If you do need assistance, see Chapter 4, “Manual Configuration for the ADSM Server on AIX” on page 33.

Notes:

1. See “Installing the Online Books and DynaText Viewer (Optional)” on page 21 for additional space requirements for online documentation.
2. The database, recovery log, backup storage pool volume, archive storage pool volume, and HSM storage pool volume are installed in the /var/adsmserv/bin or the /usr/lpp/adsmserv/bin directory. The configuration script looks in the /var file system and installs the files there if sufficient space is available. If there is not enough space in the /var file system, the files are stored in the /usr file system if sufficient space is available there.
3. If the recovery log (log.dsm) and database (db.dsm) already exist in the /usr or /var file system, the installation will **not** create a new recovery log or database.

If the storage management pool volumes, backup (backup.dsm), archive (archive.dsm), and HSM (spacemg.dsm) already exist in the /usr or /var file system, the installation will **not** create new storage management pool volumes.

Approximate free space required in /var and /usr file systems:

- 40MB /usr
- 40MB /var
  or, if 40MB is not available in /var, then
- 80MB /usr

Note: The ADSM/AIX 3.2.5.x package requires more space than the ADSM/AIX 4.1.x package.

This space is used as:

- 40MB in the /usr file system (server, ADSM utility, and AIX client)
- 15MB in the /var file system (database and recovery log)

  Note: If 15MB is not available in the /var file system, the installation program checks the /usr file system and places the recovery log and database in the /usr file system if there is enough free space.

- 25MB in the /var file system (backup, archive, HSM storage pools)

  Note: If 25MB is not available in the /var file system, the installation program checks the /usr file system and places the storage pool volumes in the /usr file system if there is enough free space.

- 15MB in the /usr file system (temporary use for the ADSM AIX client image)

Using SMIT for the Basic Installation and Configuration

Before issuing the SMIT command, you must be logged on as the root user.

SMIT can be run from either:

- X Windows
  or
- Command-line

Note: The ADSM Utilities GUI displays when the installation completes if you are using X Windows with Motif 1.2 installed.

Complete the following procedure to perform the basic installation and configuration by using SMIT. You can also optionally install the online documentation (Motif 1.2 required). See “Installing the Online Books and DynaText Viewer (Optional)” on page 21.

For information on SMIT, refer to the IBM publication, *Getting Started: Managing IBM RISC System/6000*, and read the SMIT windows during your installation.

Installing the Server, AIX Client, and Online Documentation (Optional)

Attention

If you are running with the default mouse behavior, be sure to have the cursor arrow in the active window in which you are performing system actions.

This section covers installation for AIX 3.2.5.x and AIX 4.1.x.

Step 1. Log in as the root user.

Note: To access the X Windows environment, enter *xinit*.

Step 2. Enter:

```
smit &
```

Step 3. Choose the following selections from within SMIT:

Note: If you are changing or adding language capabilities, see Chapter 2, "ADSM National Language Version (NLV) Feature Considerations" on page 9.

For AIX 3.2.5.x:

```
Software Installation and Maintenance
     Install / Update Software
          Install / Update Selectable Software (Custom Install)
               Install from Latest Available Software Packages
```

For AIX 4.1.x:

```
Software Installation and Maintenance
     Install and Update Software
          Install / Update Selectable Software (Custom Install)
               Install Software Products at Latest Level
                    Install New Software Products at Latest Level
```

Step 4. On the next window, select the device that you are using for the installation. You can enter the drive name in the window or click on *List* to access the device list.

If you click on *List*, select the tape drive or CD-ROM drive that you are using for the installation (for example, /dev/rmt0 or /dev/cd0).

Notes:

a. The status of the tape drive that you select must be **Available**. For information on the status of tape drives, see "Listing and Updating Tape Drive Status" on page 227.

b. The CD-ROM drive must have a file system defined for it, and the file system must be mounted. You can create a *cdrom* directory from the root directory and use the mount command.

For example:

```
mkdir /cdrom
mount -o ro /dev/cd0/cdrom
```

Step 5. Click on:

```
OK
```

Step 6. Load the tape or CD-ROM into the selected drive.

Step 7. Locate the line *Software to Install*.

At the end of the line, click on *List* to access the list of the latest available software packages.

Read the notes listed after step 8.

Step 8. Select the ADSM server, the AIX client selections that you require, ADSM license registration, and optionally, the online documentation (see "Installing the Online Books and DynaText Viewer (Optional)" on page 21 before installation).

Figure 1 on page 19 shows these ADSM selections for **AIX 3.2.5.x** The AIX client, book, and server selections are highlighted in the screen shown.

```
adsm              ALL      (ADSM AIX Client)
(AIX client API, HSM, administrative and backup-archive clients)
adsmbook          ALL      (ADSM Online Books)
adsmserv          ALL      (ADSM Server)
adsmlicense       ALL      (ADSM Server License Registration)
```

Figure 2 on page 20 shows the AIX client, ADSM license registration, and server selections for **AIX 4.1.x.**

```
adsm.client       ALL      (ADSM AIX Client)
(AIX client API, administrative and backup-archive clients)
adsm.license      ALL      (ADSM Server License Registration)
adsm.server       ALL      (ADSM Server Base Code)
(Server, device support, and utilities)
adsmbook          ALL      (ADSM Online Books)
```

Notes:

a. If you installed your system with Japanese or simplified Chinese CULTURAL_CONVENTION and MESSAGES, the installation code automatically installs the messages and help in those languages. The server is installable in U.S. English, Japanese, or simplified Chinese. The server installation defaults to U.S. English. See the notes at the end of the "Minimum Requirements for Basic Installation and Configuration" on page 13 for additional information.

b. When you are installing from tape (sequential media), you must install the client *before* you install the server, and install the DynaText browser *before* you install the online books.

When you are installing from CD-ROM, make the selections as shown in Figure 1 on page 19 or Figure 2 on page 20.

c. You cannot remove the AIX client without first removing the server because the AIX server is dependent on the AIX client.

   Select the “Overwrite Existing Version” option when applying maintenance to the client.

   See Table 1 for dependent file sets.

Table 1. Dependent File Sets

File Set	Dependent File Sets
adsmbook	dtext.brwsr (for ADSM versions later than 2.1)
dtext.brwsr	Motif 1.2
(For AIX 3.2.5.x) adsmserv (ADSM 2.1.0.6)	
adsmserv	adsm.adsmadmin.obj adsm.base.obj adsm.obj
(For AIX 4.1.4 and later) adsm.server.com (ADSM 2.1.5.6)	
adsm.server.com	adsm.server.dev adsm.server.util adsm.msg.ja_JP.server adsm.msg.Ja_JP.server adsm.msg.zh_CN.server
adsm.server.util	adsm.client.admin adsm.client.base

The screen shown below is for ADSM 2.1.0.x.

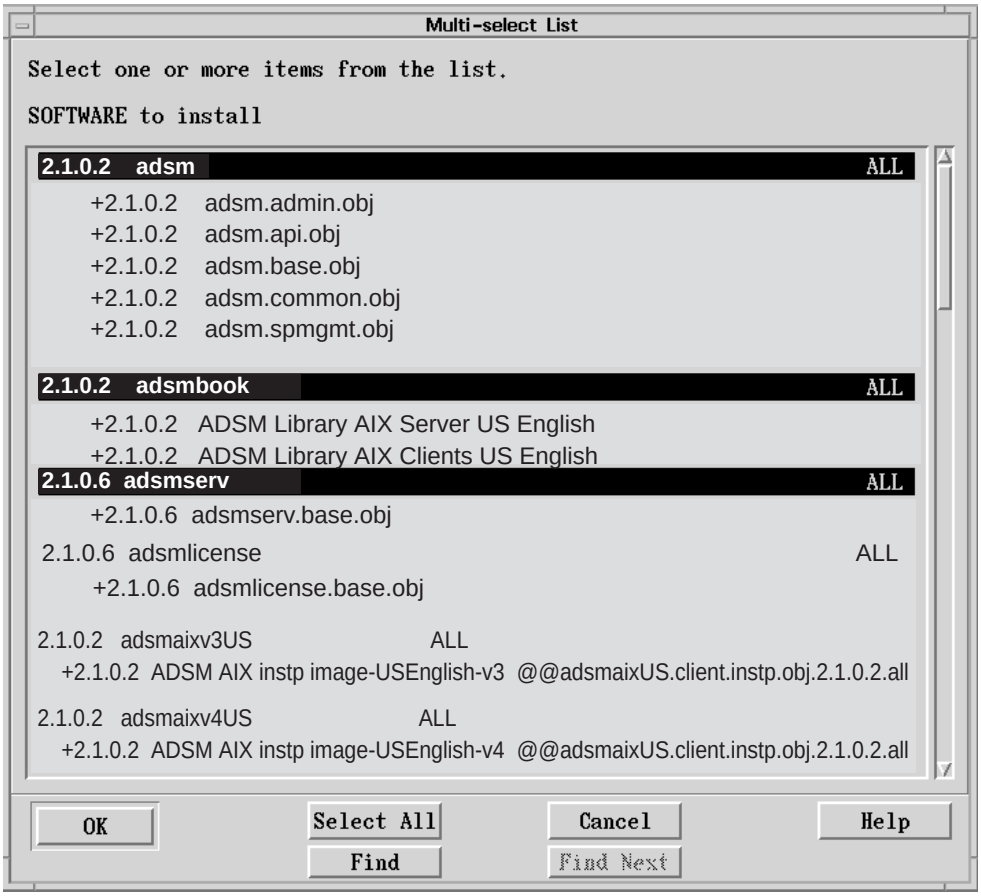

Figure 1. ADSM 2.1.0.x Installation Selection Screen for AIX 3.2.5.x

Note: Your screen may differ from the screen shown here.

This screen is divided into several segments:

- *adsm* is the AIX client.
- *adsmbook* is the online documentation.

  Note: See "Installing the Online Books and DynaText Viewer (Optional)" on page 21 for additional information relating to online documentation.

- *adsmserv* is the server.
- *adsmlicense* is server license registration.
- Client image packages are used to transfer client images to other workstations. See Chapter 7, "Installing Clients from Images on the Installation Media" on page 135 for instructions on transferring client images.

The screen shown below is for ADSM 2.1.5.x.

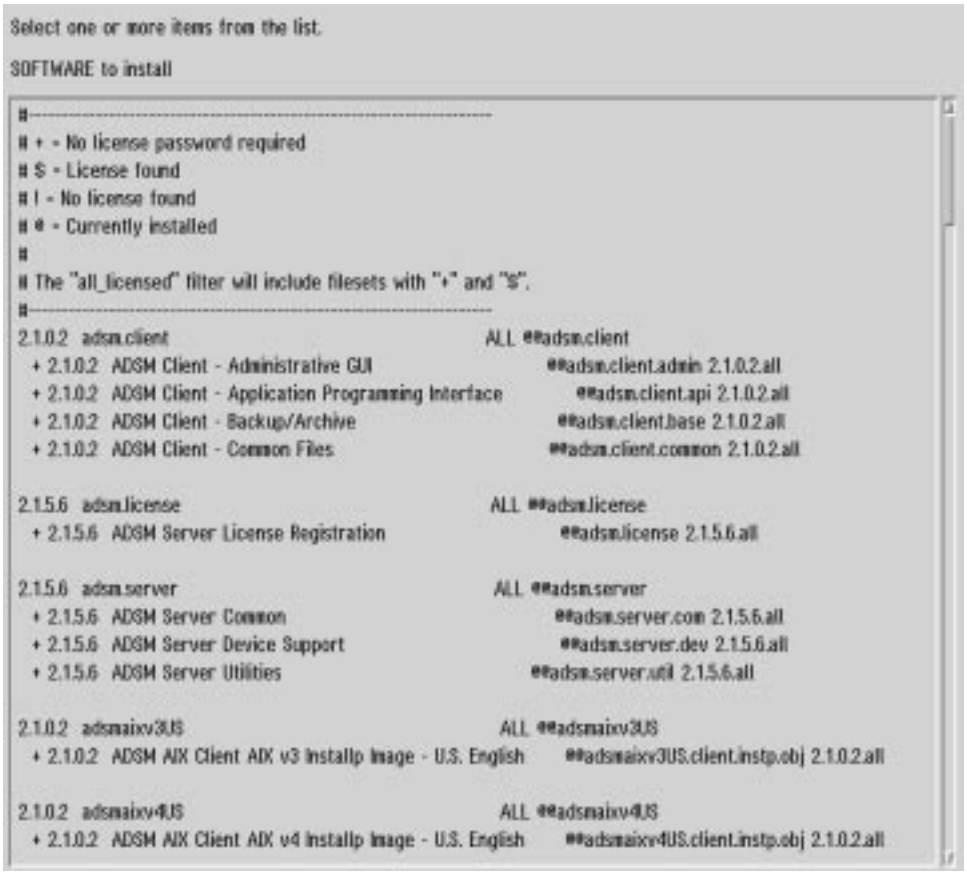

Figure 2. ADSM 2.1.5.6 Installation Selection Screen for AIX 4.1.x

Note: Your screen may differ from the screen shown here.

Step 9. Make your selections.

Step 10. Click on:

OK

Step 11. **Check the default settings for the options on this window.**

Note: Specify “yes” for the *save* option, and for AIX 4.1, “yes” for the *detailed output* option.

Leave the default settings for the other options.

Step 12. To continue, click on:

Do

SMIT asks: ARE YOU SURE??...

Attention

Continuing the procedure may delete information that you want to keep.

Step 13. To continue, click on:

OK

This installation may take several minutes (length of time varies with the number of clients selected).

Step 14. After the installation is complete, click on *Done*, remove the tape or compact disk, and exit from SMIT.

If you performed the basic installation and configuration from the Motif version of SMIT, and the installation completed successfully, the ADSM GUI appears. See Figure 3 on page 22 which shows the selections available on the ADSM GUI.

Continue at “After the Basic Installation and Configuration” on page 23.

Installing the Online Books and DynaText Viewer (Optional)

Note: If you are installing the online books from tape and do not already have the DynaText browser installed, you must install the browser before you install the books.

Installing the online books requires approximately 100MB of additional disk space.

If you do not choose to install the online books during the basic installation and configuration and decide later that you want to, return to “Installing the Server, AIX Client, and Online Documentation (Optional)” on page 16 and, at 8 on page 17, select *adsmbook*.

The ADSM online server documentation includes:

- *ADSM Administrator's Guide*
- *ADSM Administrator's Reference*
- *ADSM General Information*
- *ADSM Installing the Server and Administrative Client*
- *ADSM Messages*

The ADSM online client documentation includes:

- *Installing the Clients*
- *Using the Apple Macintosh Backup-Archive Client*
- *Using the DOS Backup-Archive Client*
- *Using the Microsoft Windows Backup-Archive Client*
- *Using the Novell NetWare Backup-Archive Client*
- *Using the OS/2 Backup-Archive Client*
- *Using the UNIX Backup-Archive Client*
- *Using the UNIX Hierarchical Storage Management Clients*
- *Using the Application Programming Interface*

- *Using the Lotus Notes Backup Agent*
- *Trace Facility Guide*

The online books are installed under the /usr/ebt directory.

Note: The *ADSM Administrator's Reference* is also available from the *ADSM Server* icon on the main ADSM Utilities GUI (see Figure 3). After you click on this icon, use console help to access the *ADSM Administrator's Reference*.

The *ADSM General Information* manual is also available online under the *Getting Started* icon on the main ADSM Utilities GUI (see Figure 3).

After the online books are installed, click on the *Help* and *View Books* from the ADSM GUI or type *dtext* at the command line prompt to use the ADSM online books and DynaText viewer.

Note: To use the DynaText viewer, you must have Motif 1.2 (X11 Release 5) installed on your operating system.

Main ADSM GUI

Figure 3. ADSM GUI

Getting Started

Offers customer support information, Version 2 highlights, the *ADSM: General Information* manual, help for configuring devices in an autolibrary, and suggestions for things to do after installation.

ADSM Utilities

Accesses configuration and administration utilities for the ADSM administrator (see Figure 4 on page 25).

ADSM Server

Accesses the ADSM console. The console in this interface includes a scrollable server message history and the capability to retrieve and edit commands issued at the command line.

You can also access the *ADSM: Administrator's Reference* manual from the console help in this icon.

ADSM Administrative Client

Accesses the ADSM administrative interface. Use the administrative interface to communicate with the server to:

- Define ADSM policy
- Define and manage ADSM storage
- Register and manage ADSM clients
- Define and manage ADSM database and recovery log
- Schedule ADSM automatic operations

ADSM Backup-Archive Client

Accesses the backup-archive interface to:

- Back up and restore files
- Archive and retrieve files
- View backup policies

As part of the basic installation, an ADSM client and ADSM server are installed on the same computer.

ADSM Client Scheduler

Allows you to start or stop the automatic scheduler daemon that starts the automatic scheduler.

ADSM HSM Client

Accesses the HSM (hierarchical storage management) graphical user interface if you have chosen to install the HSM client.

The HSM process frees workstation or file server storage by migrating files to ADSM when certain criteria is met. If a user accesses a migrated file, it is automatically returned from ADSM data storage and placed in the user's local storage.

After the Basic Installation and Configuration

After the basic installation, you can:

- Start ADSM. Continue at "Starting ADSM" on page 24.
- Test drive ADSM to familiarize yourself with the product. Double-click on the *ADSM Utilities* icon on the ADSM GUI. (see Figure 3 on page 22), and then double-click. on the *ADSM Test Drive* (see Figure 4 on page 25). Use Appendix B, "ADSM Test Drive" on page 201 to assist you in your test drive.
- Experiment with ADSM by clicking on the respective icons in Figure 3 on page 22 to start an ADSM server, an administrative client, and a backup-archive client. See "Starting ADSM" on page 24 for more information.
- Verify that your installation was successful by continuing at "Verifying the Installation" on page 53.
- Configure storage devices to ADSM. Click on the *Device Configuration Assistant* icon on the ADSM Utilities Screen in Figure 4 on page 25 or see "Configuring a Storage Device for Use with the Server" on page 56 for configuration examples.

Chapter 6, “Configuring Devices for the ADSM Server” on page 85 informs you of the available devices and libraries.

Click on the *Getting Started* icon in Figure 3 on page 22 for a list of device configuration tasks. The steps involved in each task are also listed for you in this screen. The following are tasks 1–8:

1. Configure a Library/Medium Changer (robot) to the operating system.
2. Configure that Library/Medium Changer's tape drive(s) to the operating system.
3. Define an automated library and its tape drives to ADSM.
4. Associate users with an automated library storage pool.
5. Register a node to the automated library policy domain.
6. Label media for the automated library.
7. Add the automated library volumes.
8. Start a client that is associated with the new policy and backup files.

- Set up the server to use additional communication protocols in addition to TCP/IP. See “Enabling Communications with the Server” on page 57.
- Set up remote clients to use the ADSM server. See Chapter 7, “Installing Clients from Images on the Installation Media” on page 135, and Chapter 8, “Installing Remote Administrative Clients” on page 155.
- Review online books if you have installed them. See “Installing the Online Books and DynaText Viewer (Optional)” on page 21.

Starting ADSM

ADSM Version 2 provides a graphical user interface (GUI) that can be used to run the ADSM utilities, the ADSM server, the ADSM administrative client, the ADSM backup-archive client, and the HSM client. The ADSM GUI also provides access to the ADSM online books from its *Help/View Books* menu item if you have chosen to install them (see “Installing the Online Books and DynaText Viewer (Optional)” on page 21).

To start the server from the ADSM GUI (graphical user interface):

1. If you are not already at the ADSM screen, Figure 3 on page 22, in any xterm window, type in:

   ```
   adsm
   ```

2. From the main panel, double-click on the *ADSM Server* icon
3. Press *Begin Session*

To start the server from an AIX command line:

1. Ensure that you are in the directory where your ADSM server is installed. For example, to run the default ADSM server, issue:

   ```
   cd /usr/lpp/adsmserv/bin
   ```

2. Start the server by entering:

   ```
   dsmserv
   ```

For further instructions on starting the server, see “Starting the ADSM Server” on page 44.

ADSM Utilities Screen

View the ADSM Utilities selections (Figure 4) by double-clicking on the ADSM Utilities icon on the ADSM Main GUI (Figure 3 on page 22).

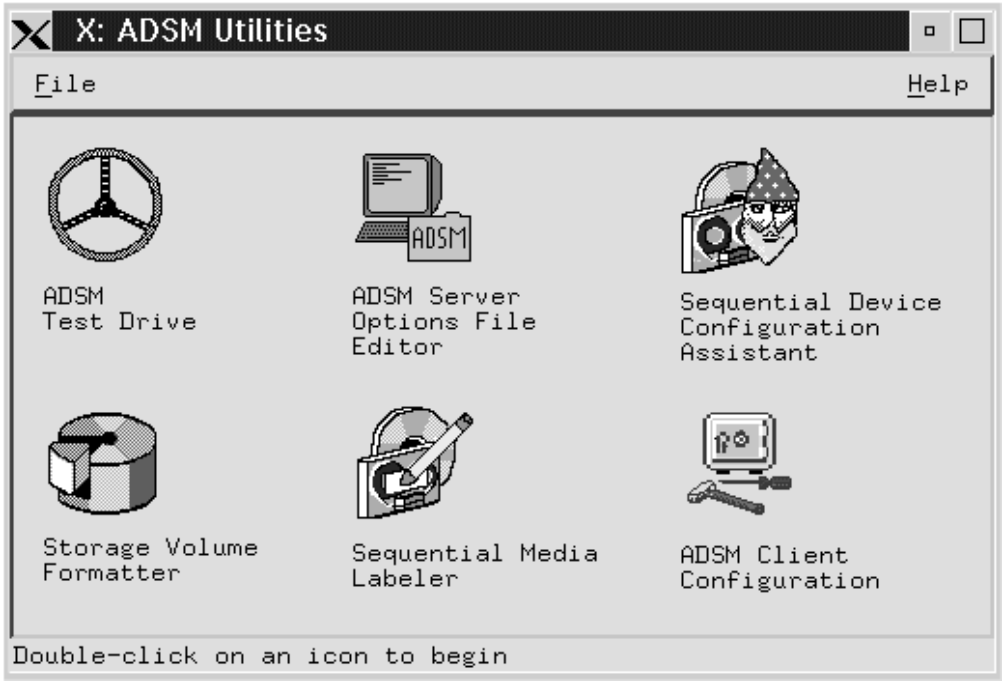

Figure 4. ADSM Utilities Selection Screen

ADSM Test Drive

Allows you to use the ADSM administrative interface and the ADSM backup-archive interface to exercise the following ADSM services:

- Backup-archive services
  - Backing up files
  - Restoring files
  - Displaying client policies
- Administrator services
  - Viewing client nodes
  - Viewing administrators
  - Viewing schedules
  - Viewing information on storage volumes
  - Defining and executing a backup schedule

ADSM Server Options
Accesses the server options file editor. Use this editor to define server options for the ADSM server.

ADSM Sequential Device Configuration Assistant
Configures tape devices and optical devices and defines them to ADSM.

ADSM Storage Volume Formatter
Formats volumes for use as ADSM database volumes, recovery log volumes, and storage pool volumes.

ADSM Sequential Media Labeler
Labels tape and optical volumes for ADSM-managed data.

ADSM Client Configuration
Configures additional ADSM clients.

Information on this capability is available in the online help for the client configuration utility.

Files Installed during Basic Installation and Configuration

The ADSM server and utility files are language-dependent and do not always appear as shown in Table 2 and Table 3 on page 27. The files listed here are for the U.S. English language variable, ISO8859-1 (en_US).

The ADSM server files listed in Table 2 are installed in the /usr/lpp/adsmserv/bin default directory during installation.

Table 2 (Page 1 of 2). ADSM Server Files

File Name	Description
README	Last-minute updates and other special information
bind.dsmserv[1]	Binds the server to a single cpu
db.dsm	Initial database set up during install
dsmameng.hlp	Help file for the command line interface
dsmameng.txt	Message text file
dsmfmt	Volume formatting program
dsmlabel	ADSM labelling program for tape and optical media
dsmnetb1.drv[1]	IBM NetBIOS for Token-Ring/6000 driver
dsmnetb2.drv[1]	IBM AIX NetBIOS driver
dsmreg.lic	Server license registration module
dsmserv	Server executable file
dsmserv.dsk	Server data base/log locator file set up during install
dsmserv.opt.smp	Sample server options file
dsmtli.drv	IPX driver

Table 2 (Page 2 of 2). ADSM Server Files

File Name	Description
dsm_update_itab	Adds entry in /etc/inittab file to automatically load kernel extension and start the server at AIX boot
dsm_rmv_itab	Removes entries in /etc/inittab file to prevent automatic kernel extension load and server start at AIX boot
getipxad	Get local IPX address
loadpkx[1]	Kernel extension loader
loadstreams	Loads stream environment for IBM NetBIOS support
log.dsm	Initial log set up during install
machchar.awk.smp	Load machine information
pkmonx[1]	Kernel extension executable file
planexpl.awk.smp	Exploded disaster recovery file
rc.adsmserv	Automatic server start at boot time
showthds[2]	Executable file for IBM service personnel
update_dsm_opt_files	Automatic update of client dsm.opt and dsm.sys files for use by the ADSM Utilities

Note:

[1] These files are available on ADSM 2.1.0.x for AIX 3.2.5.x.
[2] If necessary, a service representative may ask you to use the showthds command to help diagnose and resolve server problems.

The ADSM utility files listed in Table 3 are installed in the /usr/lpp/adsmserv/ezadsm directory during installation.

Table 3 (Page 1 of 2). ADSM Utility Files

File Name	Description
adsm	ADSM GUI main program
adsm.hlp	ADSM GUI main program help
adsmcmmg.inf	Online administrator's reference and messages help
adsmtour.inf	ADSM test drive
console3	Server console program for AIX 3.2.5.x
console4	Server console program for AIX 4.1.x
console.hlp	Server console help program
ezadsm	ADSM Utilities
ezadsm.hlp	ADSM utility help product
getstart.inf	Information for "Getting Started" icon on ADSM GUI
hm.help	Help text for IPFX runtime
ipf.cat	Message file for IPFX

Table 3 (Page 2 of 2). ADSM Utility Files

File Name	Description
libipfx.a	IPFX runtime library (help)
test.cfg	Sample client setup file with client configuration utility
Xdefaults	X11 defaults for ADSM
xview	Online browser utility

Command-Line and Options-File Notation

The following command-line and options-file syntax notation used in this scenario is unique to ADSM:

- Command-line notation

  Commands can be entered in a shorter form and are not case-sensitive.

  For example:

Long Form	Short Form
register	reg
REGister	REG

  Refer to the *ADSM Administrator's Reference* for further information on command syntax.

  Command-line help is provided for messages and commands.

- Options-file notation

  A minimum of one space separates the command from parameters and each option can start anywhere on an option line.

  When editing an options file, ensure that you remove the leading asterisk for each option that you select in the file.

  Refer to the *ADSM Using the UNIX Backup-Archive Clients* for further information on options file syntax.

Using Help

After the ADSM server is started, help is available from several locations.

Help from the ADSM Utility

Click on *Help* on the ADSM utility screen and click on *View Books* to access the online books.

The ADSM Utilities are installed when the ADSM server is installed in the /usr/lpp/adsmserv directory path.

Online Help

To get help on administrative commands and error messages from the server and administrative command-line client, you can issue the HELP command from the server console after the server is started or from an administrative client after an administrative client is installed. HELP is also available on the administrative graphical user interface (GUI). If you are using the server console from the ADSM main window, you can scroll back and review any help that you requested.

Using Help from the Command Line

To access online help from the command line, do one of the following:

- Enter HELP (with no operands) to display a menu with a list of selections that provide information on using the command-line interface and a list of the ADSM administrative commands.
- Enter HELP *commandname* to display information about an administrative command.
- Enter HELP *nnnn*, where *nnnn* is the four-digit number in the message, to display information about a server or client message.

Using Help from the Graphical User Interface

To access online help from an ADSM administrative graphical user interface window, do the following:

1. Select **Help** from the menu bar, if available.

   ADSM displays the **Help** pull-down menu.

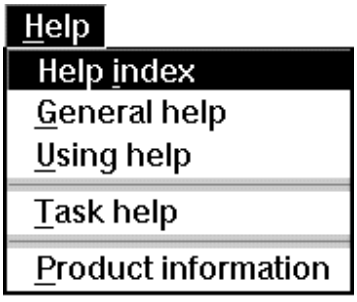

Figure 5. Help Pull-Down Menu

2. Select the type of help you want from this menu.

For a complete description of the HELP command and examples of its use, refer to *ADSM Administrator's Reference*. For more information on the graphical user interface, refer to the *ADSM Administrator's Guide*.

Exiting a Server Session Using QUIT and HALT Commands

You can exit a server session by either shutting down from an interactive mode of the administrative client session or halting the server from the command line or administrative client graphical user interface.

Using the QUIT Command

If you are using ADSM from an *administrative client* in interactive mode, you can exit from the ADSM session and leave the server operational by:

- Selecting *Close* from the system menu on an administrative client graphical user interface
- Entering *quit* from an administrative client command-line interface.

You *cannot* issue the QUIT command from the following sessions:

- The server console
- Administrative client session in console mode
- Administrative client session in batch mode
- Administrative client session in mount mode

For more information about the administrative client session modes, refer to the *ADSM Administrator's Guide*. For more information on using the graphical user interface, refer to the *ADSM Administrator's Guide*.

Using the HALT Command

You can shut down the server by using the HALT command from the server console or an administrative client.

This process results in an abrupt shutdown of the server and cancels all administrative and client node sessions, even if they are not complete.

Any in-progress transactions that are interrupted by this command are rolled back when you restart the server.

Issue the HALT command when:

- You have updated your server options file and you need to restart the server for the updates to take effect
- You need to apply maintenance
- You want offline copies of the database and recovery log
- You have a damaged database and you want to use the backup and recovery feature

For more details on halting the server, refer to the *ADSM Administrator's Guide*.

Using HALT without Severely Impacting Sessions

Use the HALT command only after all administrative and client node sessions are completed or canceled. However, if all sessions are not completed, you can stop the server without severely affecting the active session by completing this procedure:

1. Use the DISABLE command to prevent new client node sessions from starting.
2. Use the QUERY SESSIONS command to identify any existing administrative and client node sessions.
3. Notify users with existing administrative and client node sessions that you plan to stop the server.
4. Use the CANCEL SESSION command to cancel any existing administrative or client node sessions.

To halt the server from an administrative client graphical user interface, complete this procedure:

1. Open the Server icon from the Main Administration window, and select the Server icon from the menu.
2. Click on *Disable*
3. Click on *Halt*

For more details on halting the server, refer to the *ADSM Administrator's Guide*.

Chapter 4. Manual Configuration for the ADSM Server on AIX

The server and client are automatically configured for you during the basic installation performed in Chapter 3, “Basic Installation and Configuration” on page 13. If you experienced a problem during the installation, you can use this section to assist you in your configuration. In most cases, you will not need to configure ADSM manually.

Manual configuration of the ADSM server includes:

Manual Configuration Options
“Creating Server Options Files”
“Creating a Database and Recovery Log” on page 35
“Creating Storage Pool Volumes” on page 39
“Using the DSMSERV INSTALL Command to Initialize the Database and Recovery Log” on page 40
“Starting the ADSM Server” on page 44
“Automatically Loading the Kernel Extension and Server Start” on page 49
“Registering and Authorizing an Administrator” on page 51
“Registering a Backup-Archive Client Node” on page 53
“Verifying the Installation” on page 53
“Configuring a Storage Device for Use with the Server” on page 56

Creating Server Options Files

During installation, ADSM provides a sample server options file named dsmserv.opt.smp. and copies this file to dsmserv.opt. This file is stored in the /usr/lpp/adsmserv/bin directory and contains the format of the options file as well as default settings.

Note: If you modify the server options file after you start the server, you must stop the server using the HALT command and restart the server for the server to read the updated options file.

Read “Reinstalling a Version 2 ADSM Server” on page 5 before continuing with this section.

To create the server options file, complete the following procedure:

From the ADSM GUI

Note: If the ADSM GUI is not currently visible, type *adsm*.

1. Double-click on the ADSM Utilities icon on the ADSM GUI. See Figure 3 on page 22.
2. Double-click on *server options file editor.*

3. Select *new* from the file names menu and make any changes that are appropriate for your site.
4. Save as *OK*.
   You will be prompted for a filename.
   Type in:

   ```
   /usr/lpp/adsmserv/bin/dsmserv.opt
   ```

5. Press *OK*

From the Command Line

1. From an AIX session, change to the directory where the sample server options file is stored by entering:

   ```
   cd /usr/lpp/adsmserv/bin
   ```

2. Copy dsmserv.opt.smp to dsmserv.opt. by entering:

   ```
   cp dsmserv.opt.smp dsmserv.opt
   ```

Note: By default, the ADSM server will look for the *dsmserv.opt* file in the /usr/lpp/adsmserv/bin directory. If you want to place the server option file in a different directory, you must define an appropriate environment variable. See "Defining Environment Variables" on page 47.

Default Settings for the Server Options File

Table 4 displays the default settings for the ADSM server options file. Explanations of these options and values other than the defaults are listed in "Enabling Communications with the Server" on page 57 and "Server Options" on page 73.

Table 4 (Page 1 of 2). Default Server Options

Server Option	Default
BUFPoolsize	2048
COMMMethod	TCPIP
COMMTimeout	60
DATEformat	1 = MM/DD/YYYY
Enable3590Library	No
EXPInterval	24
IDLETimeout	15
IPXBuffersize	4
IPXSocket	8522
LANGuage	AMENG
LICensemethod	IPLA
LOGPoolsize	512
LUname	DSMSERV1
MAXSessions	25

Table 4 (Page 2 of 2). Default Server Options

Server Option	Default
MESsageformat	1
MIRRORRead DB	Normal
MIRRORRead LOG	Normal
MIRRORWrite DB	Sequential
MIRRORWrite LOG	Parallel
MOVEBatchsize	40
MOVESizethresh	500
MSGINTerval	1
NETBIOSBuffersize	16
NETBIOSSessions	25
NUMberformat	1 = 1,000.00
STAtusmsgcnt	10
TCPport	1500
TIMEformat	1 = HH:MM:SS
TCPWindowsize	16
TXNGroupmax	40

Note: DEVCONFig and VOLumeHistory are important server options that must be defined to the server for ADSM backup and recovery purposes. See “DEVCONFig” on page 81 and “Maintaining Device Configuration Backup Files” on page 193 for information on the DEVCONFig option. See “VOLumeHistory” on page 83 and “Maintaining Volume History Backup Files” on page 192 for information on the VOLumeHistory option.

Creating a Database and Recovery Log

The server uses files to represent its database, recovery log, and storage pool volumes. ADSM must allocate space and prepare these files before they can be used to store data.

During installation, ADSM automatically creates a 5MB database (db.dsm) and a 9MB recovery log (log.dsm). The installation program will place the database and recovery log in the /var/adsmserv directory if there is enough space available; if not, it will try to put the database and recovery log in the /usr/lpp/adsmserv/bin directory.

If there is not enough space in either location to create the database and recovery log, the installation will continue, but the installation program will not automatically configure ADSM.

You may want to create a database and/or a recovery log because:

- The installation program was unable to do so because of lack of free space in the /usr and /var file systems.
- You want to remove the default database and recovery log and place them in a different file system.
- You want to extend the size of the original database and recovery log.

Notes:

1. You can specify as many recovery log files and database files as necessary for your installation, providing they are previously formatted using DSMFMT.
2. If you later decide to extend the sizes of your database and recovery log files, use the DEFINE VOLUME and EXTEND LOG commands. See the *ADSM Administrator's Reference* manual for a detailed explanation of these commands.

Deleting Default Files

If the ADSM installation program was unable to configure ADSM for you and you want to continue with manual configuration or you want to remove the default database and recovery log, complete the following procedure:

Note: Do not delete the ADSM database or recovery log if you have stored data using ADSM or you will lose the data.

1. As the root user, change to the /var/adsmserv or the /usr/lpp/adsmserv/bin directory by entering:

   ```
   cd /var/adsmserv or cd /usr/lpp/adsmserv
   ```

2. Delete the default database and recovery log by entering:

   ```
   rm db.dsm
   rm log.dsm
   ```

Creating a New Database Volume

The minimum size of an ADSM database is 5MB. Database volumes can be created with sizes based between 5MB and 2GB.

Refer to the heading "Allocating Space for the Database and Recovery Log" in the *ADSM Administrator's Guide* for detailed information on sizing the database.

ADSM uses a utility program called DSMFMT to prepare its volumes. The DSMFMT utility enforces the size rules to prevent you from entering an incorrect value.

From the ADSM GUI

1. If the ADSM GUI is not currently running, start it in any aixterm session by entering:

   ```
   adsm
   ```

2. Double-click on the *ADSM Utilities* icon on the ADSM GUI.

3. Double-click on the *Storage Volume Formatter* icon.
4. Select *Database* as the volume type. The size will default to 5MB.
5. Enter a filename of:

   ```
   /usr/lpp/adsmserv/bin/db.dsm
   ```

6. Click on the *Prepare Volume* button.

From the Command Line

The installation program issues the following command to create the default ADSM database:

```
dsmfmt -m -db /usr/lpp/adsmserv/bin/db.dsm 5
```

In this example, *-m* indicates megabytes and *-db* indicates a database volume.

See the *ADSM Administrator's Reference* manual for the syntax of the dsmfmt command.

Note: After the ADSM server is running, you can increase the total size of your database by creating additional database volumes and issuing the DEFINE DBVOLUME and EXTEND DB commands.

Example of Database Created with DSMFMT

The example in this section describes how to recreate a database volume. You can change the path and volume size as appropriate for your site.

Issue this command:

```
dsmfmt -m -db /usr/lpp/adsmserv/bin/dbvol1 5
```

In this example, *-m* indicates megabytes and *-db* indicates a database volume.

The following report is displayed:

```
ADSTAR Distributed Storage Manager/6000
AIX ADSM Server DSMFMT Extent/Volume Formatting Program

Licensed Materials - Property of IBM

5765-564 (C) Copyright IBM Corporation 1990, 1996.  All rights reserved.
U.S. Government Users Restricted Rights - Use, duplication or disclosure
restricted by GSA ADP Schedule Contract with IBM Corporation.

Allocated space for dbvol1: 5242880 bytes
```

Creating a New Recovery Log Volume

The minimum size of an ADSM recovery log is 9MB. Recovery log volumes can be created with sizes between 9MB and 2GB.

Refer to the heading “Allocating Space for the Database and Recovery Log” in the *ADSM Administrator's Guide* for detailed information on sizing the recovery log.

ADSM uses a utility program called DSMFMT to prepare its volumes. The DSMFMT utility enforces the size rules to prevent you from entering an incorrect value.

From the ADSM GUI

1. If the ADSM GUI is not currently running, start it in any aixterm session by entering:

   ```
   adsm
   ```

2. Double-click on the *ADSM Utilities* icon on the ADSM GUI.
3. Double-click on the *Storage Volume Formatter* icon.
4. Select *Recovery Log* as the volume type. The size will default to 9MB.
5. Enter a filename of:

   ```
   /usr/lpp/adsmserv/bin/log.dsm
   ```

6. Click on the *Prepare Volume* button.

From the Command Line

The installation program issues the following command to create the default ADSM recovery log:

```
dsmfmt -m -log /usr/lpp/adsmserv/bin/log.dsm 9
```

In this example, *-m* indicates megabytes and *-log* indicates a recovery log volume.

Note: After the ADSM server is running, you can increase the total size of your recovery log by creating additional recovery log volumes and issuing the DEFINE LOGVOLUME and EXTEND LOG commands.

Example of Recovery Log Created with DSMFMT

The following example describes how to recreate a recovery log volume. You can change the path and volume size as appropriate for your site.

```
dsmfmt -m -log /usr/lpp/adsmserv/logvol1 9
```

In this example, *-m* indicates megabytes and *-log* indicates a recovery log volume.

The following report is displayed:

```
ADSTAR Distributed Storage Manager/6000
AIX ADSM Server DSMFMT Extent/Volume Formatting Program

Licensed Materials - Property of IBM

5765-564 (C) Copyright IBM Corporation 1990, 1996.  All rights reserved.
U.S. Government Users Restricted Rights - Use, duplication or disclosure
restricted by GSA ADP Schedule Contract with IBM Corporation.

Allocated space for /usr/lpp/adsmserv/bin/logvol1: 9437184 bytes
```

Creating Storage Pool Volumes

During installation, ADSM automatically creates default backup (backup.dsm), archive (archive.dsm), and HSM (spcmgmt.dsm) storage pool volumes at 8MB each.

You may choose to create additional volumes at any time. These volumes are stored in either the /var/adsmserv or the /usr/lpp/adsmserv/bin directory.

Note: If you later decide to extend the sizes of your storage pool volumes, you can use the EXTEND command. See the *ADSM Administrator's Reference* manual for information on this command.

From the ADSM GUI

1. If the ADSM GUI is not currently running, start it in any aixterm session by entering:

   ```
   adsm
   ```

2. Double-click on the *ADSM Utilities* icon on the ADSM GUI.
3. Double-click on the *Storage Volume Formatter* icon.
4. Select whichever volume you want to change as the volume type. The size will automatically change to 8MB.
5. Enter a filename of:

   ```
   /usr/lpp/adsmserv/bin/POOL.dsm
   ```

   where *POOL* is backup, archive, or space management
6. Click on the *Prepare Volume* button.

From the Command Line

The installation program issues the following command to create the default ADSM storage pool volume (backup, archive, or HSM space management):

```
dsmfmt -m -data /usr/lpp/adsmserv/bin/POOL.dsm 8
```

In this example, *POOL* indicates backup, archive, or space management, *-m* indicates megabytes, and *-data* indicates a storage volume in data storage.

See the *ADSM Administrator's Reference* manual for a detailed explanation of these commands.

Example of Using DSMFMT to Create Storage Pools

The following example describes how to recreate storage pool volumes. You can change the path and volume size as appropriate for your site.

Create a backup storage pool volume named BACKVOL, an archive storage pool volume named ARCHVOL, and a space management volume named SPMGVOL by completing the following procedure:

To use the DSMFMT utility to format the BACKVOL, ARCHVOL, and SPMGVOL storage pool volumes with 21MB, 8MB, and 20MB of storage, respectively, enter:

```
dsmfmt -m -data backvol 21 archvol 8 spmgvol 20
```

In this example, *-m* indicates megabytes and *-data* indicates the file is for storage volumes in data storage.

See the *ADSM Administrator's Reference* manual for a detailed explanation of these commands.

The following report is displayed:

```
ADSTAR Distributed Storage Manager/6000
AIX ADSM Server DSMFMT Extent/Volume Formatting Program

Licensed Materials - Property of IBM

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U.S. Government Users Restricted Rights - Use, duplication or disclosure
restricted by GSA ADP Schedule Contract with IBM Corporation.

Allocated space for backvol: 22020096 bytes
Allocated space for archvol: 8388608 bytes
Allocated space for spmgvol: 20971520 bytes
```

Using the DSMSERV INSTALL Command to Initialize the Database and Recovery Log

Normally, the installation program creates the ADSM database and recovery log and then initializes them by running the DSMSERV INSTALL command.

To do this manually, you must first use DSMFMT to create your database and recovery log as described in "Creating a New Database Volume" on page 36 and "Creating a New Recovery Log Volume" on page 38, and then issue the DSMSERV INSTALL command.

Attention

The size of an allocated database volume and recovery log volume cannot be changed once it has been defined to the ADSM server. ADSM uses the initial size allocation of the volume when it is defined to the server to calculate data placement for later retrieval. If you change the size of ADSM volumes by extending the underlying file's size, ADSM may not initialize correctly and **data may be lost**.

Before You Issue the DSMSERV INSTALL Command

Attention

See "Upgrading Installation from ADSM Version 1 to ADSM Version 2" on page 4 and "Reinstalling a Version 2 ADSM Server" on page 5 for further instruction if you are migrating from Version 1 to Version 2 or if this is a reinstallation.

If you are reinstalling the server, running the DSMSERV INSTALL command will destroy any data that previously resided in your database, recovery log, and storage pool volumes if you specify the same database, recovery log, or storage pool volumes.

ADSM supports the use of multiple ADSM servers on the same computer. The first ADSM server is always installed in the /usr/lpp/adsmserv/bin directory. Other ADSM servers can be set up to run from other directories. See "Running Multiple Servers on a Single Machine" on page 48.

It is important to enter the DSMSERV INSTALL command from the directory where your ADSM server is installed. The DSMSERV INSTALL command creates a file called *dsmserv.dsk* which the ADSM server uses to determine the location of the database and recovery log. Data can be lost if DSMSERV INSTALL is issued from the wrong directory.

Example of Using the DSMSERV INSTALL Command

The following example uses the DSMSERV INSTALL command to introduce the database and recovery log to the server.

Note: You must issue the DSMFMT command for the database and recovery log files *before* you issue the DSMSERV INSTALL command. If you do not issue the DSMFMT command first, you will not have a database or recovery log to format.

To introduce the files for the database and recovery log volumes that were prepared in "Creating a New Database Volume" on page 36 and "Creating a New Recovery Log Volume" on page 38, enter:

```
dsmserv install 1 /usr/lpp/adsmserv/bin/logvol1 1 /usr/lpp/adsmserv/bin/dbvol1
```

In this example, the first *1* indicates the number of files to be used by the recovery log. The second *1* indicates the number of files to be used by the database. You can specify as many files as necessary for your installation.

See the *ADSM Administrator's Reference* manual for the syntax of the dsmserv install command.

The following report is displayed by the server:

```
ADSTAR Distributed Storage Manager for AIX
Version 2, Release 1, Level 0.6/0.6

Licensed Materials - Property of IBM

5765-564 (C) Copyright IBM Corporation 1990, 1996. All rights reserved.
U.S. Government Users Restricted Rights - Use, duplication or disclosure
restricted by GSA ADP Schedule Contract with IBM Corporation.

ANR7800I DSMSERV generated at 17:48:56 on Mar 06 1996.
ANR7801I Subsystem (master) PID is 13598.
ANR0900I Processing options file dsmserv.opt.
ANR0300I Recovery log format started; assigned capacity 8 megabytes.
ANR0301I Recovery log format in progress; 4 megabytes of 8.
ANR0301I Recovery log format in progress; 8 megabytes of 8.
ANR0302I Recovery log formatting took 6601 milliseconds.
ANR0303I   Format rate:       310.3 pages/second
ANR0304I   Page service time:   3.2 ms.
ANR0305I Recovery log format complete.
ANR0306I Recovery log volume mount in progress.
ANR0353I Recovery log analysis pass in progress.
ANR0354I Recovery log redo pass in progress.
ANR0355I Recovery log undo pass in progress.
ANR0352I Transaction recovery complete.
ANR0992I ADSM server installation complete.
```

For more information on using the DSMSERV INSTALL command, refer to the *ADSM Administrator's Reference*.

Defining Storage Pool Volumes to the Server

During installation, you prepared files to be used as storage pool volumes by using the DSMFMT and DSMSERV INSTALL commands. (See "Creating Storage Pool Volumes" on page 39.) However, before workstation data can be stored on these volumes, you must specify the ADSM storage pool to which each volume belongs.

To prepare storage pools for backup or archive files, complete the following procedure at the ADSM prompt:

Note: Request information about the predefined storage pools by entering:

```
query stgpool
```

The server displays a report, similar to the one below, which shows the predefined disk storage pools, BACKUPPOOL, ARCHIVEPOOL, and SPACEMGPOOL.

To use the DEFINE VOLUME command to assign the storage pool volumes to the storage pools, enter:

```
define volume backuppool backup.dsm
define volume archivepool archive.dsm
define volume spmgpool spcmgt.dsm
```

```
Storage      Device       Estimated  %Util  %Migr  High   Low  Next
Pool Name    Class         Capacity                Mig%  Mig%  Storage
                               (MB)                       Pool
-----------  ----------  ----------  -----  -----  ----  ----  ---------
ARCHIVEPOOL  DISK              8.0    0.0    0.0    90    70
BACKUPPOOL   DISK             21.0    0.0    0.0    90    70
SPACEMGPOOL  DISK             20.0    0.0    0.0    90    70
```

Request information about the storage pool volumes assigned to each storage pool by entering:

```
query volume *
```

The server displays a report, similar to the one below which lists the storage pool volumes defined to each storage pool. In this example, one volume each has been assigned to the predefined backup storage pool, archive storage pool, and HSM (hierarchical storage management) storage pool.

```
Volume Name              Storage      Device      Estimated  %Util   Volume
                         Pool Name    Class        Capacity          Status
                                                       (MB)
-----------------------  -----------  ----------  ---------  -----  --------
/dev/raixvo1             AIXPOOL1     DISK             32.0    0.0  On-Line
/usr/lpp/adsmserv/bin/   ARCHIVEPOOL  DISK              8.0    0.0  On-Line
 archvol
/usr/lpp/adsmserv/bin/   BACKUPPOOL   DISK             21.0   13.5  On-Line
 backvol
/usr/spp/adsmserv/bin/   SPACEMGPOOL  DISK             20.0    0.0  On-Line
 spacevol
/dev/raixvol4            AIXPOOL4     DISK            240.0   36.9  On-Line
EXBV01                   EXB10EPOOL   IBM8MM        4,944.0   22.9  Filling
```

This example shows the use of storage pool volumes with device classes DISK and 8MM. You may find that you achieve a better balance of storage cost and performance by using tape or optical storage, in addition to disk storage, as part of your storage hierarchy.

For a complete description of the server support of disk, tape, and optical storage volumes, refer to the *ADSM Administrator's Guide*.

Starting the ADSM Server

Before you can start the ADSM server, these conditions must exist:

1. The DSMSERV INSTALL command must have been run. If your SMIT installation was successful, this has already been done for you. If your SMIT installation was not successful, you must perform the procedure in "Using the DSMSERV INSTALL Command to Initialize the Database and Recovery Log" on page 40.
2. The AIX kernel extensions must be loaded. If your SMIT installation was successful, this has already been done for you. If you do not know whether the kernel extensions are loaded, issue the following command at an AIX console as root user:

   ```
   loadpkx -q /usr/lpp/adsmserv/bin/pkmonx
   ```

   A message similar to the one shown here will display showing the status of the kernel extensions:

   ```
   Kernel extension is loaded with kmid = 22105364
   ```

   If the kernel extension is not loaded, see "Automatically Loading the Kernel Extension and Server Start" on page 49 for instructions.

   Note: This step does not apply to ADSM 2.1.5.6.

Attention

Read "Reinstalling a Version 2 ADSM Server" on page 5 for additional information on the DSMSERV command.

From the ADSM GUI

1. If the ADSM GUI is not currently running, start it by entering in any aixterm session:

   ```
   /usr/lpp/adsmserv/ezadsm/adsm
   ```

2. Double-click on the ADSM Server icon on the ADSM GUI
3. Click on the *Begin Session* button

From the Command Line

1. Ensure that you are in the directory where your ADSM server is installed. For example, to run the default ADSM server, issue:

   ```
   cd /usr/lpp/adsmserv/bin
   ```

2. Start the server by entering:

   ```
   dsmserv
   ```

ADSM displays the following information when the server is started:

- Product licensing and copyright information
- Processing information about the server options file
- Communication protocol information

- Database and recovery log information
- Storage pool volume information
- Server generation date
- Progress messages and any errors encountered during server initialization

When it is started, the ADSM server:

- Processes the server options file and invokes the communication methods specified in the server options file.
- Uses the volumes specified in the dsmserv.dsk file for the database and recovery log to record activity.
- Starts an ADSM server console session and registers an administrative client to the server.
- Uses the STANDARD policy that is shipped with ADSM.

Running the Server as a Daemon (Background Mode)

Attention

Before you run the server in the background (quiet) mode, ensure that the following conditions exist:

1. An administrative node has been registered and granted system authority (see "Registering and Authorizing an Administrator" on page 51).
2. The administrative client options file has been updated with the correct SERVERNAME and TCPPORT options.
3. The administrative client can access the ADSM server.

After the server is running in background mode and all three of the previous conditions exist (these are set up in a successful basic server installation), you may stop the server by selecting the ADSM administrative client icon from the main ADSM GUI and clicking on *Begin Session*.

This starts an administrative client session. You can then type the word *halt* at the command prompt to shut down the server.

If any of the previous conditions does not exist and you want to stop the server, you must cancel the process by using the *kill* command with the process ID number (pid) displayed at initialization.

Note: Before you issue the HALT command, ensure that you are connected to the correct ADSM server.

Identify the server by one of these processes:

- Select the option menu item and then the path menu item. The options file paths are shown. The *dsm.opt* file specifies a servername item that should be in the *dsm.sys* file. The stanza in the *dsm.sys* file that starts with the servername has communications information that can identify the actual ADSM server being used.
- Issue a *query node* command at the administrator command prompt. An administrator may recognize certain nodes.
- Issue a *query status* to see the actual server name. In some cases, this may be the only ADSM server available.

You may choose to run the server in the background. When the server runs in the background, you control the server through your administrative client.

You can use the administrative console client to view the server console output.

To start the server running in the background, enter the following at an AIX command line:

```
nohup dsmserv quiet &
```

Note: The ADSM server is set up during installation to run in the background after reboot.

You can check your directory for the output created in nohup.out to determine if the server has started. The output is redirected to the file nohup.out, which can grow considerably over time.

Running the Server in Other Modes

You can specify any combination of the following command-line switches as part of the dsmserv command:

Note: See the **Attention** under "Running the Server as a Daemon (Background Mode)" on page 46 before continuing with this section.

quiet
Runs as a foreground process and does not read commands from the server console. Output messages print to the standard output (for example, the server window).

noexpire
Suppresses "inventory expiration". See "EXPINterval" on page 75 for additional information.

-o *filename*
Specifies an explicit options file name when running more than one server. See "Running Multiple Servers on a Single Machine" on page 48 for more information.

Naming the Server

By default, the server name is ADSM. However, you can identify the server with another name by renaming the server using the SET SERVERNAME command. This ability to rename the server is useful when you run multiple servers to balance the workload for large installations.

For example, to name the server used by your engineering department DSM_ENGINEER, enter the following ADSM command at the ADSM server's command prompt:

```
set servername dsm_engineer
```

The new name is displayed to any client that accesses that server.

Defining Environment Variables

If you want to run the ADSM server from a directory other than the /usr/lpp/adsmserv/bin default directory or to run multiple servers, you may have to define environment variables.

An *environment variable* describes the operating environment of a process, such as the home directory or the terminal in use. It provides the path that the server requires to find and create files.

For example, to define the DSMSERV_DIR environment variable to point to the usr/lpp/adsmserv/bin directory so that the server can find various files, such as dsmreg.lic or the message file (dsmameng.txt), enter:

```
export DSMSERV_DIR=/usr/lpp/adsmserv/bin
```

You can also define an environment variable to point to the server options file. For example, to define the DSMSERV_CONFIG environment variable to point to the server options file, enter:

```
export DSMSERV_CONFIG=/usr/lpp/adsmserv/bin/ filename.opt
```

where *filename* is the name you assigned your server options file (dsmserv.opt).

Notes:

1. The -o parameter of the DSMSERV command can also be used to specify an options file name.
2. The *set environment* command:

   ```
   setenv DSMSERV_DIR /usr/lpp/adsmserv/bin
   ```

   is used if your shell is in the “csh” family.

   ```
   export DSMSERV_DIR=/usr/lpp/adsmserv/bin
   ```

   is used if your shell is in the “ksh” family.
3. If you want to save this environment, save these entries in the *.kshrc* or the *.cshrc* file of your $HOME directory.
4. The dsmserv.dsk file is always read from the directory in which the server is started.

Running Multiple Servers on a Single Machine

To have multiple servers running on a single machine, issue the DSMSERV INSTALL command from different directories to create multiple pairs of recovery log and database files. You do not have to install the server executable files in more than one directory.

The following procedure shows how to set up an additional ADSM server:

1. Determine the directory where you want the server files created, for example, /usr/lpp/myserver, and make that directory:

   ```
   mkdir /usr/lpp/myserver
   ```
2. Copy the dsmserv.opt file to your directory:

   ```
   cp /usr/lpp/adsmserv/bin/dsmserv.opt dsmserv.opt /usr/lpp/myserver/dsmserv.opt
   ```

Note: Ensure that the communication parameters are unique from all other ADSM servers. The communication protocols are:

- TCPPORT for TCP/IP
- LUNAME for SNA LU6.2
- NETBIOSNAME for NetBIOS
- IPXSOCKET for IPX/SPX

For example, if your first server is using the default TCPport of 1500, ensure that the new server is using a TCPport other than 1500 by providing a real value in the server options files. See "Setting Options for the TCP/IP Communication Method" on page 58 for values.

3. Set your path on the server console or from an aixterm session. (This is done for you during the basic installation and configuration.) Define your environment variables, for example:

   To define the DSMSERV_DIR, enter:

   ```
   export DSMSERV_DIR=/usr/lpp/adsmserv/bin
   ```

   See "Defining Environment Variables" on page 47 for additional information on defining environment variables.

   Ensure that you are in the target directory before continuing.

4. Format the database and recovery log files, for example:

   ```
   /usr/lpp/adsmserv/bin/dsmfmt -m -db dbvol2 5
   /usr/lpp/adsmserv/bin/dsmfmt -m -log logvol2 9
   ```

   In this example, *db* indicates the database log, *-m* indicates megabytes and *log* indicates the recovery log.

   See the *ADSM Administrator's Reference* manual for a detailed explanation of these commands.

5. Create the database and recovery log in the desired directory for the new server, for example:

   ```
   /usr/lpp/adsmserv/bin/dsmserv install 1 logvol2 1 dbvol2
   ```

Note: You need additional license authorizations to run additional servers.

Automatically Loading the Kernel Extension and Server Start

Attention

This section is not applicable for ADSM 2.1.5.6 (feature codes 5717, 5718, and 5719). If ADSM 2.1.5.6 is being installed, users need only set autostart on reboot.

Note: During installation, the system is set to automatically load the kernel extension and start the server in quiet mode when your system is rebooted.

If you are using the HSM (hierarchical storage management) feature, the kernel extension must be set to load automatically.

After installation, you can prevent automatic kernel extension load or server start by entering:

```
dsm_rmv_itab <option>
```

where <*option*> is:

- kernel (to prevent automatic kernel extension load)
- autostart (to prevent automatic server start)
- both (to prevent both options)

Note: If you decide to prevent automatic kernel extension load, you must also disable autostart.

To cause automatic kernel extension load or server start when you reboot your system, enter from an aixterm window:

```
dsm_update_itab <option>
```

where <*option*> is:

- kernel (to add automatic kernel extension load)
- autostart (to add automatic server start)
- both (to add both options)

After you enter this command, the options you selected will be loaded automatically the next time you boot the system.

Notes:

1. The kernel extension must already be loaded whenever the server is started.
2. The server is loaded as a daemon (quiet mode). See “Running the Server as a Daemon (Background Mode)” on page 46.

To manually load the kernel extension, ensure that you are in the /usr/lpp/adsmserv/bin directory.

Enter:

```
loadpkx -f pkmonx
```

If you are not in this directory, enter the fully qualified path name. For example, enter:

```
/usr/lpp/adsmserv/bin/loadpkx -f pkmonx
```

You will receive a message stating that the kernel extension is loaded. If the kernel extension is already loaded, you will receive a warning message, which can be ignored.

Registering and Authorizing an Administrator

If you have a small installation with users having similar storage needs, you may choose to have one administrator manage the client/server environment. However, if your installation is large or if you want to distribute administrative tasks to a number of people, you can register more than one administrator.

After users are registered as administrators, they can monitor and control the server from any workstation on which the administrative client program has been installed.

Using the SERVER_CONSOLE ID

At installation, ADSM provides an administrator ID named SERVER_CONSOLE, which is defined with system administrator privilege. After you start the ADSM server, you can use the SERVER_CONSOLE ID from the server console or an administrative client to register one or more administrators.

After you use the SERVER_CONSOLE ID to register one or more administrators, reduce the authority of SERVER_CONSOLE to operator privilege. This process enhances security by restricting access to administrative functions. For information on reducing the authority of SERVER_CONSOLE, see "Reducing SERVER_CONSOLE Privilege to Operator" on page 52.

When you use the SERVER_CONSOLE ID, the following conditions apply:

- The SERVER_CONSOLE ID is the only administrative ID you can use from the server console
- Before you can use the SERVER_CONSOLE ID from an administrative client, you must turn password authentication off. To turn off password authentication, enter the following command at the ADSM prompt:

```
set authentication off
```

For information on using the SET AUTHENTICATION command, refer to *ADSM Administrator's Reference*.

Registering an Administrator

When the server is installed, an administrative client is automatically registered with a name of *admin* and a password of *admin*. For additional information on distributing administrative tasks to more than one user, refer to the *ADSM Administrator's Guide*.

To register and authorize an administrator, complete the following procedure at the ADSM prompt of the server console:

1. Register an administrator named Elaine with the password *p1silence*, by entering:

```
register admin elaine p1silence
```

2. Grant system privilege to administrator Elaine by entering:

```
grant authority elaine classes=system
```

Now Elaine has unrestricted privilege for the ADSM server and can reduce the privilege of SERVER_CONSOLE to operator.

To request a detailed report about registered administrators, enter:

```
query admin * format=detailed
```

The server displays a detailed report, as shown in Figure 6. This report shows that the SERVER_CONSOLE administrator ID was used to register the system administrator, named Elaine.

```
      Administrator Name: SERVER_CONSOLE
   Last Access Date/Time:
  Days Since Last Access:
  Password Set Date/Time:
 Days Since Password Set:
                 Locked?: No
                 Contact:
        System Privilege: Yes
        Policy Privilege: ** Included with system privilege **
       Storage Privilege: ** Included with system privilege **
       Analyst Privilege: ** Included with system privilege **
      Operator Privilege: ** Included with system privilege **
       Registration Date: 02/08/1996 19:25:06
Registering Administrator:


      Administrator Name: ELAINE
   Last Access Date/Time: 02/08/1996 19:49:46
  Days Since Last Access: 1
  Password Set Date/Time: 02/08/1996 19:49:31
 Days Since Password Set: 1
                 Locked?: No
                 Contact: Elaine
        System Privilege: Yes
        Policy Privilege: ** Included with system privilege **
       Storage Privilege: ** Included with system privilege **
       Analyst Privilege: ** Included with system privilege **
      Operator Privilege: ** Included with system privilege **
       Registration Date: 02/08/1996 19:49:31
Registering Administrator: SERVER_CONSOLE

Registering Administrator: ELAINE
```

Figure 6. Viewing a Detailed Report of Registered Administrators

Reducing SERVER_CONSOLE Privilege to Operator

Now that Elaine has system administrator privilege, she can revoke the privilege of SERVER_CONSOLE. And, once an administrative client is installed, Elaine can grant the SERVER_CONSOLE ID operator privilege. To reduce privilege of the SERVER_CONSOLE ID, complete the following procedure:

1. From either the server console or an administrative client, revoke system privilege from SERVER_CONSOLE by entering:

   ```
   revoke authority server_console classes=system
   ```

Note: When granting authority to the SERVER_CONSOLE ID, you must issue the GRANT AUTHORITY command from an administrative client.

2. From an *administrative client*, assign operator privilege to SERVER_CONSOLE by entering:

```
grant authority server_console classes=operator
```

Now SERVER_CONSOLE authority has been reduced to operator privilege.

For more information about registering and authorizing administrators or reducing authority, refer to *ADSM Administrator's Guide*. For information on the REGISTER ADMINISTRATOR, GRANT AUTHORITY, and REDUCE AUTHORITY commands, refer to *ADSM Administrator's Reference*.

For information on installing an administrative client, see Chapter 8, "Installing Remote Administrative Clients" on page 155.

Registering a Backup-Archive Client Node

To register a client node or workstation, you must use the REGISTER NODE command. If registration is closed, an authorized administrator must register backup-archive client nodes. If registration is open, users can register their own workstations when they initially sign on to ADSM from their own workstations.

Register a backup-archive client node with the server by entering:

```
register node name password
```

Replace *name* and *password* with the backup-archive client's node name and password.

```
register node client client
```

This statement registers a backup-archive client named CLIENT with a password of CLIENT.

Verifying the Installation

To verify that the basic installation was successful, complete the following procedure by using the graphical user interface (GUI) session or the command-line instructions:

From the ADSM Main GUI

1. Double-click on the ADSM server icon.
2. Press *Begin Session*
3. Double-click on *Administrative Client*
4. Enter user ID and password (**admin** for each)
5. Double-click on *Nodes*
6. Verify registration of one client

7. Double-click on *Backup-Archive* client
8. Enter client node password (**client**)

From the Command Line

1. Open an AIX session and at the AIX command prompt, start the administrative client by entering:

   ```
   dsmadmc
   ```

   ADSM prompts you to enter the administrative client's user ID and password.

   administrative client name: **admin**
   administrative client password: **admin**

   You can issue any of the query commands to verify installation. For query command information, refer to the *ADSM Administrator's Reference* or enter **Help Query** at the command line prompt.

   For example, to query the server to view information about client nodes, enter:

   ```
   query node *
   ```

2. When you are finished with the administrative client, you can leave the administrative client command-line session by entering:

   ```
   quit
   ```

3. Start the backup-archive client GUI session.

   Open another AIX session and at the AIX command prompt, start the backup-archive client by entering:

   ```
   dsm
   ```

   The ADSM GUI prompts you to enter the client node's password.

   client node password: **client**

To further verify the installation, you can back up and restore selected files by directory tree. For detailed backup information, refer to the *ADSM Using the UNIX Backup-Archive Clients* manual.

Example of Database Verification

1. Determine how much space is available for use by the database by entering:

   ```
   query db
   ```

   The server displays a report, similar to the one below which shows the amount of space allocated to the database. In this example, 4MB of space is available for use by the database.

```
Available Assigned   Maximum   Maximum    Page     Total      Used %Util  Max.
    Space Capacity Extension Reduction    Size    Usable     Pages       %Util
     (MB)     (MB)      (MB)      (MB) (bytes)     Pages
--------- -------- --------- --------- ------- --------- --------- ----- -----
        4        4         0         0      11     1,024       139  13.6  13.6
```

2. Request information about the volumes assigned to the database by entering:

   ```
   query dbvol
   ```

   The server displays a report, similar to the one below, which lists the files or volumes defined at installation. It shows that an ADSM volume named dbvol1 has been defined as a database volume.

```
Volume Name                 Copy    Volume Name  Copy    Volume Name  Copy
(Copy 1)                    Status  (Copy 2)     Status  (Copy 3)     Status
--------------------------- ------  -----------  ------  -----------  ------
/usr/lpp/adsmserv/bin/dbvol1 Sync'd              Undef-               Undef-
                                                 ined                 ined
```

Example of Recovery Log Verification

1. Determine how much space is available for use by the recovery log by entering:

   ```
   query log
   ```

   The server displays a report, similar to the one below, which displays the amount of space available for use by the recovery log. In this example, 16MB of space is available for use in the recovery log.

```
Available Assigned   Maximum   Maximum    Page     Total      Used %Util  Max.
    Space Capacity Extension Reduction    Size    Usable     Pages       %Util
     (MB)     (MB)      (MB)      (MB) (bytes)     Pages
--------- -------- --------- --------- ------- --------- --------- ----- -----
       16       16         0        12      11     3,584       236   6.6   6.6
```

2. Request information about the volumes assigned to the recovery log by entering:

   ```
   query logvol
   ```

   The server displays a report, similar to the one below, which lists the ADSM files or volumes. This example shows that two volumes named *logvol1* and *logvol2* have been defined as recovery log volumes.

```
Volume Name                 Copy    Volume Name  Copy    Volume Name  Copy
(Copy 1)                    Status  (Copy 2)     Status  (Copy 3)     Status
----------------            ------  -----------  ------  -----------  ------
usr/lpp/adsmserv/bin/logvol1  Sync'd              Undef-               Undef-
                                                 ined                 ined
usr/lpp/adsmserv/bin/logvol2  Sync'd              Undef-               Undef-
                                                 ined                 ined
```

Configuring a Storage Device for Use with the Server

Note: If you are using devices that were previously installed to a Version 1 server, see "Upgrading Installation from ADSM Version 1 to ADSM Version 2" on page 4.

From the main ADSM GUI (see Figure 3 on page 22), double-click on the *Getting Started* icon and then click on *Configuring Devices in an Automated Library* for assistance in configuring devices. Tasks and step-by-step instructions are listed for you.

From the ADSM Utilities GUI, click on the *Sequential Device Configuration Assistant* icon in Figure 4 on page 25 to have the system configure your devices and define them to ADSM.

To use a storage device with ADSM, you must install ADSM device drivers for your operating system. Refer to Chapter 6, "Configuring Devices for the ADSM Server" on page 85 for available devices.

For an example of configuring a device driver for a tape or optical drive, see "Configuring a Device Driver for a Tape or an Optical Drive for Use by ADSM" on page 100.

Chapter 5. Setting the Communication Method and Server Options

The dsmserv.opt.smp server options file is created during the basic installation and configuration and contains the format of the options file as well as all of the default settings. See “Creating Server Options Files” on page 33.

The ADSM options in this chapter appear in mixed case. Uppercase characters represent the minimum characters necessary to process the option. For example, you can enter the ADSM option TCPPort as:

```
TCPP or tcpp
```

When editing the options file, ensure that you remove the leading asterisk in each option that you select.

Note: If you make any changes to the server options file *after* you start the server, use the HALT command to stop the server and then restart the server by using DSMSERV command to read the updated server options file. For information on using the HALT command, see “Using the HALT Command” on page 30.

Enabling Communications with the Server

If you are not using the default TCP/IP as your communication method, you can choose one or more communication methods to use with the ADSM server. To enable communications with the server, edit your server options file, dsmserv.opt, using the text editor of your choice. After you edit the server options file, save the changes.

Table 5 displays the communication methods supported by the ADSM server on AIX.

Table 5. Supported Communication Methods for an ADSM Server on AIX

Method	Description
TCPIP	Specifies the use of TCP/IP as a communication protocol
NETBIOS	Specifies the use of NETBIOS as a communication protocol
IPXSPX	Specifies the use of IPX/SPX as a communication protocol
SHAREDMEM	Specifies the use of Shared Memory as a communication protocol
SNALU6.2 (APPC)	Specifies the use of SNA LU6.2 (APPC) as a communication protocol
NONE	Specifies no communication method is to be used. This method is specified as COMMMETHOD NONE. This option does not allow users to connect to the server, and is useful for experimenting with policy commands. This option is not discussed in any further detail in this section.

Supporting Multiple Network Adapters

ADSM supports multiple network adapters that enable an administrator to specify one or more communication methods. This support gives an administrator the capability to increase server throughput by providing multiple connections to the same network, or to serve several physically distinct networks with the same server.

The communication methods for the ADSM server listed here support multiple network adapters. Shared Memory does not support multiple network adapters, and IPX/SPX supports a single adapter through the IPX socket number.

Protocols differ in the way the use of multiple adapters is specified. Multiple protocols may be used on each of the adapters in the system.

- TCP/IP

  No additional server configuration is required for TCP/IP support of multiple adapters. Each of the adapters must be set up with a separate TCP/IP address. Clients are then provided with one of the addresses for their client options file. The server will accept sessions from each of the adapters. The session limit is placed on the accumulated count from all of the adapters.

- SNA LU6.2 (APPC)

  Separate LUnames must be configured for sessions from each of the adapters to be used. The LUname statement in the dsmserv.opt file must be specified so that the server knows the LUnames on which to accept sessions. Up to four LUnames can be specified on the LUname statement to provide an LUname for each of the adapters. Only one TP profile need be configured for the multiple adapters. Clients are given a single network address (networkname.LUname) with which to communicate with the server, meaning they can establish a session with the specific adapter that corresponds to the LUname in their options file.

- NETBIOS

  A LANAdapter statement is specified for each NETBIOS session. LANAdapter statements range from LANADAPTER 0 to LANADAPTER 3, allowing you to specify up to four network adapters on which to accept sessions. The NETbiosname statement then specifies up to four server names, one per adapter on which the ADSM server accepts sessions. Clients use the NETBIOSservername statement to name the corresponding name on the server. This process also directs the session request to a specific adapter.

Setting Options for the TCP/IP Communication Method

Figure 7 displays an example of a TCP/IP communication method setting.

```
COMMMETHOD                TCPip
   TCPPort                1500
   TCPWindowsize          16
```

Figure 7. Example of TCP/IP Communication Method Options

TCPPort
Specifies a port address of a server when using TCP/IP. The default value is 1500. You can specify a value from 1000 to 32767.

TCPWindowsize
Specifies the size of the server window when using TCP/IP. The default value is 16. You can specify a value from 1 to 24.

Setting Options for the NETBIOS Communication Method

Note: To use NetBIOS on AIX 3.2.5, the NETBIOS for the token ring PRPQ or IBM AIX NETBIOS must be installed on the AIX server. To use NetBIOS on AIX 4.1, IBM AIX NetBIOS or IBM AIX Connections must be installed on the AIX server.

Figure 8 displays an example of a NETBIOS communication method setting.

```
COMMMETHOD                  NETBIOS
   LANAdapter               0
   NETBiosname              ADSMSERV1
   NETBIOSBuffersize        16
```

Figure 8. Example of NETBIOS Communication Method Options

Note: In configuring IBM AIX NetBIOS or IBM AIX Connections, ensure that you use the AT&T naming convention choice on the TPI configuration of the mcsadm utility.

LANAdapter
Specifies a network adapter number on which the server communicates when the NETBIOS communication method is specified. A maximum of four adapters may be specified with up to four LANAdapter statements. The default value is zero. You can specify a value from zero to three.

NETBiosname
Specifies the name to be used for communications on the network. This name must be unique across the network that includes the LAN requestors and other NETBIOS applications. This name can be a maximum of 16 characters and is case-sensitive. The first character cannot be an asterisk (*), and the first three characters cannot be the letters IBM. The defaults are ADSMSERV1, ADSMSERV2, ADSMSERV3, and ADSMSERV4 (depending on the number of LANAdapter statements you have). For example, if you have LANADAPTER 0 and LANADAPTER 1, the defaults are ADSMSERV1 and ADSMSERV2.

NETBIOSBuffersize
Specifies the size you want to use in kilobytes for the NETBIOS communications buffer. This parameter is optional and the default buffer size is 16K, with a minimum of 1K and a maximum of 32K. A larger buffer size can improve communication performance but requires more memory.

Setting Options for the NetWare IPX/SPX Communication Method

Figure 9 displays an example of an IPX/SPX communication method setting.

```
COMMMETHOD                  IPXSPX
     IPXSocket              8522
     IPXBuffersize          4
```

Figure 9. Example of IPX/SPX Communication Method Options

IPXSocket

Specifies the socket number (hex value) on which the server SPX communication driver is to wait. The default is 8522.

Note: The default socket number is registered with Novell.

IPXBuffersize

Specifies the size you want to use in kilobytes for the IPX/SPX communications buffer. This parameter is optional and the default buffer size is 4K, with a minimum of 1K and a maximum of 32K. A larger buffer size can improve communication performance but requires more memory.

Note: To use IPX/SPX, IBM AIX and NetBIOS Support/6000 or IBM AIX Connections must be installed on the AIX server.

Setting Options for the Shared Memory Communication Method

Figure 10 displays an example of a Shared Memory communication method setting.

```
COMMMETHOD                  SHAREDMEM
     SHMport                1510
```

Figure 10. Example of Shared Memory Communication Method Options

SHMport

Specifies the TCP/IP port address of a server when using Shared Memory. All shared memory communications start with a TCP/IP connection. The default value is 1510. You can specify a value from 1000 to 32767.

Note: Depending on the AIX software installed, you may be able to establish a maximum of ten concurrent shared memory communications sessions when running ADSM 2.1.5.6.

Setting Options for the SNA LU6.2 (APPC) Communication Method

Systems Network Architecture (SNA) defines various sets 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 communication (APPC), also known as LU6.2.

Note: Only these AIX and SNA combinations are valid:

- AIX 3.2.5 SNA Server/6000 2.1
  or
- AIX 4.1 SNA Server/6000 3.1

These cannot be interchanged.

Figure 12 on page 65 shows a sample configuration profile for AIX 3.2.5 SNA Server/6000 2.1.

"Sample Communication Profiles for AIX 4.1.1 SNA Server/6000 3.1" on page 67 shows sample configuration profiles for AIX 4.1 SNA Server/6000 3.1.

Figure 11 displays an example of a SNA LU6.2 communication method setting.

```
COMMMETHOD                  SNAlu6.2 (APPC)
   LUname                   DSMSERV1
   TPNProfilename           DSMSERVLOCAL
```

Figure 11. Example of Server SNA LU6.2 Communication Method Options

LUname

Specifies the name ADSM uses for APPC communications on the network. The default LU name is DSMSERV1. A maximum of four LU names can be specified. The maximum length of an LU name is eight characters.

TPNProfilename

Specifies the transaction program profile name. See line 89 in Figure 12. This profile name is a mandatory option in your server options file, dsmserv.opt. This name must be a unique name containing 1–14 ASCII characters.

Establishing an SNA LU6.2 (APPC) Environment

To establish an SNA LU6.2 configuration by using SMIT, complete the following procedure:

1. Define your machine to SNA Services by the use of Initial Node Setup. Refer to lines 1–11 in Figure 12 on page 65.
2. Modify the SNA DLC token ring profile (tok0.0001) by performing the following steps:
   a. On an X Windows command line, enter:

      ```
      smit sna
      ```

   b. Click on *Configure SNA Profiles*
   c. Click on *Advanced Configuration*
   d. Click on *Links*

e. Click on *Token Ring*

f. Click on *Token Ring SNA DLC*

g. Click on *Change/Show a Profile*

h. In the *Profile name* field, supply a profile name, and click on *Do*

1) Set the value in the *Max. number of active link stations (1–255)* field to a value between 1 and 255. Set this value to 255 to allow 255 active link stations on a particular port at one time. See line 18 in Figure 12 on page 65.

2) Set the value in the *Dynamic link stations supported?* field to No to prevent the base listening station (tok0.0001) from creating a dynamic link station to intercept incoming calls. See line 33 in Figure 12 on page 65.

i. Click on *Do*

3. Define a link station token ring profile for clients:

a. On an X Windows command line, enter:

```
smit sna
```

b. Click on *Configure SNA Profiles*

c. Click on *Advanced Configuration*

d. Click on *Links*

e. Click on *Token Ring*

f. Click on *Token Ring Link Station*

g. Click on *Add a Profile*

Note: If you need to make changes to this profile, select *Change/Show a Profile*.

1) In the *Profile name* field, supply a unique name. In the example provided in Figure 12 on page 65, this profile is called GENERIC. See line 49 in Figure 12 on page 65.

2) In the *SNA DLC Profile name* field,

Select *List*.

Choose the SNA DLC token ring profile name defined previously (tok0.0001). See line 52 in Figure 12 on page 65.

3) Set the value in the *Stop link station on inactivity?* field to *Yes* to allow the link stations to be reused when no more active sessions remain on the link station. This enables a different ADSM client to establish a link with this particular server. See line 53 in Figure 12 on page 65.

a) Specify a value in the *If yes, Inactivity time-out (0–10 minutes)* field to a number between 1 and 10. In this example, this value is set to 1 minute. If the IDLETimeout option (of the server options file) is larger than this link station inactivity time-out value, it may take longer for an ADSM client to establish connection with the server because a new

link station may have to be created. See line 54 in Figure 12 on page 65.

Note: For information on deactivating the system-generated SNASVCMG mode sessions, refer to *ADSM Administrator's Guide*.

4) Ensure the *Access routing* field is link_address. For example, see line 59 in Figure 12 on page 65.

   Leave the value for *Remote link address* field blank, so the server machine is a non-selective listening station. See line 61 in Figure 12 on page 65.

5) Set the value in the *Initiate call when link station is activated?* field to *No* to specify this station as a listening station. See line 69 in Figure 12 on page 65.

6) Change the value in the *Activate link station at SNA start up?* field to *Yes* to allow the link station to be established automatically. See line 70 in Figure 12 on page 65.

7) Change the value in the *CP-CP sessions supported?* field to *Yes*. See line 72 in Figure 12 on page 65.

8) Set the value in the *Restart on activation?* field to *Yes* to allow a new listening station to be generated. See line 78 in Figure 12 on page 65.

h. Click on *Do*

4. Define a Transaction Program Name:

   a. On an X Windows command line, enter:

      ```
      smit sna
      ```

   b. Click on *Configure SNA Profiles*

   c. Click on *Advanced Configuration*

   d. Click on *Sessions*

   e. Click on *LU 6.2*

   f. Click on *LU 6.2 Transaction Program Name (TPN)*

   g. Click on *Add a Profile*

      Note: If you need to make changes to this profile, click on *Change/Show a Profile*.

      1) In the *Profile name* field, supply a unique name, and ensure that it matches the name used in the TPNPROFILENAME option in your server options file. See line 89 in Figure 12 on page 65.

      2) In the *Transaction Program name (TPN)* field, supply one program name, for example, DSMSERV. This name *cannot* be lowercase *dsmserv*. See line 90 in Figure 12 on page 65.

      3) In the *Full path to TP executable* field, supply a full path name, for example,

```
/usr/lpp/adsmserv/bin/dsmserv
```

See line 98 in Figure 12 on page 65.

4) In the *Standard input file/device* field, change */dev/console* to */dev/null*
5) In the *Standard output file/device* field, change */dev/console* to */dev/null*
6) In the *Standard error file/device* field, change */dev/console* to */dev/null*

h. Click on *Do*

5. Verify and update your profiles:
   a. On the command line, enter:

      ```
      smit sna
      ```

   b. Click on *Configure SNA Profiles*
   c. Click on *Advanced Configuration*
   d. Click on *Verify Configuration Profiles*
   e. In the *Update action if verification successful* field, click on *List*.
   f. Click on *dynamic_update* to verify and update SNA Services as active.

      Otherwise, click on *normal_update*
   g. Click on *Do*

Figure 12 on page 65 displays a sample set of SNA LU6.2 profiles. In this example, the ADSM server can now communicate with any client machine.

```
/*****************************************************************
--1 control_pt:
---   ;prof_name                                  = "node_cp"
---   ;xid_node_id                                = "*"
---   ;network_name                               = "YOURNETWORKNAME"
---   ;control_pt_name_alias                      = "YOURLUNAME"
---   ;control_pt_name                            = "YOURLUNAME"
---   ;control_pt_node_type                       = appn_end_node
---   ;max_cached_trees                           = 500
---   ;max_nodes_in_topology_database             = 500
---   ;route_addition_resistance                  = 128
-11   ;comments                                   = ""

/*****************************************************************
--- sna_dlc_token_ring:
-13   ;prof_name                                  = "tok0.0001"
---   ;datalink_device_name                       = "tok0"
---   ;force_timeout                              = 120
---   ;user_defined_max_i_field                   = no
---   ;max_i_field_length                         = 30729
-18   ;max_active_link_stations                   = 255
---   ;num_reserved_inbound_activation            = 0
---   ;num_reserved_outbound_activation           = 0
---   ;transmit_window_count                      = 16
---   ;dynamic_window_increment                   = 1
---   ;retransmit_count                           = 8
---   ;receive_window_count                       = 8
---   ;priority                                   = 0
---   ;inact_timeout                              = 48
---   ;response_timeout                           = 4
---   ;acknowledgement_timeout                    = 1
---   ;link_name                                  = ""
---   ;local_sap                                  = 0x04
---   ;retry_interval                             = 60
---   ;retry_limit                                = 20
-33   ;dynamic_link_station_supported             = no
---   ;trace_base_listen_link_station             = no
---   ;trace_base_listen_link_station_format      = long
---   ;dynamic_lnk_solicit_sscp_sessions          = no
---   ;dynamic_lnk_cp_cp_sessions_supported       = yes
---   ;dynamic_lnk_cp_cp_session_support_required = no
---   ;dynamic_lnk_TG_effective_capacity          = 4300800
---   ;dynamic_lnk_TG_connect_cost_per_time       = 0
---   ;dynamic_lnk_TG_cost_per_byte               = 0
---   ;dynamic_lnk_TG_security                    = nonsecure
---   ;dynamic_lnk_TG_propagation_delay           = lan
---   ;dynamic_lnk_TG_user_defined_1              = 128
---   ;dynamic_lnk_TG_user_defined_2              = 128
---   ;dynamic_lnk_TG_user_defined_3              = 128
---   ;comments                                   = ""

/*****************************************************************
```

Figure 12 (Part 1 of 3). Example of SNA LU6.2 (APPC) Communication Method Options

```
--- link_station_token_ring:
-49   ;prof_name                                = "GENERIC"
---   ;use_control_pt_xid                       = yes
---   ;xid_node_id                              = "*"
-52   ;sna_dlc_profile_name                     = "tok0.0001"
-53   ;stop_on_inactivity                       = yes
-54   ;time_out_value                           = 1
---   ;LU_registration_supported                = no
---   ;LU_registration_profile_name             = ""
---   ;link_tracing                             = no
---   ;trace_format                             = long
-59   ;access_routing_type                      = link_address
---   ;remote_link_name                         = ""
-61   ;remote_link_address                      = ""
---   ;remote_sap                               = 0x04
---   ;verify_adjacent_node                     = no
---   ;net_id_of_adjacent_node                  = ""
---   ;cp_name_of_adjacent_node                 = ""
---   ;xid_node_id_of_adjacent_node             = "*"
---   ;node_type_of_adjacent_node               = learn
---   ;solicit_sscp_sessions                    = no
-69   ;call_out_on_activation                   = no
-70   ;activate_link_during_system_init         = yes
---   ;activate_link_on_demand                  = no
-72   ;cp_cp_sessions_supported                 = yes
---   ;cp_cp_session_support_required           = no
---   ;adjacent_node_is_preferred_server        = no
---   ;initial_tg_number                        = 0
---   ;restart_on_normal_deactivation           = no
---   ;restart_on_abnormal_deactivation         = no
-78   ;restart_on_activation                    = yes
---   ;TG_effective_capacity                    = 4300800
---   ;TG_connect_cost_per_time                 = 0
---   ;TG_cost_per_byte                         = 0
---   ;TG_security                              = nonsecure
---   ;TG_propagation_delay                     = lan
---   ;TG_user_defined_1                        = 128
---   ;TG_user_defined_2                        = 128
---   ;TG_user_defined_3                        = 128
---   ;comments                                 = ""

/*****************************************************************
--- local_tp:
-89   ;prof_name                                = "DSMSERVLOCAL"
-90   ;tp_name                                  = "DSMSERV"
---   ;tp_name_in_hex                           = no
---   ;pip_data_present                         = no
---   ;pip_data_subfields_number                = 0
---   ;conversation_type                        = either
---   ;sync_level                               = none/confirm
---   ;resource_security_level                  = none
---   ;resource_access_list_profile_name        = ""
-98   ;full_path_tp_exe                         = "/usr/lpp/adsmserv/bin/dsmserv"
```

Figure 12 (Part 2 of 3). Example of SNA LU6.2 (APPC) Communication Method Options

```
---   ;multiple_instances                    = yes
---   ;user_id                               = 100
---   ;server_synonym_name                   = ""
---   ;restart_action                        = once
---   ;communication_type                    = signals
---   ;ipc_queue_key                         = 0
---   ;standard_input_device                 = "/dev/null"
---   ;standard_output_device                = "/dev/null"
---   ;standard_error_device                 = "/dev/null"
---   ;comments                              = ""
```

Figure 12 (Part 3 of 3). Example of SNA LU6.2 (APPC) Communication Method Options

Sample Communication Profiles for AIX 4.1.1 SNA Server/6000 3.1

This section displays sample configuration profiles for AIX 4.1.1 operating system with SNA Server/6000 3.1.

Name	ADSM
CLIENT	Cli V2 R1 L0.0
SERVER	Ser V2 R1 L0.0/0.13

CLIENT is where the ADSM client resides and is configured as a calling station with a token ring link station to SERVER (activated when the system starts up).

SERVER is where the ADSM server resides and is configured as a listening station, consisting of only one link station called GENERIC (activated when the system starts up).

CLIENT Profiles

Figure 13 displays a sample set of SNA LU6.2 profiles of an ADSM client.

```
/*********************************************************************
sna:
 ;prof_name                                    = "sna"
 ;max_sessions                                 = 200
 ;max_conversations                            = 200
 ;restart_action                               = once
 ;rrm_enabled                                  = no
 ;dynamic_inbound_partner_lu_definitions_allowed = yes
 ;standard_output_device                       = "/dev/console"
 ;standard_error_device                        = "/var/sna/sna.stderr"
 ;nmvt_action_when_no_nmvt_process             = reject
 ;trusted_group_ids                            = {system}
 ;comments                                     = ""
 ;
/*********************************************************************
control_pt:
 ;prof_name                                    = "node_cp"
 ;xid_node_id                                  = "*"
 ;network_name                                 = "MYNWNAME"
 ;control_pt_name_alias                        = "CLIENT"
 ;control_pt_name                              = "CLIENT"
 ;control_pt_node_type                         = appn_network_node
 ;max_cached_trees                             = 500
 ;max_nodes_in_topology_database               = 500
 ;route_addition_resistance                    = 128
 ;comments                                     = ""
/*********************************************************************
side_info:
 ;prof_name                                   = "server"
 ;local_lu_or_control_pt_alias                = "CLIENT"
 ;partner_lu_alias                            = ""
 ;fq_partner_lu_name                          = "MYNWNAME.SERVER"
 ;mode_name                                   = "#INTER"
 ;remote_tp_name_in_hex                       = no
 ;remote_tp_name                              = "dsmserv"
 ;comments                                    = ""
/*********************************************************************
link_station_token_ring:
 ;prof_name                                   = "SERVER"
 ;use_control_pt_xid                          = yes
 ;xid_node_id                                 = "*"
 ;sna_dlc_profile_name                        = "tok0.00001"
 ;stop_on_inactivity                          = yes
 ;time_out_value                              = 2
 ;LU_registration_supported                   = no
 ;LU_registration_profile_name                = ""
 ;link_tracing                                = no
 ;trace_format                                = long
 ;access_routing_type                         = link_address
 ;remote_link_name                            = ""
 ;remote_link_address                         = 0x100051234567
 ;remote_sap                                  = 0x04
```

Figure 13 (Part 1 of 3). Example of SNA LU6.2 for ADSM Client V2 for AIX 4.1.1

```
 ;call_out_on_activation                      = yes
 ;verify_adjacent_node                        = yes
 ;net_id_of_adjacent_node                     = "MYNWNAME"
 ;cp_name_of_adjacent_node                    = "SERVER"
 ;xid_node_id_of_adjacent_node                = "*"
 ;node_type_of_adjacent_node                  = appn_end_node
 ;solicit_sscp_sessions                       = no
 ;activate_link_during_system_init            = no
 ;activate_link_on_demand                     = yes
 ;cp_cp_sessions_supported                    = no
 ;cp_cp_session_support_required              = no
 ;adjacent_node_is_preferred_server           = no
 ;initial_tg_number                           = 20
 ;restart_on_normal_deactivation              = no
 ;restart_on_abnormal_deactivation            = no
 ;restart_on_activation                       = no
 ;TG_effective_capacity                       = 4300800
 ;TG_connect_cost_per_time                    = 0
 ;TG_cost_per_byte                            = 0
 ;TG_security                                 = nonsecure
 ;TG_propagation_delay                        = lan
 ;TG_user_defined_1                           = 128
 ;TG_user_defined_2                           = 128
 ;TG_user_defined_3                           = 128
 ;comments                                    = ""

/*********************************************************************
sna_dlc_token_ring:
 ;prof_name                                   = "tok0.00001"
 ;datalink_device_name                        = "tok0"
 ;force_timeout                               = 120
 ;user_defined_max_i_field                    = no
 ;max_i_field_length                          = 30729
 ;max_active_link_stations                    = 100
 ;num_reserved_inbound_activation             = 0
 ;num_reserved_outbound_activation            = 0
 ;transmit_window_count                       = 16
 ;dynamic_window_increment                    = 1
 ;retransmit_count                            = 8
 ;receive_window_count                        = 8
 ;priority                                    = 0
 ;inact_timeout                               = 48
 ;response_timeout                            = 4
 ;acknowledgement_timeout                     = 1
 ;link_name                                   = "CLIENT"
 ;local_sap                                   = 0x04
 ;retry_interval                              = 60
 ;retry_limit                                 = 20
 ;dynamic_link_station_supported              = yes
 ;trace_base_listen_link_station              = no
 ;trace_base_listen_link_station_format       = long
 ;dynamic_lnk_solicit_sscp_sessions           = no
 ;dynamic_lnk_cp_cp_sessions_supported        = yes
 ;dynamic_lnk_cp_cp_session_support_required  = no
 ;dynamic_lnk_TG_effective_capacity           = 4300800
```

Figure 13 (Part 2 of 3). Example of SNA LU6.2 for ADSM Client V2 for AIX 4.1.1

```
;dynamic_lnk_TG_connect_cost_per_time          = 0
;dynamic_lnk_TG_cost_per_byte                  = 0
;dynamic_lnk_TG_security                       = nonsecure
;dynamic_lnk_TG_propagation_delay              = lan
;dynamic_lnk_TG_user_defined_1                 = 128
;dynamic_lnk_TG_user_defined_2                 = 128
;dynamic_lnk_TG_user_defined_3                 = 128
;comments                                      = ""
```

Figure 13 (Part 3 of 3). Example of SNA LU6.2 for ADSM Client V2 for AIX 4.1.1

SERVER Profiles

Figure 14 displays a sample set of SNA LU6.2 profiles of an ADSM server.

```
/*********************************************************************
sna:
 ;prof_name                                      = "sna"
 ;max_sessions                                   = 200
 ;max_conversations                              = 200
 ;restart_action                                 = once
 ;rrm_enabled                                    = no
 ;dynamic_inbound_partner_lu_definitions_allowed = yes
 ;standard_output_device                         = "/dev/console"
 ;standard_error_device                          = "/var/sna/sna.stderr"
 ;nmvt_action_when_no_nmvt_process               = reject
 ;trusted_group_ids                              = {system}
 ;comments                                       = ""

/*********************************************************************
control_pt:
 ;prof_name                                     = "node_cp"
 ;xid_node_id                                   = "*"
 ;network_name                                  = "MYNWNAME"
 ;control_pt_name_alias                         = "SERVER"
 ;control_pt_name                               = "SERVER"
 ;control_pt_node_type                          = appn_end_node
 ;max_cached_trees                              = 500
 ;max_nodes_in_topology_database                = 500
 ;route_addition_resistance                     = 128
 ;comments                                      = ""

/*********************************************************************
local_tp:
 ;prof_name                                     = "DSMSERVLOCAL"
 ;tp_name                                       = "DSMSERV"
 ;tp_name_in_hex                                = no
 ;pip_data_present                              = no
 ;pip_data_subfields_number                     = 0
 ;command_line_parameters_present               = no
 ;command_line_parameters                       = ""
 ;conversation_type                             = either
 ;sync_level                                    = none/confirm
 ;resource_security_level                       = none
 ;resource_access_list_profile_name             = ""
 ;full_path_tp_exe                              = "/usr/lpp/adsmserv/bin/dsmserv"
 ;multiple_instances                            = yes
 ;user_id                                       = 100
 ;server_synonym_name                           = ""
 ;restart_action                                = once
 ;communication_type                            = signals
 ;ipc_queue_key                                 = 0
 ;standard_input_device                         = "/dev/console"
 ;standard_output_device                        = "/dev/console"
 ;standard_error_device                         = "/dev/console"
 ;comments                                      = ""
```

Figure 14 (Part 1 of 3). Example of SNA LU6.2 for ADSM Server V2 for AIX 4.1.1

```
/*********************************************************************
link_station_token_ring:
 ;prof_name                                = "GENERIC"
 ;use_control_pt_xid                       = yes
 ;xid_node_id                              = "*"
 ;sna_dlc_profile_name                     = "tok0.00001"
 ;stop_on_inactivity                       = yes
 ;time_out_value                           = 1
 ;LU_registration_supported                = no
 ;LU_registration_profile_name             = ""
 ;link_tracing                             = no
 ;trace_format                             = long
 ;access_routing_type                      = link_address
 ;remote_link_name                         = ""
 ;remote_link_address                      = ""
 ;remote_sap                               = 0x04
 ;call_out_on_activation                   = no
 ;verify_adjacent_node                     = no
 ;net_id_of_adjacent_node                  = ""
 ;cp_name_of_adjacent_node                 = ""
 ;xid_node_id_of_adjacent_node             = "*"
 ;node_type_of_adjacent_node               = learn
 ;solicit_sscp_sessions                    = no
 ;activate_link_during_system_init         = yes
 ;activate_link_on_demand                  = no
 ;cp_cp_sessions_supported                 = yes
 ;cp_cp_session_support_required           = no
 ;adjacent_node_is_preferred_server        = no
 ;initial_tg_number                        = 0
 ;restart_on_normal_deactivation           = no
 ;restart_on_abnormal_deactivation         = no
 ;restart_on_activation                    = yes
 ;TG_effective_capacity                    = 4300800
 ;TG_connect_cost_per_time                 = 0
 ;TG_cost_per_byte                         = 0
 ;TG_security                              = nonsecure
 ;TG_propagation_delay                     = lan
 ;TG_user_defined_1                        = 128
 ;TG_user_defined_2                        = 128
 ;TG_user_defined_3                        = 128
 ;comments                                 = ""

/*********************************************************************
sna_dlc_token_ring:
 ;prof_name                                = "tok0.00001"
 ;datalink_device_name                     = "tok0"
 ;force_timeout                            = 120
 ;user_defined_max_i_field                 = no
 ;max_i_field_length                       = 30729
 ;max_active_link_stations                 = 255
 ;num_reserved_inbound_activation          = 0
 ;num_reserved_outbound_activation         = 0
 ;transmit_window_count                    = 16
 ;dynamic_window_increment                 = 1
 ;retransmit_count                         = 8
```

Figure 14 (Part 2 of 3). Example of SNA LU6.2 for ADSM Server V2 for AIX 4.1.1

```
 ;receive_window_count                          = 8
 ;priority                                      = 0
 ;inact_timeout                                 = 48
 ;response_timeout                              = 4
 ;acknowledgement_timeout                       = 1
 ;link_name                                     = ""
 ;local_sap                                     = 0x04
 ;retry_interval                                = 60
 ;retry_limit                                   = 20
 ;dynamic_link_station_supported                = no
 ;trace_base_listen_link_station                = no
 ;trace_base_listen_link_station_format         = long
 ;dynamic_lnk_solicit_sscp_sessions             = no
 ;dynamic_lnk_cp_cp_sessions_supported          = yes
 ;dynamic_lnk_cp_cp_session_support_required    = no
 ;dynamic_lnk_TG_effective_capacity             = 4300800
 ;dynamic_lnk_TG_connect_cost_per_time          = 0
 ;dynamic_lnk_TG_cost_per_byte                  = 0
 ;dynamic_lnk_TG_security                       = nonsecure
 ;dynamic_lnk_TG_propagation_delay              = lan
 ;dynamic_lnk_TG_user_defined_1                 = 128
 ;dynamic_lnk_TG_user_defined_2                 = 128
 ;dynamic_lnk_TG_user_defined_3                 = 128
 ;comments                                      = ""

/*********************************************************************
lu6.2_session_timeout:
 ;prof_name                                     = "snasvcmg"
 ;timeout_type                                  = include
 ;local_lu_name                                 = "SERVER"
 ;fq_partner_lu_name                            = "*"
 ;mode_name                                     = "SNASVCMG"
 ;timeout_value                                 = 1200
 ;comments                                      = ""
```

Figure 14 (Part 3 of 3). Example of SNA LU6.2 for ADSM Server V2 for AIX 4.1.1

Server Options

This section shows available server options.

Entering Administrative Commands to Query the Server

After the ADSM server has started, you can enter administrative commands from the server console command line. On an AIX system, enter administrative commands at the *adsm>* prompt, which is automatically displayed when the ADSM server is started.

Note: The ADSM server must be running to use the QUERY OPTION command.

For example, to query the server options,

Enter the following command at the ADSM prompt (>):

```
query option or q opt
```

For information on using the QUERY OPTION command, refer to the *ADSM Administrator's Reference*.

Server Options Screen

When you issue the QUERY OPTION command at the ADSM prompt (>), this screen shows an example of options set for an ADSM/AIX server.

```
Server Option     Option Setting     Server Option        Option Setting
---------------   ----------------   -----------------    --------------------
CommTimeOut       60                 IdleTimeOut          15
BufPoolSize       2048               LogPoolSize          512
DateFormat        1 (mm/dd/yyyy)     TimeFormat           1 (hh:mm:ss)
NumberFormat      1 (1,000.00)       MessageFormat        1
Language          AMENG              MaxSessions          25
ExpInterval       24                 MirrorRead DB        Normal
MirrorRead LOG    Normal             MirrorWrite DB       Sequential
MirrorWrite LOG   Parallel           TXNGroupmax          40
DevConfig         devconfig.log      VolumeHistory        volhistory.log
TcpPort           1500               TCPWindowsize        0
IPXSocket         8522               NetbiosBufferSize    16384
NetbiosSessions   25                 LuName               DSMSERV1
TPNProfilename                       IPXBufferSize        4096
CommMethod        TCPIP              MsgInterval          1
Enable3590Library No                 STAtusmsgcnt         10
MOVEBatchsize     40                 MOVESizethresh       500
```

Setting Client/Server Contact Options

Use the following options to:

- Set the length of time the ADSM server waits for communication with an idle or active client
- Limit the number of simultaneous client sessions with each ADSM server
- Suppress multiline ADSM messages
- Prompt the operator to mount a tape

COMMOpentimeout

Specifies the maximum number of seconds that the ADSM server waits for a response from a client when trying to initiate a conversation.

If this maximum is reached during server prompted scheduling, the server continues with the next client.

`COMMOpentimeout` *seconds*

where:

seconds
Specifies the maximum number of seconds that an ADSM server waits for a client response during server-initiated communications. The default value is 20 seconds. The minimum value is 1 second.

COMMTimeout

Specifies the maximum number of seconds that the ADSM server waits during a database update transaction for an expected message from a client, before terminating the session with the client.

The server terminates the session to release communication resources as soon as possible, and to ensure that database locks are not held for undue periods of time.

```
COMMTimeout seconds
```

where:

seconds
Specifies the maximum number of seconds that an ADSM server waits for a client response. The default value is 60 seconds. The minimum value is 1 second.

EXPINterval

Specifies the interval in hours between automatic inventory expiration runs by the ADSM server. Inventory expiration removes client backup and archive file copies from the server as specified by the management classes to which the client files are bound. By default, the ADSM server automatically runs inventory expiration each 24 hours (the interval is 24 hours between automatic expiration runs). Specify the EXPINterval option with:

```
EXPINterval hours
```

where:

hours
Specifies the number of hours between automatic inventory expiration runs. The minimum value permitted is 0, where automatic expiration will not execute and must be started with the EXPIRE INVENTORY command. The maximum value permitted is 336 hours (14 days).

The EXPIRE INVENTORY command can be used to start inventory expiration at any time.

Note: Expiration makes space available in your storage pools for additional client backup or archive files. If expiration is not executed periodically, storage pool space is not reclaimed from expired client files, and the ADSM server requires more storage space than required by policy.

To suppress the expiration inventory command, issue:

```
noexpire
```

as part of the dsmserv command.

IDLETimeout

Specifies the amount of time, in minutes, that an ADSM server waits when a client does not initiate communication within that time period.

```
IDLETimeout minutes
```

where:

minutes
Specifies the maximum number of minutes that an ADSM server waits for an idle client. The default value is 15 minutes. The minimum value is 1 minute.

MAXSessions

Specifies the maximum number of simultaneous client sessions that can connect with the ADSM server.

```
MAXSessions numsessions
```

where:

numsessions
Specifies the maximum number of simultaneous client sessions. The default value is 25 client sessions. The minimum value is 2 client sessions. The maximum value is limited only by available virtual memory size or communication resources.

MESsageformat

Specifies the message ID number in all lines of a multi-line message.

```
MESsageformat optionnumber
```

where:

optionnumber
Specifies option 1 or option 2. The default is option 1.

option 1 Only the first line of a multi-line message contains a message ID number.

option 2 All lines of a multi-line message contain message ID numbers.

MOVEBatchsize

Specifies the number of files that are to be moved and grouped together in a batch, within the same server transaction.

```
MOVEBatchsize nnn
```

where:

nnn
Specifies a number between 1 and 256. The default value is 40. This option works in conjunction with the MOVESizethresh option.

MOVESizethresh

Specifies, in megabytes, a threshold for the amount of data moved as a batch, within the same server transaction. When this threshold is reached, no more files are added to the current batch, and a new transaction is started after the current batch is moved.

```
MOVESizethresh nnn
```

where:

nnn
Specifies a number between 1 and 500 (megabytes). The default value is 500 (megabytes). This option works in conjunction with the MOVEBatchsize option.

MSGINTerval

Specifies how often the ADSM server sends a message to mount a tape to a tape operator, as identified by the MOUNTOP option.

```
MSGINTerval minutes
```

where:

minutes
Specifies the time interval at which the operator is prompted by the ADSM server to mount a tape. The default value is 1 minute. The minimum value is 1 minute.

STAtusmsgcnt

Specifies the number of records (times 1000) that will be processed between status messages during DSMSERV DUMPDB and DSMSERV LOADDB commands.

```
STAtusmsgcnt nn
```

where:

nn
Specifies a number between 1 and 10000 (this number is multiplied by 1000).

The default value is 10. The minimum value is 1.

TXNGroupmax

Specifies the number of files transferred as a group (between a client and the server) between commit points.

```
TXNGroupmax numfiles
```

where:

numfiles
Specifies the maximum number of files between commits. The default value is 40 files. The maximum value is 256 files. The minimum value is 4 files.

These files are actual files, directories, or both. ADSM counts each file or each directory as one file.

This option applies to BACKUP, ARCHIVE, RESTORE, and RETRIEVE commands.

It works in conjunction with the client option TXNBytelimit. See “TXNBytelimit” on page 186 for more information on this option.

Setting Date, Time, Number, and Language Options

Use the following options to specify display formats for:

- Date
- Time
- Number
- Language

Note: The defaults in this section are for the U.S. English language code set, ISO8859-1 (en_US).

DATEformat

Specifies the format by which dates are displayed by the ADSM server.

`DATEformat` *number*

number
Select a number from 1 to 5 to identify the date format used by the server. The default value is 1.

1	MM/DD/YYYY
2	DD-MM-YYYY
3	YYYY-MM-DD
4	DD.MM.YYYY
5	YYYY.MM.DD

Note: If the locale option is enabled with a language other than U.S. English, the language definitions for that language override this setting.

TIMEformat

Specifies the format by which times are displayed by the ADSM server.

`TIMEformat` *number*

number
Select a number from 1 to 4 to identify the time format used by the ADSM server. The default is 1.

1	hh:mm:ss
2	hh,mm,ss
3	hh.mm.ss
4	hh:mm:ss a.m and p.m.

Note: If the locale option is enabled with a language other than U.S. English, the language definitions for that language override this setting.

NUMberformat

Specifies the format by which numbers are displayed by the ADSM server.

```
NUMberformat number
```

number

Select a number from 1 to 6 to identify the number format used by the ADSM server. The default is 1.

1	1,000.00
2	1,000,00
3	1 000,00
4	1 000.00
5	1.000,00
6	1'000,00

Note: If the locale option is enabled with a language other than U.S. English, the language definitions for that language override this setting.

LANGuage

Specifies the national language used.

The locales supported are:

Locale	Language	Code Set
en_US	English	ISO8859-1
ja_JP	Japanese	IBM-eucJP
Ja_JP	Japanese	IBM-932
zh_CN	Simplified Chinese[1]	IBM-eucCN

Note: [1] Requires AIX 4.1.4 and later

To enable support for a given locale, the LANGUAGE option in the server options file must be set to the name of the locale to use. For example, to use the ja_JP locale, the LANGUAGE option should be set to ja_JP. If the locale is successfully initialized, the date, time, and number formatting for the server are controlled by the locale. This overrides the server option file definitions for date, time, and number formatting. If the locale is not successfully initialized, the server defaults to U.S. English message files, and the date, time, and number formats are still controlled by the server options file.

The server supports the use of many different languages. The server console uses the locale/language defined by the server options language variable. However, if an ADSM administrative client connects to the server and specifies a locale that is different from

the server, the server tries to initialize the administrative client's specified locale for returning messages to the client.

```
LANGuage language
```

where:

language
Specifies the language to use.

See the note following Figure 16 on page 138 for the client-supported languages.

See Chapter 2, "ADSM National Language Version (NLV) Feature Considerations" on page 9 for additional information.

Setting System Files Options

Use the following options to:

- Tailor the size of the database and recovery log buffers
- Specify when recovery log checkpoints occur
- Specify how mirrored volumes are accessed
- Specify where backup device configuration data is stored
- Specify support of 3590 tape drives within 349x libraries.
- Specify where volume history data is stored

BUFPoolsize

Specifies the size of the database buffer pool in kilobytes (KB). A large buffer pool means that database pages remain longer in memory cache and require fewer ADSM input/output operations to data storage. However, a large buffer pool also requires more memory.

```
BUFPoolsize kilobytes
```

where:

kilobytes
Specifies the size of the database buffer pool. The default value is 2048KB. The minimum value is 256KB. The maximum value is limited only by available virtual memory size.

DEVCONFig

Specifies the name of a file in which you want ADSM to store a backup copy of device configuration information. There is no default for this option.

```
DEVCONFig file_name
```

where:

file_name
Specifies the name of a file in which you want ADSM to store a backup copy of device configuration information.

Use this option to name files to be updated when server device configuration information changes. This file must be defined to display on the server options screen.

See "Maintaining Device Configuration Backup Files" on page 193 for backup and recovery uses of this option.

ADSM stores the following information in the device configuration file:

- Device class definitions created by using the DEFINE DEVCLASS command
- Drive definitions created by using the DEFINE DRIVE command
- Library definitions created by using the DEFINE LIBRARY command

You can include one or more DEVCONFIG options in the dsmserv.opt file. When you use multiple DEVCONFIG options, ADSM automatically updates and stores a backup copy of device configuration information in each file you specify.

ENABLE3590LIBrary

Supports the use of 3590 tape drives within 349x tape libraries.

Attention

Before enabling 3590 support for the ADSM server, delete the existing library definition and recreate it by using a new set of category codes that do not conflict with other systems or applications.

```
ENABLE3590LIBRary  YES
```

where:

YES or *NO* enables or disables this support.

When 3590 support is enabled, the ADSM server automatically begins to use the category with a number that is one greater than the existing scratch category code that was specified on the ADSM server DEFINE LIBRARY command.

For example, if the library is defined with the command,

```
define library mylib libt=349X devi=/dev/lmcp0 scratchcat=401 privatecat=400
```

then the scratch category for the 3590 drives will be 402. If the scratch and private categories were not specified on the DEFINE LIBRARY command, then the defaults taken will be 300, 301, and 302.

ADSM requires that you specify the type of volume that you want to check in when using this option. The default for a 3494 library is DEVTYPE=CARTRIDGE. Users with 3590 drives need to override this with DEVTYPE=3590.

LOGPoolsize

Specifies the size of the recovery log buffer pool size in kilobytes. A large buffer pool may increase the rate by which recovery log transactions are committed to the database, but it also requires more memory.

```
LOGPoolsize kilobytes
```

where:

kilobytes
Specifies the size of the recovery log buffer pool. The default value is 512KB. The minimum value is 128KB. The maximum value is limited only by available virtual memory size.

MIRRORRead

Specifies how mirrored volumes are to be accessed when the server reads a recovery log or database page during normal processing.

```
MIRRORRead LOG|DB Normal|Verify
```

where:

LOG
Specifies that this mode is used for reading recovery log pages

DB
Specifies that this mode is used for reading database pages

Normal
Specifies only one mirrored volume is read to obtain the desired page. This parameter is the default.

Verify
Specifies that the server reads all mirror volumes for a page every time a recovery log or database page is read. If an invalid page is encountered on a mirror volume, it is automatically resynchronized with valid contents from another mirror volume. This mode decreases server performance because each mirror volume for the page is accessed on every read.

By default, the server operates as if the following is specified:

```
MIRRORREAD LOG NORMAL
MIRRORREAD DB  NORMAL
```

MIRRORWrite

Specifies how mirrored volumes are accessed when the server writes pages to the recovery log or database during normal processing.

```
MIRRORWrite LOG|DB Sequential|Parallel
```

where:

LOG
Specifies that this mode is used for writing recovery log pages

DB
Specifies that this mode is used for writing database pages

Sequential
Specifies that one mirror is written to successfully before other mirrored volumes are directed to write their page. A decrease in server performance is experienced because a successful I/O must occur before the other mirrored writes can begin. This parameter is the default when *DB* is specified.

Parallel
Specifies that all mirrors are written to in parallel. This mode allows all mirrors to obtain the new page at approximately the same time. This parameter is the default when *LOG* is specified.

Note: If a system outage occurs at exactly the instant that each mirror is partially complete in writing its page, a partial write to each mirror can result.

By default, the server operates as if the following has been specified:

```
MIRRORWRITE LOG PARALLEL
MIRRORWRITE DB  SEQUENTIAL
```

VOLumeHistory

Specifies the name of a file or data set in which you want ADSM to store a backup copy of the volume history information collected by the server. There is no default for this option.

```
VOLumeHistory file_name
```

where:

file_name
Specifies the name of the files that are updated.

Use this option to name files that are updated when server volume history information changes. This file must be defined to display on the server options screen.

See “Maintaining Volume History Backup Files” on page 192 for backup and recovery uses of this option.

A volume history backup file includes the following information:

- Date
- Time
- Volume Type
- Series Number (incremented at each full backup)
- Operation Number (within backup series)
- Stream ID (when parallel backup and recovery is added)
- Volume Sequence (within a backup or export operation)
- Devclass
- Volname

You can include one or more VOLUMEHISTORY options in the dsmserv.opt file. When you use multiple VOLUMEHISTORY options, ADSM automatically updates and stores a backup copy of volume history information in each file you specify.

Chapter 6. Configuring Devices for the ADSM Server

Attention

If you are upgrading from ADSM Version 1 to Version 2, reinstalling over a previous version, or returning to ADSM Version 1, read "Upgrading Installation from ADSM Version 1 to ADSM Version 2" on page 4, "Reinstalling a Version 2 ADSM Server" on page 5, and "Returning from ADSM Version 2 to ADSM Version 1" on page 6 for device information.

This section describes how to configure tape and optical devices, and libraries, and how to prepare them for use by the ADSM server. After you complete the setup tasks, you must inform the ADSM server about these devices by issuing DEFINE LIBRARY, DEFINE DRIVE, and DEFINE DEVCLASS commands, as described in *ADSM Administrator's Reference*. See "Examples of Commands for Drives and Libraries" on page 132 for a quick review of these commands.

ADSM provides device drivers for most of the supported tape, library, and optical devices. However, for the IBM ½-inch tape drives (3480, 3490, 3590) and libraries (3494, 3495), device drivers for use with ADSM are supplied with the hardware.

You can use the *Getting Started* icon on the main ADSM GUI (see Figure 3 on page 22) for a list of the device configuration tasks and the steps involved in each task.

The *Sequential Device Configuration Assistant* on the ADSM Utilities Selection Screen (see Figure 4 on page 25) also assists you in configuring storage devices to ADSM.

Tasks in this section are discussed as follows:

- Determining device support for disk, tape, optical, or library (AIX unique requirements)
- Configuring SCSI devices
- Deconfiguring SCSI devices

Determining Device Support Requirements

This section describes requirements that are unique to ADSM for AIX.

Disk Devices

ADSM for AIX supports any disk storage device supported by the operating system.

Tape Devices

Table 6 on page 86 shows the supported SCSI, Parallel, and ESCON devices.

Note: You cannot share tape drives with other applications. You **must** configure each tape drive for use with the ADSM application. This includes drives in a

partitioned 3494. For example, ADSM cannot share the drives in its own partition with other applications.

Considerations When Configuring Tape Devices: ADSM provides its own device drivers for use with tape devices that ADSM supports, but relies on the hardware supplied device drivers for IBM models 3480, 3490, 3590 tape drives, and 3494 and 3495 tape libraries. These device drivers must be used instead of the device drivers that are distributed with AIX.

Do not select the **8mm5gb**, **8mm**, or **ost** items because they are the AIX base 8mm tape device drivers. These device drivers cannot be used with ADSM.

Optical Devices

Table 6 shows the supported optical devices.

Note: You must configure your optical device or devices for use with ADSM even if these device or devices are used with other applications.

Considerations When Configuring Optical Devices: ADSM provides its own device drivers for use with optical devices that ADSM supports. These device drivers must be used instead of the device drivers that are distributed with AIX.

ADSM for AIX Supported Devices and Formats

Table 6 (Page 1 of 3). ADSM for AIX Supported Devices and Formats

Product ID	Supported Formats	Estimated Capacity
	4mm Tape Devices	
HP 35470A	DDS1	2.0GB
HP 35480A	DDS1, DDS1C	2.0GB[1]
HP C1533A	DDS1, DDS1C, DDS2, DDS2C	4.0GB[1]
HP Jetstore 2000e	DDS1	2.0GB
HP Jetstore 5000e	DDS1, DDS1C	2.0GB[1]
HP Jetstore 6000e	DDS1, DDS1C, DDS2, DDS2C	4.0GB[1]
IBM 7206-001	DDS1, DDS1C	2.0GB[1]
IBM 7206-005	DDS1, DDS1C, DDS2, DDS2C	4.0GB[1]
Sony SDT-5000	DDS1, DDS1C, DDS2, DDS2C	4.0GB[1]
WangDAT 3300DX	DDS1, DDS2	4.0GB
WangDAT 3400DX	DDS1, DDS1C, DDS2, DDS2C	4.0GB[1]
	8mm Tape Devices	
Andataco Encore 8205	8200, 8200C	2.3GB[1]
Andataco Encore 8505	8200, 8200C, 8500, 8500C	5.0GB[1]
Dynatek HSB-10.0	8200, 8200C, 8500, 8500C	5.0GB[1]
Dynatek HSB-2300	8200, 8200C	2.3GB[1]
Dynatek HSB-5000	8200, 8200C, 8500, 8500C	5.0GB[1]
Exabyte EXB-8200	8200	2.3GB
Exabyte EXB-8205	8200, 8200C	2.3GB[1]

Table 6 (Page 2 of 3). ADSM for AIX Supported Devices and Formats

Product ID	Supported Formats	Estimated Capacity
Exabyte EXB-8205 XL	8200, 8200C	3.5GB[1] with XL tape
Exabyte EXB-8500	8200, 8500	5.0GB
Exabyte EXB-8500C	8200, 8200C, 8500, 8500C	5.0GB[1]
Exabyte EXB-8505	8200, 8200C, 8500, 8500C	5.0GB[1]
Exabyte EXB-8505 XL	8200, 8200C, 8500, 8500C	7.0GB[1] with XL tape
IBM 7208-001	8200	2.3GB
IBM 7208-011	8200, 8200C, 8500, 8500C	5.0GB[1]
Sun 8505XL	8200, 8200C, 8500, 8500C	7.0GB[1] with XL tape
TTi CTS-8000H	8500, 8500C	5.0GB[1]
TTi CTS-8519H	8200, 8200C, 8500, 8500C	5.0GB[1] [2]
QIC Tape Devices		
IBM 7207-012	QIC-120, QIC-150, QIC-525, QIC-1000	1.19GB
Optical Devices		
HP 1300T	650MB, 1300MB	1.3GB
IBM 0632-C1/AAA	650MB	650MB
IBM 0632-C2A/ACA	650MB, 1300MB	1.19GB
IBM 0632-C2B/CCA	650MB, 1300MB	1.19GB
IBM 0632-CHA	650MB, 1300MB	1.19GB
IBM 0632-CHB	650MB, 1300MB	1.19GB
IBM 0632-CHC	650MB, 1300MB	1.19GB
IBM 3510-001	650MB, 1300MB	1.19GB
IBM 7209-001	650MB	650MB
IBM 7209-002	650MB, 1300MB	1.19GB
DLT Tape Devices		
Quantum DLT 2000	DLT10, DLT10C	10GB[1]
Quantum DLT 4000	DLT10, DLT10C, DLT20, DLT20C	20GB[1]
SCSI Attached Tape Devices		
IBM 3490E Model C10	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model C11	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model C1A	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model C22	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model C2A	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model E01	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model E11	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3590-B1A and B11	3590B, 3590C	10GB[1]
Parallel Attached Tape Devices		
IBM 3480 Model B11	3480, 3480XF	180MB[1]
IBM 3480 Model B22	3480, 3480XF	180MB[1]
IBM 3490 Model B02	3490B, 3490C	360MB

Table 6 (Page 3 of 3). ADSM for AIX Supported Devices and Formats

Product ID	Supported Formats	Estimated Capacity
IBM 3490 Model B04	3490B, 3490C	360MB[1]
IBM 3490E Model B20	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model B40	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model C10	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model C11	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model C1A	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model C22	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model C2A	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model D31	3490B, 3490C	360MB[1]
IBM 3490E Model D32	3490B, 3490C	360MB[1]
IBM 3490E Model D41	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model D42	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
ESCON Attached Tape Devices		
IBM 3490E Model B20	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model B40	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model C10	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model C11	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model C22	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model C1A	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]
IBM 3490E Model C2A	3490B, 3490C	360MB[1] (CST) 720MB[1] (ECCST)[3]

Note:

[1] Greater capacity may be achieved with compression.
[2] ADSM supports only mirrored operations.
[3] Refer to the capacities of cartridge tapes (CST and ECCST) in *ADSM Administrator's Reference*.

Libraries

Table 7 on page 89 shows the supported SCSI, Parallel, and ESCON libraries.

Considerations for SCSI Library Devices Used by AIX:

For ADSM to access a SCSI library, the device must be set for the appropriate mode. This is usually called *random* mode, although terminology may vary from one device to another. For example, some libraries have front panel menus and displays that can be used for explicit operator requests. However, if the device is set to respond to such requests, it typically will not respond to requests made by ADSM. Furthermore, some libraries can be placed in *sequential* mode, in which volumes are automatically mounted in drives by using a sequential approach. Again, this mode conflicts with how ADSM accesses the device. Refer to the documentation for your device to determine how to set it for the appropriate ADSM mode.

Table 7 (Page 1 of 3). ADSM for AIX Supported Libraries

Product ID
SCSI Libraries
ADIC VLS 4mm
ADIC 1200D 4mm
AIWA AL-D210 4mm
AIWA AL-D220 4mm
Andataco Encore 10e 8mm
Andataco Encore 120 8mm
Andataco Encore 210 8mm
Andataco Encore 440 8mm
Andataco Encore 480 8mm
BoxHill BorgBox 8mm
BoxHill BreadBox 8mm
BoxHill CubeBox 8mm
BoxHill FreezerBox 8mm
BoxHill IceBox 8mm
BoxHill LightBox 8mm
DISC D1050-2 Optical Jukeboxes
DISC D150U-1 Optical Jukeboxes
DISC D245-1 Optical Jukeboxes
DISC D255-1U Optical Jukeboxes
DISC D280U-1 Optical Jukeboxes
DISC D350-1U Optical Jukeboxes
DISC D510-2 Optical Jukeboxes
DISC D525-1 Optical Jukeboxes
DISC D525-1U Optical Jukeboxes
DLI Libra-8 4mm
DLI Libra-16 4mm
Exabyte EXB-10e 8mm
Exabyte EXB-10h 8mm
Exabyte EXB-10i 8mm
Exabyte EXB-60 8mm
Exabyte EXB-120 8mm
Exabyte EXB-210 8mm
Exabyte EXB-440 8mm
Exabyte EXB-480 8mm

Table 7 (Page 2 of 3). ADSM for AIX Supported Libraries

Product ID
HP C1553A 4mm
HP C1561A 4mm
HP Surestore 12000e 4mm
HP 20T Optical Jukeboxes
HP 40T Optical Jukeboxes
HP 120T Optical Jukeboxes
HP 200T Optical Jukeboxes
IBM 3590-B11 with ACF Feature
IBM 3995-A63 Optical Jukeboxes
IBM 3995-063 Optical Jukeboxes
IBM 3995-163 Optical Jukeboxes
IBM 7331-205 8mm
IBM 7332-005 4mm
Lago LS-380L 8mm
Odetics ATL ACL 2640 DLT
Odetics ATL ACL 3/176 DLT
Odetics ATL ACL 4/52 DLT
Odetics ATL ACL 9/88 DLT
Quantum DLT 2500
Quantum DLT 2700
Quantum DLT 4500
Quantum DLT 4700
Spectralogic 4000/20 4mm
Spectralogic 4000/40 4mm
Spectralogic 4000/60 4mm
StorageTek 9704 4mm
StorageTek 9708 8mm
StorageTek 9711 8mm
TTi Series-10 8mm
LAN/RS232 Attached Tape Library Dataservers
IBM 3494 Model L10 Single-frame
IBM 3494 Model L10 Multi-frame
Parallel Attached Tape Library Dataservers
IBM 3494 Model L10 Single-frame
IBM 3494 Model L10 Multi-frame

Table 7 (Page 3 of 3). ADSM for AIX Supported Libraries

Product ID
IBM 3495 Model L20
IBM 3495 Model L30
IBM 3495 Model L40
IBM 3495 Model L50
IBM 3495 Model M10[1]
ESCON Attached Tape Library Dataservers
IBM 3494 Model L10 Single-frame
IBM 3494 Model L10 Multi-frame
IBM 3495 Model L20
IBM 3495 Model L30
IBM 3495 Model L40
IBM 3495 Model L50
IBM 3495 Model M10[1]

Note:

[1] This is a stand-alone library manager.

Configuring SCSI Devices

Use the following procedures to plan and install ADSM device drivers for devices to be connected to your AIX system for use by ADSM.

To configure a device for ADSM use, you must determine an available SCSI ID, connect the device to the system, set the SCSI ID, and configure the ADSM device driver.

Each SCSI device that you connect to a given SCSI bus or adapter has a unique SCSI ID value. This SCSI ID is a number from 0–7. All of the devices connected in daisy-chained fashion for a given SCSI bus must have different SCSI ID values.

Attention

1. Never add or remove a peripheral device from the RISC System/6000 without powering off the system first. Failure to do so can result in serious damage to the hardware.
2. You must ensure that no other device has the SCSI ID value that you have selected. Failure to assign different SCSI ID values causes serious system malfunctions, and may result in device damage or loss of data.

Before connecting a new SCSI device to your system, determine which SCSI ID values are currently in use. This process typically involves checking the switch settings on the

back of or inside each device to determine its current ID setting. Refer to the documentation for each device for further information on determining its SCSI ID value.

After you have determined the SCSI ID values of your current devices, you will know which ID values remain for use by the new devices that you plan to connect to a given SCSI adapter.

A worksheet is available for each type of library device that is supported. These worksheets are provided under "Recording SCSI IDs and Device Names" on page 106. Complete the worksheet as you progress through the steps because you will need the worksheet when you are ready to issue DEFINE DRIVE and DEFINE LIBRARY commands to the server.

For ADSM to access a SCSI library, the device must be set for the appropriate mode. This is usually called *random* mode, although terminology may vary from one device to another. For example, some libraries have front panel menus and displays that can be used for explicit operator requests. However, if the device is set to respond to such requests, it typically will not respond to requests made by ADSM. Furthermore, some libraries can be placed in *sequential* mode, in which volumes are automatically mounted in drives by using a sequential approach. Again, this mode conflicts with how ADSM accesses the device. Refer to the documentation for your device to determine how to set it for the appropriate ADSM mode.

Use the worksheets to record SCSI IDs and device names (if needed) for the devices that you are attaching to your ADSM server system.

Where needed, the worksheets also show the element numbers. Device names and element numbers (addresses) are used in the ADSM commands DEFINE DRIVE and DEFINE LIBRARY. Refer to *ADSM Administrator's Reference*. See "Examples of Commands for Drives and Libraries" on page 132 for a quick review of these commands.

Note: For procedures in this publication, it is only necessary to know the element numbers (addresses) that apply to drives within libraries.

Table 8 lists the worksheets available and shows the location of these worksheets. Save these worksheets for future reference.

Table 8 (Page 1 of 3). SCSI Device Worksheets

Product ID (Device)	Worksheet
ADIC VLS 4mm	Table 20 on page 113
ADIC 1200D 4mm	Table 21 on page 114
AIWA AL-D210	Table 32 on page 122
AIWA AL-D220	Table 33 on page 123
Andataco Encore 10e	Table 13 on page 108
Andataco Encore 120	Table 15 on page 110

Table 8 (Page 2 of 3). SCSI Device Worksheets

Product ID (Device)	Worksheet
Andataco Encore 210	Table 14 on page 109
Andataco Encore 440	Table 22 on page 115
Andataco Encore 480	Table 23 on page 116
BoxHill BorgBox	Table 23 on page 116
BoxHill BreadBox	Table 13 on page 108
BoxHill CubeBox	Table 22 on page 115
BoxHill FreezerBox	Table 12 on page 107
BoxHill IceBox	Table 15 on page 110
BoxHill LightBox	Table 14 on page 109
DISC D1050-2	Table 38 on page 127
DLT 2500	Table 30 on page 121
DLT 2700	Table 31 on page 122
DLT 4500	Table 30 on page 121
DLT 4700	Table 31 on page 122
Exabyte EXB-10e	Table 13 on page 108
Exabyte EXB-10h	Table 13 on page 108
Exabyte EXB-10i	Table 13 on page 108
Exabyte EXB-60	Table 12 on page 107
Exabyte EXB-120	Table 15 on page 110
Exabyte EXB-210	Table 14 on page 109
Exabyte EXB-440	Table 22 on page 115
Exabyte EXB-480	Table 23 on page 116
HP C1553A	Table 24 on page 117
HP C1561A	Table 24 on page 117
HP SureStore 12000e	Table 24 on page 117
HP 20T	Table 39 on page 127
HP 40T	Table 40 on page 128
HP 120T	Table 41 on page 128
HP 200T	Table 42 on page 129
IBM 3995 Model 063	Table 27 on page 119
IBM 3995 Model 163	Table 28 on page 120
IBM 3995 Model A63	Table 29 on page 121
IBM 7331-205	Table 18 on page 112
IBM 7332-005	Table 19 on page 113
Lago LS-380L	Table 25 on page 117

Table 8 (Page 3 of 3). SCSI Device Worksheets

Product ID (Device)	Worksheet
Libra-8	Table 16 on page 111
Libra-16	Table 17 on page 111
Odetics ACL 2600	Table 43 on page 130
Odetics ACL 3/176	Table 44 on page 131
Odetics ACL 4/52	Table 34 on page 124
Odetics ACL 9/88	Table 45 on page 132
Spectralogic 4000/20/40/60	Table 35 on page 125
Stand-alone Tape Drive (4mm, 8mm, DLT, or QIC)	Table 10 on page 106
Stand-alone Optical Drive	Table 11 on page 106
StorageTek 9704	Table 36 on page 125
StorageTek 9708	Table 37 on page 126
StorageTek 9711	Table 37 on page 126
TTi Series-10	Table 13 on page 108

Determining Available SCSI ID Addresses

Verify that all devices now configured (connected) to your system are powered on and active.

To install the ADSM device driver, you must first determine if there are any available SCSI IDs for the new devices from a listing of the current devices assigned to your system.

Perform the following steps to determine available SCSI addresses:

1. Determine which SCSI ID values are currently in use. Issue the following command from an AIX command shell:

   ```
   lsdev -C -s scsi -H
   ```

   The command produces a line of output for each device that attaches to the system via SCSI. Each line contains a string (**location**) of the form: AB-CD-EF-GH. The AB-CD-EF identifies the SCSI adapter to which the device is attached. The CD identifies the adapter number. The G shows the SCSI ID, which is a number in the range 0–7, used by the device. The H is the logical unit number (LUN). For example, you can receive the following output after entering the command:

   ```
   name    status     location     description

   hdisk0  Available  00-01-0S-00  1.0 GB SCSI Disk Drive
   hdisk1  Available  00-01-0S-10  400 MB SCSI Disk Drive
   mt0     Available  00-01-0S-50  ADSM SCSI Tape Drive
   ```

This report shows that SCSI ID values 0 and 1 on SCSI adapter `00-01-0S` are currently used for system disk drives. The report also shows that SCSI ID value 5 and a LUN value of 0 on SCSI adapter `00-01-0S-50` is currently used for an ADSM tape drive. Consequently, they cannot be used for other devices that are to be connected to the system.

2. Choose available SCSI ID values for the new devices, based on the results from step 1 on page 94.

   See the worksheet for the number of SCSI IDs needed for each attached device. If a device requires more than one ID, all IDs must be on the same SCSI adapter. Use the worksheet to record the IDs you choose.

Setting the SCSI ID of a Device

Perform the following steps to set the SCSI ID:

1. Ensure that the devices are properly configured to use the chosen SCSI IDs. This process typically involves setting switches on the back of or inside the device. Refer to the documentation for the device to determine the recommended methods for setting the device's SCSI ID to the desired value.
2. Power off and power on the SCSI device after changing the SCSI ID.

Attaching the New Device

Attention

1. Never add or remove a peripheral device from the RISC System/6000 without powering off the system first. Failure to do so can result in serious damage to the hardware.
2. You must ensure that no other device has the SCSI ID value that you have selected. Failure to assign different SCSI ID values causes serious system malfunctions, and may result in device damage or loss of data.

Perform the following steps to attach a new device:

1. Attach the new devices to your system adapter by following the instructions from the device documentation and from the system manuals.
2. Ensure the last physically connected SCSI target device on the SCSI bus is properly terminated. Proper termination involves attaching a terminator to the last device in the SCSI chain. Refer to the hardware manuals that came with your device to find out exactly how the device should be terminated.

ADSM Library Types

ADSM categorizes libraries by their *library type*. A library type denotes how volumes are mounted on the drives in that library. The supported library types that can be used are EXTERNAL, MANUAL, SCSI, and 349X. This section describes each library type.

External Libraries

An *external* library is a library managed by an external media management system. ADSM provides an interface that allows external media management systems to operate in conjunction with the ADSM server. To use the interface for one or more devices, you must define a library with library type EXTERNAL.

For EXTERNAL libraries, ADSM uses the external media management system to perform the following functions:

- Volume mounts (specific and scratch)
- Volume dismounts
- Freeing of library volumes (return to scratch)

The external media manager identifies the appropriate drive for media access operations. The drives in an EXTERNAL library are not defined to ADSM.

The EXTERNAL library type allows flexibility in grouping drives into libraries and storage pools. An EXTERNAL library may be one drive, a collection of drives, or even a partition of an automated library.

Refer to the *ADSM Administrator's Guide*, "Managing Drives and Libraries", for detailed information.

MANUAL Libraries

In a *MANUAL* library, an operator mounts the volumes. Define a MANUAL library if you have one or more standalone drives that are not part of an automated library. A manual library can have any number of standalone drives.

When the ADSM server determines that a volume needs to be mounted in a drive that is part of a MANUAL library, the server issues mount request messages that prompt an operator to mount the volume. These messages are displayed on the server console. They are also sent to all administrative clients that were started by using the special *mount mode* parameter. Mount operators can then connect to the server from remote systems and monitor the server for required volume mount activities.

SCSI Libraries

A small computer system interface (SCSI) library is an automated library whose robot and drives are physically connected to the server system by using a SCSI bus. Refer to "ADSM for AIX Supported Devices and Formats" on page 86 for a list of supported devices.

When you define a SCSI library, you must specify the device name of the robot. ADSM issues commands to the robot to mount and dismount volumes from drives within the library.

Because each SCSI library supports only a single device type, do not define drives with different device types in the same SCSI library.

If you have multiple devices of the types listed above, you must define one library to ADSM for each device. For example, if you have two Exabyte EXB-120 libraries, or one EXB-120 and one EXB-10e, you must define two libraries.

In some cases, operators may have to attend to an automated SCSI library. This action can occur, for example, if the library access door is inadvertently left open, and prevents the robot from mounting or dismounting volumes. If the server detects such a situation, it issues a prompt to the server console describing the required action. Prompts are also sent to administrative sessions that were started by using the special *mount mode* parameter, so that operators can work remotely and still be informed when manual intervention is required for a SCSI library.

Note: ADSM does not support cleaning cartridges on SCSI libraries. The cleaning slots, or fixed slots, are used for data cartridges.

349X Libraries

A 349X library is one of the following automated devices:

- IBM 3494 Tape Library Dataserver
- IBM 3495 Tape Library Dataserver

When you define a 349X library to the ADSM server, you must specify the device name of one or more *library management control points*, or LMCPs. Each LMCP provides an independent interface to the robot mechanism within a given 349X library. Refer to the *IBM SCSI Tape Drive, Medium Changer, and Library Device Drivers Installation and User's Guide* or the *IBM Parallel and ESCON Channel Tape Attachment/6000 Installation and User's Guide* for details. It is typically sufficient to specify the device name of only one LMCP; however, ADSM accepts up to eight such names when the library is defined or updated.

When a volume is to be mounted in a drive that is in a 349X library, ADSM interacts with the robot, by using a defined LMCP, to move the volume from its storage location in the library to the desired drive. Similarly, when ADSM finishes accessing a volume, the LMCP is used to inform the robot to move the volume back to its storage location.

Refer to the *ADSM Administrator's Guide*, "Managing Drives and Libraries", for detailed information on 349X libraries and their use of categories, with and without 3590 support enabled.

Special File Names for Devices

When a device configures successfully, a logical file name is returned in the form of op*x*, rmt*x*, mt*x*, lb*x*, or lmcp*x*, where *x* is a numerical value that indicates the instance of a device for a particular class.

During configuration, a device special file name is created as one of the following:

Special File Name	Description
/dev/mt*x*	Used by all tape drives that are not supported by IBM hardware device drivers.
/dev/lb*x*	Used by most ADSM-supported SCSI libraries.
/dev/rop*x*	Used by all ADSM-supported optical drives.
/dev/rmt*x*	Used by 3480, 3490, and 3590.
/dev/rmt*x*.smc	Used to define the ACF feature of the IBM 3590 B11 as a library.
/dev/lmcp*x*	Used for 349X Automatic Tape Libraries.

Table 9 shows examples of device special file names.

Table 9. Device Special File Names

If the logical file name is:	The device special file name is:
mt3	/dev/mt3
lb0	/dev/lb0
op1	/dev/rop1
rmt1	/dev/rmt1.smc (3590 ACF only)
rmt2	/dev/rmt2
lmcp0	/dev/lmcp0

Note: You must know the device special file name when you use the DEFINE DRIVE or DEFINE LIBRARY commands. The special file name is the value provided for the DEVICE= parameter.

Configuring an Autochanger or a Robot Device Driver for a Library

Note: Use the procedure in this section to configure autochangers and robot device drivers **excluding IBM 3494 and IBM 3495**. See “Configuring an Autochanger for IBM 3494/3495” on page 99 for IBM 3494/3495.

The term *Robot* is defined as a device that performs programmed operations or that operates by remote control.

Run the SMIT program to configure the device driver for each autochanger or robot:

1. Select **Devices**.
2. Select **ADSM Devices**.

3. Select **Library/MediumChanger**.
4. Select **Add a Library/MediumChanger**.
5. Select the ADSM-SCSI-LB for any ADSM supported library.
6. Select the parent adapter to which you are connecting the device. This number is listed in the form: 00-0X, where X is the slot number location of the SCSI adapter card.
7. When prompted, enter the CONNECTION address of the device you are installing. The connection address is a two-digit number. The first digit is the SCSI ID (the value you recorded on the worksheet). The second digit is the device's SCSI logical unit number (LUN), which is usually zero, unless otherwise noted.

   For example, a connection address of 40 has a SCSI ID=4 and a LUN=0. If you are using AIX Version 4.1, then a connection address of 4,1 has a SCSI ID=4 and LUN=1. You need a comma (,) between the SCSI ID and the LUN.
8. Click on the **DO** button.

   You will receive a message (logical filename) of the form `lbX Available`. Note the value of X, which is a number assigned automatically by the system. Use this information to complete the Device Name field on your worksheet.

   For example, if the message is `lb0 Available`, the Device Name field is `/dev/lb0` on the worksheet. Always use the `/dev/` prefix with the name provided by SMIT.

Configuring an Autochanger for IBM 3494/3495

For an IBM 3494 or 3495 Tape Library Dataserver, refer to either the *IBM SCSI Tape Drive, Medium Changer, and Library Device Drivers* or the *IBM AIX Parallel and ESCON Channel Tape Attachment/6000 Installation and User's Guide*.

After completing the procedure in the manual, you will receive a message (logical filename) of the form `lmcpX Available`. Note the value of X, which is a number assigned automatically by the system. Use this information to complete the Device Name field on your worksheet.

For example, if the message is `lmcp0 Available`, the Device Name field is `/dev/lmcp0` on the worksheet. Always use the `/dev/` prefix with the name provided by SMIT.

Configuring Tape Drives for Use by AIX

Tape drives cannot be shared when ADSM is started. They can only be shared when the drive is not defined to ADSM, or ADSM is not started.

Note: The `mksysb` command will not work if both ADSM and AIX are sharing the same drive or drives.

To use the operating system's native tape device driver in conjunction with a SCSI drive, the device must be configured to AIX first and then configured to ADSM. These steps cannot be done in reverse order. Configure the device to AIX through the following choices from SMIT:

```
Select Devices
     Select Tape Drive
          Select Add A Tape Drive
```

To define the devices to ADSM, go to "Configuring a Device Driver for a Tape or an Optical Drive for Use by ADSM."

Configuring a Device Driver for a Tape or an Optical Drive for Use by ADSM

Note: Use the procedure in this section to configure ADSM device drivers for tape or optical drives **excluding IBM 3480, 3490, and 3590**.

See "Configuring a Device Driver for IBM 3480/3490/3590" on page 101 for IBM 3480, 3490, and 3590 machines.

Attention

ADSM cannot write over *tar* or *dd* tapes, but *tar* or *dd* can write over ADSM tapes.

Run the SMIT program to configure the device driver for each drive (including drives in libraries) as follows:

1. Select **Devices**.
2. Select **ADSM Devices**.
3. Select **Tape Drive** or **Optical R/W Disk Drive**, depending on whether the drive is tape or optical.
4. Select **Add a Tape Drive** or **Add an Optical Disk Drive**, depending on whether the drive is tape or optical.
5. Select the ADSM-SCSI-MT for any ADSM supported tape drive or ADSM-SCSI-OP for any ADSM supported optical drive.
6. Select the adapter to which you are connecting the device. This number is listed in the form: 00-0X, where X is the slot number location of the SCSI adapter card.
7. When prompted, enter the CONNECTION address of the device you are installing. The connection address is a two-digit number. The first digit is the SCSI ID (the value you recorded on the worksheet). The second digit is the device's SCSI logical unit number (LUN), which is usually zero, unless otherwise noted.

   For example, a connection address of 40 has a SCSI ID=4 and LUN=0. If you are using AIX Version 4.1, then a connection address of 4,1 has a SCSI ID=4 and LUN=1. You need a comma (,) between the SCSI ID and the LUN.
8. Click on the **DO** button.

The message you receive next depends on whether you are configuring the device driver for a tape or an optical device:

- If you are configuring the device driver for a tape device (other than an IBM 3480, 3490, or 3590), you will receive a message (logical filename) of the form `mtX`

| Available. Note the value of X, which is a number assigned automatically by the system. Use this information to complete the Device Name field on the worksheet.

| For example, if the message is mt0 Available, the Device Name field is /dev/mt0 | on the worksheet. Always use the /dev/ prefix with the name provided by SMIT.

- If you are configuring the device driver for an optical device, you will receive a message of the form opX Available. Note the value of X, which is a number assigned automatically by the system. Use this information to complete the Device Name field on the worksheet.

  | For example, if the message is op0 Available, the Device Name field is /dev/rop0 | on the worksheet. Always use the /dev/r prefix with the name provided by SMIT.

Configuring a Device Driver for IBM 3480/3490/3590

| For IBM 3480, 3490, and 3590 devices, refer to *IBM SCSI Tape Drive, Medium | *Changer, and Library Device Drivers*.

After completing the procedure in the manual, you will receive one of the following messages.

- | If you are configuring the device driver for a an IBM 3480, 3490, or 3590 tape | device, you will receive a message (logical filename) of the form rmtX Available. | Note the value of X, which is a number assigned automatically by the system. Use | this information to complete the Device Name field on the worksheet.

  | For example, if the message is rmt0 Available, the Device Name field is | /dev/rmt0 on the worksheet. Always use the /dev/ prefix with the name provided | by SMIT.

- | Furthermore, if you are configuring the device driver for an IBM 3590 model B11 | with an ACF, when you receive the message of the form rmtX Available, the ACF | device is identified with the form rmtX.smc.

  | For example, if the message is rmt0, the ACF library has the Device Name field | /dev/rmt0.smc. Always use the /dev/ prefix with the name provided by SMIT. The | filetype smc stands for SCSI Media Changer, which is associated with the ACF on | this model in addition to the /dev/rmt0 used for the drive.

  | That is, when using the DEFINE LIBRARY command for the IBM 3590 model B11, | the value of DEVICE=parameter is DEVICE=/dev/rmtX.smc.

Defining and Managing Libraries

Task	Required Privilege Class
Define, update, and delete libraries	System or unrestricted storage
Query libraries	Any administrator

Defining Libraries

Before you can use a drive that requires either manual or robotic mounting, you must first define the library to which the drive belongs. This is true even for standalone drives. To define a new library, use the DEFINE LIBRARY command.

All automatic libraries require a device name string. See Table 9 on page 98 for a list of all possible device name strings. These special file device name strings are used in the following examples.

The following example can apply to any manual library. If you have several standalone tape drives that must be mounted manually by an operator, you could define a library named MANUALMOUNT for these drives using the following command:

```
define library manualmount libtype=manual
```

All automated libraries require a device name string. See Table 9 on page 98 for a list of all possible device strings. These are used in the next three examples.

The following example can apply to any SCSI library. For example, if you have an Exabyte EXB-120 device, you might define a library named ROBOTMOUNT as follows:

```
define library robotmount libtype=scsi device=/dev/lb0
```

This assumes that you have configured the robot device driver, as described in "Configuring an Autochanger or a Robot Device Driver for a Library" on page 98 and determined the appropriate device name string as shown in the example.

If you have an IBM 3590 B11 device with a logical file name of rmt0, you might define a library named MAINMOUNT as follows:

```
define library mainmount libtype=scsi device=/dev/rmt0.smc
```

As a final example, suppose you have an IBM 3494 Tape Library Dataserver connected to your system, and that you have defined one LMCP whose device name is `/dev/lmcp0`. You could define a library named AUTOMOUNT as follows:

```
define library automount libtype=349x device=/dev/lmcp0
```

Deleting Libraries

Before issuing the DELETE LIBRARY command all of the drives that have been defined as part of the library must be deleted. This process is described in "Deleting Drives" on page 104.

For example, suppose you wish to delete a library named ROBOTMOUNT. After deleting all of the drives defined as part of this library, you could issue the following command to delete the library itself:

```
delete library robotmount
```

Defining and Managing Drives

Task	Required Privilege Class
Define, update, and delete drives	System or unrestricted storage
Query drives	Any administrator

Among the tasks the administrator can do are:

- Defining new drives to the server
- Querying defined drives
- Updating defined drives
- Deleting defined drives

Defining Drives

In order to inform the server about a drive that can be used to access storage volumes, an administrator can issue the DEFINE DRIVE command. When issuing this command, you must provide the name of the library in which the drive resides, as well as the device name to be used to access the drive.

If you define a drive in a SCSI library that can hold more than one drive, you must supply the ELEMENT parameter to specify where the drive resides within the library. The element numbers are provided in the worksheet associated with the library, which was filled in when configuring the drive as described in "Recording SCSI IDs and Device Names" on page 106.

Examples: Defining Drives

Most SCSI drives are supported by the ADSM device driver.

All tape drives require a device name string. See Table 9 on page 98 for a list of all possible device name strings. These special file device name strings are used in the following examples.

For example, If you have defined an Exabyte EXB-120 device as a library named *robotmount* you would define a drive as follows:

```
define drive robotmount drive_1 device=/dev/mt0
```

If you have configured an IBM 3480, 3490, or 3590 drive with the name *mainmount*, you would define a drive as follows:

```
define drive mainmount drive6 device=/dev/rmt0
```

Attention

If 3590 support is enabled in 349X, see the *ADSM Administrator's Guide*, "Managing Drives and Libraries," for enabling support in an ATL.

If you have defined an optical device as a library named *optmount*, you would define a drive as follows:

```
define drive optmount drive2 device=/dev/rop0
```

Deleting Drives

Note: A library cannot be deleted until all of the drives defined within it are deleted.

A drive cannot be deleted if it is currently in use. If a drive has a volume mounted, but the volume is currently idle, it can be explicitly dismounted as described in "Dismounting an Idle Volume."

Dismounting an Idle Volume

After a volume becomes idle, the server may keep it mounted for a time to reduce the access time it if it is needed again. An administrator can explicitly request that such a volume be dismounted by issuing the DISMOUNT VOLUME command.

Example of a Complete Device and Storage Configuration Sequence

This section shows an example of a device configuration sequence for an Exabyte 10i.

Before starting this procedure, your device must already be defined to AIX.

To define your device to the ADSM server:

1. If an ADSM server is not already running, start an ADSM server at an AIX command prompt by entering:

   ```
   dsmserv
   ```

2. If you have not already done so, register the license for your device support module by entering the REGISTER LICENSE command at an ADSM server command prompt:

   ```
   register license licenseauthorization
   ```

   Note: For more information on licensing, refer to the *ADSM Licensing Programming Specification*.

3. Issue the following commands at the ADSM server command prompt:

   ```
   define library mylibname libtype=scsi device=/dev/lb0
   define drive mylibname mydrivename device=/dev/mt2
   define devclass myclassname devtype=8mm library=mylibname
   define stgpool mypoolname myclassname maxscratch=100
   ```

   Note: The device= statements for both the DEFINE LIBRARY and DEFINE DRIVE commands should reflect the device names that SMIT reported to you when you defined your devices to AIX. If SMIT reported that your library was device lb0, your device= statement should read device=/dev/lb0. See Table 9 on page 98.

4. Set up a new policy domain to use the Exabyte EXB-10i:

```
define domain adsm_development
define policyset adsm_development aixpolicy
define mgmtclass adsm_development aixpolicy activefiles
define copygroup adsm_development aixpolicy activefiles STANDARD
                Type=Backup Destination=mypoolname
assign defmgmtclass adsm_development aixpolicy activefiles
activate policyset adsm_development aixpolicy
```

Note: If you see this message:

```
ANR1554W DEFAULT Management class ACTIVEFILES in policy set
ADSM_DEVELOPMENT AIXPOLICY does not have an ARCHIVE copygroup:
files will not be archived by default if this set is activated.
```

Do you wish to proceed? (Yes/No)

Enter Y and press *Enter*.

5. Register a node to use the new policy domain.

   ```
   register node name password domain=adsm_development
   ```

6. Label media on the library by entering this command at an AIX command prompt (**not** at the server console):

   ```
   dsmlabel -drive=/dev/mt2 -library=/dev/lb0 -overwrite -search
   ```

   When prompted for labels, enter:

   vol1
   vol2
   vol3
   vol4

   Note: When you relabel a volume, you delete any existing data on the volume. Before you relabel a volume that has been in use by ADSM, you must move the data off the volume by using the MOVE DATA command, or delete the contents of the volume by using the DELETE VOLUME command with DISCARDDATA=YES.

7. Use the CHECKIN LIBVOLUME command *search* parameter to verify that the following volumes have not been previously checked in. Refer to the *ADSM Administrator's Reference* for detailed descriptions of this command.

8. Check in the newly labeled media as follows:

   ```
   checkin libvolume mylibname vol1 status=scratch
   checkin libvolume mylibname vol2 status=scratch
   checkin libvolume mylibname vol3 status=scratch
   checkin libvolume mylibname vol4 status=scratch
   ```

9. Start a client that is associated with the new policy and back up files.

Deconfiguring SCSI Devices

Run the SMIT program to deconfigure (remove) the device driver for each autochanger or robot, drive, and drives within libraries as follows:

1. Select **Devices**.
2. Select **ADSM Devices**.
3. Select either **Tape**, **Optical**, or **Library**.
4. Select **Remove Device**.
5. Select the device to remove from the list.

Recording SCSI IDs and Device Names

Use Table 10 through Table 29 on page 121 to record SCSI IDs and device names.

Refer to these worksheets before you issue the DEFINE DRIVE or DEFINE LIBRARY commands to the ADSM server. Refer to *ADSM Administrator's Reference*.

Table 10. Stand-alone Tape Drive (4mm, 8mm, DLT, or QIC)

Device	SCSI ID	Device Name
Tape drive	_____	/dev/mt____

Table 11. Stand-alone Optical Drive

Device	SCSI ID	Device Name
Optical drive	_____	/dev/rop____

Table 12. BoxHill FreezerBox or Exabyte EXB-60

Device	SCSI ID	Device Name
Tape drive 1 (element 116) 1	_____	/dev/mt____
Tape drive 2 (element 117) 2	_____	/dev/mt____
Robot	_____	/dev/lb____

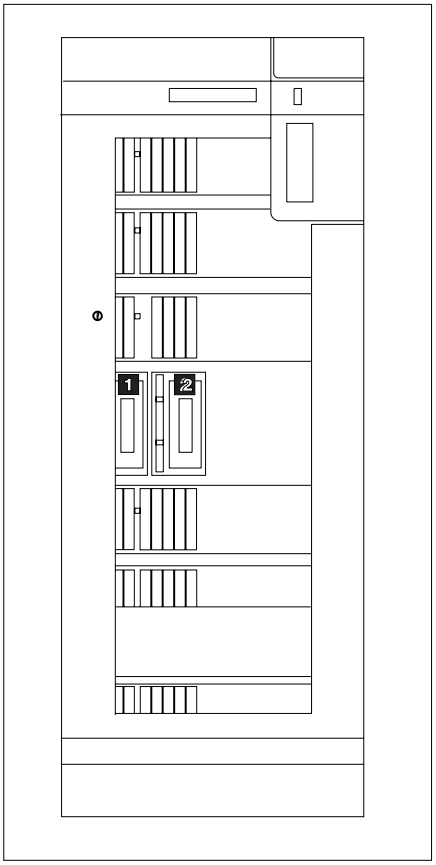


Table 13. Andataco Encore 10e, BoxHill BreadBox, Exabyte EXB-10e, EXB-10h, EXB-10i, or TTi Series-10

Device	SCSI ID	Device Name
Tape drive (element 0)	_____	/dev/mt____
Robot	_____	/dev/lb____

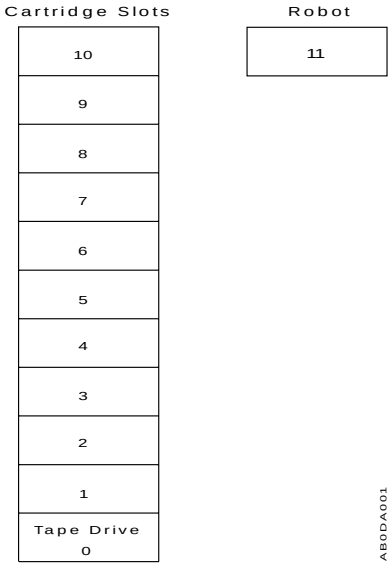


Table 14. Andataco Encore 210, BoxHill LightBox, or Exabyte EXB-210

Device	SCSI ID	Device Name
Tape drive 1 (element 82)	_____	/dev/mt____
Tape drive 2 (element 83)	_____	/dev/mt____
Robot	_____	/dev/lb____

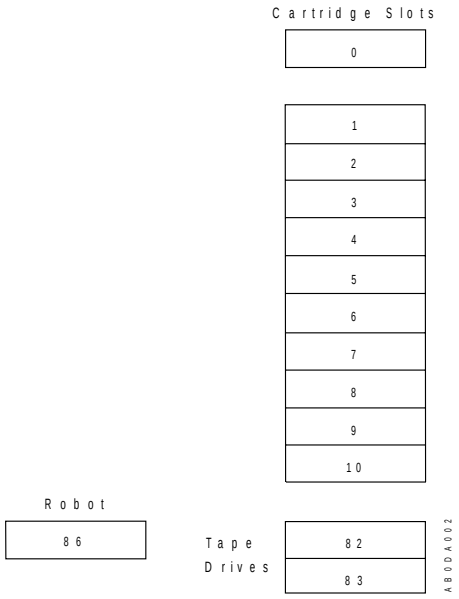


Table 15. Andataco Encore 120, BoxHill IceBox, or Exabyte EXB-120

Device	SCSI ID	Device Name
Tape drive (element 116) 1	_____	/dev/mt____
Tape drive (element 117) 2	_____	/dev/mt____
Tape drive (element 118) 3	_____	/dev/mt____
Tape drive (element 119) 4	_____	/dev/mt____
Robot	_____	/dev/lb____

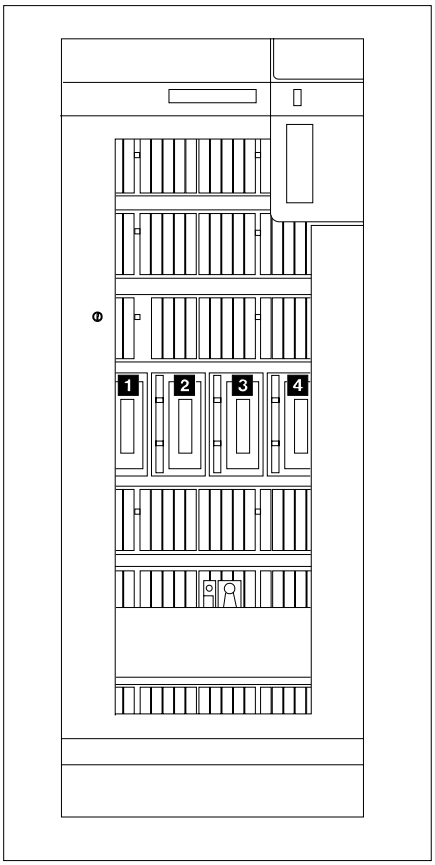


Table 16. Libra-8

Device	SCSI ID	Device Name
Tape drive (element 1)	_____	/dev/mt____

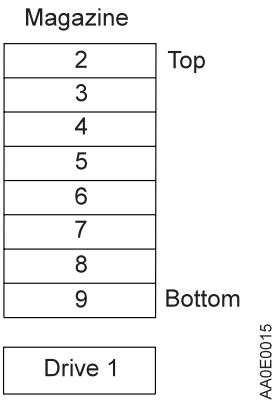


Table 17. Libra-16

Device	SCSI ID	Device Name
Tape drive (element 1)	_____	/dev/mt____

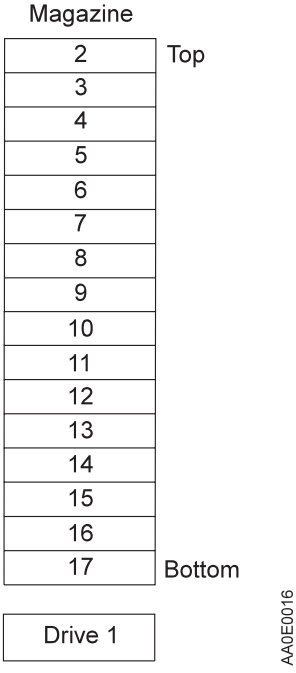


Table 18. IBM 7331-205

Device	SCSI ID	Device Name
Tape drive 1 (element 23)	_____	/dev/mt____
Tape drive 2 (element 24)	_____	/dev/mt____
Robot	_____	/dev/lb____

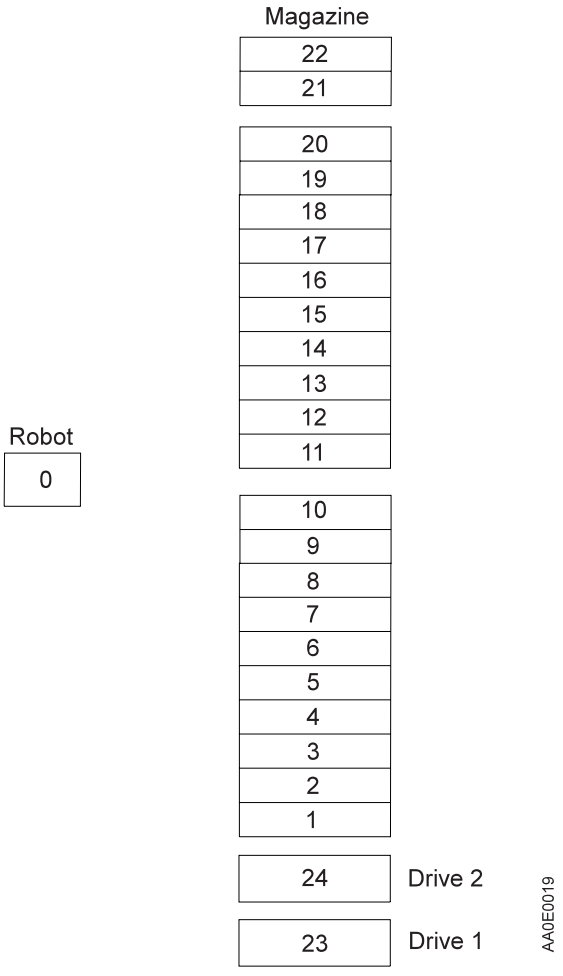


Table 19. IBM 7332-005

Device	SCSI ID	Device Name
Tape drive (element 1)	_____	/dev/mt____

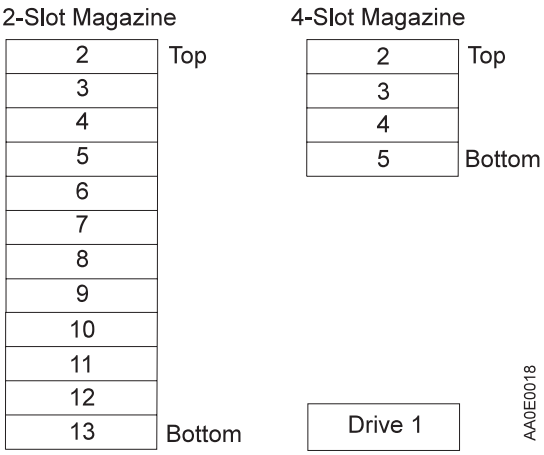


Table 20. ADIC VLS 4mm

Device	SCSI ID	Device Name
Tape drive 1 (element 2)	_____	/dev/mt____
Tape drive 2 (element 3)	_____	/dev/mt____
Robot	_____	/dev/lb____

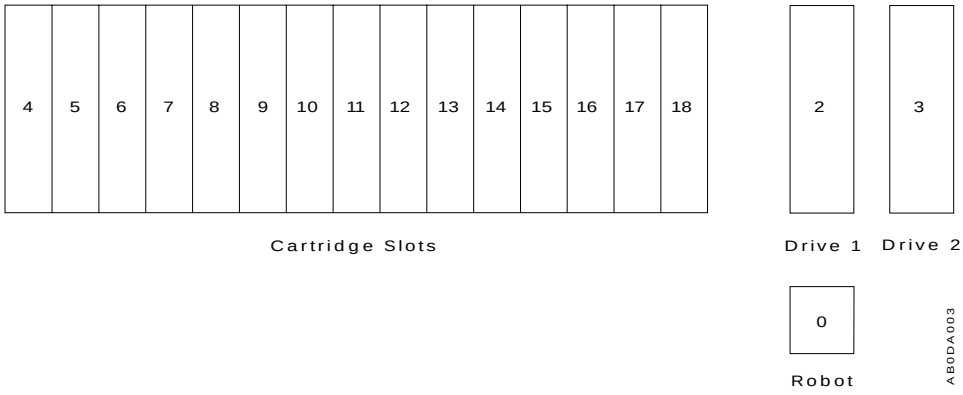


Table 21. ADIC 1200D 4mm

Device	SCSI ID	Device Name
Tape drive (element 2)	_____	/dev/mt____
Robot	_____	/dev/lb____

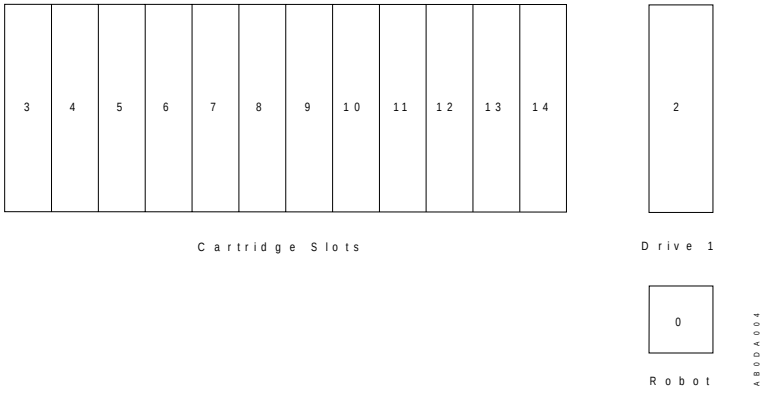


Table 22. Andataco Encore 440, BoxHill CubeBox, or Exabyte EXB-440

Device	SCSI ID	Device Name
Tape drive 1 (element 82)	_____	/dev/mt____
Tape drive 2 (element 83)	_____	/dev/mt____
Tape drive 3 (element 84)	_____	/dev/mt____
Tape drive 4 (element 85)	_____	/dev/mt____
Robot	_____	/dev/lb____

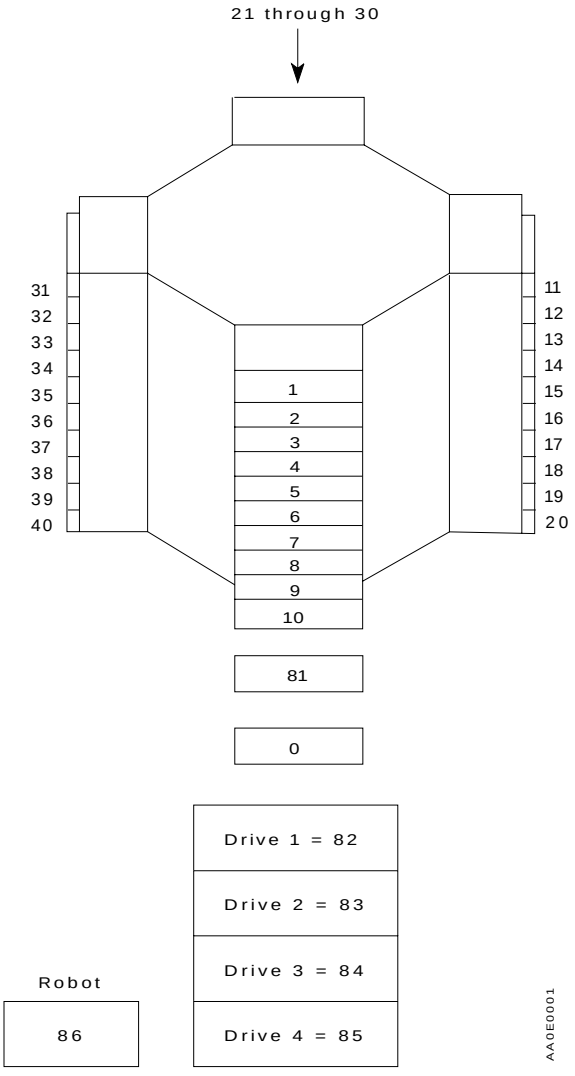


Table 23. Andataco Encore 480, BoxHill BorgBox, or Exabyte EXB-480

Device	SCSI ID	Device Name
Tape drive 1 (element 82)	_____	/dev/mt____
Tape drive 2 (element 83)	_____	/dev/mt____
Tape drive 3 (element 84)	_____	/dev/mt____
Tape drive 4 (element 85)	_____	/dev/mt____
Robot	_____	/dev/lb____

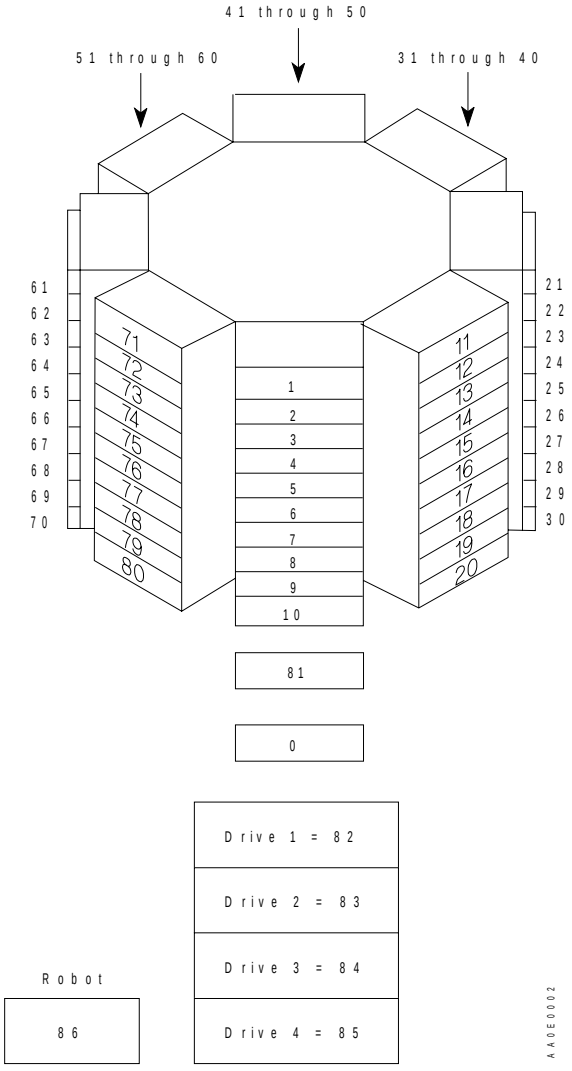


Table 24. HP C1553A or C1561A, or SureStore 12000e

Device	SCSI ID	Device Name
Tape drive (element 1)	_____	/dev/mt____

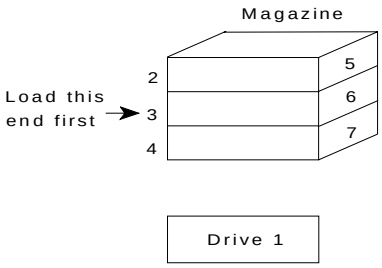


Table 25. Lago LS-380L

Device	SCSI ID	Device Name
Tape drive 1 (element 54) 1	_____	/dev/mt____
Tape drive 2 (element 55) 2	_____	/dev/mt____
Robot	_____	/dev/lb____

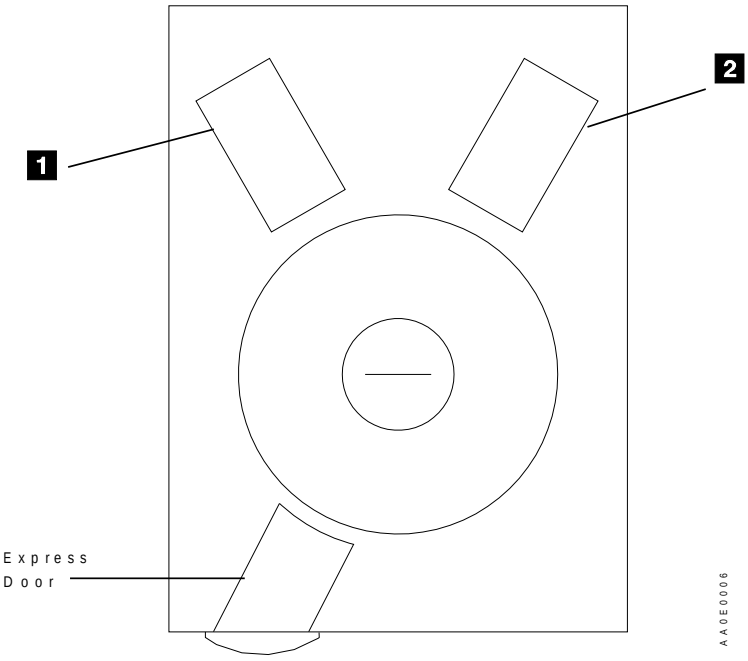
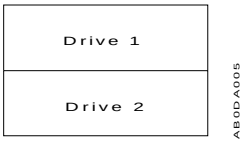


Table 26. TTi CTS-8519H

Device	SCSI ID	Device Name
Tape drive 1	_____	/dev/mt__
Tape drive 2	_____	/dev/mt__



Two 8mm tape drives are housed in one box. The device can be configured as two independent drives or as one single drive that mirrors the other drive. However, ADSM only supports the configuration with two independent drives.

When the device is configured as two independent drives, the drives have the same SCSI ID but different LUN numbers. LUN 0 is assigned to the left drive (viewed from the front). LUN 1 is assigned to the right drive (viewed from the front).

Table 27. IBM 3995 Model 063

Device	SCSI ID	Device Name
Optical drive (element 1) 1	_____	/dev/rop__
Optical drive (element 2) 2	_____	/dev/rop__
Robot	_____	/dev/lb__

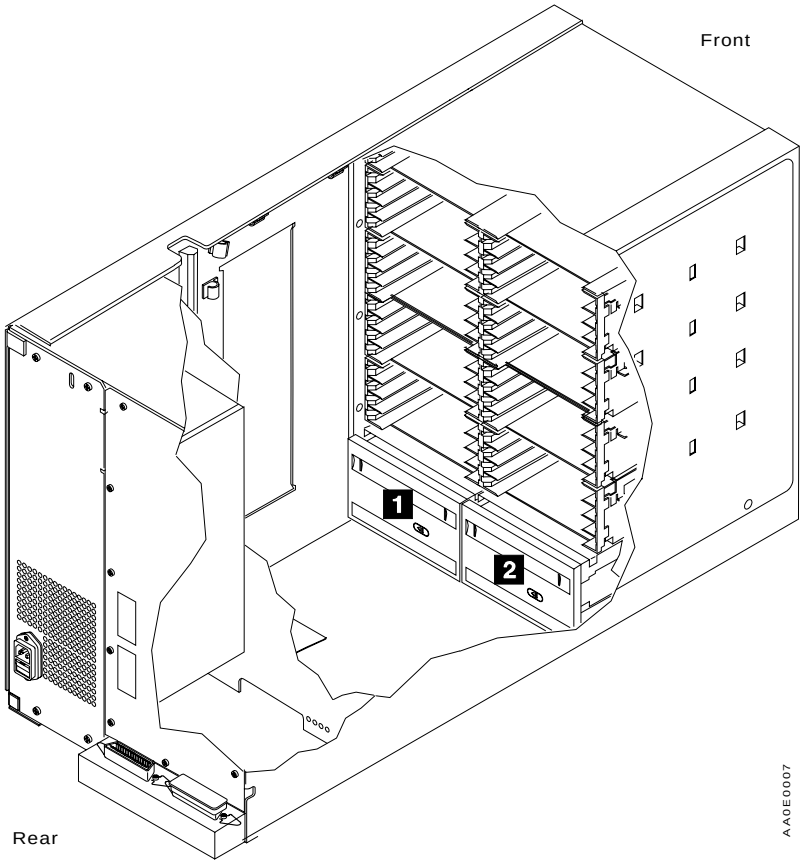


Table 28. IBM 3995 Model 163

Device	SCSI ID	Device Name
Optical drive (element 1) **1**	_____	/dev/rop__
Optical drive (element 2) **2**	_____	/dev/rop__
Optical drive (element 3) **3**	_____	/dev/rop__
Optical drive (element 4) **4**	_____	/dev/rop__
Robot	_____	/dev/lb__

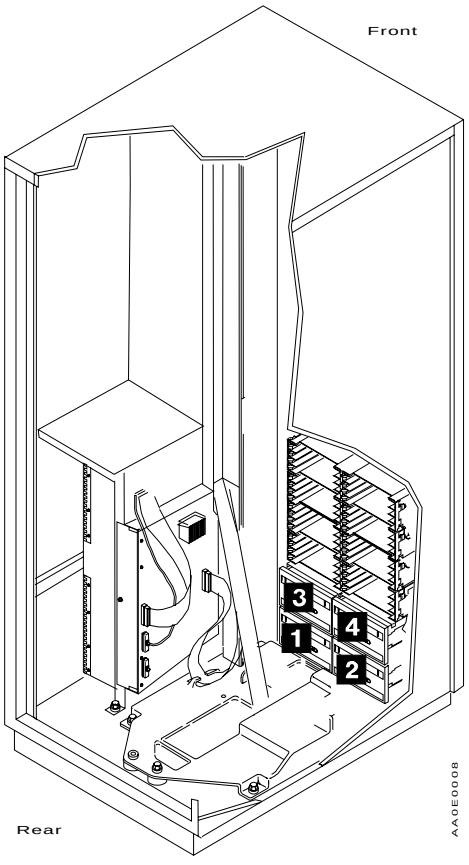


Table 29. IBM 3995 Model A63

Device	SCSI ID	Device Name
Optical drive (element 1) 1	_____	/dev/rop__
Robot	_____	/dev/lb__

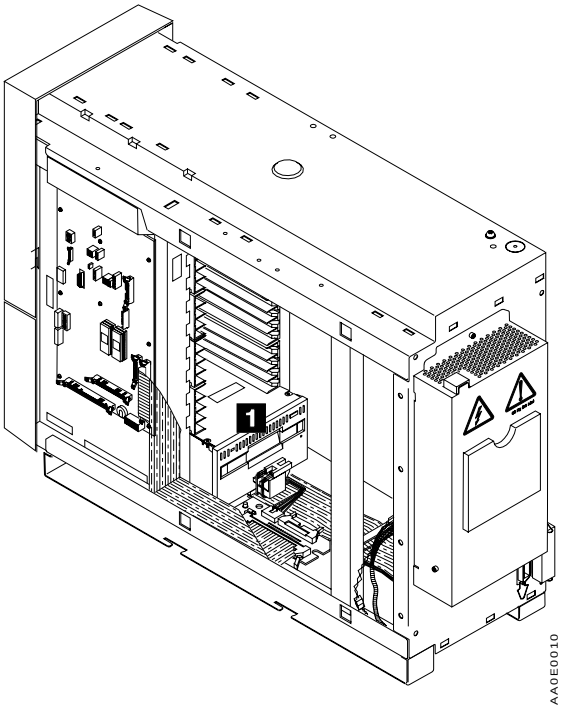


Table 30. DLT 2500 or DLT 4500

Device	SCSI ID	Device Name
Tape drive (element 16)	_____	/dev/mt____
Robot	_____	/dev/lb____

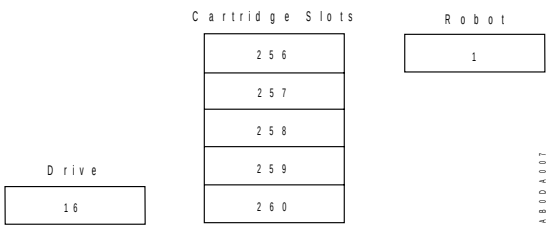


Table 31. DLT 2700 or DLT 4700

Device	SCSI ID	Device Name
Tape drive (element 16)	_____	/dev/mt____
Robot	_____	/dev/lb____

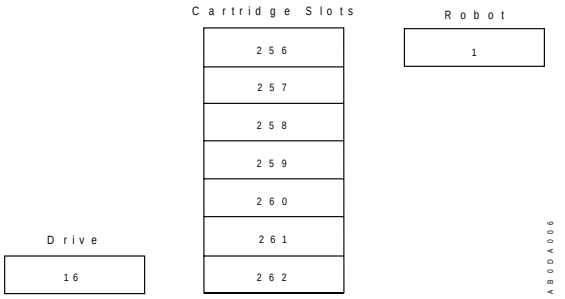
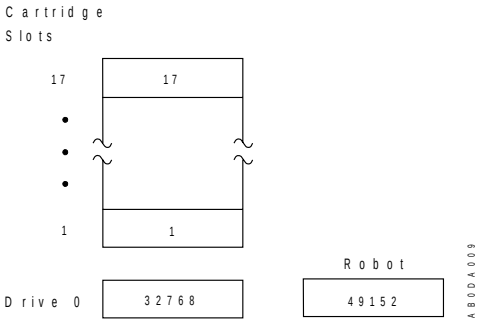


Table 32. AIWA AL-D210

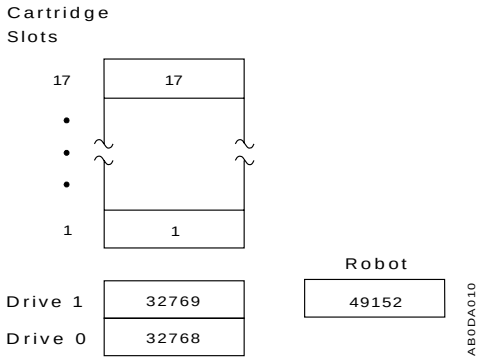
Device	SCSI ID	Device Name
Tape drive (element 32768)	_____	/dev/mt____
Robot	_____	/dev/lb____



Note: Initialize Status Switch by setting the DIP switch to the ON position.

Table 33. AIWA AL-D220

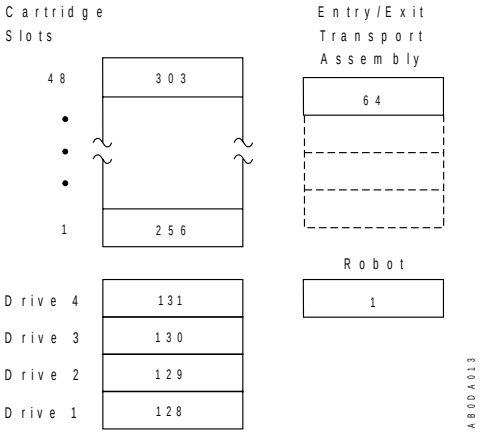
Device	SCSI ID	Device Name
Tape drive 0 (element 32768)	_____	/dev/mt____
Tape drive 1 (element 32769)	_____	/dev/mt____
Robot	_____	/dev/lb____



Note: Initialize Status Switch by setting the DIP switch to the ON position.

Table 34. Odetics ACL 4/52

Device	SCSI ID	Device Name
Tape drive 1 (element 128)	_____	/dev/mt____
Tape drive 2 (element 129)	_____	/dev/mt____
Tape drive 3 (element 130)	_____	/dev/mt____
Tape drive 4 (element 131)	_____	/dev/mt____
Robot	_____	/dev/lb____



Notes:

- The ACL 4/52 library has a load port (Entry/Exit Transport Assembly) containing four cartridge slots. Currently ADSM considers that this library has only one slot (which is the top slot with element address 64) of the four. All ADSM Entry/Exit operations must use the top slot.
- Suggestions for configuring the ACL 4/52 for the ADSM server:
  1. Power-up State: the recommended setting is *online*. If set to *offline*, manual intervention is required to bring the library up for use by ADSM.
  2. Automatic Drive Cleaning: set to either *host initiated* or *fully automatic*. When set to *fully automatic*, ADSM will ignore cleaner cartridges with proper barcode labels and will wait while drives are being cleaned.
  3. Retry Option: use the default of *retries enabled*.
  4. Auto Load: must be *disabled*.
  5. Auto Inventory at Power-up: must be *enabled*.
- For any other configurations and settings, refer to the documentation about your library.

Table 35. Spectralogic 4000/20, 4000/40, or 4000/60

Device	SCSI ID	Device Name
Tape drive 1 (element 80)	_____	/dev/mt____
Tape drive 2 (element 81)	_____	/dev/mt____
Tape drive 3 (element 82)	_____	/dev/mt____
Tape drive 4 (element 83)	_____	/dev/mt____
Robot	_____	/dev/lb____

Library Config.	No. of tape drives	Entry/Exit Element		Media Storage Element			Medium Transport Element		Data Storage Element		
		#	Address	#	First	Last	#	Address	#	First	Last
4000/20	1	1	0	23	0	23	1	79	1	80	80
4000/20	2	1	0	22	0	22	1	79	2	80	81
4000/20	3	1	0	21	0	21	1	79	3	80	82
4000/20	4	1	0	20	0	20	1	79	4	80	83
4000/40	1	1	0	43	0	43	1	79	1	80	80
4000/40	2	1	0	42	0	42	1	79	2	80	81
4000/40	3	1	0	41	0	41	1	79	3	80	82
4000/40	4	1	0	40	0	40	1	79	4	80	83
4000/60	1	1	0	61	0	61	1	79	1	80	80
4000/60	2	1	0	60	0	60	1	79	2	80	81
4000/60	3	1	0	59	0	59	1	79	3	80	82
4000/60	4	1	0	58	0	58	1	79	4	80	83

AB0DA011

Table 36. StorageTek 9704

Device	SCSI ID	Device Name
Tape drive 0 (element 25)	_____	/dev/mt____
Tape drive 1 (element 26)	_____	/dev/mt____
Robot	_____	/dev/lb____

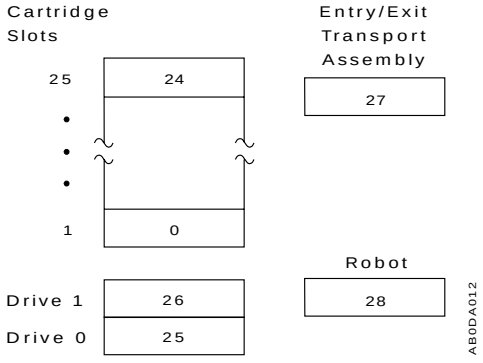


Table 37. StorageTek 9708 or 9711

Device	SCSI ID	Device Name
Tape drive 0 (element 54)	_____	/dev/mt____
Tape drive 1 (element 55)	_____	/dev/mt____
Robot	_____	/dev/lb____

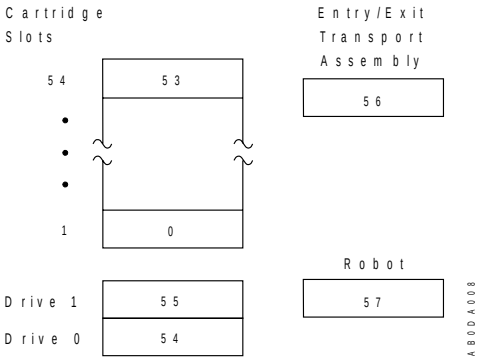
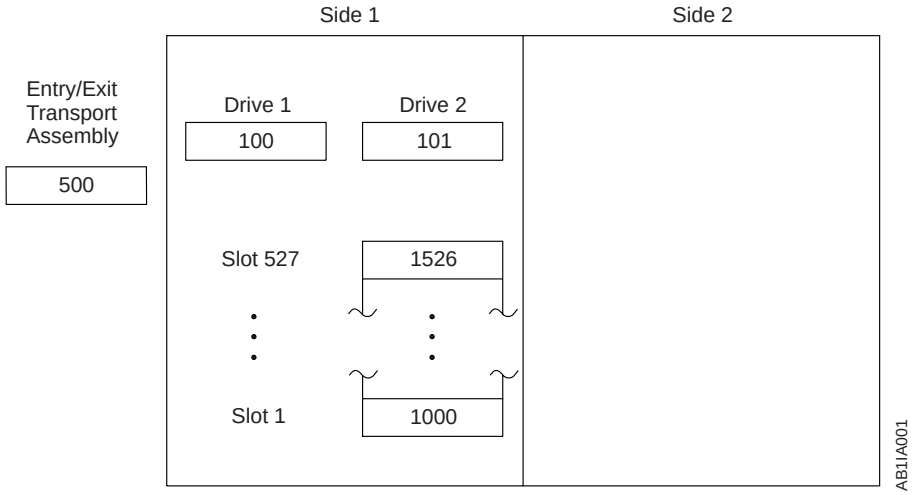


Table 38. DISC D1050-2

Device	SCSI ID	Device Name
Optical drive 1 (element 100)	_____	/dev/rop__
Optical drive 2 (element 101)	_____	/dev/rop__



Note: With the current ADSM device driver implementation, cartridges cannot be transferred or exchanged between the two independent changers in a dual library system. Only one side can be accessed at a time.

This diagram is for reference only. Refer to the documentation about your library for further information because the element addresses and drive configuration may be different.

Table 39. HP 20T

Device	SCSI ID	Device Name
Optical drive 1 (element 1)	_____	/dev/rop__
Robot	_____	/dev/lb____

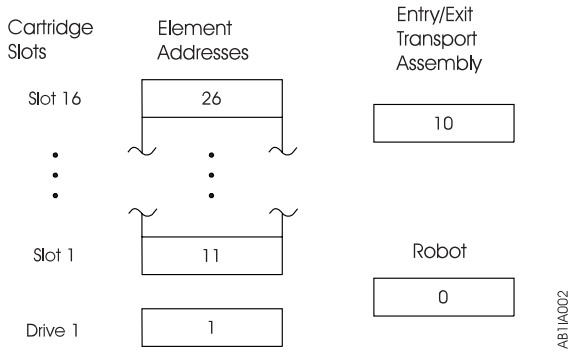


Table 40. HP 40T

Device	SCSI ID	Device Name
Optical drive 1 (element 1)	_____	/dev/rop__
Optical drive 2 (element 2)	_____	/dev/rop__
Robot	_____	/dev/lb____

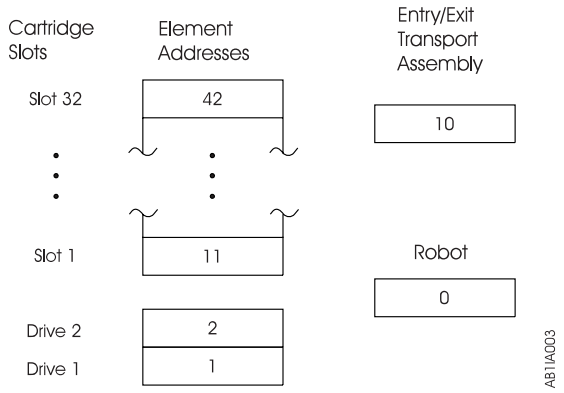


Table 41. HP 120T

Device	SCSI ID	Device Name
Optical drive 1 (element 1)	_____	/dev/rop__
Optical drive 2 (element 2)	_____	/dev/rop__
Optical drive 3 (element 3)	_____	/dev/rop__
Optical drive 4 (element 4)	_____	/dev/rop__
Robot	_____	/dev/lb____

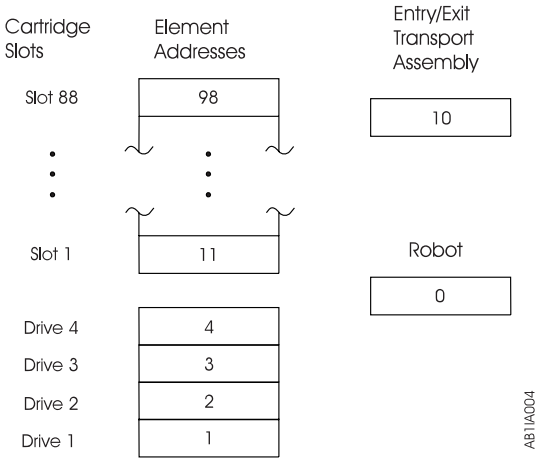


Table 42. HP 200T

Device	SCSI ID	Device Name
Optical drive 1 (element 1)	_____	/dev/rop__
Optical drive 2 (element 2)	_____	/dev/rop__
Optical drive 3 (element 3)	_____	/dev/rop__
Optical drive 4 (element 4)	_____	/dev/rop__
Robot	_____	/dev/lb____

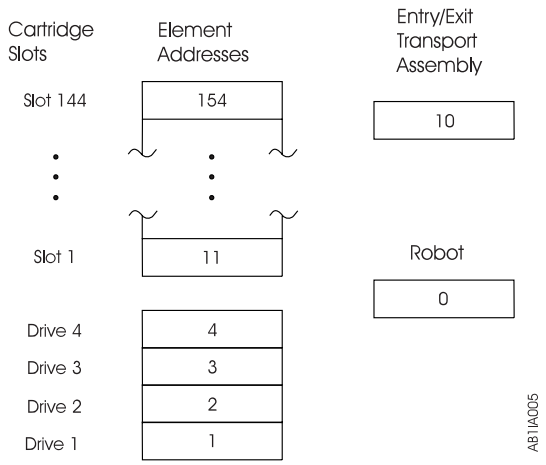
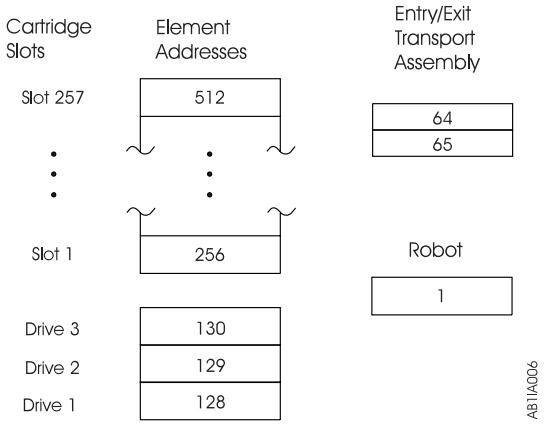


Table 43. Odetics ACL 2640

Device	SCSI ID	Device Name
Tape drive 1 (element 128)	_____	/dev/mt____
Tape drive 2 (element 129)	_____	/dev/mt____
Tape drive 3 (element 130)	_____	/dev/mt____
Robot	_____	/dev/lb____



Note: Suggestions for configuring the Odetics ACL 2640 for the ADSM server:

1. ADSM does not support the RS-232 interface to the robot, only SCSI.
2. ADSM does not support the PTM (passthrough) mechanism that allows attaching multiple boxes together as one big library.
3. There is no touchpad such as the Odetics ACL 4/52.
4. ADSM supports the box in its default mode of operation.

Table 44. Odetics ACL 3/176

Device	SCSI ID	Device Name
Tape drive 1 (element 128)	_____	/dev/mt____
Tape drive 2 (element 129)	_____	/dev/mt____
Tape drive 3 (element 130)	_____	/dev/mt____
Robot	_____	/dev/lb____

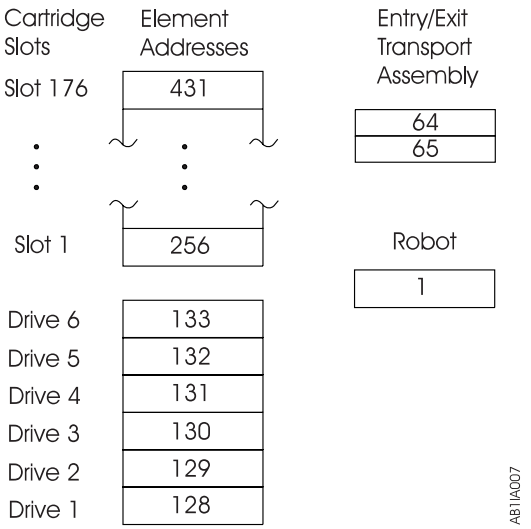
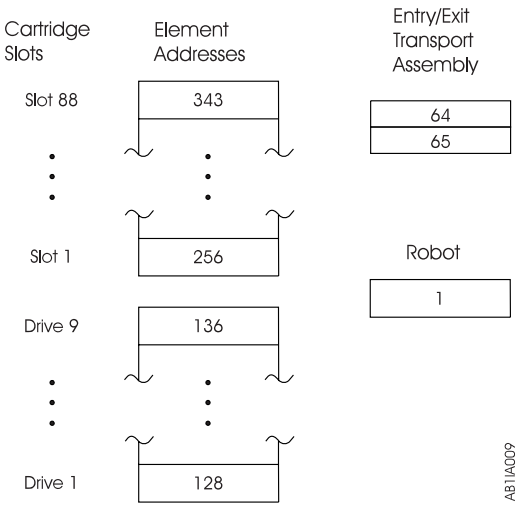


Table 45. Odetics ACL 9/88

Device	SCSI ID	Device Name
Tape drive 1 (element 128)	_____	/dev/mt____
Robot	_____	/dev/lb____



Examples of Commands for Drives and Libraries

The following commands: DEFINE DRIVE and DEFINE LIBRARY, DEFINE DEVCLASS, and CHECKIN/CHECKOUT LIBVOLUME are only examples. These commands are described in detail in the *ADSM Administrator's Reference*.

DEFINE DRIVE and DEFINE LIBRARY Commands

The following examples show the DEFINE DRIVE and DEFINE LIBRARY commands. Refer to the *ADSM Administrator's Reference* for detailed descriptions of these commands.

Note: Special file is the **Device Name** used in "Recording SCSI IDs and Device Names" on page 106 worksheets.

Define the autochanger with the special file */dev/lb0* as follows:

```
define library mylibname libtype=scsi device=/dev/lb0
```

Define the optical drive with the special file */dev/rop1* to a library as follows:

```
define drive mylibname mydrivename device=/dev/rop1
```

Define two tape drives with the special files */dev/mt2* and */dev/mt3*, and element addresses 82 and 83 respectively to a library as follows:

```
define drive mylibname drive1_name device=/dev/mt2 element=82
```

```
define drive mylibname drive2_name device=/dev/mt3 element=83
```

DEFINE DEVCLASS Command

You can define multiple device classes for each device type. Refer to the *ADSM Administrator's Reference* for detailed descriptions of this command.

If you are using device classes that have any of the following device types, you must define libraries and drives to the ADSM server in order to access your sequential media:

- 3590
- 4MM
- 8MM
- CARTRIDGE (for 3490 drives)
- DLT
- OPTICAL
- QIC
- WORM

CHECKIN or CHECKOUT LIBVOLUME Command

When using the CHECKIN or CHECKOUT command, you are prompted to insert or remove a cartridge from one of the cartridge slots. These slots are identified by their element addresses. You can find these element addresses in the worksheets you completed.

After you issue the following command:

```
checkin libvolume tapelib vol001 serach=no status=scratch
```

ADSM finds the first empty slot and prompts you with a message. If slot 1 is empty, the message is:

```
ANR8306I <req-id>: Insert /dev/mt0 volume VOL001 R/W in slot 1 of
library TAPELIB within 60 minute(s); REPLY when ready.
```

Note: The slot number into which the server requests a cartridge to be inserted refers to the element address of the slot. Refer to the library diagrams (worksheets) you completed to find the element addresses that correspond to the slots in your library.

You will need to know the element addresses for the cartridge slots of any library or autochanger in your configuration without an import/export station. Refer to the documentation about your library for further information.

Chapter 7. Installing Clients from Images on the Installation Media

For your convenience, most ADSM clients are included with your ADSM/AIX server. These clients are packaged so that SMIT/installp can be used to copy them to a directory on your AIX workstation. You can then transfer them to the appropriate client workstation as described in this chapter.

Use this chapter to assist you in:

- Getting the client image from the installation media. These images are copied to the server workstation.
- Copying the client image from the server workstation to the client workstation.
- Installing the image on a client workstation. Also refer to *Installing the Clients* and Chapter 8, “Installing Remote Administrative Clients” on page 155.

After you determine which type of client image to copy, you can copy a single client image, a subset of client images, or all of the client images to the server workstation.

Attention

If you choose to install all of the client image files, SMIT will extend the /usr file system as necessary to accommodate the 300MB required to load all of the clients.

Copying the Client Images to the AIX Server Workstation by Using SMIT

To transfer one or more client images to the AIX server workstation from the installation media by using SMIT, complete the following procedure:

1. Log in as the root user by entering:

   ```
   smit &
   ```

2. Select the following from SMIT:

   For AIX 3.2.5.x

   ```
   Software Installation and Maintenance
         Install / Update Software
               Install / Update Selectable Software (Custom Install)
                     Install Software Products at Latest Available Level
   ```

   For AIX 4.1.x

   ```
   Software Installation and Maintenance
         Install and Update Software
               Install / Update Selectable Software (Custom Install)
                     Install Software Products at Latest Level
                           Install New Software Products at Latest Level
   ```

   Note: Wording may differ slightly in these selections, depending on the level of your AIX operating system.

3. Click on *List* to access the device list.

4. Select the appropriate *INPUT device* from the list, for example, CD-ROM or diskette drive.
5. Load the media into the device that you selected.
6. Click on:

   `Do`
7. Click on:

   `List`

   for the `Software To Install` option to access the list of the available client images.
8. Select one or more client images that you want to copy to the AIX server workstation.

   See the screen in Figure 15 on page 137 for a sample selection of the ADSM clients. The available client images are listed under their platform name. (This screen shows only a small portion of the client image selections.) A list of all available clients is shown in the directory structure chart, Figure 16 on page 138.

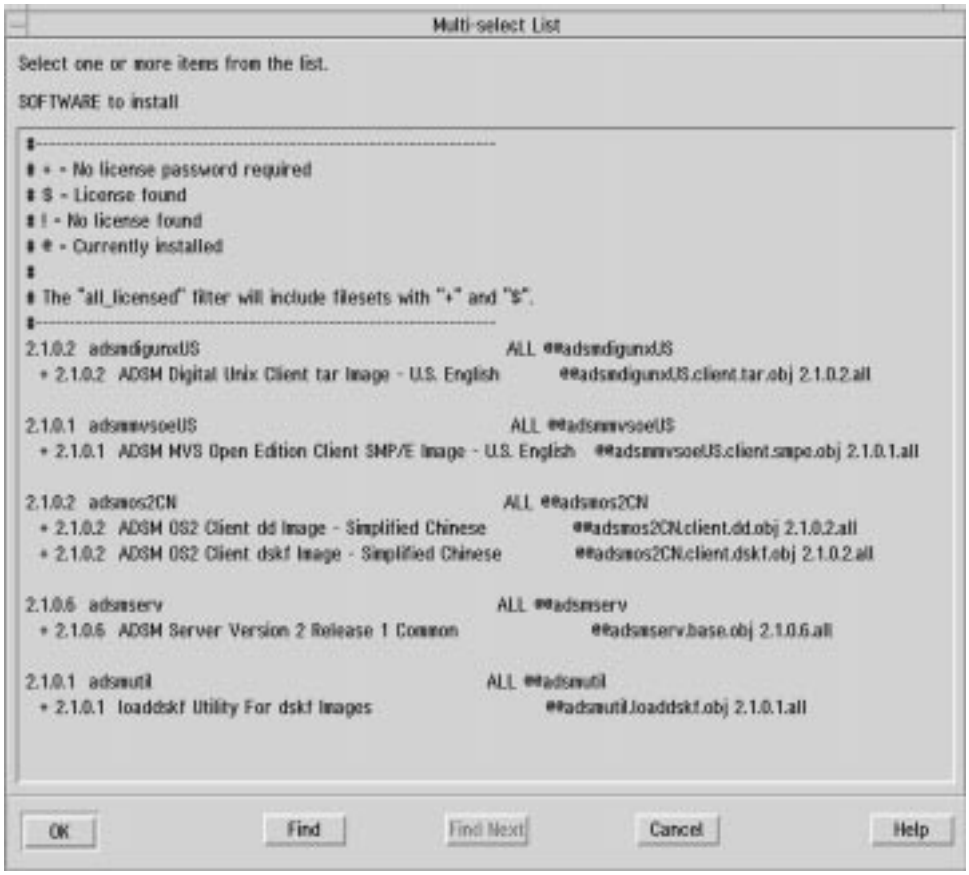


Figure 15. ADSM Installation Selection Screen

| **Note:** This screen will differ somewhat for ADSM 2.1.0.x or ADSM 2.1.5.x
| selections.

| For example, for the Digital UNIX English client, select:

| `adsmdigunxUS.client.tar.obj`

9. Click on:

   `OK`

10. Click on:

    `Do`

    Note: **Do not commit the client images.** After you have copied the selected clients to their workstations, remove the clients from the server to reclaim the space in the /usr file system. See “Removing Clients from the Server Workstation” on page 153.

    SMIT asks: ARE YOU SURE??...

Attention

Continuing the procedure may delete information that you want to keep.

11. Click on:

    OK

    The installation may take several minutes.

The client images that you selected are organized and stored on the AIX server workstation in the directory structure shown in Figure 16.

The client installation directory structure for ADSM V2 is:

```
/usr/sys/inst.images/adsm.clients/'platform'/'language'/'image_format'
```

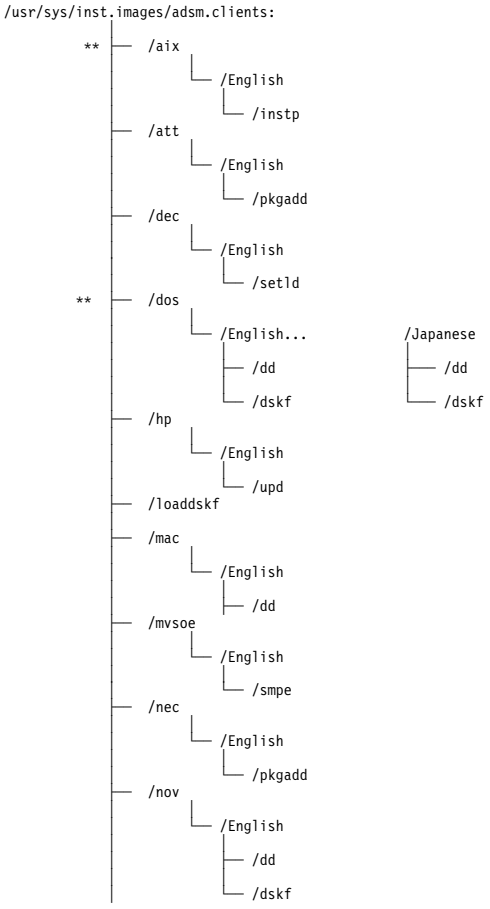
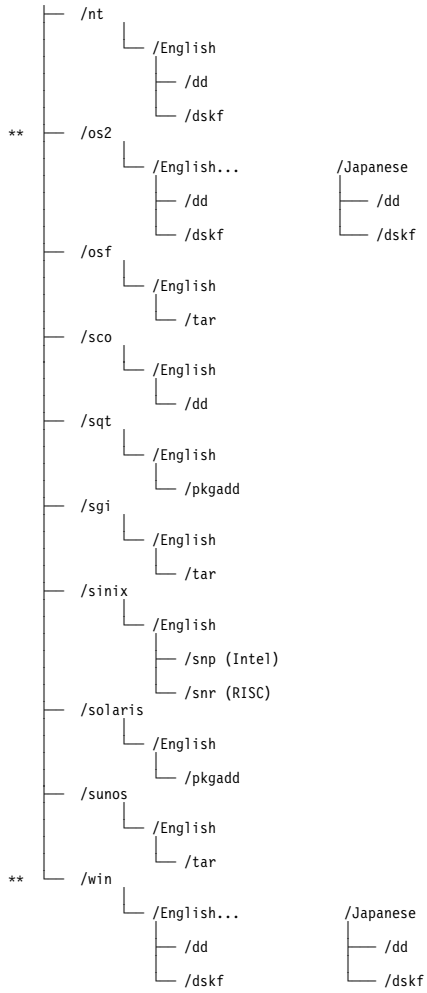


Figure 16 (Part 1 of 2). Directory Structure of the Client Images



Note: ** AIX, DOS, and OS/2 are available in the following code sets: simplified Chinese (zh_CN), French (fr_FR), German (de_DE), Italian (it_IT), Japanese (ja_JP and Ja_JP), Spanish (es_ES), and Swedish (sv_SE) languages, in addition to U.S. English (en_US). Windows is available in all languages except simplified Chinese (zh_CN).

Figure 16 (Part 2 of 2). Directory Structure of the Client Images

Transferring AIX, DEC, HP-UX, OpenEdition MVS, Sequent PTX, and SunOS/Solaris to the Client Workstation

Complete the following procedure for these clients:

- AIX
- DEC ULTRIX
- Hewlett Packard HP-UX
- OpenEdition MVS
- Sequent PTX
- SunOS or Solaris

After you copy the client image files to the AIX server workstation by using SMIT, you can transfer the AIX, DEC, HP, OpenEdition MVS, Sequent PTX, and Sun client image files to an end user's workstation using *FTP* commands, and then install the client.

AIX Client

After the AIX client image is copied to the AIX server workstation, the image file is located in the /usr/sys/inst.images/adsm.clients/aix/English/instp directory.

1. Log in as the root user on the target workstation.
2. Change to the directory containing the client installation image by entering:

   ```
   cd /usr/sys/inst.images
   ```

3. FTP to the server workstation by entering:

   ```
   ftp <targetmachine>
   ```

   where `<targetmachine>` is the name of the server workstation
4. Log in to the server workstation as the root user.
5. While in the FTP session, change to the subdirectory on the server that contains the client image to transfer by entering:

   ```
   cd /usr/sys/inst.images/adsm.clients/aix/English/instp
   ```

6. Change to binary transfer by entering:

   ```
   binary
   ```

   Note: You must use the binary option.
7. Transfer the client image with the FTP *get* command by entering:

   ```
   get aix.smit
   ```

8. Quit the FTP session by entering:

   ```
   quit
   ```

To install the AIX client, complete the following procedure from the workstation in which you will install the client:

1. From the end user's workstation in which you will install the client, log in as the root user.

If you are not already in the X Windows environment, enter:

```
xinit
```

2. Create a table of contents file by entering:

   ```
   inutoc /usr/sys/inst.images
   ```

3. Enter:

   ```
   smit &
   ```

4. Choose the following selections from SMIT:

   ```
   Software Installation and Maintenance
         Install / Update Software
               Install / Update Selectable Software (Custom Install)
                     Install Software Products at Latest Available Level
   ```

5. At the *INPUT device/directory for software* option, click on *LIST*.

6. Select:

   ```
   /usr/sys/inst.images
   ```

7. Click on *Do*.

8. Locate *Software to Install* and click on *List* at the end of the line to access the list of all available software packages in the installation directory.

9. Select the AIX client file selections that you need:

   Note: You can select from the HSM, API, administrative client GUI, and command-line AIX clients. Each of these selections also requires the "common" file set.

   Make this selection if you require ALL of these clients:

   ```
   adsm                ALL
   ```

10. Click on:

    ```
    OK
    ```

11. **Check the default setting for all options.**

    Note: It is recommended that you specify "no" for the *commit* option and "yes" for the *save* option.

    SMIT asks, ARE YOU SURE??...

    Attention

    Continuing the procedure may delete information that you want to keep.

12. Click on:

    ```
    OK
    ```

    This installation may take several minutes.

13. Exit from SMIT.

DEC ULTRIX Client

After the DEC ULTRIX client image is copied to the AIX server workstation, the image file is located in the /usr/sys/inst.images/adsm.clients/dec/English/setld directory.

To transfer the DEC client image file from the AIX server workstation to another end user's workstation and install the DEC client, complete the following procedure from the end user's workstation:

1. On the DEC workstation, log in as the root user by entering:

   ```
   su root
   ```

2. Change to a temporary directory where the file will be placed by entering:

   ```
   cd /temp
   ```

3. FTP to the AIX server workstation by entering:

   ```
   ftp <servermachine>
   ```

   where `<servermachine>` is the name of the AIX server workstation

4. Log in to the server machine as the root user.

5. Change to binary transfer by entering:

   ```
   binary
   ```

   Note: You must use the binary option.

6. Change to the installation directory on the AIX server workstation by entering:

   ```
   cd /usr/sys/inst.images/adsm.clients/dec/English/setld
   ```

7. Transfer the *dec.setld* client image file to the client workstation by entering:

   ```
   get dec.setld
   ```

8. Quit the FTP session by entering:

   ```
   quit
   ```

9. If the end user's workstation already has the DEC ADSM client installed on it, delete the client by entering:

   ```
   setld -d name
   ```

   where *name* is the ADSM subset name, for example, DSMADSM120.

10. Install the DEC client by entering:

    ```
    setld -l . subsetname
    ```

    where *subsetname* is the name of the ADSM subset, such as, *DSMADSM210* for ADSM Version 2 Release 1.

    The DEC ULTRIX installation automatically puts the ADSM libraries into the /usr/adsm directory and makes the symbolic links to that directory from the /usr/bin directory.

11. If this is the first time you have installed the DEC ULTRIX client, issue the following command from your home directory to establish access to the ADSM executable files, enter:

    ```
    source .login
    ```

12. If, after the installation, you move the ADSM files from the /usr/adsm installation directory to another directory, you must also complete the following steps:

    a. Ensure that the permissions of the installed files have not changed.

    b. Update the directory locations of the bit map files, which are in the ADSM X Windows System resource file (*DSMX*), to the new directory where ADSM has been installed.

    c. Update the symbolic links for the installed files in the /usr/bin directory.

    d. Ensure that every user of ADSM has set the DSM_DIR environment variable to the new installation directory.

13. Delete the image from the directory by entering:

    ```
    setld -
    ```

Hewlett Packard (HP-UX) Client

After the HP-UX client image is copied to the AIX server workstation, the image file is located in the /usr/sys/inst.images/adsm.clients/hp/English/upd directory.

To transfer the image file from the server to an end user's workstation and install the HP-UX client, complete the following procedure:

1. On the HP-UX workstation, log in as the root user by entering:

   ```
   su root
   ```

2. Create the installation directory if it does not already exist by entering:

   ```
   mkdir /usr/adsm
   ```

3. Change to the installation directory by entering:

   ```
   cd /usr/adsm
   ```

4. FTP to the AIX server workstation by entering:

   ```
   ftp <servermachine>
   ```

   where `<servermachine>` is the name of the AIX server workstation.

5. Log in to the server as the root user.

6. Change to binary transfer by entering:

   ```
   binary
   ```

   Note: You must use the binary option.

7. Change to the installation directory on the AIX server workstation by entering:

   ```
   cd /usr/sys/inst.images/adsm.clients/hp/English/upd
   ```

8. Transfer the *hpux.update.image* client image file to the client workstation by entering:

   ```
   get hp.update.image
   ```

9. Quit the FTP session by entering:

   ```
   quit
   ```

10. Install the HP-UX client by entering:

    ```
    update -s /usr/adsm/hp.update.image IBMADSM-CLIENT
    ```

    The *update* command does the following:

    - Sets the permissions of the installed files to the correct values.
    - Updates the directory locations of the bit map files, which are in the ADSM X Window Systems resource file (*DSMX*), to the directory where ADSM is installed.
    - Optionally creates symbolic links for the installed files.

Note: If you have installed ADSM to a directory other than */usr/adsm*, every user of ADSM must set their DSM_DIR environment variable to this alternate installation directory.

OpenEdition MVS Client

After the OpenEdition MVS client image is copied to the AIX server workstation, the image file is located in the /usr/sys/inst.images/adsm.clients/mvsoe/English/smpe directory. You can transfer this image file directly from the server workstation to the end user's workstation by using FTP commands, and then install the OpenEdition MVS client.

1. From the MVS system, FTP to the AIX server workstation by entering:

   ```
   ftp <servermachine>
   ```

   where `<servermachine>` is the name of the AIX server workstation.

2. Log in to the server as the root user.
3. Change to binary transfer by entering:

   ```
   binary
   ```

   Note: You must use the binary option.

4. Set the locsite parameters, if necessary, as shown in this example:

   ```
   locsite recfm=fb lrecl=80 blksize=3120
   ```

   Note: You may also have to set the following variables by using locsite as in example shown here:

   ```
   locsite cy pri=5, sec=2, vol=xxxxxx, unit=xxxxxx
   ```

   where *vol* is the the volume name to write to and *unit* is a 3380 or 3390.

5. Change to the installation directory on the AIX server workstation by entering:

   ```
   cd /usr/sys/inst.images/adsm.clients/mvsoe/English/smpe
   ```

6. Transfer each of the files in this directory by using the example listed here for each file:

   ```
   get OEMVS.HDS2AM1.F1 'oemvs.hds2am1.f1'
   ```

   Note: Issue this command for each file you are transferring.

7. Quit the FTP session by entering:

   ```
   quit
   ```

8. From the MVS workstation, receive each of the datasets by issuing the example listed here for each file that was sent.

   ```
   receive indsn('oemvs.hds2am1.fl')
   (you will be prompted for a dataset...)
   da('ibm.hds2am1.f1')
   ```

   Note: Receive *each* dataset that was sent.

9. Run the SMPE job to install ADSM on the OpenEdition MVS client.

Sequent PTX Client

After the Sequent PTX client image is copied to the AIX server workstation, the image file is located in the /usr/sys/inst.images/adsm.clients/sqt/English/pkgadd directory.

To transfer the image file from the server to an end user's workstation and install the Solaris client, complete the following procedure from the end user's workstation:

1. On the Sequent PTX workstation, log in as the root user by entering:

   ```
   su root
   ```

2. Create the installation directory if it does not already exist by entering:

   ```
   mkdir /dev/rmt/tm0/adsm
   ```

3. Change to the installation directory by entering:

   ```
   cd /dev/rmt/tm0/adsm
   ```

4. FTP to the AIX server workstation by entering:

   ```
   ftp <servermachine>
   ```

   where `<servermachine>` is the name of the AIX server workstation.

5. Log on to the server machine as the root user.
6. Change to binary transfer by entering:

   ```
   binary
   ```

   Note: You must use the binary option.

7. Change to the installation directory by entering:

   ```
   cd usr/sys/inst.images/adsm.clients/sqt/English/pkgadd
   ```

8. Transfer the *sqt.pkgadd* client image file to the client workstation by entering:

   ```
   get sqt.pkgadd
   ```

9. Quit the FTP session by entering:

   ```
   quit
   ```

10. Install the Sequent PTX client by entering:

    ```
    pkgadd -d /dev/rmt/tm0/adsm/sqt.pkgadd
    ```

    The system then displays many installation messages as it processes the *pkgadd* file.

    Installation is complete when this message appears:

    ```
    Installation of <adsm> was successful.
    ```

SunOS Client

After the SunOS client image is copied to the AIX server workstation, the image file is located in the /usr/sys/inst.images/adsm.clients/sunos/English/tar directory.

To transfer the image file from the server to an end user's workstation and install the SunOS client, complete the following procedure from the end user's workstation:

1. On the Sun workstation, log in as the root user by entering:

   ```
   su root
   ```

2. Create the installation directory if it does not already exist by entering:

   ```
   mkdir /usr/adsm
   ```

3. Change to the installation directory by entering:

   ```
   cd /usr/adsm
   ```

4. `ftp` to the AIX server workstation by entering:

   ```
   ftp <servermachine>
   ```

   where `<servermachine>` is the name of the AIX server workstation.

5. Log on to the server machine as the root user.

6. Change to binary transfer by entering:

   ```
   binary
   ```

   Note: You must use the binary option.

7. Change to the installation directory by entering:

   ```
   cd /usr/sys/inst.images/adsm.clients/sunos/English/tar
   ```

8. Transfer the *sunos.tar.Z* client image file to the client workstation by entering:

   ```
   get sunos.tar.Z
   ```

9. Quit the FTP session by entering:

   ```
   quit
   ```

10. Because the tar file is compressed, enter this command to uncompress it:

    ```
    uncompress sunos.tar.Z
    ```

11. Extract the uncompressed tar file by entering:

```
tar -xvf sunos.tar
```

12. Install the SunOS client by entering:

```
./dsm.install
```

    The *dsm.install* command:

    - Sets the permissions of the installed files to the correct values.
    - Updates the directory locations of the bit map files, which are in the ADSM X Windows System resource file, to the directory where ADSM is installed.
    - Optionally creates symbolic links for the installed files.

    When prompted, enter directory names where symbolic links to the executable files can be written. You can add the symbolic links to directories that are in every user's path (such as */usr/bin*), or you can add the directory to each user's path. Optionally, you can add symbolic links to multiple directories. This is useful if you are installing ADSM on a heterogeneous file server.

    If you prefer, ADSM users can add the directory where ADSM is installed to their path.

If you need to move ADSM to another directory, you must reinstall it using the original installation media.

Understanding the Directory Structure

If you installed ADSM in **/usr/adsm**, you have the following directory structure:

Directory	Contents
`/usr/adsm`	Common files (such as messages and help), about 1.6MB
`/usr/adsm/solaris`	Solaris executable files, about 1.8MB
`/usr/adsm/sun4`	Sun-4 executable files, about 1.9MB
`/usr/adsm/sun4adm`	Administrative graphical user interface files, about 6.2MB
`/usr/adsm/api`	Application programming interface files, about 1.1MB

When a user calls one of the ADSM programs by entering the *dsm* command or the *dsmc* command, ADSM starts *dsm.wrapper* (a script file that resides with the command files), and *dsm.wrapper* calls the proper executable file.

Understanding SunOS System Requirements

ADSM requires the SunOS kernel to contain support for shared memory.

The default SunOS kernel (as shipped) supports shared memory. However, it is possible to customize the kernel to eliminate shared memory. If your system's kernel does not have the support for shared memory, you should reconfigure and rebuild the kernel before running ADSM. For more information about reconfiguring and rebuilding the operating system kernel, refer to your SunOS documentation.

Binary-compatibility packages are automatically installed on your Sun workstation for Solaris 2.3 or later. For more information about binary-compatibility packages, see your SunOS documentation.

Sun Solaris Client

Note: The Sun Solaris client image is used to install ADSM on Solaris 2.3 or later.

After the Solaris client image is copied to the AIX server workstation, the image file is located in the /usr/sys/inst.images/adsm.clients/solaris/English/pkgadd directory.

To transfer the image file from the server to an end user's workstation and install the Solaris client, complete the following procedure from the end user's workstation:

1. On the Solaris workstation, log in as the root user by entering:

   ```
   su root
   ```

2. Create the installation directory if it does not already exist by entering:

   ```
   mkdir /opt/adsm
   ```

3. Change to the installation directory by entering:

   ```
   cd /opt/adsm
   ```

4. FTP to the AIX server workstation by entering:

   ```
   ftp <servermachine>
   ```

   where `<servermachine>` is the name of the AIX server workstation.

5. Log on to the server machine as the root user.

6. Change to binary transfer by entering:

   ```
   binary
   ```

   Note: You must use the binary option.

7. Change to the installation directory by entering:

   ```
   cd usr/sys/inst.images/adsm.clients/solaris/English/pkgadd
   ```

8. Transfer the *solaris.pkgadd* client image file to the client workstation by entering:

   ```
   get solaris.pkgadd
   ```

9. Quit the FTP session by entering:

   ```
   quit
   ```

10. Install the Solaris client by entering:

    ```
    pkgadd -d /opt/adsm/solaris.pkgadd
    ```

The system asks you if you want to install the administrative client GUI (IBMDSMadm), the application programming interface (IBMDSMapi), the backup-archive client (IBMDSMbas), or all of these (default). Select *all*. The system also asks:

Do you want to continue with the installation?
Do you want to install these setuid/setgid files?

Enter *y* to continue processing.

The system then displays many installation messages as it processes the *pkgadd* file.

After you have installed the ADSM client, the files reside in the /opt/adsm directory. If you wish to move these files to another directory:

- Ensure that the permissions of the installed files have not been changed.
- Update the directory locations of the bit map files, which reside in the ADSM X Windows System resource file (*DSMX*), to the new directory where ADSM has been moved.
- Update the symbolic links for the installed files in the /usr/bin directory.
- Ensure that every user of ADSM has set the DSM_DIR environment variable to the new installation directory.

Transferring Client Images to Diskette

If you want to install an ADSM administrative or backup-archive client on a DOS, Novell, OS/2, SCO, Windows, or Windows NT workstation, you can transfer the client image files to diskettes from either the AIX server workstation (by using “dd”), or from a DOS or OS/2 workstation (by using “dskf”), and then install the client.

Notes:

1. You can transfer the image files for AT&T, Digital UNIX, SGI IRIX, or SINIX directly to diskette for installation on the appropriate client workstation.
2. You can transfer the image files for Macintosh to diskette from the AIX server workstation (by using “dd”) for installation on the client workstation.

Diskettes Needed for Client Images

Table 46 shows the number of diskettes required for each client.

Table 46. Diskettes Needed for Client Images

Client	Diskette size	Diskettes needed
DOS	1.44MB	6
Macintosh	1.44MB	1
Novell	1.44MB	2
OS/2	1.44MB	6
SCO	1.44MB	3
Windows	1.44MB	2
Windows NT	1.44MB	1

Transferring Client Image Files to Diskette from the AIX Server Workstation

After you copy the client images using SMIT, you can transfer the image files which are stored in the /usr/sys/inst.images/adsm.clients/‘platform’/‘language’/dd directory from the AIX server workstation to diskettes.

To transfer the image file from the AIX server workstation to 3.5 inch client diskettes, complete the following procedure:

1. On the AIX server workstation, log in as the root user.
2. Change to the directory that contains the image file for the client you want to install by entering:

   ```
   cd /usr/sys/inst.images/adsm.clients/<client_type>/‘language’/dd
   ```

   where <client_type> is the type of the client and ‘language’ is your choice of language. For example, to change to the directory that contains the DOS client image files, enter:

   ```
   cd /usr/sys/inst.images/adsm.clients/dos/English/dd
   ```

   Note: See Figure 16 on page 138 for the directory structure of the client images.

3. List the files in the directory by entering:

   ```
   ls
   ```

   Notes:

   a. You will need one formatted diskette for each file in the directory.

   b. To format a 1.44 MB diskette, enter the following command:

      ```
      format -d /dev/<fd0>.18
      ```

      where <fd0> is the appropriate diskette device name

4. Transfer the image file from the RS/6000 system to your diskette by entering:

   ```
   dd if=<filename> of=<device> bs=16384 conv=sync
   ```

   where:

Parameter	Description
`if`	The *input file* contains the name of the file that you are copying. You get the name from the list in Step 3.
`of`	The *output file* contains the name of the diskette device that you are transferring the images to. For example, you could set `<device>` to one of the following values: /dev/fd0 /dev/rd0
`bs`	The *block size* must be 16384 (16 KB). This value is required.
`conv`	The *conversion* must be "sync." This value is required.

   For example, to transfer the DOS client image to the first DOS client diskette, enter:

   ```
   dd if=dos.3d1 of=/dev/fd0 bs=16384 conv=sync
   ```

5. Repeat step 4 for each file comprising the client image. Use a different diskette for each file.

6. Repeat steps 2 through 5 for each client you want to transfer to diskettes.

After the diskettes are created, refer to the procedures described in Chapter 8, "Installing Remote Administrative Clients" on page 155 to install the administrative clients. To install the backup-archive client, refer to *ADSM Version 2 Installing the Clients* manual for each type of client.

Transferring Client Images to Diskette from a DOS or OS/2 Workstation

After you copy the client images using SMIT, you can transfer the image files, which are stored in the /usr/sys/inst.images/adsm.clients/'platform'/'language'/dskf directory, to a DOS or OS/2 workstation. From a DOS or OS/2 workstation, you can then transfer the client images to diskette.

See Table 46 on page 150 for the number of diskettes you need for each client.

To transfer the image files from a DOS or OS/2 workstation to 3.5 inch client diskettes, complete the following procedure:

1. Log on to your DOS or OS/2 workstation.
2. Change to a drive that is large enough to handle the downloaded images.

   Note: To determine the size of the drive you need, go to Table 46 on page 150 and multiply the diskette size by the number of diskettes you need.
3. Create a temporary directory named *adsmtemp* to download your images by entering:

   ```
   md \adsmtemp
   ```
4. Change to the *adsmtemp* directory by entering:

   ```
   cd \adsmtemp
   ```
5. FTP to the AIX server workstation by entering:

   ```
   ftp <servermachine>
   ```

   where `<servermachine>` is the name of the AIX server workstation.
6. Log on to the server machine as the root user.
7. Change to binary transfer by entering:

   ```
   binary
   ```

   Note: You must use the binary option.
8. Change to the /usr/sys/inst.images/adsm.clients/loaddskf directory on the AIX server workstation by entering:

   ```
   cd /usr/sys/inst.images/adsm.clients/loaddskf
   ```
9. Get the *loaddskf* file in the directory by entering:

   ```
   get loaddskf.exe
   ```
10. Change to the directory containing the client “dskf” files.

    For example, for the DOS English client, enter:

    ```
    cd /usr/sys/inst.images/adsm.clients/dos/English/dskf
    ```

    Note: List the subdirectories by entering:

    ```
    ls
    ```

    See Figure 16 on page 138 for the subdirectory of the client images you want to install.
11. Get the files in the directory by entering:

    ```
    mget *
    ```
12. Quit the FTP session by entering:

    ```
    quit
    ```
13. Format the diskette and transfer the image file from your workstation to the diskette by completing the following procedure:

a. From the adsmtemp directory, run the following command for each client image you want to create individual diskettes:

```
loaddskf <filename> a: /f
```

where `<filename>` is a file from the list obtained in step 10 on page 152. `a:` specifies the a drive. `/f` automatically formats unformatted diskettes.

For example,

```
loaddskf dos.3d1 a: /f
```

b. Repeat the previous step for each file comprising the client image. Use a different diskette for each file.

14. Delete the adsmtemp directory and all its contents after all the diskettes have been created, by completing the following procedure:

a. From the adsmtemp directory, enter:

```
erase *.*
```

b. Change to the previous directory, by entering:

```
cd ..
```

c. Remove the adsmtemp directory by entering:

```
rmdir adsmtemp
```

After the diskettes are created, follow the procedures described in Chapter 8, “Installing Remote Administrative Clients” on page 155 to install the administrative clients. To install the backup-archive client, refer to *ADSM Version 2 Installing the Clients* manual for each type of client.

Removing Clients from the Server Workstation

To remove a client from your server workstation to allow you to reclaim the space, follow this procedure:

1. Enter:

```
smit &
```

2. Select the following from SMIT:

```
Software Installation and Maintenance
     Manage Applied Software (List, Commit, Reject, Remove)
          Remove Applied Software Products
               *SOFTWARE name  (click on List, select product to remove)
                Automatically remove DEPENDENT software?  NO
                EXTEND file systems if space needed?      YES
```

3. Enter:

```
Do
```

Chapter 8. Installing Remote Administrative Clients

This chapter contains instructions for installing the ADSM administrative client systems.

Installation Overview

Although the details differ from platform to platform, installing the ADSM clients involves these steps:

1. Registering a new license. See “Registering a New License” on page 157.
2. Installing the client program. Select the client components you want during the installation. For example, depending on the client you are installing, you can install the GUI or command line versions for the administrative client or for the backup-archive client. Although the installation instructions in this chapter are directed towards the administrative client, you can also install the backup-archive client at the same time.

   If you are installing clients from client images on the installation tape, see Chapter 7, “Installing Clients from Images on the Installation Media” on page 135.

   You will be referred to *ADSM Installing the Clients* for installations. This manual contains instructions for installing both the administrative and backup-archive client files. Have this manual available before starting the client installation.

   Note: For the OpenEdition MVS client, also have the *Program Directory for ADSM on OpenEdition MVS* available to reference for the installation.
3. Setting environment variables to identify the locations of certain ADSM files. This is usually an optional step because most of the client installations set these variables automatically during the installation. However, if you move the client files to a directory other than the installation directory, you may need to change these variables.
4. Copying and modifying the options file. ADSM uses the options in this file to control its processing. For example, these options determine which communications method ADSM uses to transfer data. For the UNIX Administrative clients, the options are split between two options files: the client system options file and the client user options file. This allows for greater flexibility in multi-user systems. All other clients use a single options file, referred to as the client options file.
5. Starting up the administrative client program. After it is started, you can begin using ADSM to administer the ADSM server.

Table 47 on page 156 provides a list of available administrative clients and where you can go in this chapter to begin installing the one of your choice.

Table 47. List of Administrative Client Systems

System	To begin the installation, see:
OS/2	"Setting Up the OS/2 Administrative Client" on page 159
DOS	"Setting Up the DOS Administrative Client" on page 161
Microsoft Windows and Windows NT	"Setting Up the Microsoft Windows and Windows NT Administrative Client" on page 164
AIX for RISC/System 6000	"Setting Up the UNIX Administrative Clients" on page 166
AT&T UNIX	"Setting Up the UNIX Administrative Clients" on page 166
Digital UNIX	"Setting Up the UNIX Administrative Clients" on page 166
DEC ULTRIX	"Setting Up the UNIX Administrative Clients" on page 166
Hewlett Packard HP-UX	"Setting Up the UNIX Administrative Clients" on page 166
NEC EWS-UX/V	"Setting Up the UNIX Administrative Clients" on page 166
OpenEdition MVS	"Setting Up the UNIX Administrative Clients" on page 166 and *Program Directory for ADSM on OpenEdition MVS*
SCO UNIX 386/SCO Open Desktop	"Setting Up the UNIX Administrative Clients" on page 166
Sequent PTX	"Setting Up the UNIX Administrative Clients" on page 166
Siemens Nixdorf SINIX	"Setting Up the UNIX Administrative Clients" on page 166
Silicon Graphics IRIX	"Setting Up the UNIX Administrative Clients" on page 166
SunOS/Solaris	"Setting Up the UNIX Administrative Clients" on page 166
MVS TSO (see Note)	"Setting Up the TSO Administrative Client" on page 174
VM CMS (see Note)	"Setting Up the CMS Administrative Client" on page 172

Note: These clients are not included on the AIX package.

Exiting from ADSM

If you are using ADSM from an administrative or backup-archive client, you can quit the ADSM client and leave the server running. You can quit the ADSM client from either the command line or the graphical user interface. To quit the ADSM client and leave the server running, do one of the following:

- From an administrative client or backup-archive client graphical user interface session, select:

  ```
  Close
  ```

- From an administrative client or backup-archive client command-line interface session, enter:

  ```
  quit
  ```

Registering a New License

The base ADSM server is automatically licensed to support one AIX client and a base level of removable media drives.

When you purchase additional ADSM features or modules, you must register the new licenses with the ADSM server by using the REGISTER LICENSE command. This command enables the server for the new features or modules. It also starts a non-cancellable license audit to determine if the current server configuration is in conformance with the license terms.

The REGISTER LICENSE command enables the server for a number of licensing factors:

- The maximum number of additional clients
- Environment support for UNIX clients other than AIX clients
- Environment support for Desktop (non-UNIX) clients
- HSM (hierarchical storage management) client support
- DRM (disaster recovery management) support
- Device support for specified removable media libraries or removable media drives
- Device support through the secondary server attachment feature

When you issue the REGISTER LICENSE command, you must specify a **license authorization** code for each feature or module. The license authorization code consists of a string of numbers and letters that are unique to each feature or module.

Note: After installing the server, refer to the README file for the license authorization codes.

The base server comes with a module named *dsmreg.lic*, which the server uses to access and interpret licenses. The server must be able to locate this module or you will receive licensing error messages. This module is loaded dynamically by the server and is located in the /usr/lpp/adsmserv/bin directory. However, this module can also be located in the directory referenced by the DSMSERV_DIR variable.

For a list of supported devices, refer to *Licensing Programming Specification* or *License Information*.

Example of Registering New Licenses

Assume your server is licensed for Device Support Module 2. You now want to purchase support for 10 Windows clients and support for IBM3494 Model L10 libraries. For this environment, you must purchase the licenses for additional clients, environment support, and device module upgrades through Device Module Support 4. (IBM 3494 Model L10 libraries are supported in Device Support Module 4.)

To license your server for 10 Windows clients and IBM 3494 Model L10 libraries, complete the following procedure:

Note: The following license authorization codes are only examples. They will not work on a server.

1. Contact your IBM representative and purchase the following licensed features and modules:
   - 10 Clients (license authorization: 78783453bbbdc35627)
   - Environment Support (Desktop) - Clients other than UNIX (license authorization: 3068e72f2933a969c7f9b6b)
   - Device Support Module Upgrade: Module 2 to Module 3 (license authorization: f8a39ddd3662342d55744451e21eb359dfa)
   - Device Support Module Upgrade: Module 3 to Module 4 (license authorization: f8a39ddd3662342d557434)
2. Locate the license authorization code for each feature and module. The license authorization codes are included with each feature and module package.
3. Register each license and module by using the REGISTER LICENSE command:
   a. `register license 78783453bbbdc35627`
   b. `register license 3068e72f2933a969c7f9b6b`
   c. `register license f8a39ddd3662342d55744451e21eb359dfa`
   d. `register license f8a39ddd3662342d557434`

Attention

Keep the license authorization codes for each additional feature or module you purchase. If the server data is lost or becomes unavailable, if CPU boards are changed, or if the server is moved to another AIX system, you must reenter the license authorization for each additional feature or module in order to recover the server and specify your current license terms.

For information on licensing, refer to the *ADSM Administrator's Guide*. For information on the REGISTER LICENSE command, refer to the *ADSM Administrator's Reference*.

Setting Up the OS/2 Administrative Client

To set up the OS/2 administrative client, you must install the files and modify the client options file.

Before you start the installation, be sure that you have a copy of *ADSTAR Distributed Storage Manager: Installing the Clients*. You will need to refer to it to install the client files.

Installation Requirements

The OS/2 administrative client requires 10MB free disk space for installation.

The disk space is an approximate number which depends on the ADSM components you choose to install. The components are:

- Administrator command-line interface
- Administrator graphical user interface
- Backup-archive client command line-interface
- Backup-archive client graphical user interface

The online installation instructions describe how much space is required for the selected options and how much space is available on the hard disk.

Installing the OS/2 Client Program

You can install the ADSM client from the OS/2 Configuration, Installation, and Distribution (CID) components or from diskettes.

To install the OS/2 client, complete this procedure:

1. Refer to *ADSTAR Distributed Storage Manager: Installing the Clients* and complete Step 1 for installing the OS/2 ADSM client. In Step 1 you install the ADSM files.
2. During Step 1, when asked what components you want to install, select the administrator command line interface, the administrative graphical user interface, or both.
3. When you have completed Step 1, do one of the following:

   If, during Step 1, you chose to have the installation program update your **config.sys file**, proceed below to “Modifying the Administrative Client Options File for OS/2” on page 160 to continue setting up the administrative client. We recommend that you have the installation program update your **config.sys** file.

   OR

   If, during Step 1, you chose *not* to have the installation program update your **config.sys** file, proceed to Step 2. In Step 2, you manually update your **config.sys** file. When you complete Step 2, proceed below to “Modifying the Administrative Client Options File for OS/2” on page 160 to continue setting up the administrative client.

Modifying the Administrative Client Options File for OS/2

The client options file identifies the servers you can connect to, the communication options you can use, and the options that control processing between the client and server. A sample client options file named DSM.SMP is included in the installation directory.

Follow these steps to modify the DSM.SMP client options file:

1. Copy the sample client options file DSM.SMP to DSM.OPT For example:

   ```
   COPY C:\ADSM\DSM.SMP C:\ADSM\DSM.OPT
   ```

2. For the COMMMETHOD option, specify TCPIP, NETBIOS, IPXSPX, or SNALU6.2. The default is 3270.

   - For TCP/IP, specify the options shown in “Setting Administrative Client Options for TCP/IP” on page 182.
   - For SNA LU6.2, specify the options shown in “Setting Administrative Client Options for SNA LU6.2 (APPC)” on page 180.
   - For NETBIOS, specify the options shown in “Setting Administrative Client Options for NETBIOS” on page 184.
   - For IPX/SPX, specify the options shown in “Setting Administrative Client Options for IPX/SPX” on page 183.

   Repeat step 2 for each server you want to contact. However, comment out all servers except for the one that you are currently using by placing an asterisk in front of each line. After you have configured your server for communications, you do not have to modify any other options to start the administrative client. You can accept the ADSM defaults for the remainder of the options that can affect you as an administrative client. For information on how you may want to modify these options, refer to Chapter 9, “Setting Client Options” on page 177.

   Note: If you also install the backup-archive client on your node, you share the options file with the backup-archive client. The backup-archive client uses the full set of options in the client options file while the administrative client uses only a subset of them. For information on options used by the backup-archive clients, refer to *ADSTAR Distributed Storage Manager: Installing the Clients*.

   Using the TCP/IP communication method as an example, when you finish completing your communication option entries, your options file should appear similar to that in Figure 17.

```
COMMMETHOD                  TCPip
   TCPSERVERADDRESS         DSHOST.ALMADEN.IBM.COM
   TCPPORT                  1500
   TCPBUFFSIZE              8
   TCPWINDOWSIZE            16
```

Figure 17. Example of TCP/IP Communication Method Options Setting for OS/2 Client

Note: The specific settings for each of the options shown should be obtained from your network administrator.

After you have completed updating the client options file, shut down your applications and reboot your system so that the changes can take effect.

Starting the OS/2 Administrative Client

To start the administrative command-line client, enter:

```
dsmadmc
```

To start a GUI session, enter in an OS/2 window:

```
dsmadm
```

If you have the icon that represents the graphical user interface installed on the OS/2 desktop, you can start the graphical user interface by double clicking on the icon or by selecting the icon and pressing *Enter*.

Setting Up the DOS Administrative Client

To set up the DOS administrative client, you must install the files and modify the client options file.

Before you start the installation, be sure that you have a copy of *ADSTAR Distributed Storage Manager: Installing the Clients*. You will need to refer to it to install the client files.

Installation Requirements

Table 48 outlines the operating system requirements for the DOS ADSM client.

Table 48. DOS Client Operating System Installation Requirements

Operating System	Version	Disk Space
DOS	5.0 or later	3MB

The DOS client provides a command line interface for the administrative client. Table 49 lists the administrative client interfaces that you can select for connecting to the AIX server. The table also lists the commands that must be used to start each of the interfaces once they are installed.

Table 49 (Page 1 of 2). ADSM DOS Administrative Client Interfaces

Interface	Startup Command
FTP TCP/IP administrative client	dsmadmcf
IBM TCP/IP 2.1 administrative client	dsmadmci
IBM TCP/IP 2.0 administrative client	dsmadmc0
FTP TCP/IP command-line client	dsmcftp

Table 49 (Page 2 of 2). ADSM DOS Administrative Client Interfaces

Interface	Startup Command
IBM TCP/IP 2.1 command-line client	dsmcibm
IBM TCP/IP 2.0 command-line client	dsmc120
FTP TCP/IP full screen client	dsmftp
IBM TCP/IP 2.1 full screen client	dsmibm
IBM TCP/IP 2.0 full screen client	dsmibm20
NETBIOS administrative client	dsmadmcn
NETBIOS command-line client	dsmcnet
NETBIOS full screen client	dsmnet
IPX/SPX full screen client	dsmadmcx
IPX/SPX command-line client	dsmcipx
IPX/SPX full screen client	dsmipx
SNA LU6.2 (NS/DOS) administrative client	dsmadmcd
SNA LU6.2 (NS/DOS) command-line client	dsmcnsd
SNA LU6.2 (NS/DOS) full screen client	dsmnsd
PC Support/400 or Client Access/400 APPC administrative client	dsmadmc4
PC Support/400 or Client Access/400 APPC command-line client	dsmc400
PC Support/400 or Client Access/400 APPC full screen client	dsm400

You need approximately 3MB of disk space to install the administrative client for one communications protocol.

Installing ADSM on DOS

To install the DOS client, do the following:

1. Refer to *ADSTAR Distributed Storage Manager: Installing the Clients* and complete Step 1 and Step 2 for installing the DOS ADSM client. In Step 1 you install the ADSM files. In Step 2 you set up the ADSM environment variables by updating your **autoexec.bat** file.
2. During Step 1, when asked what components you want to install, select the administrator command line interface for the communications method you want to use to connect to the server. See Table 49 on page 161.
3. When you have completed Step 2, proceed below to “Modifying the Administrative Client Options File for DOS” on page 163 to continue setting up the administrative client.

Modifying the Administrative Client Options File for DOS

The client user options file identifies the servers you can connect to and specifies communication options. A sample client user options file named DSM.SMP is included

in the installation directory. See Chapter 9, “Setting Client Options” on page 177 for setting additional client options.

Complete the following procedure to modify the DSM.SMP client user options file:

1. Copy the sample client user options file DSM.SMP to DSM.OPT For example:

   ```
   COPY DSM.SMP DSM.OPT
   ```

2. For the COMMMETHOD option, specify TCPIP, NETBIOS, IPXSPX, or SNALU6.2.
   - The 3270 cannot be used with the AIX server.
   - For TCP/IP, specify the options shown in “Setting Administrative Client Options for TCP/IP” on page 182.
   - For SNA LU6.2, specify the options shown in “Setting Administrative Client Options for SNA LU6.2 (APPC)” on page 180.
   - For NETBIOS, specify the options shown in “Setting Administrative Client Options for NETBIOS” on page 184.
   - For IPX/SPX, specify the options shown in “Setting Administrative Client Options for IPX/SPX” on page 183.

Repeat step 2 for each server you want to contact. However, comment out all servers except for the one that you are currently using by placing an asterisk in front of each line.

After you have configured your server for communications, you do not have to modify any other options to start the administrative client. You can accept the ADSM defaults for the remainder of the options that you affect you as an administrative client. For information on how you might want to modify these options, refer to Chapter 9, “Setting Client Options” on page 177.

Note: If you also install the backup-archive client on your node, you share the options file with the backup-archive client. The backup-archive client uses the full set of options in the client options file while the administrative client uses only a subset of them. For information on options used by the backup-archive clients, refer to the *ADSTAR Distributed Storage Manager: Installing the Clients* manual.

Using the TCP/IP communication method as an example, when you finish completing your communication option entries, your options file should appear similar to that in Figure 18 on page 164.

```
COMMMETHOD                  TCPip
   TCPSERVERADDRESS         DSHOST.ALMADEN.IBM.COM
   TCPPORT                  1500
   TCPBUFFSIZE              8
   TCPWINDOWSIZE            16
```

Figure 18. Example of TCP/IP Communication Method Options Setting for DOS Client

Note: The specific settings for each of the options shown should be obtained from your network administrator.

After you have completed updating the client options file, shut down your applications and reboot your system so that the changes can take effect.

Starting the DOS Administrative Client

To start the administrative command line client, enter:

```
dsmadmcz
```

at the command prompt (where *z* is the letter that indicates the executable file for your communication method for your administrative client). See Table 49 on page 161 for the list of commands to start your appropriate administrative client.

Setting Up the Microsoft Windows and Windows NT Administrative Client

To set up the Microsoft Windows and Windows NT administrative client, you must install the files and modify the client options file.

Before you start the installation, be sure that you have a copy of the *ADSTAR Distributed Storage Manager: Installing the Clients* manual. You will need to refer to it to install the client files.

The Microsoft Windows and Windows NT client use a pseudo text mode windows application that simulates a command line inside a window.

Installation Requirements

Table 50 outlines the operating system requirements for the Windows and Windows NT ADSM client.

Table 50. Windows and Windows NT Client Operating System Installation Requirements

Operating System	Version	Disk Space
Windows	3.1 or later	4.2MB
Windows NT	3.5 or later	2.4MB

The online installation instructions describe how much space is required for the selected options and how much space is available on the hard disk.

Installing ADSM on Microsoft Windows

To install the Windows or Windows NT administrative client, do the following:

1. Refer to *ADSTAR Distributed Storage Manager: Installing the Clients* and complete Step 1 for installing the Windows or Windows NT ADSM client. In Step 1 you install the ADSM files.
2. During Step 1, when asked what components you want to install, select the administrator command line interface.

3. During Step 1, if you are installing the Windows NT client, the install program asks if you want to edit the options file. We recommend that you choose not to edit the file at that time. That task is covered later in these set up instructions.
4. When you have completed Step 1, do one of the following:

   If you do not want to run ADSM from a directory other than the installation directory, proceed below to "Modifying the Administrative Client User Options File for Windows" to continue setting up the administrative client. We recommend that you run ADSM from the installation directory.

   OR

   If you want to run ADSM from a directory other than the installation directory, proceed to Step 2. In Step 2, you manually set up the ADSM environment variables by updating your **autoexec.bat** file. When you complete Step 2, proceed below to "Modifying the Administrative Client User Options File for Windows" to continue setting up the administrative client.

Modifying the Administrative Client User Options File for Windows

ADSM includes a sample client user options file named DSM.SMP. It is in the installation directory. You use the client user options file to identify the servers and to specify communication options.

Follow these steps to create and modify the client user options file:

1. During installation, DSM.SMP is copied to DSM.OPT. You must edit DSM.OPT to include the NODENAME option.

   By keeping the original file intact, you can always go back to the option default settings, if necessary.
2. Specify the TCP/IP communication method as the COMMMETHOD option. Use the TCP/IP communication method to communicate with an ADSM AIX server. See "Setting Administrative Client Options for TCP/IP" on page 182.

Repeat step 2 for each server you want to contact. However, all servers except for the one you are currently using must be commented out by placing an asterisk in front of each line.

After you have configured your server for communications, you do not have to modify any other options to start the administrative client. You can accept the ADSM defaults for the remainder of the options that you affect you as an administrative client. For information on how you might want to modify these options, refer to Chapter 9, "Setting Client Options" on page 177.

Note: If you also install the backup-archive client on your node, you share the options file with the backup-archive client. The backup-archive client uses the full set of options in the client options file while the administrative client uses only a subset of them. For information on options used by the backup-archive clients, refer to *ADSTAR Distributed Storage Manager: Installing the Clients*.

Using the TCP/IP communication method as an example, when you finish completing your communication option entries, your options file should appear similar to that in Figure 19 on page 166.

```
COMMMETHOD                  TCPip
   TCPSERVERADDRESS         DSHOST.ALMADEN.IBM.COM
   TCPPORT                  1500
   TCPBUFFSIZE              8
   TCPWINDOWSIZE            16
```

Figure 19. Example of TCP/IP Communication Method Options Settings for the Windows and Windows NT Client

Note: The specific settings for each of the options shown should be obtained from your network administrator.

When you have completed updating the client options file, shut down your applications and reboot your system so that the changes can take effect.

Starting the Microsoft Windows Administrative Client

To start the administrative command line client, enter:

```
dsmadmc
```

ADSM then prompts you for your user ID and password before a session is established with the server.

Setting Up the UNIX Administrative Clients

Before you start the installation, be sure that you have a copy of *ADSTAR Distributed Storage Manager: Installing the Clients*. You will need to refer to it to install the client files.

Note: If you are installing the OpenEdition MVS client, you will also need a copy of the *Program Directory for ADSM on OpenEdition MVS*.

Installation Requirements

Table 51. UNIX Client Requirements

Operating System	Version	Disk Space[1]
AIX	3.2 or later	20MB
AT&T UNIX	Rel. 2.02 or 2.03	5MB
DEC ULTRIX	4.2A, 4.3, or 4.4	5.5MB
Digital UNIX	DEC OSF/1 V3.2	5.5MB
HP-UX	Level 9.03 or 9.04	11MB
NEC EWS-UX/V	Rel. 4.2, Rev. 9.1 or 9.2	5MB

Table 51. UNIX Client Requirements

Operating System	Version	Disk Space[1]
OpenEdition MVS	MVS/ESA SP 5.1 or higher	6.2MB[3]
SCO	Open Desktop 2.0 or 3.0 or UNIX 386 3.2.4	6.8MB
Sequent PTX	PTX 2.x only (4.x not supported)	10MB
Siemens Nixdorf RISC	SINIX-N or SINIX-P 5.4.2 RISC	5MB
Siemens Nixdorf SINIX-Z	Version 5.4.1 386/486	5MB
Silicon Graphics IRIX	Rel. 5.2 or 5.3 with EFS-File System	5MB
Solaris - Native mode[2]	2.3 or 2.4	15.8MB
SunOS	Version 4.1.x	15.8MB

Notes:

1. Disk Space is for all available components.
2. Sun Administration GUI runs on Solaris 2.3 or 2.4 in binary compatibility mode.
3. Disk space is allocated as MVS data sets during installation.

The UNIX ADSM client generally provides the following components:

- Administrator command-line Interface
- Administrator graphical user interface
- Backup-archive client command-line Interface
- Backup-archive client graphical user interface

Note: Certain UNIX clients provide an HSM (hierarchical storage management client) which can be purchased as an additional feature of ADSM. If your installation has purchased this feature with one of those clients, the HSM interface is installed also. For more information about the HSM client, refer to the *ADSTAR Distributed Storage Manager: Using the UNIX Hierarchical Storage Management Clients* manual.

Installing ADSM on UNIX Clients

To install the UNIX ADSM client of your choice, do the following:

1. Refer to the *ADSTAR Distributed Storage Manager: Installing the Clients* manual and complete step 1 in that book to install the UNIX ADSM client of your choice. In step 1 you install the ADSM files.

   Note: If you are installing the OpenEdition MVS client, also have a copy of *Program Directory for ADSM on OpenEdition MVS* available.

2. During step 1, if you are installing the AIX, HP-UX, or Sun Solaris client, the installation program gives you the choice of components to install. Select the administrator command-line interface, the administrative graphical user interface, or both.

   If you are installing one of the other UNIX clients, you do not have to make a selection. The installation program automatically installs all the components.

3. When you have completed step 1, do one of the following:

   If you want the **dsmerror.log** to reside in the current directory, proceed below to "Creating the UNIX Options Files" to continue setting up the administrative client. We recommend that you have the **dsmerror.log** reside in the current directory. (The **dsmerror.log** is intended for IBM service personnel to help you diagnose errors. It contains information about errors that occur during processing.)

   OR

   If you want the **dsmerror.log** to reside in a directory other than the current directory, proceed to step 2. In step 2, define the DSMG_LOG environment variable to point to the directory where you want the **dsmerror.log** to reside.

   Note: step 2 also contains information to set up the DSMG_CONFIG environment variable. As root user, you do not have to be concerned with this environment variable at this time.

   When you complete step 2, proceed below to "Creating the UNIX Options Files" to continue setting up the administrative client.

Creating the UNIX Options Files

The UNIX ADSM clients contain two options files: the *client system options file* and the *client user options file*. The client system options file is named **dsm.sys**. The client user options file is named **dsm.opt**.

These files are created during the basic installation and configuration.

- The client system options file, /usr/lpp/adsm/bin/dsm.sys, is created and set up to include a list of stanzas representing ADSM servers.

  If dsm.sys already exists, the installation script will first save a copy as dsm.sys.save, and then proceed to add two ADSM server stanzas to dsm.sys. One stanza is added for the default server on the local machine and another is added for the ADSM test drive. If a new stanza's parameters conflict with an existing stanza of the same name, the original stanza is commented out, and the new one is added.

- The default client user options file, /usr/lpp/adsm/bin/dsm.opt, is created and set up to point to the localSrv stanza in the dsm.sys file. This allows the local client to communicate with the local ADSM server.

  If dsm.opt already exists, the installation script will first save a copy as dsm.opt.save and will then add a servername entry to dsm.opt that points to the localSrv stanza in dsm.sys. If there is a conflict with an existing servername statement, the original will be commented out and replaced with the new entry. All other options will be preserved.

Ensure that the client system options file has the appropriate communication option entries that allow you to connect to the AIX server.

Creating the Client System Options File

The client system options file (**dsm.sys**) identifies one or more ADSM servers to contact for services and specifies the required communication options for each one.

Note: If you also install the backup-archive client on your node, you share the client system options file with the backup-archive client. The backup-archive client uses the full set of options in the client system options file while the administrative client uses only a subset of them. As an administrative client, you are only required to enter the required communication discussed here. For information on options used by the backup-archive clients, refer to the *ADSTAR Distributed Storage Manager: Installing the Clients* manual.

ADSM includes a sample client system options file named **dsm.sys.smp** that contains the minimum options required to get started using ADSM. Table 52 lists the location of **dsm.sys** after the initial code installation by platform.

Table 52. Location of dsm.sys.smp

Platform	Directory
AIX	/usr/lpp/adsm/bin
SunOS Solaris HP-UX SCO DEC ULTRIX	/usr/adsm or the installation directory
Digital UNIX	/usr/adsm
Siemens Nixdorf SINIX	/usr/adsm
AT&T UNIX	/usr/adsm
NEC EWS-UX/V	/usr/adsm
OpenEdition MVS	/usr/adsm
Sequent PTX	/usr/adsm
Silicon Graphics IRIX	/usr/adsm

If you need to modify the client system options file, follow these steps:

1. Change to the directory where the sample file is stored as indicated by Table 52.
2. Edit the *dsm.sys* file by using an editor of your choice.

Modifying the Client System Options File

After you copy the sample client system options file, edit the **dsm.sys** file using the editor of your choice.

Note: When editing the client system option file, be sure to remove the leading asterisk (*) for each option that you modify.

The following steps provide information about the required communication entries you must make in the client system options file.

1. For the SERVERNAME option, enter a name you want to assign to a server to contact for services, for example, server_a.

   A server name can be as many as 8 characters and not case-sensitive.

2. For each SERVERNAME option entry, use the COMMMETHOD option to specify the communication method to be used for client server communications. You can specify TCPIP for the TCP/IP communication method or, if you are an AIX client, you can also specify SNALU6.2 for the SNA LU6.2 (APPC) communication method.

   If you specify the TCP/IP communication method, edit these required communication options. If you are not sure of the parameter settings, you should obtain them from your network administrator.

   - TCPPORT — Enter the TCP/IP port address used to communicate with the ADSM server.

     Note that the default for this option is 1500. If that is the port address for your ADSM server, you do not need to modify this option.

   - TCPSERVERADDRESS — Enter the TCP/IP Internet address for an ADSM server. There is no default.

   If you are an AIX client and you specify the SNA LU6.2 communication method, edit these required communication options. If you are not sure of the parameter settings, obtain them from your network administrator.

   - Specify one of these:
     - PARTNERLUNAME — Enter the logical unit name used by the transaction program to identify the ADSM server in the SNA network. There is no default. Be careful when specifying this name as it is case-sensitive.
     - TPNAME — Enter a symbolic name for the transaction program name. There is no default. Be careful when specifying this name as it is case-sensitive.
     - CPICMODENAME — Enter the mode for identifying the SNA connection to the gateway and target logical unit. There is no default. Be careful when specifying this name as it is case-sensitive.
   - Or specify:
     - SYMBOLICDESTINATION — Enter the symbolic name for the ADSM server. There is no default. Be careful when specifying this name as it is case-sensitive.

Repeat the steps for each ADSM server you want to contact. Enter options for each server in a separate stanza as shown in Figure 20 on page 171. Begin each stanza with the SERVERNAME option.

As the default, your administrative client contacts the first server identified in the client system options file.

```
Servername     server_a
  COMMmethod                TCPip
  TCPPort                   1500
  TCPServeraddress          almvmd.almaden.ibm.com

Servername     server_b
  COMMmethod                SNAlu6.2
  PARtnerluname             raptor
  TPname                    appcdel
  CPICMOdename              appc
```

Figure 20. Sample Entries in a Client System Options File with Two Stanzas

For detailed information about each option contained in the client system options file and syntax rules that apply to entering information in that file, see Chapter 9, “Setting Client Options” on page 177.

Creating the Client User Options File

The client user options file (**dsm.opt**) contains options that control and structure processing activities between the client and the server. For example, it contains options that determine how dates and times are formatted on messages that you receive from the server.

ADSM includes a client user options file named **dsm.opt** during the basic installation and configuration. The default settings are usually adequate for this file. For information on how you might want to modify these options, refer to Chapter 9, “Setting Client Options” on page 177.

ADSM contains a sample client user options file (dsm.opt.smp) that you can use to create your client user options file.

To modify a client user options file, follow these steps:

1. Change to the directory where the file (dsm.opt.smp) is stored. It is located in the same directory where the dsm.sys file is located as indicated by Table 52 on page 169.
2. Edit the file using the editor of your choice.

   Note: If you also install the backup-archive client on your node, you share the client user options file with the backup-archive client. The backup-archive client uses the full set of options in the client user options file while the administrative client uses only a subset of them. As an administrative client, you are only required to create the client user options file and use the defaults for those options that apply to you. For information on options used by the backup-archive clients, refer to *ADSTAR Distributed Storage Manager: Installing the Clients*.

Starting the UNIX Administrative Client

To start the administrative command-line client on all UNIX platforms, enter:

```
dsmadmc
```

To start the graphical user interface for the administrative client, enter:

```
dsmadm
```

or double-click on the ADSM administrative client icon if you are using the ADSM Main GUI (see Figure 3 on page 22).

Configuring Existing Administrative Clients

This section provides information on configuring existing administrative clients for an AIX server. These clients are not supplied with the ADSM for AIX package.

Setting Up the CMS Administrative Client

Note: This client is not supplied with the ADSM for AIX package.

The following set of prerequisites must be met prior to installation of the CMS administrative client:

- Access to a C run-time library must be established.

If you use:	You must access:
VM/ESA	IBM SAA AD/CYCLE Language Environment/370
VM/SP Release 5 or VM/HPO Release 5	C/370 Library Version 1 Release 2
VM/IS Release 6 or later	C/370 Library Version 2

- The VM feature Service Virtual Machine (SVM) must be at the latest service level.
- Access to the administrative client files must be available.

Installing ADSM on CMS

The CMS administrative client can be run from either of the following situations:

- A virtual machine on the same VM system on which the ADSM server is installed.

  In this situation, you are linking to the ADSM product disk.

- A remote system with SNA LU6.2 or TCP/IP connectivity to the ADSM server.

  In this situation, you must access the following administrative client files, which are on the product disk:

  – DSMADMC MODULE (executable client module)
  – ANSENU TXT (messages repository)
  – DSADM SAMPOPTS (sample options file)

Use the following procedure to install the administrative client:

1. To ensure the administrative client files (listed above) are in the CMS search order:
   - Link to the ADSM product disk if you are on the same system. (U5648020 491 is the default product disk.)
   - If you are on a remote system, copy the following administrative client files to a local disk:
     – DSADMC MODULE (executable client module)
     – ANSENU TXT (messages repository)
     – DSADM SAMPOPTS (sample options file)
2. You also need to have access to the C run-time libraries (either C/370 or SAA AD/Cycle Language Environment/370). The appropriate global variables must be updated as follows:
   - For C/370

     ```
     'GLOBAL LOADLIB EDCLINK'
     'GLOBAL TXTLIB IBMLIB'
     ```

   - For SAA AD/Cycle LE/370

     ```
     'GLOBAL LOADLIB SCEERUN'
     ```

   This is normally done in the profile of the virtual machine running the administrative client.
3. Configure the client options file for the administrative client as described in "Modifying the Administrative Client Options File for CMS."

   A communication method between the CMS administrative client and the server is required. ADSM supports the following communication methods:
   - Advanced program-to-program communications (APPC)
   - Transmission Control Protocol/Internet Protocol (TCP/IP)

Modifying the Administrative Client Options File for CMS

ADSM includes a sample client options file named DSADM SAMPOPTS. It is on the ADSM product disk, U5648020 491. Use the client options file to identify the servers and to specify communication options.

Follow these steps to modify the client options file:

1. Copy the sample client options file to the client options file:

   `DSM SAMPOPTS` to `DSM OPT`

   You can edit the `DSM OPT` file using the editor of your choice.
2. For the TCP/IP communication method, specify the options shown in "Setting Administrative Client Options for TCP/IP" on page 182. Available options are COMMMETHOD, TCPPORT, and TCPSERVERADDRESS.
3. For the SNA LU6.2 communication method, specify the options shown in "Setting Options for the SNA LU6.2 (APPC) Communication Method" on page 60.

Available options are COMMMETHOD, SYMBOLICDESTINATION, PARTNERLUNAME, TPNAME, CPICMODENAME, and CPICBUFFERSIZE.

If you are using a symbolic destination name, add an entry to the SCOMDIR NAMES or UCOMDIR NAMES files. Refer to the *VM/ESA Connectivity Planning, Administration, and Operation* manual for details.

Option definitions can be found in Chapter 9, “Setting Client Options” on page 177.

Starting and Ending the CMS Administrative Client

Start the CMS administrative client by entering DSMADMC from the command line.

Note: For more information about starting the CMS administrative client, refer to the *ADSTAR Distributed Storage Manager for MVS: Administrator's Reference* manual.

To end a CMS administrative client, enter QUIT at the `dsmadmc>` prompt.

To end a CMS administrative client while in CONSOLE mode or MOUNT mode, type `HX`.

Setting Up the TSO Administrative Client

Note: This client is not supplied with the ADSM for AIX package.

When installing the TSO administrative client, keep in mind that the requirements for the client are different from the requirements for the MVS server. The TSO administrative client requires MVS/ESA SP Version 4.2 or later. The MVS server only requires MVS/ESA SP Version 3.1.3 or later.

Installing ADSM on TSO

To install the TSO administrative client code, perform the following steps:

1. Modify or create the logon procedure for the TSO user ID of the ADSM administrator by defining the following datasets:
   - Load module `ANSADM.LOAD`
     Do not add the load module if the load module library is installed in `SYS1.LINKLIB` or another library in `LNKLSTxx`.
   - Message file `ADSM.ANSMSG`
   - Options file `ANSSMPOP` from the `SYS1.SAMPLIB` data set.
     This is the sample options file for the TSO administrative client. It needs to be copied and modified. The output will be `'ADSM.TSOADMIN.OPTIONS'`.

   The following is an example of the updated DD statements in the TSO administrative client's TSO logon procedure:

   ```
   //STEPLIB  DD DSN=ADSM.V1R1M0.ANSADM.LOAD,DISP=SHR
   //DSCLANG  DD DSN=ADSM.V1R1M0.ANSMSG(ANSMENU).TXT,DISP=SHR
   //DSCOPT   DD DSN=ADSM.TSOADMIN.OPTIONS,DISP=SHR
   ```

2. To make the step 1 changes effective, log off the TSO user ID of the ADSM administrator, and then log back on.

A communication method between the TSO administrative client and the server is required. You can use one of the following communication methods:

- Transmission Control Protocol/Internet Protocol (TCP/IP)
- Advanced program-to-program communications (APPC)
- Interlink SNS/TCPaccess

  To select your choice, edit the options file.

  Option definitions can be found in Chapter 9, “Setting Client Options” on page 177.

Modifying the Administrative Client Options File for TSO

ADSM includes a sample client options file named ANSSMPOP. It is in the SYS1.SAMPLIB data set. You use the client options file to identify the ADSM servers and to specify communication options.

Follow these steps to modify the client options file:

1. Copy the sample client options file from

   `SYS1.SAMPLIB(ANSSMOP)` to `ADSM.TSOADMIN.OPT`.

   You can edit the `ADSM.TSOADMIN.OPT` file using the editor of your choice.
2. For the servername option, specify the name of a server to contact for services.
3. Choose a communication protocol:
   - For the TC/PIP communication method, specify the options shown in “Setting Administrative Client Options for TCP/IP” on page 182. Available options are COMMMETHOD, TCPSERVERADDRESS, and TCPPORT.
   - For the SNA LU6.2 (APPC) communication mehod, define the options shown in “Setting Options for the SNA LU6.2 (APPC) Communication Method” on page 60. Available options are COMMMETHOD, SYMBOLICDESTINATION, and CPICBUFFERSIZE.

     To use the SNA LU6.2 (APPC) common programming interface for communication (CPIC), you must:

     a. Designate a base LU with the following characteristics in an APPCPMxx member of SYS1.PARMLIB:

        ```
        ADSM      VBUILD  TYPE=APPL
        ANSDDMLU  APPL    ACBNAME=ANSADMLU,APPC=YES,MODETAB=modetab_name
        ```

     b. Update the VSAM dataset specified in the SIDEINFO DATASET parameter to member APPCPMxx to assign a symbolic destination name to each partner.

     c. Start the APPC address space and specify the base LU and side information dataset in member APPCPMxx.

     For details about VTAM configuration, refer to *MVS/ESA Application Development Writing Transaction Programs for APPC/MVS* and *MVS/ESA Planning: APPC Management*.

Starting the TSO Administrative Client

To start an administrative client session, enter:

```
DSMADMC
```

For more information about the TSO administrative client, refer to the *ADSTAR Distributed Storage Manager for MVS: Administrator's Reference* manual.

Chapter 9. Setting Client Options

ADSM provides user and system options, which allow you to customize your administrative client. Use this chapter to understand how to:

- Use client options
- Set communication methods
- Set date, time, number, and language options
- Provide storage management service

Understanding How to Use Client Options

After installation, you will find a sample options file in the ADSM directory for each operating system. This file contains the minimal options required to support communication between each client and the server.

If you are running both an administrative client and a backup-archive client from your workstation, you can use the same options file for both clients.

After installation, copy the sample options file to the appropriate *client options*, *client user options*, or *client system options* file as shown in Table 53.

Table 53 (Page 1 of 2). Copying Options Files for Your Operating System

Client	Copy from:	Copy to:
AIX	DSM.SYS.SMP DSM.OPT.SMP	DSM.SYS DSM.OPT
AT&T UNIX	DSM.SYS.SMP DSM.OPT.SMP	DSM.SYS DSM.OPT
DEC ULTRIX	DSM.SYS.SMP DSM.OPT.SMP	DSM.SYS DSM.OPT
Digital UNIX	DSM.SYS.SMP DSM.OPT.SMP	DSM.SYS DSM.OPT
DOS	DSM.SMP	DSM.OPT
HP-UX	DSM.SYS.SMP DSM.OPT.SMP	DSM.SYS DSM.OPT
MVS TSO	SYS1.SAMPLIB(ANSSMPOP)	TSOADMIN.OPT
NEC EWS-UX/V	DSM.SYS.SMP DSM.OPT.SMP	DSM.SYS DSM.OPT
OpenEdition MVS	DSM.SYS.SMP DSM.OPT.SMP	DSM.SYS DSM.OPT
OS/2	DSM.SMP	DSM.OPT
SCO	DSM.SYS.SMP DSM.OPT.SMP	DSM.SYS DSM.OPT

Table 53 (Page 2 of 2). Copying Options Files for Your Operating System

Client	Copy from:	Copy to:
Sequent PTX	DSM.SYS.SMP DSM.OPT.SMP	DSM.SYS DSM.OPT
Siemens Nixdorf SINIX	DSM.SYS.SMP DSM.OPT.SMP	DSM.SYS DSM.OPT
Silicon Graphics IRIX	DSM.SYS.SMP DSM.OPT.SMP	DSM.SYS DSM.OPT
SunOS or Solaris	DSM.SYS.SMP DSM.OPT.SMP	DSM.SYS DSM.OPT
VM CMS	DSM SAMPOPTS	DSM OPT
Windows	DSM.SMP	DSM.OPT
Windows NT	DSM.SMP	DSM.OPT

Note: Because the options needed for administrative clients are a subset of the options for backup-archive clients, this chapter only discusses those options used by an administrative client.

For information on options used by backup-archive clients, refer to *ADSM Using the Backup-Archive Client* for the appropriate client.

Entering Client Options

Options can be entered either in an options file or from a command line. When you enter an option from the command line, it takes priority over the setting in the options file.

Options consist of keywords and their values. Keywords name the option. You can enter the entire keyword or the abbreviation, which is identified by uppercase characters.

```
COMMmethod    TCPip
```

COMMmethod is an example of a keyword; its value sets the communication method used between a client and server. TCPip is an example of a value.

Entering Client Options from the Command Line

To enter an option at the command line, begin with a hyphen (-) followed directly by the option keyword, followed directly by an equal sign (=), followed by option parameters.

On OS/2 or DOS clients, you can use a slash (/) instead of the hyphen (-).

The following options can only be entered from the command line:

- ID
- PASsword
- NOConfirm
- CONsolemode

- MOUNTmode
- Itemcommit
- OUTfile
- Quiet

For example, you can use the ID and PASsword options to specify your ADSM administrator ID and password if you do not want to be prompted for this information. On an OS/2 workstation, you can enter:

```
dsmadsm -ID=yourname -password=yourpassword
```

For information on entering these options from an administrative client command line, refer to the appropriate *ADSM Administrator's Reference*.

Entering Client Options in an Options File

When editing an options file, follow these guidelines:

- Options can begin in any column of the input line.
- Only one option can be on each line, and the option cannot span more than one line.
- Keywords can be in upper or lower case. The minimum abbreviation is shown in uppercase.
- One or more blank spaces are allowed between keywords and values.
- Blank lines are allowed in the file and are interpreted as comment lines.
- Lines beginning with an asterisk (*) are interpreted as comment lines.
- File names must be correctly specified, as required by the operating system.

All communication options may be specified, even if they are not used in your current configuration. Some communication options are only in effect when other options are specified.

Enabling Communication between the Server and Client

Table 54 shows the communication methods supported for administrative clients. You are required to specify the communication method, along with other options, in the client options file for each server.

Table 54 (Page 1 of 2). Supported Communication Methods for Administrative Clients

Communication Method	Supported Clients	Servers
SNALU6.2 (APPC) See Note	AIX, DOS, MVS TSO, OpenEdition MVS, OS/2, VM CMS, Windows	AIX, AS/400, MVS, OS/2, VM, VSE

Table 54 (Page 2 of 2). Supported Communication Methods for Administrative Clients

Communication Method	Supported Clients	Servers
TCPIP	AIX, AT&T UNIX, DEC ULTRIX, DOS, HP-UX, NEW EWS-UX/V, MVS TSO, OpenEdition MVS, OS/2, SCO UNIX 386/Open Desktop, Sequent PTX, Siemens Nixdorf SINIX, Silicon Graphics IRIX, Sun Microsystems SunOS or Sun Solaris, VM CMS, Windows, Windows NT	AIX, AS/400, HP-UX, MVS, OS/2, Sun Microsystems SunOS Sun Solaris, VM, VSE
NETBIOS	DOS, OS/2, Windows, Windows NT	AIX, OS/2
IPXSPX	DOS, OS/2, Windows NT	AIX, OS/2
Named Pipes	OS/2	OS/2
400COMM	DOS, Windows, Windows NT	AS/400
3270	AIX, MVS TSO, OS/2, VM CMS	VSE
SHAREDMEM	AIX	AIX

Note: An administrative client can communicate with the server through Common Programming Interface Communications (CPIC). CPIC provides a programming interface that allows program-to-program communication using IBM Systems Network Architecture logical unit 6.2 (SNA LU6.2).

SNA defines various sets 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 communication (APPC), which is also known as LU6.2.

Setting Administrative Client Options for SNA LU6.2 (APPC)

Systems Network Architecture (SNA) defines various sets 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 communication (APPC), which is also known as LU6.2. There are two sample settings for SNA LU6.2.

Figure 21 shows an example of a SNA LU6.2 (APPC) communication method setting, using a symbolic destination to identify the server.

```
COMMMETHOD                  SNAlu6.2 (APPC)
   SYMbolicdestination      server
```

Figure 21. Example of SNA LU6.2 Communication Method Options

SYMbolicdestination

Specifies a name that SNA LU6.2 or CPIC uses to connect to the server. To make a connection, the symbolic destination name indexes SNA routing and security parameters, which are stored in communication directory files.

When a symbolic destination is used for SNA LU6.2 communication method, you do not have to specify a transaction program name, partner logical unit name, or CPIC mode name. You can specify the symbolic destination with a 1-to-8 character name of the server. See the *side_info* profile example in Figure 13 on page 68. Contact your system administrator for this name.

Figure 22 shows an example of a SNA LU6.2 communication method setting, by using a transaction program to identify the server.

```
COMMMETHOD                  SNAlu6.2 (APPC)
   TPname                   server
   PARtnerluname            target_lu
   CPICMOdename             mode name
   CPicbuffersize           15
```

Figure 22. Example of SNA LU6.2 Communication Method Options

TPname

Specifies a symbolic name for a transaction program in a SNA network. The transaction program name identifies the ADSM server.

The transaction program is used if a symbolic destination is not provided for the SNA LU6.2 communication method.

You can specify the TPname with a 1-to-64 character transaction program name of the target logical unit, which is the ADSM server. Contact your system administrator for this name.

PARtnerluname

Specifies a logical unit name used by the transaction program to identify the ADSM server in the SNA network.

The partner LU name is used if the symbolic destination is not provided for the SNA LU6.2 communication method.

You can specify a partner LU name with a 1-to-64 character LU name that identifies the remote target in a SNA network. Contact your system administrator for this name.

CPICMOdename

Specifies the mode name for communications with the server. The mode name identifies a mode profile that contains communications attributes for sessions with the server.

The CPIC mode name is used if the symbolic destination is not provided and the partner LU is located on another system for the SNA LU6.2 communication method. The mode name must be known on both the local and remote systems. Contact your system administrator for the mode name for the SNA session that connects to the partner LU on another system.

CPicbuffersize

Specifies the size of the CPIC buffer, which is used to transfer data between the client node and the server. A larger buffer size can improve communication performance but requires more memory.

Specify the size of the buffer in kilobytes. The default is 15KB. You can specify a value from 1 to 31KB.

Setting Administrative Client Options for TCP/IP

Transmission Control Protocol/Internet Protocol (TCP/IP) is supported between the server and the following clients.

TCP/IP Options for a UNIX Client

Figure 23 shows an example of a TCP/IP communication method setting used by a UNIX client, for example, AIX or Sun Solaris clients.

```
SERVERNAME                  server_name
   TCPServeraddress         tcp_address
   TCPPort                  1500
   TCPBuffsize              8
   TCPWindowsize            16
```

Figure 23. TCP/IP Communication Method Options for the UNIX Administrative Client

TCP/IP Options for Other Than UNIX Clients

Figure 24 shows an example of a TCP/IP communication method setting used by a non-UNIX client, for example, OS/2.

```
COMMMETHOD                  TCPip
   TCPServeraddress         tcp_address
   TCPPort                  1500
   TCPBuffsize              8
   TCPWindowsize            16
```

Figure 24. TCP/IP Communication Method Options for the other than UNIX Administrative Client

TCPServeraddress

Specifies the Internet server address for communication using TCP/IP.

TCPPort
Specifies a port address of a server when using TCP/IP.

The default value is 1500. You can specify a value from 1000 to 32767. Contact your system administrator for this value.

TCPBuffsize
Specifies the size of the internal TCP communication buffer, which is used to transfer data between the client node and the server. A larger buffer size can improve communication performance but requires more memory.

DOS clients should set a small buffer size.

Specify the size of the buffer in kilobytes. The default value is 8KB. You can specify a value from 1 to 32KB.

TCPWindowsize
Specifies the size of the TCP sliding window for your client. A larger window size can improve communication performance, but uses more memory.

DOS clients should set a small buffer size.

You can specify a value from 1 to 24KB. The default is 16KB.

Setting Administrative Client Options for IPX/SPX
Internetwork Packet Exchange/Sequence Packet Exchange (IPX/SPX) is supported between the server and the OS/2, DOS, and Windows clients.

Figure 25 shows an example of an IPX/SPX communication method setting used by an OS/2, DOS, and Windows client.

```
COMMMETHOD                  IPXSPX
   IPXServeraddress         000000208005a30bee98
   IPXSOcket                8522
   IPXBuffersize            16
```

Figure 25. Example of IPX/SPX Communication Method Options for the Administrative Client

IPXServeraddress
Specifies a 20 digit hexadecimal number address for an ADSM server. The first 8 hexadecimal digits are for the ADSM server IPX network address. The next 12 digits are for the ADSM server node IPX address. This address is obtained by running the getipxad utility on the AIX system to be used as a server. This file can be found in the */usr/lpp/adsmserv/bin* directory.

IPXSOcket
Specifies the socket number on which the server SPX communication driver is to wait for requests. The socket number is a hex value on which the server listens. The default is 8522.

Note: The socket number is registered with Novell.

IPXBuffersize
Specifies the size you want to use, in kilobytes, for the IPXSPX communications buffer. This parameter is optional and the default buffer size is 4KB, with a minimum of 1KB and a maximum of 16KB.

Note: To use IPX/SPX to communicate with an AIX server, NetWare Requester must be installed on your workstation, and NetWare for AIX for RISC System from IBM 3.11 or IBM AIX NETBIOS and IPX support must be installed on the AIX server.

Setting Administrative Client Options for NETBIOS
NETBIOS communication is supported between the server and the AIX and OS/2 clients.

To use NETBIOS, either AIX NETBIOS on token ring/6000 or IBM NETBIOS and IPX support must be installed on the AIX server.

Figure 26 shows an example of a NETBIOS communication method setting used by a DOS, Windows, or OS/2 client.

```
COMMMETHOD                  NETBIOS
   NETBIOSServername        ADSMSERV1
```

Figure 26. Example of NETBIOS Communication Method Options for the Administrative Client

NETBIOSServername
Specifies the name for an ADSM server. The name can be a maximum of 16 characters and is case-sensitive. The first characters cannot be an asterisk (*), and the first three characters cannot be the letters IBM. The default for this option is ADSMSERV1.

NETbiosname
Specifies the NETBIOS name for your workstation. The default is the letters ADSM concatenated with a time of day value. Normally, the default value should be used because it causes a unique name to be generated for each session.

Setting Administrative Client Options for Shared Memory
Shared Memory communications is supported between AIX clients and servers on the same machine. To use Shared Memory communications, TCP/IP must be installed on the machine.

Figure 27 on page 185 shows an example of a Shared Memory communication method setting used in AIX.

```
COMMMETHOD                  SHAREDMEM
   SHMPort                  1510
```

Figure 27. Example of Shared Memory Communication Method Setting Used in AIX Client

SHMPort

Specifies the TCP/IP protocol to be used for the initial connection. The default value is 1510. You can specify a value from 1000 to 32767. Contact your system administrator for this value.

Note: Depending on the AIX software installed, you may be able to establish a maximum of ten concurrent shared memory communications sessions when running ADSM 2.1.5.6.

Setting Options for Transaction Limit, Date, Time, Number, and Language

Use the TXNBYTELIMIT option to improve transaction processing. Use the DATEFORMAT, TIMEFORMAT, NUMBERFORMAT, and LANGUAGE options to choose formats for expressing dates, times-of-day, numbers, and language.

Note: The defaults shown here for date, time, number, and language are for the U.S. English language code set, ISO8859-1 (en_US). For other languages, the defaults may be based on the value of each language environment variable.

TXNBytelimit

Specifies the byte limit when batching files within a transaction. This client option works in conjunction with the server option, TXNGroupmax. TXNBytelimit controls the number of bytes, as opposed to files, that will be transferred in a group of files between transaction commit points.

```
TXNBytelimit number
```

where *number* is the number of kilobytes.

Note: As the *number* increases, more database updates need to be logged for each transaction. This increases recovery log size. Monitor the recovery log space to determine if the log requires an extension.

For example,

```
TXNBytelimit    300          (300KB, the default)
TXNBytelimit   1000          (1MB)
TXNBytelimit  25600          (25MB, the maximum)
```

This option applies to BACKUP and RESTORE functions.

This option is available in dsm.sys for UNIX clients and dsm.opt for non-UNIX clients.

DATEformat

Specifies the format by which dates are displayed on your client node with:

```
DATEformat number
```

where *number* is a number from 1 to 5 that identifies the date format used by your client. The default value is 1. Values 1 to 5 are identified below:

```
1)  MM/DD/YYYY
2)  DD-MM-YYYY
3)  YYYY-MM-DD
4)  DD.MM.YYYY
5)  YYYY.MM.DD
```

TIMEformat

Specifies the format by which time is displayed on your client node with:

```
TIMEformat number
```

where *number* is a number from 1 to 4 that identifies the time format used by your client. The default value is 1.

Values 1 to 4 are identified below:

```
1)  23:00:00
2)  23,00,00
3)  23.00.00
4)  12:00:00A/P
```

NUMberformat

Specifies the format by which numbers are displayed on your client node with:

```
NUMberformat number
```

where *number* is a number from 1 to 6 that identifies the number format used by your client. The default value is 1. Values 1 to 6 are identified below.

```
1)  1,000.00
2)  1,000,00
3)  1 000,00
4)  1 000.00
5)  1.000,00
6)  1'000,00
```

LANGuage

Specifies the national language used to present the client messages.

```
LANGuage language
```

| where *language* specifies the language to use for client messages. See Figure 16 on page 138 for all of the supported languages.

Using the Client to Provide Storage Management Service

For information on installing the backup-archive client program and modifying the client options file to allow communication between the server and the backup-archive client, refer to *ADSM Installing the Clients* and *ADSM Using the Backup-Archive Client* for the appropriate client.

After these clients have been installed and the start-up tasks completed, you can register client nodes with the server, using the standard storage management policies provided at installation, so that workstation users can back up and archive files to the server. If workstation files are damaged or lost, users can restore or retrieve the original files from server storage.

For information on backup and archive services, refer to the *ADSM Using the Backup-Archive Client* for the backup-archive clients used at your installation.

To understand how these clients work at your installation, go to Appendix B, “ADSM Test Drive” on page 201 and experiment with the ADSM functions.

Appendix A. Additional Post-Installation and Customization

After you have installed and configured your ADSM server, you may want to further customize your workstation. Post-installation can include the following activities:

- Mirroring the database and recovery log files
- Using database backup and recovery
- Using DRM for disaster recovery
- Managing storage pool backup and recovery volumes
- Scheduling administrative commands
- Copying and customizing the STANDARD policy domain for your installation
- Defining backup and archive schedules
- Associating client nodes with schedules
- Exporting the server

Mirroring the Database and Recovery Log Files

Mirroring allows you to create a copy of existing database and recovery log files. You may want to copy the recovery log and database files in order to safeguard against media failure.

Volume copies must have at least the same capacity as the original volume and should be defined in separate libraries.

Examples of Recovery Log and Database File Mirroring

- Copy the recovery log volume named LOG01 which is located in the /usr/lpp/adsmserv/bin/mainvol directory, name the volume copy LOG01, and store the copy in the /usr/lpp/adsmserv/class directory.

  ```
  define logcopy /usr/lpp/adsmserv/bin/mainvol/log01
  /usr/lpp/adsmserv/class/log01
  ```

  This statement copies LOG01 in the /usr/lpp/adsmserv/bin/mainvol directory, and creates an exact duplicate copy named LOG01 and stores it in the /usr/lpp/adsmserv/class directory.

- Copy the database volume named DB01 which is located in the /usr/lpp/adsmserv/bin/mainvol directory, name the volume copy DB01, and store the copy in the /usr/lpp/adsmserv/class directory.

  ```
  define dbcopy /usr/lpp/adsmserv/bin/mainvol/db01
  /usr/lpp/adsmserv/class/db01
  ```

  This statement copies DB01 in the /usr/lpp/adsmserv/bin/mainvol directory, and creates an exact duplicate copy named DB01 and stores it in the /usr/lpp/adsmserv/class directory.

Using Disaster Recovery Manager (DRM)

Disaster Recovery Manager (DRM) is a priced feature of ADSM Version 2 that provides recovery assistance after the loss of a machine containing the ADSM server or the ADSM client.

For detailed information on Disaster Recovery Manager (DRM), refer to the *ADSM Administrator's Guide*. You will be guided through the steps necessary for disaster recovery preparedness.

DRM-related processing will fail if the server is not licensed to support the DRM feature. The REGISTER LICENSE command accepts a license authorization key that enables the DRM feature.

Using Database Backup and Recovery

ADSM design provides you with the capability to take full or incremental backups of the database while the server is operational and available to clients. With the database backup and recovery features of ADSM, you can choose not to mirror the database and maintain the ability to restore it to its most current state if the recovery log is available. (You should always mirror the recovery log.)

If the database is not mirrored, the recovery time takes longer. However, mirroring only the recovery log requires substantially less storage space.

Before using the database backup and recovery feature, you must first do a full backup of your database. To use the roll-forward recovery feature, set up a database backup trigger (see "Setting the Database Backup Trigger" on page 191) and set the log mode (see "Setting the Log Mode" on page 191) before taking a full backup. For example, to do a full backup of your database to a device class named TAPE1, issue the BACKUP DB command as follows:

```
backup db type=full devclass=TAPE1
```

After you have done a full backup, you can perform up to 32 incremental backups which copy only the changes to the database since the previous backup.

To do an incremental backup of the database to a device class named TAPE1, enter the following command:

```
backup db devclass=TAPE1
```

There are trade-offs between running full backups and running incremental backups.

A full backup takes longer to run than an incremental backup because it copies the entire database. However, recovery time is faster with a full backup because only one set of volumes needs to be loaded to restore the entire database. You can choose to run as many as 32 incremental backups between each full backup.

An incremental backup takes less time to run because it copies only those database pages that have changed since the database was backed up. However, incremental backups increase the time it takes to recover a database because a full backup must be loaded and followed by some or all of the incremental backups.

For additional information on the backup and recovery features, refer to the *ADSM Administrator's Guide*.

Setting the Log Mode

The log mode determines how long ADSM saves records in the recovery log. You use the SET LOGMODE command to specify which log mode to use.

The default log mode is NORMAL and does not allow for roll-forward recovery. ADSM saves only those records required to restore the database to the last backup. The advantage of NORMAL log mode is that less storage space is required for the database and recovery logs. To set the log mode to normal, enter:

```
set logmode normal
```

To make roll-forward recovery available, you must set the logmode to ROLLFORWARD. When you set the logmode to ROLLFORWARD, ADSM saves all recovery log records that reflect changes to the database since the last time a backup was run.

To set the log mode to ROLLFORWARD, enter:

```
set logmode rollforward
```

Setting the Database Backup Trigger

When the log mode is set to ROLLFORWARD, ADSM saves enough recovery log records to ensure that it can roll the database forward to its most current state after loading the most recent backup series. Each time the database is backed up, ADSM deletes any recovery log records that it no longer needs.

You can define a database backup trigger that causes ADSM to run a backup of the database automatically, based on the percentage of space used in the recovery log. When the amount of space occupied in the recovery log reaches the percentage that you specify, ADSM automatically runs a full or incremental backup of the database and deletes any unnecessary recovery log records.

Setting a database backup trigger is optional, but recommended to ensure that the recovery log does not run out of space before the next backup is run.

To set the database backup trigger at 60 percent for an automatic backup of the database, enter:

```
define dbbackuptrigger logfullpct=60 devclass=TAPE1
```

If you do not specify the LOGFULLPCT parameter in the command, the backup trigger defaults to 50 percent.

Adjusting the Size of the Recovery Log

The frequency of automatic backups depends not only on the percentage set for the database backup trigger, but also on the size of the recovery log and the volume of ADSM transactions. The considerations for adjusting the size of the recovery log differ depending on the log mode that you select.

If the log mode is set to NORMAL, you need to adjust the size of the recovery log based only on the volume of concurrent ADSM transactions. As more clients are added and the volume of transactions increases, you can extend the size of the log.

In ROLLFORWARD mode, the size of the recovery log, the percentage set for the database backup trigger, and the volume of ADSM transactions all affect the frequency at which backups are required.

Generally, extending the size of the recovery log decreases the frequency of automatic backups, and reducing the size of the recovery log increases the frequency. However, after the size of the recovery log is established, you can also increase or decrease the frequency of automatic backups by adjusting the percentage specified for the database backup trigger. In addition, fluctuations in the volume of ADSM transactions can also affect the frequency of automatic backups.

To increase the size of the recovery log, use the EXTEND LOG command. For example, to increase the size of the recovery log by 10MB, enter:

```
extend log 10
```

Maintaining Volume History Backup Files

You need to ensure that at least one backup copy of volume history information exists at all times in case that information is required for a point-in-time recovery.

During setup, you can use the VOLUMEHISTORY option to specify one or more files or data sets in which to store a backup copy of the volume history information. Whenever ADSM updates information about sequential access volumes in the database, it also updates information in the files specified with the VOLUMEHISTORY option. Examples include when a database backup is run or when a volume is added, deleted, or reused in a storage pool.

You can also use the BACKUP VOLHISTORY command at any time to store a backup copy of volume history information in one or more specified files.

If you do not specify a file or data set name when issuing the BACKUP VOLHISTORY command, ADSM stores the backup information in all files specified with the VOLUMEHISTORY option in the DSMSERV.OPT file.

| See “VOLumeHistory” on page 83 for additional information on this option.

Maintaining Device Configuration Backup Files

You need to ensure that at least one backup copy of device configuration information exists at all times in case that information is required to restore a database.

During setup, you can use the DEVCONFIG option to specify one or more files or data sets in which to store a backup copy of device configuration information. Whenever you use the DEFINE DEVCLASS, DEFINE DRIVE, and DEFINE LIBRARY commands, ADSM writes backup copies of the resulting definitions in the files specified with the DEVCONFIG option.

You can also use the BACKUP DEVCONFIG command at any time to store a backup copy of device configuration information in one or more specified files.

If you do not specify a file or data set name when issuing the BACKUP DEVCONFIG command, ADSM stores the backup information in all files specified with the DEVCONFIG option in the DSMSERV.OPT file.

Restoring a Database by Using Point-in-Time Recovery

If a backup copy of volume history information is available, you can restore a database to a specific point in time. The volume history file must be defined with the VOLUMEHISTORY option in the DSMSERV.OPT file as discussed in “Maintaining Volume History Backup Files” on page 192.

ADSM restores the database as follows:

- Reads the volume history file to locate the last full backup that occurred on or before the specified date and time.
- Requests a mount of the first volume. The volume should contain the beginning of the full backup.
- Loads the backup data from the first volume.
- Continues to request mounts and to load data from the backup volumes that contain the full backup and any incremental backups that occurred on or before the date specified.

You can use the DSMSERV RESTORE DB command to restore the database to a specific point in time.

For example, to restore the database to a backup series that was created on January 3, 1995, enter:

```
DSMSERV RESTORE DB TODate=01/03/95
```

Note: You can also restore a database to a specific point in time even if you do not have a backup copy of volume history information. However, the process is more difficult and requires substantial manual intervention. Refer to the *ADSM Administrator's Reference*.

Restoring a Database to Its Most Current State

You can use roll-forward recovery to restore a database to its most current state if the following conditions are met:

- The log mode was set to ROLLFORWARD continuously from the time the last backup was created, until the time the database was damaged or lost.
- The recovery log is available and all recovery log volumes are intact.

For roll-forward recovery, ADSM uses the last backup series created for the database. The database includes a full backup and any incremental backups that apply to that full backup, and all recovery log records that reflect changes to the database since the last backup in the series was run. You can use the DSMSERV RESTORE DB command to restore the database to its most current state.

For example, to restore the database to its most current state, enter:

```
dsmserv restore db
```

Managing Storage Pool Backup and Recovery Volumes

You can create backup copies of client files that are stored in your primary storage pools. The backup copies are stored in *copy storage pools* that can be used to restore the original files if they become damaged, lost, or unusable.

Creating Copy Storage Pools

You can create copy storage pools from your administrative client session by using the DEFINE STGPOOL command. For example, to create a copy storage pool by the name of RECOVERYPOOL on sequential media, enter:

```
define stgpool RECOVERYPOOL TAPE POoltype=Copy
```

Backing Up Primary Storage Pools

You can back up primary storage pools to copy storage pools by command.

To back up primary storage pools by command, use the BACKUP STGPOOL command. For example, to backup the ARCHIVEPOOL primary storage pool to the RECOVERYPOOL copy storage pool, enter:

```
backup stgpool ARCHIVEPOOL RECOVERYPOOL
```

Restoring Primary Storage Pools

You can use the RESTORE STGPOOL command to restore primary storage pools from copy storage pools. For example, to restore the BACKUPPOOL primary storage pool from the RECOVERYPOOL, enter:

```
restore stgpool BACKUPPOOL COPYstgpool=RECOVERYPOOL
```

If you do not specify the name of the copy storage pool in the command, ADSM searches all copy storage pools for file matches to the primary storage pool. When

ADSM finds a match, it restores the file, regardless where the copy is found. For example, to restore the BACKUPPOOL from all copy storage pools, enter:

```
restore stgpool BACKUPPOOL
```

Hierarchical Storage Management (HSM) Function

The HSM (hierarchical storage management) function migrates rarely accessed files to ADSM server storage while the most frequently used files remain on local client file systems. The user specifies files that should migrate to ADSM server storage based on their size. Later, when a migrated file is accessed, HSM transparently recalls the migrated file from ADSM server storage.

The HSM function is integrated with the ADSM backup-archive function so that files can be directly copied from HSM storage pools to backup-archive pools without the need for data transfer between the client and the server.

By migrating rarely accessed files to ADSM server storage, HSM ensures that sufficient free storage is available at the client's workstation. HSM storage management takes advantage of lower cost storage resources available in the network environment and allows sharing of active user files, not only backed up or archived user files.

See the *ADSM Using the UNIX HSM Clients* for more information on the HSM (hierarchical storage management) client.

Scheduling Administrative Commands

ADSM provides you with the ability to schedule administrative commands through the DEFINE SCHEDULE command. For example, to schedule the backing up of the ARCHIVEPOOL primary storage pool as discussed in "Backing Up Primary Storage Pools" on page 194, enter the following command:

```
define schedule BACKUP_ARCHIVEPOOL cmd="BAckup STGpool ARCHIVEPOOL RECOVERYPOOL"
active=Yes startime=20:00 period=2
```

Note: This command must be entered on one line (or without using the carriage return).

The name of the schedule is BACKUP_ARCHIVEPOOL. You can give a schedule any name that is not already used.

The remaining parameters specify that, starting with today, you want to backup the ARCHIVEPOOL primary storage pool to the RECOVERYPOOL copy storage pool every two days at 8:00 PM.

The only administrative command that you cannot schedule is QUERY ACTLOG.

Copying and Customizing the STANDARD Policy Domain

A policy domain provides you with a logical way of managing backup, archive, and storage management policies for a group of client nodes with common needs. It contains policy sets, management classes, and copy groups that will be used by a particular group of users. During registration, each client node is assigned to a policy domain.

To immediately begin using ADSM, standard policy sets are provided. They are located in the STANDARD policy domain. It is recommended that you begin with the standard policy domain. As you become more familiar with ADSM, you can tailor the standard policies to develop storage management policies that are different than those provided.

ADSM provides a predefined policy domain, policy set, management class, backup copy group, and archive copy group. Each of these policy elements is stored on the server and is named STANDARD.

Copying the STANDARD policy domain allows you to build another policy domain from the standard policy objects provided at installation.

Note: Issue the following commands from the ADSM prompt.

To copy the STANDARD policy domain and name the copy BIOLOGY, enter:

```
copy domain standard biology
```

In this example, policy domain BIOLOGY now contains the standard policy set, management class, backup copy group, and archive copy group.

You may want to update the BIOLOGY policy domain so that the backup grace retention period is extended to 10 days. To update the policy domain, enter:

```
update domain biology desription='Biology Lecture'
backretention=10
```

The above example extends the grace period for the backup to ten days.

If you want to add policy sets to the BIOLOGY domain, enter:

```
define policyset biology lab
```

If you would like to add management classes to the BIOLOGY domain, enter:

```
define mgmtclass biology lab lab1
```

To further customize this policy domain and define a copy group to allow backup to a storage pool, specifying how frequently to backup, keeping three backup versions for existing files and two backup versions for deleted files, enter:

```
define copygroup biology lab lab1 standard type=backup
destination=backuppool frequency=2 verexists=3 verdeleted=2
```

Note: Anytime you define a copy group, it must be named STANDARD.

For more information on defining policy information, refer to *ADSM Administrator's Guide* and *ADSM Administrator's Reference*.

Defining Backup and Archive Schedules

You can create schedules for backing up or archiving clients in a specified policy domain.

To define a schedule to initiate an incremental backup that is done weekly, enter at an ADSM prompt:

```
define schedule biology classlect action=incremental
startdate=07/11/1994 starttime=07:00 duration=2 durunits=hours
perunits=weeks dayofweek=Monday
```

The above statement defines a schedule name CLASSLECT in the BIOLOGY policy domain.

With ADSM Version 2, you can also schedule restore and retrieve capabilities. Refer to the *ADSM Administrator's Guide* for additional information on these capabilities.

Associating Client Nodes with Schedules

You can associate one or more clients with a schedule. Client nodes that are associated with a schedule initiate operations such as backup and archive according to that schedule. Before a client is associated with a schedule, the client must be registered to the policy domain to which the schedule applies.

To assign the STUDENT01 and STUDENT02 clients to the CLASSLECT schedule, enter:

```
define association biology classlect student01,student02
```

Exporting the Server

Exporting the server allows global server control information (such as policy data and administrative information) to be copied to another server. In order to back up ADSM data and then restore it to a new server, the sequential device must be supported on both platforms.

To export the server and determine how many objects will be exported and the total size in bytes for all active backup and archived files, enter:

```
export server filedata=allactive preview=yes
```

where:

filedata Specifies the type of files that should be exported for all nodes defined to the server. This parameter is optional. The default is NONE. Possible values are:

ALl
Specifies that all archive copies, backup versions, and files migrated from a user"s local file system are to be exported.

None
Specifies that no files are to be exported; only server definitions are to be exported.

ARchive
Specifies that only archived files are exported.

Backup
Specifies that only backup versions, whether active or inactive, are exported.

BACKUPActive
Specifies that only active backup versions are exported.

ALLActive
Specifies that all archive copies, active backup versions, and all files migrated from a user's local file system are exported.

SPacemanaged
Specifies that only files migrated from a user's local file system are exported.

Preview Specifies whether you want to preview the results of the export before exporting the server information. This command is used to determine how many bytes of data will be transferred and allows you to determine how many volumes will be required to hold the data. This parameter is optional. The default is NO.

For additional information about this subject and other import/export attributes, refer to *ADSM Administrator's Guide*. For information on the EXPORT SERVER command, refer to *ADSM Administrator's Reference*.

Further Customizing Your Installation

After running ADSM by using the basic installation defaults, you may want to further customize your installation. Refer to the items in Table 55 on page 199 for references to additional customization information.

Note: If you customize your installation *after* you start the server, you must stop the server by using HALT, and then restart the server by using DSMSERV for ADSM to save and use the modified server options. For information on halting the server, see "Using the HALT Command" on page 30 or *ADSM Administrator's Reference*.

Table 55. Customization Tasks

Customization Tasks	**Refer to:**
Installing Administrative Clients	*ADSM Installing the Server and Administrative Client*, Chapter 8, "Installing Remote Administrative Clients" on page 155
Installing Backup-Archive Clients	*ADSM Installing the Clients*
Installing the HSM Client	*ADSM Installing the Clients*
Using Disaster Recovery Manager (DRM)	*ADSM Administrator's Guide*
Registering Administrators and Client Nodes	*ADSM Administrator's Guide*
Changing License Agreement	*ADSM Administrator's Guide* *ADSM Licensed Program Specifications*
Tailoring the Options Files:	
Modifying the Server Options File	*ADSM Installing the Server and Administrative Client*, "Server Options" on page 73
Enabling Communications with the Server	*ADSM Installing the Server and Administrative Client*, "Enabling Communications with the Server" on page 57
Setting Options for the Administrative Client	*ADSM Installing the Server and Administrative Client*, Chapter 9, "Setting Client Options" on page 177
Modifying the Client System Options File	*ADSM Using the Backup-Archive Client*
Modifying the Default Client User Options File	*ADSM Using the Backup-Archive Client*
Creating an Include-Exclude File	*ADSM Using the UNIX Backup-Archive Clients*
Adding and Mirroring Database and Recovery Log Volumes	*ADSM Administrator's Guide*
Defining Additional Storage Pools	*ADSM Administrator's Guide*
Configuring Devices for the Server:	
Installing ADSM Device Drivers	*ADSM Installing the Server and Administrative Client*, Chapter 6, "Configuring Devices for the ADSM Server" on page 85
Defining Storage Devices to the Server:	
Defining Storage Device Classes	*ADSM Administrator's Guide*
Defining Libraries and Drives	*ADSM Administrator's Guide*
Defining Storage Pool Volumes	*ADSM Administrator's Guide*
Configuring a Tape Device to the Server	*ADSM Installing the Server and Administrative Client*, "Configuring a Device Driver for a Tape or an Optical Drive for Use by ADSM" on page 100
Adding a Domain and Storage Management Policies	*ADSM Administrator's Guide*
Creating Automatic Backup and Archive Schedules	*ADSM Administrator's Guide*
Establishing Database Backup/Recovery Plans	*ADSM Administrator's Guide*
Establishing Storage Pool Backup Plans	*ADSM Administrator's Guide*

Appendix B. ADSM Test Drive

The ADSM test drive is a learning facility that allows participants to interact with and familiarize themselves with several key ADSM services. The test drive sets up an isolated ADSM environment so that you can make changes with no affect on your production ADSM environment.

Accessing the ADSM Test Drive

If you have just installed ADSM:

The ADSM interface, shown in Figure 28 is displayed after installing ADSM. You can access the ADSM test drive by selecting the ADSM Utilities icon from the ADSM interface.

Figure 28. Main ADSM Window. This window appears after initially installing ADSM.

Figure 29 on page 202 is displayed after selecting the ADSM utilities icon from the main ADSM window.

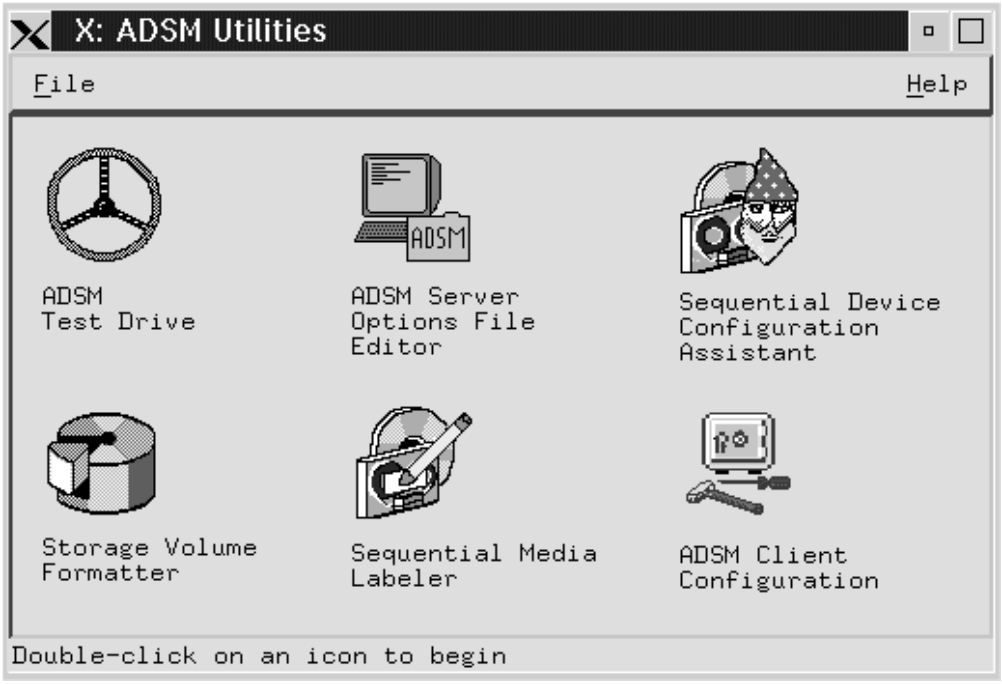


Figure 29. ADSM Utilities Window. This window appears after selecting ADSM Utilities on the main ADSM window.

If ADSM has already been installed:

Go through the following sequence of steps in the order listed because some steps assume that you have completed a previous step.

- "Step 1—Preparing the Test Drive Server" on page 203

  User activities

- "Step 2—Logging on to the ADSM Backup-Archive Client" on page 203
  - "Step 4—Backing Up Files" on page 203
  - "Step 5—Restoring a File" on page 208
  - "Step 6—Viewing Client Policies" on page 212

  Administrator activities

- "Step 3—Logging on to the ADSM Administrative Client" on page 203
  - "Step 7—Viewing Client Nodes Defined to ADSM" on page 214
  - "Step 8—Viewing Administrators Defined to ADSM" on page 216
  - "Step 9—Viewing Schedules Defined to ADSM" on page 218
  - "Step 10—Viewing Storage Pool Information" on page 221

Step 1—Preparing the Test Drive Server

Select the test drive icon from the ADSM Utilities window, and click on the *Prepare Test Drive Server* push button.

Step 2—Logging on to the ADSM Backup-Archive Client

The *ADSM - About* and *Authentication* windows appear. Place your cursor at the client node password field of the *Authentication* window.

Enter:

```
client (as the password)
```

Press the Enter key. The *ADSM - About* window disappears.

Step 3—Logging on to the ADSM Administrative Client

Start the administrative client GUI session.

1. Select the start test drive administrator push button from the ADSM test drive interface.
2. ADSM prompts you to enter the administrative client's user ID and password. From the logon window, enter:

   ```
   admin (for the administrator ID)
   ```

   Then, enter:

   ```
   admin (for the password)
   ```

   Press the Enter key.
3. Minimize the administrative client.

Begin the ADSM test drive. The test drive allows you to sample ADSM services. The help screens can be a valuable source of information. The Help menu can be invoked by clicking on the HELP button on the window action bar when it is available.

Step 4—Backing Up Files

This test drive step demonstrates how to back up files with ADSM. To backup files, you must logon to the test drive backup-archive client. See "Step 2—Logging on to the ADSM Backup-Archive Client" for logon information. ADSM provides backup services that can be run automatically using the central scheduler or users can back up files themselves.

ADSM provides the capability of doing two different types of backups.

incremental Backs up files that are new or have been changed since the last backup process was run as consistent with backup policies defined.

Backup policies are defined to provide additional criteria for incremental backup. See “Step 6—Viewing Client Policies” on page 212 for policy information.

selective Backs up specific files.

This test drive step allows you to perform a selective backup where you specify certain directories that contain files you want backed up.

ADSM allows you to assemble a list of files to back up from one or more directories. At this step, all of the files you select are backed up, even if previously backed up versions of the files already exist on ADSM storage. The previous version will not be overwritten, but instead, both versions will be retained.

To assemble a list of files and back them up, complete the following procedure:

1. From the backup-archive client, start at the ADSM window (see Figure 30).

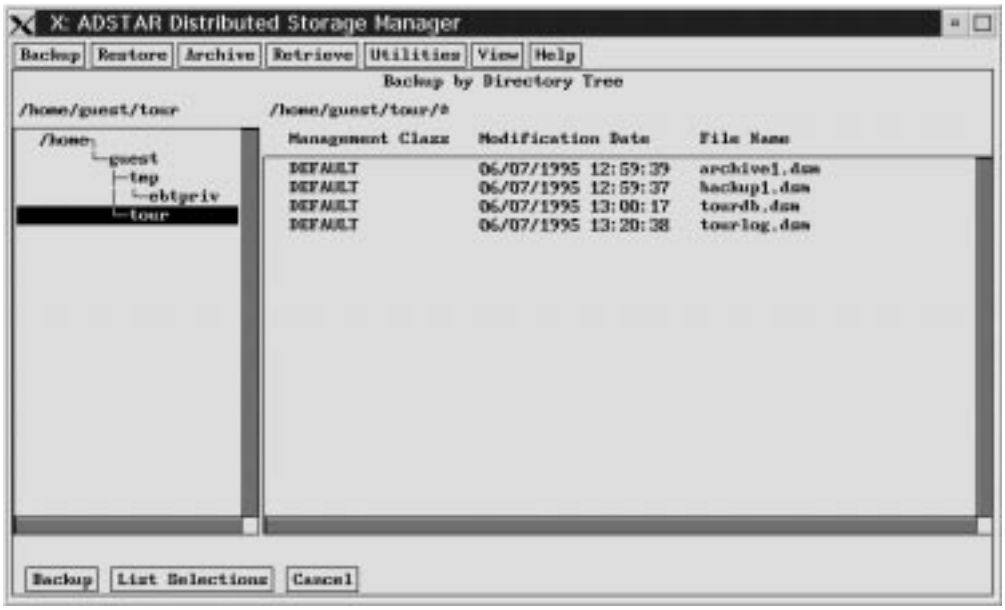


Figure 30. An Example of the ADSM Window

The ADSM window has three main sections:

- **Title Bar**

  Displays the title of the window: ADSTAR Distributed Storage Manager

- **Action Bar**

  Contains buttons for seven menus. When you move the mouse pointer over one of those buttons and hold down the left mouse button, a list of menu items appears.

- **File System Information**

  Contains two lists of file systems:

  – Backup and archive
  – Restore and retrieve

  Note: The restore and retrieve windows display only those files which have been previously backed up or archived.

2. Select the entry or entries in the *File Systems for Backup/Archive* list that contain the files you want to back up.

   Note: At this point an 8MB backup storage pool volume and an 8MB archive storage pool volume have been allocated. When selecting the files to be backed up, select files which will not exceed the server capacity.

   The larger the file systems you select, the longer ADSM takes to scan the directory structure. ADSM also requires more memory to maintain a list of the files in the directories of the file systems.

3. Select the *Backup* button in the action bar.

   A menu containing the backup options appears.

4. Select *Backup by directory tree*.

   The *Backup by Directory Tree* window appears (see Figure 31).

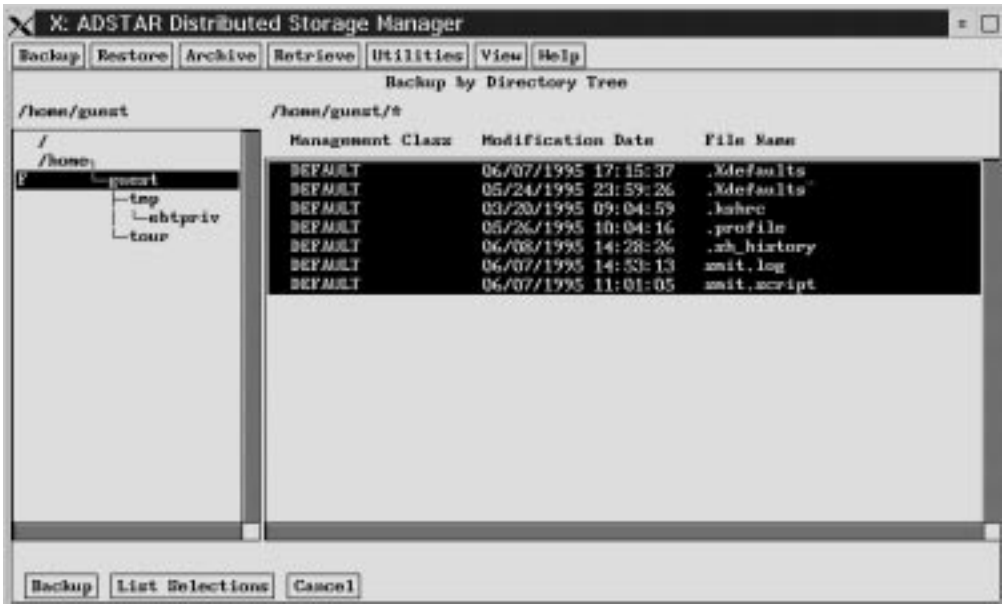


Figure 31. An Example of a Backup by Directory Tree Window

5. The box on the left of the window shows a directory tree that contains all of the directories in the file systems that you selected in the ADSM window.

6. Click on a directory name with the left mouse button.

   The directories appear in the box on the left. The files in that directory appear in the box on the right.

7. Select the files that you want to back up, from the box on the right.

   To select individual files, click on the file name with the left mouse button.

   To deselect a file, just click on the file name again.

   To select all of the files, click on the directory name with the right mouse button. Repeating this action deselects all of the files.

   When you select one or more of the files in the directory, the letter **P** appears next to the directory name in the box on the left. That letter indicates the directory will be partially backed up. If you select all of the files, the letter **F** appears to indicate a full backup of the directory.

   ADSM places the names of the files you select in a list that it maintains.

8. Select another directory from the box on the left.

   Select the files that you want to back up from that directory. ADSM adds the file names to its list. Continue selecting directories and files until you have selected every file from the various directories that you want to back up.

9. Click on the *List Selections* button at the bottom of the window.

   A window appears that contains a list of all the files that you selected. Verify that the list is complete and correct. If you change your mind about any of the files, click on those files that you do not want to back up to deselect them.

10. Click on *OK* to return to the Backup by Directory Tree window.

11. Click on the *Backup* button at the bottom of the window.

    During the backup operation, the *Backup by Directory Tree* window is replaced by the *Backup Status* window (see Figure 32 on page 207).

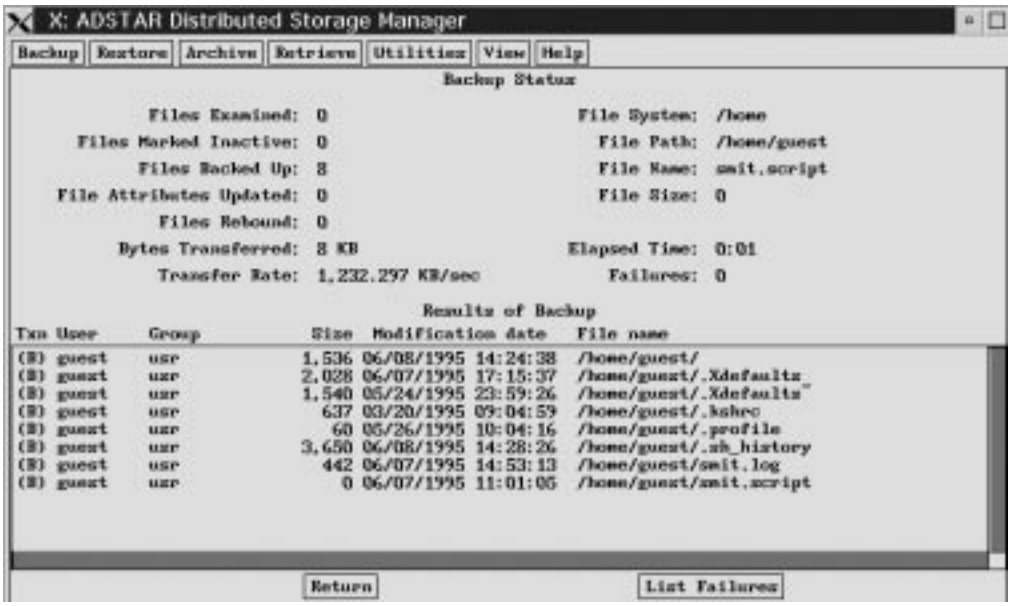


Figure 32. An Example of a Backup Status Window

The following fields are being updated as the backup occurs:

Bytes Transferred Specifies the number of bytes sent to the ADSM server (in kilobytes). If you selected one file to back up you will see the effect of compression. The Bytes Transferred amount will be less than the File Size.

Transfer Rate Specifies the speed at which bytes are transferred. If the file is small file and less than 1KB of data is transferred, you may get 0 in this field.

Elapsed Time Specifies the amount of time the backup operation took.

Note: When you run a selective backup, ADSM does not update the *Files Examined* field.

When the backup operation is finished, ADSM displays a window with the message:

```
ANS3208I  Backup completed
```

12. Click on *OK*.
13. If the number of failures reported in the *Backup Status* window is not zero, click on the *List Failures* button at the bottom of the window. The *Backup Failures* window appears with a list of the files that cannot be successfully backed up, along with a summary of the problem for each one.

    Click on *OK* to return to the *Backup Status* window.

14. Click on the *Return* button at the bottom of the *Backup Status* window to return to the ADSM window.

Step 5—Restoring a File

This test drive step allows you to restore files that have been previously backed up. To restore a file, you must log on to the test drive ADSM backup-archive client. See "Step 2—Logging on to the ADSM Backup-Archive Client" on page 203 for more information about logging on to the ADSM backup-archive client. When you restore a file, ADSM gets a copy of the file and places it on your workstation. The restore operation allows you to replace files on your workstation that have been damaged or lost. You can also recover different versions of files that already exist with the restore operation.

ADSM allows you to assemble a list of files from one or more directories and restore the files.

To assemble a list of files and restore them, follow these steps from the backup-archive client:

1. In the ADSM window, select the entry or entries in the *File Systems for Restore/Retrieve* list (see Figure 30 on page 204) that contain the files you want to restore. (Select the files by clicking on them with the left mouse button.)
2. Select the *Restore* button in the action bar.

   A menu containing the restore options appears.
3. Select *Restore by directory tree*.

   The *Restore by Directory Tree* window appears (see Figure 33 on page 209). The box on the left of the window shows the directory tree of all the directories in the file systems you selected in the ADSM window.

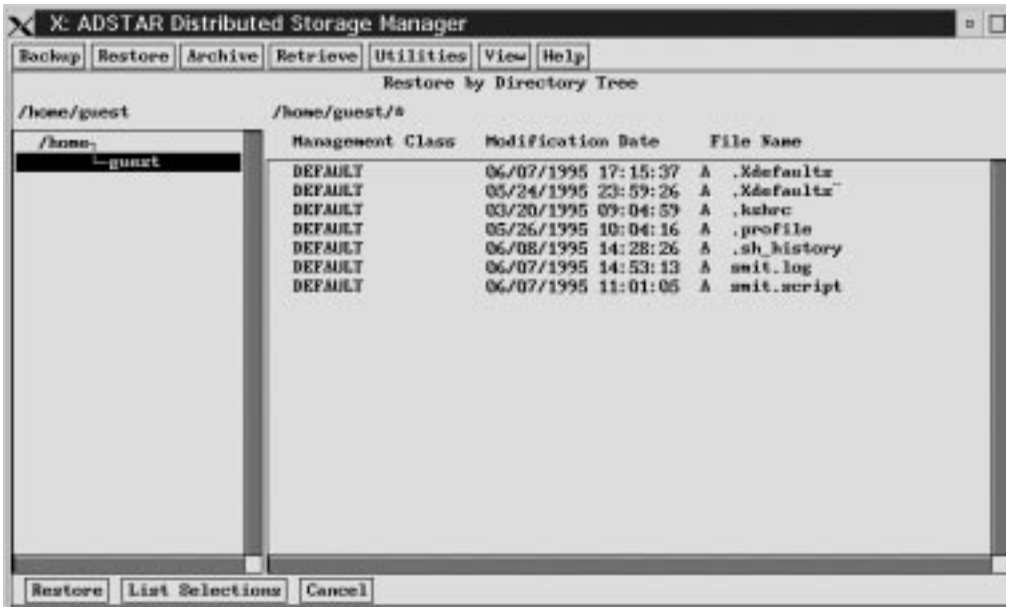


Figure 33. An Example of a Restore by Directory Tree Window

Note: The directory tree structure appears in the format that the user is familiar with even though the data could be stored on a server of a different platform.

4. Click on a directory name with the left mouse button.

   The directories appear in the box on the left. The files in that directory appear in the box on the right.

5. Select the files that you want to restore from the box on the right.

   To select all of the files, click on the directory name with the right mouse button. Repeating this action deselects all of the files.

   To deselect a file, click on the file name again.

   When you select one or more of the files in the directory, the letter **P** appears next to the directory name in the box on the left. That letter indicates the directory will be partially restored. If you select all of the files, the letter **F** appears to indicate a full restore of the directory.

   ADSM places the names of the files that you select in a list that it maintains.

6. Select another directory from the box on the left.

   Select the files you want to restore from that directory. ADSM adds the file names to its list. Continue selecting directories and files until you have selected every file from the various directories that you want to restore.

7. Click on the *List Selections* button at the bottom of the window.

A window that contains a list of all the files that you selected appears. Verify that the list is complete and correct. If you change your mind about any of the files, click on those files that you do not want to restore to deselect them.

8. Click on *OK* to return to the *Restore by Directory Tree* window.
9. Click on the *Restore* button at the bottom of the window.

   The *ADSM - Restore/Retrieve Parameters* window appears (see Figure 34).

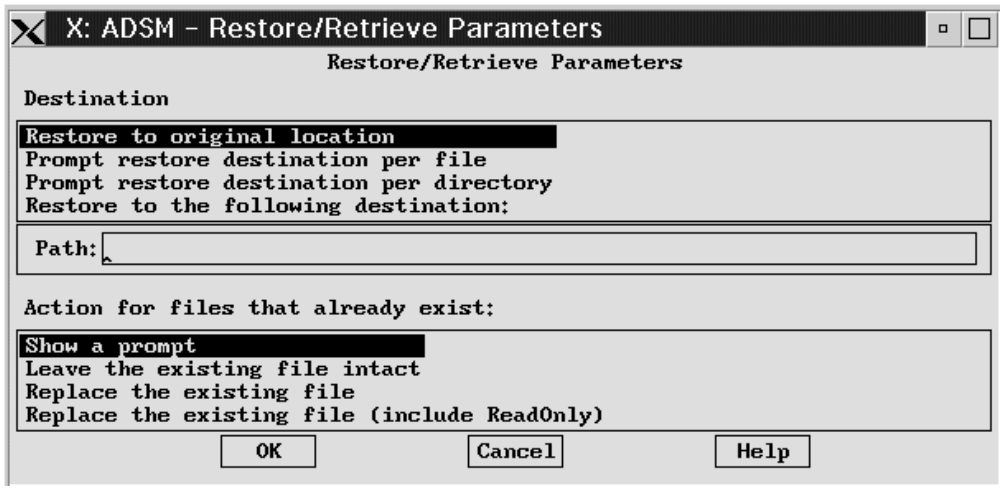


Figure 34. An Example of an ADSM - Restore/Retrieve Parameters Window

10. Choose the destination and what action to take if the file that you are restoring already exists.
11. Click on *OK*.

    If you selected the *Show a prompt* option, the *ADSM - Collision* window appears whenever a file being restored already exists on your workstation (see Figure 35).

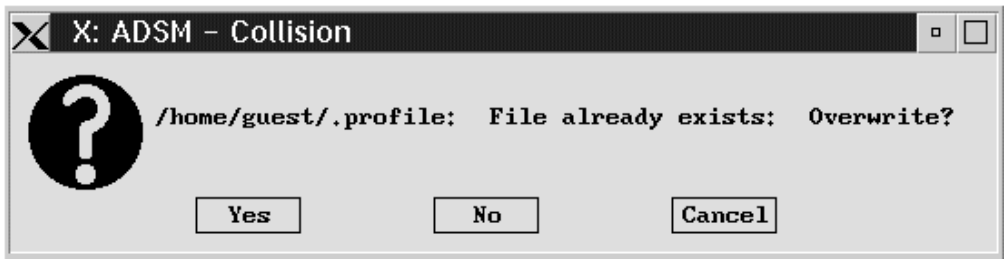


Figure 35. An Example of an ADSM - Collision Window

Click on *Yes* if you want the file that already exists on your workstation to be overwritten. Click on *No* if you do not want the existing file to be overwritten.

During the restore operation, the *Restore by Directory Tree* window is replaced by the *Restore Status window* (see Figure 36 on page 211). As with the *Backup Status* window, the *Bytes Transferred*, *Transfer Rate* and *Elapsed Time* fields are being updated as the restore occurs.

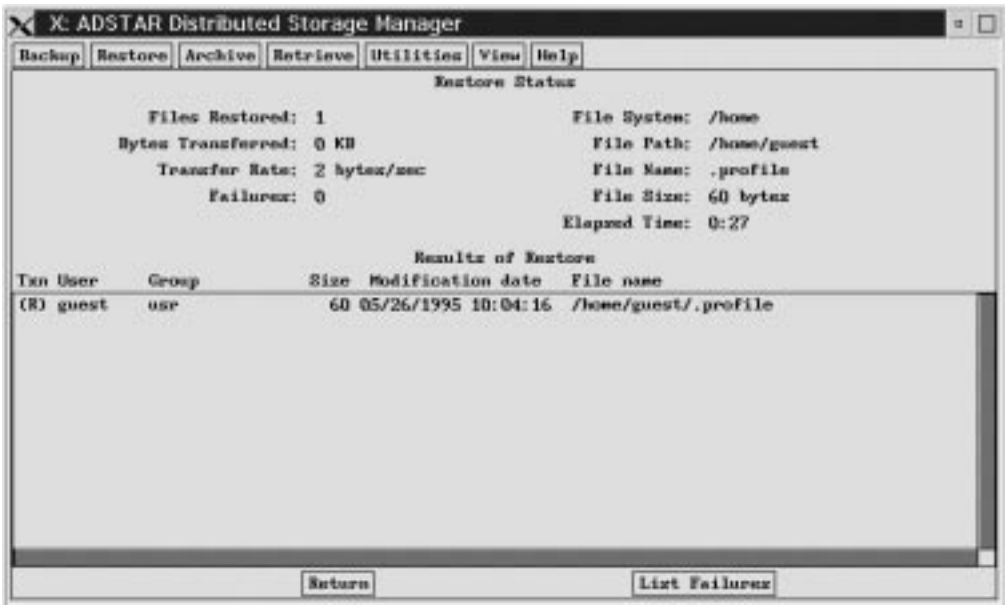


Figure 36. An Example of a Restore Status Window

When the restore operation is finished, ADSM displays a window with the message:

```
ANS3307I  Restore completed
```

12. Click on *OK*.
13. If the number of failures reported in the *Restore Status* window is not zero, click on the *List Failures* button at the bottom of the window. The *Restore Failures* window appears, with a list of the files that cannot be successfully restored, along with a summary of the problem for each one.

    Click on *OK* to return to the Restore Status window.
14. Click on the *Return* button at the bottom of the *Restore Status* window to return to the ADSM window.

Step 6—Viewing Client Policies

This test drive step allows you to view the policies that determine how ADSM backup services are performed. To view client policies, you must log on to the test drive ADSM backup-archive client. See “Step 2—Logging on to the ADSM Backup-Archive Client” on page 203 for more information about the ADSM backup-archive client. Each policy

determines a different level of backup service. For example, one policy might include eight backup versions and a backup interval of one day (for daily backups). Another policy might include three backup versions and a backup interval of seven days (for weekly backups). The test drive policies have already been defined for you. A client can only *view* the policy information, while the administrator can create or change it.

To display the client policy information, follow these steps:

1. From the client window, select *Utilities*.
2. Select *Display Policy Information*.

   The *Display Policy Information* window appears (see Figure 37). This window displays the management classes defined for this client. The two management classes are SPECIAL and STANDARD. The example below displays only the STANDARD policy information.

Figure 37. An Example of a Display Policy Information Window

One of the requirements IBM received from customers was for a sample configuration that they could then modify. The STANDARD management class is shipped with ADSM. If you have files that need to be managed differently, you can assign them to different management classes.

In order to back up files by using the SPECIAL management class, you must explicitly assign the file(s) to that management class in the INCLUDE/EXCLUDE statements.

For more details on the use of management classes, refer to the *ADSM User's Guide and Reference for UNIX*.

The two copy group types in the *Display Policy Information* window are Backup and Archive.

Notice the following fields under the *Backup* copy group:

- **Copy Frequency**

  Allows you to control how frequently a backup is made. For example, if copy frequency is 3, then 3 days must pass before another incremental backup is allowed, even if the file has been changed since the last backup.

  Note: Copy frequency only applies to incremental backup and not to selective backup.

- **Versions Data Exists**

  Specifies the maximum number of different backup versions ADSM retains for files and directories currently in your file system.

- **Versions Data Deleted**

  Specifies the maximum number of different backup versions ADSM retains for files and directories that you have erased from your file system.

- **Retain Extra Versions**

  Specifies the number of days that can pass before an extra backup copy is deleted.

  Note: Any backup copy other than the most recent constitutes an "extra" copy.

- **Retain Only Version**

  Specifies the number of days that can pass before the last backup copy can be deleted (after the file no longer exists on the workstation).

- **Copy Serialization**

  Specifies what ADSM should do if the file is being updated when it tries to perform a backup or archive. This option is controlled by locking mechanisms on the client operating system. The options are:

  Static Quit immediately if the file is being changed.

  Shared Static Retry a few times. If the file is being changed, quit.

  Dynamic Copy the file even if it is being changed.

  Shared Dynamic Retry a few times. Even if the file is in use, copy it.

  Shared Static is the standard option.

- **Copy Mode**

  Specifies how to back up the file–modified or absolute.

Modified Back up the file if it has changed since the last time it was backed up.

Absolute Always back up the file.

Note: Copy mode only applies to incremental backup. A selective backup is always performed regardless of the copy mode.

- **Copy Destination**

  Specifies that the copy destination is the name of the storage pool where the backup copies are stored.

The following fields appear under the **Archive** copy group. Because the archive function does not keep track of versions, there is less to specify in the **Archive** copy group:

- **Copy Frequency**

  Always set to *CMD* for command.

- **Retain Version**

  Specifies the number of days before an archive file is expired.

- **Copy Serialization**

  The same as in the backup copy group.

- **Copy Mode**

  Always set to *Absolute*.

- **Copy Destination**

  Specifies a different storage pool destination from the backup copy group's destination.

To close the *Display Policy Information* window and continue with the test drive, follow these steps:

1. Click on *OK*.
2. Close the client window.

This ends the backup-archive client session.

Step 7—Viewing Client Nodes Defined to ADSM

To view client nodes defined to ADSM, follow this procedure. From the administrative client window:

1. Double-click on the *Nodes* icon.
2. Double-click on the *CLIENT* icon.

   The *Client - Properties* window for the client node named *CLIENT* appears (see Figure 38 on page 215).

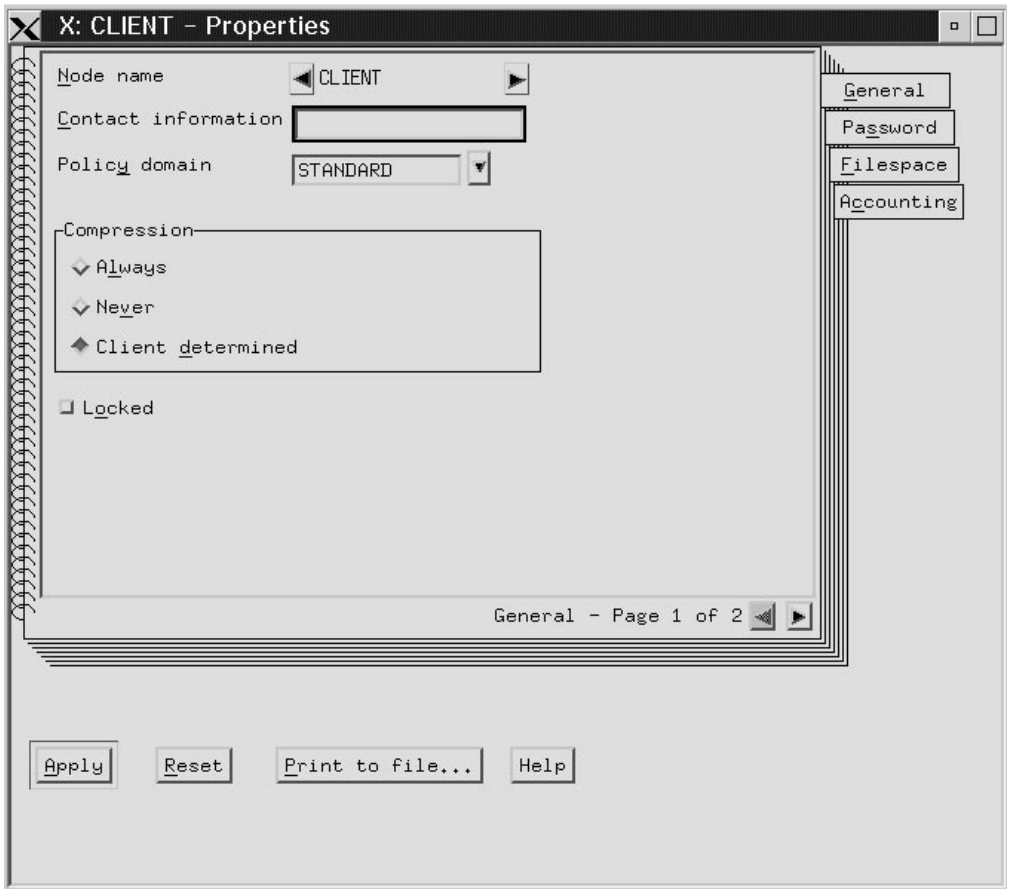


Figure 38. An Example of a Client - Properties Window

The contact information is useful for determining whom to call if you need to contact the workstation user.

An administrator can *lock out* a client. This means the client data is kept by the server, but the client cannot establish a session.

There is an indicator for client compression. You can control client compression from the server or specify it at the client. If you specify it at the client, ADSM looks for a parameter specified in the client options file.

Compression is performed at the client before the data is sent across the network.

3. Click on *Password*.

   The administrator resets a password for a user by using this booktab.

4. Click on *Filespace*.

   The administrator gives users permission to delete their own backup and archive data by using this booktab.

Note: You can only delete the entire filespace for backups. You cannot delete individual backup copies.

5. Click on *Accounting*.

   Accounting records charge users for ADSM services. This page shows the accounting statistics of the last session.

6. Close the *Client - Properties* window.
7. Close the *Nodes - Icons* window.

Step 8—Viewing Administrators Defined to ADSM

This test drive step demonstrates how to view the administrators that are defined to ADSM.

From the administrative client window:

1. Double-click on the *SAMPLE_ADMIN* administrator.

   The *SAMPLE-ADMIN - Properties* window appears (see Figure 39 on page 217).

   Note: The administrator field also has space available for contact information.

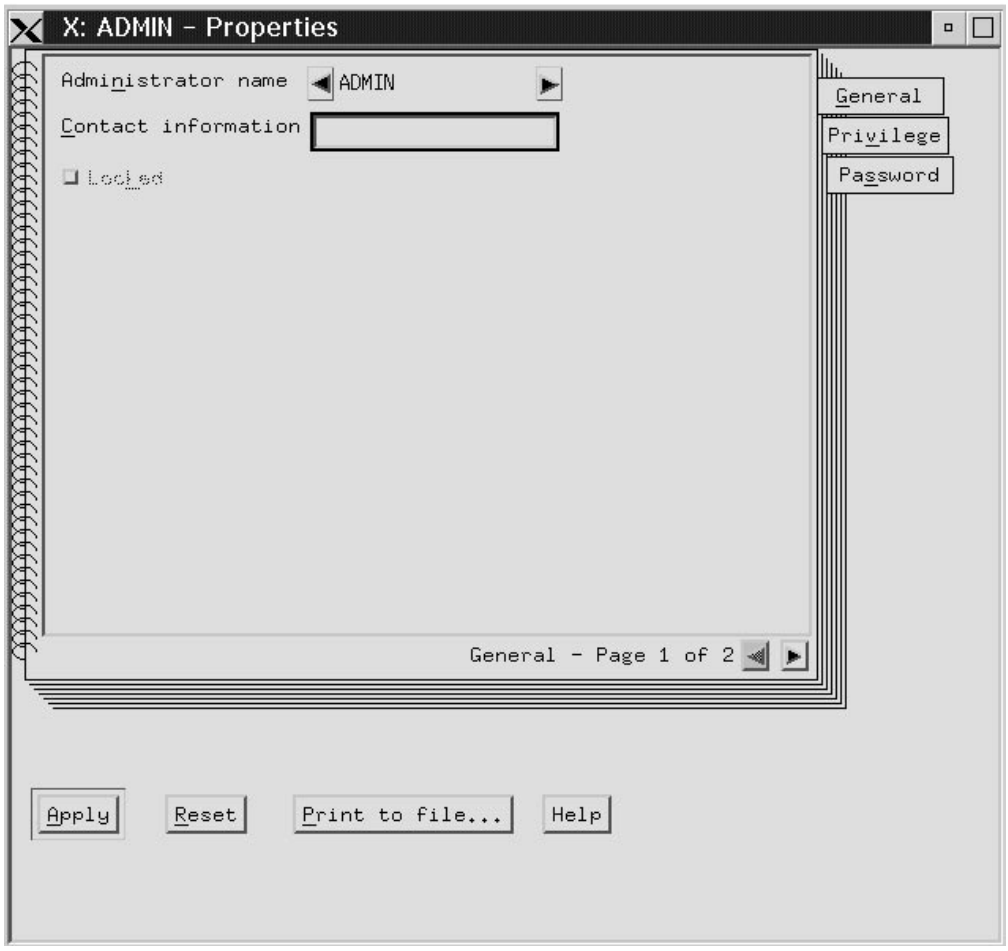


Figure 39. An Example of an ADMIN - Properties Window

2. Click on *Privilege*.

   Different administrators can have different levels of authority. System authority, for example, is the most powerful.

   For more information on the different levels of authority, refer to the *ADSM Administrator's Guide*.

3. Go to Page 2 of 3 by clicking in the right arrow at the bottom right corner of the page.

   The *SAMPLE_ADMIN* administrator, while having full authority to manage the STANDARD domain, is limited to one domain and only to the BACKUPPOOL storage pool. This sample environment only has one policy domain and 2 storage pools. However, this function can be powerful if you are managing a complex environment.

4. Go to Page 3 of 3 by clicking on the right arrow at the bottom right of the page.

   This window shows that the *SAMPLE_ADMIN* administrator only has authority over the BACKUPPOOL storage pool.

5. Close the *SAMPLE-ADMIN - Properties* window.
6. Close the *Administrators - Icon* window.

Step 9—Viewing Schedules Defined to ADSM

Although users can do their own backups, automatic backup is a key feature of ADSM. This process is done by setting up and running backup and archive schedules. This test drive step allows you to use the sample schedules to automate ADSM backup services. These schedules have already been created for you.

From the administrative client window, follow this procedure:

1. Click on the + sign to the left of the *Central Scheduler* icon.
2. Double-click on the *Backup-Archive Schedules* icon.

   A window appears that shows the defined schedules. A schedule is valid within a policy domain. It is associated with a set of client nodes within the policy domain. This option provides more flexibility because not all client nodes have to run the same schedule.

3. Click on *View* in the action bar.
4. Click on *Details* to get an overview of all schedules defined for this system.
5. Double-click on the *STANDARD DAILY_INCR* schedule.

   The *DAILY-INCR - Properties* notebook appears (see Figure 40 on page 219).

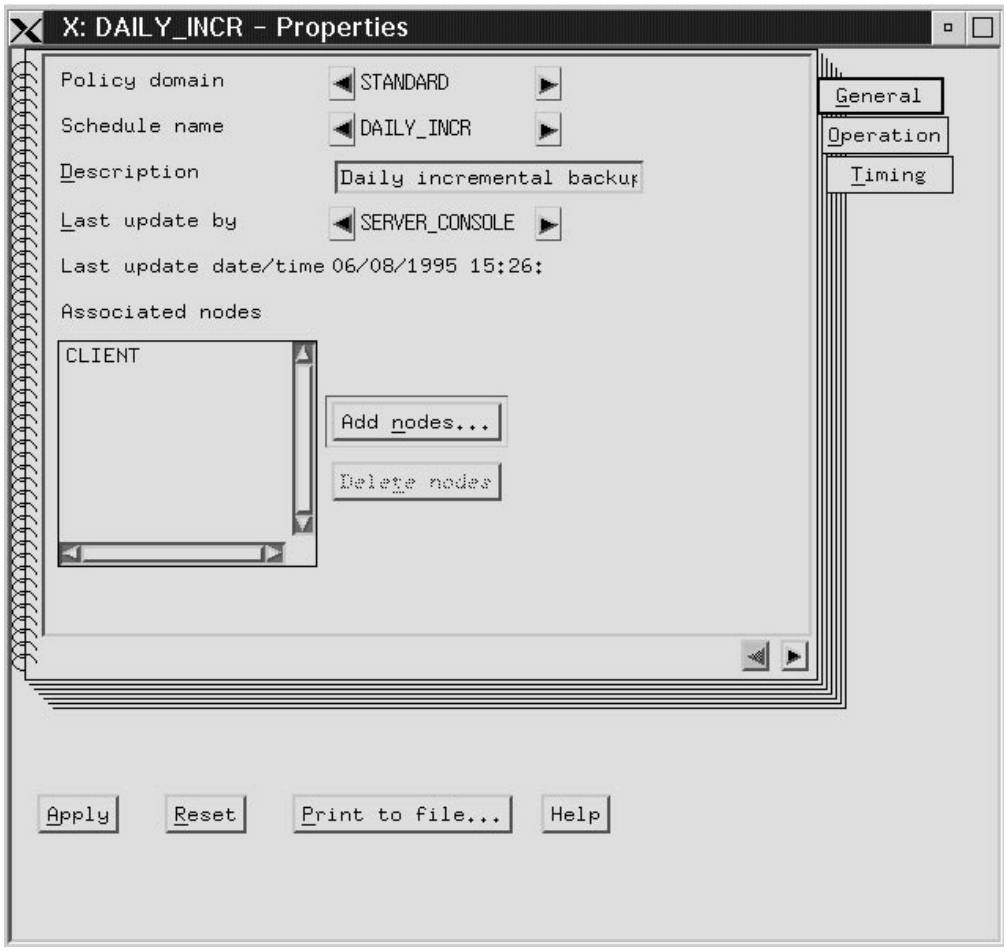


Figure 40. An Example of a DAILY-INCR - Properties Window

6. Click on *Operation* to show that the schedule is an incremental backup.
7. Click on the *down arrow* next to the *Action* field to see that a schedule can perform an archive, an incremental backup, or can back up selected files.
8. Click on the *down arrow* to remove the list.
9. Click on *Timing*.

   An administrator defines this field when a schedule starts. (Select the *Help* button for more information on the fields.)
10. Click on the *DAYS* box by *Period*.
11. Click on the *down arrow* next to the *DAYS* box. This shows other options available for *Period*.
12. Click on the *down arrow* to remove the list.

13. Click on the *ANY* box.
14. Click on the *down arrow* next to *ANY*. This shows other options available for *Day of Week*.
15. Click on the *down arrow* to remove the list.

    Scheduling offers great flexibility. By using ADSM, you can control:

    - When the schedule starts (including the day of the week)
    - The priority of the schedule
    - Schedule randomization

      This option is set at the server level. If you have a schedule with 50 clients to start between 2 a.m and 3 a.m., you may not want all 50 to start at 2 a.m. exactly. If randomization is set at 25 percent, then the schedules will start at different times between 2 a.m. and 2:15 a.m. (25% of 1 hour is 15 minutes).

      The ADSM test drive automatically sets RANDOMIZE to 0 so that when you define a schedule, it starts immediately. Reset RANDOMIZE to 25 (the installation default) after you finish with these exercises. For details on how randomization works, refer to the SET RANDOMIZE command in the *ADSM Administrator's Reference*.
16. Close the *Central Scheduler - DAILY-INCR - Properties* window.
17. Close the *Schedules - Details* window.

    Scheduled events are recorded at the server. This option allows an administrator to check that all schedules have completed successfully.
18. Double-click on either the *Backup-Archive Events* icon or double-click on *Administrative Events* icon.

    A schedule is complete, missed, or blank.

    Complete Used if the process is complete.

    Blank Used if the time for the schedule has not yet passed or if the server was not active for a brand new server.

    Missed Used if the client's workstation was turned off, or if the maximum number of schedules were already running. This option is set at the server level. For more information, refer to the SET MAXSCHEDSESSIONS command in the *ADSM Administrator's Reference*.
19. Click on *View* in the action bar.
20. Click on *Include*.

    You can view a specific schedule or change the dates that an administrator views. Selecting *Exceptions Only* allows you to view only those schedules that did not complete successfully.
21. Click on the *Cancel* button.
22. Close the *Events - Details* window.

23. Close the *Central Scheduler* window.

Step 10—Viewing Storage Pool Information

This test drive step allows you to display information about storage pools. Storage pools are where the backup copies and archived files are kept at the server.

From the administrative client window:

1. Double-click on the *Storage Pools* icon. This displays the list of storage pools.
2. Close this window.
3. Click on the + sign to the left of the *Storage Pools* icon.
4. Double-click on *Storage Volumes*.
5. Click on *View* in the menu bar.
6. Click on *Details*. The *Storage Pools Details* window appears (see Figure 41 on page 222) showing you the storage volumes and the associated storage pools.

Figure 41. An Example of a Storage Pools - Details Window

7. Maximize the screen to make viewing easier. Some of the fields are:
   - **Device Class**

     Specifies that storage volumes can be disk, tape, or optical.
   - **Next Storage Pool**

     Specifies the migration location when this storage pool is full. You can define a storage hierarchy to have backup copies move from disk to tape.
   - **Estimated Capacity**

     Specifies the storage amount for each type of storage volume.
   - **Percent Utilized**

Specifies the amount of storage space that is in use for each type of storage volume.

- **High Migration Threshold**

  Specifies that when the device reaches this percentage, files are migrated to the next storage pool until the low migration threshold percentage is reached.

8. Close the *Storage Pool Details* window.

Appendix C. Applying ADSM Updates on AIX

Application of ADSM maintenance updates, also referred to as Program Temporary Fixes (PTFs), bring your ADSM server up to the current maintenance level.

On AIX, you can apply the ADSM maintenance updates by using the System Management Interface Tool (SMIT).

Note: The ADSM server and the ADSM Utilities must not be running during the installation of maintenance updates.

Internet, IBMLink, and Compuserve Assistance

Online help is available through Internet, IBMLink/ServiceLink, and CompuServe.

Internet: If your installation has access to the Internet, the latest server and client PTFs (maintenance updates) are available on the anonymous ftp (file transfer protocol) server. The machine name is *index.storsys.ibm.com*.

IBMLink/ServiceLink: If your installation has access to IBMLink/ServiceLink, an interactive online database program, you can:

- Search for an existing authorized program analysis report (APAR) that is similar to your problem.
- Search for an available program temporary fix (PTF) for the existing APAR.
- Order the PTF if it is available.
- Create an Electronic Technical Response (ETR) problem report to get assistance from an ADSM service representative.

CompuServe: If your installation has access to CompuServe, you can obtain code fixes for the ADSM clients and ADSM servers through the IBMSTORAGE forum libraries.

You can also access general information files, helpful hints, Technical Support Bulletins, and ADSM informational APAR text through the IBMSTORAGE forum.

To access this forum, type **GO ADSM** or **GO IBMSTORAGE** at any **!** prompt. You can use this forum to exchange information and ideas with IBM representatives and other ADSM users.

Using SMIT to Install Maintenance Updates on AIX

Note: To use SMIT to apply maintenance updates on AIX, you must be root user and have disk space available. SMIT can be run from the AIX command-line interface or from the command line of an xterm window.

Complete the following procedure to apply maintenance updates on the AIX system by using SMIT.

Attention

If you are running with the default mouse behavior, be sure to have the cursor arrow in the active window in which you are performing system actions.

Applying Maintenance Updates by Using SMIT

Step 1. Halt the server by entering:

```
halt
```

Step 2. Log in as the root user.

Note: To access the X Windows environment, enter: *xinit*.

Step 3. Enter:

```
smit &
```

Step 4. Choose the following selections from within SMIT:

```
Software Installation and Maintenance
     Install / Update Software
          Install / Update Selectable Software (Custom Install)
               Install Subsystems (Selective Fixes)
```

Note: Wording may differ slightly in these selections, depending on the level of the AIX operating system.

Step 5. On the next window, select the device that you are using for the installation. You can enter the drive name in the window or click on *List* to access the device list.

If you click on *List*, select the device that you are using (for example, /dev/rmt0).

Notes:

a. The status of the drive that you select must be **Available**. For information on the status of tape drives, see “Listing and Updating Tape Drive Status” on page 227.

b. Do *not* use /dev/mtx for SMIT installations.

Step 6. Click on:

```
Do
```

Step 7. **Check the default settings for the options on this window.**

Attention

Committing the software removes all previous versions of ADSM, prevents removal of ADSM from the system, and prevents you from rejecting the PTF and returning to the previous level.

Note: Specify “no” for the *commit* option; “yes” for the *save* option; and for AIX 4.1, “yes” for the *detailed output* option.

Leave the default settings for all of the other options.

Step 8. Load the tape into the drive you selected in 5 on page 226.

Press:

`Enter`

Step 9. SMIT asks: ARE YOU SURE??...

Attention

Continuing the procedure may delete information that you want to keep.

Click on:

`OK`

to continue.

This installation may take several minutes.

Step 10. After the installation is complete:

- Click on *Done*
- Remove the tape
- Exit from SMIT

Listing and Updating Tape Drive Status

During maintenance installation, ensure that the tape drive that you are using is defined and the status is set to **Available**. If the tape drive is only defined and not available, you must change the status to **Available**.

Listing All Defined Tape Drives

By using SMIT, you can display a list of all the tape drives that are defined. From this list, you determine the status of each tape drive.

The status displayed is *Defined* or *Available*.

The following example applies to AIX versions 3.2.5 and 4.1.

1. Log in as the root user.

   If you want to use X Windows, enter:

   ```
   xinit
   ```

2. Enter:

   ```
   smit &
   ```

3. Select the following from SMIT:

```
Devices
      ADSM Devices
            Tape Drive
                  List All Defined Tape Drives
```

   A list of all the defined tape drives and their status is displayed.

   Note: You must choose an AIX device driver name, not an ADSM name. SMIT installs and updates the AIX device driver.

Changing the Status of a Tape Drive

During the installation of ADSM maintenance updates on AIX, you must ensure that the status of the drive that you are using is set to **Available**. If the drive is not available, you must update the status of the drive by using SMIT.

The following example applies to AIX versions 3.2.5 and 4.1.

1. Log in as the root user.

   If you want to use X Windows, enter:

```
xinit
```

2. Enter:

```
smit &
```

3. Select the following choices from SMIT:

```
Devices
      ADSM Devices
            Tape Drive
                  Configure a Defined Tape Drive
```

4. Select the tape drive from the list.

   The status of the tape drive is now **Available**.

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 programming 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 programming 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 data 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*.

availability management. Managing recovery from relatively common computer system outages such as a disk drive head crash. Recovery is often accomplished by using disk mirroring and other forms of RAID technology, or by maintaining onsite backup copies of data.

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.

awk. In AIX, a pattern-matching program for processing text files. With the DRM feature, you can use an awk script to break up the disaster recovery plan file into usable parts.

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's data 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*.

boot media. Media that contains operating system and other files essential to running a workstation or server.

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 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 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 data 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 files that are migrated via ADSM space management. 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. 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 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.

| **disaster recovery**. Recovery from catastrophic interruptions of computer systems, such as loss of the system location because of natural events. Backup data is kept offsite to protect against such catastrophes.

| **Disaster Recovery Manager (DRM)**. An ADSM feature that assists in preparing and later using a disaster recovery plan for the ADSM server.

| **disaster recovery plan**. A document that contains information about how to recover computer systems if a disaster occurs. With DRM, the plan is a file that contains information about the software and hardware used by the ADSM server, and the location of recovery media.

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.

| **DRM**. Disaster Recovery Manager.

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

dsmserv.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, and archive copies. 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's data storage. ADSM does not necessarily store all the files from a single file space together, but can identify all the files in its data 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 data storage.

incremental backup. (1) A function that allows users to 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

machine information. Details about the machine on which a client node resides.

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, 2^{20} 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 recovery media. Media that is kept at a different location to ensure its safety if a disaster occurs at the primary location of the computer system. The media contains data necessary to recover the ADSM server and clients. The offsite recovery media manager, which is part of DRM, identifies recovery media to be moved offsite and back onsite, and tracks media status.

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.

| **recovery media**. Media that contains data necessary to
| recover the ADSM server and clients.

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 a VM server, a device class that is defined by ADSM at installation. It is used with VM servers 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.

SCSI. Small computer system interface.

selective backup. A function that allows users to back up files or directories from a client domain 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.

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 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*.

SPACEMGPOOL. 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 data 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* 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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for AIX
Installing the Server and
Administrative Client
Version 2

Publication No. SH35-0136-01

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