ADSTAR Distributed Storage Manager
for MVS

IBM

Installing the Server and Administrative Client

Version 2

┌─ **Note!** ───┐

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

└───┘

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Contents

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General-use programming interfaces allow the customer to write programs that obtain the services of ADSM.

General-use Programming Interface and Associated Guidance Information is identified where it occurs, either by an introductory statement to a chapter or section or by the following marking:

```
┌──────────────────── General-use programming interface ────────────────────┐
```

General-use Programming Interface and Associated Guidance Information...

```
└──────────────── End of General-use programming interface ────────────────┘
```

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Preface

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

ADSM provides an automated, centrally scheduled, policy-managed backup and archive facility for file servers and workstations.

This publication provides guidance and reference information for administrators of ADSM. It explains how to:

- Install the ADSM server on an MVS/ESA SP system running at Version 3.1.3 or later
- Configure the server for communications
- Install selected ADSM clients and configure them for communications
- Test the connection from selected clients to the server
- Tailor options and install administrative clients
- Customize ADSM for your environment

You can define and manage ADSM processes through an administrator command interface or through a graphical user interface.

Who Should Read This Publication

This guide is intended for systems programmers, network administrators, and storage administrators who must install the MVS ADSM server. It is also intended for anyone who has been assigned an administrative privilege class and must manage ADSM server activities. While ADSM can be managed by a single administrator, administrative responsibilities can be divided among a number of people as an installation requires.

As an administrator, you may be located in the same building or complex where the server resides. Or, you may be at a different location from the server and interact with the server through your workstation. 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.

What You Should Know before Reading This Publication

You should be familiar with the following areas within your installation:

- The MVS operating system on which the server resides

- The workstation operating systems on which backup-archive clients reside

- The workstation operating systems on which the administrative client resides

- The communication protocols required for the client/server environment both for the mainframe and the workstation

- The storage management practices of your organization, such as how you are currently backing up your workstation files

- The practices used for disk and tape storage

- The installation requirements for establishing recoverability of the ADSM server database and storage.

ADSTAR Distributed Storage Manager Publications

The following tables list the MVS ADSM server publications and the ADSM backup-archive client user publications.

The ADSM server is available on other platforms besides MVS. You can find information about those platforms and their related publications in *IBM ADSTAR Distributed Storage Manager General Information* (GH35-0114).

The ADSM library is also available on the *MVS Base Collection Kit* (order number SK2T-0710) CD-ROM.

MVS ADSTAR Distributed Storage Manager Server Publications

Title	Order Number
ADSTAR Distributed Storage Manager: Messages	SH35-0133
ADSTAR Distributed Storage Manager for MVS: Licensed Program Specifications	GH26-4038
ADSTAR Distributed Storage Manager for MVS: Administrator's Guide	SH26-4039
ADSTAR Distributed Storage Manager for MVS: Administrator's Reference	SH26-4040
ADSTAR Distributed Storage Manager for MVS: Installing the Server and Administrative Client	SH26-4043

ADSTAR Distributed Storage Manager Backup-Archive Client Publications

Title	Order Number
ADSTAR Distributed Storage Manager Version 2: Using the Apple Macintosh Backup-Archive Client	SH26-4051
ADSTAR Distributed Storage Manager Version 2: Using the UNIX Backup-Archive Clients	SH26-4052
ADSTAR Distributed Storage Manager Version 2: Using the OS/2 Backup-Archive Client	SH26-4053
ADSTAR Distributed Storage Manager Version 2: Using the DOS Backup-Archive Client	SH26-4054
ADSTAR Distributed Storage Manager Version 2: Using the Novell NetWare Backup-Archive Client	SH26-4055
ADSTAR Distributed Storage Manager Version 2: Using the Microsoft Windows Backup-Archive Clients	SH26-4056
ADSTAR Distributed Storage Manager: Using the UNIX Hierarchical Storage Management Clients	SH26-4030
ADSTAR Distributed Storage Manager: Using the Lotus Notes Backup Agent	SH26-4047
ADSTAR Distributed Storage Manager: Installing the Clients	SH26-4049

International Technical Support Center Publications

The following table lists the ADSM publications written by the IBM International Technical Support Centers.

Title	Order Number
ADSTAR Distributed Storage Manager Storage Management Services: Implementation Examples	GG24-4034
ADSM Advanced Implementation Experiences	GG24-4221
Getting Started with ADSM AIX Clients	GG24-4243
Getting Started with ADSM NetWare Clients	GG24-4242
Getting Started with ADSM ADSM/2	GG24-4321
Getting Started with ADSM ADSM/6000	GG24-4421

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 in:

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

To obtain the Software Developer's Program Information Package:

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

Do You Have Comments or Suggestions?

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

Translations

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

Changes for ADSTAR Distributed Storage Manager Version 2

The new functions for ADSM Version 2 are:

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.

See "Using Database Backup and Recovery Features" on page 127 for details.

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" on page 131 for details.

Administrative command scheduling

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

See "Scheduling Administrative Commands" on page 132 for details.

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 "Setting up Space Management on the Server" on page 137 for details.

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Chapter 1. How to Use This Book

The following sections in this chapter guide you through the planning, installation and configuration process for ADSM for MVS.

- Use the Installation Overview section to review what pre-requisites are needed and to find the location of the MVS server and client installation and configuration information. The location of information for customizing your server and clients is also given.

- Use the ADSM Installation Checklist and Reference as a guide to further tailor or customize your ADSM environment.

- Use the Communication Configuration Worksheets to guide you through the MVS server install and the OS/2 and Novell client installs if you plan to configure them for APPC.

Use Chapters 1 through 3 of this book to initially install, configure and test out ADSM using an MVS server. Information for the communication methods supported under MVS is presented in Chapter 2 and carried through to the installation and configuration of selected clients in Chapter 3.

Communication Configuration Worksheets, that extend over these three chapters, are provided to show you how to install ADSM for MVS using the APPC communication method with the OS/2 administrative and backup-archive clients and with the Novell backup-archive client. These worksheets show you what required information is needed and where it is used. You can use the information on these worksheets to guide you through the server installation in Chapter 2 and the client installations in Chapter 3.

You can also use these worksheets to gather information you will need before you start your actual installation. Contact your Network Administrator for assistance in gathering this communication information. We recommend you use the defaults for volumes and clients names until you have your ADSM installation functioning.

Installation Overview

The following tasks must be completed to install and set up ADSM in a multiplatform environment.

- Acquire the necessary hardware, software, and documentation for the ADSM server, administrative clients, backup-archive clients, communication protocols, and storage devices used at your installation.

- Install the server software on your MVS system.

  Chapter 2, "Basic Server Installation and Setup" on page 15 of this installation guide describes how to complete this task with the least amount of installation steps. Specific topics include how to do the following:

  1. Install ADSM from the program tapes

  2. Adjust the virtual storage size of the server to provide sufficient space for ADSM. The minimum virtual storage requirement for the server is 40MB.

3. Complete required postinstallation tasks before you start the server for normal operations, such as:

   – Allocating disk space for the database, recovery log, and storage pools

   – Providing the minimal storage space required for the database, recovery log, and storage pool. This minimal storage space allows you to bring up the server and test your client-server environment. If needed, ADSM allows you to easily add storage space to the database, recovery log, and storage pools while the server is running.

   – Tailoring MVS for your communication protocol

   – Creating the server options file and tailoring it for your communication protocol.

   – Preparing the server for database backup and recovery by setting the DEVCONFIG and VOLUMEHISTORY options.

4. Start and stop the server for the first time

5. Start the server for normal operations

6. Register an initial system administrator and backup-archive client node

- Install the administrative client program on desired workstations, personal computers, or server operating system.

  To test the client/server connection and to get your first administrative client up and running, Chapter 3, "Testing the Client/Server Connection" on page 53 of this guide provides sample start-to-finish instructions for installing selected administrative clients. These instructions include installing the client files, configuring the client for server communications, and starting the client in order to test the server connection.

  Chapter 7, "Installing the Administrative Client" on page 141 of this guide, provides information on installing all of the ADSM administrative clients and modifying the client options file to allow communication with the server. You can then perform administrative tasks by using the command line interface or the graphical user interface if it is available on administrative client you have installed.

- Install the backup-archive client program on desired workstations, personal computers, or file servers.
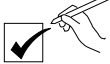
  To test the client/server connection and to get your first backup-archive client up and running, Chapter 3, "Testing the Client/Server Connection" on page 53 of this guide provides sample start-to-finish instructions for installing selected backup-archive clients. These instructions include installing the client files, configuring the client for server communications, and starting the client in order to test the server connection. You can then perform backup and archive tasks by using the command line interface or the graphical user interface if it is available on the client you have installed.
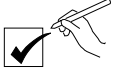
  Instructions for installing all the backup-archive clients can be found in *ADSTAR Distributed Storage Manager: Installing the Clients*.
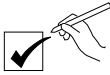
You can also get information on installing the server from *Program Directory for ADSTAR Distributed Storage Manager for MVS, Version 2 Release 1*.

ADSTAR Distributed Storage Manager Installation Checklist and Reference

The following checklist provides you with the basic steps necessary to install and set up ADSM. For detailed information on a specific checklist item, the appropriate publication is referenced. For example, **IS** refers to *ADSTAR Distributed Storage Manager for MVS: Installing the Server and Administrative Client*. **IC** refers to the *ADSTAR Distributed Storage Manager: Installing the Clients*.

✔🖉	INSTALLATION STEPS	PUB. REF.
☐	**Backing Up Your Existing Version 1 Server if Applicable**	**IS**
☐	**Installing ADSTAR Distributed Storage Manager Server**	**IS**
☐	Installing ADSTAR Distributed Storage Manager Server Files	IS
☐	Setting Up and Modifying Your Server Options File	IS
☐	Allocating Space for the Server Options File	IS
☐	Enabling Communications with the Server	IS
☐	Setting Server Options	IS
☐	Allocating Space for the Database and Recovery Log	IS
☐	Allocating Space for Storage Pool Volumes	IS
☐	**Activating, Preparing, and Customizing the Server**	**IS**
☐	Starting the Server	IS
☐	Registering Administrators	IS
☐	Preparing Storage Pools for Backup and Archive Files	IS
☐	Preparing the Server to Support Recovery of the Database and Storage Pools	IS
☐	Initiating Server Customization Activities	IS
☐	**Installing the Administrative Client**	**IS**
☐	Installing the Administrative Client Files	IS
☐	Updating Your Communications Configuration	IS
☐	Setting Up and Modifying the Administrative Client User Options File	IS
☐	Setting Administrative Client Options for the Communication Method	IS
☐	Setting Options for Date, Time, Number, and Language	IS

✔️🖐️	INSTALLATION STEPS	PUB. REF.
☐	**Installing the Backup-Archive Client**	**IC**
☐	Installing the Backup-Archive Client Files	IC
☐	Updating Your Communications Configuration	IC
☐	Setting Up and Modifying the Backup-Archive Client User Options File	IC
☐	Setting Backup-Archive Client Options for Communication Method	IC
☐	Tailoring Options	IC
☐	Creating an Include-Exclude List	IC
☐	Registering Your Workstation with the Server	IC
☐	**Using the Backup-Archive Client**	**BA**
☐	Starting a Backup-Archive Client Session	BA
☐	Performing Backup-Archive Client Tasks, Including:	BA
☐	Backing Up and Archiving Files	BA
☐	Restoring Backup Versions	BA
☐	Retrieving Archive Copies	BA
☐	Starting Other Tasks	BA
☐	**Setting Up the Space Management Client**	**SM**
☐	Setting Space Management Options	SM
☐	Updating Space Management Settings	SM
☐	Setting Up Central Scheduling	SM
☐	**Using the Space Management Client**	**SM**
☐	Starting Space Management	SM
☐	Migrating Selected Files	SM

✓✎	**INSTALLATION STEPS**	**PUB. REF.**
☐	Recalling Selected Files	SM

Note: IS = *ADSTAR Distributed Storage Manager for MVS: Installing the Server and Administrative Client*
IC = *ADSTAR Distributed Storage Manager: Installing the Clients*
BA = *ADSTAR Distributed Storage Manager Backup-Archive Client Publication for the appropriate client (See "ADSTAR Distributed Storage Manager Backup-Archive Client Publications" on page xiv)*
SM = *ADSTAR Distributed Storage Manager: Using the UNIX Space Management Clients*

Communication Configuration Worksheets.

The worksheets in this section are designed to assist you in both planning and performing the communications configuration for the ADSM server and selected clients. Specifically, these worksheets assist you in:

- Configuring the MVS ADSM server for APPC (SNALU6.2) communications

- Configuring the OS/2 ADSM client for APPC (SNALU6.2) communications

- Configuring the Novell NetWare ADSM client for APPC (SNALU6.2) communications

While these worksheets are specifically designed for the communications method and clients listed above, you can also use them as a model for designing you own worksheets for other communication methods and clients.

Worksheet for Configuring the Server for APPC (SNALU6.2)

Use the worksheet on page 7 to assist you in configuring your MVS ADSM server for the APPC (SNALU6.2) communication method in order to connect to a Novell NetWare or OS/2 client. Before starting your configuration, you should first review the instructions for installing the server and for installing the Novell NetWare and OS/2 clients. Then, use the examples in these instructions as a reference to obtain the information needed for your configuration.

Refer to the following sections for the installation instructions:

- Chapter 2, "Basic Server Installation and Setup" on page 15
- "Installing and Configuring the OS/2 Client for APPC" on page 56
- "Installing and Configuring the Novell NetWare Client for APPC" on page 71

The following is an explanation of the data items on the worksheet. You must have this information before you begin the installation:

Worksheet Item	**Description**
Partner Description	The description this data item is normally known by
Mode Description	The description of the Log Mode Definition and Log Mode Name
Novell Local Description	The description of the Novell logical unit (LU)
OS/2 Local Description	The description of the OS/2 LU

Reference Parameter	A reference that can be used to trace information to the partner node and back
MVS Parameter	The name the parameter is known by in MVS
MVS Example	The example name as used in this book
VTAM Statement	The part of the VTAM statement where the partner is located
Your Data	The space to write in your data. This is your data which corresponds to the data shown in the examples in this book.

WORKSHEET For

COMMMETHOD   SNALU6.2(APPC) for MVS

Note: Enter Your Data in uppercase to ensure correct acceptance by MVS

PARTNER Description	Reference Parameter	MVS Parameter Name	MVS-Example	VTAM Statement	Your Data
Network ID	s_netid	Network name	DEIBMFD	VSUL	
Partner LU name or ACB name	partner_lu	ACBNAME	DSMSERV1	VAPPL	#
Application ID	applid	Applid	DSMSERV1	VAPPL	

MODE Description	Reference Parameter	MVS Parameter Name	MVS-Example	VTAM Statement	Your Data
Log Mode Definition or Table name		MODETAB	ISTINCLM	VAPPL	
Log Mode Name	logmode	DLOGMOD	#BATCH	VAPPL	

NOVELL LOCAL Description	Reference Parameter	MVS Parameter Name	MVS-Example	VTAM Statement	Your Data
IDBLK	vtam_xid	IDBLK	05D	VBUILD	vtam_xid
IDNUM		IDNUM	F333C	VBUILD	
Local node name	c_independentlu	LU	F13833C0	VBUILD	
PU name	c_pu	PU	F13833C	VBUILD	

OS/2 LOCAL Description	Reference Parameter	MVS Parameter Name	MVS-Example	VTAM Statement	Your Data
IDBLK	vtam_xid	IDBLK	05D	VBUILD	
IDNUM	vtam_xid	IDNUM	F333B	VBUILD	
Local node name	c_independentlu	LU	F13833B0	VBUILD	
PU name	c_pu	PU	F13833B	VBUILD	

Key to Statement Where Parameters Appear
The following lists the full names of the abbreviations in the **VTAM Statement** column of the above worksheet.

- VSUL - VTAM Setup List
- VAPPL - VTAM APPLID Statement
- VBUILD - Switched Major Node Definition

Administrator and Client names

The following lists the names and passwords used in the examples in the ADSM server installation chapter to register a backup-archive client node and a system administrator. Blank spaces are provided for you to write in the corresponding values you want to use when you perform these tasks.

- Registering a Client Node - (adsmcl1 notell)   _____ _____

- Registering an Administrator - (bob secretpw)   _____ _____

#Server options file - ADSM.DSMSERV.OPT

The following is the example used in the ADSM server installation chapter to update the server options file for APPC (SNALU6.2) communications. A blank space is provided for you to write in the corresponding value you want to use when you perform this task.

```
LUName        DSMSERV1        _____
```

Worksheet for Configuring the OS/2 Client for APPC (SNALU6.2)

Use the worksheet on page 9 to assist you in configuring your OS/2 ADSM client for the APPC (SNALU6.2) communication method in order to connect to the MVS ADSM server. Before starting your configuration, you should first review the instructions for installing the server and for installing the OS/2 client. Then, use the examples in these instructions as a reference to obtain the information needed for your configuration. Refer to the following sections for the installation instructions:

- Chapter 2, "Basic Server Installation and Setup" on page 15
- "Installing and Configuring the OS/2 Client for APPC" on page 56

The following is an explanation of the data items on the worksheet. You must have this information before you begin the installation:

Worksheet Item	Description
Local Description	The description this data item is normally known by
Partner Description	The description this data item is normally known by
Reference Parameter	A reference that can be used to trace information to the partner node and back
Client Workstation Parameter	In Chapter 3, the name of the fields used on the windows in Communications Manager/2 (CM/2)
Client Installation Example	The name used in the examples in Chapter 3
Window Abbreviation	In Chapter 3, the abbreviations of the windows used in CM/2. A list of the abbreviations and their corresponding full names follow the worksheet.
Your Data	The space to write in your data. This is your data which corresponds to the data shown in the examples in this book.

WORKSHEET For

COMMMETHOD   SNALU6.2(APPC) for OS/2

LOCAL Description	Reference Parameter	Client Work-station Parameter Name in Chpt 3	Client Installation Example in Chpt 3	Window Abbreviation in Chpt 3	Your Data
Configuration Name		Configuration	ADSMAPPC	OC	
Network ID of Work-station	c_netid	C&SM LAN ID / Network ID / Partner network ID	DEIBMFD	TRAP LNC CTAH	
Independent LU	c_independentlu	Local Node Name / Local PU name	F13833B0	LNC CTAH	
IDBLK & IDNUM	vtam_xid	Local node ID / Node ID	05D F333B	LNC CTAH	
Link name		Link Name to Host	HOST0001	CL CTAH	
Token Ring Address	dest_addr	LAN destination address	400010000002	CTAH	
Partner Node Name		Partner node name	OS2A	CTAH	

PARTNER Description	Reference Parameter	Client Work-station Parameter Name in Chpt 3	Client Installation Example in Chpt 3	Window Abbreviation in Chpt 3	Your Data
Network ID of Application	s_netid	Network ID	DEIBMFD	PL	
Application ID & Alias	partner_lu	LU Name & Alias	DSMSERV1 OS2NODEA	PL	
Fully qualified Partner LU - Network ID	s_netid.partner_lu	Partner LU - Fully qualified name	DEIBMFD. DSMSERV1	CCSI	##
Server Program Name - APPLID	applid	Partner TP - TP Name	DSMSERV1	CCSI	##
Logon Mode name	logmode	Mode name	#BATCH	SFI CCSI	##
CPI Communications Side Information - Symbolic destination name		Symbolic destination name	MVSADSM	CCSI	##++

Note: ++ case sensitive - enter as specified by administrator

Key to Window Where Parameters Appear

The following lists the full names of the abbreviations in the **Window Abbreviation in Chpt 3** column of the above worksheet.

- OC - Open Configuration
- TRAP - Token Ring or Other LAN Types DLC Adapter Parameters
- LNC - Local Node Characteristics
- SFI - SNA Features List
- CCSI - CPI Communications Side Information
- CL - Connections List
- AL - Adapter List
- CTAH - Connection to a Host

Administrator Name

The following is the name and password used in the example in the server installation chapter to register a system administrator. Blank spaces are provided for you to write in the name and password you used when you registered a system administrator. Use them to start up your administrative client as discussed in "Starting and Verifying the OS/2 Client" on page 69.

- (bob secretpw) _____ _____

Node (client name)

The following is the name used in the example in the server installation chapter to register a client backup-archive node. A blank space is provided for you write in the name you used when you registered a backup-archive client node. Enter this name with the NODENAME option in the client options file as discussed in "8. ADSM Client Options File Setup" on page 67.

- (adsmcl2) _____

##Client Options File - DSM.OPT

The following are the communication options that you must enter in the client options file. The COMMMETHOD option value for APPC must always be **SNALU6.2**. The values listed for the other options are the values used in the examples for configuring the OS/2 client as discussed in "Configuring the OS/2 Client for APPC" on page 57. Blank spaces are provided for you to write in the values you used when you configured your OS/2 client for communications. Enter these options in the client options file as discussed in "8. ADSM Client Options File Setup" on page 67.

```
COMMMethod              SNALU6.2
SYMBOLICDestimation  (MVSADSM) (side information panel info)
                                          _____

                    -OR-

PARTnerluname  (DEIBMFD.DSMSERV1)        _____
TPname              (DSMSERV1)           _____
CPICMOdename        (#BATCH)             _____
```

Worksheet for Configuring the Novell NetWare Client for APPC (SNALU6 .2)

Use the worksheet on page 12 to assist you in configuring your Novell NetWare ADSM client for the APPC (SNALU6.2) communication method in order to connect to the MVS ADSM server. Before starting your configuration, you should first review the instructions for installing the server and for installing the Novell NetWare client. Then, use the examples in these instructions as a reference to obtain the information needed for your configuration. Refer to the following sections for the installation instructions:

- Chapter 2, "Basic Server Installation and Setup" on page 15
- "Installing and Configuring the Novell NetWare Client for APPC" on page 71

The following is an explanation of the data items on the worksheet. You must have this information before you begin the installation:

Worksheet Item	Description
Local Description	The description this data item is normally known by
Partner Description	The description this data item is normally known by
Reference Parameter	A reference that can be used to trace information to the partner node and back
Client Workstation Parameter	In Chapter 3, the name of the fields used on the windows in CSCON/SIUTIL
Client Installation Example	The name used in the examples in Chapter 3
Window Abbreviation	In Chapter 3, the abbreviations of the windows used in CSCON/SIUTIL. A list of the abbreviations and their corresponding full names follow the worksheet.
Your Data	The space to write in your data. This is your data which corresponds to the data shown in the examples in this book.

WORKSHEET For

COMMMETHOD   SNALU6.2(APPC) for Novell

LOCAL Description	Reference Parameter	Client Work-station Parameter Name in Chpt 3	Client Installation Example in Chpt 3	Window Abbreviation in Chpt 3	Your Data
2.1 Service Profile		New Profile Name	APPCPRO	SSP	
Network ID where workstation resides	c_netid	SNA Network ID	DEIBMFD	HCC	
Network ID where application resides	s_netid	Network Name	DEIBMFD	LLCD	
Independent LU Name or Local LU Name	c_independentlu	Peripheral Node Control Point Name / LU name	F13833C0	HCC LLCD	
IDBLK IDNUM or Vtam XID	vtam_xid	Block ID and PUID for Token Ring Connection	05D F333C	STRC	
Logical Adapter Name		Logical Adapter Name	TOKENSAA	STRC	
Local PU name	c_pu	PU name	F138833C	LLCD	
Side Information - Symbolic destination name		Side Information Record Name	MVSADSM (MVSADSM.CPI)	LLCD ++	

PARTNER Description	Reference Parameter	Client Work-station Parameter Name in Chpt 3	Client Installation Example in Chpt 3	Window Abbreviation in Chpt 3	Your Data
Application ID or Partner LU Name	partner_lu	LU Name	DSMSERV1	PLCD	
Token Ring Adapter address of work-station	dest_addr	Network Adapter Address	400010000003	PLCD	
Local Program Name		Local Program Name	DSMC	PLCD	
Server Program Name	applid	Remote Program Name	DSMSERV1	PLCD	
Mode Definition	logmode	Mode Name	#BATCH	MCD	
Side Information - Symbolic destination name		Side Information Record Name	MVSADSM	PLCD ##++ MCD	
CSCON profile name		SAA Service Profile Name	APPCPRO	MCD	

Note: ++ case sensitive - enter as specified by administrator

Key to Window Where Parameters Appear

The following lists the full names of the abbreviations in the **Window Abbreviation in Chpt 3** column of the above worksheet.

- SSP - Select Service Profile
- HCC - Host Connection Configuration
- STRC - SNA Token Ring Configuration
- LLCD - Local LU Configuration Data
- PLCD - Partner LU Configuration Data
- MCD - Mode Configuration Data

Node (Client Name)

The following is the name used in the example in the server installation chapter to register a client backup-archive node. A blank space is provided for you write in the name you used when you registered a backup-archive client node. Enter this name with the NODENAME option in the client options file as discussed in "ADSM Client Options File Setup" on page 78.

- (adsmcl1) _____

##Client Options File - DSM.OPT

The following are the communication options that you must enter in the client options file. The COMMMETHOD option value for APPC must always be **SNALU6.2**. The values listed for the other options are the values used in the examples for configuring the Novell NetWare client client as discussed in "Configuring the Novell NetWare Client for Communications" on page 73. Blank spaces are provided for you to write in the values you used when you configured your Novell NetWare client for communications. Enter these options in the client options file as discussed in "ADSM Client Options File Setup" on page 78.

```
COMMMethod          SNALU6.2
SYMBOLICDestimation (MVSADSM) (side information panel info)_____
```

Chapter 2. Basic Server Installation and Setup

Use this chapter to install the ADSM server with the least number of installation steps. Also use this chapter to test the completeness of the ADSTAR Distributed Storage Manager server installation.

If you are installing this Version 2 server over the ADSM Version 1 server, it is necessary and extremely important that you read and follow the steps outlined in "Migrating from the ADSTAR Distributed Storage Manager Version 1 Server" on page 51 before you begin this installation.

The procedures in this chapter tell you how to complete the following tasks:

- Install the ADSM server from SMP/E

- Allocate and format the data sets required for the ADSM server

- Create a server options file

- Enable the ADSM server for the communication method of your choice among APPC (SNALU6.2), TCP/IP, IUCV, 3270, or Interlink SNS/TCPaccess.

- Register a system administrator and a back-up archive client node

Completing these tasks creates the following results:

- The ADSM server is installed and ready for normal production

- The server options file is created

- The communication method of your choice is enabled and ready for client/server communications

- Database and recovery log volumes are allocated and initialized

- STANDARD domain and backup-archive policies are defined

- Backup, archive, and space management storage pools are defined

- A system administrator and a backup-archive client node are registered

Appendix, "Configuring the MVS Server with APPC" on page 185 provides an actual scenario used to install the ADSM server and to configure it for APPC(SNALU6.2). You can use it as a reference when installing your ADSM server.

ADSM.SAMPLIB

ADSM provides sample JCL in the ADSM.SAMPLIB data set that you can edit and submit to assist you in installing the ADSM server. These jobs are all you need to complete the installation. ADSM.SAMPLIB also contains a sample server options file that you can use to create your server options file.

The following are the members of ADSM.SAMPLIB that you must use for the installation:

ADSM.SAMPLIB Member	Description
ANRALLOC	Used to allocate and format the required server data sets

ANRALLO2	Can be used instead of ANRALLOC to allocate and format the required server data sets if the SMS address space has been started. ANRALLO2 requires less editing than ANRALLOC.
ANRINST	Used to initialize the ADSM server for the first time
ANRSMPOP	Contains a sample server options file
ANRSTART and ANRPROC	Used to start and run the ADSM server in normal mode once it has been installed and initialized

ADSM.SAMPLIB also contains other members that can help you complete various tasks once the ADSM server installation is complete. These members include the following:

ADSM.SAMPLIB Member	Description
ANRFMT	Used to allocate and format new ADSM data sets. *Must be used* when extending the database and recovery logs or when creating new storage pool volumes. See "Allocating and Pre-Formatting New Volumes" on page 47.
ANRFMT2	Can be used instead of ANRFMT to allocate and format new ADSM data sets if the SMS address space is active. ANRFMT2 requires less editing than ANRFMT. See "Allocating and Pre-Formatting New Volumes" on page 47.
ANRLEVEL	Used to find the level of the server run-time module (SVM)
ANRSIVP	Contains ADSM commands for installation verification. See "Step 8. Server Installation Verification" on page 43.
ANSCLIST	Contains a sample TSO CLIST to start the TSO administrative client. See "Installing and Configuring the TSO Administrative Client for TCP/IP" on page 80.
ANSPROC	Contains a sample TSO procedure to start the TSO administrator client See "Installing and Configuring the TSO Administrative Client for TCP/IP" on page 80.
ANSSMPOP	Contains a sample TSO administrative client options file See "Client Option File Setup" on page 83.
ANSTCPLK	Used after the ADSM server installation to add and maintain the TCP/IP communications interfaces to the TSO administrative client See "Post Install-Link-Edit" on page 82.

Step 1. Installing the ADSTAR Distributed Storage Manager Server

Use the SMP/E RECEIVE, APPLY, and ACCEPT commands to install the ADSM server.

If you obtained ADSM as part of a CBPDO, you can use the RIMLIB job on the CBPDO tape to run the SMP/E RECEIVE for ADSM as well as any service, HOLDDATA, or preventive service planning (PSP) information included on the CBPDO tape. For more information, refer to the *MVS CBPDO Memo to User Extension* included with the CBPDO.

Installation Prerequisites

The ADSM server requires a System/370 or System/390 processor that supports the following operating systems:

- MVS/ESA SP 4.3 with DFSMS/MVS 1.1 or later
- MVS/ESA SP 4.2 with MVS/DFP 3.3
- MVS/ESA SP 3.1.3 with MVS/DFP 3.2
- MVS/ESA SP 5 with DFSMS/MVS 1.1 or later

The ADSM server also requires a C/370 library provided by one of the following products:

- C/370 RunTime Library Version 2 (5688-188)
- SAA AD/Cycle Language Environment/370 (5688-198)
- MVS C/C++ Language Support feature on MVS/ESA SP Version 5 Release 2 with upgrade for IBM C/C++ for MVS Version 3 Release 1 support

Server Virtual Machine PTF Requirements

Depending on your level of MVS/DFP or DFSMS/MVS, ADSM requires certain Server Virtual Machine (SVM) PTFs. Table 1 lists the requirements.

Table 1. ADSM Server Virtual Machine (SVM) PTF Requirements

Level	CompId	APAR Number	PTF Number
DFSMS/MVS 1.1.0	5695DF119	OW10495 OY62873	UW15457 (level 14) UY95791
DFSMS/MVS 1.2.0	5695DF119	OW10495	UW15456
MVS/DFP 3.2.x	566528410	OW10493 OY62875	UW15459 UY95793
MVS/DFP 3.3.x	566528410	OW10493 OY62875	UW15460 UY95794

Installation Instructions

To install the ADSM server, perform the following steps:

1. Review the SMP/E data set requirements

   ADSM requires a full complement of SMP/E data sets for the installation. Table 2 lists the storage requirements for the SMP/E work data sets.

Table 2. ADSM Storage Requirements for the SMP/E Work Data Sets

DDNAME	D S O R G	R E C F M	L R E C L	BLK SIZE	No. of BLKS	No. of DIR BLKS
SMPWRK1	PO	FB	80	3360	14400	150
SMPWRK2	PO	FB	80	3360	14400	150
SMPWRK3	PO	FB	80	3200	14400	150
SMPWRK4	PO	FB	80	3200	14400	150
SMPWRK6	PO	FB	80	3200	14400	150

Table 3 provides an estimate of the additional storage needed in the SMP/E data sets for ADSM. The estimates must be added to those of any other programs and service being installed to determine the total additional storage requirements.

Table 3. ADSM Storage Requirements for SMP/E Data Sets

Data Set Name or Library Name	T Y P E	D S O R G	R E C F M	L R E C L	BLK SIZE	No. of BLKS	No. of DIR BLKS
SMPPTS	EM	PO	FB	80	3120	403	1
SMPSCDS	EM	PO	FB	80	3120	3	1

Notes:

a. The number of blocks and directory blocks specified is the actual minimum storage required by ADSM after the program is installed and the data sets are compressed. When allocating these data sets, you can specify additional storage and directory blocks to allow for maintenance.

b. Data sets can be reblocked to a larger size.

c. Abbreviations used for the data set type are:

NU New data set used by only one program
NM New data set used by more than one program
EU Existing data set used by only one program
EM Existing data set used by more than one program

2. Update the SMP/E procedure

The SMP/E install steps require the catalogued procedure _SMPE_ in your SYS1.PROCLIB data set. This procedure contains all the necessary DD statements for the execution of SMP/E.

3. Allocate the target and distribution Libraries

Table 4 on page 19 identifies the target libraries required for the installation of ADSM. The space allocation is an estimate of the **additional** blocks and directory blocks required for the installation of ADSM when the COMPRESS command is specified for SMP/E APPLY processing. The ADSM estimates

must be added to those of other products being applied that have parts in the same target libraries.

Table 4. ADSM Storage Requirements for Target Libraries

Data Set Name or Library Name	T Y P E	D S O R G	R E C F M	L R E C L	BLK SIZE	No. of BLKS	No. of DIR BLKS
LINKLIB (Server and Admin Client Programs)	EM	PO	U	0	6144	1127	1
SANRHLP (Server Help text)[1]	NU	PO	FB	80	8800	275	1
SANRMSG (Server Messages)[1]	NU	PO	FB	80	8800	35	1
SANSMSG (Admin Client Messages)[1]	NU	PO	FB	80	8800	21	1
SAMPLIB (Server and Admin Client Samples)	EM	PO	FB	80	8800	300	1

Notes:

a. ([1]) The messages and help files for ADSM are not standard TSO message and help data sets. They are unsequenced flat files. Do **not** apply sequence numbers to these files if they are moved to another data set in a common message or help library. You can use sequential or PDS data sets but you cannot use PDSE data sets.

b. The number of blocks and directory blocks specified is the actual minimum storage required by ADSM after the program is installed and the data sets are compressed. When allocating these data sets, you can specify additional storage and directory blocks to allow for maintenance.

c. If required, data sets can be reblocked to a larger size.

d. SMP/E DDDEF entries for each data set should be created at this time, if not already done.

e. Abbreviations used for the data set type are:

NU	New data set used only by this program
NM	New data set used by more than one program
EU	Existing data set only used by this program
EM	Existing data set used by more than one program

4. RECEIVE ADSM

Load all the ADSM parts, organized as unloaded partitioned data sets into SMPTLIB data sets.

The following is a sample job for 1600 BPI, 6250 BPI, and 3480 Cartridge Tape Input:

```
//ANRRECV JOB  <Job Card Parameters>
//RECEIVE  EXEC SMPE
//*-----------------------------------------------------*
//*       RECEIVE ADSM VERSION 2 RELEASE 1              *
//*-----------------------------------------------------*
 //SMPPTFIN DD  DSN=SMPMCS,UNIT=(TAPE,,DEFER),
 //         LABEL=(1,SL),
 //         VOL=SER=DS221B,
 //         DISP=(OLD,PASS)
//SMPE.SMPTLIB  DD  UNIT=SYSDA,DISP=SHR,VOL=SER=nnnnnn
 //SYSIN    DD   *
 SET    BDY(GLOBAL).       /* SET TO GLOBAL ZONE.     */
 RECEIVE SYSMODS           /* RECEIVE ALL SYSMODS     */
         SOURCEID(ADSM)    /* FOR ADSM                */
         .
 LIST SYSMODS             /* LIST SYSMOD AND MCS     */
         .
 /*
```

Note: Replace nnnnnn with the volume serial of the SMPTLIB data sets.

5. RECEIVE ADSM PTFs

Use the following sample JCL to receive any PTFs. If PTFs were shipped with the product tapes in the form of a cumulative service tape, receive them at this time. In addition, any service recommended by the PSP should be included. PSP recommended PTFs can be acquired from program update tapes, or from the Data Link library, or by ordering them through the IBM Support Center.

```
//ANRPTFS JOB  <Job Card Parameters>
//RECEIVE EXEC SMPE
//*-----------------------------------------------------*
//*           RECEIVE ADSM VERSION 2 RELEASE 1 PTFS    *
//*-----------------------------------------------------*
//SMPPTFIN DD  DISP=(SHR,PASS),
// VOL=(PRIVATE,RETAIN,SER=ANRPTF),
// UNIT=TAPE,LABEL=(1,NL),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=7200),
// DSN=SMPPTFIN
//SMPHOLD  DD  DISP=(SHR,PASS),
// VOL=(PRIVATE,RETAIN,SER=ANRPTF),
// UNIT=TAPE,LABEL=(4,NL),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=7200),
// DSN=SMPHOLD
//SYSIN  DD  *
  SET BDY(GLOBAL) .
  RECEIVE SYSMODS
         LIST SOURCEID(xxxxxxx) .
/*
```

Note: Replace xxxxxxx with a unique user-defined name to assign a common identifier to the SYSMODs received, for example, ADSM1.

6. APPLY CHECK ADSM

   Use the following sample JCL to check for any required PTFs for the APPLY
   step.

```
//ANRAPPLC JOB  <Job Card Parameters>
//APPLYC   EXEC SMPE
//*------------------------------------------------------*
//*            APPLY CHECK ADSM VERSION 2 RELEASE 1   *
//*------------------------------------------------------*
//SMPE.SMPTLIB DD  UNIT=SYSDA,DISP=SHR,VOL=SER=nnnnnn
//SYSIN    DD  *
SET    BDY(tgtzone).     /* SET TO TARGET ZONE.    */
APPLY  S(HDS221B,JDS2210,JDS2211,JDS221C,JDS221D)
       GROUPEXTEND
       BYPASS(ID,IFREQ,PRE,REQ,HOLDSYSTEM,HOLDUSER,
            HOLDCLASS(UCLREL,ERREL))
       CHECK
       .
/*
```

   Notes:

   a. Replace `nnnnnn` with the volume serial of the SMPTLIB data sets.

   b. The entire set of SMP modification control statements for the installation
      can be obtained by printing the first file of the ADSTAR DISTRIBUTED
      STORAGE MGR FOR MVS program tape.

   c. `tgtzone` is the name of your target zone.

   d. System holds for PTFs can be bypassed after resolving any actions
      needed.

   e. RECEIVE any PTFs which can be required.

7. APPLY ADSM

   Use the following sample JCL (or the SMP/E dialogs) to apply the parts into the
   target system from the SMPTLIB data sets. With the COMPRESS(ALL)
   command, SMP/E compresses the libraries, and then copies the new parts
   from the SMPTLIB data sets. When completed, SMP/E updates the target
   zone data set.

```
//ANRAPPLY JOB  <Job Card Parameters>
//APPLY    EXEC SMPE
//*------------------------------------------------------*
//*              APPLY ADSM VERSION 2 RELEASE 1      *
//*------------------------------------------------------*
//SMPE.SMPTLIB DD  UNIT=SYSDA,DISP=SHR,VOL=SER=nnnnnn
//SYSIN   DD  *
SET    BDY(tgtzone).     /* SET TO TARGET ZONE.    */
APPLY  S(HDS221B,JDS2210,JDS2211,JDS221C,JDS221D)
       GROUPEXTEND
       BYPASS(ID,IFREQ,PRE,REQ,HOLDSYSTEM,HOLDUSER,
            HOLDCLASS(UCLREL,ERREL))
            COMPRESS(ALL)
       .
/*
```

Notes:

    a. Replace nnnnnn with the volume serial of the SMPTLIB data sets.

    b. The entire set of SMP modification control statements for the installation can be obtained by printing the first file of the ADSTAR DISTRIBUTED STORAGE MGR FOR MVS program tape.

    c. tgtzone is the name of your target zone.

    d. System holds for PTFs can be bypassed after resolving any actions needed.

8. APPLY ADSM PTFs

Use the following sample JCL to apply any PTFs for ADSM that might have been shipped on the cumulative service tape or recommended service in the PSP, received in "RECEIVE the ADSM PTFs." If there are no applicable PTFs, skip this step.

```
//ANRPTF JOB  <Job Card Parameters>
//APPLY  EXEC SMPE
//*--------------------------------------------------------*
//*                 APPLY ADSM VERSION 2 RELEASE 1 PTFS        *
//*--------------------------------------------------------*
//SMPE.SMPTLIB  DD  UNIT=SYSDA,DISP=SHR,VOL=SER=nnnnnn
//SYSIN DD *
  SET BDY(tgtzone) .
  APPLY SELECT(UNxxxxx)
        GROUPEXTEND
        COMPRESS(ALL) .
/*
```

Notes:

    a. Refer to documentation accompanying the cumulative service tape for "points of consideration" before installing.

    b. Replace xxxxx with the number of the PTF(s).

    c. tgtzone is the name of your target zone.

    d. System holds for PTFs can be bypassed after resolving any actions needed.

Step 2. Allocating the Required Server Data Sets

Run the ANRALLOC or ANRALLO2 job from ADSM.SAMPLIB to allocate and pre-format the required ADSM server data sets. DO NOT RUN these jobs if you are installing this version of the server over an existing version 1 server.

After installing the server files, you should at a minimum allocate and pre-format the following data sets.

Data Set	Description
ADSM.DISKLOG	Holds the data set names for the virtual storage access method (VSAM) linear data sets used by the server.
ADSM.RCVRYLOG	Recovery log volume used to keep records of all changes made by the server to the database.

ADSM.DB1	Database volume that contains information about client data that resides in the storage pools.
ADSM.STORAGE.POOL001	Data storage volume for storage pools for backed up files.
ADSM.STORAGE.POOL002	Data storage volume for storage pools for archived files.
ADSM.STORAGE.POOL003	Data storage volume for storage pools. (Required only if the space management feature is activated on the server)
ADSM.ANRSERV.OPTIONS	Server options file that controls server operations and communications with the client workstations.

DO NOT RUN the ANRALLOC or ANRALLOC jobs to allocate and pre-format these data sets if you are installing this version of the server over an existing version 1 server. The data base, recovery log, and storage pool volumes plus the server options file already exist. They contain all the important information about your ADSM server. If you run either the ANRALLOC or ANRALLO2 job, you will lose the information in these files. You should, however, update your current server options file with the new options for this release. You can find the name of your server options file in the //OPT DD statement in your ADSM server startup JCL. For information about updating options in the server options file, refer to Chapter 4, "Setting Options for the MVS Server" on page 85 .

To allocate all these data sets except the ADSM.DISKLOG data set, run the ANRALLOC or ANRALLO2 job from ADSM SAMPLIB. (The ADSM.DISKLOG is allocated in the ANRINST job later in the server installation process. Refer to "Step 3. Initializing the Server" on page 27.)

If the SMS address space is *not* active, you must use the ANRALLOC job. If the SMS address space is active, as an alternative, you can use the ANRALLO2 job. It requires less editing than the ANRALLOC job.

Allocating using the ANRALLOC Job.

Before running this job, you should edit the JCL statements as follows:

- Customize the job card for your installation.

- For the OPTIONS DD statement, assign a volume for the VOL=SER parameter.

- For each of the VSAM data sets to be allocated (ADSM.RCVRYLOG, ADSM.DB1, etc.), specify the size of the data set in the DEFINE CLUSTER statement. Specify the size in megabytes.

   You can, as an alternative, use the allocations provided by the ANRALLOC job. These initial allocations are sufficient to run the server for the first time. Later, when you start to implement storage management policies for your client workstations, if needed, you can increase the size of the recovery log, database, and storage pools while the server is running.

- For each VSAM data set assign a volume serial in the DEFINE CLUSTER statement.

Figure 1 on page 24 is an edited allocation example for the ADSM server data sets. In this example, we format and pre-allocate three storage pool data sets. If

you are not implementing the space management feature on the server, you only
need to allocate and pre-format two storage pool data sets.

```
//ANRALLOC JOB ,
//        MSGLEVEL=(1,1),MSGCLASS=H,CLASS=A,REGION=7M,TIME=1440
//*
//*********************************************************************
//*
//* Allocate ADSM server files:
//*      Options file
//*
//*********************************************************************
//ALLOOPT  EXEC PGM=IEFBR14
//OPTIONS   DD  DSN=ADSM.ANRSERV.OPTIONS,DISP=(NEW,CATLG),
//          DCB=(RECFM=FB,BLKSIZE=6240,LRECL=80),SPACE=(TRK,(1,1)),
//          UNIT=3390,VOL=SER=ADSM03
//*
//*
//*********************************************************************
//*********************************************************************
//*      Recovery log volume:
//*********************************************************************
//*   allocate ADSM.RCVRYLOG
//ALLOLOG  EXEC PGM=IDCAMS
//SYSPRINT  DD  SYSOUT=*
//SYSIN     DD  *
  DEFINE CLUSTER( NAME(ADSM.RCVRYLOG) LINEAR MB(13) VOL(ADSM01) )
/*
//*   pre-format ADSM.RCVRYLOG
//FMTLOG   EXEC PGM=DSMFMT,DYNAMNBR=300,COND=(0,NE,ALLOLOG),
//          PARM='/ADSM.RCVRYLOG'
//DSMAMENG  DD  DSN=ADSM.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT  DD  SYSOUT=*
//SYSTERM   DD  SYSOUT=*
//*
//*
//*********************************************************************
//*      Database volume:
//*********************************************************************
//*   allocate ADSM.DB1
//ALLODB1  EXEC PGM=IDCAMS
//SYSPRINT  DD  SYSOUT=*
//SYSIN     DD  *
  DEFINE CLUSTER( NAME(ADSM.DB1) LINEAR MB(21) VOL(ADSM02) )
/*
//*   pre-format ADSM.DB1
//FMTDB1   EXEC PGM=DSMFMT,DYNAMNBR=300,COND=(0,NE,ALLODB1),
//          PARM='/ADSM.DB1'
//DSMAMENG  DD  DSN=ADSM.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT  DD  SYSOUT=*
//SYSTERM   DD  SYSOUT=*
//*
//*
//*********************************************************************
```

Figure 1 (Part 1 of 2). Example of Edited ANRALLOC Job

```
//****************************************************************
//*       Storage pool volumes:
//****************************************************************
//*    allocate ADSM.STORAGE.POOL001
//ALLOPL1  EXEC PGM=IDCAMS
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
  DEFINE CLUSTER( NAME(ADSM.STORAGE.POOL001) LINEAR MB(320) VOL(ADSM03) )
/*
//*    pre-format ADSM.STORAGE.POOL001
//FMTPL1   EXEC PGM=DSMFMT,DYNAMNBR=300,COND=(0,NE,ALLOPL1),
//         PARM='/ADSM.STORAGE.POOL001'
//DSMAMENG DD  DSN=ADSM.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSTERM  DD  SYSOUT=*
//*
//*
//*    allocate ADSM.STORAGE.POOL002
//ALLOPL2  EXEC PGM=IDCAMS
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
  DEFINE CLUSTER( NAME(ADSM.STORAGE.POOL002) LINEAR MB(100) VOL(ADSM03) )
/*
//*    pre-format ADSM.STORAGE.POOL002
//FMTPL2   EXEC PGM=DSMFMT,DYNAMNBR=300,COND=(0,NE,ALLOPL2),
//         PARM='/ADSM.STORAGE.POOL002'
//DSMAMENG DD  DSN=ADSM.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSTERM  DD  SYSOUT=*
//*
//*
//*    allocate ADSM.STORAGE.POOL003
//ALLOPL3  EXEC PGM=IDCAMS
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
  DEFINE CLUSTER( NAME(ADSM.STORAGE.POOL003) LINEAR MB(100) VOL(ADSM03) )
/*
//*    pre-format ADSM.STORAGE.POOL003
//FMTPL2   EXEC PGM=DSMFMT,DYNAMNBR=300,COND=(0,NE,ALLOPL3),
//         PARM='/ADSM.STORAGE.POOL003'
//DSMAMENG DD  DSN=ADSM.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSTERM  DD  SYSOUT=*
//
```

Figure 1 (Part 2 of 2). Example of Edited ANRALLOC Job

Allocating using the ANRALLO2 Job.

If the SMS address space is active and the ANRFMT2 job has been copied to a procedure library, you can use the ANRALLO2 job instead of the ANRALLOC job to allocate and pre-format the required ADSM server data sets. (For information about the ANRFMT2 job, refer to "Using the ANRFMT2 Job." on page 49.) ANRALLO2 requires less editing than ANRALLOC.

Figure 2 on page 26 is an example of an ANRALLO2 job that allocates and pre-formats the same data sets that were allocated and pre-formatted by the ANRALLOC job in Figure 1 on page 24.

```
//ANRALLO2 JOB ,
//         MSGLEVEL=(1,1),MSGCLASS=H,CLASS=A,REGION=7M,TIME=1440
//*
//********************************************************************
//*
//* Allocate ADSM server files:
//*     Options file
//*
//********************************************************************
//ALLOOPT  EXEC PGM=IEFBR14
//OPTIONS  DD  DSN=ADSM.ANRSERV.OPTIONS,DISP=(NEW,CATLG),
//         DCB=(RECFM=FB,BLKSIZE=6240,LRECL=80),SPACE=(TRK,(1,1)),
//         UNIT=SYSDA,VOL=SER=ADSM03
//*
//*
//********************************************************************
//*
//********************************************************************
//*     Recovery log volume:
//********************************************************************
//*   allocate and pre-format ADSM.RCVRYLOG
//ALLOLOG  EXEC PROC=ANRFMT2,
//         NAME=ADSM.RCVRYLOG,MB=13,VOLSER=ADSM01
//*
//*
//********************************************************************
//*     Database volume:
//********************************************************************
//*   allocate and pre-format ADSM.DB1
//ALLODB1  EXEC PROC=ANRFMT2,
//         NAME=ADSM.DB1,MB=21,VOLSER=ADSM02
//*
//*
//********************************************************************
//*     Storage pool volumes:
//********************************************************************
//*   allocate and pre-format ADSM.STORAGE.POOL001
//ALLOPL1  EXEC PROC=ANRFMT2,
//         NAME=ADSM.STORAGE.POOL001,MB=320,VOLSER=ADSM03
//*
//*   allocate and pre-format ADSM.STORAGE.POOL002
//ALLOPL2  EXEC PROC=ANRFMT2,
//         NAME=ADSM.STORAGE.POOL002,MB=100,VOLSER=ADSM03
//*
//*   allocate and pre-format ADSM.STORAGE.POOL003
//ALLOPL2  EXEC PROC=ANRFMT2,
//         NAME=ADSM.STORAGE.POOL003,MB=100,VOLSER=ADSM03
//
```

Figure 2. Example of Edited ANRALLO2 Job

Step 3. Initializing the Server

Update and run the ANRINST job from the ADSM.SAMPLIB to initialize the server. DO NOT RUN this job if you are installing this version of the server over an existing version 1 server.

The next steps start the server for the first time. When you initialize the server, ADSM prepares the disk log, the recovery log, and the database for normal use.

DO NOT RUN this job if you are installing this version of the server over an existing version 1 server. The ADSM Disk Log data set is allocated and created as a result of this job. This data set already exists. If you run this job, the information in it will be lost. In addition. the data sets identified in the PARM field of the EXEC statement will be formatted and if they were previously used, the existing information will be lost.

During initialization the following events occur:

- The server is started.
- A region size of 40 MB is allocated in order to provide sufficient virtual storage space for ADSM.
- The disk log is allocated and created.
- The ADSM.ANRSERV.OPTIONS options file is read.
- The recovery log volume is initialized.
- The database volume is initialized.
- The server is then shut down.

To initialize the server, update and run the ANRINST job from the ADSM.SAMPLIB.

The parameters you must update before running this job are the following:

- The job card parameters

- The PARM keyword parameter on the EXEC statement which takes the following general form:

```
PARM='/INSTALL <recovery log file spec> <data base file spec>
```

where:

<recovery log file spec> is

<number of files> <recovery log file_1 ... recovery log file_n>

and ...

<data base file spec> is

<number of files> <data base file_1 ... data base file_n>

Example:

```
PARM='/INSTALL 1 ADSM.RCVRYLOG 1 ADSM.DB1'
```

The PARM keyword can be continued on multiple statements by continuing the data in column 16 of each statement. A maximum of 100 characters is the limit. For example:

```
   //ADSMINST  EXEC PGM=DSMSERV,DYNAMNBR=300,
   //       PARM='/INSTALL 1 ADSM.SRV1.RCVRYLOG 1
                   ADSM.SRV1.DB1'
```

Figure 3 is a sample ANRINST job after it has been updated:

```
//ANRINST JOB MSGLEVEL=1,
//         REGION=40M,TIME=10,CLASS=A,MSGCLASS=H
//SERVER  EXEC PGM=DSMSERV,DYNAMNBR=300,
//         PARM='/INSTALL 1 ADSM.RCVRYLOG 1 ADSM.DB1'
//OPT     DD DSN=ADSM.ANRSERV.OPTIONS,DISP=SHR
//DSMAMENG DD DSN=ADSM.SANRMSG(ANRMENU),DISP=SHR
//**************************************************************/
//*  The ADSM Disk Log data set is allocated and created as a  */
//*  result of this job.  The data sets identified in the PARM  */
//*  field of the EXEC statement WILL be (re-)formatted and     */
//*  if they were previously used, the existing information will*/
//*  be lost.  DO NOT execute this job unless it is absolutely  */
//*  necessary.  It must not be used to UPGRADE a release 1     */
//*  server environment to Version 2.                           */
//**************************************************************/
//DSK     DD DSN=ADSM.DISKLOG,DISP=(NEW,CATLG),SPACE=(TRK,(1,1)),
//         UNIT=3390,VOL=SER=ADSM03,
//         DCB=(RECFM=FB,BLKSIZE=800,LRECL=80)
//SYSPRINT DD SYSOUT=*
//SYSTERM  DD SYSOUT=*
```

Figure 3. Example of Edited ANRINST Job

Step 4. Creating and Modifying the Server Options File

Copy the ANRSMPOP member from ADSM.SAMPLIB into the new data set ADSM.ANRSERV.OPTIONS to create the server options file.

Before you can configure the server for communications, you must create the server options file. The server options file determines the way the server operates and communicates with client workstations.

Note: If you are installing this version of the server over an existing version 1 server, you do not have to create the server options file. It already exists with your current options settings. If you create a new server options file, you could lose these settings. However, you should update the server options file with the new options for this version of the server. You can find the name of your server options file in the //OPT DD statement in the ADSM server startup JCL. For information on updating the server options file, refer to Chapter 4, "Setting Options for the MVS Server" on page 85.

The member ANRSMPOP in ADSM.SAMPLIB contains a starter set of options that includes the format for each option as well as its default setting.

To create the server options file, copy the ANRSMPOP member from ADSM.SAMPLIB into the new data set called ADSM.ANRSERV.OPTIONS. You do not have to allocate space for this data set. This was done in the previous step when you ran the ANRALLOC job.

The only options that you must update before starting the server are those that specify the communication method to be used for client/server connectivity. The following are the communication method options and the communication methods for which they must be specified:

- TCPPORT and TCPNAME for TCP/IP connectivity
- LUNAME for 3270 or APPC (LU 6.2) connectivity
- IUCV for IUCV connectivity
- ICSPORT and ICSNAME for SNS/TCPaccess

The next step, "Step 5. Configuring Server Communications," provides a complete discussion on enabling communications for the server. The communications settings for the server options file you just created are discussed in that section.

You can use the default settings for the remainder of the options and can modify them later after you install ADSM and become more familiar with its functions. If you want to modify them now, you can find a complete discussion of server options and their settings in Chapter 4, "Setting Options for the MVS Server" on page 85.

Step 5. Configuring Server Communications

Refer to Table 5 and select a communications method to configure for your ADSM server.

Now that the server is initialized and you have created your server options file, you can configure the server for the for client/server communications.

Note: If you are installing this version of the server over an existing version 1 server, you do not have to reconfigure your communication methods. However, if you would like to add new configurations, you can do so by using the information in this section.

Table 5 shows the communication protocols supported by the ADSM server and the ADSM clients supported by each protocol. Based on the protocol you choose to connect to your clients, the table also references the section in this chapter that discusses how you can configure the server for that protocol. Proceed to that section to continue the installation. You can configure your server for more than one protocol.

Table 5 (Page 1 of 2). MVS ADSM Server Communication Protocols

Server Protocol	Clients Supported	Reference
3270 Emulation	DOS, OS/2, Windows	"Configuring the Server for 3270 Emulation" on page 30

Table 5 (Page 2 of 2). MVS ADSM Server Communication Protocols

Server Protocol	Clients Supported	Reference
APPC (SNALU6.2)	OS/2, Novell NetWare, AIX, MVS TSO, VM CMS	"Configuring the Server for APPC" on page 32
TCP/IP	DOS, OS/2, Windows, all UNIX clients, Novell NetWare, Apple Macintosh, MVS TSO, VM CMS	"Configuring the Server for TCP/IP" on page 36
IUCV	MVS TSO, VM CMS	"Configuring the Server for IUCV" on page 38
Interlink SNS/TCPaccess	DOS, OS/2, Windows, all UNIX clients, Novell NetWare, Apple Macintosh, MVS TSO, VM CMS	"Configuring the Server for Interlink SNS/TCPaccess" on page 40

Configuring the Server for 3270 Emulation

Many large enterprises using MVS hosts already make wide use of 3270 emulation. An ADSM client simply generates a sequence of keystrokes that connect through a VTAM application to the server.

OS/2, DOS, or Windows ADSM clients can connect to an MVS server using 3270 emulation.

Connectivity Support

IBM ACF/VTAM 3.3 (5685-085) or later is required to run the 327O communication method on the MVS ADSM server.

VTAM Setup

Your VTAM system administrator or systems programmer defines a new application to VTAM through the use of an access control block (ACB). An ACB defined for ADSM, when added to the VTAM configuration, provides an application ID that the ADSM client references when it wants to connect to the ADSM server. When the ADSM application ID is referenced, a logon procedure is begun which ultimately tells the ADSM server where to look for the ADSM client.

The VTAM APPL Statement: You define the ACB in the VTAM APPL statement. The following is an example of the APPL statement that the VTAM systems programmer should add to your VTAM configuration:

```
ADSM    VBUILD TYPE=APPL
DSMAPPL APPL   ACBNAME=DSMLU,                                      x
               MODETAB=ISTINCLM, DLOGMOD=#BATCH
```

DSMAPPL is the application ID that the ADSM client references when it wants to connect to the ADSM server. The way in which the client references this name is discussed later in this installation guide where we cover client connectivity. If you prefer to review that section now, you can find it in "Installing and Configuring the DOS Client for 3270 Emulation" on page 53.

The Logon Mode Definition: When the ADSM client references the application ID for the ADSM server (DSMAPPL), the MODETAB=ISTINCLM and DLOGMOD=#BATCH parameters reference a logon mode definition which establishes the connection and the characteristics of the session. These characteristics include the maximum number of sessions allowed, the maximum number of conversations allowed, and other control information. MODETAB references the table in which the logon mode definition entry is found. In this example, the table referenced is the IBM supplied VTAM default table (ISTINCLM). DLOGMOD references the table entry itself which is the logon mode definition #BATCH.

We recommend that you use the *#BATCH* mode entry in the VTAM default logmode table (ISTINCLM) initially to establish the APPC connection. Depending on your VTAM level, this mode might not be pre-defined in the default logmode table. You should verify this with your VTAM system programmer. If this mode is needed, add it to the default logmode table as shown below:

```
          TITLE '#BATCH'
 #BATCH   MODEENT LOGMODE=#BATCH,
             ENCR=B'0000',SSNDPAC=8,
             SRCVPAC=8,PSNDPAC=8
```

Once you have the 3270 emulation connection established and would like to create a new mode for performance tuning, you can create it in your current logmode table, compile, and then link-edit the member into the VTAM library.

ADSTAR Distributed Storage Manager Server Setup

Enter the ACBNAME (DSMLU) from the above VTAM definition example in the ADSM.ANRSERV.OPTIONS file's LUNAME parameter. The entry takes the following format:

```
LUname DSMLU
```

The ACBNAME identifies the ADSM server to VTAM as the application to which the ADSM client wants to connect.

Setting the DEVCONFIG and VOLUMEHISTORY Options

Although not required to complete this installation, we strongly recommend that you also set the DEVCONFIG and VOLUMEHISTORY options at this time. These options are necessary for you to set up an adequate database backup and recovery strategy which will allow you to effectively restore your database should it become damaged or otherwise unusable.

The DEVCONFIG option specifies the name of a file or data set in which ADSM stores a backup copy of device configuration information. The VOLUMEHISTORY option specifies the name of a file or data set in which ADSM stores a copy of volume history information collected by the server. Together, these files are required to effectively restore a damaged database using ADSM's database backup and recovery features. The following is an example of how the entries in your server options file would appear if you if you specified the file name of ADSM.DEVCONF1.DATA for the DEVCONFIG option and the file name of ADSM.SERV1.HIST1 for the VOLUMEHISTORY option:

```
LUname          DSMLU

DEVCONFig       'ADSM.DEVCONF1.DATA'

VOLUMEHistory   'ADSM.SERV1.HIST1'
```

For purposes of keeping more than one backup file of device configuration and volume history information, you can specify the DEVCONFIG and VOLUMEHISTORY options multiple times in your server options file. Each time you specify them, use a different data set name. You do not have to pre-allocate the data sets.

For information on how to set the DEVCONFIG and VOLUMEHISTORY options, refer to "DEVCONFig" on page 93 and "VOLUMEHistory" on page 105. For more information on using ADSM's database backup and recovery features refer to "Using Database Backup and Recovery Features" on page 127 and *ADSTAR Distributed Storage Manager for MVS: Administrator's Guide*.

When you finish configuring your server for communications, proceed to "Step 6. Starting the Server for Normal Operation" on page 41 to continue the installation.

Configuring the Server for APPC

APPC enables two partner programs to communicate with each other through a defined protocol. The interface to the protocol mechanisms on each side is called a logical unit (LU). To allow program-to-program communication, these LUs must be of type 6.2 (LU6.2).

APPC protocols are somewhat more complex to implement than 3270 protocols. However, the APPC protocols do provide better performance and reliability, and they should be considered as preferred protocol for use with ADSM. This particularly applies when ADSM supports LAN server clients such as OS/2 LAN servers or Novell NetWare servers.

Connectivity Support

ADSM implements *Independent LU6.2's*. To provide this capability, SNA PU type 2.1 support is required in VTAM, the SNA gateway, and in ADSTAR Distributed Storage Manager client communications software. PU type 2.0 support is not sufficient. In an MVS environment PU 2.1 support is provided as a combination of communications gateway software and VTAM levels.

For the supported communications gateways, the requirements are the following:

- 3745 Communications Controller

  PU 2.1 support requires the following software levels:

  – NCP Version 5 Release 2, or higher

  – VTAM Version 3 Release 2 (VTAM/XA; 5665-289), or higher

- 3172 Interconnect Controller

  PU 2.1 support requires the following software levels:

  – Interconnect Controller Program Version 2, or higher

– VTAM Version 3 Release 4 (VTAM/ESA; 5685-085), or higher

• 3174 Workstation Controller

PU 2.1 support requires the following software levels:

– 3174 Licensed Internal Code, Configuration C Release 1, or higher

   OR

– 3174 Licensed Internal Code, Configuration B with RPQ#8Q0800, Typw 2.1
   Passthru Function

– VTAM Version 3 Release 4 (VTAM/ESA; 5685-085), or higher

VTAM Setup

Your VTAM system administrator or systems programmer defines a new application
to VTAM through the use of an access control block (ACB). An ACB defined for
ADSM, when added to the VTAM configuration, provides an application ID which
the ADSM client references when it wants to connect to the ADSM server. When
the ADSM application ID is referenced, a logon procedure is begun which ultimately
tells the ADSM server where to look for the ADSM client.

The VTAM APPL Statement You define the ACB in the VTAM APPL statement.
The following is an example of the APPL statement that the VTAM systems pro-
grammer should add to your VTAM configuration:

```
ADSM      VBUILD TYPE=APPL
DSMSERV1 APPL  ACBNAME=DSMSERV1,EAS=30,AUTH=(ACQ,PASS,VPACE),          X
               HAVAIL=YES,APPC=YES,PARSESS=YES,SONSCIP=YES,            X
               VPACING=5,MODETAB=ISTINCLM,DLOGMOD=#BATCH,
```

DSMSERV1 is the application ID that the ADSM client references when it wants to
connect to the ADSM server. The way in which the client references this name is
discussed later in this installation guide where we cover client connectivity. If you
are installing the OS/2 client and you prefer to review that section now, you can
find it in "Installing and Configuring the OS/2 Client for APPC" on page 56. If you
are installing the Novell NetWare client and you prefer to review that section now,
you can find it in "Installing and Configuring the Novell NetWare Client for APPC"
on page 71.

The Logon Mode Definition: When the ADSM client references the application ID
for the ADSM server (DSMSERV1), the MODETAB=ISTINCLM and
DLOGMOD=#BATCH parameters reference a logon mode definition which estab-
lishes the connection and the characteristics of the session. These characteristics
include the maximum number of sessions allowed, the maximum number of conver-
sations allowed, and other control information. MODETAB references the table in
which the logon mode definition entry is found. In this example, the table refer-
enced is the IBM supplied VTAM default table (ISTINCLM). DLOGMOD references
the table entry itself which is the logon mode definition #BATCH.

We recommend that you use the **#BATCH** mode entry in the VTAM default logmode table (ISTINCLM) initially to establish the APPC connection. Depending on your VTAM level, this mode might not be pre-defined in the default logmode table. You should verify this with your VTAM system programmer. If this mode is needed, add it to the default logmode table as shown below:

```
        TITLE '#BATCH'
#BATCH  MODEENT LOGMODE=#BATCH,
            ENCR=B'0000',SSNDPAC=8,
            SRCVPAC=8,PSNDPAC=8
```

Once you have the APPC connection established and would like to create a new mode for performance tuning, you can create it in your current logmode table, compile, and then link-edit the member into the VTAM library.

In VTAM, a response unit (RU) is a message unit that acknowledges a request. Since the RU size is negotiated between VTAM and the workstations, you do not have to specify a size in the #BATCH log mode definition. However, if you specify a size, it should be at least 4K.

The Switched Major Node Definition: Each workstation connected to the network must be represented on the network as physical unit (PU). A PU can have one or more logical units (LUs). However, only one LU on a PU can be an independent LU. An independent LU can activate a session directly with the server LU without asking for services from the VTAM system services control point (SSCP). A dependent LU, however, must request services from the SSCP in order to activate a session with server LU. The LU provides the end user application with the ability to access and communicate with server.

The PUs and their associated LUs for the ADSM clients are defined and linked together through a VTAM switched major node definition. A switched major node is the major building block of VTAM through which all the PUs and LUs for a given application such as ADSM are linked together so that they can communicate with the server. The APPC connection for an ADSM client must be made through an independent LU.

You define a switched major node through the VTAM build statement (VBUILD). The following VBUILD statement (Figure 4 on page 35) defines the PUs and LUs for three workstations. F13833B0, F13833C0, F13833D0 are the independent LUs. Based on your ADSM client configuration, you must define a similar VBUILD statement.

```
*-----------------------------------------------------------------*
*                    SWITCHED MAJOR NODE                          *
*-----------------------------------------------------------------*
*
          VBUILD TYPE=SWNET,MAXGRP=1,                              X
                 MAXNO=1
*
F13833B  PU     ADDR=C5,                                          X
                IDBLK=05D,IDNUM=F333B,                            X
                ISTATUS=ACTIVE,                                   X
                PUTYPE=2,MAXOUT=8,MAXDATA=4105,MAXPATH=1,         X
                VPACING=8,PACING=8,DISCNT=NO,                     X
                USSTAB=USSSNAM,SSCPFM=USSSCS,                     X
                MODETAB=MTD1SERH,DLOGMOD=QUERY                    X
F13833B0 LU     LOCADDR=0,MODETAB=ISTINCLM,DLOGMOD=#BATCH,        X
                VPACING=8,PACING=8
F13833B1 LU     LOCADDR=2
F13833B2 LU     LOCADDR=3
F13833B3 LU     LOCADDR=4
F13833B4 LU     LOCADDR=5
F13833B5 LU     LOCADDR=6,MODETAB=WI3820,PACING=0,VPACING=0,      X
                DLOGMOD=IBM3820T
*
F13833C  PU     ADDR=C5,                                          X
                IDBLK=05D,IDNUM=F333C,                            X
                ISTATUS=ACTIVE,                                   X
                PUTYPE=2,MAXOUT=8,MAXDATA=4105,MAXPATH=1,         X
                VPACING=8,PACING=8,DISCNT=NO,                     X
                USSTAB=USSSNAM,SSCPFM=USSSCS,                     X
                MODETAB=MTD1SERH,DLOGMOD=QUERY                    X
F13833C0 LU     LOCADDR=0,MODETAB=ISTINCLM,DLOGMOD=#BATCH,        X
                VPACING=8,PACING=8
*
F13833D  PU     ADDR=C5,                                          X
                IDBLK=05D,IDNUM=F333D,                            X
                ISTATUS=ACTIVE,                                   X
                PUTYPE=2,MAXOUT=8,MAXDATA=4105,MAXPATH=1,         X
                VPACING=8,PACING=8,DISCNT=NO,                     X
                USSTAB=USSSNAM,SSCPFM=USSSCS,                     X
                MODETAB=MTD1SERH,DLOGMOD=QUERY                    X
F13833D0 LU     LOCADDR=0,MODETAB=ISTINCLM,DLOGMOD=#BATCH,        X
                VPACING=8,PACING=8
```

Figure 4. SWNET Major Node

ADSTAR Distributed Storage Manager Server Setup

Enter the ACBNAME (DSMSERV1) from VTAM APPL statement in the
ADSM.ANRSERV.OPTIONS file's LUNAME parameter. Refer to "The VTAM APPL
Statement" on page 33. The entry takes the following format:

```
LUname DSMSERV1
```

The ACBNAME identifies the ADSM server to VTAM as the application to which the ADSM client wants to connect.

Setting the DEVCONFIG and VOLUMEHISTORY Options

Although not required to complete this installation, we strongly recommend that you also set the DEVCONFIG and VOLUMEHISTORY options at this time. These options are necessary for you to set up an adequate database backup and recovery strategy which will allow you to effectively restore your database should it become damaged or otherwise unusable.

The DEVCONFIG option specifies the name of a file or data set in which ADSM stores a backup copy of device configuration information. The VOLUMEHISTORY option specifies the name of a file or data set in which ADSM stores a copy of volume history information collected by the server. Together, these files are required to effectively restore a damaged database using ADSM's database backup and recovery features. The following is an example of how the entries in your server options file would appear if you if you specified the file name of ADSM.DEVCONF1.DATA for the DEVCONFIG option and the file name of ADSM.SERV1.HIST1 for the VOLUMEHISTORY option:

```
LUname          DSMSERV1

DEVCONFig       'ADSM.DEVCONF1.DATA'

VOLUMEHistory   'ADSM.SERV1.HIST1'
```

For purposes of keeping more than one backup file of device configuration and volume history information, you can specify the DEVCONFIG and VOLUMEHISTORY options multiple times in your server options file. Each time you specify them, use a different data set name. You do not have to pre-allocate the data sets.

For information on how to set the DEVCONFIG and VOLUMEHISTORY options, refer to "DEVCONFig" on page 93 and "VOLUMEHistory" on page 105. For more information on using ADSM's database backup and recovery features refer to "Using Database Backup and Recovery Features" on page 127 and *ADSTAR Distributed Storage Manager for MVS: Administrator's Guide*.

When you finish configuring your server for communications, proceed to "Step 6. Starting the Server for Normal Operation" on page 41 to continue the installation.

Configuring the Server for TCP/IP

TCP/IP provides a reliable protocol and can be easily configured for the ADSM server.

Connectivity Support

TCP/IP for MVS Version 2.2 (5735-HAL) or later is required to run the TCP/IP communication method on the ADSM server. This requires the following prerequisite products:

- C/370 Library Version 2 (5688-188)
- VS Pascal Library (5688-198)

OR

VS Pascal Library/Compiler (5688-767)

In addition, TCP/IP communications requires a suitable communications gateway such as the following:

- 3745 Communications Controller
- 3172 Interconnect Controller
- Channel attached RISC System/6000

TCP/IP Communications Setup

Before starting the ADSM server, make sure that the following TCP/IP jobs, which include the TCP/IP address space, have been started:

TCPIP
VMCF
TNF

These are the names of the jobs as distributed with the TCP/IP product. If the names were changed during installation, you must determine the new names and make sure the jobs have been started.

ADSTAR Distributed Storage Manager Server Setup

Enter the following in the ADSM.ANRSERV.OPTIONS file:

- the name of the TCP/IP address space in the TCPNAME parameter
- the TCP/IP port address in the TCPPORT parameter

You can find the name of the TCP/IP address space in the TCPIP.TCPIP.DATA data set. TCP/IP uses this data set to specify configuration information required by TCP/IP client programs. The following example displays the first part of the TCPIP.TCPIP.DATA set which identifies **TCPIP** as the name of the TCPIP address space.

```
;TCPIPJOBNAME specified the name of the started procedure which was
;used to start the TCPIP address space.   TCPIP is the default.
;
TCPIPJOBNAME TCPIP
TCPIPUSERID TCPIP
```

You can obtain your TCP/IP port address from your network administrator. TCP/IP, when installed, comes with a number of predefined ports. Your network administrator can tell you which one has been assigned to the ADSM server. The number of the port is associated with the job name or the started task name for the ADSM server.

Then, if **TCPIP** is the name of your TCP/IP address space and TCP/IP port **1500** has been assigned to the job name of the ADSM server, make the following entries in the ADSM.ANRSERV.OPTIONS file.

```
TCPName TCPIP
TCPPort 1500
```

Setting the DEVCONFIG and VOLUMEHISTORY Options

Although not required to complete this installation, we strongly recommend that you also set the DEVCONFIG and VOLUMEHISTORY options at this time. These options are necessary for you to set up an adequate database backup and recovery strategy which will allow you to effectively restore your database should it become damaged or otherwise unusable.

The DEVCONFIG option specifies the name of a file or data set in which ADSM stores a backup copy of device configuration information. The VOLUMEHISTORY option specifies the name of a file or data set in which ADSM stores a copy of volume history information collected by the server. Together, these files are required to effectively restore a damaged database using ADSM's database backup and recovery features. The following is an example of how the entries in your server options file would appear if you if you specified the file name of ADSM.DEVCONF1.DATA for the DEVCONFIG option and the file name of ADSM.SERV1.HIST1 for the VOLUMEHISTORY option:

```
TCPName        TCPIP

TCPPort        1500

DEVCONFig      'ADSM.DEVCONF1.DATA'

VOLUMEHistory  'ADSM.SERV1.HIST1'
```

For purposes of keeping more than one backup file of device configuration and volume history information, you can specify the DEVCONFIG and VOLUMEHISTORY options multiple times in your server options file. Each time you specify them, use a different data set name. You do not have to pre-allocate the data sets.

For information on how to set the DEVCONFIG and VOLUMEHISTORY options, refer to "DEVCONFig" on page 93 and "VOLUMEHistory" on page 105. For more information on using ADSM's database backup and recovery features refer to "Using Database Backup and Recovery Features" on page 127 and *ADSTAR Distributed Storage Manager for MVS: Administrator's Guide*.

When you finish configuring your server for communications, proceed to "Step 6. Starting the Server for Normal Operation" on page 41 to continue the installation.

Configuring the Server for IUCV

ADSM uses Inter-User Communication Vehicle (IUCV) to communicate with the TCP/IP subsystem on MVS.

Connectivity Support

TCP/IP for MVS Version 2.2 (5735-HAL) or later is required to run the IUCV communication method on the ADSM server. This requires the following prerequisite products:

- C/370 Library Version 2 (5688-188)
- VS Pascal Library (5688-198)

   OR

VS Pascal Library/Compiler (5688-767)

ADSTAR Distributed Storage Manager Server Setup

Enter the parameter name **START** in the ADSM.ANRSERV.OPTIONS file's IUCV
parameter. For example, the entry takes the following format:

```
IUCV START
```

Setting the DEVCONFIG and VOLUMEHISTORY Options

Although not required to complete this installation, we strongly recommend that you
also set the DEVCONFIG and VOLUMEHISTORY options at this time. These
options are necessary for you to set up an adequate database backup and
recovery strategy which will allow you to effectively restore your database should it
become damaged or otherwise unusable.

The DEVCONFIG option specifies the name of a file or data set in which ADSM
stores a backup copy of device configuration information. The VOLUMEHISTORY
option specifies the name of a file or data set in which ADSM stores a copy of
volume history information collected by the server. Together, these files are
required to effectively restore a damaged database using ADSM's database backup
and recovery features. The following is an example of how the entries in your
server options file would appear if you if you specified the file name of
ADSM.DEVCONF1.DATA for the DEVCONFIG option and the file name of
ADSM.SERV1.HIST1 for the VOLUMEHISTORY option:

```
IUCV           START

DEVCONFig      'ADSM.DEVCONF1.DATA'

VOLUMEHistory  'ADSM.SERV1.HIST1'
```

For purposes of keeping more than one backup file of device configuration and
volume history information, you can specify the DEVCONFIG and
VOLUMEHISTORY options multiple times in your server options file. Each time
you specify them, use a different data set name. You do not have to pre-allocate
the data sets.

For information on how to set the DEVCONFIG and VOLUMEHISTORY options,
refer to "DEVCONFig" on page 93 and "VOLUMEHistory" on page 105. For more
information on using ADSM's database backup and recovery features refer to
"Using Database Backup and Recovery Features" on page 127 and *ADSTAR Dis-
tributed Storage Manager for MVS: Administrator's Guide*.

When you finish configuring your server for communications, proceed to "Step 6.
Starting the Server for Normal Operation" on page 41 to continue the installation.

Configuring the Server for Interlink SNS/TCPaccess

Interlink Computer Sciences Corp (ICS) offers SNS/TCPaccess for implementing TCP/IP on MVS. ADSM supports Interlink SNS/TCPaccess protocols.

Connectivity Support

Interlink SNS/TCPaccess V2.1 or later is required to run the SNS/TCPaccess protocol on the ADSM server.

Consult Interlink documentation for specifics on SNS/TCPaccess communication hardware requirements. Interlink SNS/TCPaccess communication requirements are specified by Interlink's gateway.

SNS/TCPaccess Communications Setup

Before starting the ADSM server, make sure that SNS/TCPaccess is started. If SNS/TCPaccess is not started, the server attempts to establish contact with SNS/TCPaccess every minute. As a result, you do not have to stop and restart the server to establish contact but only start SNS/TCPaccess.

The server displays the ANR5092E message after each of the first seven unsuccessful attempts to contact SNS/TCPaccess, advising you that contact has not been made. After the seventh attempt, the message is suppressed.

ADSTAR Distributed Storage Manager Server Setup

Enter the following in the ADSM.ANRSERV.OPTIONS file:

- the SNS/TCPaccess subsystem name in the ICSSNAME parameter
- the TCP/IP port address in the ICSPORT parameter

You can find the Interlink SNS/TCPaccess subsystem name specified in the SSN parameter in the SNS/TCPaccess startup JCL. The Interlink default is ACSS. You can find the SNS/TCPaccess startup JCL in SYS1.PROCLIB. The SNS/TCPaccess subsystem name can be no longer than four characters.

You can obtain your TCP/IP port address from your network administrator. TCP/IP, when installed, comes with a number of predefined ports. Your network administrator can tell you which one has been assigned to the ADSM server.

Then, if **ACSS** is the SNS/TCPaccess subsystem name and TCP/IP port **1500** has been assigned to the ADSM server, make the following entries in the ADSM.ANRSERV.OPTIONS file.

```
ICSSName ACSS
ICSPort  1500
```

Setting the DEVCONFIG and VOLUMEHISTORY Options

Although not required to complete this installation, we strongly recommend that you also set the DEVCONFIG and VOLUMEHISTORY options at this time. These options are necessary for you to set up an adequate database backup and recovery strategy which will allow you to effectively restore your database should it become damaged or otherwise unusable.

The DEVCONFIG option specifies the name of a file or data set in which ADSM stores a backup copy of device configuration information. The VOLUMEHISTORY option specifies the name of a file or data set in which ADSM stores a copy of volume history information collected by the server. Together, these files are required to effectively restore a damaged database using ADSM's database backup and recovery features. The following is an example of how the entries in your server options file would appear if you if you specified the file name of ADSM.DEVCONF1.DATA for the DEVCONFIG option and the file name of ADSM.SERV1.HIST1 for the VOLUMEHISTORY option:

```
ICSSName       ACSS

ICSPort        1500

DEVCONFig      'ADSM.DEVCONF1.DATA'

VOLUMEHistory  'ADSM.SERV1.HIST1'
```

For purposes of keeping more than one backup file of device configuration and volume history information, you can specify the DEVCONFIG and VOLUMEHISTORY options multiple times in your server options file. Each time you specify them, use a different data set name. You do not have to pre-allocate the data sets.

For information on how to set the DEVCONFIG and VOLUMEHISTORY options, refer to "DEVCONFig" on page 93 and "VOLUMEHistory" on page 105. For more information on using ADSM's database backup and recovery features refer to "Using Database Backup and Recovery Features" on page 127 and *ADSTAR Distributed Storage Manager for MVS: Administrator's Guide*.

When you finish configuring your server for communications, proceed to "Step 6. Starting the Server for Normal Operation" to continue the installation.

Step 6. Starting the Server for Normal Operation

Edit and run the ANRSTART job from ADSM.SAMPLIB to start the server for normal operation.

Once you have configured the server for your selected communications protocol, your next step is to start the server for normal operation.

To start the server for normal operation, edit and run the ANRSTART job from ADSM.SAMPLIB.

The parameters you must update before running this job are the following:

- The job card parameters
- Any DD statements necessary to reference libraries required by the ADSTAR Distributed Storage Manager server.

  For example, the ADSM server requires a C/370 library (refer to "Installation Prerequisites" on page 17). If your C/370 library is provided by the C/370 Library Version 2 product, then you must reference its run time libraries in the ANRSTART job stream.

Figure 5 on page 42 is a sample ANRSTART job with the job statement parameters added and the DD statements added to reference the C/370 run time libraries.

```
//ADSM     JOB (999,POK),'ADSM START',CLASS=A,MSGLEVEL=(1,1),
// MSGCLASS=T,TIME=1440
/*JOBPARM L=9999
//JOBLIB   DD DSN=ADSM.LINKLIB,DISP=SHR
//***********************************************************
//*                                                         *
//*   THE 2 FOLLOWING DATASETS ARE THE C370 V2 RUNTIME      *
//*   LIBRARIES.                                            *
//*                                                         *
//***********************************************************
//         DD DSN=EDC.V2R1M0.SEDCLINK,DISP=SHR
//         DD DSN=PLI.V2R3M0.SIBMLINK,DISP=SHR
//SERVER  EXEC PGM=DSMSERV,DYNAMNBR=300
//OPT      DD DSN=ADSM.ANRSERV.OPTIONS,DISP=MOD
//DSMAMENG DD DSN=ADSM.SANRMSG(ANRMENU),DISP=SHR
//DSK      DD DSN=ADSM.DISKLOG,DISP=SHR
//HLPAMENG DD DUMMY DSN=ADSM.SANRHLP(ANRHENU),DISP=SHR
//SYSPRINT DD SYSOUT=*
```

Figure 5. Sample JCL to Start the Server as a Batch Job

This job starts the server as a batch job. When the startup completes, the system console displays a series of messages ending with the following message:

```
ANR0993I ADSM server initialization complete.
```

This is followed by the ADSM prompt. The ADSM server is now up and running.

Note: If you would rather start the server as a procedure, you can use the ANRPROC job from the ADSM.SAMPLIB by editing it and installing it on an appropriate library (for example, SYS1.PROCLIB). You edit the ANRPROC job similar to the ANRSTART job discussed above.

Step 7. Defining Storage Volumes

Use the DEFINE VOLUME command from the server console to define server storage pools where ADSM clients can back up, archive, and migrate space managed files.

ADSM comes with a default set of storage policies called the "standard policy domain." When you register backup-archive clients, ADSM puts them into this domain. However, before a client can back up files, archive files, or migrate space managed files to the standard policy domain, you must define data sets as ADSM data storage volumes. The data sets that you must define as ADSM storage volumes are those that you set up as storage volumes when you ran the ANRALLOC job (refer to "Step 2. Allocating the Required Server Data Sets" on page 22).

To define the ADSM storage volumes, enter the following commands at the SERVER_CONSOLE ID:

```
f adsm,Define Volume backuppool ADSM.STORAGE.POOL001
f adsm,Define Volume archivepool ADSM.STORAGE.POOL002
f adsm,Define Volume spacemgpool ADSM.STORAGE.POOL003
```

The above commands define backup, archive, and space management disk storage pools and allocate one of the pre-formatted VSAM data sets to each. This sets up a basic configuration in which ADSM clients can now backup, archive, and migrate space managed files when they are connected to the ADSM server. For information about setting up space management on the ADSM server, refer to "Setting up Space Management on the Server" on page 137.

Note: If you did not allocate and pre-format the ADSM.STORAGE.POOL data set in the ANRALLOC job or the ANRALLO2 job, do *not* define it in the above step.

The topic of defining policies and storage is covered in more detail in ADSTAR Distributed Storage Manager for MVS: Administrator's Guide.

Step 8. Server Installation Verification

Use the ANRSIVP member in the ADSM.SAMPLIB as a checklist to verify that you have completed all the steps necessary to successfully install the server. Perform this step from the server console.

The ANRSIVP member contains query commands which provide information on the status of the server. If the queries are successful, this indicates that you have completed the required installation steps.

The following are the queries contained in the ANRSIVP member and the expected results if you have sucessfully completed all the required installation steps.

Query Command	*Expected Result*
Q STATUS	Displays information about your server parameters.
Q STGPOOL	Displays information about your backup and archive storage pools.
Q VOLUME	Displays information about your storage pool volumes.
Q DB	Displays allocation information about the ADSM database.
Q DBV	Displays information about database volumes.
Q LICENSE	Displays licensing information.
Q LOG	Displays allocation information about the recovery log.
Q LOGVOLUME	Displays information about the recovery log voulumes.

Q DOMAIN	Displays information about policy domains.
Q MG STANDARD ACTIVE STANDARD	Displays STANDARD as your policy domain, ACTIVE as your policy set name, and STANDARD as your default management class name.
Q COPYGROUP * TYPE=BACKUP	Displays information about your backup copy group.
Q COPYGROUP * TYPE=ARCHIVE	Displays information about your archive copy group.

For more information about these commands and examples of the output, refer to ADSTAR Distributed Storage Manager for MVS: Administrator's Reference.

Figure 6 on page 45 shows the ANRSIVP member processed from the ADSM SERVER_CONSOLE using MVS system operator modify commands. Note that the ANRSIVP member also contains commands to assign volumes to the ADSM storage pools as discussed in "Step 7. Defining Storage Volumes" on page 42 and to register a system administrator as discussed in "Step 9. Registering a System Administrator" on page 45. If you have already performed these functions, do not do them again. If you have not completed them, you can do so now using these commands.

```
*
*   Assign volumes for use with storage pools
*
     F ADSM,DEFINE VOLUME BACKUPPOOL ADSM.STORAGE.POOL001
     F ADSM,DEFINE VOLUME ARCHIVEPOOL ADSM.STORAGE.POOL002
     F ADSM,DEFINE VOLUME SPACEMGPOOL ADSM.STORAGE.POOL003
*
*   Register Admin with id Admin and Password Admin then
*   grant it authority
*
     F ADSM,REGISTER ADMIN ADMIN ADMIN
     F ADSM,GRANT AUTHORITY ADMIN CLASS=SYSTEM
*
*   Query commands
*
     F ADSM,QUERY STATUS
     F ADSM,QUERY STG
     F ADSM,QUERY VOLUME
     F ADSM,QUERY DB
     F ADSM,QUERY DBV
     F ADSM,QUERY LICENSE
     F ADSM,QUERY LOG
     F ADSM,QUERY LOGVOLUME
     F ADSM,QUERY DOMAIN *
     F ADSM,QUERY COPYGROUP TYPE=BACKUP
     F ADSM,QUERY COPYGROUP TYPE=ARCHIVE
     F ADSM,QUERY MGMTCLASS STANDARD ACTIVE STANDARD
*
*   End of Commands
*
```

Figure 6. ANRSIVP Commands Processed from ADSM SERVER_CONSOLE

Step 9. Registering a System Administrator

Use the ADSM SERVER_CONSOLE ID to register a system administrator.

From the server console, ADSM provides you with a special administrator user ID named SERVER_CONSOLE. At installation, the SERVER_CONSOLE user ID is automatically registered as an administrator and is given system authority. Initially, you must use the SERVER_CONSOLE user ID to register and grant system privilege to another administrator.

After another administrator is registered and granted system privilege, you have the option of reducing the authority of the SERVER_CONSOLE user ID to limit access to ADSM administrative functions from the server console. For information on how to reduce the authority of the SERVER_CONSOLE, refer to "Step 11. Limiting the SERVER_CONSOLE ID" on page 47.

To register at least one administrator with system privilege,

1. Register an administrator. For example, to register Bob as an administrator, enter:

```
f adsm,REGister Admin bob secretpw CONtact='Bob'
```

2. Authorize the administrator with system privilege. For example, to grant the administrator BOB system privilege, enter:

```
f adsm,GRant AUTHority bob CLasses=SYstem
```

3. Verify that the administrator you registered has been authorized with system privilege. For example, to verify that Bob has been registered as an administrator and granted system privilege, enter:

```
f adsm,Query ADmin bob
```

The server displays a report, similar to Figure 7, which identifies that Bob has been registered as an administrator and granted system privilege.

```
Administrator     Days Since    Days Since   Locked?    Privilege Classes
Name              Last Access  Password Set
--------------    ------------  ------------  ----------  ------------------
BOB                      <1            <1      No        System
```

Figure 7. Information about Registered and Authorized Administrators

Step 10. Registering a Backup-Archive Client Node

Use the ADSM SERVER_CONSOLE ID to register a backup-archive client node.

You can also register a backup-archive client node from the server console. We recommend that you do so now so you can verify the client/server connection from a back-archive client.

To register the client node, the command takes the following format:

```
f adsm,register node nodename password
```

Nodename is the name of the client node. It must be entered as the *nodename* parameter for the NODENAME option in the client options file.

Password is the password that the client node must use when logging on to the server.

For example, if the nodename you want to assign is **adsmcl1**, and the password you want to assign is **notell**, enter the following:

```
f adsm,register node adsmcl1 notell
```

Step 11. Limiting the SERVER_CONSOLE ID

Use the REVOKE AUTHORITY command from the ADSM SERVER_CONSOLE ID to limit the power of the SERVER_CONSOLE ID. Before doing so, be sure that you have registered another system administrator.

Given the power of the SERVER_CONSOLE ID, you might want to reduce its authority to that of operator when you have completed your basic server setup. This limits the ADSM administrative commands that can be entered through the console. *However, before you reduce the authority of the SERVER_CONSOLE ID, be sure that you have registered another system administrator with system authority as discussed in "Step 9. Registering a System Administrator" on page 45.*

To reduce privilege of the SERVER_CONSOLE ID, complete the following procedure:

1. From the ADSM SERVER_CONSOLE ID, revoke system privilege for SERVER_CONSOLE by entering the following:

```
f adsm,REVoke AUTHority server_console CLasses=SYstem
```

2. From the ADSM SERVER_CONSOLE ID, assign operator privilege to SERVER_CONSOLE by entering:

```
f adsm,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 *ADSTAR Distributed Storage Manager for MVS: Administrator's Guide*.

Allocating and Pre-Formatting New Volumes

During installation, you initially defined volumes for the database, recovery log, and storage pools. At any time you can increase the size of the database, recovery log, or storage pools by adding more volumes. However, before you define new volumes, *you must* first allocate and format them using the ANRFMT job or the ANRFMT2 job from the ADSM.SAMPLIB.

Using the ANRFMT Job

If the SMS address space is not active, edit and run the ANRFMT job illustrated in Figure 8 to allocate and pre-format the new data set.

The parameters you must edit are as follows:

- The job card parameters by customizing them for your installation

- The NAME parameter in the DEFINE CLUSTER statement by entering the name of the new data set

- The LINEAR MB parameter in the DEFINE CLUSTER statement by entering the size in megabytes of the new data set

- The VOL parameter in the DEFINE CLUSTER statement by entering the volume on which to allocate the new data set

- The PARM parameter in ADSMFMT EXEC statement by entering the name of the new data set

You can find examples of using this job to increase the size of database, recovery log, and storage pools in the chapter on customizing your server. See "Defining Additional Database, Recovery Log, and Storage Pool Volumes" on page 133.

```
//ANRFMT  JOB MSGLEVEL=(1,1),
//           MSGCLASS=H,CLASS=A,REGION=7M,TIME=1440
//*
//*****************************************************************
//*
//* ANRFMT   Use ANRFMT to extend the recovery log, database or a
//*          storage pool if SMS is not active on your system.  If
//*          SMS is active, you might choose to use ANRFMT2 as a
//*          PROC.
//*
//* Dependency:  none
//*
//* Function:
//*   - allocate a VSAM linear dataset
//*   - pre-format the dataset for use by the ADSM server
//*
//* Usage:
//*   - customize the job card
//*
//*   - modify:
//*     step      parameter value
//*     --------  -------- --------------------------------------
//*     ALLOCAT   NAME     name of the VSAM dataset to allocate
//*                        and pre-format
//*               MB       size of the dataset in megabytes
//*               VOL      volume serial for the VSAM dataset
//*
//*     ADSMFMT   PARM=    dataset name here must match the NAME
//*                        field of the preceding allocation step
//*
//*****************************************************************
```

Figure 8 (Part 1 of 2). ANRFMT Job from ADSM.SAMPLIB

```
//*****************************************************************
//*
//* Allocate the VSAM data set
//*
//*****************************************************************
//ALLOCAT  EXEC PGM=IDCAMS
//SYSPRINT  DD  SYSOUT=*
//SYSIN    DD  *
 DEFINE CLUSTER( NAME(ADSM.DATASET.NAME) LINEAR MB(100) VOL(ADSM01) )
/*
//*
//*
//*****************************************************************
//*
//* Pre-format the data set before defining it to the ADSM Server
//*   Note:  this step will not be executed if the ALLOCAT
//*          step fails
//*
//*****************************************************************
//ADSMFMT  EXEC PGM=DSMFMT,DYNAMNBR=300,COND=(0,NE,ALLOCAT),
//         PARM='/ADSM.DATASET.NAME'
//OPT      DD  DSN=ADSM.ANRSERV.OPTIONS,DISP=SHR
//DSMAMENG  DD  DSN=ADSM.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT  DD  SYSOUT=*
//SYSTERM  DD  SYSOUT=*
//
```

Figure 8 (Part 2 of 2). ANRFMT Job from ADSM.SAMPLIB

Using the ANRFMT2 Job.

If the SMS address space is active, you can also use the ANRFMT2 job from the
ADSM.SAMPLIB, as shown in Figure 9 on page 50, to allocate and pre-format new
database, recovery log, and storage pool volumes. If you install ANRFMT2 as a
procedure on an appropriate library (for example, SYS1.PROCLIB), you can invoke
the allocation and pre-formatting of a dataset by entering the following at the
system console:

```
 s anrfmt2,name=<name>,mb=<mb>,volser=<volser>
```

where:

    <name>   is the new dataset to define for ADSM usage

    <mb>   is the size in megabytes

    <volser> is the volume on which to allocate <name>

You can find examples of using this job to increase the size of database, recovery
log, and storage pools in the chapter on customizing your server. See "Defining
Additional Database, Recovery Log, and Storage Pool Volumes" on page 133.

```
//ANRFMT2  PROC NAME=,MB=,VOLSER=
//*
//********************************************************************
//*
//* ANRFMT2  Use ANRFMT2 to extend the recovery log, database or a
//*          storage pool.
//*          ANRFMT2 is a proc:  if installed in an appropriate
//*          library, it may be started from the system console.
//*
//* Dependency:  SMS must be active; the dataset does not have to
//*              be system-managed
//*
//* Function:
//*   - allocate a VSAM linear dataset
//*   - pre-format the dataset for use by the ADSM server
//*
//* Usage:
//*   - invoke via JCL (see ANRALLO2 for examples)
//*
//*   - OR, issue on the system console:
//*          s anrfmt2,name=<name>,mb=<mb>,volser=<volser>
//*
//*          where:
//*          <name>   is the new dataset to define for ADSM usage
//*          <mb>     is the size in megabytes
//*          <volser> is the volume on which to allocate <name>
//*
//********************************************************************
//********************************************************************
//* allocate a new dataset
//********************************************************************
//ALLOCVOL EXEC PGM=IEFBR14
//DSMVOL    DD  DSN=&NAME,
//              DISP=(NEW,CATLG),RECORG=LS,AVGREC=M,
//              SPACE=(&MB,(1)),UNIT=SYSDA,VOL=SER=&VOLSER
//*
//*
//**************************************************************
//* pre-format the dataset before defining it to the ADSM server
//*   Note:  this step will not be executed if the ALLOCVOL
//*          step fails
//**************************************************************
//DSMFMT   EXEC PGM=DSMFMT,DYNAMNBR=300,COND=(0,NE,ALLOCVOL),
//              TIME=1440,PARM='/&NAME'
//OPT       DD  DSN=ADSM.ANRSERV.OPTIONS,DISP=SHR
//DSMAMENG  DD  DSN=ADSM.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT  DD  SYSOUT=*
//SYSTERM   DD  SYSOUT=*
//
```

Figure 9. ANRFMT2 Job from ADSM.SAMPLIB

Migrating from the ADSTAR Distributed Storage Manager Version 1 Server

If you plan to install this version of the server over an existing version 1 server database, you should perform the following steps before and during the installation:

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 the version 2 server.

3. Install the version 2 server software.

4. The server disk file (referenced by the DSK DD card) determines the set of recovery log and database volumes that will be used by the server. If you are using the same server disk file for version 2 that you used for version 1, define one or more volume history files in your server options file (ADSM.ANRSERV.OPTIONS). Use the VOLUMEHISTORY option discussed in "VOLUMEHistory" on page 105.

   Be sure you complete this step before you start the server for normal operations.

5. Start your server for normal operations using the ANRSTART job from ADSM.SAMPLIB. See "Step 6. Starting the Server for Normal Operation" on page 41 for an example of an edited ANRSTART job.

   If you are installing the version 2 server over a database that was written by a version 1 server, you must add the **UPGRADE** *parameter to the* **EXEC** *statement of the ANRSTART job so that it reads as follows:*

```
//SERVER  EXEC PGM=DSMSERV,DYNAMNBR=300,PARM='/UPGRADEDB'
```

   If you do not add this statement, the job will fail. Once you have started the version 2 server using this parameter, you do not ever have to specify it again. We recommend, therefore, that you *not* include the UPGRADE parameter in any automated programs that start your ADSM server.

Returning to the ADSTAR Distributed Storage Manager Version 1 Server.

If you want to return to the version 1 server, follow these steps:

1. Use the BACKUP DB command to take a full backup of your version 2 database. This makes your version 2 database available if you want to return to version 2.

   The command takes the following format:

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

Refer to *ADSTAR Distributed Storage Manager for MVS: Administrator's Reference* for detailed information on this command.

2. HALT the version 2 server after the database backup has successfully completed.

3. Install the Version 1 server software.

4. Re-initialize the server database and recovery log using the DSMSERV INSTALL parameter. Refer to *ADSTAR Distributed Storage Manager: Administrator's Guide for MVS and VM* (SH35-0117).

5. Use the stand-alone LOADDB option to reload the database dump that you performed in "Migrating from the ADSTAR Distributed Storage Manager Version 1 Server" on page 51. Refer to *ADSTAR Distributed Storage Manager: Administrator's Reference for MVS and VM* (SH35-0130) for detailed information on this command.

6. After you start the server, use the AUDIT VOLUME FIX=YES command to audit all disk storage pool volumes.

7. Browse the volume history file that you defined for the version 2 server in "Migrating from the ADSTAR Distributed Storage Manager Version 1 Server" on page 51. Issue the AUDIT VOLUME FIX=YES command for each sequential storage pool volume that has a volume type of STGDELETE or STGREUSE. Refer to *ADSTAR Distributed Storage Manager: Administrator's Reference for MVS and VM* (SH35-0130) for detailed information on this command.

Chapter 3. Testing the Client/Server Connection

This chapter provides you with a quick way to test the client/server connection and consequently, the adequacy of the ADSM server installation. You can use this chapter to install, configure, and start up selected sample administrative and backup-archive clients. If you are able to start up your client after completing these steps, you can be satisfied that the server installation is complete, and you can begin installing additional clients. You can also use the administrative client to further customize your server.

Table 6 lists the sample clients that you can choose to install, configure, and start up using this chapter. Use the reference column to go directly to the client of your choice.

Table 6. Selected ADSM Clients for Testing Server Connection

Client	Communications Protocol	Reference
DOS Administrative Client	3270 Emulation	"Installing and Configuring the DOS Client for 3270 Emulation"
DOS Backup-Archive Client	3270 Emulation	"Installing and Configuring the DOS Client for 3270 Emulation"
OS/2 Administrative Client	APPC	"Installing and Configuring the OS/2 Client for APPC" on page 56
OS/2 Backup-Archive Client	APPC	"Installing and Configuring the OS/2 Client for APPC" on page 56
Novell Backup-Archive Client	APPC	"Installing and Configuring the Novell NetWare Client for APPC" on page 71
TSO Administrative Client	TCP/IP	"Installing and Configuring the TSO Administrative Client for TCP/IP" on page 80

Appendix, "Configuring the MVS Server with APPC" on page 185 provides actual scenarios used to install ADSM clients and to configure them for APPC(SNALU6.2). You can use it as a reference when installing your ADSM client.

Installing and Configuring the DOS Client for 3270 Emulation

Use this section to do a *quick install* of both DOS clients, configure them for 3270 emulation, and test the connection to the ADSM server. A successful connection verifies the adequacy of the server installation and allows you to begin processing backup-archive transactions.

Installing the DOS Client

To install the DOS Client, you must have a personal computer with a minimum of 350KB of free memory running DOS 5.O (640kB of free memory is recommended).

To perform a *quick install* of the DOS client that is sufficient to test the connection to the server, follow these steps:

1. Insert the installation diskette into the A drive.

2. If your current drive is not the A drive, at the prompt, type the following command and press **Enter**:

```
a:
```

3. At the prompt, type the following command and press **Enter**:

```
DSINSTAL
```

4. Follow the instructions on the screen.

5. After the installation completes, edit the AUTOEXEC.BAT file and make the following entries:

   • Add the directory where the ADSM files are installed to the path statement. For example:

```
SET PATH=C:\ADSM;......
```

   • Add the following three lines after the PATH statement. If you installed the ADSM files to a directory other than the C directory, substitute that directory for the C directory.

```
SET DSM_CONFIG=C:\ADSM\DSM.OPT
SET DSM_DIR=C:\ADSM
SET DSM_LOG=C:\ADSM
```

For more information about installing the DOS client, see *ADSTAR Distributed Storage Manager: Installing the Clients*.

Configuring the DOS Client for Communications

The following communications software is required in order to run the DOS ADSM client using 3270 emulation:

• IBM Personal Communications/3270 3.0 (42G0452) or later

   OR

• Attachmate EXTRA! emulation product

To configure the DOS client for communications, you must first create the client options file (**dsm.opt**) and then, modify it with the minimum required settings.

1. To create the client options file, type the following at the command prompt and press **Enter**:

```
copy dsm.smp dsm.opt
```

2. Modify the NODENAME option so that it corresponds with the name assigned to the client node when it was registered through the administrator command interface. Refer to "Step 10. Registering a Backup-Archive Client Node" on page 46.

   For example, if the node name assigned during registration was *adsmcl1*, make the entry as follows:

   ```
   nodename adsmcl1
   ```

3. Modify the 3270HOSTCOMMAND option with a command string that includes a logon command that will connect the 3270 terminal to the ADSTAR Distributed Storage Manager server. The logon command takes the form LOGON APPLID(), where the application id specified within the parenthesis is the name defined for the ADSM server during VTAM setup. For example, in "The VTAM APPL Statement" on page 30, the name defined for the server is **DSMAPPL**.

   The command string can also contain any sequence of keystrokes such as clearing a logo and perhaps switching to a particular VTAM panel. For example, the following string clears the screen, gets the VTAM applications panel up, and logs on to the ADSM server:

   ```
   @C IBMVAMP@E LOGON APPLID(DSMAPPL)@E
   ```

   DSMAPPL is the application id defined by the systems programmer as discussed earlier in "VTAM Setup" on page 30. The letters preceded by the @ are action keystrokes, like clear or enter. These are explained in "3270HOSTCOmmand" on page 168.

4. Close all your applications and reboot your system in order for the modifications to take effect.

You are now ready to verify the adequacy of the server installation by starting up the DOS Client.

Starting and Verifying the DOS Client

To test the adequacy the server installation, you can either start the administrative client or the backup-archive client.

Starting the DOS Administrative Client

To start the DOS administrative command line client, follow these steps:

1. At the command prompt, type **dsmadmc3** and press **Enter**.

2. Type your password and press **Enter**. This is the password that was assigned to you when you were registered as an administrator. For example, in "Step 9. Registering a System Administrator" on page 45, the password assigned is **secretpw**.

   The ADSM administrative client appears and you are ready to begin processing ADSM administrative commands.

For the administrative commands you can process, refer to the *ADSTAR Distributed Storage Manager for MVS: Administrator's Reference*.

Starting the DOS Backup-Archive Clients

For the DOS backup-archive client, you can start either the full screen interface or the command line interface. To start the DOS backup-archive client follow these steps:

1. To start the full screen interface, at the command prompt, type **dsm3270** and press **Enter**.

   OR

   To start the command line interface, at the command prompt, type **dsmc32** and press **Enter**.

2. Type your password and press **Enter**. This is the password that was assigned to you when you were registered as a backup-archive client. For example, in "Step 10. Registering a Backup-Archive Client Node" on page 46, the password assigned is **notell**.

   The ADSM backup-archive client appears and you are ready to begin processing ADSM backup-archive transactions.

For the backup-archive transactions you can process, refer to the *ADSTAR Distributed Storage Manager Version 2: Using the DOS Backup-Archive Client*.

Installing and Configuring the OS/2 Client for APPC

Use this section to do a *quick install* of both OS/2 clients, configure them for APPC, and test the connection to the server. A successful connection verifies the adequacy of the server installation and allows you to begin processing backup-archive client or administrator commands.

Installing the OS/2 Client

The OS/2 ADSM client runs on any PC that supports IBM OS/2 version 1.3 or later. However, the graphical user interface for the ADSM administrative client requires OS/2 version 2.0 or later.

In this example, we install ADSM for OS/2 2.1.

To perform a *quick install* of the OS/2 client that is sufficient to test the connection to the server, follow these steps:

1. Open an OS/2 window.

2. Insert the first installation diskette into the A drive.

3. If your current drive is not the A drive, at the prompt, type the following command and press **Enter**:

```
a:
```

4. At the prompt, type the following command and press **Enter**:

```
INSTALL
```

5. When the **Instructions** window appears, click on **Continue**.

6. On the next window, click on **OK** to have the installation program update your CONFIG.SYS file.

7. On the following window, click on the components of the OS/2 client you want to install and test.

   To test the server installation as discussed later in this chapter (refer to "Starting and Verifying the OS/2 Client" on page 69), you must select at least one administrative client and one backup-archive client.

8. After you have made your selections, click on **Disk space** to determine if you have enough disk space for the installation. If you do not have enough space, you can change to another drive by clicking on its name, clicking on **Change directories to selected drive**, and then, clicking on **OK**.

9. Click on **Install**.

10. When a new diskette needs to be inserted, follow the instructions on the screen. The installation takes approximately four to five minutes.

11. When the installation completes, click on **OK** and then **Exit** to close the **Installation** window.

12. Remove the last installation diskette.

For more information about installing the OS/2 client, see *ADSTAR Distributed Storage Manager: Installing the Clients*.

Configuring the OS/2 Client for APPC

APPC connectivity for OS/2 is provided by OS/2 Communications Manager/2 (CM/2) version 1.0 or later. In this example, we use CM/2 1.11.

1. Initiate CM/2 Setup

To begin the configuration process for CM/2, follow these steps:

- Shut down any applications that are using CM/2.

- From the OS/2 Desktop, double click on the Communication Manager/2 icon.

- Double click on the Stop Communications Normally icon to shut down CM/2.

- Double click on the Communication Manager Setup icon.

   The **Communication Manager Setup** window appears.

- Select the **Setup** button.

   The **Open Configuration** window appears. See Figure 10 on page 58.
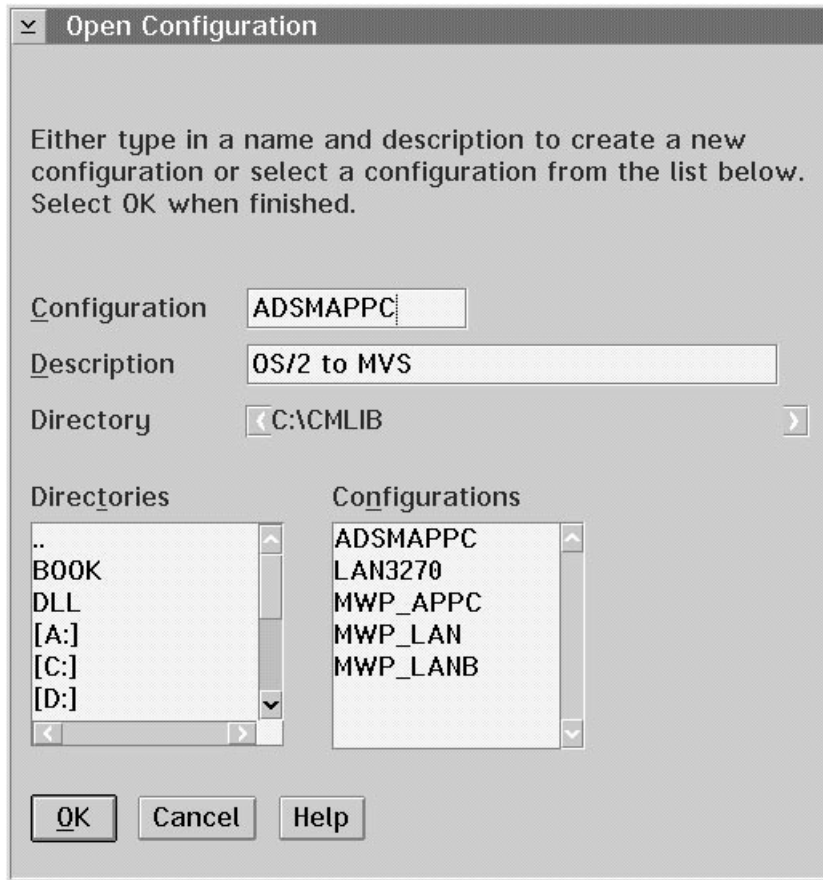
Figure 10. Open Configuration Window

- Name your new configuration in the **Configuration** field. You can use any name that is not already listed in the **Configurations** scroll box, for example **ADSMAPPC**. If you want a description, enter it in the **Description** field.

- Select the **OK** button. Answer **Yes** to any messages that appear.

  The **Communications Manager Configuration Definition - ADSMAPPC** window appears.

- Select the **Additional definitions** button.

- Select **Token-ring or other LAN types** for the **Workstation Connection Type**.

- Select **CPI Communications** for the **Feature or Application**.

- Select the **Configure...** button.

  The **Communications Manager Profile List** window appears and lists the following profiles which you must configure, even though two are listed as optional:

  DLC - Token-ring or other LAN types
  SNA local node characteristics
  SNA connections
  SNA features

The following sections provide the information necessary for you to configure these profiles. As you complete each profile, a check mark is placed in front of that profile on the **Communications Manager Profile List**.

2. Set Up DLC - Token-Ring or Other LAN Types

In the **Communications Manager Profile List** window, double click on **DLC - Token-ring or other LAN types**.

The **Token Ring or Other LAN Types DLC Adapter Parameters** window appears. See Figure 11.

Figure 11. Token Ring or Other LAN Types DLC Adapter Parameters Window

- Enter the network ID in the **C&SM LAN ID** field.

  This is the network ID specified in the VTAM start up list. If your workstation is part of a complex network, it might have two network IDs. One ID identifies the network where the application resides, and the other ID identifies the network in which your workstation resides. Use the ID for the application if there are two IDs.

- Select the **OK** button.

  CM/2 returns you to the **Communications Manager Profile List** window.

3. Set Up SNA Local Node Characteristics

In this step you set up the characteristics of your workstation. These correspond to the definitions made by the network administrator.

- Double click the **SNA local node characteristics** selection.

  The **Local Node Characteristics** window appears. See Figure 12.
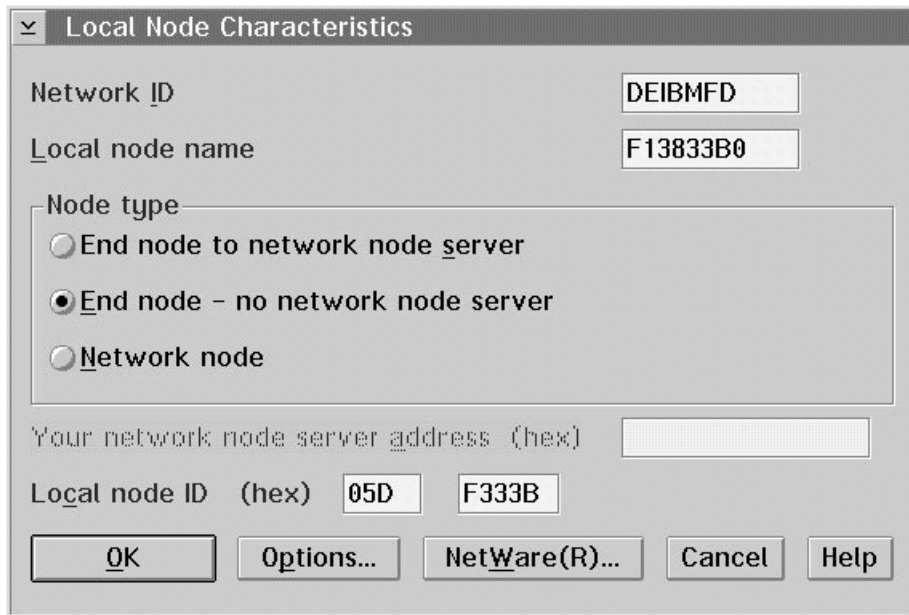
Figure 12. Local Node Characteristics Window

Fill in:

- **Network ID**

  This is the network ID specified in the VTAM start up list. If your workstation is part of a complex network, it might have two network IDs. One ID identifies the network where the application resides, and the other ID identifies the network in which your workstation resides. Use the ID for the application if there are two IDs.

- **Local node name**

  This is the independent LU name of the PU from the switched major node statement that you choose to represent your workstation in the network. For example, refer to Figure 4 on page 35. In this figure, the switched major node statement defines three PUs. If you choose the PU **F13833B** to represent your workstation in the network, then you must enter the name of its independent LU, **F13833B0**, in this field.

- Select **End Node - no Network Node Server**.

- **Local node ID**.

  Enter the IDBLK and IDNUM parameters for the PU you selected from the switched major node statement. Referring again to Figure 4 on page 35, these values for the **F13833B** PU are **05D** and **F333B** respectively.

- Select the **OK** button.

  CM/2 returns you to the **Communication Manager Profile List** window.

4. Set Up Mode

In this step you define a mode that corresponds to the logon mode the network administrator chose for you.

- From the **Communication Manager Profile List** window, select **SNA features**.

- Select the **Configure...** push-button.

  The **SNA Features List** window appears. See Figure 13.
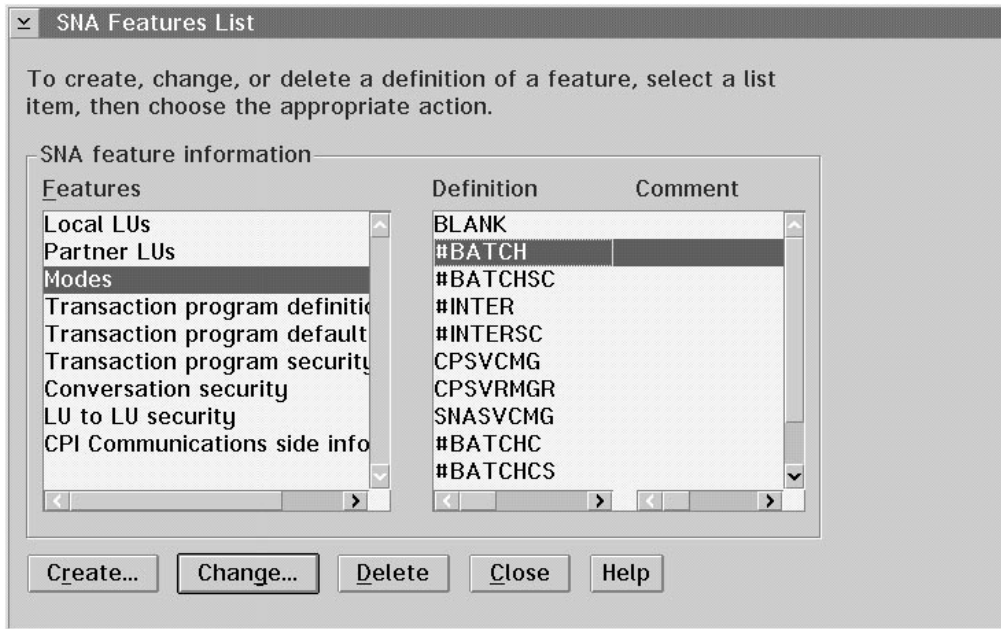
Figure 13. SNA Features List Window

- Select **Modes** from the **Features** box.

- Select **#Batch** batch from the **Definition** box.

  This is the logon mode name discussed in "The Logon Mode Definition" on page 31. As stated in that section, we recommend that you use **#BATCH** when you first install the server.

- Select the **Create** button

  The **Mode Definition** window appears.

- If the **OK** button does not appear at the bottom of your screen, scroll down the window until it appears. (The entire window may not fit on your screen.)

- Select the **OK** button to create the mode definition.

  CM/2 returns you to the **SNA Features List**.

5. Set Up Side Information

Side information is used to group communications options required in the client options file (**dsm.opt**) into a single label called the symbolic destination name. You can use the label to make a single communications entry in the client options file instead of multiple ones. The SYMBOLICDESTINATION option in the client options file references the label tag established in this step. See "8. ADSM Client Options File Setup" on page 67. This capability is provided by the Systems Application Architecture (SAA) Common Programming Interface for Communications (CPI-C).

While we suggest that you use the symbolic destination name, you do not have to use it. You can instead specify all the parameters in the client options file.

If you choose to use the symbolic destination name label, specify the following from the **SNA Features List** window which appeared when you completed the previous step.

- Double click **CPI Communications Side Information** from the **Features** list.

    The **CPI Communications Side Information** window appears. See Figure 14.

Figure 14. CPI Communications Side Information Window

Fill in:

- **Symbolic destination name**

    You can enter any name. The name you choose becomes the value that you enter with the **SYMBolicdestinationname** parameter in the client options (**dsm.opt**) file. See "8. ADSM Client Options File Setup" on page 67.

- **Fully qualified name**

    Select the **Fully qualified name** button if it is not already selected.

    The first entry field is the network ID specified in the VTAM start up list. If your workstation is part of a complex network, it might have two network IDs. One ID identifies the network where the application resides, and the other ID identifies the network in which your workstation resides. Use the ID for the application if there are two IDs.

    The second entry field is the is the application ID that you defined for the server in "The VTAM APPL Statement" on page 33. In the example in that section, the application ID is DSMSERV1.

- **TP name**

  Enter the application ID name again in the **TP name** field. It must be entered in capital letters as this field is case sensitive.

  Do not check the check box for **Service TP**.

- **Security type**

  Select **Same** or **None**.

- **Mode name**

  Select **#BATCH** from the **Mode name** pull-down menu. This is the logon mode name you defined in Step "4. Set Up Mode" on page 61.

- Select the **OK** button to create the fully qualified name.

  CM/2 returns you to the **SNA Features List** window.

- Select the **Close** button to return to the **Communications Manager Profile List** window.

6. Set Up Link to Host

In this step you set up a path that is used to establish a session to the host application.

From the **Communications Manager Profile List** window:

- Double click **SNA Connections**.

  The **Connections List** window appears. See Figure 15.
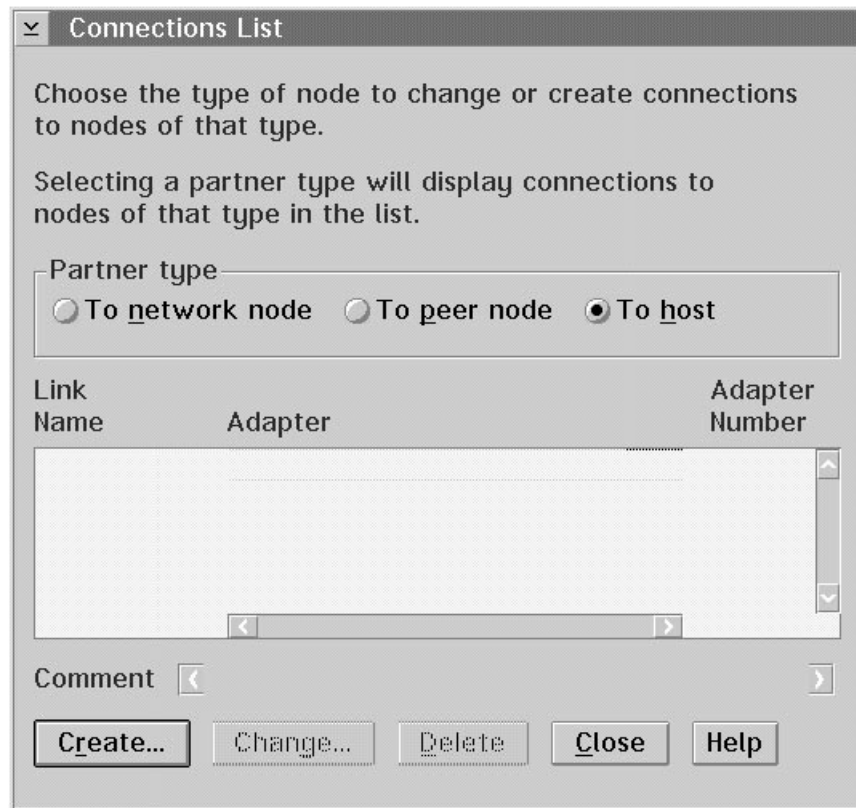
Figure 15. Connections List Window

- Select **To host** in the **Partner type** group box.
- Select the **Create...** button.

  The **Adapter List** window appears. See Figure 16.
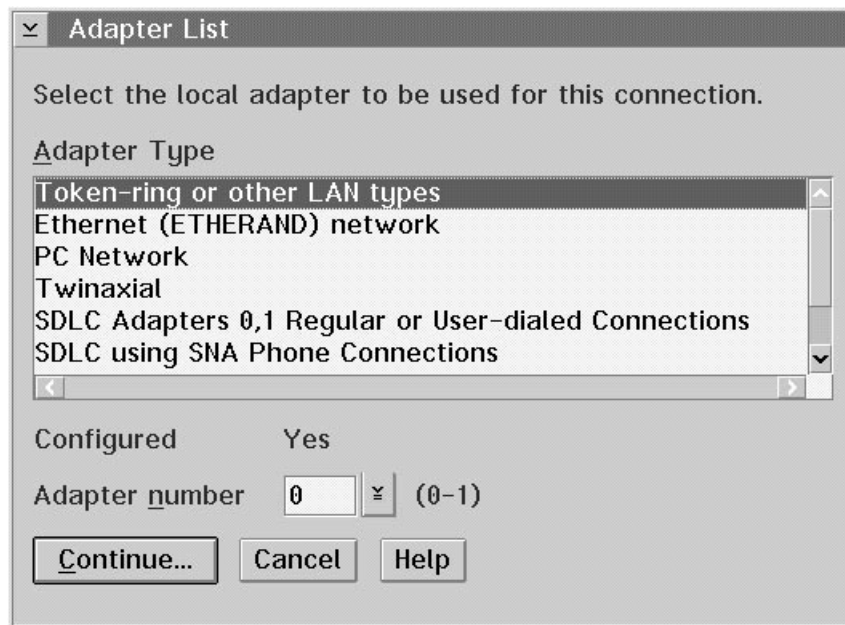
Figure 16. Adapter List Window

- Select **Token-ring or other LAN types**.
- Select the **Continue...** button.

  The **Connection to a Host** window appears. See Figure 17 on page 65.

Figure 17. Connection to a Host Window

The values for the following fields should already be displayed:

- **Local PU name**

  This is the name of the independent LU for the PU you chose for your work-
  station from the switched major node definition. Refer to Figure 4 on page 35.
  For example, if you chose PU F13833B, the value displayed is the name of its
  independent LU, F13833B0.

- **Node ID**

  This is the IDBLK and IDNUM parameters for the PU you selected from the
  switched major node statement. Referring again to Figure 4 on page 35, if
  you chose **F13833B** PU, the values displayed are **05D** and **F333B** respectively.

You previously entered the above values in "3. Set Up SNA Local Node
Characteristics" on page 60.

Fill in:

- **Link name**

  HOST001 appears automatically but you can use any unique name for the link.

- **LAN destination address**

  This is a 12-digit number that represents the token-ring address of the commu-
  nications controller that connects the LAN to the host. Ask your local LAN
  administrator for this address. This is the address of the LAN on which your
  workstation resides.

- **Partner network ID**

  This is the network ID specified in the VTAM parameter start up list. If your
  workstation is part of a complex network, it might have two network IDs. One

ID identifies the network where the application resides, and the other ID identifies the network in which your workstation resides. Use the ID for the application if there are two IDs.

- **Partner node name**

  You can enter any name, for example, **OS2A**.

  Note: Do not use the application ID name or the LU name.

- Select the **Activate at startup** box.

- Select the **Use this host as your focal point support** box.

- Select the **Define Partner LUs** push button. The **Partner LUs** window appears. See Figure 18.
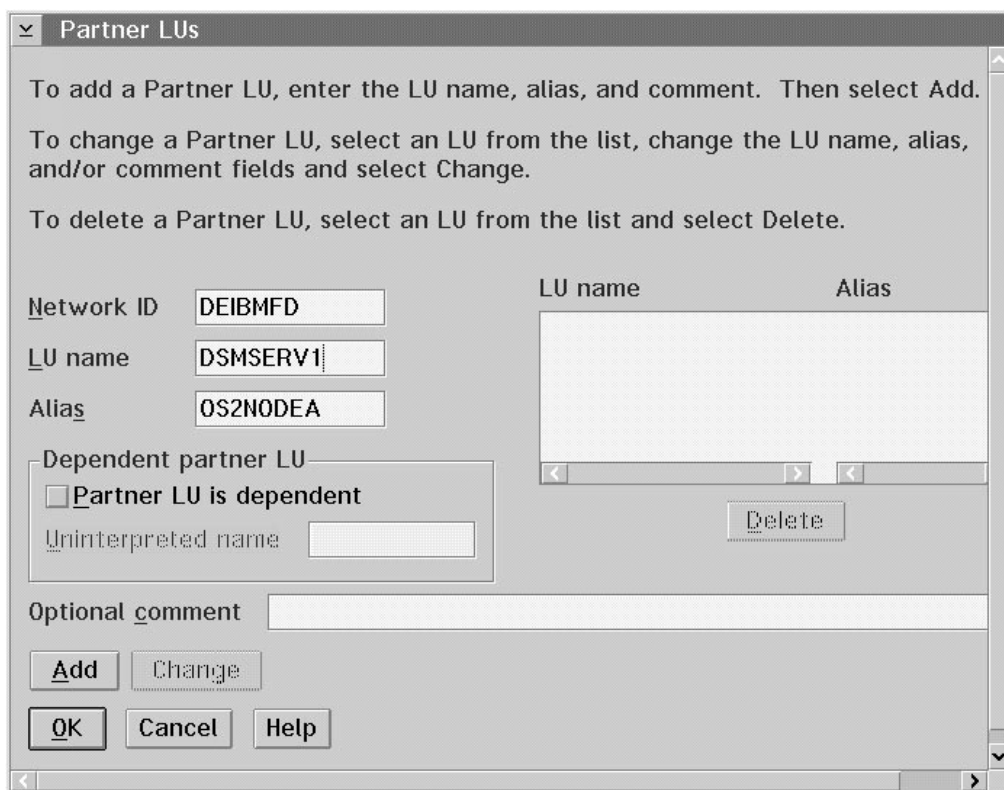
Figure 18. Partner LUs Window

Fill in:

- **Network ID**

  This is the network ID specified in the VTAM start up list. If your workstation is part of a complex network, it might have two network IDs. One ID identifies the network where the application resides, and the other ID identifies the network in which your workstation resides. Use the ID for the application if there are two IDs.

- **LU name**

  This is the application ID that you defined for the server in "The VTAM APPL Statement" on page 33. In the example in that section, the application ID is DSMSERV1.

- **Alias**

You can enter any name.

- Select the **Add** push button.
- Select the **OK** push button to return to the **Connection to a Host** window.
- Select the **OK** push button to return to the **Connections List** window.

7. Save Work

Perform exit operations by closing all windows. When you close the last window, CM/2 displays a message that it is checking configuration values.

Verification should end with no errors.

If errors do occur, review the error log, make the corrections, and exit by closing all windows. Repeat these steps until verification ends with no errors.

When verification ends with no errors, restart CM/2 by double clicking the Start Communications icon.

8. ADSM Client Options File Setup

The only options that you must set in the client options file (**dsm.opt**) in order to establish a session with server are those requiring communications settings. Other options that influence formatting, performance, and certain backup and archiving features work satisfactorily with the default settings. You can modify them later after you have more experience with ADSM and find that different settings can work better for you. As a result, we only discuss the required communication settings in this section. However, if you would like to set other options now, you can refer to the *ADSTAR Distributed Storage Manager: Installing the Clients*.

To configure the OS/2 ADSM client for communications, you must first create the **dsm.opt** file and then, modify it with the required settings.

1. To create the client options file, type the following at the command prompt and press **Enter**:

```
copy dsm.smp dsm.opt
```

2. Modify the NODENAME option so that it corresponds with the name assigned to the client node when it was registered through the administrator command interface. Refer to "Step 10. Registering a Backup-Archive Client Node" on page 46.

   For example, if the node name assigned during registration was *adsmcl1*, make the entry as follows:

```
NODename adsmcl1
```

3. Modify the COMMMETHOD option to select the communiction method for client/server communication. To choose APPC communication remove the * from the entry that reads **COMMmethod SNAlu6.2** so that it appears as follows:

```
COMMmethod SNAlu6.2
```

4. Modify the SYMBOLICDESTINATION option with the symbolic destination label that you defined in "5. Set Up Side Information" on page 61. Also, delete the * in front of the entry. For example, if you used the label MVSADSM as shown in Figure 14 on page 62, make the following entry:

```
SYMbolicdestination MVSADSM
```

After you complete the above entries, your **dsm.opt** file appears as follows:

```
COMMmethod SNAlu6.2

NODename adsmcl1

SYMbolicdestination MVSADSM
```

Figure 19. Sample DSM.OPT File for APPC Using Symbolic Destination Name

OR

If you did not specify a symbolic destination name label or prefer to specify the communications options separately, follow these steps:

- Modify the PARTNERLUNAME option with fully qualified name that identifies the ADSM server to the APPC network. The fully qualified name contains two parts.

   The first part is the network ID specified in the VTAM start up list. If your workstation is part of a complex network, it might have two network IDs. One ID identifies the network where the application resides, and the other ID identifies the network in which your workstation resides. Use the ID for the application if there are two IDs.

   The second part of the fully qualified name is the application ID that you defined in "The VTAM APPL Statement" on page 33. In the example in that section, the application ID is DSMSERV1.

   For example, if the network ID is DEIBMFD and you specified DSMSERV1 as the application ID, make the following entry:

```
PARtnerluname DEIBMFD.DSMSERV1
```

- Modify the TPNAME option with the application ID from the VTAM APPL statement. This is the same name that you entered as the second part of previous entry, for example:

```
TPname DSMSERV1
```

- Modify the CPICMODENAME option with logon mode that you defined in Step "4. Set Up Mode" on page 61. If you defined the logon mode as #BATCH, make the following entry:

```
CPICMOdename #BATCH
```

After you complete the above entries and remove the asterisks in the front of the entries, your **dsm.opt** file appears as follows:

```
COMMmethod SNAlu6.2

PARtnerluname DEIBMFD.DSMSERV1

TPname DSMSERV1

CPICMOdename #BATCH

NODename adsmcl1
```

Figure 20. Sample DSM.OPT File for APPC Using Specific APPC Parameters

5. Save the DSM.OPT file.

6. Close all your applications and reboot your system in order for the modifications to the options file and your CONFIG.SYS file can take effect.

You are now ready to verify the adequacy of the server installation by starting up the OS/2 Client.

Starting and Verifying the OS/2 Client

To test the adequacy the server installation, you can start and verify one or more of the following OS/2 ADSM client interfaces:

- Administrative graphical user interface (GUI)
- Administrative command line interface
- Backup-Archive graphical user interface (GUI)
- Backup-Archive command line interface

Verifying the OS/2 Administrative GUI

To start and verify the administrative client GUI, follow these steps:

1. Double click the Administrative Client icon on the OS/2 desktop.

    OR

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

```
dsmadm
```

2. Enter your name and password, then log on. This is the name and password that was assigned to you when you were registered as an administrator. For example, in "Step 9. Registering a System Administrator" on page 45, the name assigned is **bob** and the password assigned is **secretpw**.

3. Open nodes to view the GUI selections.

4. Exit by clicking on the system menu icon in the upper left corner of the screen.

For more information on the administrative GUI functions, refer to the online help or *ADSTAR Distributed Storage Manager for MVS: Administrator's Guide*.

Verifying the OS/2 Administrative Command Line Interface

To start and verify the administrative client command line interface, follow these steps:

1. At the command prompt in an OS/2 window, enter the following:

```
dsmadmc
```

2. Type your name and password, then press **Enter**. This is the name and password that was assigned to you when you were registered as an administrator. For example, in "Step 9. Registering a System Administrator" on page 45, the name assigned is **bob** and the password assigned is **secretpw**.

   The ADSM administrative client appears and you are ready to begin processing ADSM administrative commands.

3. Query the server to view the client nodes.

```
query node
```

4. When you are ready to complete your ADSM session, enter **quit** at the command prompt.

For the administrative commands you can process, refer to the *ADSTAR Distributed Storage Manager for MVS: Administrator's Reference*.

Verifying the OS/2 Backup-Archive Client GUI

To start and verify the backup-archive client GUI, follow these steps:

1. Double click the Backup-Archive client icon on the OS/2 desktop.

   OR

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

```
dsm
```

2. Enter your password and log on. This is the password that was assigned to you when you were registered as a backup-archive client. For example, in "Step 10. Registering a Backup-Archive Client Node" on page 46, the password assigned is **notell**.

3. Click **OK**.

4. Back up a file from the **Drives Information Window**.

5. Restore the file from the **Drives Information Window**.

6. Exit by clicking on the system menu icon in the upper left corner of the screen.

For more information on the backup-archive GUI functions, refer to the online help and *ADSTAR Distributed Storage Manager Version 2: Using the OS/2 Backup-Archive Client.*

Verifying the OS/2 Backup-Archive Command Line Interface

To start and verify the backup-archive client command line interface, follow these steps:

1. At the command prompt in an OS/2 window, enter the following:

```
dsmc
```

The ADSM backup-archive client appears and you are ready to begin processing ADSM backup-archive commands.

2. Back up a file to the ADSM server, for example:

```
selective c:\devel\module.abc
```

3. Type your password and press **Enter**. This is the password that was assigned to your node when it was registered. For example, in "Step 10. Registering a Backup-Archive Client Node" on page 46, the password assigned is **notell**.

4. Query the server to verify that the file has been backed up:

```
query backup c:\devel\*
```

5. To restore the file, enter the following:

```
restore c:\devel\module.abc
```

6. When you are ready to complete your ADSM session, enter **quit** at the command prompt.

For the backup-archive commands that you can process, refer to *ADSTAR Distributed Storage Manager Version 2: Using the OS/2 Backup-Archive Client.*

Installing and Configuring the Novell NetWare Client for APPC

Use this section to do a *quick install* of the Novell NetWare Client, configure it for APPC, and test the connection to the server. A successful connection verifies the adequacy of the server installation and allows you to begin processing backup-archive commands.

Note: The ADSM Novell NetWare client does not include an administrative interface. If you would like to verify the connection to the server with an administrative client also, you can select one from Table 6 on page 53.

Installing the Novell NetWare Client

The NetWare ADSM client runs on any PC that supports the following NetWare levels:

- Novell NetWare 3.11
- Novell NetWare 3.12
- Novell NetWare 4.01
- Novell NetWare 4.1

Before starting the installation, you should be aware of following:

- Input containing both the slash (/) and the backslash (\) is valid. ADSM changes a \ to a /.

- ADSM key strokes on your NetWare server are not case sensitive. Input containing uppercase and lowercase is valid. ADSM changes all input to uppercase.

To perform a *quick install* of the NetWare client that is sufficient to test the connection to the server, follow these steps:

1. Insert the installation diskette into your A drive of your Novell server console.

2. From the *server console*, type the following command and press **Enter**.

```
load a:\instdsm
```

   The **ADSM Install Options** window appears.

3. Select **Install ADSM** and press **Enter**.

   The **Source Drive** pop-up window appears.

4. Press **Enter** to select the default diskette drive name.

   The **Target Volume** pop-up window appears.

5. Press **Enter** to select **SYS:/adsm** as the installation directory.

6. After the installation files are copied to the installation directory and **SUCCESSFUL!** is displayed, press **Enter** to continue.

7. From the **ADSM Install Options** window, select **Install SMS Modules** and press **Enter**.

   The **Source Drive** pop-up window appears.

8. Press **Enter** to select the default diskette drive name.

   The **Target Volume** pop-up window appears.

9. Press **Enter** to select **SYS:/adsm** as the installation directory.

10. If the SMS Modules are already present, type **N** to all prompts and press **Enter** to continue.

    OR

    After the SMS Modules are copied to the installation directory and **SUCCESSFUL!** is displayed, press **Enter** to continue.

11. Select **YES** and press **Enter** to exit the installation.

12. From the *server console*, enter **LOAD EDIT sys:/system/autoexec.ncf** and add the following entry to the NetWare server's **autoexec.ncf** file:

```
search add SYS:/ADSM
```

13. Press **Esc** to save the changes and exit EDIT.

14. To initially set up the install path, enter the following from the *server console*:

```
search add SYS:/ADSM
```

15. Remove the diskette from the A drive.

For more information about installing the Novell NetWare client, see *ADSTAR Distributed Storage Manager: Installing the Clients*.

Configuring the Novell NetWare Client for Communications

APPC connectivity is provided by NetWare for SAA version 1.3B. You can verify this level by issuing the LOAD COMMEXEC command from the *server console* and checking the COMMEXEC and NWSAA modules for 1.3.42.

The following sections provide you with the steps necessary to configure APPC for the Novell NetWare Client. You can use the DOS requester to create the SNA profile.

Creating the CSCON Configuration Profile

1. From the *Novell server console*, enter **LOAD COMMEXEC** if you have not already done so.

2. From the *DOS requestor*, go to the SYSTEM/CSCON directory by entering the following command:

```
cd f:/system/cscon
```

3. Invoke CSCON service.

   The **NetWare Communication Services Configuration** window appears.

4. Select your server from the **Server to Configure** window and press **Enter**.

5. Press **Enter** when the administrator name is displayed and then enter your administrator's password.

6. From the **Available Topics** window, select **Configure Communication Services**.

7. From the **Configuration Services** window, select **NetWare for SAA**.

8. Create a 2.1 type service profile called **appcpro** by completing the following steps (ADSTAR Distributed Storage Manager requires a type 2.1 service profile):

   a. Press the **Insert** key.
   b. Type **appcpro** as the **New Profile Name** and press **Enter**.

c. Select the insert button and select **PU2.1** as the mode type, then press
      Enter.
   d. Press the **Esc** key.
   e. Select **YES** to create the service profile.
 9. Select the newly created profile from the **Select Service Profile** window to
    begin creating your host connection.

Creating a Host Connection

 1. From the **Configure SAA Service Profile** window, select **Configure Host
    Connection**.

    The **Host Connection Configuration** window appears (Figure 21).

```
┌──────────────────────────────────────────────────────────────┐
│              Host Connection Configuration                     │
├──────────────────────────────────────────────────────────────┤
│  SNA Network ID:                          DEIBMFD              │
│  Peripheral Node Control Point Name:      F13833C0            │
│                                                                │
│  Number Independent Sessions Supported:  16                    │
│                                                                │
│  Host Attachment:                         Token Ring           │
│                                                                │
└──────────────────────────────────────────────────────────────┘
```

Figure 21. Host Connection Configuration

 2. For the **SNA network ID**, enter the network ID specified in the VTAM startup
    list. If your workstation is part of a complex network, it might have two network
    IDs. One ID identifies the network where the application resides, and the other
    ID identifies the network in which your workstation resides. Use the ID for the
    application if there are two IDs.

 3. For the **Peripheral Control Point Name**, enter the independent LU name of
    the PU from switched major node definition that you choose to represent your
    workstation in the network. For example, refer to Figure 4 on page 35. In this
    figure, the switched major node statement defines three PUs. If you choose
    the PU **F13833C** to represent your workstation in the network, then you must
    enter the name of its independent LU, **F13833C0**, in this field.

 4. Enter the number of licenses you have for NetWare SAA for the **Number Inde-
    pendent Sessions Supported**. For example, if the number of licenses is 16,
    enter **16**.

 5. Place the cursor in the **Host Attachment** field and press the **Insert** key.

    A pop-up box appears.

 6. Select the type of LAN to be configured. For example, if your LAN is a token
    ring network, select **Token Ring**.

Configuring the SNA Token-Ring

After you select **SNA Token Ring**, the **SNA Token Ring Configuration** window
appears. (Figure 22 on page 75).

```
                   SNA Token Ring Configuration

   Token Ring Source Service Access Point: 04   hex
   Token Ring Adapter Type:                Primary

   Block ID:                               05D   hex
   PUID for Token Ring Connection          F333C   hex

   Logical Adapter Name:                   TOKENSAA
```

Figure 22. SNA Token Ring Configuration

1. Enter **04** for **Token Ring Source Service Access Point**.

2. Enter **Primary** for **Token Ring Adapter Type**.

3. For the **Block ID** and **PUID for Token Ring Connection** fields, enter the
   IDBLK and IDNUM parameters for the PU you selected from the switched
   major node statement. Referring again to Figure 4 on page 35, these values
   for the **F13833C** PU are **05D** and **F333C** respectively. If **CPNAME** is used in
   the VTAMLST, accept the default values for these two fields.

4. In the **Logical Adapter Name** field, enter the logical adapter name from the
   IPX bind statement in the **autoexec.ncf** file. (You can view the **autoexec.ncf**
   file by entering **LOAD EDIT sys:\system\autoexec.ncf** at the server console.)

5. Press the **Esc** key multiple times and answer **YES** when asked to save
   changes.

6. Exit CSCON.

Creating the Side Information File with SIUTIL

1. Go to the SYSTEM\NWSAA\CPIC directory by entering the following command:

```
cd SYSTEM\NWSAA\CPIC
```

2. Invoke the SIUTIL (Side Information File Utility) service.

   Note: The SIUTIL help facility (F1) explains all of the fields.

3. Select **Create New Side Information File** and press **Enter**.

4. In the **Create New Side Information File** enter a new name for this file, for
   example **MVSADSM.CPI**.

5. In the **Side Information Record Name**, type in **MVSADSM** *in uppercase* and
   press **Enter**.

   This is the name to be used as the symbolic destination name in the client
   options (**dsm.opt**) file as discussed in "ADSM Client Options File Setup" on
   page 78.

Defining Local LU Configuration

1. From the **Side Information Records Command Menu** window, select **Add a Side Information Record**.

   The **Local LU Configuration Data** window appears. (Figure 23).

```
┌─────────────────────────────────────────────────┐
│                                                  │
│  ┌────────────────────────────────────────────┐  │
│  │         Local LU Configuration Data        │  │
│  ├────────────────────────────────────────────┤  │
│  │                                            │  │
│  │  Side Information Record Name:  MVSADSM     │  │
│  │                                            │  │
│  │    LU Name:              F13833C0          │  │
│  │    PU Name:              F13833C           │  │
│  │    Detach PU Type:       1                 │  │
│  │    Security Type:        0                 │  │
│  │    User ID:                                │  │
│  │    PassWord:                               │  │
│  │    LU Local Address:     0                 │  │
│  │    LU Session Limit:     8                 │  │
│  │    Network Name:         DEIBMFD           │  │
│  │                                            │  │
│  │  Enter     F1 = Help    F7 = Cancel        │  │
│  │         Ctrl PgDn = PLU Record             │  │
│  │                                            │  │
│  └────────────────────────────────────────────┘  │
│                                                  │
└─────────────────────────────────────────────────┘
```

Figure 23. Local LU Configuration Data

2. In the **Side Information Record Name**, type in **MVSADSM** *in uppercase*, and press **Enter**.

   This is the name to be used as the symbolic destination name in the client options (**dsm.opt**) file as discussed in "ADSM Client Options File Setup" on page 78.

3. Enter the following:

   a. **LU name**: This is the independent LU name of the PU from switched major node definition that you choose to represent your workstation in the network. For example, refer to Figure 4 on page 35. In this figure, the switched major node statement defines three PUs. If you choose the PU **F13833C** to represent your workstation in the network, then you must enter the name of its independent LU, **F13833C0**, in this field.

   b. **PU name**: This is the name of the PU itself. In this case it is **F13833C**.

   c. **Detach PU Type**: **1**

   d. **Security Type**: **0**

   e. **LU Local Address**: **0**

   f. **LU Session Limit**: **8**

   g. **Network Name**: This is the network ID specified in the VTAM start up list. If your workstation is part of a complex network, it might have two network IDs. One ID identifies the network where the application resides, and the other ID identifies the network in which your workstation resides. Use the ID for the application if there are two IDs.

Defining Partner LU Configuration

1. Press **Enter** or **Ctrl+PgDn**.

   The **Partner LU Configuration Data** window appears (Figure 24).

```
             Partner LU Configuration Data

   Side Information Record Name:  MVSADSM

     LU Name:                 DSMSERV1
     Data Link Control Name:  ITRN
     Network Adapter Number:  0
     Network Adapter Address: 400010000003
     LU Session Limit:        8
     Max Logical Record Size: 0
     Character Set:           0
     Local Program Name:      DSMC
     Remote Program Name:     DSMSERV1

     Enter    F1 = Help    F7 = Cancel
           Ctrl PgUp = LU Record
           Ctrl PgDn = Mode Record
```

Figure 24. Partner LU Configuration Data

2. Enter the following:

   a. **LU name**: This is the application ID that you defined in "The VTAM APPL Statement" on page 33. In the example in that section, the application ID is **DSMSERV1**.

   b. **Data Link Control Name**: **ITRN**

   c. **Network Adapter Number**: **0**

   d. **Network Adapter Address:** This is the address of the LAN on which your workstation resides.

   e. **LU Session Limit**: **8**

   f. **Max Logical Record Size**: **0**

   g. **Character Set**: **0**

   h. **Local Program name**: **DSMC**

   i. **Remote Program Name**: **DSMSERV1**: This is the same as **LU name**.

Defining the Mode Configuration Data

1. Press **Enter** or **Ctrl+PgDn**.

   The **Mode Configuration Data** window appears. (Figure 25 on page 78).

```
┌──────────────────────────────────────────────────────────┐
│ ┌──────────────────────────────────────────────────────┐ │
│ │                Mode Configuration Data               │ │
│ ├──────────────────────────────────────────────────────┤ │
│ │                                                      │ │
│ │  Side Information Record Name:   MVSADSM             │ │
│ │                                                      │ │
│ │     Mode Name:                       #BATCH         │ │
│ │     Max Negotiable Session Limit:    8              │ │
│ │     Automatic Activate Session Limit: 8             │ │
│ │     Min Contention Winners Source:   0              │ │
│ │     Min Contention Winners Target:   0              │ │
│ │     Pacing Size:                     8              │ │
│ │     Max RU Size:                     4096           │ │
│ │     Min RU Size:                     256            │ │
│ │     CNOS Flags:                      6              │ │
│ │     CNOS Termination Set:            4              │ │
│ │     SAA Service Profile Name:        APPCPRO        │ │
│ │                                                      │ │
│ │     Enter       Esc = Exit       F1 = Help          │ │
│ │     F7 = Cancel    Ctrl PgUp = PLU Record           │ │
│ │                                                      │ │
│ └──────────────────────────────────────────────────────┘ │
└──────────────────────────────────────────────────────────┘
```

Figure 25. Mode Configuration Data

2. Enter the following:

    a. **Mode name**: This is the logon mode name discussed in "The Logon Mode Definition" on page 31. As stated in that section, we recommend that you use **#BATCH** when you first install the server.

    b. **Max Negotiable Session Limit**: **8**

    c. **Automatic Activate Session Limit**: **8**

    d. **Min Contention Winners Source**: **0**

    e. **Min Contention Winners Target**: **0**

    f. **Pacing size**: **8**

    g. **Max RU size**: **4096**

    h. **Min RU size**: **256**

    i. **CNOS Flags**: **6**

    j. **CNOS Termination Set**: **4**

    k. **SAA Service Profile Name**: **appcpro**. This is the name of your CSCON configuration profile that you created in "Creating the CSCON Configuration Profile" on page 73.

3. Press **Enter** to save your changes.

4. Press **Esc** multiple times and when asked if you want to exit, enter **YES**.

ADSM Client Options File Setup

The only options that you must set in the client options file (**dsm.opt**) in order to establish a session with the ADSM server are those requiring communications settings. Other options that influence formatting, performance, and certain backup and archiving features work satisfactorily with the default settings. You can modify them later after you have more experience with ADSM and find that different settings can work better for you. As a result, we only discuss the required communication settings in this section. However, if you would like to set other options now, you can refer to the *ADSTAR Distributed Storage Manager: Installing the Clients*.

To configure the Novell NetWare ADSM client for communications, you must first create the **dsm.opt** file and then, modify it with the required settings. You must start from *DOS requestor*.

1. Before you can create the client options file, you must first change to the ADSM directory by issuing the following command:

```
cd f:\adsm
```

2. To create the client options file, type the following at the command prompt and press **Enter**:

```
copy dsm.smp dsm.opt
```

3. Modify the NODENAME option so that it corresponds with the name assigned to the client node when it was registered through the administrator command interface. Refer to "Step 10. Registering a Backup-Archive Client Node" on page 46.

   For example, if the node name assigned during registration was *adsmcl1*, make the entry as follows:

```
NODename adsmcl1
```

4. Modify the COMMMETHOD option to select the communiction method for client/server communication. To choose APPC communication remove the * from the entry that reads **COMMmethod SNAlu6.2** so that it appears as follows:

```
COMMmethod SNAlu6.2
```

5. Modify the SYMBOLICDESTINATION option with the symbolic destination label that you defined in "Creating the Side Information File with SIUTIL" on page 75. Also, delete the * in front of the entry. For example, if you used the label MVSADSM as shown in Figure 23 on page 76, make the following entry:

```
SYMbolicdestination MVSADSM
```

   After you complete the above entries, your DSM.OPT file appears as follows:

```
COMMmethod SNAlu6.2

SYMbolicdestination MVSADSM

NODename adsmcl1
```

Figure 26. Sample DSM.OPT File for APPC Using Symbolic Destination Name

6. Save DSM.OPT.

You are now ready to verify the adequacy of the server installation by starting up the Novell NetWare client.

Starting and Verifying the Novell NetWare Backup-Archive Client

To start up the backup-archive client node, follow these steps:

1. At the NetWare *server console*, enter the following commands to load the communications profile, to load the Side Information Record, and to start up the ADSM command line interface:

       CSLOAD APPCPRO
       LOAD CPIC_SAA SYS:\SYSTEM\NWSAA\CPIC\MVSADSM.CPI
       LOAD SYS:\ADSM\DSMC

   Note: Use CSUNLOAD APPCPRO to unload the appcpro profile.

   You are now ready to process backup-archive client commands. For the backup-archive commands you can process, refer to *ADSTAR Distributed Storage Manager Version 2: Using the Novell NetWare Backup-Archive Client*.

2. Back up a file to the ADSM server, for example:

```
selective sys:/devel/module.abc
```

3. Type your password and press **Enter**. This is the password that was assigned to your node when it was registered. For example, in "Step 10. Registering a Backup-Archive Client Node" on page 46, the password assigned is **notell**.

4. Query the server to verify that the file has been backed up.

```
query backup sys:/devel/module.abc
```

5. To restore the file, enter the following:

```
restore sys:/devel/module.abc
```

6. When you are ready to complete your ADSM session, enter **quit** at the command prompt.

If you would like to verify the connection to the server with an administrative client also, you can select one from Table 6 on page 53.

Installing and Configuring the TSO Administrative Client for TCP/IP

Use this section to install the TSO administrative client, configure it for TCP/IP, and test the connection to the ADSM server. A successful connection verifies the adequacy of the server installation and allows you to begin processing administrative transactions.

Note: The ADSM TSO client does not include a backup-archive interface. If you want to verify the connection to the server with a backup-archive client also, you can select one from Table 6 on page 53.

Installing the TSO Client

TCP/IP Version 2.2 for MVS or later must be installed on the ADSM server before you can install the TSO administrative client.

The ANSPROC member of the ADSM.SAMPLIB contains a sample TSO logon procedure for the TSO administrative client. Edit this file to create or modify the logon procedure for the TSO user ID of the ADSM administrator.

Figure 27 is an example of a modified TSO administrative client logon procedure:

```
//DSMADMC  EXEC PGM=IKJEFT01,TIME=1440,REGION=32M,DYNAMNBR=200,
//        PARM='SPFPROF'
//DSCOPT   DD DSN=ADSM.TSOADMIN.OPTIONS,DISP=SHR
//DSCLANG  DD DSN=ADSM.SANSMSG(ANSMENU),DISP=SHR
//SYSUADS  DD DSN=SYS1.UADS,DISP=SHR
//SYSHELP  DD DSN=SYS1.HELP,DISP=SHR
//         DD  DSN=SYS1.ISRCLIB,DISP=SHR
//         DD  DSN=SYS1.HELP1,DISP=SHR
//SYSPROC  DD  DSN=SYS1.HRFCLST,DISP=SHR
//         DD  DSN=SYS1.SBLSCLI0,DISP=SHR
//         DD  DSN=SYS1.ISRCLIB,DISP=SHR
  ⋮
//SYSPRINT DD TERM=TS
//SYSIN    DD TERM=TS
```

Figure 27. Modified TSO Administrative Client Logon Procedure

As an alternative to using the ANSPROC member to install the TSO administrative client, you can use the ANSCLIST CLIST procedure from ADSM.SAMPLIB by adding it to your CLIST library. Figure 28 shows the ANSCLIST CLIST procedure.

```
/* Alternative to modifications to TSO logon Proc.  */
PROC 0
CONTROL NOLIST NOCONLIST MSG FLUSH PROMPT
/* it is important to include the parameter "PROMPT" in the preceding
   control statement  */
ALLOC F(DSCOPT) DA('ADSM.PARMLIB(ANSSMPOP)') SHR REU
ALLOC F(DSCLANG) DA('ADSM.SANSMSG(ANSMENU)') SHR REU
CALL DSMADMC
FREE F(DSCOPT DSCLANG )
```

Figure 28. ANSCLIST Procedure from ADSM.SAMPLIB

Configuring the TSO Administrative Client for Communications

The following sections provide you with the steps necessary to configure the TSO administrative client for TCP/IP.

Post Install-Link-Edit

The ANSTCPLK member of the ADSM.SAMPLIB contains a sample post-install job that adds the TCP/IP communications interfaces to the administrative client load module at link edit time. Modify this job and add it to your SYS1.PROCLIB.

The parameters you must update before running this job are the following:

- The job card parameters

- The DD statements necessary to reference libraries for the TCP/IP and C/370 products.

  If necessary, change the data set names of the SYSLIB DD statements to point to the correct libraries.

Figure 29 is a sample ANSTCPLK job with the job statement parameters added and the SYSLIB DD statement added to reference the C/370 run time and TCP/IP object libraries.

```
//ANSTCPLK JOB  ,MSGLEVEL=(1,1),MSGCLASS=H,CLASS=A,
//          REGION=8M
//LKED    EXEC PGM=IEWL
//*******************************************************************
//* Linkedit job to add the TCP/IP communication interfaces to the
//* TSO Admin Client load module -- ONLY NEEDED IF YOU ARE GOING TO
//* USE TCP/IP AS THE ADMIN CLIENT'S COMMUNICATION METHOD.
//*
//* Use your own names for the TCP/IP and C/370 Libraries below.
//*******************************************************************
//SYSLIB   DD  DSN=TCPIP.V3R1M0.SEZACMTX,DISP=SHR
//         DD  DSN=C370.V2R1M0.SEDCBASE,DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSUT1   DD  SPACE=(CYL,(5,5)),UNIT=SYSDA
//SYSLMOD  DD  DSN=SYS1.LINKLIB,DISP=SHR
//LINKLIB  DD  DSN=ADSM.AANSLOAD,DISP=SHR
//SYSLIN   DD  *
 INCLUDE SYSLIB(GTHSTBYN)
 INCLUDE SYSLIB(INET@ADD)
 INCLUDE SYSLIB(SOCKET)
 INCLUDE LINKLIB(ANSADM)
 SETCODE AC(0)
 MODE  AMODE(31),RMODE(ANY)
 ALIAS DSMADMC
 ENTRY SVMSTART
 NAME  ANSADM(R)
/*
//
```

Figure 29. Sample ANSTCPLK Job

Client Option File Setup

The ANSSMPOP member of the ADSM.SAMPLIB contains a sample client options file. Copy this file to ADSM.TSOADMIN.OPT.

1. For the COMMMETHOD option, specify **TCPIP**.

2. For the TCPSERVERADDRESS option, specify the internet address of the ADSM server.

   You can find the internet address in the TCPIP.HOSTS.LOCAL data set. The following example shows how the internet address appears in this data set.

   ```
   HOST : 9.115.3.241 : PC6DSM02 ::::
   ```

   The internet address identified is **9.115.3.241**.

   OR

   You can also find the internet address by entering the command **hometest** at the TSO prompt. The following example shows how the internet address appears in the resulting display.

   ```
   EZA0602I TCP Host Name is: STLMVS3.SANJOSE.IBM.COM
   ```

   The internet address identified is **STLMVS3.SANJOSE.IBM.COM**. This is an example of a TCP/IP Internet Domain Name that, when used instead of the dot address discussed in the previous example, is resolved by the server to the internet dot address.

3. For the TCPPORT option, specify the server port address that you must use to access the ADSM server.

   TCPIP, when installed, comes with a number of predefined ports. Contact your system administrator to determine which port has been assigned to the ADSM server.

For example, if the internet address of the server is **9.115.3.241** and the TCPPORT address is **1500**, then make the following entries in your client options file:

```
   .
COMMMETHOD              TCPip
TCPPort                 1500
TCPServeraddress        9.115.3.241
```

These are the only options that you are required to update. For a complete discussion of the administrative client options you can specify, see Chapter 8, "Setting Options for The Administrative Client" on page 161.

Starting and Verifying the TSO Administrative Client

If you used the ANSPROC member of the ADSM.SAMPLIB to install the TSO administrative client, enter the following at the TSO prompt:

```
dsmadmc
```

OR

If you used the CLIST procedure and you named it **adsmadm**, enter the following at the TSO prompt:

```
adsmadm
```

The ADSM administrative client command line interface appears and you are ready to begin processing ADSM administrative commands. For the administrative commands you can process, refer to the *ADSTAR Distributed Storage Manager for MVS: Administrator's Reference*.

Chapter 4. Setting Options for the MVS Server

ADSM provides you with a server options file which allows you to customize the following server activities:

- Communication protocols between the server and clients
- Client/server contact
- Date, number, time, and language format settings
- Database backup and recovery settings
- Message formatting
- Tape processing options
- Volume history information

Use this chapter to understand how to:

- Create the server options file
- Modify server options
- Request information about server options
- Shut down the server safely without seriously impacting client sessions

Creating the Server Options File

At installation, ADSM provides a sample server options file named ANRSMPOP in the ADSM.SAMPLIB. The file contains the format of the options file as well as all of the default settings.

To create the server options file, it is necessary to copy the ANRSMPOP member from the ADSM.SAMPLIB into a new data set. The name that you give this new data set must then be specified in the //DD OPT statement of the ADSM server startup JCL. You should have already completed this step by following the installation instructions in Chapter 2, "Basic Server Installation and Setup" on page 15. If you have not completed this step, you should refer to "Step 4. Creating and Modifying the Server Options File" on page 28.

At server start-up, the server reads the server options file. If you make any changes to the server options file, you must stop and start the server to activate the new settings. For information on how to properly stop the server, refer to "Stopping the Server without Impacting Client Sessions" on page 87.

Using Server Options

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.

```
DATEformat    1
```

DATEformat is an example of a keyword; it specifies the format by which dates are to be displayed by the server.

1 is an example of a value. It identifies the specific format to be used. When the value is set to 1, ADSM displays dates as MM/DD/YYYY.

When editing the server options file, follow these guidelines:

- To activate an option within the server options file, you must remove the * that appears prior to the option. Any options preceded by an * are ignored by the server. You do not have to remove the >>> characters to activate an option.

- 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.

Requesting Information about Server Options

To display the server's current options settings, enter the following command:

`Query OPTion`

Figure 30 shows the resulting display.

```
     Server Option      Option Setting      Server Option      Option Setting
     ----------------   --------------------  ----------------   --------------------
     CommTimeOut        120                 IdleTimeOut        20
     BufPoolSize        1024                LogPoolSize        128
     DateFormat         1 (mm/dd/yyyy)      TimeFormat         1 (hh:mm:ss
     NumberFormat       1 (1,000.00)        MessageFormat      1
     Language           AMENG               MaxSessions        25
     ExpInterval        1                   MirrorRead DB      Normal
     MirrorRead LOG     Normal              MirrorWrite DB     Sequential
     MirrorWrite LOG    Parallel            VolumeHistory      KENSERV.VOLume1
     Devconfig          KENSERV.device1
     CommOpenTimeOut    20                  TcpPort            1509
     TcpName            TCPIP               IcsPort            1500
     IcsSname           *NONE*              MsgSuppress        *NONE*
     LuName             *NONE*              Iucv               START
     RouteCode          11                  MsgHilight         *NONE*
```

Figure 30. Viewing Server Options

For information on issuing the QUERY OPTIONS command, see the *ADSM Administrator's Reference for MVS*.

Stopping the Server without Impacting Client Sessions

You can halt the server and stop all processing using the HALT command from the server console or from an administrative client.

You may choose to issue the HALT command when you want to update the server options file or when you need to apply maintenance.

When you stop the server using the HALT command, you shut down the server, terminating all server activity. This results in canceling all administrative and client node sessions, even if they are not complete. Any transactions that are in process when you issue the HALT command are canceled when you stop the server.

To avoid stopping backup and restore operations before they have completed, you should use the HALT command only after all administrative and client node sessions are completed or canceled. If all sessions are not completed, you can stop the server without severely affecting the active session by completing the following 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. (You must notify users outside of ADSM. For example, by phone.)

4. Use the CANCEL SESSION command to cancel any existing administrative or client node sessions.

5. Issue the HALT command to shut down the server and stop any administrative or client node sessions.

For information on the DISABLE, QUERY SESSIONS, CANCEL SESSION, AND HALT commands, refer to *ADSTAR Distributed Storage Manager for MVS: Administrator's Reference*.

Setting Communication Method Options

Five communication protocols are available to communicate with clients. Table 7 lists these protocols, the communication method option used to specify the protocol within the server options file, and the clients supported for the protocol.

Table 7 (Page 1 of 2). Supported Communication Methods for MVS ADSM Server

Communication Method	Options Specified	Supported Clients
3270 Emulation	LUNAME	DOS, OS/2, Windows
IUCV	IUCV	MVS TSO, VM CMS
APPC(SNALU6.2)	LUNAME	MVS TSO, OS/2, VM CMS, Novell NetWare, AIX
TCPIP	TCPNAME TCPPORT	DOS, MVS TSO, OS/2, VM CMS, Windows, Windows NT, all UNIX clients, Novell NetWare, Apple Macintosh

Table 7 (Page 2 of 2). Supported Communication Methods for MVS ADSM Server

Communication Method	Options Specified	Supported Clients
SNS/TCPaccess	ICSSNAME ICSPORT	DOS, MVS TSO, OS/2, VM CMS, Windows, Windows NT, all UNIX clients, Novell NetWare, Apple Macintosh

Summary of Server Options

The following tables list the server options, a brief explanation of each, and where in the Server Options Reference more information can be obtained. See "Server Options Reference" on page 91.

Communication Method Options

Each server must specify a communication method which is used between a client and the server. Table 8 displays the ADSM communication method options and the communication methods that each supports.

Table 8. Communication Method Options

Option	Description	Reference
IUCV	Specifies that the server supports clients using the inter-user communications vehicle (IUCV) communication method.	"IUCV" on page 95
LUNAME	Specifies the VTAM LU name to associate with an MVS server. This allows clients using SNA LU 6.2 or 3270 communication methods to connect with an MVS server.	"LUname" on page 98
TCPNAME	Specifies the address of TCP/IP. It allows clients using the TCP/IP communication method to connect with an MVS server.	"TCPName" on page 103
TCPPORT	Specifies the port number on which the TCP/IP communication driver is to wait for requests.	"TCPPort" on page 103
ICSSNAME	Specifies the SNS/TCPaccess subsystem name. It allows clients using TCP/IP to be routed through SNS/TCPaccess in order to communicate with an MVS server.	"ICSSName" on page 94
ICSPORT	Specifies the port number on which the ADSM Interlink SNS/TCPaccess communication driver is to wait for requests.	"ICSPort" on page 94

Client-Server Options

The options identified in Table 9 on page 89 set the length of time the server waits for communication with an active or idle client, limit the number of simultaneous client sessions with each server, set the terms of the ADSM license agreement, and set the interval between file inventory expiration runs.

Table 9. Client-Server Options

Option	Description	Reference
COMMOPENTIMEOUT	Specifies the number of seconds the server waits for a response from a client when the server is initiating the communication. (such as Server-prompted scheduling)	"COMMOpentimeout" on page 91
COMMTIMEOUT	Specifies the number of seconds the server waits for a response from a client before timing out the client session.	"COMMTimeout" on page 92
EXPINTERVAL	Specifies the interval in hours between automatic inventory expiration runs by the ADSM server.	"EXPINterval" on page 93
IDLETIMEOUT	Specifies the number of minutes the server allows a client session to remain idle before timing out the client session.	"IDLETimeout" on page 95
LICENSE	Specifies the terms of the ADSM license agreement in concurrence with the terms of the actual license that you purchased.	"LICENSE" on page 96
MAXSESSIONS	Specifies the maximum number of simultaneous client sessions with the server.	"MAXSessions" on page 98
TXNGROUPMAX	Specifies the number of files that are transferred as a group between a client and the server between transaction commit points.	"TXNGroupmax" on page 104

Date, Number, Time, and Language Options

The options identified in Table 10 specify display formats for the dates, times, numbers, and national language.

Table 10. Date, Number, Time, and Language Options

Option	Description	Reference
DATEFORMAT	Specifies the format by which dates are displayed.	"DATEformat" on page 92
LANGUAGE	Specifies which national language is used to present server messages.	"LANGuage" on page 96
NUMBERFORMAT	Specifies the format by which numbers are displayed.	"NUMberformat" on page 102
TIMEFORMAT	Specifies the format in which times are displayed.	"TIMEformat" on page 103

Database and Recovery Log Options

The options in Table 11 on page 90 are used for tailoring the size of the database and recovery log buffer, and for specifying how mirrored volumes are accessed when the server reads pages from or writes pages to the recovery log or data base during normal processing. They also specify files to be updated when server volume history or device configuration information changes.

Table 11. Database and Recovery Log Options

Option	Description	Reference
BUFPOOLSIZE	Specifies the size of database buffer pool in kilobytes (KB).	"BUFPoolsize" on page 91
DEVCONFIG	Specifies a file in which you want ADSM to store backup copies of device configuration information.	"DEVCONFig" on page 93
LOGPOOLSIZE	Specifies the size of recovery log buffer pool in kilobytes (KB).	"LOGPoolsize" on page 97
MIRRORREAD	Specifies how mirrored volumes are to accessed when the server reads a recovery log or database page during normal processing.	"MIRRORRead" on page 99
MIRRORWRITE	Specifies how mirrored volumes are to accessed when the server writes pages to the recovery log or database during normal processing.	"MIRRORWrite" on page 99
VOLUMEHISTORY	Specifies the name of a file or a data set in which you want ADSM to store a backup copy of the volume history information collected by the server.	"VOLUMEHistory" on page 105

Message Options

Message options in Table 12 provide you with more flexibility in the way the ADSM server issues messages to the operator console. You can highlight messages, suppress messages, or specify a different routing code for messages. The options do not affect messages issued before the options file is read, or the terminating message is issued by ADSM. These messages use the MVS defaults.

Table 12. Message Options

Option	Description	Reference
MSGHIGHLIGHT	Specifies the message level to be highlighted.	"MSGHIghlight" on page 100.
MSGSUPPRESS	Specifies the message level to be suppressed.	"MSGSUppress" on page 101.
MESSAGEFORMAT	Specifies whether or not a message number is displayed in all lines of a multi-line message.	"MESsageformat" on page 101
ROUTECODE	Specifies the routing code for ADSM messages.	"ROUTECode" on page 102.

Tape Options

Tape options allow you to integrate the ADSM server's tape processing into your installation's tape procedures.

Table 13. Tape Options

Option	Description	Reference
DELETIONEXIT	Specifies an exit machine, user ID, or user exit when ADSM deletes a tape volume.	"DELetionexit" on page 93

Server Options Reference

This section lists the server options in alphabetical order and for each option, lists the following:

- syntax
- parameters
- examples

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 ADSM requires fewer input/output operations to data storage. However, a large buffer pool also requires more memory.

Syntax

```
►►──BUFPoolsize──kilobytes──────────────────────────────────►◄
```

Parameters

kilobytes

Specifies the size of the database buffer pool. The default value is 512KB. The minimum value is 256KB. The maximum value is limited only by available virtual memory size.

Examples

```
BUFPoolsize    512
BUFP           256
```

COMMOpentimeout

Specifies the maximum number of seconds the 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.

Syntax

```
►►──COMMOpentimeout──seconds──────────────────────────────────►◄
```

Parameters

seconds

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

Examples

```
COMMOpentimeout    20
COMMO              60
```

COMMTimeout

Specifies the maximum number of seconds the 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.

Syntax

```
►►──COMMTimeout──seconds──────────────────────────────────►◄
```

Parameters

seconds

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

Examples

```
COMMTimeout    60
COMMT          120
```

DATEformat

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

Syntax

```
►►──DATEformat──number──────────────────────────────────────►◄
```

Parameters

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

Examples

```
DATEformat 4
```

DELetionexit

Specifies a user exit or user ID that notifies a tape management system when a tape volume is deleted from the database.

Syntax

```
►►──DELetionexit──mvs_name_only──────────────────────────────►◄
```

Parameters

mvs_name_only
>   Specifies a 1-to-8 character user exit or user ID, which is notified when a tape volume is deleted from the database on an MVS server.

Examples

```
DELetionexit  DSMrmm
```

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.

The information ADSM stores in the device configuration file includes the device class definitions created using the DEFINE DEVCLASS command. You can include one or more DEVCONFIG options in the server options file. When you use multiple DEVCONFIG options, ADSM automatically updates and stores a backup copy of device configuration information in each file you specify.

Syntax

```
►►──DEVCONFig──file_name──────────────────────────────────►◄
```

Parameters

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

Examples

```
DEVCONFig   'ADSM.DEVCONF1.DATA'
DEVCONF     'ADSM.DEVCONF2.DATA'
```

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 will automatically run inventory expiration each hour (the interval is 1 hour between automatic expiration runs).

You can also use the EXPIRE Inventory command to start inventory expiration. Expiration can make 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.

Syntax

```
►►──EXPINterval──hours───────────────────────────────────────────────►◄
```

Parameters

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).

Examples

```
EXPINterval  5
EXPIN        0
```

ICSSName

Specifies the name of the SNS/TCPaccess subsystem. Before starting the ADSM server, make sure that Interlink SNS/TCPaccess is started. If SNS/TCPaccess is not started, the server attempts to establish contact with SNS/TCPaccess every minute. As a result, you do not have to stop and restart the server to establish contact but only issue the start up command. If you do not specify this option, the server does not try to establish contact with SNS/TCPaccess.

The server displays the ANR5092E message after each of the first seven unsuccessful attempts to contact SNS/TCPaccess, advising you that contact has not been made. After the seventh attempt, the message is suppressed.

Syntax

```
►►──ICSSName──subsystemname─────────────────────────────────────────►◄
```

Parameters

subsystemname

Specifies the name of the SNS/TCPaccess subsystem. The Interlink default value is ACSS. You can find the SNS/TCPaccess subsystem name specified in the SSN parameter in the SNS/TCPaccess startup JCL. You can find this JCL in SYS1.PROCLIB.

Examples

```
ICSSName   ACSS
```

ICSPort

Specifies the port number on which the ADSM Interlink SNS/TCPaccess communication driver is to wait for requests.

Syntax

```
►►──ICSPort──portnumber───────────────────────────────────►◄
```

Parameters

portnumber
> Specifies the port address of the server. The default value is 1500.

Examples

```
ICSPort   1502
```

IDLETimeout

Specifies the amount of time, in minutes, that a server waits for a client to initiate communication. If the client does not initiate communication with the server within the time frame specified, the client session is terminated. If the client requests services after the session has been terminated, the server automatically reconnects the client.

Syntax

```
►►──IDLETimeout──minutes───────────────────────────────────►◄
```

Parameters

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

Examples

```
IDLETimeout 15
IDLET       30
```

IUCV

Specifies whether the server supports the inter-user communication vehicle (IUCV) to communicate with administrative clients in the same system.

Syntax

```
►►──IUCV──┬──*NONE*──┬──────────────────────────────────────►◄
          └──START───┘
```

Parameters

NONE
> Specifies that administrative clients in the same system will not be able to connect to the server using the communication method IUCV. This is the default.

START
> Specifies that the MVS server should start the IUCV communication driver.

> **Note:** When you specify START, make sure the following TCP/IP jobs are active on your MVS system prior to starting the ADSM server:

```
                    TCPIP
                    VMCF
                    TNF
```

These are the names of the jobs as distributed with the TCP/IP
product. If the names were changed during installation, you must
determine the new names and make sure the jobs have been started.

Examples
```
IUCV START
IUCV *NONE*
```

LANGuage

Specifies the national language used to present server messages. Currently, only
American English is supported.

Syntax

```
►►──LANGuage──language──────────────────────────────────────────────────►◄
```

Parameters
language

Specifies the language to use for client messages. AMENG is the default.

Examples
```
LANG    AMENG
```

LICENSE

Specifies the terms of the ADSM license agreement in concurrence with the terms
of the actual license that you purchased.

Syntax

```
►►──LICense──┬─CLIENTS──number────────┬──────────────────────────────────►◄
             ├─UNIX───────────────────┤
             ├─DESKTOP────────────────┤
             ├─OPENEDITION────────────┤
             ├─SPACEMGMT──────────────┤
             ├─DEVICEMOD3─────────────┤
             ├─DEVICEMOD4─────────────┤
             └─SECONDARYSERVERATTACH──┘
```

Parameters
CLIENTS *number*

Specifies the maximum number of registered backup-archive clients that the
server is licensed to support.

UNIX

Specifies that the server is licensed to support UNIX clients.

DESKTOP

Specifies that the server is licensed to support Apple Macintosh, DOS, Micro-
soft Windows, Novell NetWare, and OS/2 clients.

OPENEDITION

Specifies that the server is licensed to support OpenEdition MVS clients.

SPACEMGMT

Specifies that the server is licensed to support HSM space managed clients.

DEVICEMOD3

Specifies that the server is licensed to support Device Support Level 3.

DEVICEMOD4

Specifies that the server is licensed to support Device Support Level 4.

SECONDARYSERVERATTACH

Specifies that the server is licensed to support the attachment of an additional server to an existing library in Device Support Level 4.

When these statements are specified in the server options file, the ADSM server enforces compliance within the terms specified.

You can specify the LICENSE option more than once. However, when you specify the license option more than once with the same parameter, the license manager uses the last entry in the options file to manage license terms. If you do not specify the LICENSE option in the server options file, the default is one OS/2 client, Device Support Level 1, and Device Support Level 2.

You can issue the QUERY LICENSE command to obtain information on your current license option settings.

Examples

```
LICense CLIENTS 50
LICense UNIX
LICense SPACEMGMT
LICense DEVICEMOD4
```

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.

Syntax

```
►►──LOGPoolsize──kilobytes───────────────────────────────►◄
```

Parameters

kilobytes

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

Examples

```
LOGPoolsize     128
```

LUname

Specifies the VTAM LU name associated with the MVS server.

When logging on to the terminal specified by the 3270LOGICALTERMINALID option in the client options file, clients using the 3270 communication method may connect to the server by specifying the logical unit name as the application ID (APPLID). For information on setting the 3270LOGICALTERMINALID option in the client options file, see "3270Logicalterminalid" on page 170.

These clients may enter the logon command as the value for the 3270HOSTCOMMAND option. The syntax of the logon command is LOGON APPLID(LUname). For information on setting the 3270HOSTCOMMAND option in the client options file, see "3270HOSTCOmmand" on page 168.

Clients using the SNALU6.2 communication method may connect to the server by specifying the logical unit name as the value of the PARTNERLUNAME option.

If a symbolic destination name is used, the logical unit name may be specified as the value of the PARTNER_LU keyword in a side information data set.

If you set the logical unit to *NONE*, the server does not operate as a VTAM application. Clients using the 3270 or SNALU6.2 communication methods will not be able to communicate with this MVS server.

Syntax

```
►►──LUname──vtamname───────────────────────────────────────────►◄
```

Parameters

vtamname

Specifies a 1-to-8 character APPLID name used in the VTAM definition statement associated with the server. The default value is ADSMLU (ADSM.LU is not valid). If you specify *NONE*, the server does not operate as a VTAM application.

Examples

```
LUname    ADSMLU
```

MAXSessions

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

Syntax

```
►►──MAXSessions──numsessions──────────────────────────────────►◄
```

Parameters

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.

Examples

```
MAXSessions  25
```

MIRRORRead

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

Syntax

```
►►──MIRRORRead──=──┬─LOG─┬──┬─Normal─┬──────────────────────────────────►◄
                   └─DB──┘  └─Verify─┘
```

Parameters

LOG
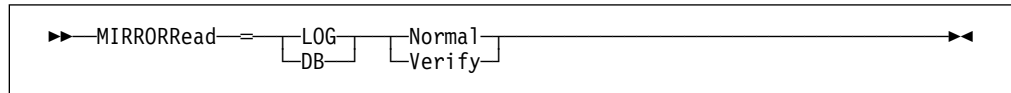
specifies that this is the mode to be used for reading recovery log pages

DB

specifies that this is the mode to be used for reading database pages

Normal

specifies only one mirrored volume is read to obtain the desired page. This is the default.

Verify

specifies that the server read 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 re-synchronized with valid contents from another mirror volume. This mode decreases server performance since each mirror volume for the page is accessed on every read.

Examples

```
MIRRORRead LOG NORMAL
MIRRORRead DB  NORMAL
```

These are the default settings.

MIRRORWrite

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

Syntax

```
►►──MIRRORWrite──=──┬─LOG─┬──┬─Sequential─┬──────────────────────────────►◄
                    └─DB──┘  └─Parallel───┘
```
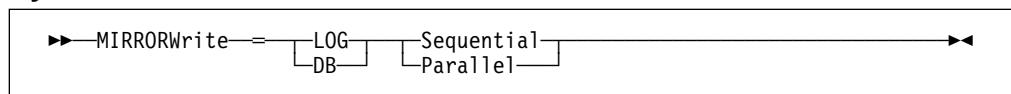
Parameters

LOG
> specifies that this is the mode to be used for writing recovery log pages

DB
> specifies that this is the mode to be 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 could result.

Examples

```
MIRRORWrite LOG PARALLEL
MIRRORWrite DB  SEQUENTIAL
```

These are the default settings.

MSGHIghlight

Specifies the message level for highlighting. ADSM uses the MVS WTO facility to display server messages. (Highlighting is done using descriptor code 11.) You can highlight messages based on their severity - ANRxxxxs, where s is severity and can be I,W,E,D and S. For a description of these severity codes, refer to *ADSTAR Distributed Storage Manager: Administration Messages for MVS*. Highlighting does not affect response to console commands. Highlighted messages must be manu-ally removed from the display screen. ADSM does not issue a DOM macro to delete them. Caution should be used in selecting the level of highlighting to avoid filling the display screen with non-critical messages. See *MVS/ESA SP V5 Routing and Descriptor Codes*, (GC28-1487) for more information on the use of descriptor code 11.

Syntax

```
►►──MSGHIghlight──number────────────────────────────►◄
```

Parameters

number
> Select a number to identify the lowest message level to be highlighted. The default value is 0.

> **0**   No messages are highlighted.

> **1**   All I,W,E,D and S messages are highlighted.

> **2**   All W,E,D and S messages are highlighted.

> **3**   All E,D and S messages are highlighted.

4 All S messages are highlighted.

Examples
```
MSGHIlight 4
```

MSGSUppress

Specifies the message level for suppression. Message suppression is done based on the severity of the message - ANRxxxxs, where s is severity and can be I,W,E,D and S. Suppression does not affect response to console commands or the contents of the activity log. Message suppression is limited to Warning and below.

Syntax

```
►►──MSGSUppress──number─────────────────────────────────────►◄
```

Parameters
number

Select a number to identify the highest message level to be suppressed. The default value is 0.

0 No messages are suppressed.

1 All I messages are suppressed.

2 All I and W messages are suppressed.

Examples
```
MSGSUppress 1
```

MESsageformat

Specifies whether or not a message number is displayed in all lines of a multi-line message.

Syntax

```
►►──MESsageformat──number───────────────────────────────────►◄
```

Parameters
number

Select a number to specify if a message number is to be displayed only on the first line of a multi-line message or is to be displayed on all lines. The default value is 1.

1 The message number for a message is displayed only at the first line of the message.

2 The message number for a message is displayed at all lines of a message.

Examples

```
MESsageformat    2
```

NUMberformat

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

Syntax

```
►►──NUMberformat──number──────────────────────────────────────►◄
```

Parameters

number

Select a number from 1 to 6 to identify the number format used by the 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

Examples

```
NUMberformat 4
```

ROUTECode

Specifies the routing code for ADSM messages. ADSM uses the MVS WTO facility for routing server messages.

Syntax

```
►►──ROUTECode──number──────────────────────────────────────────►◄
```

Parameters

number

Select a number to identify the routing code to be used. The minimum value is 1 and the maximum value is 12.

The default is 11. Explanations of the routing codes can be found in *MVS/ESA SP V5 Routing and Descriptor Codes*, (GC28-1487).

Examples

```
ROUTECode 10
```

TCPName

This is the name of the started address space for TCP/IP. Before starting the ADSM server, make sure the following TCP/IP jobs, which includes the TCP/IP address space, have been started.

> TCPIP
> VMCF
> TNF

> (These are the names of the jobs as distributed with the TCP/IP product. If the names were changed during installation, you must determine the new names and make sure the jobs have been started.)

If you enter *NONE*, ADSM does not start the TCP/IP communication protocol, and clients using TCP/IP cannot contact this server.

Syntax

```
►►──TCPName──userid──────────────────────────────────────────────►◄
```

Parameters
userid
> This is the name of the started address space for TCP/IP. The default value is TCPIP. If you enter *NONE*, ADSM does not start the TCP/IP communication protocol.

Examples
```
TCPName    TCPIP
TCPName    *NONE*
```

TCPPort

Specifies the port number on which the server's TCP/IP communication driver is to wait for requests.

Syntax

```
►►──TCPPort──portnumber───────────────────────────────────────────►◄
```

Parameters
portnumber
> Specifies the port address of the server. The default value is 1500.

Examples
```
TCPPort   1504
```

TIMEformat

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

Syntax

```
►►──TIMEformat──number──────────────────────────────────────────────►◄
```

Parameters

number

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

1	23:00:00
2	23,00,00
3	23.00.00
4	12:00:00A/P

Examples

```
TIMEformat 4
```

TXNGroupmax

Specifies the number of files that are transferred as a group between a client and the server between transaction commit points. You can improve the performance of the backup-archive client BACKUP, ARCHIVE, RESTORE, and RETRIEVE commands by using a larger value for this option.

The minimum value is 4 files and the maximum value is 256 files. The default value is 16 files. The files transferred for the above commands are either actual files, directories, or both. ADSM counts each file and each directory as one file.

This option is related to the TXNBYTELIMIT option in the client options file. TXNBYTELIMIT controls the number of bytes, as opposed to files, that are transferred in a group of files between transaction commit points. At the completion of transferring a file, the client commits the transaction if the number of bytes transferred during the transaction reaches or exceeds the value of TXNBYTELIMIT, regardless of the number of files transferred.

Syntax

```
►►──TXNGroupmax──numfiles────────────────────────────────────────────►◄
```

Parameters

numfiles

Specifies a number from 4 to 256 for the maximum number of files per transaction. The default is 16.

Examples

```
TXNGroupmax  50
```

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.

Information stored in a volume history backup file includes the following:

- 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 server options file. When you use multiple VOLUMEHISTORY options, ADSM automatically stores and updates a backup copy of volume history information in each file.

Syntax

```
►►──VOLUMEHistory──name──────────────────────────────────────►◄
```

Parameters

name
> Specifies the name of the files that should be updated.

Examples

```
VOLUMEHistory 'ADSM.SERV1.HIST1'
VOLUMEH 'ADSM.SERV1.HIST2'
```

Chapter 5. Providing Basic Storage Management Services

Once you have completed the server installation as discussed in Chapter 2, "Basic Server Installation and Setup" on page 15, you will want to provide basic storage management services to workstation users so that they can begin backing up and archiving files to the server. This chapter explains how you can provide these basic storage management services. (For information about advanced storage management services, refer to *ADSTAR Distributed Storage Manager for MVS: Administrator's Reference*.) Some of the information provided in the first part of this chapter is also discussed in Chapter 2, "Basic Server Installation and Setup" on page 15. However, this chapter discusses this information again in order to provide a complete scenario for implementing basic storage management services.

Use this chapter to understand how to:

- Perform start-up tasks
- Register administrative and client nodes with the server
- Verify the client/server environment

Start-Up Tasks

After the server program has been installed, you can start the server from a server console. From the server console, you can then enter administrative commands to initiate the following basic-start up tasks:

1. Starting the server
2. Naming the server
3. Verifying the installation of the data base
4. Verifying the installation of the recovery log
5. Preparing storage pools for backup and archive files
6. Registering and authorizing an initial system administrator

Step 1: Starting the Server and Entering Administrative Commands

Start the server by issuing a start command from the operator console or by submitting a batch job. To issue a start command, complete the following steps:

1. Update SYS1.PROCLIB to contain a JCL member used to start the ADSM program. Figure 31 on page 108 displays a sample system procedure library member that identifies the following data sets:

    ADSM load module
    Service virtual machine (SVM) run-time library
    SAA AD/Cycle Language Environment/370 or C/370 run-time library
    Server options file
    Messages file
    Error log

    Note: The ADSM load module, SVM run-time library, and C/370 run-time library must all be APF authorized data sets.

```
//ADSM    PROC
//SERVER  EXEC PGM=DSMSERV,PARM='',DYNAMNBR=300,TIME=1440,
//        REGION=40M
//OPT     DD DSN=ADSM.ANRSERV.OPTIONS,DISP=SHR
//DSMAMENG DD DSN=ADSM.SANRMSG(ANRENU),DISP=SHR
//DSK     DD DSN=ADSM.DISKLOG,DISP=SHR
//SYSPRINT DD SYSOUT=H
//SYSTERM  DD SYSOUT=H
//        PEND
```

Figure 31. Example of the ADSM Procedure in SYS1.PROCLIB

2. Start the ADSM procedure by entering:

```
S ADSM
```

ADSM displays the following information when the server is started:

- Product licensing and copyright information
- Processing information about the server options file
- Database and recovery log information
- Communication protocol information
- Storage volume information

After the server has started, you can enter administrative commands from a MVS operator console or from a TSO session running the Spool Display and Search Facility (SDSF) program.

Issuing Commands from the MVS Operator Console

To issue server commands from the MVS operator console, use the MVS MODIFY command. To use the MVS MODIFY command, enter F ADSM, followed by the server command. For example, to register an administrator named Bob with the password of *secretpw*, enter:

```
F ADSM,REGister Admin bob secretpw CONtact='Bob'
```

Issuing Commands from an MVS TSO Session Running JES2

To issue server commands from a TSO session, use the LOG option of the SDSF program. For example, to request information about registered administrators, enter:

```
/F ADSM,Query ADmin *
```

Issuing Commands from an MVS TSO Session Running JES3

To issue server commands from a TSO session, use the LOG option of the SDSF program. For example, to grant system authority to the administrator named BOB, enter:

```
/F ADSM,GRant AUTHority bob CLasses=SYstem
```

After the server is running, you can manage the daily operations of the server from a TSO administrative session. See "Installing the TSO Administrative Client" on page 158 for information on setting up a TSO administrative client.

Step 2: Naming the Server

To identify the server, you must name the server. Naming the server is useful if you run multiple servers to balance the workload at large installations.

For example, to name the server used by your engineering department DSM_ENGINEER, enter:

```
Set SERVername DSM_ENGINEER
```

This name is displayed to any client that accesses this server.

Step 3: Verifying the Installation of the Database

During installation, you allocate space for the database by defining the VSAM linear data sets to be used by the database.

To verify the installation of the database, complete the following steps:

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

```
Query DB
```

The server displays a report, similar to Figure 32, which shows the amount of space allocated to the database at installation. In this example, 20MB of space is available for use by the database.

```
Available Assigned   Maximum   Maximum     Page      Total      Used %Util  Max.
   Space Capacity Extension Reduction     Size      Pages     Pages        %Util
    (MB)     (MB)      (MB)      (MB) (bytes)
--------- -------- --------- --------- ------- --------- --------- ----- -----
      20       20         0        16   4,096     5,120        67   1.3   1.3
```

Figure 32. Information about the Database

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

```
Query DBVol
```

The server displays a report, similar to Figure 33 on page 110, which lists the
VSAM linear data sets defined at installation. This example shows that a
VSAM linear data set named ADSM.DB 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
----------------   ------  ----------------   ------  --------------  ------
ADSM.DB            Sync'd                     Undef-                  Undef-
                                              ined                    ined
```

Figure 33. The MVS Volumes Defined to the Database

Step 4: Verifying the Installation of the Recovery Log

At installation, a system programmer allocates space for the recovery log by
defining VSAM linear data sets to be used by the recovery log.

To verify the installation of the recovery log, complete the following steps:

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

```
Query LOG
```

The server displays a report, similar to Figure 34, which displays the amount of
space available for use by the recovery log. In this example, 12 MB of space
is available for use in the recovery log.

```
Available Assigned   Maximum    Maximum     Page     Total      Used %Util  Max.
    Space Capacity Extension Reduction     Size     Pages      Pages        %Util
     (MB)     (MB)      (MB)      (MB)  (bytes)
--------- -------- --------- --------- ------- --------- --------- ----- -----
       12       12         0         8    4,096     3,072        68   2.2   2.2
```

Figure 34. Information about the Recovery Log

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

```
Query LOGVol
```

The server displays a report, similar to Figure 35 on page 111, which lists the
VSAM linear data sets defined at installation. This example shows that a
VSAM linear data set named ADSM.RL has been defined as a recovery log
volume.

```
Volume Name       Copy    Volume Name       Copy    Volume Name       Copy
(Copy 1)          Status  (Copy 2)          Status  (Copy 3)          Status
----------------  ------  ----------------  ------  ----------------  ------
ADSM.RL           Sync'd                    Undef-                    Undef-
                                             ined                      ined
```

Figure 35. The MVS Volumes Defined to the Recovery Log

Step 5: Preparing Storage Pools for Backup and Archive Files

During installation, a system programmer allocates VSAM linear data sets to be used as storage pool volumes. 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 steps:

1. Request information about the predefined storage pools by entering:

```
Query STGpool
```

The server displays a report, similar to Figure 36, which shows the predefined disk storage pools for backed up or archived files.

```
Storage      Device     Estimated  %Util  %Migr  High  Low  Next
Pool Name    Class      Capacity                 Mig%  Mig% Storage
                        (MB)                                 Pool

-----------  ---------- ---------- -----  -----  ----  ---- -----------
ARCHIVEPOOL  DISK            0.0    0.0    0.0    90    70
BACKUPPOOL   DISK            0.0    0.0    0.0    90    70
```

Figure 36. Information about the Predefined Storage Pools

2. Allocate and pre-format a VSAM linear data set using the ANRFMT or ANRFMT2 job from ADSM.SAMPLIB. For information on using these jobs, refer to "Allocating and Pre-Formatting New Volumes" on page 47.

3. Assign the VSAM linear data set created in the previous step to a storage pool.

   For example, to assign a VSAM data set, named ADSM.STORAGE.POOL001, as a volume to the backup storage pool, enter:

```
DEFine Volume backuppool adsm.storage.pool001
```

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

```
Query Volume *
```

The server displays a report, similar to Figure 37 on page 112, which lists the storage pool volumes defined to each storage pool. In this example, one

volume has been assigned to the predefined backup storage pool, and one
volume has been assigned to the predefined archive storage pool.

```
┌─────────────────────────────────────────────────────────────────────────┐
│                                                                           │
│   Volume Name               Storage     Device     Estimated  %Util   Volume   │
│                             Pool Name   Class      Capacity           Status   │
│                                                    (MB)                         │
│                                                                           │
│   ------------------------  -----------  ----------  ---------  -----  --------  │
│   ADSM.STORAGE.POOL001      BACKUPPOOL   DISK            32.0    0.0  On-Line   │
│   ADSM.STORAGE.POOL002      ARCHIVEPOOL  DISK            32.0    0.0  On-Line   │
│                                                                           │
└─────────────────────────────────────────────────────────────────────────┘
```

Figure 37. The Volumes Assigned to Storage Pools on MVS

This example shows the use of storage pool volumes with the device class of
DISK. You may find that you can achieve a better balance of storage cost and
performance by using tape storage, in addition to disk storage, as part of your
storage hierarchy. For a complete description of server support for disk and tape
storage volumes, see *ADSTAR Distributed Storage Manager for MVS:
Administrator's Guide.*

Step 6: Registering a System Administrator

From the server console, ADSM provides you with a special administrator user ID
named SERVER_CONSOLE. At installation, the SERVER_CONSOLE user ID is
automatically registered as an administrator and is given system authority. Initially,
you must use the SERVER_CONSOLE user ID to register and grant system privi-
lege to another administrator.

After another administrator is registered and granted system privilege, you have the
option of reducing the authority of the SERVER_CONSOLE user ID to limit access
to ADSM administrative functions from the server console. For information on how
to reduce the authority of the SERVER_CONSOLE, refer to "Step 11. Limiting the
SERVER_CONSOLE ID" on page 47.

To register at least one administrator with system privilege, complete the following
steps:

1. Register an administrator. For example, to register Bob as an administrator,
   enter:

```
REGister Admin bob secretpw CONtact='Bob'
```

2. Authorize the administrator system privilege. For example, to grant the admin-
   istrator BOB system privilege, enter:

```
GRant AUTHority bob CLasses=SYstem
```

3. Verify that the administrator you registered has been authorized with system
   privilege. For example, to verify that Bob has been registered as an adminis-
   trator and granted system privilege, enter:

```
Query ADmin bob
```

The server displays a report, similar to Figure 38, which identifies that Bob has been registered as an administrator and granted system privilege.

```
Administrator      Days Since    Days Since   Locked?   Privilege Classes
Name               Last Access   Password Set
--------------     ------------  ------------ ---------- -----------------------
BOB                        <1            <1     No       System
```

Figure 38. Information about Registered and Authorized Administrators

Registering Administrators and Client Nodes with the Server

After you have completed the start-up tasks, you are ready to register administrators and client nodes with the server using the following steps:

1. Registering additional administrators
2. Invoking standard storage policies
3. Registering client nodes

When you register a client node, you must assign it to a policy domain. Before you register client nodes with the server, request information about the standard policy definitions provided at installation. In many instances, you might find the STANDARD policy domain to be appropriate.

Step 1: Registering Additional Administrators

If you have a small installation with users who have very 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. Then authorize each administrator with one or more administrative privilege classes.

Once users are registered as administrators, they can monitor and control the server from any computer on which the administrative client program has been installed. See *ADSTAR Distributed Storage Manager for MVS: Administrator's Guide* for information to help you distribute administrative tasks to more than one user.

For example, assume that you want to distribute administrative tasks among two administrators:

- One administrator is responsible for managing ADSM across the enterprise.

  In our example, the initial administrator is registered and authorized with system privilege from the server console. See "Step 6: Registering a System Administrator" on page 112 for information.

- A second administrator is responsible for the daily operation of the system; for example, starting or stopping the server, managing the database and recovery log, or managing disk and tape storage.

To register and authorize the second administrator, complete the following tasks:

1. Register the administrator. For example, to register Mike with the password *pw2secret*, enter:

```
REGister Admin mike pw2secret
```

   Mike is now registered as an administrator and can complete a limited set of tasks, such as querying the server to view information.

2. Grant storage and operator privileges to the administrator Mike, so that he has the authority to manage daily operations by entering:

```
GRant AUTHority mike CLasses=STorage,Operator
```

   Now MIKE has unrestricted storage privilege for all disk or tape storage pools. He also has authority for managing the database and recovery log. With operator privilege, the administrator MIKE is able to control the operation of the server and manage tape operations.

3. Request a detailed report about registered administrators by entering:

```
Query ADmin * Format=Detailed
```

The server displays a detailed report, as shown in Figure 39 on page 115. This report shows that the SERVER_CONSOLE administrator ID has been used to register the first system administrator, named BOB. Then Bob is able to register a second administrator, named MIKE, with storage and operator privileges.

```
        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: 12/08/1994 19:25:06
Registering Administrator:


        Administrator Name: BOB
   Last Access Date/Time: 12/08/1994 19:49:46
  Days Since Last Access: 1
   Password Set Date/Time: 12/08/1994 19:49:31
  Days Since Password Set: 1
                 Locked?: No
                 Contact: Bob
        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: 12/08/1994 19:49:31
Registering Administrator: SERVER_CONSOLE


        Administrator Name: MIKE
   Last Access Date/Time: 12/09/1994 14:55:16
  Days Since Last Access: <1
   Password Set Date/Time: 12/09/1994 14:55:16
  Days Since Password Set: <1
                 Locked?: No
                 Contact:
        System Privilege:
        Policy Privilege:
       Storage Privilege: ** Unrestricted **
       Analyst Privilege:
      Operator Privilege: Yes
       Registration Date: 12/09/1994 14:55:16
Registering Administrator: BOB
```

Figure 39. Viewing a Detailed Report of Registered Administrators

See *ADSTAR Distributed Storage Manager for MVS: Administrator's Guide* for
information about registering administrators.

Step 2: Invoking Standard Storage Policies

If your storage management policy needs are not complex, use the standard policy
objects to provide initial storage management services to your workstation users.

At installation, ADSM provides a policy domain, policy set, management class, and
copy group as shown in Figure 40 on page 116. Each policy object is stored on
the server and named STANDARD.
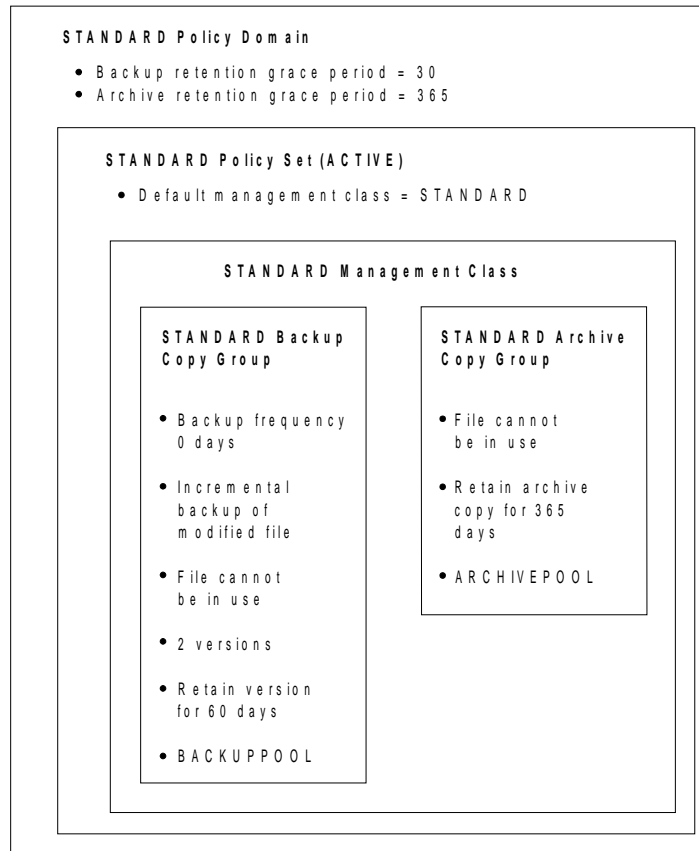
Figure 40. Standard Policy Definitions Provided at Installation

You can register client nodes to the policy domain named STANDARD. All files backed up or archived from those client nodes are governed by the policies defined in the standard backup copy groups and archive copy groups belonging to standard management class in the active policy set.

If your users have diverse storage management needs, you can tailor these standard policy definitions as described in *ADSTAR Distributed Storage Manager for MVS: Administrator's Guide*.

Requesting Information About the Standard Policy Domain

To request information about the STANDARD policy domain, enter:

```
Query DOmain standard Format=Detailed
```

The server displays a detailed report, as shown in Figure 41 on page 117.

```
              Policy Domain Name: STANDARD
              Activated Policy Set: STANDARD
              Activation Date/Time: 12/08/1994 19:25:06
             Days Since Activation: 1
      Activated Default Mgmt Class: STANDARD
         Number of Registered Nodes: 0
                       Description: Installed default policy domain.
   Backup Retention (Grace Period): 30
  Archive Retention (Grace Period): 365
     Last Update by (administrator): SERVER_CONSOLE
              Last Update Date/Time: 12/08/1994 19:25:06
```

Figure 41. A Detailed Report of the STANDARD Policy Domain

This report shows that the standard policy domain contains a policy set and default management class named STANDARD. At this time, no client nodes have been registered to the policy domain.

The retention grace periods are used if the server is unable to bind a file to an appropriate management class. The management class contains the backup copy groups and archive copy groups that govern how workstation files are to be managed by the server.

For information about assigning client nodes to a policy domain, see *ADSTAR Distributed Storage Manager for MVS: Administrator's Guide*.

Requesting Information about the Standard Management Class

The standard management class contains a backup copy group named STANDARD and an archive copy group named STANDARD. When the STANDARD management class is associated with a file, the parameters defined in the copy groups are used to govern backed up or archived files in data storage. If these copy groups meet most storage management needs, register client nodes to the standard policy domain.

To request information about the STANDARD management class in the ACTIVE policy set, enter:

```
Query MGmtclass standard active standard Format=Detailed
```

You can get the same output if you enter:

```
Query MGmtclass Format=Detailed
```

The server displays a detailed report, similar to Figure 42 on page 118.

```
                 Policy Domain Name: STANDARD
                   Policy Set Name: ACTIVE
                  Mgmt Class Name: STANDARD
              Default Mgmt Class ?: Yes
                       Description: Installed default management class.
        Space Management Technique: None
            Auto-Migrate on Non-Use: 0
          Migration Requires Backup?: Yes
              Migration Destination: SPACEMGPOOL
   Last Update by (administrator): SERVER_CONSOLE
              Last Update Date/Time: 01/19/1995 08:53:50
```

Figure 42. A Detailed Report of the STANDARD Management Class

Understanding the Standard Backup Copy Group

To request detailed information about the STANDARD backup copy group in the
STANDARD management class in the ACTIVE policy set in the STANDARD policy
domain, enter:

```
Query COpygroup standard active standard standard Format=Detailed
```

You can get the same output if you enter:

```
Query COpygroup Format=Detailed
```

The server displays a detailed report, similar to Figure 43.

```
                 Policy Domain Name: STANDARD
                   Policy Set Name: ACTIVE
                  Mgmt Class Name: STANDARD
                   Copy Group Name: STANDARD
                   Copy Group Type: Backup
              Versions Data Exists: 2
             Versions Data Deleted: 1
             Retain Extra Versions: 30
               Retain Only Version: 60
                         Copy Mode: Modified
               Copy Serialization: Shared Static
                   Copy Frequency: 0
                  Copy Destination: BACKUPPOOL
   Last Update by (administrator): SERVER_CONSOLE
              Last Update Date/Time: 12/08/1994 18:35:23
```

Figure 43. A Detailed Report of the STANDARD Backup Copy Group

The standard backup copy group specifies that the backup versions are kept in
data storage, when the file exists on the client's node workstation. When the file no
longer exists on the workstation, ADSM maintains one backup version in data
storage.

If the file has been modified and is not in use when the backup process occurs, the
server replaces the older backup version with the more current version in the
storage pool named BACKUPPOOL.

If a user deletes the original file from the client node, the server retains the only backup version for at least 60 days.

Understanding the Standard Archive Copy Group

To request detailed information about the STANDARD archive copy group in the STANDARD management class in ACTIVE policy set in the STANDARD policy domain, enter:

```
Query COpygroup standard active standard standard Type=Archive
Format=Detailed
```

You can get the same output if you enter:

```
Query COpygroup Type=Archive Format=Detailed
```

The server displays a detailed report, similar to Figure 44.

```
                Policy Domain Name: STANDARD
                   Policy Set Name: ACTIVE
                   Mgmt Class Name: STANDARD
                   Copy Group Name: STANDARD
                   Copy Group Type: Archive
                    Retain Version: 365
                Copy Serialization: Shared Static
                    Copy Frequency: CMD
                         Copy Mode: Absolute
                  Copy Destination: ARCHIVEPOOL
     Last Update by (administrator): SERVER_CONSOLE
          Last Update Date/Time: 12/08/1994 19:25:06
```

Figure 44. A Detailed Report of the STANDARD Archive Copy Group

The standard archive copy group specifies that a file is eligible to be archived, whether the file has been modified, as long as the file is not in use during the archive process. When a user archives a file, the archived copy is retained for 365 days. The archived file is stored in the storage pool named ARCHIVEPOOL.

Step 3: Registering Client Nodes

Before users can begin requesting services from the server, their workstations must be registered with the server as client nodes. ADSM provides two different methods for registering client nodes with the server. The system administrator must choose one of the following registration methods:

Closed registration   An administrator must register each workstation as a client node with the server.

Open registration   Users can register their workstations as client nodes.

With closed registration, a system or policy administrator defines:

- Each workstation node name

- Each user password

- The policy domain to which the client node is assigned
- Whether the user can choose to compress files before sending them to the server
- Whether the user is allowed to delete backup versions or archive copies from the server

With open registration, when a user attempts to access the server from an unregistered client node, the server prompts the user for a password and contact information and dynamically registers the workstation. ADSM sets the following defaults:

- Each client node is assigned to the policy domain named STANDARD
- Each user defines whether data compression is used before files are sent to the server for storage
- Each user is allowed to delete files on the server that have been archived from the client

For more information on setting client node registration, see *ADSTAR Distributed Storage Manager for MVS: Administrator's Guide*.

Using a Macro to Register More Than One Client Node

ADSM provides a MACRO command, which can be used on an administrative client, that allows you to issue more than one command at a time. However, you must create a macro file before you log on to an administrative client if your workstation supports a single session. On multi-session workstations, create the macro in a different session other than the one from which the administrative client has been invoked.

To register more than one client node at a time, create a macro file named REGNODE.MAC using your favorite editor:

```
REGister Node david password1 CONtact="Department1" -
COMPression=Yes ARCHDELete=No
REGister Node horace password2 CONtact="Department1" -
COMPression=Yes ARCHDELete=No
REGister Node debbie password3 CONtact="Department2" -
COMPression=Yes ARCHDelete=No
```

To invoke the macro from the administrative client, enter:

```
MACRO regnode.mac
```

With this macro, you register three client nodes to the standard policy domain. When files are backed up or archived, the data is compressed before being sent to the server. These workstation users cannot delete backed up versions or archived copies from data storage.

Requesting Information about Registered Client Nodes

To request information about all registered client nodes, enter:

```
Query Node *
```

ADSM displays a standard report, as shown in Figure 45. This report shows that three client nodes have been registered to the standard policy domain. The ? character identifies that client users have not yet logged on to access the server. After the client node accesses the server for the first time, this report displays the operating system used by the client node.

```
Node Name                       Platform  Policy      Days      Days  Locked?
                                          Domain     Since     Since
                                          Name        Last  Password
                                                     Access       Set
------------------------------  --------  ---------  ------  --------  -------
DEBBIE                          ?         STANDARD      <1         1  No
HORACE                          ?         STANDARD      <1         1  No
DAVID                           ?         STANDARD       1         1  No
```

Figure 45. A Standard Report of Registered Client Nodes

To request detailed information about the client node registered to Horace, enter:

```
Query Node horace Format=Detailed
```

The server displays a detailed report, as shown in Figure 46.

```
                  Node Name: HORACE
                   Platform: ?
        Policy Domain Name: STANDARD
     Last Access Date/Time: 12/09/1994 13:32:05
    Days Since Last Access: 1
    Password Set Date/Time: 12/09/1994 11:18:10
   Days Since Password Set: 1
                   Locked?: No
                   Contact: Department1
               Compression: Yes
    Archive Delete Allowed?: No
     Backup Delete Allowed?: No
         Registration Date: 12/09/1994 11:18:10
   Registering Administrator: BOB
Last Communication Method Used:
   Bytes Received Last Session: 0
       Bytes Sent Last Session: 0
 Duration of Last Session (sec): 0.00
   Pct. Idle Wait Last Session: 0.00
   Pct. Comm. Wait Last Session: 0.00
  Pct. Media Wait Last Session: 0.00
```

Figure 46. Viewing a Detailed Report of One Registered Client Node

In this example, the client node belonging to Horace has been registered on December 9, 1994 by the administrator BOB. The server displays that only one day has passed since the password was set.

The client node HORACE has not been locked from the server, so Horace can request backup or archive services. When Horace backs up or archives a file to the server, it is managed by the policies defined for the STANDARD policy domain, and files are compressed before they are sent to the server.

After files have been backed up or archived to the server, Horace must ask an administrator to delete the backup versions or archive copies from data storage, if they are no longer needed.

Verifying the Client-Server Environment

To verify the setup of your client-server environment, complete the following tasks:

1. Ask one client user to use ADSM.

   Select a client user who has a small amount of workstation data (less than 20MB) to complete the following tasks. The specific (ADSM) command for completing each task is included in parenthesis.

   - Perform an incremental backup (INCREMENTAL)
   - Perform a selective backup (SELECTIVE)
   - Restore a backup version from data storage to the workstation (RESTORE)
   - Archive a directory (ARCHIVE)
   - Retrieve archive copies from data storage to the workstation (RETRIEVE)

   For information on how to complete these tasks and commands, refer to the appropriate client publication. See "ADSTAR Distributed Storage Manager Backup-Archive Client Publications" on page xiv.

2. Monitor the use of data storage by querying storage pools and volumes.

   See *ADSTAR Distributed Storage Manager for MVS: Administrator's Guide* for more information on monitoring space utilization.

3. Monitor the use of the database and recovery log by querying the database and querying the recovery log.

   See *ADSTAR Distributed Storage Manager for MVS: Administrator's Guide* for information on monitoring space utilization.

4. Monitor the activity log for processing errors.

   See *ADSTAR Distributed Storage Manager for MVS: Administrator's Guide* for information on diagnosing processing errors.

Chapter 6. Customizing Your Server Environment

After you have provided basic ADSM services to your clients, you might want to customize your server to meet the unique needs of your particular installation. This chapter provides you with an introduction and a quick reference to customization activities using the administrative command line interface. You can find a complete discussion of the commands available in the administrative command line interface in *ADSTAR Distributed Storage Manager for MVS: Administrator's Reference*.

If the administrative client you are using has a graphical user interface, you can also use it to perform the customization tasks discussed in this chapter. For information on how to use the graphical user interface to perform these tasks, refer to *ADSTAR Distributed Storage Manager for MVS: Administrator's Guide*.

This chapter discusses the following customization activities:

- "Copying the STANDARD Policy Domain and Customizing It"
- "Defining Backup and Archive Schedules" on page 124
- "Associating Client Nodes with Schedules" on page 125
- "Exporting the Server to Another Server" on page 125
- "Mirroring the Database and Recovery Log Files" on page 126
- "Using Database Backup and Recovery Features" on page 127
- "Managing Storage Pool Backup and Recovery" on page 131
- "Scheduling Administrative Commands" on page 132
- "Defining Additional Database, Recovery Log, and Storage Pool Volumes" on page 133
- "Defining a Sequential Storage Device to the Server" on page 137
- "Setting up Space Management on the Server" on page 137
- "Stopping Client/Server Activities" on page 139

Copying the STANDARD Policy Domain and Customizing It

A policy domain provides you with a logical way of managing backup and archive policies for a group of client nodes with common backup and archive 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 objects are provided. They are located in the STANDARD policy domain. We 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 policy element is stored on the server and is named STANDARD.

Copying the STANDARD policy domain allows you to build from the standard policy objects provided at installation. To copy a policy domain, enter the following:

```
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 policy domain so that an inactive backup copy is retained for 10 days. To update the policy domain, enter the following:

```
UPDate DOmain BIOLOGY DESCription='Biology Lecture'
BACKRETention=10
```

The above example extends the retention period for an inactive backup to ten days.

If you would like to add policy sets and management classes to the BIOLOGY domain, enter the following:

```
DEFine POlicyset BIOLOGY LAB
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 3 backup versions for existing files and 2 backup version for deleted files, enter the following:

```
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.

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 the following:

```
DEFine SCHedule BIOLOGY CLASSLECT ACTion=Incremental
STARTDate=04/11/1995 STARTTime=07:00 DURation=2 DURUnits=Hours
PERUnits=Weeks DAYofweek=Monday
```

The above statement defined a schedule name CLASSLECT in the BIOLOGY policy domain.

Associating Client Nodes with Schedules

You can associate one or more clients with a schedule. Client nodes that are associated with a schedule initiate backup and archive functions according to that schedule. Before a client is associated to a schedule, the client must be registered to the policy domain to which the schedule applies.

To assign clients to the CLASSLECT schedule, enter the following:

```
DEFine ASSOCiation BIOLOGY CLASSLECT STUDENT01,STUDENT02
```

The above statement assigned STUDENT01 and STUDENT02 to the CLASSLECT schedule.

Exporting the Server to Another Server

You may choose to export the server to another server for workload balancing purposes. Export permits you to write all or part of the server control information and client data from an ADSM server to sequential media. You can then copy the information from the sequential media to a new server using the IMPORT SERVER command.

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, type:

```
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 to be exported.

Backup
Specifies that only backup versions, whether active or inactive, are to be exported.

BACKUPActive
Specifies that only active backup versions are to be exported.

ALLActive
: Specifies that all archive copies, active backup versions, and all files migrated from a user's local file system are to be exported.

SPacemanaged
: Specifies that only files migrated from a user's local file system are to be 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, allowing you to determine how many volumes will be required to hold the data. This parameter is optional. The default is NO.

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. If you are copying for protection from media failure, you may want to put the mirrored volumes in a separate MVS auxiliary storage pool. Volume copies must have at least the same capacity as the original volume and should be defined in separate libraries.

You can determine the capacity of the original volumes by using the QUERY DBVOLUME and the QUERY LOGVOLUME commands.

For example:

- To determine the capacity of the ADSM.DB1 database, issue the following command:

```
Query DBV
```

- To determine the capacity of the ADSM.RCVRYLOG recovery log, issue the following command:

```
Query LOGV
```

Once you have determined the size of the database and recovery log, you must allocate and pre-format the data sets to be used as the mirrored database and the mirrored recovery log. To allocate and pre-format them, edit and run the ANRFMT job from ADSM.SAMPLIB. For information on how to edit the ANRFMT job, refer to "Allocating and Pre-Formatting New Volumes" on page 47.

When you have completed the allocation and pre-formating of the data sets, use the DEFINE DBCOPY and DEFINE LOGCOPY commands to synchronize the mirrored volumes with the original volumes. The time required to process the synchronization depends on the size of each original volume.

For example:

- If ADSMMIR.DB1M is the name you gave the data set (in the ANRFMT job) to be used as the mirrored database volume, enter the following:

```
DEFine DBcopy ADSM.DB1 ADSMMIR.DB1M
```

The ADSMMIR.DBM1 data set is now an exact mirrored copy of the ADSM.DB1 database.

- If ADSMMIR.RCVRYLOGM is the name you gave the data set (in the ANRFMT job) to be used as the mirrored recovery log volume, enter the following:

```
DEFine LOGCopy ADSM.RCVRYLOG ADSMMIR.RCVRYLOGM
```

The ADSMMIR.RCVRYLOGM data set is now an exact mirrored copy of the ADSM.RCVRYLOG recovery log.

Using Database Backup and Recovery Features

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 still 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, there is a greater chance that the recovery time can take longer. However, mirroring only the recovery log requires substantially less storage space.

To set up the database backup and recovery feature, you should first start by setting the database backup trigger.

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 it no longer needs for that purpose.

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, issue the following command:

```
DEFine DBBACKUPTrigger LOGFullpct=60 DEVclass=TAPE1
```

If you do not specify the LOGFULLPCT parameter in the command, the backup trigger defaults to 50 percent.

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 which does not allow for roll-forward recovery. This means that ADSM saves only those records required to restore the database to the point it was at when the last backup was run.

The advantage to using NORMAL log mode is that less storage space is required for the database and recovery logs.

To set the log mode to normal, issue the following command:

```
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, issue the following command:

```
Set LOGMode Rollforward
```

Backing Up the Database

Once you have set your log mode and your data base backup trigger (if you have decided to use the roll-forward logmode), you should back up your database.

For example, to do a full backup of your database to a device class named TAPE1, issue the DB BACKUP command as follows:

```
BAckup DB Type=Full DEVclass=TAPE1
```

Once you have done a full backup, you can perform 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 last time the database was backed up. However, incremental backups increase the time it takes to recover a database because a full backup must be loaded first, followed by some or all of the incremental backups.

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 depend 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 might need to 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, once 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 1000MB, issue the following command:

```
EXTend LOG 1000
```

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 or roll forward recovery.

During setup, you can use the VOLUMEHISTORY option to specify one or more files or sequential 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 server options file. You can find the name of the server options file in the //OPT DD statement in the ADSM server startup JCL.

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, command, 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 server options file. You can find the name of the server options file in the //OPT DD statement in the ADSM server startup JCL.

Restoring a Database 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 ADSM.ANRSERV.OPTIONS file as discussed in "Maintaining Volume History Backup Files."

Note: You can restore the database to a point in time without a volume history file. However, it much harder and more time consuming because you must query all volumes that you believe might have used for database backup. Then you must specify each volume in the last backup series in proper order to successfully restore the database.

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. That volume should contain the beginning of the last full backup prior to the date specified.

- 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 the following command:

```
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. This is discussed in *ADSTAR Distributed Storage Manager for MVS: 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.

- A full backup was taken after the log mode was set to roll-forward.

- 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, which 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 modify the // EXEC statement in the ADSM server startup JCL as follows:

```
//SERVER  EXEC PGM=DSMSERV,PARM='/RESTORE DB'
```

Managing Storage Pool Backup and Recovery

You can create backup copies of client files which are stored in your primary backup and archive pools. The backup copies are stored in *copy storage pools* which can be used to restore the original files in case 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 the following command:

```
DEFine STGpool RECOVERYPOOL TAPE POoltype=Copy
```

Backing Up Primary Storage Pools

You can back up primary storage pools to copy storage pools by using the BACKUP STGPOOL command.

For example, to backup the ARCHIVEPOOL primary storage pool to the RECOVERYPOOL copy storage pool, enter the following command:

```
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 the following command:

```
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 the following command:

```
RESTORE STGpool BACKUPPOOL
```

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," you can enter the following command:

```
DEFine SCHedule BACKUP_ARCHIVEPOOL Type=Administrative
CMD="BAckup STGpool ARCHIVEPOOL RECOVERYPOOL" ACTive=Yes
STARTime=20:00 PERiod=2 PERUnits=Days
```

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.

Defining Additional Database, Recovery Log, and Storage Pool Volumes

During installation, you initially defined volumes for your recovery log, database, and storage pools. At any time you can increase the size of the database, recovery log, and storage pools by adding more volumes.

Adding a Database Volume

When you define a database volume, it must occupy at least 5MB of space. Database volumes should be defined in increments of 4MB+1. For instance, acceptable values are 5, 9, 13 as 4+1=5, 8+1=9, and 12+1=13.

Create additional database volumes by performing the following steps:

1. Allocate and format the new volume by running one of the following two jobs:

    If the SMS address space is *not* active, edit and run the ANRFMT from the ADSM.SAMPLIB. The parameters you must edit before running this job are as follows:

    - The job card parameters. Customize them for your installation.

    - The NAME, LINEAR MB, and VOL parameters in the DEFINE CLUSTER statement. For example, if the name of your new database volume is ADSM.DBVOL.JRM, the size is 97 MB, and the volume is ADSM01, edit the DEFINE CLUSTER statement as follows:

```
DEFINE CLUSTER( NAME(ADSM.DBVOL.JRM) LINEAR MB(97) VOL(ADSM01) )
```

    - The PARM parameter in the ADSMFMT EXEC statement. For example, enter the name of the new database volume as follows:

```
PARM='/ADSM.DBVOL.JRM'
```

    For more information on the ANRFMT job, see "Using the ANRFMT Job" on page 48.

    OR

    If the SMS address space is active and you have installed the ANRFMT2 job in a procedure library, enter the following command at the system console:

```
s anrfmt,name=ADSM.DBVOL.JRM,mb=97,volser=ADSM01
```

> For more information on the ANRFMT2 job, see "Using the ANRFMT2 Job."
> on page 49.

2. Use the DEFINE DBVOLUME command from your client session to define the
   ADSM.DBVOL.JRM database volume by entering:

```
DEFine DBVolume ADSM.DBVOL.JRM
```

3. To make the additional megabytes available to the database, enter the fol-
   lowing commands:

   a. Determine the maximum extension size by entering:

```
QUERY DB
```

   b. Extend the database by 16MB by entering:

```
EXTEND DB 16
```

Adding a Recovery Log Volume

When you define a recovery log volume, it must occupy at least 5MB of space.
Recovery log volumes should be defined in increments of 4MB+1. For instance,
acceptable values are 5, 9, 13 as 4+1=5, 8+1=9, and 12+1=13.

Create additional recovery log volumes by performing the following steps:

1. Allocate and format the new volume by running one of following two jobs:

   > If the SMS address space is *not* active, edit and run the ANRFMT job from
   > the ADSM.SAMPLIB library

   > The parameters you must edit before running this job are as follows:

   a. The job card parameters. Customize them for your installation.

   b. The NAME, LINEAR MB, and VOL parameters in the DEFINE
      CLUSTER statement. For example, if the name of your new log
      volume is ADSM.LOGVOL.JRM, the size is 97 MB, and the volume is
      ADSM01, edit the DEFINE CLUSTER statement as follows:

```
DEFINE CLUSTER( NAME(ADSM.LOGVOL.JRM) LINEAR MB(97) VOL(ADSM01) )
```

   c. The PARM parameter in the ADSMFMT EXEC statement. For
      example, enter the name of the new recovery log volume as follows:

```
PARM='/ADSM.LOGVOL.JRM'
```

For more information on the ANRFMT job, see "Using the ANRFMT Job" on page 48.

OR

If the SMS address space is active and you have installed the ANRFMT2 job in a procedure library, enter the following command at the system console:

```
s anrfmt,name=ADSM.LOGVOL.JRM,mb=97,volser=ADSM01
```

For more information on the ANRFMT2 job, see "Using the ANRFMT2 Job." on page 49.

2. Use the DEFINE LOGVOLUME command from your client session to define the ADSM.LOGVOL.JRM recovery log volume by entering:

```
DEFine LOGVolume ADSM.LOGVOL.JRM
```

3. To make the additional megabytes available to the recovery log, enter the following commands:

   a. Determine the maximum extension size by entering:

```
QUERY LOG
```

   b. Extend the recovery log by 15MB by entering:

```
EXTEND LOG 15
```

Adding Storage Pool Volumes

When you define a storage pool volume, it must occupy at least 1MB of space.

Create additional storage pool volumes by performing the following steps:

1. Allocate and format the new volume by running one of the following two jobs:

   If the SMS address space is *not* active, edit and run the ANRFMT job from the ADSM.SAMPLIB library

   The parameters you must edit before running this job are as follows:

   a. The job card parameters. Customize them for your installation.

   b. The NAME, LINEAR MB, and VOL parameters in the DEFINE CLUSTER statement. For example, if the name of your first new storage pool volume is ADSM.STORAGE.POOL003, the size is 100

MB, and the volume is ADSM01, edit the DEFINE CLUSTER statement as follows:

```
DEFINE CLUSTER( NAME(ADSM.STORAGE.POOL003) LINEAR MB(100) VOL(ADSM01) )
```

    c. The PARM parameter in the ADSMFMT EXEC statement. For example, enter the name of the new recovery log volume as follows:

```
PARM='/ADSM.STORAGE.POOL003'
```

For more information on the ANRFMT job, see "Using the ANRFMT Job" on page 48.

OR

If the SMS address space is active and you have installed the ANRFMT2 job in a procedure library, enter the following command at the system console:

```
s anrfmt,name=ADSM.STORAGE.POOL003,mb=100,volser=ADSM01
```

For more information on the ANRFMT2 job, see "Using the ANRFMT2 Job." on page 49.

2. Edit and run the ANRFMT or ANRFMT2 job again to allocate and format the second new storage pool volume as you did in the previous step. For example, if the name of your second new storage pool is ADSM.STORAGE.POOL004, enter this name in the appropriate parameter fields.

3. Assign the newly created storage pool volumes to the storage pools by entering the following commands:

```
DEFine VOLume BACKUPPOOL  ADSM.STORAGE.POOL003
DEFine VOLume ARCHIVEPOOL ADSM.STORAGE.POOL004
```

The above statements assign the storage pool volume ADSM.STORAGE.POOL003 to the BACKUPPOOL storage pool and ADSM.STORAGE.POOL004 to the ARCHIVEPOOL storage pool.

4. If you are running the space management feature on the ADSM server, you can also allocate and format additional volumes for the space management storage pool by using the ANRFMT or ANRFMT2 jobs. After you allocate and format the new volume, you can assign it to the space management storage pool.

For example, if you named the new volume ADSM.STORAGE.POOL005, enter the following command to assign it to the space management storage pool:

```
DEFine VOLume SPACEMGPOOL ADSM.STORAGE.POOL005
```

Defining a Sequential Storage Device to the Server

You can connect devices to your system to be used by the MVS ADSM server to migrate data. To do so, ensure the server is started and you have configured your devices.

To define a tape drive as a sequential storage device to migrate data from a storage pool to tape, perform the following:

1. Define a device class (class name = AUTOCLASS) to the ADSM server.

```
DEFine DEVice AUTOCLASS DEVType=cart
```

2. Define a tape storage pool to the device class by entering:

```
DEFine STGpool AUTOPOOL AUTOCLASS
```

3. Assign a tape volume to the AUTOPOOL by entering:

```
DEFine VOLume AUTOPOOL TAPVOL
```

4. Update the AUTOPOOL backup storage pool to migrate when the high threshold reaches 70% and low threshold reaches 30% to the BACKUPPOOL storage pool by entering:

```
UPDate STGpool AUTOPOOL NEXT=BACKUPPOOL HImig=70 LOmig=30
```

Setting up Space Management on the Server

The space management feature of ADSM allows certain UNIX based backup-archive clients to automatically and transparently migrate their workstation files to the server when local storage becomes full. This frees up workstation storage space for the client.

If the space management feature is activated on the client, you must also activate it on the server before clients can begin migrating their files. To activate space management on the server you must first update the space management attributes that come with the ADSM STANDARD management class.

To update the space management attributes of the STANDARD management class, issue the following command:

```
UPDate MGmtclass STANDARD STANDARD STANDARD SPACEMGTECHnique=AUTO
AUTOMIGNonuse=10 MIGREQUIRESBKUP=Yes MIGDESTination=SPACEMGPOOL
DESCription="Client Migration Mgt Class"
```

where:

STANDARD   Specifies the STANDARD policy domain that comes
                        installed with ADSM.

STANDARD   Specifies the STANDARD policy set that comes installed
                        with ADSM.

STANDARD   Specifies the STANDARD management class that comes
                        installed with ADSM.

SPACEMGTECHnique   Specifies the space management technique to use. Pos-
                        sible values are:

    AUTO

        Specifies that client files are eligible for auto-
        matic or selective migration.

    SELective

        Specifies that client files are eligible for selec-
        tive migration only.

    NONE

        Specifies that client files are not eligible for
        migration. This is the default.

AUTOMIGNonuse   Specifies the number of days that must elapse since the file
                        was last accessed before it becomes eligible for migration.
                        The value can be an integer from 0 to 9999. The default is
                        0.

MIGREQUIRESBKUP   Specifies whether a backup version of a file must exist
                        before a file can be migrated. Possible values are:

    Yes

        Specifies that a backup version must exist on
        the server.

    No

        Specifies that a backup does not have to exist
        on the server.

MIGDESTination.   Specifies the name of an ADSM storage pool that is the
                        destination for the migrated files. The default destination is
                        SPACEMGPOOL.

To complete the activation of the space management feature on the server, you
must make the STANDARD policy set the ACTIVE policy set by issuing the fol-
lowing command:

```
ACTivate POLicyset STANDARD client migration mgt class
```

Stopping Client/Server Activities

When you have completed all of your activities on your client/server workstation, we **recommend** that you stop the server by keying the HALT command from the administrative client:

```
HALT
```

When you stop the server, you should insure that you are not impacting any client sessions. For information on how to properly stop the server, refer to "Stopping the Server without Impacting Client Sessions" on page 87.

Chapter 7. Installing the Administrative Client

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. 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 the OS/2, DOS, Windows, Windows NT, or UNIX administrative clients, you will be referred to *ADSTAR Distributed Storage Manager: Installing the Clients*. This manual contains instructions for installing both the administrative and backup-archive client files. You should be sure that you have this manual available before starting the installation of the above mentioned clients.

2. 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 might need to change these variables.

3. 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.

4. Starting up the administrative client program. Once started, you can begin using ADSM to administer the ADSM server.

Table 14 provides a list of available administrative clients and where you can go in this chapter to begin installing the one of your choice.

Table 14 (Page 1 of 2). List of Administrative Client Systems

System	To begin the installation, see:
OS/2	"Setting Up the OS/2 Administrative Client" on page 142
DOS	"Setting Up the DOS Administrative Client" on page 145
Microsoft Windows and Windows NT	"Setting Up the Microsoft Windows and Windows NT Administrative Client" on page 147

Table 14 (Page 2 of 2). List of Administrative Client Systems

System	To begin the installation, see:
AIX for RISC/System 6000	"Setting Up the UNIX Administrative Clients" on page 150
AT&T UNIX SVR4	"Setting Up the UNIX Administrative Clients" on page 150
DEC ULTRIX	"Setting Up the UNIX Administrative Clients" on page 150
Hewlett Packard HP-UX	"Setting Up the UNIX Administrative Clients" on page 150
NEC EWS-UX/V	"Setting Up the UNIX Administrative Clients" on page 150
OpenEdition MVS	"Setting Up the UNIX Administrative Clients" on page 150
SCO UNIX 386/SCO Open Desktop	"Setting Up the UNIX Administrative Clients" on page 150
Siemens SINIX-Z	"Setting Up the UNIX Administrative Clients" on page 150 and *ADSTAR Distributed Storage Manager: Installing the Clients* for installation information
Silicon Graphics IRIX	"Setting Up the UNIX Administrative Clients" on page 150
SunOS/Solaris	"Setting Up the UNIX Administrative Clients" on page 150
MVS TSO	"Installing the TSO Administrative Client" on page 158
VM CMS	"Setting Up the CMS Administrative Client" on page 156

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

Table 15 outlines the operating system requirements for the OS/2 ADSM client.

Table 15 (Page 1 of 2). OS/2 Client Operating System Installation Requirements

Operating System	Version	Disk Space
OS/2	2.0 or later	10 MB

Table 15 (Page 2 of 2). OS/2 Client Operating System Installation Requirements

Operating System	Version	Disk Space
OS/2 Warp	3.0 or later	10 MB

The disk space is an approximate number which depends on the ADSM components you choose to install. You can install the following components:

- 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, do the following:

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" 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" 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, which identifies the communication method used to connect to the server, you can accept the default of 3270, or you can specify TCP/IP or SNALU6.2.

   For information on how to configure the communication method of your choice, refer to the following:

   - For 3270, specify the options shown in "3270 Communication Method Options" on page 163.

   - For TCPIP, specify the options shown in "TCP/IP Communication Method Options" on page 164.

   - For SNALU6.2, specify the options shown in "SNA LU6.2 Communication Method Options" on page 163.

   Once you have configured your server for communications, you do not have to modify any other options to start up 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 8, "Setting Options for The Administrative Client" on page 161.

   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 47.

```
COMMMETHOD                  TCPip
   TCPSERVERADDRESS         DSHOST.ALMADEN.IBM.COM
   TCPPORT                  1500
   TCPBUFFSIZE              8
   TCPWINDOWSIZE            16
```

Figure 47. 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.

You can 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.

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 OS/2 Administrative Client

To start the administrative command line client, enter **dsmadmc** at the command prompt.

You can start a GUI session for OS/2 2.0 or later by typing **start dsmadm** at the command prompt in an OS/2 window.

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 16 outlines the operating system requirements for the DOS ADSM client.

Table 16. DOS Client Operating System Installation Requirements

Operating System	Version	Disk Space
DOS	5.0 or later	3 MB

The DOS client provides a command line interface for the administrative client. However, when you install the administrative client, you must select the command line interface for the communication method that you want to use to connect to the MVS server. Table 17 lists the administrative client command line interfaces that you can select for connecting to the MVS server. The table also lists the commands that must be used to start each of the interfaces once they are installed.

Table 17. ADSM DOS Administrative Client Interfaces

Interface	Start Up Command
3270 Attachmate Extra! administrative client	dsmadmca
PC3270 administrative client	dsmadmc3
FTP TCP/IP administrative client	dsmadmcf
IBM TCP/IP 2.1 administrative client	dsmadmci
IBM TCP/IP 2.0 administrative client	dsmadmc0
SNA/LU6.2 adminstrative client	dsmadmcd

You need approximately 3 MB of disk space to install the administrative client for one communications protocol.

Installing ADSTAR Distributed Storage Manager on the DOS File System

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 17 on page 145.

3. When you have completed Step 2, proceed below to "Modifying the Administrative Client Options File for DOS" to continue setting up the administrative client.

Modifying the Administrative Client Options File for DOS

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, which identifies the communication method used to connect to the server, you can accept the default of 3270, or you can specify TCP/IP or SNALU6.2.

   For information on how to configure the communication method of your choice, refer to the following:

   - For 3270, specify the options shown in "3270 Communication Method Options" on page 163.

   - For TCPIP, specify the options shown in "TCP/IP Communication Method Options" on page 164.

   - For SNALU6.2, specify the options shown in "SNA LU6.2 Communication Method Options" on page 163.

   Once you have configured your server for communications, you do not have to modify any other options to start up 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 8, "Setting Options for The Administrative Client" on page 161.

   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 48.

```
COMMMETHOD                TCPip
   TCPSERVERADDRESS       DSHOST.ALMADEN.IBM.COM
   TCPPORT                1500
   TCPBUFFSIZE            8
   TCPWINDOWSIZE          16
```

Figure 48. 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.

You can 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.

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 DOS Administrative Client

To start the administrative command line client, enter the start up command for the communications interface component you installed. See Table 17 on page 145.

For example, to start the IBM TCP/IP 2.1 administrative cllient, enter the following at the DOS command prompt:

```
dsmadmci
```

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 *ADSTAR Distributed Storage Manager: Installing the Clients*. 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 18 outlines the operating system requirements for the Windows and Windows NT ADSM client.

Table 18. Windows and Windows NT Client Operating System Installation Requirements

Operating System	Version	Disk Space
Windows	3.1 or later	4.2 MB
Windows NT	3.5 or later	2.4 MB

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 ADSTAR Distributed Storage Manager on the Microsoft Windows and Windows NT File System

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

The client user 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 user options file named DSM.SMP is included in the installation directory.

Follow these steps 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 C:\ADSM\DSM.SMP C:\ADSM\DSM.OPT
```

2. Configure the COMMMETHOD option which identifies the communication method used to connect to the server.

   If you installed the Windows administrative client, you can accept the default of 3270, or you can specify TCP/IP or SNALU6.2.

   OR

   If you installed the Windows NT administrative client, you must specify the TCP/IP communications method.

   For information on how to configure the communication method of your choice, refer to the following:

   - For 3270, specify the options shown in "3270 Communication Method Options" on page 163.

   - For TCPIP, specify the options shown in "TCP/IP Communication Method Options" on page 164.

   - For SNALU6.2, specify the options shown in "SNA LU6.2 Communication Method Options" on page 163.

   Once you have configured your server for communications, you do not have to modify any other options to start up 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 8, "Setting Options for The Administrative Client" on page 161.

   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 49.

```
COMMMETHOD                 TCPip
   TCPSERVERADDRESS        DSHOST.ALMADEN.IBM.COM
   TCPPORT                 1500
   TCPBUFFSIZE             8
   TCPWINDOWSIZE           16
```

Figure 49. 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.

You can 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.

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 WINDOWS Administrative Client

To start the administrative command line client enter **dsmadmc** at the command prompt.

Setting Up the UNIX Administrative Clients

To set up a UNIX administrative client, the root user must do the following:

- Install the files
- Create and modify the *client system options file*
- Create the *client user 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 19. UNIX Clients Requirements

Operating System	Version	Disk Space[1]
AIX	3.2 or later	13.2 MB
SunOS	Version 4.1.3	23.9
Solaris - Native mode[2]	2.3 or 2.4	23.9
HP-UX	Level 9.03 or 9.04	10 MB
SCO	Open Desktop 2.0 or UNIX 386 3.2.4	6.8 MB
DEC ULTRIX	4.2A, 4.3, or 4.4	6 MB
Siemens SINIX-Z	Version 5.4.1 386/486	5.5 MB
AT&T UNIX SVR4	Rel. 2.02 or 2.03	5 MB
NEC EWS-UX/V	Rel. 4.2, Rev. 9.1 or 9.2	5 MB
Silicon Graphics IRIX	Rel. 5.2 or 5.3 with EFS-File System	5 MB
OpenEdition MVS	MVS/ESA SP 5.1 or higher	

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.

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

The exceptions are as follows:

- The OpenEdition MVS client provides all components except the Administrator Graphical User Interface.

- Certain versions of the AIX, SunOS, Solaris, and HP-UX clients provide a Space 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 space management interface is installed also. For more information about the space management client, refer to ADSTAR Distributed Storage Manager: Using the UNIX Hierarchical Storage Management Clients.

ADSTAR Distributed Storage Manager Files

The following sections list the files that are installed with all components of ADSM:

Common Files

Table 20. ADSM Common Files

File Name	Description
README	Last minute updates and other special information
dsm.sys.smp	Sample client system options file
dsm.opt.smp	Sample client user options file
dscameng.txt	American English message text file
dsmtca	Trusted Agent program
options.doc	Documentation for client options

Backup-Archive Client

Table 21 (Page 1 of 2). ADSM Base Backup-Archive Client Files

File Name	Description
DSM.icon	Bitmap for ADSM icon
DSMX	X Window System resource file
DSMX.OpenDesktop.svga	(SCO only) Resource file for OpenDesktop with super VGA monitors
DSMX.OpenDesktop.vga	(SCO only) Resource file for OpenDesktop with VGA monitors
DSMX.Xsight.svga	(SCO only) Resource file for Xsight with super VGA monitors
DSMX.Xsight.vga	(SCO only) Resource file for Xsight with VGA monitors
dsm	Executable file for the backup-archive client graphical user interface
dsm.afs	(AIX only) A version of dsm that requires AFS support to be installed on the workstation
dsmafs.drv	(AIX only) Andrew File System driver program
dsmc	Executable file for the backup-archive command line interface
dsmc.afs	(AIX only) A version of dsmc that requires AFS support to be installed on the workstation
dsmc.hlp	Help file for the command line interface
dsmsna.drv	(AIX only) SNA driver program for APPC communications
dsmx.hlp	Windowed Interface help file
ibmlogo.bit	Bit map for IBM logo
info.bit	Bit map for Info Box icon
question.bit	Bit map for Question Box icon

Table 21 (Page 2 of 2). ADSM Base Backup-Archive Client Files

File Name	Description
wait.bit	Bit map for Wait Box icon
warn.bit	Bit map for Warning Box icon

Administrative Client

Table 22. ADSM Administrative GUI Client

File Name	Description
Dsmadm	Application Resource file
dsgameng.txt	American English message text file for the administrative client graphical user interface
dsmadm	Executable file for the administrative client graphical user interface
dsmadmc	Executable file for the administrative client command line interface
dsmadm.hlp	Online help file for the administrative client graphical user interface
dsmadm.pdl	Panel Definition Library
dsmadm.pml	Panel Message Library
dsmsys.hlp	System Online Help file
dsmsys.pdl	System Panel Definition Library
dsmsys.pml	System Panel Message Library
libipfx1.a	IPFX runtime library for Motif 1.1
libipfx2.a	IPFX runtime library for Motif 1.2
libdsm.a	32-bit version of the runtime library
hmhelp.hlp	Help file for IPFX runtime for C
ipf.cat	Message file for IPFX for C
hmhelp.hlp	Help file for IPFX runtime for American English
ipf.cat	Message file for IPFX for American English (stored in /usr/lpp/ipfx/nls/En_US)

Installing ADSTAR Distributed Storage Manager on the UNIX File Systems

To install the UNIX ADSM client of your choice, do the following:

1. Refer to *ADSTAR Distributed Storage Manager: Installing the Clients* and complete Step 1 for installing the UNIX ADSM client of your choice. In Step 1 you install the ADSM files.

2. During Step 1, if you are installing the AIX, HP-UX, or 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 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 DSM_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 DSM_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**. You must create both of these files. You must also modify the client systems options file with the appropriate communication option entries that allow you to connect to the MVS 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 *ADSTAR Distributed Storage Manager: Installing the Clients*.

ADSM includes a sample client system options file named **dsm.sys.smp** that contains the minimum options required to get started using ADSM. Table 23 lists the location of **dsm.sys.smp** after the initial code installation by platform.

Table 23 (Page 1 of 2). 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
Siemens SINIX-Z	/usr/adsm

Table 23 (Page 2 of 2). Location of dsm.sys.smp

Platform	Directory
AT&T INIX SVR4	/usr/adsm
NEC EWS-UX/V	/usr/adsm
Silicon Graphics IRIX	/usr/adsm
OpenEdition MVS	/usr/adsm

To create the client system options file, follow these steps:

1. Change to the directory where the sample file is stored as indicated by Table 23 on page 153.

2. Copy **dsm.sys.smp** to **dsm.sys**.

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 is case insensitive.

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 SNALU6.2 communication method.

   If you specify TCPIP, 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 SNALU6.2, edit these required communication options. If you are not sure of the parameter settings, you should obtain them from your network administrator.

   - Either 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 this:

  - – 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 50. 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 50. 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 8, "Setting Options for The Administrative Client" on page 161.

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. You must create this file but you do not have to make any changes to it. The default settings will work fine for you. For information on how you might want to modify these options, refer to Chapter 8, "Setting Options for The Administrative Client" on page 161.

ADSM contains a sample client user options file named **dsm.opt.smp** that you can use to create your client user options file.

To create the client user options file, follow these steps:

1. Change to the directory where the sample **dsm.opt.smp** file is stored. It is located in the same directory where the **dsm.sys.smp** file is located as indicated by Table 23 on page 153.

2. Copy **dsm.opt.smp** to **dsm.smp**.

> **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

You can start the administrative command line client on all UNIX platforms by entering **dsmadmc** at the command prompt.

You can start the graphical user interface for the administrative client by doing one of the following:

Enter **dsmadm** at the command prompt.

OR

Double-click the ADSM administrator icon.

Setting Up the CMS Administrative Client

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 ADSTAR Distributed Storage Manager on the CMS File System

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)
– DSCAMENG TXT (American English text)
– 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)
     – DSCAMENG TXT (American English text)
     – 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 TCPIP, specify the options shown in "TCP/IP Communication Method Options" on page 164. Available options are COMMMETHOD, TCPPORT, and TCPSERVERADDRESS.

3. For SNA LU6.2, specify the options shown in "SNA LU6.2 Communication Method Options" on page 163. 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 *VM/ESA Connectivity Planning, Administration, and Operation* for details.

Option definitions can be found in Chapter 8, "Setting Options for The Administrative Client" on page 161.

Starting the CMS Administrative Client

Start the CMS administrative client by entering DSMADMC from the command line.

Note: For information about starting the CMS administrative client, refer to the *ADSTAR Distributed Storage Manager for MVS: Administrator's Reference*.

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

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 the TSO Administrative Client

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.SANSMSG`

   - 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 adminis-
trative client's TSO logon procedure:

```
//STEPLIB  DD DSN=ADSM.V1R1M0.ANSADM.LOAD,DISP=SHR
//DSCLANG  DD DSN=ADSM.V1R1M0.SANSMSG(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 8, "Setting Options for The Adminis-
trative Client" on page 161.

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 ser-
   vices.

3. Choose a communication protocol:

   - For TC/PIP, specify the options shown in "TCP/IP Communication Method
     Options" on page 164. Available options are COMMMETHOD,
     TCPSERVERADDRESS, and TCPPORT.

   - For the APPC communication protocol, specify the SNA LU6.2 communi-
     cation method by defining the options shown in "SNA LU6.2 Communi-
     cation Method Options" on page 163. Available options are
     COMMMETHOD, SYMBOLICDESTINATION, and CPICBUFFERSIZE.

     To use the 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 infor-
　　　　mation dataset in member APPCPMxx.

　　For details about VTAM configuration, refer to *MVS/ESA Application Devel-
　　opment Writing Transaction Programs for APPC/MVS* and *MVS/ESA
　　Planning: APPC Management*.

　• For Interlink SNS/TCPaccess, specify the options shown in "Interlink
　　SNS/TCPaccess Communication Method Options" on page 165.

Starting the TSO Administrative Client

To start an administrative client session, enter the DSMADMC command.

For information about starting the TSO administrative client, refer to the *ADSTAR
Distributed Storage Manager for MVS: Administrator's Reference*.

Chapter 8. Setting Options for The Administrative Client

ADSM provides you with options which allow you to customize your client activities. If you are a UNIX client, these options are maintained in two different files: the *client system options* file and the *client user options file.* All other clients maintain their option settings in a single options file which is referred to as the *client options file*.

In Chapter 7, "Installing the Administrative Client" on page 141, you created your options files and made the required entries to begin using the administrative client. This chapter provides you with additional information about using these options. This information includes the following:

- How to enter options from the command line
- How to enter options in an options file
- How to set options that apply to the administrative client

This chapter also provides a reference section that describes each option, with syntax diagrams and examples. When discussing an individual option in this chapter, we identify in which of the UNIX options file it is used.

If you are running both an administrative client and a backup-archive client from your workstation, you can use the same options files for both clients. However, 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 *ADSTAR Distributed Storage Manager: Installing the Clients*.

Using 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, and Quiet. For example:

```
DSMADMC -CONsolemode -outfile=save.out
```

Refer to the *ADSTAR Distributed Storage Manager/400: Administrator's Reference* for information on entering these options from an administrative command line.

Entering Client Options in an Options File

When editing a client options file, follow these guidelines:

- To activate an option, you must remove the * that precedes the option.

- 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 can be specified, even if they are not used in your current configuration. Some communication options are only in effect when other options are specified.

Setting Communication Method Options

Administrative clients can use one of four communication protocols to communicate with the server. Table 24 lists these protocols, the communication method option used to specify the protocol within the client options file, and the clients supported for the protocol.

Table 24 (Page 1 of 2). Supported Communication Methods for ADSM Administrative Clients

Communication Method	Option Specified	Supported Clients
3270 Emulation	3270	DOS, OS/2, Windows
IUCV	IUCV	MVS TSO, VM CMS
APPC	SNALU6.2	MVS TSO, OS/2, VM CMS

Table 24 (Page 2 of 2). Supported Communication Methods for ADSM Administrative Clients

Communication Method	Option Specified	Supported Clients
TCP/IP	TCPIP	DOS, MVS TSO, OS/2, VM CMS, Windows, Windows NT, UNIX based clients
Interlink SNS/TCPaccess	INTERLINK	MVS/TSO

3270 Communication Method Options

The 3270 communication method uses 3270 dial-up to establish communication between administrative clients and the server.

Figure 51 displays an example of a 3270 communication method setting in an options file.

```
COMMMETHOD                3270
  3270LOGICALTERMINALID   A
  3270HOSTCOMMAND         cmd_string
  3270BUFFERSIZE          4000
  3270HOSTCMDPAUSE        1
  3270HOSTTIMEOUT         10
  3270CHECKSUM            YES
```

Figure 51. Example of 3270 Communication Method Options

IUCV Communication Method Options

The inter-user communications vehicle (IUCV) provides communication between the server and either an MVS TSO or VM CMS client.

Figure 52 displays an example of a IUCV communication method setting in an options file.

```
SEVERNAME                 server_name
COMMMETHOD                IUCV
```

Figure 52. Example of IUCV Communication Method Options

SNA LU6.2 Communication Method Options

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 53 on page 164 displays an example of a SNA LU6.2 communication method setting, using a symbolic destination to identify the server.

```
COMMMETHOD                   SNAlu6.2
   SYMBOLICDESTINATION       server
```

Figure 53. Example of SNA LU6.2 Communication Method Options

Figure 54 displays an example of a SNA LU6.2 communication method setting, using a transaction program to identify the server.

```
COMMMETHOD                   SNAlu6.2
   TPNAME                    server
   PARTNERLUNAME             target_lu
   CPICMODENAME              mode name
   CPICBUFFERSIZE            15
```

Figure 54. Example of SNA LU6.2 Communication Method Options

If you use these options for the AIX client, they are set in the client system options file.

Note: The TSO administrative client must specify the SYMBOLICDESTINATION. To override the SIDEINFO definition, use the 'TPNAME, PARTNERLUNAME, CPICMODENAME' combination.

TCP/IP Communication Method Options

Transmission Control Protocol/Internet Protocol (TCP/IP) communication method options are set differently for UNIX clients and non-UNIX clients.

Figure 55 displays an example of the TCP/IP communication method option set-tings used by UNIX clients, for example AIX/6000 or SunOS clients. These options are set in the client system options file.

```
SERVERNAME                   server_name
   TCPSERVERADDRESS          tcp_address
   TCPPORT                   1500
   TCPBUFFSIZE               8
   TCPWINDOWSIZE             16
```

Figure 55. Example of TCP/IP Communication Method Options for UNIX Clients

Figure 56 displays an example of a TCP/IP communication method option settings used by non-UNIX clients.

```
COMMMETHOD                   TCPip
   TCPSERVERADDRESS          tcp_address
   TCPPORT                   1500
   TCPBUFFSIZE               8
   TCPWINDOWSIZE             16
```

Figure 56. Example of TCP/IP Communication Method Options for Non-UNIX Clients

Interlink SNS/TCPaccess Communication Method Options

The Interlink SNS/TCPaccess protocol provides communication between the server and the MVS TSO client.

Figure 57 displays an example of an Interlink SNS/TCPaccess communications method setting used by the MVS TSO client.

```
COMMMETHOD               TCPIP
   ICSSNAME              ACSS
   TCPSERVERADDRESS      tcp_address
   TCPPORT               1500
   TCPBUFFSIZE           8
   TCPWINDOWSIZE         16
```

Figure 57. Example of Interlink SNS/TCPaccess Communication Method Options

Summary of Administrative Client Options

The following tables list the administrative client options, a brief explanation of each, and where in the Client Options Reference more information can be obtained.

Communication Method Options

Table 25 displays the options used to establish communication between the server and administrative clients.

Table 25 (Page 1 of 2). Setting Options For Communication Methods

Command	Description	Reference
3270BUFFERSIZE	Specifies the size of the 3270 communication buffer, used to transfer data between the client and server.	"3270Buffersize" on page 167
3270CHECKSUM	Specifies whether or not to perform validity checking.	"3270Checksum" on page 167
3270HOSTCMDPAUSE	Specifies how long to pause, in seconds, between sending interrupt messages to the server.	"3270HOSTCMDPause" on page 168
3270HOSTCOMMAND	Specifies a start up command string to connect a 3270 terminal session with the server.	"3270HOSTCOmmand" on page 168
3270HOSTTIMEOUT	Specifies amount of time, in seconds, to wait for a response from the server.	"3270HOSTTImeout" on page 169
3270LOGICAL-TERMINALID	Specifies a short name of the 3270 terminal session.	"3270Logicalterminalid" on page 170
COMMMETHOD	Specifies the communication method used to communicate between the server and client.	"COMMmethod" on page 170
CPICBUFFERSIZE	Specifies the size of the CPIC buffer used to transfer data between a client node and the server.	"CPicbuffersize" on page 171

Table 25 (Page 2 of 2). Setting Options For Communication Methods

Command	Description	Reference
CPICMODENAME	Specifies the mode name for CPIC, which identifies the connection parameters to the gateway and the target LU.	"CPICMOdename" on page 171
ICSSNAME	Specifies the SNS/TCPaccess sub-system name on the MVS server. It allows the MVS TSO client to be routed through SNS/TCPaccess in order to communicate with the MVS server.	"ICSSName" on page 172
PARTNERLUNAME	Specifies a logical unit name used by a transaction program to identify the server in the SNA network.	"PARtnerluname" on page 174
SERVERNAME	Specifies the name of the server.	"SErvername" on page 174
SYMBOLICDESTINATION	Specifies the name that APPC or CPIC used to connect to the server.	"SYMbolicdestination" on page 174
TPNAME	Specifies the transaction program name or the resource name by which the target of the connection request is known at the target logical unit (LU).	"TPname" on page 177
TCPBUFFSIZE	Specifies the buffer size of the Internal TCP communication buffer used to transfer data between the client and the server.	"TCPBuffsize" on page 175
TCPPORT	Specifies the port address for TCP/IP.	"TCPPort" on page 175
TCPSERVERADDRESS	Specifies the Internet server address for communication, using TCP/IP.	"TCPServeraddress" on page 176
TCPWINDOWSIZE	Specifies the size of the TCP sliding window.	"TCPWindowsize" on page 176

Date, Number, Time, and Language Options

Table 26 lists the DATEFORMAT, TIMEFORMAT, NUMBERFORMAT, and LAN-GUAGE options used to choose formats for expressing dates, times-of-day, numbers, and language. If you are using a UNIX client, these options are set in the client user options file.

Table 26 (Page 1 of 2). Setting Format Options

Option	Description	Reference
DATEFORMAT	Specifies the format by which dates are displayed on your administrative client.	"DATEformat" on page 172
LANGUAGE	Specifies which national language is used to present the client messages.	"LANGuage" on page 173
NUMBERFORMAT	Specifies the format by which numbers are displayed on your client node.	"NUMberformat" on page 173

Table 26 (Page 2 of 2). Setting Format Options

Option	Description	Reference
TIMEFORMAT	Specifies the format by which times are displayed on your administrative client.	"TIMEformat" on page 176

Administrative Client Options Reference

This section lists the administrative client options in alphabetical order and for each option, lists the following:

- syntax
- parameters
- examples

3270Buffersize

Specifies the size of the 3270 communication buffer, which is used to transfer data between the client node and the server. A large buffer size can increase the data transfer rate, but it also requires more memory and might cause the termination of a 3270 terminal session. Set a buffer size of at least 4000 bytes unless memory constraints or line conditions dictate otherwise. A buffer size of 32 000 bytes is not recommended.

DOS users might need to decrease this size in order to fit within memory constraints.

Syntax

```
►►──3270Buffersize──bytes───────────────────────────────────────►◄
```

Parameters
bytes

Specifies the size of the buffer in bytes. The default is obtained from the emulator file transfer buffer size. You can specify a value from 512 to 65 508 bytes. Contact your system administrator for the recommended size.

Examples
Option file example: `3270Buffersize 4000`

Command line example: `-3270B=300000`

3270Checksum

Specifies whether ADSM checks the validity of the data being sent between a 3270 client session and the server. To ensure data integrity, ADSM checks to see if the data contains a trailing two-byte checksum.

Syntax

```
►►──3270Checksum──┬─Yes─┬──────────────────────────────────────►◄
                  └─No──┘
```

Parameters

Yes

Turn validity checking on. This is the default.

No

Turns validity checking off.

Examples

Option file example: `3270C yes`

Command line example: `-3270Checksum=N`

3270HOSTCMDPause

Specifies the number of seconds to wait between sending AID (attention) key-strokes to interrupt host commands, as specified by the 3270 host command option. Interrupts are generated by the control characters identified by an asterisk (*) in the 3270HOSTCOMMAND table, or by Enter, Clear, PF or PA keys. Cursor and text keys do not interrupt a 3270 session.

Use this option when the host response time is slow. If this value of the seconds parameter is too small and the host response time is slow, errors might occur when sending keystrokes to the host session. When system response time is slow, a value of 3 to 5 seconds might be appropriate.

If an error occurs, manually restore the host session by switching to the host session and pressing the reset key.

Syntax

```
►►──3270HOSTCMDPause──seconds───────────────────────────────────►◄
```

Parameters

seconds

Specifies the number of seconds to pause between sending interrupts. The default value is 1.

Examples

Option file example: `3270HOSTCMDP 3`

Command line example: `-3270HOSTCMDPause=2`

3270HOSTCOmmand

Specifies a sequence of commands to start a 3270 client/server session. Since the connection to the server uses the 3270 data-stream dial-up interface, the terminal session should not have an active user at the time the session is started. You can imbed special control characters in the command string. Use the control character @ as an escape sequence for AID (attention) keystrokes to interrupt a 3270 ter-minal session. Cursor and text keys do not interrupt a 3270 session. Any character not preceded by the control character @ is read as text.

The control characters and their associated function are listed in Table 27 on page 169. Note that control characters are case-sensitive. Control characters identified by an asterisk (*) in the table will interrupt the 3270 terminal session.

Table 27. Control Characters for the 3270 host command. Control characters are case sensitive.

@B (Left Tab)	**@C** (Clear)	**@D** (Delete)	**@E** (Enter)
@F (Erase EOF)	**@I** (Insert)	**@L** (Cursor Left)	**@N** (New Line)
@R (Reset)	**@T** (Right Tab)	**@U** (Cursor Up)	**@V** (Cursor Down)
@Z (Cursor Right)	**@0** (Home)	**@1** (PF1)	**@2** (PF2)
@3 (PF3)	**@4** (PF4)	**@5** (PF5)	**@6** (PF6)
@7 (PF7)	**@8** (PF8)	**@9** (PF9)	**@a** (PF10)
@b (PF11)	**@c** (PF12)	**@d** (PF13)	**@e** (PF14)
@f (PF15)	**@g** (PF16)	**@h** (PF17)	**@i** (PF18)
@j (PF19)	**@k** (PF20)	**@l** (PF21)	**@m** (PF22)
@n (PF23)	**@o** (PF24)	**@x** (PA1)	**@y** (PA2)
@z (PA3)	**@@** (@)	**@$** (Alternate Cursor)	**@<** (Backspace Erase)
@AF (Erase Input)	**@AH** (System Request)	**@AJ** (Cursor Select)	**@AQ** (Attention)

Syntax

```
►►──3270HOSTCOmmand──cmd_string──────────────────────────────────►◄
```

Parameters

cmd_string

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

Examples

Option file example: `3270HOSTCOmmand @Cdial anrserv@E`

Command line example: `-3270HOSTCO="@CD PVM@EALMVMA@E@Cdial anrserv@E"`

3270HOSTTImeout

Specifies the number of seconds the client node waits to receive a data packet from the server before timing out. You might need a larger value than 10 seconds when host response time is extremely slow or when you restore large files.

Syntax

```
►►──3270HOSTTImeout──seconds──────────────────────────────────────►◄
```

Parameters

seconds

> Specifies the number of seconds a client node waits to receive data from the server before timing out. The default value is 10. The minimum value is 1.

Examples

Option file example: `3270HOSTTImeout 20`

Command line example: `-3270HOSTTI=30`

3270Logicalterminalid

Specifies a 3270 logical terminal session used by a client for ADSM activity.

Syntax

```
►►──3270Logicalterminalid──id──────────────────────────────────────►◄
```

Parameters

id
>   Specifies a logical terminal session. The default value is `A`.

Examples

Option file example: `3270Logicalterminalid B`

Command line example: `-3270L=C`

COMMmethod

Specifies the communication method for client/server communication.

Syntax

```
►►──COMMmethod──3270──IUCV──SNAlu6.2──TCPip──────────────────────────►◄
```

Parameters

3270
>   Sets the communication method to 3270. This is the default for the DOS,
>   OS/2, and Windows clients.
>
>   **Note:** Asynchronous emulation is not supported.

IUCV
>   Sets the communication method to inter-user communications vehicle (IUCV).
>   This is the default for MVS TSO and VM CMS administrative clients.

SNAlu6.2
>   Sets the communication method to Systems Network Architecture (SNA)
>   Logical Unit services (LU 6.2). If you are using the AIX client, this option is
>   set in the client system options file.
>
>   **Note:** Clients can communicate with the server through Common Program-
>   ming Interface Communications (CPIC). CPIC provides a program-
>   ming interface that allows program-to-program communication using
>   SNA LU 6.2.
>
>   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 LU 6.2.

TCPip

Sets the communication method to Transmission Control Protocol/Internet Protocol (TCP/IP). If you are using a UNIX client, this option is set in the client system options file.

Examples

Options file example: COMM 3270

Command line example: -COMMmethod=TCP

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. If you are using the AIX client, this option is set in the client system options file.

Syntax

```
►►──CPicbuffersize──cpic_buffer_size─────────────────────────────►◄
```

Parameters

cpic_buffer_size

Specifies the size of the buffer in kilobytes. The default is 15KB. You can specify a value from 1 to 31KB.

Examples

Options file example: CP 15

Command line example: -CPicbuffersize=20

CPICMOdename

Specifies the mode name for CPIC, which identifies the SNA connection to the gateway and target logical unit (LU). If you are using the AIX client, this option is set in the client system options file.

The CPIC mode name is used for the SNALU6.2 communication method if the symbolic destination is not provided and the partner LU is located on another system. The mode name must be known on both the local and remote systems.

Syntax

```
►►──CPICMOdename──mode_name──────────────────────────────────────►◄
```

Parameters

mode_name

Specifies the name for the SNA session which connects to the partner LU on another system. Contact your system administrator for this name.

Examples
Options file example: CPICMOdename LU624K

Command line example: -CPICMO=LU62A

DATEformat

Specifies the format by which dates are displayed on your client node. If you are using a UNIX client, this option is set in the client user options file.

Syntax

```
►►──DATEformat──number────────────────────────────────────────────►◄
```

Parameters
number

Select a number from 1 to 5 to identify the date format used by your client. 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

Examples
Options file example: DATEformat 4

Command line example: -DATE=3

ICSSName

Specifies the SNS/TCPaccess subsystem name on the MVS server. It allows the MVS TSO client to be routed through SNS/TCPaccess in order to communicate with the MVS server. Contact your server administrator for this name.

Syntax

```
►►──ICSSName──subsystemname──────────────────────────────────────►◄
```

Parameters
subsystemname

Specifies the name of the SNS/TCPaccess subsystem. Contact your server administrator for this name.

Examples
Options file example: ICSSName ACSS

Command line example: -ICSSN=ACSS

LANGuage

Specifies which national language to use to present the client messages. If you are using a UNIX client, this option is set in the client user options file.

American English (AMENG) can be used all platforms. Some platforms support other languages. See your IBM sales representative for information about these platforms.

Syntax

```
►►──LANGuage──language────────────────────────────────────────►◄
```

Parameters

language

Specifies the language to be used for client messages. The default is AMENG.

Examples

Options file example:　　LANGuage AMENG

Command line example:　-LANGuage=AMENG

NUMberformat

Specifies the format by which numbers are displayed on your client node. If you are using a UNIX client, this option is set in the client user options file.

Syntax

```
►►──NUMberformat──number──────────────────────────────────────►◄
```

Parameters

number

Select a number from 1 to 6 to identify the time format used by your client. The default value 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

Examples

Options file example:　　NUMberformat 4

Command line example:　-NUM=6

PARtnerluname

Specifies a logical unit name used by the transaction program to identify the ADSM server in the SNA network. If you are using the AIX client, this option is set in the client system options file.

The partner LU name is used if the symbolic destination is not provided for the SNALU6.2 communication method.

```
►►──PARtnerluname──partner_lu_name────────────────────────────────►◄
```

Parameters

partnerluname
  Specifies a 1 to 64 character LU name used to identify the remote target in a SNA network. Contact your system administrator for this name.

Examples

Options file example: PARtnerluname ALMVMA

Command line example: -PAR=SANJOSEMVS

SErvername

Specifies the name of the ADSM server you want to contact. If more than one server exists, you can use this option to specify which server you want to contact for services. machine on which the server is running. If you are using a UNIX client, this option is set in the client system options file.

The server name is the job name in the JCL used to start the server.

```
►►──SErvername──server_name──────────────────────────────────────►◄
```

Parameters

server_name
  Specifies a 1 to 8 character name of a specific ADSM server.

Examples

Options file example: SErvername DSM

Command line example: -SE=ADSM

SYMbolicdestination

Specifies a name that APPC 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. If you are using the AIX client, this option is set in the client system options file.

When a symbolic destination is used for the SNALU6.2 communication method, you do not have to specify a transaction program name, partner logical unit name, or CPIC mode name.

```
 ►►──SYMbolicdestination──sym_dest_name────────────────────────────►◄
```

Parameters

sym_dest_name
> Specifies a 1 to 8 character symbolic destination name of the server.
> Contact your system administrator for this name.

Examples

Options file example: SYMbolicdestination DSM

Command line example: -SYM=anrserv

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. If you are using a UNIX client, this option is set in the client system options file.

DOS clients should set a small buffer size.

```
 ►►──TCPBuffsize──tcp_buffer_size─────────────────────────────────►◄
```

Parameters

tcp_buffer_size
> Specifies the size of the buffer in kilobytes. The default value is 8KB. You can specify a value from 1 to 32KB.

Examples

Options file example: TCPBuffsize 8

Command line example: -TCPBuffsize=32

TCPPort

Specifies a port address of a server when using TCP/IP. If you are using a UNIX client, this option is set in the client system options file.

```
 ►►──TCPPort──port_addr───────────────────────────────────────────►◄
```

Parameters

port_addr
> Specifies the port address. The default value is 1500. You can specify a value from 1000 to 32 767. Contact your system administrator for this value.

Examples

Options file example: `TCPPort 1500`

Command line example: `-TCPPort=1600`

TCPServeraddress

Specifies the internet server address for communication using TCP/IP. If you are using a UNIX client, this option is set in the client system options file.

```
►►──TCPServeraddress──server_addr──────────────────────────────────►◄
```

Parameters

server_addr
> Specifies the server address.

Examples

Options file example: `TCPServeraddress  DSHOST.ALMADEN.IBM.COM`

Command line example: `-TCPServeraddress=129.33.10.249`

TCPWindowsize

Specifies the size of the TCP sliding window for your client. A larger window size can improve communication performance, but uses more memory. If you are using a UNIX client, this option is set in the client system options file.

DOS clients should set a small buffer size.

```
►►──TCPWindowsize──window_size───────────────────────────────────►◄
```

Parameters

window_size
> Specifies the size of TCP sliding window in kilobytes. The default is 16KB. You can specify a value from 1 to 24KB.

Examples

Options file example: `TCPWindowsize 16`

Command line example: `-TCPWindowsize=20`

TIMEformat

Specifies the format by which time is displayed on your client node. If you are using a UNIX client, this option is set in the client user options file.

```
►►──TIMEformat──number───────────────────────────────────────────►◄
```

Parameters

number

Select a number from 1 to 4 to identify the time format used by your client. The default value is 1.

1   23:00:00

2   23,00,00

3   23.00.00

4   12:00:00A/P

Examples

Options file example: TIMEformat 4

Command line example: -TIME=3

TPname

Specifies a symbolic name for a transaction program in a SNA network. The transaction program name identifies the target logical unit (LU), which is the ADSM server. If you are using the AIX client, this option is set in the client system options file.

The transaction program is used if a symbolic destination is not provided for the SNALU6.2 communication method.

```
►►──TPname──tp_name────────────────────────────────────────►◄
```

Parameters

tp_name

Specifies the 1 to 64 character transaction program name of the target logical unit, which is the ADSM server. Contact your system administrator for this name.

Examples

Options file example: TPname DSM

Command line example: -TP=anrserv

TPname

Chapter 9. Tape Processing Considerations

This chapter contains Product-sensitive Programming Interface and Associated Guidance Information.

This chapter provides information on the following:

- Defining tape volumes to the ADSM server
- Setting up your tape management system

Defining Tape Volumes

ADSM manages tape volumes based on the volume serial (volser) found in the tape volume label. Before ADSM can use a tape, you must either:

Define volumes by using the DEFINE VOLUME command

OR

Define the maximum number of scratch tapes that ADSM might use by specifying a MAXSCRATCH value in the ADSM tape storage pool.

If you do not complete one of these steps, there will be no storage available in the storage pool.

Setting Up ADSTAR Distributed Storage Manager with Your Tape Management System

If you are using a tape management system, you can set up ADSM to use scratch tapes from the scratch pool controlled by the tape management system. While tape management systems vary, you should use the same basic steps to set up ADSM to work properly regardless of which one you are using. These basic steps include the following:

- Defining ADSM to the tape management system as an external data manager, if applicable.
- Specifying to the tape management system that an ADSM volume must be permanently retained.
- Setting up tape installation-wide exits

When ADSM requires a new scratch volume, it asks for a private mount. The tape management system can then give ADSM a volume from the scratch pool. However, in most installations, the operator selects the scratch volume from a list provided by the tape management system. The tape management system verifies that the volume mounted is a scratch volume. ADSM uses the volser of this tape to define the volume to the storage pool. The tape label is rewritten with the expiration date from the device class, if it was specified, and the data set name.

When the tape volume becomes empty, usually due to reclamation, it is deleted from ADSM. During the deletion process, the tape deletion exit is called and notifies the tape management system that it can return the tape to the scratch pool.

Defining ADSTAR Distributed Storage Manager to Your Tape Management System

If you are using IBM's DFSMSrmm or DFRMM tape management system products, you do not have to define ADSM to either of them. The Removable Media Manager is designed to support all tape data sets, including those created by ADSM and DFSMShsm.

If you are using a different tape management system product, refer to the product documentation. Defining ADSM to tape management systems vary by product, and it is important that you understand how to complete this task for the one being used by your installation.

If your tape management system uses program names to identify External Data Managers, the ADSM program name is ANRSERV.

Specifying Permanent Tape Retention

You might need to tell your tape management system that a volume needs to be permanently retained.

If you are using IBM's DFSMSrmm or DFRMM tape management system products, you should define policies (vital record specification's) to cover the ADSM tape data sets. A single policy specifying the ADSM high level qualifier is sufficient to include all ADSM tape data sets.

You can retain all DFSMShsm tapes that require no movement, with the exception of tapes written by ABARS, by specifying the RMM TSO subcommands shown in following example:

```
RMM ADDVRS DSNAME('mprefix.**') COUNT(99999) OWNER(owner)
RMM ADDVRS DSNAME('bprefix.**') COUNT(99999) OWNER(owner)
RMM ADDVRS DSNAME('authid.**') COUNT(99999) OWNER(owner)
```

where:

mprefix   Specifies the DFSMShsm-defined migrated data set prefix.

bprefix   Specifies the DFSMShsm-defined backup and dump data set prefix.

authid   Specifies the DFSMShsm prefix used for control data set backups.

COUNT(99999) Specifies to retain all data sets that match the filter mask.

owner   Specifies the user ID of the individual responsible for these definitions.

For more information on defining policies, refer to *DFSMS/MVS DFSMSrmm Implementation and CUSTOMIZATION Guide* (SC26-4932). For more information on vital record specifications, refer to *DFSMSrmm Guide and Reference* (SC26-4931).

If you are using a different tape management system, one of the most commonly used ways to specify permanent tape retention is by setting up the expiration date in the device class definition within ADSM.

You should keep the following in mind when setting up the expiration date:

- The storage group to which your tape volumes belong must have this device class.

- An expiration date of 99365 is most often used to indicate permanent retention.

- Other values can be used as long as the tape management system understands that the value used means permanent retention.

The following is an example of how to update the cartridge device class for permanent retention using the expiration date of 99365:

```
UPDATE DEV CARTRIDGE EXP=99365
```

Setting Up Tape Installation-Wide Exits

On MVS systems, you must use the deletion installation-wide exit to notify your tape management system that the ADSTAR Distributed Storage Manager server has deleted a tape from its database. This exit can provide a tape management system with the information required to maintain an accurate inventory of ADSM tapes. However, you do not have to use this exit to use tapes with ADSM.

The deletion exit is called when the ADSM server is returning a tape to scratch after it no longer contains valid files, and when the DELETE VOLUME command is used to delete a volume from the database. The tape volume is deleted from the ADSM server database before the deletion exit is called.

Identifying the Deletion Exit to the Server

In order to use the deletion exit, include the DELETIONEXIT option in the server options file. Specify the name of the module on the option. If you are using a tape management system, specify the module name of the deletion exit provided by the tape management system. For example, if you are using the DFSMShsm ARCTVEXT module, specify:

```
DELetionexit ARCTVEXT
```

Understanding the Deletion Exit's Processing Requirements

The deletion exit allows your tape management system to accurately reflect the server tape usage. You need to use the tape management system facilities to notify itself that the server has deleted the tape from its database.

Once the deletion exit sends the notification to the tape management system, it returns control to the server. Tape deletions cannot be cancelled.

If you are using DFSMSrmm or DFRMM, the vital record specification policy is used to determine the management of the volume. If you are using a different tape management system, it should recognize that the volume is being managed by an external data manager (EDM). It should then insure that only ADSM has access until the volume is returned to the tape management system's control via the DELETIONEXIT.

Writing the Deletion Exit

If you are using the DFSMShsm ARCTVEXT exit or a deletion exit supplied with a tape management system, include the coding required for the ADSM deletion exit in your existing exit. The coding considerations for this exit are the same as those for the DFSMShsm ARCTVEXT exit, including entry and exit linkage. A non-zero return code or abend in the exit results in an error message, but has no other effect on ADSM processing.

The deletion exit must be reentrant and is run in 24-bit addressing mode.

Registers on Entry to the Deletion Exit

The registers contain the following information on entry to the deletion exit:

Register	Description
1	The address of the parameter list passed to the exit.
13	The address of a 72-byte standard MVS save area.
14	The address to which the exit must return control.
15	The address of the deletion exit.
0, 2–12	These registers contain nothing of use to the exit.

Deletion Exit Parameter List

Table 28 shows the parameter list passed to the tape deletion exit. Register 1 contains the address of this parameter list.

Table 28. Deletion Exit Parameter List (MVS)

Offset	Length (bytes)	Data Type	Description
0 (X'00')	4	Address of the data area	Pointer to an 8-byte data area containing information about the volume the server has deleted from its data-base. Table 29 shows the format of the data area.
4 (X'04')	4	Address of the return code	The address of a full word containing the return code that the exit must set after completing processing. The return code is binary, and should be 0 if processing is successful, or any other number if processing is unsuccessful. ADSM generates an error message if processing is unsuccessful. The high order bit of the return code address is set to 1.

Table 29 shows the format of the data area pointed to by the deletion exit parameter list.

Table 29 (Page 1 of 2). Deletion Exit Data Area (MVS)

Offset	Length	Data Type or Bit Pattern	Description
0 (X'00')	6	Character	The volume serial number of the tape volume deleted from the database.

Table 29 (Page 2 of 2). Deletion Exit Data Area (MVS)

Offset	Length	Data Type or Bit Pattern	Description
6 (X'06')	2	Binary	Informational flags.
		1...	The tape volume is purged from the server's database.
		.1..	The server has protected the files on the volume with expiration dates. This information is determined from the device class associated with the volume.
			Note: If the expiration or retention information on the device class has changed after the volume was first used, this informational flag may be incorrect.
		.... 1...	The DFSMShsm SCRATCHTAPE option was used on the SETSYS TAPEDELETION command for this tape category.
		....1.	This is a backup tape.

Registers on Exit from the Deletion Exit

When you return control to the server, restore the registers to the values they had on entry.

Appendix. Configuring the MVS Server with APPC

You can use this appendix as reference when installing your ADSM server. It provides you with an actual scenario used to install the MVS ADSM server and to configure it for APPC communications.

It also provides you with actual scenarios for configuring the following clients for APPC communications:

- TSO administrative Client
- OS/2 backup-archive and administrative clients
- Novell NetWare backup-archive client
- AIX backup-archive and administrative clients

Finally, this appendix provides information for diagnosing initial client/server connection failures.

Configuring an MVS Server in a Cross-Domain Network

The following configurations were done in a cross-domain environment. All the workstations are generated to the 3745 in the DEIBMFD network with the SSCPNAME as **FDW**. The 3745 is channel-attached to an MVS host machine in the DEIBMA4 network. This MVS machine is connected to another MVS host machine where the ADSM server application, named **A4V**, is running.

Note: MVS/APPC must be started to run TSO Administrative client. For other clients, the LU6.2 is sufficient.

VTAM/NCP Setup

The following VTAM definitions must be made on the adjacent SSCP. The MVS host machine is channel-attached to the 3745 in this environment.

1. We recommend that you use the **#BATCH** mode in the VTAM default logmode table (ISTINCLM) initially to establish the APPC connection. See Figure 58. Depending on your VTAM level, this mode might not be pre-defined in the default logmode table. You should verify this with your VTAM system programmer. If this mode is needed, add it to the logmode table, compile, and then link-edit the member into a VTAM library.

```
        TITLE '#BATCH'
#BATCH   MODEENT LOGMODE=#BATCH,                                    X
            ENCR=B'0000',SSNDPAC=8,                                 X
            SRCVPAC=8,PSNDPAC=8,TYPE=0
```

Figure 58. #BATCH mode entry

Once you have the APPC connection established, you can create a new mode for performance tuning. To do this, create it in your current logmode table, compile it, and then link-edit the member into a VTAM library. In this environment, you need to load it into the 3745-NCP.

Since the RU size is negotiated between VTAM and the workstations, we recommend that you define a dummy mode table entry (see below). However,

if you are going to specify an RU size, you should use a block size of at least 4KB.

```
ADSMAPPC MODEENT LOGMODE=ADSMAPPC
```

2. Define a physical unit (PU) and an independent logical unit (LU) in the SWNET Major Node. An independent LU is denoted by locaddr=0. In the following example, the PU is defined as F13833B and the independent LU is defined as F13833B0. See Figure 59 on page 187.

```
*---------------------------------------------------------------*
*                   SWITCHED MAJOR NODE                         *
*---------------------------------------------------------------*
*
          VBUILD TYPE=SWNET,MAXGRP=1,                            X
                 MAXNO=1
*
F13833B  PU     ADDR=C5,                                        X
                IDBLK=05D,IDNUM=F333B,    <==== see explanation below  X
                ISTATUS=ACTIVE,                                 X
                PUTYPE=2,MAXOUT=8,MAXDATA=4105,MAXPATH=1,        X
                VPACING=8,PACING=8,DISCNT=NO,                   X
                USSTAB=USSSNAM,SSCPFM=USSSCS,                   X
                MODETAB=MTD1SERH,DLOGMOD=QUERY                  X
F13833B0 LU     LOCADDR=0,MODETAB=ISTINCLM,DLOGMOD=#BATCH,      X
                VPACING=8,PACING=8
F13833B1 LU     LOCADDR=2
F13833B2 LU     LOCADDR=3
F13833B3 LU     LOCADDR=4
F13833B4 LU     LOCADDR=5
F13833B5 LU     LOCADDR=6,MODETAB=WI3820,PACING=0,VPACING=0,    X
                DLOGMOD=IBM3820T
*
F13833C  PU     ADDR=C5,                                        X
                IDBLK=05D,IDNUM=F333C,                          X
                ISTATUS=ACTIVE,                                 X
                PUTYPE=2,MAXOUT=8,MAXDATA=4105,MAXPATH=1,        X
                VPACING=8,PACING=8,DISCNT=NO,                   X
                USSTAB=USSSNAM,SSCPFM=USSSCS,                   X
                MODETAB=MTD1SERH,DLOGMOD=QUERY                  X
F13833C0 LU     LOCADDR=0,MODETAB=ISTINCLM,DLOGMOD=#BATCH,      X
                VPACING=8,PACING=8
*
F13833D  PU     ADDR=C5,                                        X
                IDBLK=05D,IDNUM=F333D,                          X
                ISTATUS=ACTIVE,                                 X
                PUTYPE=2,MAXOUT=8,MAXDATA=4105,MAXPATH=1,        X
                VPACING=8,PACING=8,DISCNT=NO,                   X
                USSTAB=USSSNAM,SSCPFM=USSSCS,                   X
                MODETAB=MTD1SERH,DLOGMOD=QUERY                  X
F13833D0 LU     LOCADDR=0,MODETAB=ISTINCLM,DLOGMOD=#BATCH,      X
                VPACING=8,PACING=8
```

Figure 59. SWNET Major Node.   Use CPNAME=F13833B0 instead of IDBLK and IDNUM. This makes it much easier to implement Advanced Peer-to-Peer Network (APPN). The CPNAME has to be the same as the independent LU name.

MVS Setup

The following steps must be completed on an MVS host machine where the server application is executed. In this environment, the MVS host machine name is *A4V*.

1. Define an APPL statement for the ADSM MVS application in VTAM. See Figure 60 on page 188.

```
A4VBADSM VBUILD TYPE=APPL
A4VADSM2 APPL  ACBNAME=A4VADSM2,EAS=30,AUTH=(ACQ,PASS,VPACE),            X
               HAVAIL=YES,APPC=YES,PARSESS=YES,SONSCIP=YES,             X
               VPACING=5,MODETAB=ISTINCLM,DLOGMOD=#BATCH,DSESLIM=4
```

Figure 60. Sample APPL Statement

In this example, the ACBNAME parameter, known as the LU name by the
ADSM server, is the partner LU that the clients refer to. MODETAB is the
mode entry table member name. DLOGMOD is the log mode name.

The DSESLIM parameter has been coded to handle two concurrent sessions
from each LU; for example, when you run the administrative client and the
backup client from the same workstation. You can increase this value if neces-
sary.

Note: For more information about the APPL parameters, refer to the *VTAM
Resource Definition Reference*.

2. Create a job to start the ADSM server. See Figure 61.

```
//ADSM2    JOB  ,MVSUSER,MSGLEVEL=(1,1),
//         REGION=40M,TIME=1440,CLASS=A,MSGCLASS=X
//JOBLIB  DD  DSN=ADSM.V2R1M0.LINKLIB,DISP=SHR
//     DD   DSN=SYS1.LINKLIB,DISP=SHR
//SERVER  EXEC PGM=DSMSERV,DYNAMNBR=300,TIME=1440
//OPT      DD DSN=ADSM.V2R1M0.ANRSERV.OPTIONS,DISP=SHR
//DSMAMENG DD DSN=ADSM.V2R1M0.SANRMSG,DISP=SHR
//HLPAMENG DD DSN=ADSM.V2R1M0.SANRHLP,DISP=SHR
//DSK      DD DSN=ADSM.V2R1M0.DISKLOG,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSTERM  DD SYSOUT=*
```

Figure 61. Sample ANRSTART JCL Statement

3. In the server's ADSM.ANRSERV.OPTIONS file, assign the LUNAME the
   ACBNAME (as set in the APPL statement). For example:

```
luname A4VADSM2
```

4. Ensure the VTAMLIB contains the load module for the mode entry table that
   has the log mode defined. This load module is also loaded in the 3745-NCP.

Configuring an MVS Server in a Single-Domain Network

The steps in "Configuring an MVS Server in a Cross-Domain Network" on
page 185 can be applied to the single network environment. A single network ID is
used throughout all of the clients' configuration files.

Depending on where the control unit is attached, the setup for the server can be
simplified. In the example environment, the control unit is not channel-attached to
the same host machine where ADSM is running. Therefore, you have two VTAMs
to deal with. The log mode that you defined on the NCP must also exist on the

second host machine where the application is running. However, define the independent LUs only on the host machine where the control unit is attached. The host machine is the owning SSCP.

In the case where the control unit is attached to the same application host machine, you only deal with one VTAM.

Configuring the 3172 Communication Controller

Configuration of the 3172 control unit environment is similar to the configuration of the 3745 control unit environment except for the single domain network. In most cases, the control unit is channel-attached to the same host machine that ADSM is running on.

Configuring the 3174 Communication Controller

Figure 62 contains sample 3174 PU and LU definitions for use with ADSM.

```
DSM3174  VBUILD TYPE=LOCAL
*
PU3174   PU    CUADDR=2A0,                                      X
               DISCNT=NO,                                       X
               DELAY=0,                                         X
               ISTATUS=ACTIVE,                                  X
               MAXBFRU=9,                                       X
               PACING=7,                                        X
               PUTYPE=2,                                        X
               VPACING=7,                                       X
               XID=YES,                                         X
               SECNET=NO
* INDEPENDENT LUS
PS21ILU  LU    LOCADDR=0,ISTATUS=ACTIVE
BORNEO   LU    LOCADDR=0,ISTATUS=ACTIVE
IMAGOS2I LU    LOCADDR=0,ISTATUS=ACTIVE
IMAGNOVI LU    LOCADDR=0,ISTATUS=ACTIVE
```

Figure 62. VTAM Definition for 3174 Token Ring LAN Gateway

The following is a list of recommendations and requirements from the 3174 support group:

- If you use the APPN Feature Code, which we recommend, you must implement APPN to support ADSM. You should define the 3174 as an NN (network node). We also recommend that the workstations using ADSM be configured as EN (end nodes).

- The APPN Feature requires 4 MB of RAM on the 3174. For performance enhancement, we recommend that the 3174 have 6 MB of RAM.

  For more information on configuring the 3174 for APPN connectivity refer to manuals: 3174 APPN Implementation Guide (GG24-3702) and IBM 3174 Establishment Controller Installation Guide (GG24-3061).

- Code DYNAMLU=YES on the 3174 PU macro to utilize VTAM cross-domain resources. This eliminates the need for coding the independent LU LOCADDR=0

- The mode used for ADSM communication must be specified in the 3174 MODE/COS Correlation panel during the APPN feature customization.

Note: Refer to the software requirements for the 3174 in "Software Requirements" on page 223.

Configuring the ADSM Clients to the MVS Server

Before configuring the clients, you should obtain the following information from the VTAM administrator and the MVS system administrator:

CLIENT REQUIREMENTS

c_netid   Network ID of the network where the client workstation's PU and LU are defined. In this network topology, it is the 3745.

c_independentlu   Independent LU name defined in the 3745 VTAMLST where locaddr=0.

c_pu   PU name defined in the 3745 VTAMLST. This parameter is required for the NetWare client, but is not required for the other clients.

vtam_xid   IDBLK and IDNUM defined in the 3745 VTAMLST for the PU. This is required for the host link definition.

logmode   LOGMODE name defined in the mode table entry in the 3745 VTAMLST.

SERVER REQUIREMENTS

s_netid   Network ID of the network where the server application resides.

dest_addr   Token ring adapter address of the adjacent SSCP. In this network topology, it is the locally administered address to the 3745.

partner_lu   Server's LU to be used as client's Partner LU. This is the ACBNAME in the APPL statement.

Configuring TSO Administrative Clients

1. In the SYS1.PARMLIB dataset, create the APPC/MVS configuration members, APPCPMxx and ASCHPMxx. See Figure 63 through Figure 67.

   Note that APPCPMxx does *not* need to define the LU of the server application nor does it require a transaction program (TP) in the MVS APPCTP repository. This is because ADSM uses the VTAM record level API rather than the APPC/MVS.

   Figure 63 on page 191 shows the APPCPMxx statements used to define an APPC/MVS configuration.

```
/********************************************************************/
/*   This is an example using APPCPMxx statements to define an      */
/*   APPC/MVS configuration.                                        */
/*                                                                  */
/*   APPCPMxx parmlib members contain startup, default, and         */
/*   customization values for APPC/MVS. They also contain           */
/*   information indicating the correspondence between              */
/*   logical unit(LU) names and transaction schedulers.             */
/*                                                                  */
/*   This member illustrates the use of the LUADD, LUDEL, and       */
/*   SIDEINFO statement types, in context.                          */
/********************************************************************/
  LUADD ACBNAME(A4VAPPC)      /* SPECIFY THE NAME OF THE LU TO BE    */
                             /* added - generic LU.                 */
        BASE                 /* This is the default LU for          */
                             /* outbound requests.                  */
        TPDATA(SYS1.APPCTP)  /* Specify the TP profile repository.   */
                             /*                                     */
        TPLEVEL(SYSTEM)      /* TPLEVEL(SYSTEM) is the default.      */
                             /* OTHER VALUES COULD BE SPECIFIED.     */
  SIDEINFO                   /* Specify that VSAM data set           */
        DATASET(SYS1.APPCSI) /* SYS1.APPCSI is the permanent         */
                             /* repository for the side information.*/
```

Figure 63. APPCPMxx Parmlib Member

Figure 64 shows the sample IDCAMS job to create the dataset *SYS1.APPCTP*.

```
//APPCTP      EXEC PGM=IDCAMS
//SYSPRINT    DD   SYSOUT=*
//SYSIN       DD   *
   DEFINE CLUSTER -
       (NAME(SYS1.APPCTP) -
       VOLUMES(JTFASH) -
       INDEXED REUSE -
       SHAREOPTIONS(3 3) -
       RECORDSIZE(3824 7024) -
       KEYS(112 0) -
       RECORDS(300 150))
```

Figure 64. Sample JCL for TP Create (SYS1.APPCTP)

Figure 65 on page 192 shows the sample IDCAMS job to create the dataset *SYS1.APPCSI*.

```
//APPCSI     EXEC PGM=IDCAMS
//SYSPRINT   DD   SYSOUT=*
//SYSIN      DD   *
   DEFINE CLUSTER -
       (NAME(SYS1.APPCSI) -
       VOLUMES(JTFASH) -
       INDEXED REUSE -
       SHAREOPTIONS(3 3) -
       RECORDSIZE(248 248) -
       KEYS(112 0) -
       RECORDS(50 25))
```

Figure 65. Sample JCL for SI Create (SYS1.APPCSI)

Figure 66 shows the VTAM LU definitions defined in MVSAPPC for an APPC/MVS configuration.

```
**********************************************************************
*** MVSAPPC - VTAM LU DEFINITIONS FOR APPC/MVS                    ****
**********************************************************************
MVSAPPL  VBUILD TYPE=APPL
A4VAPPC  APPL  APPC=YES,                                           X
               ABCNAME=A4VAPPC,                                    X
               AUTOSES=0,                                          X
               DDRAINL=NALLOW,                                     X
               DRESPL=NALLOW,                                      X
               EAS=32,                                             X
               MODETAB=TPOMODE,                                    X
               SECACPT=CONV,                                       X
               SRBEXIT=YES,                                        X
               VERIFY=NONE
```

Figure 66. Generic VTAM LU definition for APPC/MVS

Figure 67 on page 193 shows the ASCHPMxx statements used to define an APPC/MVS configuration.

```
CLASSADD CLASSNAME(A)
     MAX(6)
     MIN(2)
     RESPGOAL(0.5)
     MSGLIMIT(500)
CLASSADD CLASSNAME(FAST)
     MAX(6)
     MIN(2)
     RESPGOAL(0.02)
     MSGLIMIT(500)
CLASSADD CLASSNAME(SLOW)
OPTIONS DEFAULT(SLOW)
     SUBSYS(JES2)
TPDEFAULT REGION(4M)
     TIME(10,30)
     MSGLEVEL(1,1)
     OUTCLASS(X)
```

Figure 67. ASCHPMxx Parmlib Member

2. Create a job for the server's side information record in SYS1.APPCSI. See Figure 68.

```
//TSOUSER  JOB ,TSOUSER,MSGCLASS=X,
//         PRTY=5
//TPINFO   EXEC PGM=ATBSDFMU
//SYSPRINT DD SYSOUT=*
//SYSSDOUT DD SYSOUT=*
//SYSSDLIB DD DISP=SHR,DSN=SYS1.APPCSI
//SYSIN    DD *
 SIDELETE
       DESTNAME(TOADSM2)      <=== ensure it is not there yet
 SIADD
       DESTNAME(TOADSM2)      <=== symbolic destination name in dsm.opt
       TPNAME(DUMMY)          <=== any name you wish
       MODENAME(ADSMAPPC)     <=== mode name
       PARTNER_LU(A4VADSM2)   <=== Partner LU
 SIRETRIEVE
       DESTNAME(TOADSM2)
```

Figure 68. Sample Job

3. Insert the following lines into your TSO administrative client's option file:

```
commmethod SNALU6.2
symbolicdestination TOADSM2  <== the name defined in MVS SI record
```

4. Create a CLIST to start the ADSM TSO administrative client. See Figure 69 on page 194.

```
PROC 0
CONTROL MSG PROMPT
ALLOC DD(DSCOPT) DA('ADSM.V2R1M0.TSOADMIN.OPTIONS') SHR REUSE
ALLOC DD(DSCLANG) DA('ADSM.D9F0.SANSMSG(ANSMENU)') SHR REUSE
CALL 'SYS1.LINKLIB.ADSM(ANSADM)'
```

Figure 69. Sample CLIST

5. Ensure MVS APPC is started before starting the ADSM TSO administrative
   client. Enter the following commands:

```
S APPC,SUB=MSTR
S ASCH,SUB=MSTR
```

6. To start the TSO administrative client, enter the TSO command EX (ANSADM)
   or invoke the administrative client (DSMADMC).

Configuring OS/2 Clients Using Communication Manager/2

The example configuration that follows uses Communication Manager/2 (CM/2)
level 1.0. To begin the configuration process for CM/2, follow these steps:

1. From the OS/2 Desktop, double click on the Communication Manager/2 icon.

2. Double click on the Communication Manager Setup icon. The **Communication
   Manager Setup** window appears.

3. Press the **Setup** button. The **Open Configuration** window appears. See
   Figure 70.

Figure 70. Open Configuration Window

4. Enter a new name in the **Configuration** field. If you want a description, enter it in the **Description** field.

5. Press the **OK** button. Answer **Yes** to any messages that appear.

6. On the **Communications Manager Configuration Definition - APPC** window, select **Token-ring or other LAN types** for the **Workstation Connection Type**.

7. Select **CPI Communications** for the **Feature or Application**.

8. Press the **Configure...** button.

After you have followed the previous steps, the **Communication Manager Profile List Sheet** window is displayed. All of the profiles listed need to be configured. The profiles are:

> **DLC - Token-ring or other LAN types**
> **SNA local node characteristics**
> **SNA connections**
> **SNA features**

The following sections show you the CM/2 windows and the information that you need to fill in.

Note: Refer to "CM/2 .ndf File for 3172 or 3745 Gateways" on page 226 to see the sample .ndf file that would be created by completing the following sections.

DLC - Token-Ring or Other LAN Types

In the **Communications Manager Profile List Sheet** window, double click on **DLC - Token-ring or other LAN types**. The **Token Ring or Other LAN Types DLC Adapter Parameters** window appears. See Figure 71.
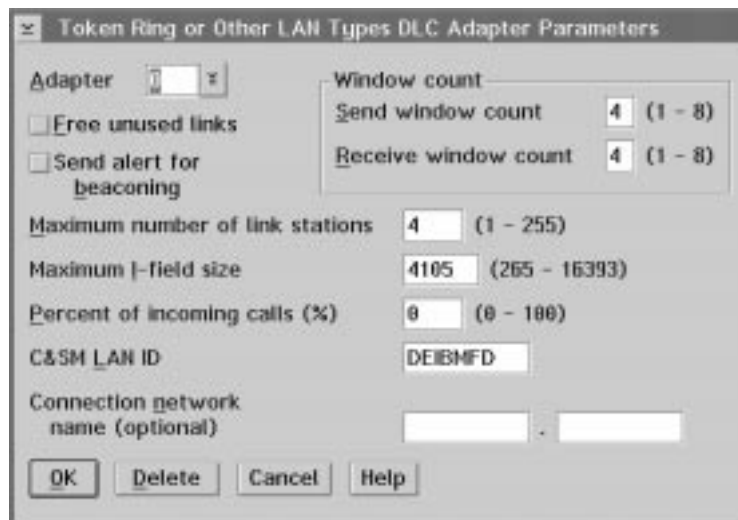
Figure 71. Token Ring or Other LAN Types DLC Adapter Parameters Window

1. Enter the *c_netid* in the **C&SM LAN ID** field.

2. Press the **OK** button.

SNA Local Node Characteristics

In the **Communications Manager Profile List Sheet** window, double click on **SNA local node characteristics**. The **Local Node Characteristics** window appears. See Figure 72.
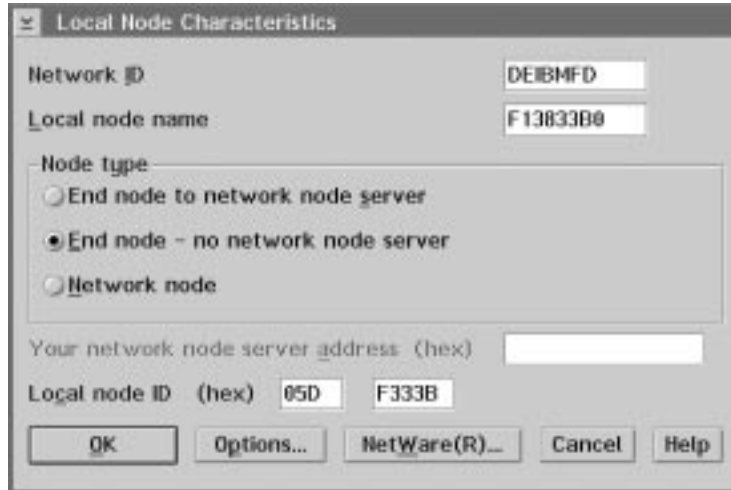
Figure 72. Local Node Characteristics Window

1. Enter the **c_netid** in the **Network ID** field.

2. Enter the **c_independentlu** in the **Local node name** field.

3. Select **End node - no network node server** for the **Node type**. You need to select **End node to network node server** if you are connecting to an APPN network node server.

4. Enter the **vtam_xid** in the **Local node ID** fields. These values can be left with zeros if CPNAME is used in the VTAMLST.

5. Press the **OK** button to return to the **Communications Manager Profile List Sheet** window.

SNA Connections

In the **Communications Manager Profile List Sheet** window, double click on **SNA connections**. The **Connections List** window appears. See Figure 73 on page 197.
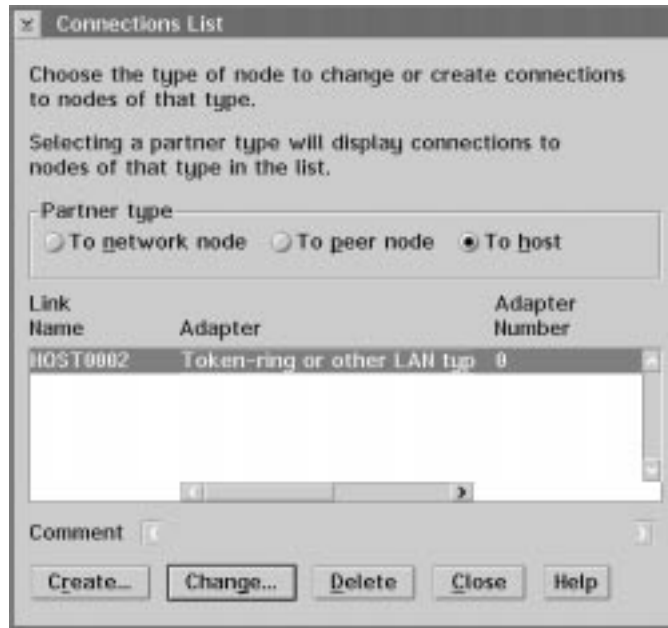
Figure 73. Connections List Window

1. Select **To host** in the **Partner type** group box.

2. Press the **Create...** button.

Selecting an Adapter: When you press the **Create...** button in the **Connections List** window, the **Adapter List** window appears. See Figure 74.
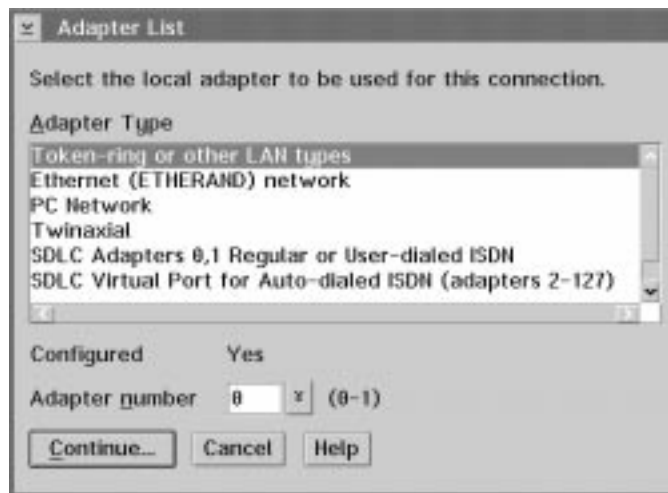
Figure 74. Adapter List Window

1. Select **Token-ring or other LAN types** if you are using token ring.

2. Press the **Continue...** button.

Creating a Host Connection: When you press the **Continue...** button in the **Adapter List** window, the **Create a Connection to a Host** window appears. See Figure 75 on page 198.
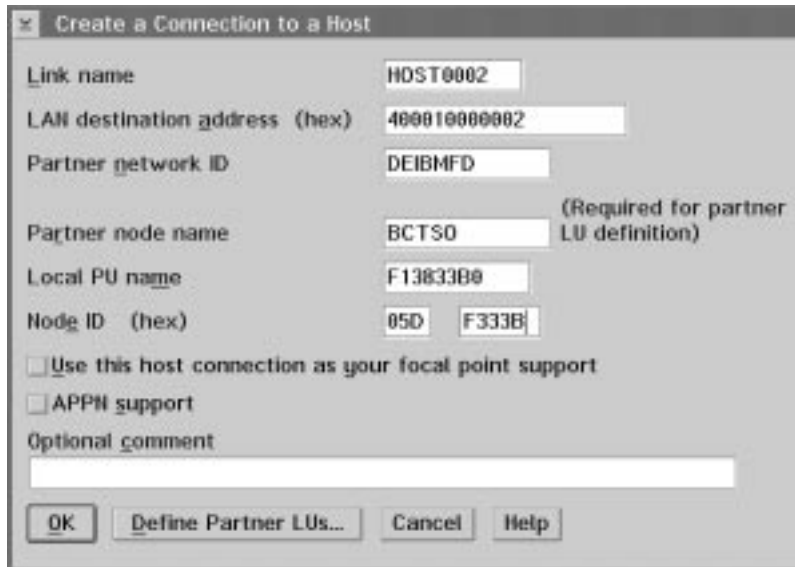
Figure 75. Create a Connection to a Host

1. Enter the ***dest_addr*** in the **LAN destination address** field.

2. Enter the ***c_netid*** in the **Partner network ID** field. This is the network identification number of the adjacent CP (3745-NCP) that the client workstation is generated to. In this example, it is the client's network ID.

3. Enter a value in the **Partner node name** field. This is the SSCPNAME in VTAMLIST. For the OS/2 client, this can be any value you want. ***BCTSO*** is used in this example.

4. Enter the ***vtam_xid*** in the **Node ID** fields. These values are required for the host link connection definition. It could be zeros if CPNAME is used in the VTAMLST.

5. Press the **Define Partner LUs...** button.

Defining Partner LUs: When you press the **Define Partner LUs...** button in the **Create a Connection to a Host** window, the **Create Partner LUs** window appears. See Figure 76 on page 199. Defining Partner LUs generates the DEFINE_PARTNER_LU_LOCATION statement. This ensures that the FQ_OWNING_CP_NAME parameter is in the .ndf file.
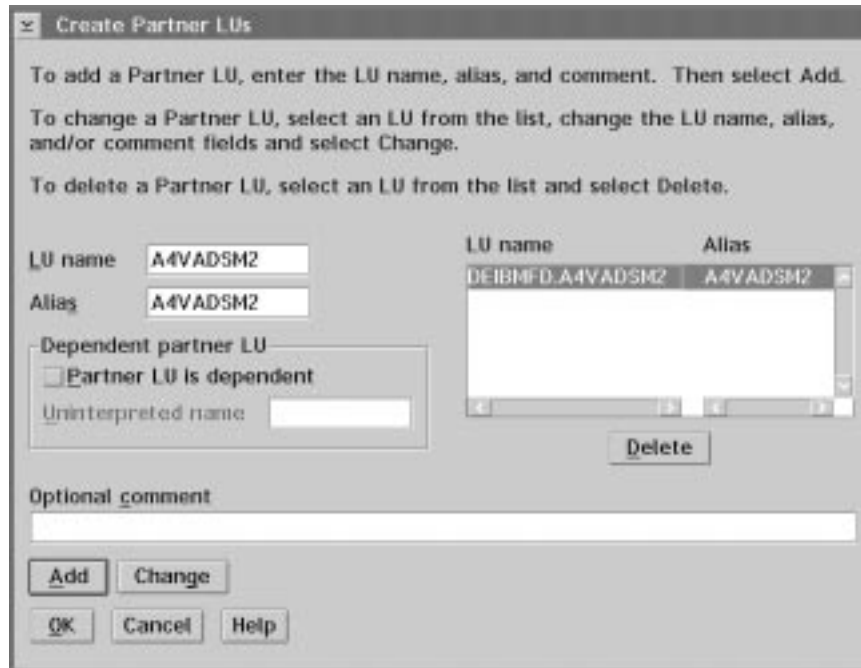
Figure 76. Create Partner LUs

1. Enter the ***partner_lu*** in the **LU Name** field.

2. Enter a value in the **Alias** field. The Partner LU alias can be any value you want.

3. Press the **Add** button to add the Partner LU to the list.

4. Press the **OK** button to return to the **Connections List** window.

5. Press the **Close** button to return to the **Communications Manager Profile List Sheet** window.

SNA Features

In the **Communications Manager Profile List Sheet** window, double click on **SNA features**. The **SNA Features List** window appears. See Figure 77 on page 200.
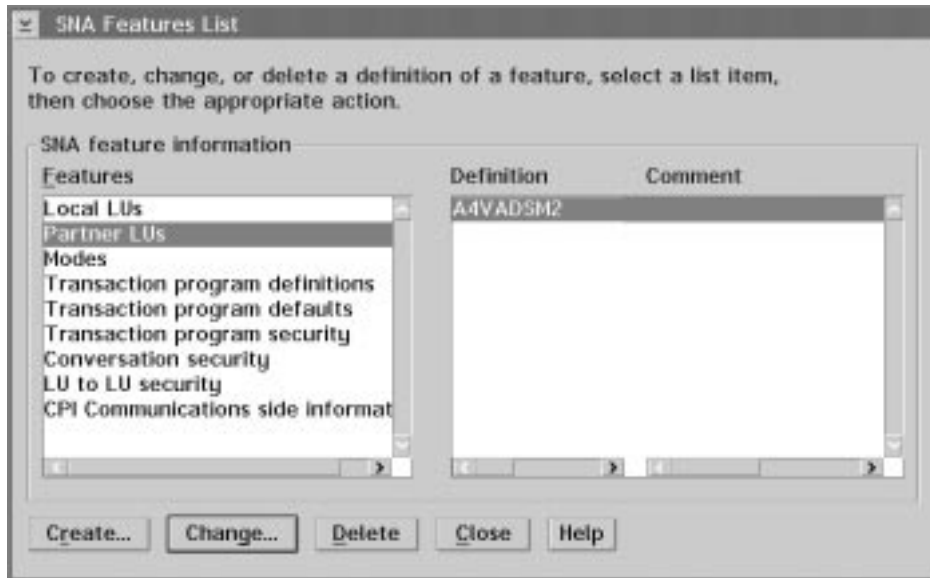
Figure 77. SNA Feature List Window

1. Select **Partner LUs** in the **Features** list.

2. Select the Partner LU you previously defined in the far right list. In this example, the Partner LU name is **A4VADSM2**.

3. Press the **Change...** button.

Updating the Partner LU Network ID

When you press the **Change...** button in the **SNA Features List** window, the **Change a Partner LU** window appears. See Figure 78.
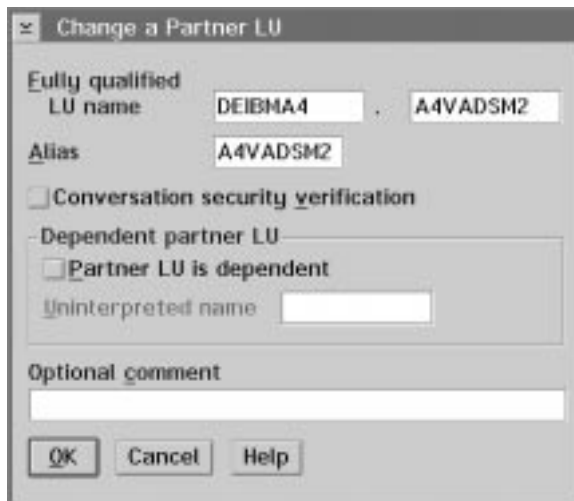
Figure 78. Change a Partner LU Window

1. Update the **Partner LU network ID** if it is different from the client's network ID (**s_netid**).

   Note: This updates the FQ_PARTNER_LU_NAME parameter in the DEFINE_PARTNER_LU statement. This is important if the client and server are on different networks.

2. Press the **OK** button to return to the **SNA Features List** window.

Creating a Mode Definition: If you decide to create a new mode instead of using the predefined one (#BATCH), you need to complete the following steps:

1. In the **SNA Features List** window, select **Modes** from the **Features** list.

2. Press the **Create...** button to create a new mode. The **Create a Mode Definition** window appears. See Figure 79.
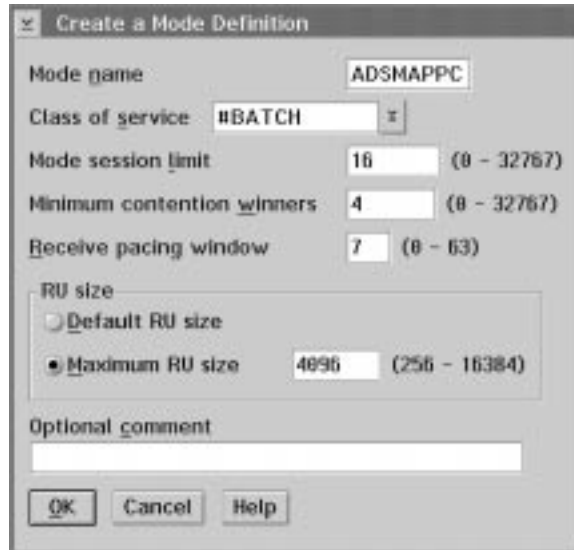

Figure 79. Create a Mode Definition Window

3. Enter ***logmode*** in the **Mode Name** field.

   Note: The mode name must match the VTAM's log mode defined in the mode table entry.

4. Press the **OK** button to return to the **SNA Features List** window.

Note: IBM recommends that you use the #BATCH mode for ADSM.

Defining Side Information

1. In the **SNA Features List** window, select **CPI Communications side information** from the **Features** list.

2. Press the **Create...** button. The **Create CPI Communications Side Information** window appears. See Figure 80 on page 202. Use this window to create a symbolic destination name if you want to use one in the options file (dsm.opt).
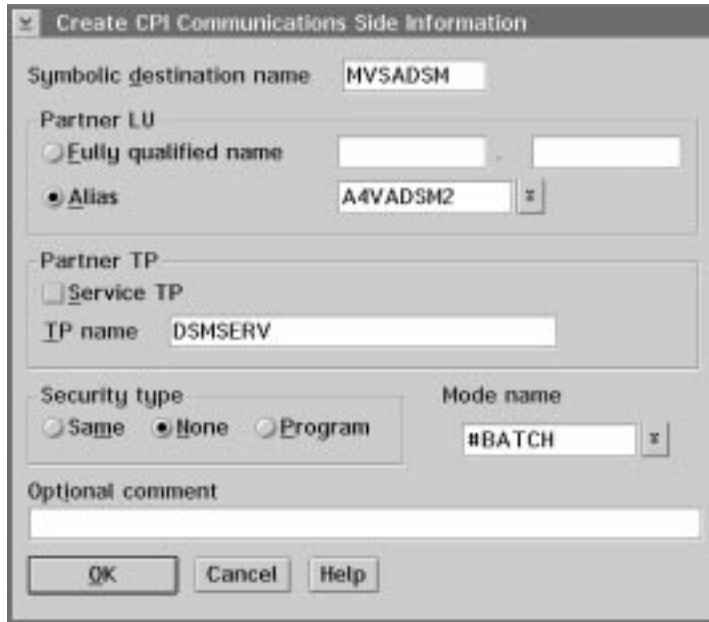
Figure 80. Create CPI Communications Side Information Window

3. Enter a value in the **Symbolic destination name** field. You can enter any-
   thing. The value that you enter here should also be the symbolic destination
   name in the client's dsm.opt file.

4. Enter the **Fully qualified name** (***s_netid*** and ***partner_lu***) of the partner LU, or
   use the **Alias** name defined in "Updating the Partner LU Network ID" on
   page 200.

5. Enter the server program name in the **TP name** field. This can be any value
   you want.

6. Select **Same** or **None** for the **Security type**.

7. Select the mode you just created from the **Mode name** field. Select **#BATCH** if
   you did not define one.

8. Press the **OK** button.

Notes:

1. If the same OS/2 client wants to have access to another host server, such as a
   VM or MVS server, via the same gateway, you need to define another partner
   LU, a CPIC side information record, and a new mode if it is using a different
   mode name. You can quickly add the following statements to the .ndf file for
   the new server:

       DEFINE_PARTNER_LU
       DEFINE_PARTNER_LU_LOCATION
       DEFINE_PARTNER_MODE
       DEFINE_CPIC_SIDE_INFO

2. The VTAM SWNET Major Node defined the independent LU with MODETAB
   and DLOGMODE for the first server. This should not have any effect if the
   second server is using a different MODETAB and DLOGMODE. When the
   client establishes a connection to the server, the mode that is defined on the
   client overrides the mode defined in the VTAM SWNET Major Node definition.

Starting the ADSM Client

1. Edit the dsm.opt file, giving the symbolic destination a value of MVSADSM. For example:

```
COMMMETHOD SNALU6.2
SYMBOLICDESTINATION MVSADSM
```

2. Ensure that CM/2 is started.

3. Start the ADSM program

Considerations for Using OS/2 Clients

ADSM does not allow the user to choose the local LU for the ADSM client program. If CM/2 supports other applications that use independent LUs, you need to specify a default LU for ADSM by adding the following statement to your .ndf file:

DEFINE_DEFAULTS DEFAULT_LOCAL_LU_ALIAS (**<local LU alias>**)

After adding this statement you need to run CMVERIFY /E to verify your changes and dynamically update the SNA information in CM/2.

Note: You must manually add this statement to the .ndf file. The **Communication Manager Setup** program provides no means for doing so.

Configuring NetWare for SAA Clients Using NetWare Requester

In the NetWare configuration that follows, the SNA profile was created using DOS requestor.

Creating the CSCON Configuration Profile

1. Go to the SYSTEM/CSCON directory and invoke CSCON service.

2. Select **Configure Communication Services**.

3. Select **NetWare for SAA**.

4. Create a 2.1 type service profile called **appcpro** (ADSM requires a type 2.1 service profile).

5. Select the newly created profile to create a host connection.

Creating a Host Connection: When you select **Configure Host Connection** from the **Configure SAA Service Profile** window, the **Host Connection Configuration** window appears. See Figure 81.

```
┌────────────────────────────────────────────────────┐
│             Host Connection Configuration           │
│ ┌────────────────────────────────────────────────┐ │
│ │ SNA Network ID:                    DEIBMFD      │ │
│ │ Peripheral Node Control Point Name:  F13833C0   │ │
│ │                                                 │ │
│ │ Number Independent Sessions Supported: 16       │ │
│ │                                                 │ │
│ │ Host Attachment:                   Token Ring   │ │
│ │                                                 │ │
│ └────────────────────────────────────────────────┘ │
└────────────────────────────────────────────────────┘
```

Figure 81. Host Connection Configuration

1. Enter *c_netid* for the **SNA network ID**.

2. Enter *c_independentlu* for the **Control Point Name**.

3. Enter the number of licenses you have for NetWare SAA for the **Number Independent Sessions Supported**. In this example, *16* was used.

4. Place the cursor in the **Host Attachment** field and press the Insert key. Then select the type of LAN to be configured. We're selecting *Token Ring* in this example.

Configuring the SNA Token-Ring: After you select **SNA Token Ring**, the **SNA Token Ring Configuration** window appears. See Figure 82.

```
┌─────────────────────────────────────────────────────────────┐
│             SNA Token Ring Configuration                     │
├─────────────────────────────────────────────────────────────┤
│ Token Ring Source Service Access Point: 04    hex           │
│ Token Ring Adapter Type:                Primary             │
│                                                              │
│ Block ID:                               05D   hex           │
│ PUID for Token Ring Connection          F333C   hex         │
│                                                              │
│ Logical Adapter Name:                   TOKENSAA            │
└─────────────────────────────────────────────────────────────┘
```

Figure 82. SNA Token Ring Configuration

1. Enter *04* for **Token Ring Source Service Access Point**.

2. Enter *Primary* for **Token Ring Adapter Type**.

3. Enter *vtam_xid* for the **Block ID** and **PUID for Token Ring Connection** fields. If *CPNAME* is used in the VTAMLST, leave the default values for these two fields.

4. Enter the logical adapter name from the IPX bind statement in the autoexec.ncf file. For example, in BIND IPX TO TOKENSAA NET=ABCD, TOKENSAA is the logical adapter name.

5. Exit CSCON.

Creating the Side Information File

1. Go to the SYSTEM\NWSAA\CPIC directory and invoke the SIUTIL service.

   Note: The SIUTIL help facility clearly explains all of the fields.

2. Select **Create New Side Information File**.

3. Call the file *MVSADSM.CPI*.

4. Select **Add A Side Information Record**.

5. Call the record *MVSADSM*. This is the name to be used as symbolic destination in the client's dsm.opt file. Beware of case sensitive fields because certain levels of SIUTIL do not automatically change entries to uppercase letters, but ADSM changes the symbolic destination to uppercase letters.

Defining Local LU Configuration

When you select **Add a Side Information Record** from the **Side Information Records Command Menu** window, the **Local LU Configuration Data** window appears. See Figure 83.

```
┌─────────────────────────────────────────────┐
│ ┌─────────────────────────────────────────┐ │
│ │        Local LU Configuration Data      │ │
│ └─────────────────────────────────────────┘ │
│                                              │
│   Side Information Record Name:  MVSADSM     │
│                                              │
│     LU Name:              F13833C0           │
│     PU Name:              F13833C            │
│     Detach PU Type:       1                  │
│     Security Type:        0                  │
│     User ID:                                 │
│     PassWord:                                │
│     LU Local Address:     0                  │
│     LU Session Limit:     8                  │
│     Network Name:         DEIBMFD            │
│                                              │
│                                              │
│   Enter      F1 = Help    F7 = Cancel        │
│          Ctrl PgDn = PLU Record              │
│                                              │
└─────────────────────────────────────────────┘
```

Figure 83. Local LU Configuration Data

1. Enter the following:

    a. **LU name**: *c_independentlu*
    b. **PU name**: *c_pu*
    c. **Detach PU Type**: *1*
    d. **Security Type**: *0*
    e. **LU Local Address**: *0*
    f. **LU Session Limit**: *8*
    g. **Network Name**: *c_netid*

2. Press **Ctrl PgDn** to go to the **PLU Record**.

Defining Partner LU Configuration: When you press **Ctrl PgDn** from the **Local LU Configuration Data** window, the **Partner LU Configuration Data** window appears. See Figure 84 on page 206.

```
┌─────────────────────────────────────────┐
│      Partner LU Configuration Data       │
├─────────────────────────────────────────┤
│                                          │
│  Side Information Record Name:  MVSADSM   │
│                                          │
│    LU Name:                  A4VADSM2     │
│    Data Link Control Name:   ITRN         │
│    Network Adapter Number:   0            │
│    Network Adapter Address:  400010000002 │
│    LU Session Limit:         8            │
│    Max Logical Record Size:  0            │
│    Character Set:            0            │
│    Local Program Name:       DSMC         │
│    Remote Program Name:      DSMSERV      │
│                                          │
│    Enter     F1 = Help    F7 = Cancel     │
│        Ctrl PgUp = LU Record             │
│        Ctrl PgDn = Mode Record           │
│                                          │
└─────────────────────────────────────────┘
```

Figure 84. Partner LU Configuration Data

1. Enter the following:

   a. **LU name**: *partner_lu* (This is the Partner LU)
   b. **Data Link Control Name**: *ITRN*
   c. **Network Adapter Number**: *0*
   d. **Network Adapter Address**: *dest_addr*
   e. **LU Session Limit**: *8*
   f. **Max Logical Record Size**: *0*
   g. **Character Set**: *0*
   h. **Local Program name**: *DSMC*
   i. **Remote Program Name**: *DSMSERV*

2. Press **Ctrl PgDn** to go to the **Mode Record**.

Defining the Mode Configuration Data: When you press **Ctrl PgDn** from the **Partner LU Configuration Data** window, the **Mode Configuration Data** window appears. See Figure 85.

```
┌─────────────────────────────────────────┐
│         Mode Configuration Data          │
├─────────────────────────────────────────┤
│                                          │
│  Side Information Record Name:  MVSADSM   │
│                                          │
│    Mode Name:                    #BATCH   │
│    Max Negotiable Session Limit:  8       │
│    Automatic Activate Session Limit: 8    │
│    Min Contention Winners Source:  0      │
│    Min Contention Winners Target:  0      │
│    Pacing Size:                   8       │
│    Max RU Size:                   4096    │
│    Min RU Size:                   256     │
│    CNOS Flags:                    6       │
│    CNOS Termination Set:          4       │
│    SAA Service Profile Name:     APPCPRO  │
│                                          │
│    Enter       Esc = Exit     F1 = Help   │
│    F7 = Cancel    Ctrl PgUp = PLU Record  │
│                                          │
└─────────────────────────────────────────┘
```

Figure 85. Mode Configuration Data

1. Enter the following:

   a. **Mode name**: *logmode*
   b. **Max Negotiable Session Limit**: *8*
   c. **Automatic Activate Session Limit**: *8*
   d. **Min Contention Winners Source**: *0*
   e. **Min Contention Winners Target**: *0*
   f. **Pacing size**: *8*
   g. **Max RU size**: *2048*
   h. **Min RU size**: *256*
   i. **CNOS Flags**: *6*
   j. **CNOS Termination Set**: *4*
   k. **SAA Service Profile Name**: *appcpro* (CSCON profile name)

2. Press **Enter** to save your changes.

3. Exit SITUIL.

Starting the ADSM Client

1. Edit the dsm.opt file, giving the symbolic destination a value of MVSADSM. For example:

```
COMMMETHOD SNALU6.2
SYMBOLICDESTINATION MVSADSM
```

2. At the NetWare server console prompt, enter the following commands:

   ```
   LOAD COMMEXEC
   CSLOAD APPCPRO
   LOAD CPIC_SAA SYS:\SYSTEM\NWSAA\CPIC\MVSADSM.CPI
   LOAD SYS:\ADSM\DSMC
   ```

Note: Use CSUNLOAD APPCPRO to unload the appcpro profile.

Considerations for Using NetWare for SAA Clients

You can support two different service profiles on the NetWare for SAA client. For example, you could have a type 2.0 service profile for 3270 emulation and a type 2.1 service profile for ADSM. There are two ways to accomplish this:

1. Use two separate, physical LAN boards on the NetWare server.

   The advantage of using a separate board for the LU6.2 traffic is performance.

2. Using the same physical board.

   NetWare for SAA can service a type 2.0 service profile and a type 2.1 service profile using the same physical board. For this to work, the SOURCE SAP (Service Access Point) for the 2.0 service profile should be changed to '08' and the 2.1 service profile should use a SOURCE SAP of '04'.

   Note: Using the same physical board does *not* work using SOURCE SAP '04' for the 2.0 service profile and SOURCE SAP '08' for the 2.1 service profile. The SOURCE SAP for the SNA connections are configured using CSCON.

Configuring AIX SNA Server/6000 Clients Using SMIT

DEFINE THE DATA LINK CONTROL (DLC)

1. Select Devices.
2. Select Communication.
3. Select Token Ring Adapter.
4. Select Services.
5. Select Data Link Controls.
6. Select Add a Token Ring Data Link Control.

GETTING TO SNA SERVER/6000 VIA SMIT

1. Select Communications Application and Services.
2. Select SNA Server/6000.
3. Select Configure SNA Profiles.

Creating the Initial Node Definition

To create the initial node definition, follow these steps:

1. From the **Configure SNA Profiles** window, select **Initial Node Setup**.

2. Select **token_ring** for this configuration. The **Initial Node Setup** screen appears. See Figure 86.

```
                        Initial Node Setup

 Type or select values in entry fields.
 Press Enter AFTER making all desired changes.

                                                [Entry Fields]
   Control Point name token_ring              +      [F13833D0]
   Control Point type                              appn_end_node          +
   Local network name                              [DEIBMFD]
   XID node ID                                     [05df333d]

   Optional link station information:

   Link station type                                    token_ring
   Link station name                                    []
 * Calling link station?                                yes                +
   Link address                                         []                  X




 F1=Help            F2=Refresh           F3=Cancel           F4=List
 Esc+5=Undo         F6=Command           F7=Edit             F8=Image
 F9=Shell           F10=Exit             Enter=Do
```

Figure 86. Initial Node Setup Screen

3. Enter **c_independentlu** for the **Control Point name**.

4. Select **appn_end_node** for the **Control Point type**.

5. Enter **c_netid** for the **Local Network Name**.

6. Enter **vtam_xid** for the **XID node ID**. This is the IDBLK and IDNUM defined in the 3745 VTAMLST. This node id is essential in a cross-domain environment

where the server application host machine is not the same as the host machine that the workstation is generated to.

7. The rest of the fields can be left with the defaults.

8. Press **Enter** to save your input.

9. Press **PF3** to return to the **Configure SNA Profiles** window.

   Note: The Initial Node setup is similar to OS/2 CM/2 define Local Node Characteristics. This can also be done in SMIT under the **Advanced Configuration/Control Point** window.

Creating the Link/Mode/Side Information

1. Select **Advanced Configuration**.

2. Select **Links**.

3. Select **Token Ring** from the **Token Ring Physical Units** window.

Note: The screens in Figure 87 on page 210 and Figure 88 on page 211 are actually composite screens. You need to use **Page Down** and **Page Up** to view all of the parameters. The values that you need to change are shown in bold print.

Token Ring SNA DLC

1. Select **Add a profile**.

2. Enter a name for the profile. For example, *tok0.00001*.

```
┌─────────────────────────────────────────────────────────────────────────────┐
│                      Add Token Ring SNA DLC Profile                           │
│                                                                               │
│  Type or select values in entry fields.                                       │
│  Press Enter AFTER making all desired changes.                                │
│                                                                               │
│  [TOP]                                              [Entry Fields]            │
│    Profile name                                     [tok0.00001]              │
│    Data link device name                            [tok0]                +   │
│    Force disconnect time-out (1-600 seconds)        [120]                 #   │
│    User-defined maximum I-Field size?                  yes                +   │
│                                                                               │
│    ⋮                                                                          │
│    Receive window count (1-127)                     [8]                   #   │
│    Ring access priority                                0                  +   │
│    Inactivity time-out (1-120 seconds)              [48]                  #   │
│    Response time-out (1-40, 500 msec intervals)     [4]                   #   │
│    Acknowledge time-out (1-40, 500 msec intervals)  [1]                   #   │
│    Local link name                                  [F13833D0]                │
│    Local SAP address (04-ec)                        [04]                  X   │
│    Trace base listening link station?                  no                +   │
│       If yes, Trace format                             long               +   │
│    Dynamic link stations supported?                    yes                +   │
│                                                                               │
│    Link Recovery Parameters                                                   │
│    ⋮                                                                          │
│                                                                               │
│    Dynamic Link Activation Parameters                                         │
│       Solicit SSCP sessions?                           yes                +   │
│       CP-CP sessions supported?                        no                 +   │
│       Partner required to support CP-CP sessions?      no                 +   │
│                                                                               │
│    Dynamic Link TG COS Characteristics                                        │
│    ⋮                                                                          │
│                                                                               │
│    Dynamic Link TG COS Characteristics                                        │
│    ⋮                                                                          │
│                                                                               │
│    Comments                                         []                        │
│  [BOTTOM]                                                                      │
│                                                                               │
│  F1=Help           F2=Refresh          F3=Cancel          F4=List             │
│  Esc+5=Undo        F6=Command          F7=Edit            F8=Image            │
│  F9=Shell          F10=Exit            Enter=Do                               │
└─────────────────────────────────────────────────────────────────────────────┘
```

Figure 87. Add Token Ring SNA DLC Profile Screen

   3. Enter **c_independentlu** for the **Local Link Name**.

   4. Under **Dynamic Link Activation Parameters**:

        a. Change **Solicit SSCP sessions** to *yes*.
        b. Change **CP-CP sessions Supported** to *no*.

   5. Press **Enter** to save the profile.

   6. Press **PF3** to return to the **Token Ring Physical Units** window.

Token Ring Link Station

   1. From the **Token Ring Physical Units window**, select **Token Ring Link Station**.

   2. Select **Add a Profile**. There is one link-station defined per server. Use most of the default parameters.

3. Enter a name for the profile. This value can be anything and the server name can be the profile name. **BCTSO** is the name of the profile in this example.

4. Press **Enter** to create the profile. The **Add Token Ring Link Station Profile** window appears. See Figure 88.

```
                    Add Token Ring Link Station Profile

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

[TOP]                                           [Entry Fields]
  Profile name                                  [BCTSO]
  Use APPN Control Point's XID node ID?          yes                    +
    If no, XID node ID                          [*]
* SNA DLC Profile name                          [tok0.00001]            +
  ⋮

  Adjacent Node Address Parameters
    Access routing                               link_address          +
    If link_name, Remote link name   yes         []
    If link_address,
       Remote link address                      [400010000002]         X
       Remote SAP address (04-ec)               [04]                   X

  Adjacent Node Identification Parameters
  ⋮

  Link Activation Parameters
    Solicit SSCP sessions?                       yes                    +
    Initiate call when link station is activated? yes                   +
    Activate link station at SNA start up?       yes                    +
    Activate on demand?                          no                     +
    CP-CP sessions supported?                    no                     +
  ⋮

  Restart Parameters
  ⋮

  Transmission Group COS Characteristics
  ⋮

  Comments                                      []
[BOTTOM]

F1=Help           F2=Refresh        F3=Cancel          F4=List
Esc+5=Undo        F6=Command        F7=Edit            F8=Image
F9=Shell          F10=Exit          Enter=Do
```

Figure 88. Add Token Ring Link Station Profile Window

5. Place the cursor in the **SNA DLC Profile name** field and press **PF4**. Select the **Token Ring SNA DLC** that was created above. It is **tok0.00001** in this example.

6. Under **Adjacent Node Address Parameters**, enter **dest_addr** for the **Remote link address**

7. Under **Link Activation Parameters**, do the following:

   a. Change **Solicit SSCP sessions** to **yes**.
   b. Change **Initiate call when link station is activated** to **yes**. This denotes that this is a calling link station.
   c. Change **Activate link station at SNA start up** to **yes**.

d. Change **CP-CP sessions Supported** to *no*.

8. Press **Enter** to save your changes.

9. Press **PF3** until you return to the **Advanced Configuration** window.

Defining LU 6.2 Session

1. Select Sessions.

2. Select LU 6.2.

LU 6.2 Mode

1. Select **LU 6.2 Mode**.

2. Select **Add a Profile**.

3. Enter the profile name. You can use the same name as the mode name in the next step. See Figure 89.

```
                         Add LU 6.2 Mode Profile

 Type or select values in entry fields.
 Press Enter AFTER making all desired changes.

                                                     [Entry Fields]
 * Profile name                                      [ADSMAPPC]
   Mode name                                         [ADSMAPPC]
   Maximum number of sessions (1-5000)               [8]                    #
   Minimum contention winners (0-5000)               [4]                    #
   Minimum contention losers (0-5000)                [0]                    #
   Auto activate limit (0-500)                       [0]                    #
   Upper bound for adaptive receive pacing window    [16]                   #
   Receive pacing window (0-63)                      [7]                    #
   Maximum RU size (128,...,32768: multiples of 32)  [1024]                 #
   Minimum RU size (128,...,32768: multiples of 32)  [256]                  #
   Class of Service (COS) name                       [#CONNECT]

   Comments                                          []



 F1=Help            F2=Refresh         F3=Cancel          F4=List
 Esc+5=Undo         F6=Command         F7=Edit            F8=Image
 F9=Shell           F10=Exit           Enter=Do
```

Figure 89. Add LU 6.2 Mode Profile Window

4. Enter *logmode* for the **Mode name** This is the client's LOGMODE.

   Note: This must match the VTAM's logmode defined in the mode table entry.

5. Press **Enter** to save your changes.

6. Press **PF3** to return to the **LU 6.2** window.

Partner LU 6.2 Profile

1. From the **LU 6.2** window, select **LU 6.2 Partner LU**.

2. Select **Add a profile**.

3. Enter the profile name. This name can be any value. **BCTSO** is used in this example. See Figure 90 on page 213.

```
                        Add LU 6.2 Partner LU Profile

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

                                              [Entry Fields]
* Profile name                                [BCTSO]
  Fully qualified partner LU name             [DEIBMA4.A4VADSM2]
  Partner LU alias                            [A4VADSM2]
  Parallel sessions supported?                 yes                    +
  Session security supported?                  no                     +
  Conversation security level                  none                   +

  Comments                                    []




F1=Help            F2=Refresh         F3=Cancel          F4=List
Esc+5=Undo         F6=Command         F7=Edit            F8=Image
F9=Shell           F10=Exit           Enter=Do
```

Figure 90. Add LU 6.2 Partner LU Profile

4. Enter the *s_netid.partner_lu* for the **Fully qualified partner LU name**.

5. Enter the **Partner LU Alias**. This value can be anything.

6. Press **Enter** to save your changes.

7. Press **PF3** to return to the **LU 6.2** window.

Partner LU 6.2 Location

1. Select **Partner LU 6.2 Location**. This is the same as the
   DEFINE_PARTNER_LU_LOCATION statement in CM/2. It is required for any
   cross-domain environment.

2. Select **Add a profile**.

3. Enter the profile name. This name can be any value. **BCTSO** is used in this
   example.

```
┌─────────────────────────────────────────────────────────────────────────────┐
│                     Add Partner LU 6.2 Location Profile                       │
│                                                                               │
│  Type or select values in entry fields.                                       │
│  Press Enter AFTER making all desired changes.                                │
│                                                                               │
│                                                           [Entry Fields]      │
│  * Profile name                                       [BCTSO]                  │
│    Fully qualified partner LU name                    [DEIBMA4.A4VADSM2]       │
│    Fully qualified owning Control Point (CP) name     [DEIBMFD.FDW]            │
│    Local node is network server for LEN node?          no                  +  │
│    Fully qualified network node server name           []                      │
│                                                                               │
│    Comments                                           []                      │
│                                                                               │
│                                                                               │
│                                                                               │
│                                                                               │
│                                                                               │
│                                                                               │
│  F1=Help            F2=Refresh          F3=Cancel          F4=List            │
│  Esc+5=Undo         F6=Command          F7=Edit            F8=Image           │
│  F9=Shell           F10=Exit            Enter=Do                              │
└─────────────────────────────────────────────────────────────────────────────┘
```

Figure 91. Add Partner LU 6.2 Location Profile Window

4. Enter **s_netid.partner_lu** for the **Fully qualified partner LU name**.

5. Enter **c_netid.cp_name** for the **Fully qualified owning Control Point (CP) name**. **cp_name** must be the SSCPNAME of the workstation's network. In this environment, the SSCPNAME is **FDW**.

6. Press **Enter** to save your changes.

7. Press **PF3** until you return to the **LU 6.2** window.

Side Information

1. Select **LU 6.2 Side Information**.

2. Enter any name for the profile. The name that you enter here must also be the symbolic destination specified in the client's dsm.opt file. **BCTSO** is used in this example.

```
                        Add LU 6.2 Side Information Profile

 Type or select values in entry fields.
 Press Enter AFTER making all desired changes.

                                                        [Entry Fields]
 * Profile name                                         [BCTSO]
   Local LU or Control Point alias                      [F13833D0]              +
   Provide only one of the following:
      Partner LU alias                                  []                      +
      Fully qualified partner LU name                   [DEIBMA4.A4VADSM2]
   Mode name                                            [ADSMAPPC]              +
   Remote transaction program name (RTPN)               [ANYTHING]
   RTPN in hexadecimal?                                  no                     +

   Comments                                             []




 F1=Help              F2=Refresh            F3=Cancel              F4=List
 Esc+5=Undo           F6=Command            F7=Edit                F8=Image
 F9=Shell             F10=Exit              Enter=Do
```

Figure 92. Add LU 6.2 Side Information Profile Window

3. Enter **c_independentlu** for the **Local LU or Control Point alias**. This can be selected from the PF4 list.

4. Enter **s_netid.partner_lu** for the **Fully qualified partner LU name** or select the **Partner LU Alias name**.

5. Select the **Mode name** from the PF4 list. This is the mode you have just created.

6. Enter the **Remote transaction program name (RTPN)**. This can be any name. **ANYTHING** is used in this example.

7. Press **Enter** to save your changes.

8. Press **PF3** until you return to the **Advanced Configuration** window.

Verify Configuration Profiles

1. Select **Verify Configuration Profiles** from the **Advanced Configuration** window. This can also be done from any window that has the verify option.

```
                      Advanced Configuration

  Move cursor to desired item and press Enter.

     Links
     Sessions
     SNA System Defaults
     Control Point
     Gateway Definitions
     Security
     Verify Configuration Profiles
     Export Configuration Profiles
     Import Configuration Profiles
     Migrate Configuration Profiles




   F1=Help            F2=Refresh         F3=Cancel          F8=Image
   F9=Shell           F10=Exit           Enter=Do
```
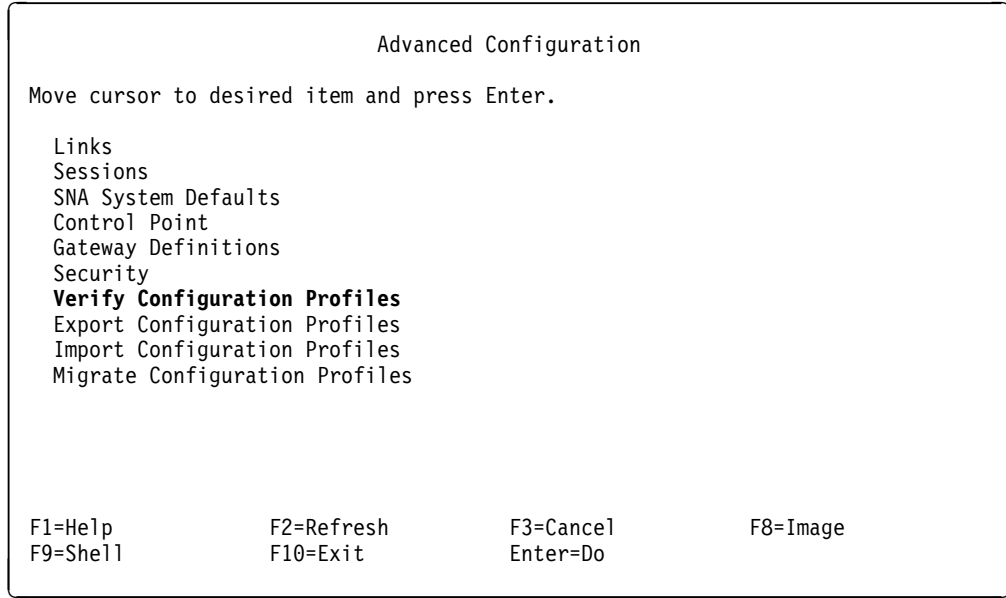
Figure 93. Advanced Configuration Window

Starting the ADSM Client

1. Edit the dsm.sys file, giving the symbolic destination a value of BCTSO. For
   example:

```
SErvername      BCTSO
  COMMmethod              SNAlu6.2
  SYMbolicdestination     BCTSO
```

2. Ensure that SNA/6000 is started. This can be done by using the 'sna -start
   sna' command or via SMIT under the Manage SNA Resources window.

3. Start the ADSM program.

Considerations for Using the SNA Services/6000 Client

The SNA Services/6000 setup is the same as the SNA Server/6000 setup except
for one important difference: the PARTNERLUNAME in the *dsm.sys* file specifies the
"Connection Profile" name of the file that has the partner LU definition and not the
actual partner LU name. This difference is attributed to the way that SNA
Services/6000 implements the partner LU.

Diagnosing Initial Connection Failures

All of the ADSM clients that use APPC issue standard CPI-C calls to communicate.
A standard set of return codes apply to all clients and can be very useful in diag-
nosing initial connection failures. The CPI-C return codes are prefixed by **CM**. For
example, **CM_PARAMETER_ERROR**.

Determining CPI-C Return Codes

ADSM currently does not write the base CPI-C return code to the ADSM error log. To determine the CPI-C return code, an ADSM trace must be executed.

To run the trace, add the following statements in the ADSM client options file:

```
TRACEFLAGS COMM
TRACEFILE  trace.out
```

An example of the trace file is shown in Figure 94.

```
Tracing is active to file 'trace.out',
-----------------------------------------------------------------
06/20/1994 10:59:32  - Trace begun.
commcpic.c(3895): ConvInit set protocol stack to OS2SAA rc: 0
commcpic.c(3929): ConvInit: Error initializing conversation to sym_dest_name SPIKE
commcpic.c(3231): CpicOpen: Error initializing conversation, rc: 24
commcpic.c(4172): CastCpicRc: Entry rc: CM_PROGRAM_PARAMETER_CHECK (24),
```

Figure 94. Sample Trace File

Note: ADSM clients at V1 R2 L0.3 or later write the CPI-C return information directly to the dsmerror.log file, eliminating the need to run the ADSM COMM trace.

Analyzing CPI-C Return Codes

Following is a list of the common CPI-C errors encountered when trying to configure APPC communications for ADSM. A complete list of the CPI-C return codes is documented in Appendix B of *Common Programming Interface Communications Specifications (SC31-6180)*

CM_ALLOCATE_FAILURE_NO_RETRY

The conversation cannot be allocated on a session because of a condition that is not temporary. Likely causes are:

- A 3174 controller is being used which does not support independent LU traffic.

- ADSM is using a dependent LU. If an independent LU is defined on the workstation, ensure that the default_local_lu_alias points to an independent LU.

It is usually very useful to obtain the sense information for these failures. See "Obtaining Sense Information" on page 219 for more information on gathering sense information.

CM_ALLOCATE_FAILURE_RETRY

The conversation cannot be allocated on a session because of a condition that might be temporary. Likely causes are:

- An APPN feature has not been configured correctly on the 3174.

- ADSM was unable to find the partner LU location.

The sense information for this type of failure is very useful. See "Obtaining Sense Information" on page 219 for more information on gathering sense information.

CM_TP_NOT_AVAILALBE_NO_RETRY

The remote system rejected the allocation request because the local program specified a remote program that the remote system recognizes but cannot start. Likely causes are:

- The TSO administrative client session has not been prepared for prompting correctly. To ensure that password prompting works correctly, issue PROFILE PROMPT before invoking the client program.

CM_PARAMETER_ERROR

The local program issued a call specifying a parameter containing an invalid argument. Likely causes are:

- The local program attempted to use the mode named SNASVCMG or CPSVCMG.

- The partner LU alias refers to an undefined partner LU name.

- For NetWare for SAA clients, the CSCON.NLM or CPIC_SAA program has not been loaded.

CM_PROGRAM_PARAMETER_CHECK

The local program issued a call in which a programming error has been found in one or more parameters. Ensure that the following are correct:

- Syntax of APPC options in dsm.opt file

- Syntax of parameters in APPC configuration

Gathering Initial Documentation for Level-2 Support

If there is a need to contact the support center to further diagnose an error, you should collect the following pieces of information:

- VTAM PU/LU definition for the workstation and independent LU

- VTAM mode table

- Client dsm.opt file

- Client workstation APPC definitions (see Table 30 on page 219)

Table 30. Obtaining Client Configuration Definitions

Product	Where to Look...
OS/2 Communications Manager 2 (CM/2)	CM/2 writes configuration definitions to a file with the extension of .ndf. This file can be found in the \CMLIB subdirectory.
OS/2 Extended Services	
Extended Services writes configuration definitions to a file with the extension of .ndf. This file can be found in the \CMLIB\APPN subdirectory.	
SNA/6000	SNA/6000 allows the user to export SMIT SNA/6000 configuration definitions to a .jfs file. To export the definitions: • Type SMIT SNA from a AIX command line • Select CONFIGURE SNA PROFILES • Select ADVANCED CONFIGURATION • Select EXPORT CONFIGURATION PROFILES • Enter a filename for the export output
NetWare SAA	NetWare SAA does not provide a mechanism to export SIUTIL definitions to a file. Screen captures from SIUTIL must be obtained. From the SIUTIL exec, view the side information file and capture the three main SIUTIL screens: • Local LU Configuration Data • Partner LU Configuration Data • Node Configuration Data Also obtain the PU 2.1 service profile being used by the ADSM side information record.

Obtaining Sense Information

Often it is useful to obtain the sense information to pinpoint an error. In some specific cases, such as *CM_ALLOCATE_FAILURE_NO_RETRY*, it is necessary. Each platform offers a unique trace facility to capture this information. The following sections discuss each platform in detail.

OS/2 CM/2

There are two ways to obtain sense information in an OS/2 environment.

- Running CM/2 Trace Services
- Issuing CMTRACE at the command line

Running CM/2 Trace Services: To run **CM/2 Problem Determination Aids - Trace Services**, double click on the **Problem Determination Aids - Trace** icon in the CM/2 folder. The **Problem Determination Aids - Trace Services** window appears. See Figure 95 on page 220.
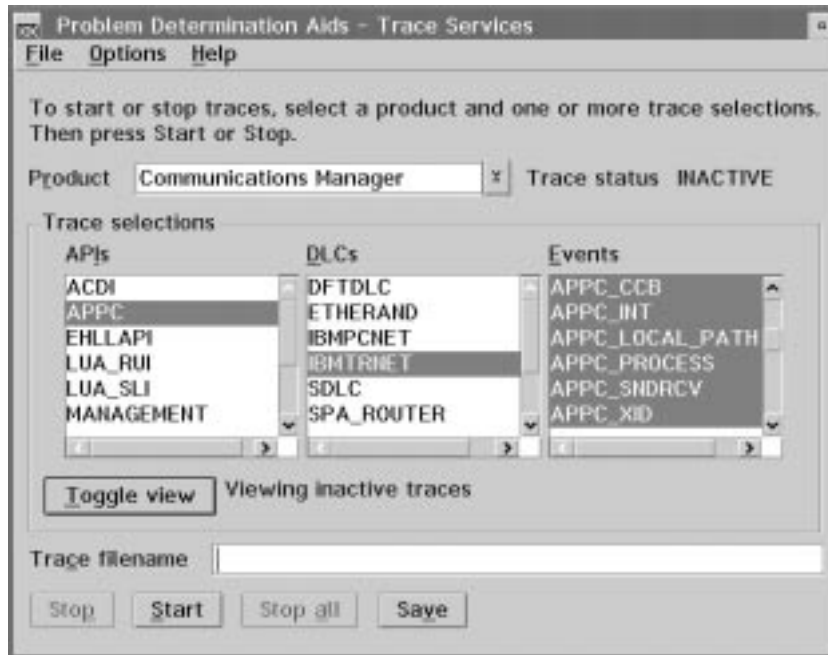
Figure 95. Problem Determination Aids - Trace Services Window

To start the trace, follow these steps:

1. Select **APPC** under the **APIs** column.

2. Select the DLC which your computer is using. **IBMTRNET** is used in this example.

3. Select all **Events** that begin with **APPC_**.

4. Press the **Start** button.

To view the trace, follow these steps:

1. Press the **Stop all** button to stop the trace.

2. Press the **Save** button.

3. Select a filename and press the **OK** button.

4. Select **Format trace file...** from the **File** pull-down menu.

5. Check the **Output file format - Detail** box. Let all other options assume their default values.

Issuing CMTRACE Commands: To use CMTRACE commands to create a trace file, do the following:

1. From an OS/2 command prompt, run the APPNT.CMD command file shown in Figure 96 on page 221. This starts CMTRACE.

```
@ECHO OFF
REM ** Start traces after resetting the trace buffer
REM ** Trace APPC and services verbs, Token ring Data and
REM ** APPC events 1 2 3 4 5 and 12
REM **      event  1 = internal DLC interface
REM **      event  2 = APPC verbs
REM **      event  3 = internal APPC flows
REM **      event  4 = APPC send and receive
REM **      event  5 = XID flows
REM **      event 12 = Utility verbs such as error log entries
REM ** storage 3 uses up to three 64K segments for traces
REM ** For other options in tracing enter "CMTRACE ?"
ECHO ON
CMTRACE START -reset -api appc services -data ibmtrnet -event 1 2 3 4 5 12
-storage 3
```

Figure 96. APPNT.CMD Command File

2. Run the ADSM command or operation you want to trace.

3. From an OS/2 command prompt, run the APPNF.CMD command file shown in Figure 97. This stops CMTRACE and formats the trace file.

```
@ECHO OFF
REM ** Stop traces (trace data remains in storage)
REM ** Copy TRACE from storage to disk file in the current directory
REM ** File name is specified as a parameter and the extension is
REM **    .TRC for the full trace,
REM **    .DET for the detailed trace and
REM **    .SUM for the trace summary
REM ** For other options in trace formatting enter FMTTRACE ?
REM ** If you want tracing to continue with the same type, then remove
REM ** the CMTRACE STOP line.
ECHO ON
CMTRACE STOP
CMTRACE copy %1.trc
FMTTRACE -DS %1
```

Figure 97. APPNF.CMD Command File

Reading the Trace File: If you used **Trace Services**, a detailed trace file was created with the same prefix that was chosen when the file was saved, but with an extension of .det. If you used CMTRACE at the command line, the trace file that you specified was created.

In the trace file, look for the CM_ALLOCATE_FAILURE_NO_RETRY message. Paging up from this error code reveals the sense data. For example, SENSE DATA = 0XFFFE0113.

NetWare for SAA

The PBTRACE program is NetWare's equivalent to the CM/2 trace facility. It can be used to determine the Primary and Secondary APPC return codes for NetWare for SAA clients.

Running PBTRACE: To run PBTRACE, follow these steps:

1. Make sure COMMEXEC is loaded by issuing the LOAD COMMEXEC command from the NetWare console.

   Note: All of the commands shown in this section should be issued from the NetWare console.

2. Issue the LOAD PB_NWSAA command.

3. Issue the CSLOAD APPCPRO to load the 2.1 service profile.

4. Issue the LOAD PBTRACE command.

   Answer yes ("Y") to the two prompts that follow.

5. Issue the LOAD CPIC_SAA SYS:\SYSTEM\NWSAA\CPIC\MVSADSM.CPI command to load the side information file.

6. Issue the LOAD SYS:\ADSM\DSMC command.

Note: To stop the trace, reissue the LOAD PBTRACE command, but answer no ("N") to the two prompts that follow.

Reading the Trace File: After completing the previous steps, the trace information is written to a file called SYS:\SYSTEM\OUTPUT.PC.

The service profile log found in the SYS:SYSTEM directory should also be obtained along with the trace. For some errors the SUBTYPE field will contain the sense code from the error.

Contact Novell or IBM support to help read the trace information.

SNA Server/6000

Sense information can be found in the SNA Server/6000 failure logs. For more information about SNA Server/6000 trace facilities, please refer to *AIX SNA Server/6000: Diagnosis Guide and Messages*.

Obtaining Failure Log Information

To obtain failure log information, follow these steps:

1. Direct the SNA Server/6000 failure log to a file by issuing the following command:

```
sna -setlogs -f /var/sna/adsm
```

   This directs failure messages to /var/sna/adsm.1.

2. Recreate the failure.

3. Close the current set of logs with the command:

```
sna -setlogs -t
```

This closes the file /var/sna/adsm.1 and directs failure messages to
/var/sna/adsm.2

4. Format the failure log by issuing the following command:

```
trcrpt -d 27B /var/sna/adsm.1 > /var/sna/adsm.out
```

This formats the data and writes it to a file called /var/sna/adsm.out.

Note: To issue commands you must be running as *root* or as part of group
system.

Reading the Formatted Failure Log: Use "vi" or any other system editor to view
the log information. Look for the string `Sense Code:`.

Software Requirements

Using APPC, you can establish communications between an MVS server and OS/2,
Novell NetWare, AIX/6000, and TSO clients. Table 31 lists the software require-
ments for using APPC with any of the above mentioned configurations.

Note: Hardware adapter options are not listed since they are transparent as long
as they are supported by the operating system.

Table 31. APPC Software Requirements

Software	Requirements
MVS Server	IBM ACF/VTAM Version 3.3 for MVS or later
IBM OS/2 or IBM OS/2 DBCS Clients	One of the following: • IBM Communications Manager/2 Version 1.0 or later • IBM OS/2 Extended Services Version 1.0 or later • IBM SAA Networking Services/2
Novell NetWare Clients	NetWare for SAA level 1.3.52 or later (COMMEXEC level 1.3.45 or later)
AIX/6000 Clients	**Version 3.2 and above** — SNA Services/6000 Version 1.2 **Version 3.2.3 and above** — SNA Server/6000 Version 2.1
TSO Administrative clients	• IBM ACF/VTAM Version 3.3 or later • MVS/SP Version 4.2 or later with APPC/MVS and PTF UY79385/UY79386

3174 Communication Controller	IBM ACF/VTAM Version 3.4 for MVS or later
	LAN Type:
	• Token Ring (one of the following):
	  – 3174 LIC-B with T2.1 Passthru Support (RPQ 8Q0800)
	  – 3174 LIC-C3 and APPN Feature Code
	  – 3174 LIC-C5 which includes APPN Feature Code (recommended)
	• Ethernet (one of the following):
	  – 3174 LIC-C4 and APPN Feature Code
	  – 3174 LIC-C5 which includes APPN Feature Code (recommended)

Results Files

This section displays the following results files:

• CM/2 .ndf File for 3174 Gateway
• CM/2 .ndf File for 3172 or 3745 Gateways
• SNA Profile for AIX Clients

CM/2 .ndf File for 3174 Gateway

```
DEFINE_LOCAL_CP  FQ_CP_NAME(PELNET01.IMAGOS2I)       <== c_netid.c_independentlu
                 DESCRIPTION(ps/2 mod 95 s/n HD256)  <== Any Value
                 CP_ALIAS(imagos2i)
                 NAU_ADDRESS(INDEPENDENT_LU)
                 NODE_TYPE(EN)
                 NW_FP_SUPPORT(NONE)
                 HOST_FP_SUPPORT(YES)
                 MAX_COMP_LEVEL(NONE)
                 MAX_COMP_TOKENS(0);

DEFINE_CONNECTION_NETWORK  FQ_CN_NAME(PELNET01.LAN2AE )    <== c_netid.cp_name
                           ADAPTER_INFO( DLC_NAME(IBMTRNET)
                                         ADAPTER_NUMBER(0));

DEFINE_LOGICAL_LINK  LINK_NAME(LINK3174)
                     DESCRIPTION(Link to MVS ADSM server via 3174-21L s/n KN671)
                     ADJACENT_NODE_TYPE(NN)
                     PREFERRED_NN_SERVER(YES)
                     DLC_NAME(IBMTRNET)
                     ADAPTER_NUMBER(0)
                     DESTINATION_ADDRESS(X'400031740671')   <== dest_addr
                     ETHERNET_FORMAT(NO)
                     CP_CP_SESSION_SUPPORT(YES)
                     SOLICIT_SSCP_SESSION(YES)
                     NODE_ID(X'05D00000')                   <== vtam_xid
                     ACTIVATE_AT_STARTUP(YES)
                     USE_PUNAME_AS_CPNAME(NO)
                     LIMITED_RESOURCE(NO)
                     LINK_STATION_ROLE(USE_ADAPTER_DEFINITION)
                     MAX_ACTIVATION_ATTEMPTS(USE_ADAPTER_DEFINITION)
                     EFFECTIVE_CAPACITY(USE_ADAPTER_DEFINITION)
                     COST_PER_CONNECT_TIME(USE_ADAPTER_DEFINITION)
                     COST_PER_BYTE(USE_ADAPTER_DEFINITION)
                     SECURITY(USE_ADAPTER_DEFINITION)
                     PROPAGATION_DELAY(USE_ADAPTER_DEFINITION)
                     USER_DEFINED_1(USE_ADAPTER_DEFINITION)
                     USER_DEFINED_2(USE_ADAPTER_DEFINITION)
                     USER_DEFINED_3(USE_ADAPTER_DEFINITION);

DEFINE_PARTNER_LU  FQ_PARTNER_LU_NAME(PELNET01.DFDSMLU2)    <== s_netid.partner_lu
                   DESCRIPTION(ADSM server on MVS)
                   PARTNER_LU_ALIAS(DFDSM)                  <== Partner LU Alias
                   PARTNER_LU_UNINTERPRETED_NAME(DFDSMLU2)  <== partner_lu
                   MAX_MC_LL_SEND_SIZE(32767)
                   CONV_SECURITY_VERIFICATION(NO)
                   PARALLEL_SESSION_SUPPORT(YES);
```

Figure 98 (Part 1 of 2). Sample .ndf File

```
DEFINE_MODE  MODE_NAME(ADSMAPPC)                    <== logmode
             DESCRIPTION(APPC mode name on MVS)
             COS_NAME(#BATCH)
             DEFAULT_RU_SIZE(NO)
             MAX_RU_SIZE_UPPER_BOUND(4096)
             RECEIVE_PACING_WINDOW(63)              <== CM/2 runs on an 80486 - use 63
             MAX_NEGOTIABLE_SESSION_LIMIT(32767)
             PLU_MODE_SESSION_LIMIT(16)
             MIN_CONWINNERS_SOURCE(2)
             COMPRESSION_NEED(PROHIBITED)
             PLU_SLU_COMPRESSION(NONE)
             SLU_PLU_COMPRESSION(NONE);

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

DEFINE_CPIC_SIDE_INFO  SYMBOLIC_DESTINATION_NAME(DFDSM  )    <== Sybolic Destination.
                       DESCRIPTION(Req'd by DSM/OS2 for APPC comm w/MVS)
                       FQ_PARTNER_LU_NAME(PELNET01.DFDSMLU2)  <== s_netid.partner_lu
                       MODE_NAME(OS2APPC )                    <== logmode
                       TP_NAME(DFDSMLU2);                     <== TP Name

START_ATTACH_MANAGER;
```

Figure 98 (Part 2 of 2). Sample .ndf File

> **Note:** This example uses a different ADSM MVS server than the rest of this docu-
> ment. Refer to Figure 62 on page 189 for the LU definition.

CM/2 .ndf File for 3172 or 3745 Gateways

```
DEFINE_LOCAL_CP  FQ_CP_NAME(DEIBMFD.F13833B0)           <== c_netid.c_independentlu
                 DESCRIPTION(Local Node LU definition)  <== Any Value
                 CP_ALIAS(F13833B0)
                 NAU_ADDRESS(INDEPENDENT_LU)
                 NODE_TYPE(EN)
                 NODE_ID(X'05DF333B')                   <== vtam xid
                 HOST_FP_SUPPORT(NO);
```

Figure 99 (Part 1 of 2). Sample .ndf File

```
DEFINE_LOGICAL_LINK  LINK_NAME(HOST0001)
                     DESCRIPTION(Link to adjacent SSCP-3745, partner node can be anything
                     FQ_ADJACENT_CP_NAME(DEIBMFD.BCTSO)   <== c netid.cp name
                     ADJACENT_NODE_TYPE(LEN)
                     DLC_NAME(IBMTRNET)
                     ADAPTER_NUMBER(0)
                     DESTINATION_ADDRESS(X'400010000002') <== dest_addr
                     CP_CP_SESSION_SUPPORT(NO)
                     ACTIVATE_AT_STARTUP(NO)
                     LIMITED_RESOURCE(USE_ADAPTER_DEFINITION)
                     LINK_STATION_ROLE(USE_ADAPTER_DEFINITION)
                     SOLICIT_SSCP_SESSION(YES)
                     NODE_ID(X'05DF333B')                 <== vtam_xid
                     EFFECTIVE_CAPACITY(USE_ADAPTER_DEFINITION)
                     COST_PER_CONNECT_TIME(USE_ADAPTER_DEFINITION)
                     COST_PER_BYTE(USE_ADAPTER_DEFINITION)
                     SECURITY(USE_ADAPTER_DEFINITION)
                     PROPAGATION_DELAY(USE_ADAPTER_DEFINITION)
                     USER_DEFINED_1(USE_ADAPTER_DEFINITION)
                     USER_DEFINED_2(USE_ADAPTER_DEFINITION)
                     USER_DEFINED_3(USE_ADAPTER_DEFINITION);

DEFINE_PARTNER_LU  FQ_PARTNER_LU_NAME(DEIBMA4.A4VADSM2)    <== s netid.partner_lu
                   DESCRIPTION(MVS ADSM Server Partner LU on A4V network)
                   PARTNER_LU_ALIAS(A4VADSM2)              <== Partner LU Alias
                   PARTNER_LU_UNINTERPRETED_NAME(A4VADSM2) <== partner_lu
                   MAX_MC_LL_SEND_SIZE(32767)
                   CONV_SECURITY_VERIFICATION(NO)
                   PARALLEL_SESSION_SUPPORT(YES);

DEFINE_PARTNER_LU_LOCATION  FQ_PARTNER_LU_NAME(DEIBMA4.A4VADSM2)  <== s netid.partner_lu
                            DESCRIPTION(MVS ADSM Server Partner LU on A4V network
                            WILDCARD_ENTRY(NO)
                            FQ_OWNING_CP_NAME(DEIBMFD.BCTSO)       <== c netid.cp name
                            LOCAL_NODE_NN_SERVER(NO);

DEFINE_MODE  MODE_NAME(ADSMAPPC)                   <== logmode
             DESCRIPTION(ADSM mode for ADSMAPPC, max RU size 2048)
             COS_NAME(#BATCH)
             DEFAULT_RU_SIZE(NO)
             MAX_RU_SIZE_UPPER_BOUND(4096)
             RECEIVE_PACING_WINDOW(7)              <== CM/2 runs on an 80386 - use 7
             MAX_NEGOTIABLE_SESSION_LIMIT(16)
             PLU_MODE_SESSION_LIMIT(8)
             MIN_CONWINNERS_SOURCE(4);

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

DEFINE_CPIC_SIDE_INFO  SYMBOLIC_DESTINATION_NAME(MVSADSM)  <== Symbolic Destination.
                       DESCRIPTION(Side info for MVS ADSM server on A4V network)
                       PARTNER_LU_ALIAS(A4VADSM2)          <== Partner LU
                       MODE_NAME(#BATCH)                   <== logmode
                       TP_NAME(DSMSERV);                   <== TP Name
START_ATTACH_MANAGER;
```

Figure 99 (Part 2 of 2). Sample .ndf File

SNA Profile for AIX Clients

```
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
     comments                                 = ""

control_pt:
     prof_name                                = "node_cp"
     xid_node_id                              = 0x05df333D   <== vtam_xid
     network_name                             = "DEIBMFD"    <== c_netid
     control_pt_name_alias                    = "F13833D0"
     control_pt_name                          = "F13833D0"   <== c_independentlu
     control_pt_node_type                     = appn_end_node
     max_cached_trees                         = 500
     max_nodes_in_topology_database           = 500
     route_addition_resistance                = 128
     comments                                 = ""

partner_lu6.2:
     prof_name                                = "BCTSO"             <== <adjacent cp name>
     fq_partner_lu_name                       = "DEIBMA4.A4VADSM2"  <== s_netid.partner_lu
     partner_lu_alias                         = "A4VADSM2"          <== Partner LU Alias
     session_security_supp                    = no
     parallel_session_supp                    = yes
     conversation_security_level              = none
     comments                                 = ""

partner_lu6.2_location:
     prof_name                                = "BCTSO"
     fq_partner_lu_name                       = "DEIBMA4.A4VADSM2"  <== s_netid.partner_lu
     fq_partner_owning_cp_name                = "DEIBMFD.FDW"       <== c_netid<sscp name>
     local_node_is_network_server_for_len_node = no
     fq_node_server_name                      = ""
     comments                                 = ""

side_info:
     prof_name                                = "BCTSO"       <== Symbolic Destination
     local_lu_or_control_pt_alias             = "F13833D0"    <== Partner LU Alias
     partner_lu_alias                         = "A4VADSM2"
     fq_partner_lu_name                       = ""
     mode_name                                = "ADSMAPPC"    <== logmode
     remote_tp_name_in_hex                    = no
     remote_tp_name                           = "ANYTHING"    <== TP Name
     comments                                 = ""
```

Figure 100 (Part 1 of 3). Sample SNA Profile

```
link_station_token_ring:
        prof_name                              = "BCTSO"
        use_control_pt_xid                     = yes
        xid_node_id                            = "*"
        sna_dlc_profile_name                   = "tok0.00001"
        stop_on_inactivity                     = no
        time_out_value                         = 0
        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                    = 0x400010000002        <== dest_addr
        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                  = yes
        call_out_on_activation                 = yes
        activate_link_during_system_init       = yes
        activate_link_on_demand                = no
        cp_cp_sessions_supported               = no
        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                  = 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               = 255
        num_reserved_inbound_activation        = 8
        num_reserved_outbound_activation       = 8
        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                              = "F13833D0"             <== c_independentlu
        local_sap                              = 0x04
```

Figure 100 (Part 2 of 3). Sample SNA Profile

```
        retry_interval                          = 60
        retry_limit                             = 20
        dynamic_link_station_supported          = no
        trace_base_listen_link_station          = no
        trace_base_listen_link_station_format   = short
        dynamic_lnk_solicit_sscp_sessions       = yes
        dynamic_lnk_cp_cp_sessions_supported    = no
        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                                = ""

mode:
        prof_name                               = "ADSMAPPC"
        mode_name                               = "ADSMAPPC"          <== logmode
        max_sessions                            = 255
        min_conwinner_sessions                  = 8
        min_conloser_sessions                   = 8
        auto_activate_limit                     = 0
        max_adaptive_receive_pacing_window      = 16
        receive_pacing_window                   = 7
        max_ru_size                             = 4096
        min_ru_size                             = 256
        class_of_service_name                   = "#BATCH"
        comments                                = ""
```

Figure 100 (Part 3 of 3). Sample SNA Profile

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*.

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

B

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

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

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

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

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

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

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

backup series. See *database backup series*.

backup version. A file, directory, or file space that a user has backed up, which resides in ADSM'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*.

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 Subsys-

tems. 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.

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.

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

DOS. Disk operating system.

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

dsm.opt file. See *client 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 *mini-disk*.

load.   See *mount*.

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

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

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

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

M

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

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

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

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

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

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

MB.   Megabyte.

megabyte (MB).   (1) For processor storage and real and virtual memory, 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 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*.

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

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

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

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

PWSCS. Programmable workstation communication services.

Q

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

R

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

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

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

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

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

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

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

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

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

REEL. On 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 inter-

face. 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.

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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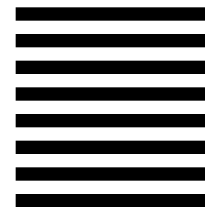**Readers' Comments — We'd Like to Hear from You**
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