ADSTAR Distributed Storage Manager
for MVS

IBM

# Disaster Recovery Manager
# Administrator's Guide and Reference

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for MVS

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> **Note**
>
> Before using this information and the product that it supports, be sure to read the general information under "Notices" on page v.

## First Edition (June 1996)

This edition applies to Version 2 Release 1 of the ADSTAR Distributed Storage Manager (5655-119), and to any subsequent releases until otherwise indicated in new editions or technical newsletters.

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# Preface

ADSTAR Distributed Storage Manager (ADSM) is a client/server program that provides storage management to customers in a multivendor computer environment. ADSM provides automated, centrally scheduled, policy-managed backup, archive, and space management services for file servers and workstations. The Hierarchical Storage Management (HSM) client is the portion of ADSM that provides space management services.

## Who Should Read This Publication

This reference is intended for anyone who has been assigned an administrative privilege class. While ADSM can be managed by a single administrator, administrative responsibilities can be divided among a number of people as an installation requires.

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

## What You Should Know before Reading This Publication

You should be familiar with the operating system on which the server resides and the communication protocols required for the client/server environment.

For information on product requirements for ADSM, refer to *ADSM Licensed Program Specifications*.

For information on installing ADSM, refer to *ADSM Installing the Server and Administrative Client*.

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

## ADSTAR Distributed Storage Manager Publications

The following table lists ADSM publications.

The ADSM library is also available in softcopy on the *ADSM Online Product Library* CD-ROM (order number SK2T-1878).

| Short Title | Publication Title | Number |
| --- | --- | --- |
| ADSM General Information | *ADSTAR Distributed Storage Manager: General Information* | GH35-0131 |
| ADSM Messages | *ADSTAR Distributed Storage Manager: Messages* | SH35-0133 |
| ADSM Device Configuration | *ADSTAR Distributed Storage Manager: Device Configuration* | SH35-0137 |

| Short Title | Publication Title | Number |
| --- | --- | --- |
| ADSM Licensed Program Specifications | *ADSTAR Distributed Storage Manager for MVS: Licensed Program Specifications* | GH26-4038 |
| ADSM Installing the Server and Administrative Client | *ADSTAR Distributed Storage Manager for MVS: Installing the Server and Administrative Client* | SH26-4043 |
| ADSM Administrator's Reference | *ADSTAR Distributed Storage Manager for MVS: Administrator's Reference* | SH26-4040 |
| ADSM Using the UNIX HSM Clients | *ADSTAR Distributed Storage Manager: Using the UNIX Hierarchical Storage Management Clients* | SH26-4030 |
| ADSM V2 Using the Apple Macintosh Backup-Archive Client | *ADSTAR Distributed Storage Manager Version 2: Using the Apple Macintosh Backup-Archive Client* | SH26-4051 |
| ADSM Using the UNIX Backup-Archive Clients | *ADSTAR Distributed Storage Manager Version 2: Using the UNIX Backup-Archive Clients* | SH26-4052 |
| ADSM V2 Using the OS/2 Backup-Archive Client | *ADSTAR Distributed Storage Manager Version 2: Using the OS/2 Backup-Archive Client* | SH26-4053 |
| ADSM V2 Using the DOS Backup-Archive Client | *ADSTAR Distributed Storage Manager Version 2: Using the DOS Backup-Archive Client* | SH26-4054 |
| ADSM V2 Using the Novell NetWare Backup-Archive Client | *ADSTAR Distributed Storage Manager Version 2: Using the Novell NetWare Backup-Archive Client* | SH26-4055 |
| ADSM V2 Using the Microsoft Windows Backup-Archive Clients | *ADSTAR Distributed Storage Manager Version 2: Using the Microsoft Windows Backup-Archive Clients* | SH26-4056 |
| ADSM Using the Lotus Notes Backup Agent | *ADSTAR Distributed Storage Manager: Using the Lotus Notes Backup Agent* | SH26-4047 |
| ADSM Installing the Clients | *ADSTAR Distributed Storage Manager: Installing the Clients* | SH26-4049 |

## Related MVS System Publications

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

| Short Title | Publication Title | Number |
| --- | --- | --- |
| General Information for System Product Version 4 | *MVS/ESA General Information for MVS/ESA System Product Version 4* | GC28-1600 |
| DFSMS/MVS 1.1 General Information | *DFSMS/MVS Version 1 Release 1 General Information* | GC26-4900 |

## 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.

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## Translations

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

# Chapter 1. Disaster Recovery Manager

ADSTAR Distributed Storage Manager offers Disaster Recovery Manager (DRM) as an optional feature that assists with preparing a disaster recovery plan. DRM facilitates an ADSM-based recovery of business applications from backup data that is stored offsite. Recovery may potentially be performed at an alternate site, on replacement computer hardware, by people not familiar with the backed-up applications.

The disaster recovery plan can be used to guide an administrator through disaster recovery, as well as for audit purposes to certify the recoverability of the ADSM server. DRM provides automated generation of the server disaster recovery plan file, offsite recovery media management, and storage of client recovery information.

Figure 1 provides a quick reference to DRM concepts and tasks.

| Figure 1. DRM Concepts and Tasks | |
|---|---|
| **Description** | **Reference** |
| **Concepts:** | |
| "Comparing Availability Management to Disaster Recovery Management" | Page 2 |
| "Features of Disaster Recovery Manager" | Page 3 |
| "Overview of Setup for Disaster Recovery Manager" | Page 5 |
| **Tasks:** | |
| "Enabling Disaster Recovery Manager" | Page 6 |
| "Creating a Backup Copy of Server Primary Storage Pools and Database" | Page 7 |
| "Using the Offsite Recovery Media Management" | Page 8 |
| "Creating the ADSM Server Disaster Recovery Plan File" | Page 15 |
| "Storing the Client Recovery Information" | Page 63 |
| "Recovering the Server" | Page 68 |
| "Recovering the Clients" | Page 71 |
| "Customizing Disaster Recovery Manager" | Page 74 |
| "Using a REXX EXEC to Break Out a Disaster Recovery Plan File" | Page 82 |

# Comparing Availability Management to Disaster Recovery Management

This section compares the definitions of availability management with disaster recovery management to show how DRM works with existing backup features of ADSM to provide disaster recovery.

**Availability Management**

Availability management is used for recovery from incidental computer system outages such as disk drive crashes.  Down time is often minimized by using disk mirroring and other forms of RAID technology or by maintaining onsite backup copies of data.

Availability management for the ADSM server can be accomplished with ADSM by:

- Mirroring the server database and recovery log
- Backing up storage pools and storing them onsite

**Disaster Recovery Management**

A disaster is a catastrophic interruption of business processing that destroys the ADSM server or clients, or both.  Backup data is located offsite to protect it from damage.

Disaster recovery management is accomplished with ADSM by:

- Backing up client data to the ADSM server

- Backing up the server database to removable media and storing the media offsite

- Backing up the primary storage pools and storing the media offsite

- Using the disaster recovery plan file to assist with the ADSM server recovery

# Features of Disaster Recovery Manager

Disaster Recovery Manager provides the following features:

- Automated generation of a server disaster recovery plan
- Offsite recovery media management
- Storage of client recovery information

# Automated Generation of a Server Disaster Recovery Plan

The PREPARE command automatically queries the required information from the ADSM server and generates a recovery plan file that is based on a predefined recovery strategy for the server. The PREPARE command can be scheduled using the ADSM central scheduling capabilities to maintain an up-to-date recovery plan.

The recovery plan file contains the information and procedures necessary to assist with the recovery of the ADSM server. The information in the plan file includes:

- Site-specific server recovery instructions as defined by the administrator (for example, contact names and telephone numbers).

- The sequence of steps necessary to recover an ADSM server.

- List of ADSM database backup and copy storage pool volumes required to perform the recovery. The offsite location where the volumes reside is included.

- Devices required to read the database backup and copy storage pool volumes.

- Space requirements for the ADSM database and recovery log.

- Restore of the ADSM server options file, device configuration file, and volume history information file.

- Commands for performing server database recovery and primary storage pool recovery.

# Offsite Recovery Media Management

Knowing the location of offsite recovery media is critical to successful disaster recovery. You can perform the following with DRM offsite recovery media management:

- Determine what database backup volumes and copy storage pool volumes need to be moved offsite and back onsite.

- Track the media location in the ADSM database.

Database backup volumes and copy storage pool volumes can be treated as logical collections that are selected to move offsite for safekeeping and onsite for reuse or disposal. The reclamation of offsite volumes includes the capability to perform expiration of an ADSM database backup series.

DRM offsite recovery media management can work in conjunction with or independent of a tape management product.

# Storing the Client Recovery Information

DRM allows the following client recovery information to be saved in the ADSM database:

- Business priority
- Machine location, machine characteristics, and machine recovery instructions
- Boot media requirements

In the event of a disaster, DRM query commands provide assistance to help you determine:

- Which client machines were lost in the disaster and need to be recovered
- The priority of the client machines to identify the recovery order
- The machine requirements and boot media requirements

# Overview of Setup for Disaster Recovery Manager

This section provides an overview of the tasks involved to begin using DRM. Additional details are included in subsequent sections, and a checklist is provided in Appendix, "ADSM DRM Project Plan" on page 191.

**Enabling Disaster Recovery Manager**

1. Enable the ADSM server to support Disaster Recovery Manager by using the LICENSE option in the server options file.
2. Enable the ADSM server to support Disaster Recovery Manager by using the REGISTER LICENSE command.

**Setup for Server Recovery**

1. Create backup copies of the server primary storage pools.
2. Create a backup copy of the database.
3. Track the movement of server backup volumes offsite using the MOVE DRMEDIA commands.
4. Create the disaster recovery plan file for the ADSM server by using the PREPARE command.

**Setup for Storing the Client Recovery Information**

1. Identify and prioritize ADSM clients based on application or business needs, and establish automatic schedules for backing up client data.
2. Define your disaster recovery information for the clients by saving machine information in the ADSM database to include:

   - Business priority and machine location
   - Association of one or more nodes with a machine
   - Machine characteristics
   - Recovery instructions

3. Define the boot media requirements for the client machines in the ADSM database.
4. Associate one or more machines with the recovery media.

# Enabling Disaster Recovery Manager

| Task | Required Privilege Class |
|------|--------------------------|
| Registering the license for Disaster Recovery Manager | System |

To enable DRM, do one of the following:

1. Issue the REGISTER LICENSE command:

```
register license DRM
```

2. Specify LICENSE option in the server options file:

```
license DRM
```

# Creating a Backup Copy of Server Primary Storage Pools and Database

Before using DRM to create an ADSM server disaster recovery plan file, you must create a backup copy of your primary storage pools and database.

The following table lists the required privilege classes for performing the tasks in this section.

| Task | Required Privilege Class |
|------|--------------------------|
| Backing up your primary storage pools | System, unrestricted storage, or restricted storage |
| Backing up your database | System or unrestricted storage |

Use the following backup commands to create a backup copy of the server primary storage pools and database volumes.

1. Back up your primary storage pools.  For example:

```
backup stgpool backuppool cstoragepf
```

2. Back up your database.  For example:

```
backup db devclass=lib3494 type=full volumename=bk06
```

After you create your backup media, send it offsite for safekeeping.  For more information, see "Sending Server Backup Volumes Offsite" on page 10.

When your backup media is offsite, you are ready to create a disaster recovery plan file.  For more information, see "Creating the ADSM Server Disaster Recovery Plan File" on page 15.

# Using the Offsite Recovery Media Management
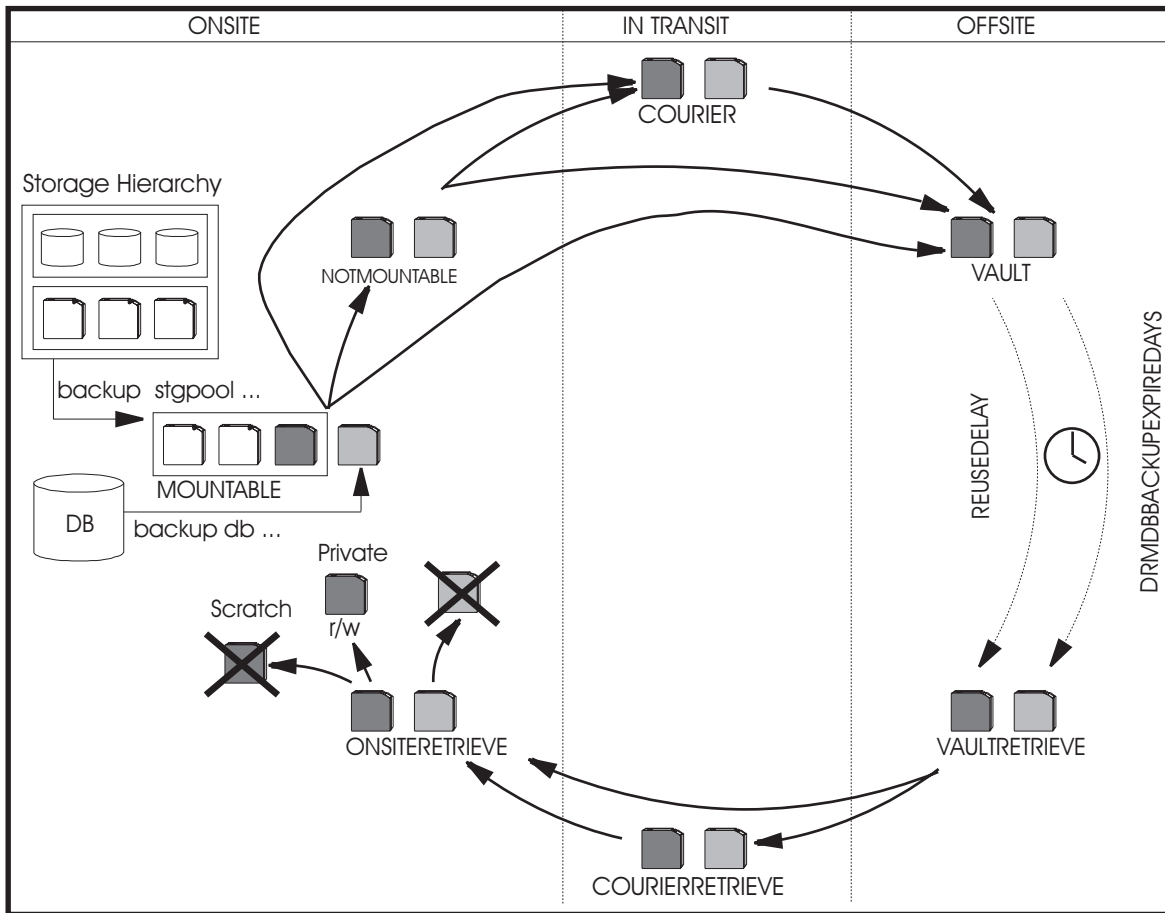
| Task | Required Privilege Class |
|------|--------------------------|
| Sending the backup volumes offsite and back onsite | Unrestricted storage or operator |

Offsite recovery media management is used during routine operations and defines a process for the following:

- Moving ADSM database backup and copy storage pool volumes offsite for disaster recovery protection
- Moving ADSM database backup and copy storage pool volumes onsite when they no longer contain valid data

You can indicate the movement of the volumes with the MOVE DRMEDIA command and display and track their location with the QUERY DRMEDIA command.

Backup volume location information is included in the disaster recovery plan file that is generated by the PREPARE command.  In the event of an actual disaster (for example, the ADSM server is destroyed), the disaster recovery plan file can be used to provide a list of offsite volumes required at the recovery site.

If the offsite vault storage is managed by a tape management product, volume movement must be coordinated between DRM offsite recovery media management and the tape management product.  For information about how DRM offsite recovery media works with a tape management product, see "Using Disaster Recovery Manager with a Tape Management Product" on page 54 for:

- Scenario 1: Disaster Recovery Manager controls the ADSM volume movement
- Scenario 2: Removable Media Management controls the volume movement

# Sending Server Backup Volumes Offsite

DRM uses the following states for database backup and copy storage pool volumes that are sent offsite for disaster recovery protection:

**Note:** The location of a volume is known at each state.

**MOUNTABLE**
> The volume contains valid data and is accessible to the ADSM server.

**NOTMOUNTABLE**
> The volume contains valid data and is unavailable to the ADSM server, but is still onsite.

**COURIER**
> The volume contains valid data and is with the courier.

**VAULT**
> The volume contains valid data and is at the vault.

After you have created a backup copy of your primary storage pools and database, you can send your backup media offsite.

To send server backup media offsite, you must mark the volumes as unavailable for ADSM access, and then send the volumes to the offsite location. Use the following commands to identify the backup volumes written by the ADSM server backup database and backup storage pool commands, and move these volumes offsite.

1. Issue the following command to identify the newly created copy storage pool and database backup volumes to be moved offsite:

```
query drmedia * wherestate=mountable
```

ADSM displays information similar to the following:

```
Volume Name                   State                 Last Update
                                                    Date/Time
----------------------------- --------------------- -------------------
 tpbk05                        Mountable             06/01/1995 12:00:31
 tpbk99                        Mountable             06/01/1995 12:00:32
 tpbk06                        Mountable             06/01/1995 12:01:03
```

2. Eject the volumes from the library.

3. To indicate the ejected volumes that are unavailable for ADSM onsite processing, issue the following command:

```
move drmedia * wherestate=mountable
```

This command automatically completes the following process for the database backup and copy storage pool volumes with a current state of MOUNTABLE:

- Updates the volume state to NOTMOUNTABLE
- Updates the volume location according to SET DRMNOTMOUNTABLENAME. If the SET command has not yet been issued, the default location is NOTMOUNTABLE. For more information, see "Not Mountable Location Name" on page 77.

4. Package the volumes and give them to the courier for transport to the offsite vault. Issue the following command to have ADSM select volumes whose current state is NOTMOUNTABLE, and record that the volumes were given to the courier:

```
move drmedia * wherestate=notmountable
```

This command automatically completes the following process for all volumes with a current state of NOTMOUNTABLE:

- Updates the volume state to COURIER.

- Updates the volume location according to the SET DRMCOURIERNAME. If the SET command has not yet been issued, the default location is COURIER. For more information, see "Courier Name" on page 77.

Your media containing backed-up storage pools and database are now offsite.

5. When the vault location confirms receipt of the volumes, issue the MOVE DRMEDIA command with the WHERESTATE=COURIER parameter. For example:

```
move drmedia * wherestate=courier
```

This command automatically completes the following process for all volumes with a current state of COURIER:

- Updates the volume state to VAULT.
- Updates the volume location according to the SET DRMVAULTNAME command. If the SET command has not yet been issued, the default location is VAULT. For more information, see "Specify the Vault Name" on page 78.

6. To display a list of volumes that contain valid data at the vault, issue the following command:

```
query drmedia wherestate=vault
```

ADSM displays information similar to the following:

```
Volume Name                               State     Last Update
                                                    Date/Time
--------------------------------          --------  -------------------
TAPE0P                                    Vault     09/05/1995 10:53:20
TAPE1P                                    Vault     09/05/1995 10:53:20
DBT02                                     Vault     09/05/1995 10:53:20
TAPE3S                                    Vault     09/05/1995 10:53:20
```

7. If you do not want to step through all the states, you can use the TOSTATE parameter on the MOVE DRMEDIA command to specify the destination state. For example, to transit the volumes from NOTMOUNTABLE state to VAULT state, issue the following command:

```
move drmedia * wherestate=notmountable tostate=vault
```

This command automatically completes the following process for all volumes with a current state of NOTMOUNTABLE:

- Updates the volume state to VAULT.

- Updates the volume location according to the SET DRMVAULTNAME command. If the SET command has not yet been issued, the default location is VAULT.

# Moving Reclaimed or Expired Volumes Back Onsite

DRM uses the following states for backup volumes that are reclaimed or no longer contain valid data and are to be moved back onsite:

**VAULTRETRIEVE**

The volumes no longer contain valid data and are to be returned. They should be given to the courier by the vault operator.

**COURIERRETRIEVE**

The volumes no longer contain valid data and are in the process of being returned by the courier.

**ONSITERETRIEVE**

The volumes no longer contain valid data and have been retuned to the onsite location. The volume records of ADSM database backup and scratch copy storage pool volumes are deleted from the ADSM database. For private copy storage pool volumes, the access mode is updated to READWRITE.

When backup volumes are stored at the vault location, use the following procedure to return those volumes onsite for reuse or disposal.

1. Use the SET DRMDBBACKUPEXPIREDAYS command to specify the number of days before a database backup series is expired. To ensure that the database can be returned to an earlier level and that the database references to the files in the copy storage pool are still valid, specify this same value for the REUSEDELAY parameter in your storage pool definition.

   A database backup volume is considered eligible for expiration if all of the following conditions are true:

   - The last volume of the series has exceeded the expiration value specified with SET DRMDBBACKUPEXPIREDAYS. The expiration value specifies the number of days that must elapse since the volume was used by database backup.

   - The volume state is VAULT.

   - The volume is not part of the most recent series. (DRM will not expire the most recent database backup series.)

   The following example sets the number of days to 30:

   ```
   set drmdbbackupexpiredays 30
   ```

2. When a backup volume is reclaimed and the ADSM status for a copy storage pool volume is EMPTY or the database backup series is EXPIRED, the volume should be returned onsite for reuse or disposal. To determine which volumes to retrieve, issue the following command:

   ```
   query drmedia * wherestate=vaultretrieve
   ```

3. After you request the reclaimed volumes be moved back onsite, and the vault location acknowledges that the volumes have been given to the courier, issue the following command:

   ```
   move drmedia * wherestate=vaultretrieve
   ```

   This command automatically completes the following process for all volumes with a current state of VAULTRETRIEVE:

   - The state of the volume is changed to COURIERRETRIEVE.

   - The location of the volume is updated according to what is specified in the SET DRMCOURIERNAME command. For more information, see "Courier Name" on page 77.

4. When the courier delivers the volumes, issue the following command to acknowledge that the courier has returned the volumes onsite:

```
move drmedia * wherestate=courierretrieve
```

This command automatically completes the following process for all volumes with a current state of COURIERRETRIEVE:

- The volumes are now onsite and can be reused or disposed.

- The database backup volumes are deleted from the volume history table.

- For scratch copy storage pool volumes, the record in the ADSM database is deleted. For private copy storage pool volumes, the access is updated to read/write.

5. If you do not want to step through all the states, you can use the TOSTATE parameter on the MOVE DRMEDIA command to specify the destination state. For example, to transit the volumes from VAULTRETRIEVE state to ONSITERETRIEVE state, issue the following command:

```
move drmedia * wherestate=vaultretrieve tostate=onsiteretrieve
```

This command automatically completes the following process for all volumes with a current state of VAULTRETRIEVE:

- The volumes are now onsite and can be reused or disposed.

- The database backup volumes are deleted from the volume history table.

- For scratch copy storage pool volumes, the record in the ADSM database is deleted. For private copy storage pool volumes, the access is updated to read/write.

# Creating the ADSM Server Disaster Recovery Plan File

| Task | Required Privilege Class |
|---|---|
| Writing the instructions for the instruction files | Any administrator |
| Running the PREPARE command | System |

When the system administrator invokes the PREPARE command, DRM automatically queries the ADSM server for required information to generate a disaster recovery plan file.

To create a disaster recovery plan file, issue the PREPARE command.

In the following example, the PREPARE command is issued with the PLANPREFIX parameter to generate the recovery plan file with a high-level qualifier ADSM.SERVER.RECVPLAN:

```
prepare planprefix=ADSM.SERVER.RECVPLAN
```

The plan file name always includes the date and time (Jyyyyddd.Thhmmss) when the PREPARE command is issued. For example:

```
ADSM.SERVER.RECVPLAN.J1995125.T120532
```

For details about specifying the high-level qualifier of the disaster recovery plan file, see "Prefix for Recovery Plan File" on page 76

DRM creates one copy of the disaster recovery plan file. It is recommended that you create multiple copies of your disaster recovery plan for safekeeping. For example, keep copies in print or on remote dual copy.

The PREPARE command should be issued or scheduled to run after backup of your storage pools and database, and the volumes have been marked to be sent offsite. This method ensures that your disaster recovery plan file is kept up to date.

Each time the PREPARE command generates a new disaster recovery plan file, the previous file is not deleted. It is recommended that you periodically delete downlevel recovery plan files.

# About the Disaster Recovery Plan File

The disaster recovery plan file contains the information required for recovery of an ADSM server to the point in time represented by the last database backup operation that is completed before the PREPARE command is issued.

The recovery information is organized into stanzas within the disaster recovery plan file. Each stanza in the recovery plan file has a unique name. These names are listed in Figure 2 on page 23.

In the event of a disaster, the administrator can use the recovery plan as a guide to recovering the ADSM server. Optionally, the administrator can use an editor or a locally written procedure (for example, a modified version of the REXX exec ANRPLANX that is shipped with DRM) to break out the recovery plan file stanzas into multiple useful files.

# About the Recovery Plan File Stanzas

This section describes the stanzas in the recovery plan file and how to use the stanzas. You can find these stanza files under the high-level qualifier specified for the disaster recovery plan file.

These stanza files can be categorized as follows:

**Command stanzas**

Consist of JCL, REXX exec, and ADSM macros. They can be viewed, printed, updated, or executed as part of the disaster recovery process.

**Site-specific instruction stanzas**

Consist of recovery instructions specific to your site. They can be printed, updated, and used during server recovery.

**Server requirements stanzas**

Consist of the database and recovery log requirements, and volume and device requirements. They can be viewed or printed.

**Configuration file stanzas**

Consist of the volume history, device configuration, and server options files.

The stanzas are presented in the expected order that they would be used by the recovery team.

**Note:** The RECOVERY.DRMODE and RECOVERY.NMODE stanzas contain the REXX exec that invokes JCL and macros contained in the other stanzas.

The following are descriptions of the stanzas:

**PLANFILE.DESCRIP**

Identifies the server for this recovery plan, and the date and time that the recovery plan is created.

**PLANFILE.CONTENTS**

Provides a list of the stanzas in this recovery plan.

**SERVER.REQUIRE**

Identifies the database and recovery log storage requirements for this server. At the recovery site, you will need a replacement server machine that has enough disk space to install the database and recovery log volumes.

**INSTR.GENERAL**

Identifies the site-specific instructions that the server administrator has manually edited in the source text file identified by *instructionsprefix*.INSTR.GENERAL. It is recommended that the instructions include the overall recovery strategy, the key contact names, an overview of key applications backed up by this server, and so on.

**Note:** *Instructionsprefix* is the prefix portion of the file name. See "Prefix for Recovery Instructions" on page 76.

For more information on editing the text source file, see "Customizing the Site-Specific Recovery Instructions" on page 79.

**INSTR.OFFSITE**

Identifies the site-specific instructions that the server administrator has manually edited to the source text file identified by *instructionsprefix*.INSTR.OFFSITE.  It is recommended that the instructions include the name and location of the offsite vault and how to contact the vault.

**Note:** *Instructionsprefix* is the prefix portion of the file name.  See "Prefix for Recovery Instructions" on page 76.

For more information on editing the text source file, see "Customizing the Site-Specific Recovery Instructions" on page 79.

**INSTR.INSTALL**

Identifies the site-specific instructions that the server administrator has manually edited to the source text file identified by *instructionsprefix*.INSTR.INSTALL.  It is recommended that the instructions include where the ADSM server and ADSM administrative client install volumes are located.

**Note:** *Instructionsprefix* is the prefix portion of the file name.  See "Prefix for Recovery Instructions" on page 76.

For more information on editing the text source file, see "Customizing the Site-Specific Recovery Instructions" on page 79.

**INSTR.DATABASE**

Identifies the site-specific instructions that the server administrator has manually edited to the source text file identified by *instructionsprefix*.INSTR.DATABASE.  Information in this stanza should include how to prepare for the ADSM server database recovery.  For example, if the backup device is a 3494 library, you may want to provide instructions on how to initialize the library or on how to check in the backup volumes to the library.

**Note:** *Instructionsprefix* is the prefix portion of the file name.  See "Prefix for Recovery Instructions" on page 76.

For more information on editing the text source file, see "Customizing the Site-Specific Recovery Instructions" on page 79.

**INSTR.STGPOOL**

Identifies the site-specific instructions that the server administrator has manually edited to the source text file identified by *instructionsprefix*.INSTR.STGPOOL.  It is recommended that the instructions include which applications are backed up in which copy storage pools.

**Note:** *Instructionsprefix* is the prefix portion of the file name.  See "Prefix for Recovery Instructions" on page 76.

For more information on editing the text source file, see "Customizing the Site-Specific Recovery Instructions" on page 79.

**VOLUMES.REQUIRED**

Provides a list of the database backup and copy storage pool volumes required to recover the ADSM server. The location and device class names for the required volumes are also displayed. If you are using the MOVE DRMEDIA command for offsite recovery media management, a blank location field means that the volumes are onsite. This list can be used as the basis of periodic audits for the inventory of volumes at the courier and offsite vault. In the event of a disaster, this list would be used to collect the required volumes before recovery of the server is started.

**DEVICES.REQUIRED**

Provides details about the devices required to read the backup volumes.

**RECOVERY.DRMODE**

Contains the REXX exec with the commands required to restore the server database and restart the server. Use it as a guide and execute the commands as needed from a command line, or optionally copy it to a file, modify it and the files that it references, and execute the script. At the completion of these steps, client requests for file restores will be satisfied directly from the copy storage pool volumes.

This REXX exec will often need modification at the recovery site because of differences between the original and the replacement systems.

This REXX exec restores the server options, volume history, and device configuration information files.

This REXX exec invokes JCL contained in the following stanzas:

    CFGFILES.CREATE
    LOGDBVOL.CREATE
    LOGDBVOL.INSTALL
    RESTORE.DB
    START.SERVER

This REXX exec also invokes the ADSM macros contained in the following stanzas:

    COPYVOL.AVAIL
    COPYVOL.DESTR
    PRIMVOL.DESTR

To help understand the operations being performed in this script, see the ADSM Backup and Recovery Scenarios in *ADSM Administrator's Reference*.

To invoke this REXX exec, the following three positional parameters must be specified:

- The administrator ID
- The administrator password
- The server name

For example, to invoke this REXX exec using an administrator ID of don, password of mox, and server name of prodadsm, enter the following command:

```
exec planprefix.RECOVERY.DRMODE don mox prodadsm
```

For additional information on planprefix, see "Prefix for Recovery Plan File" on page 76.

**RECOVERY.NMODE**

Contains the REXX exec with the commands required to restore the server primary storage pools. Use it as a guide and execute the commands as needed from a command line, or optionally copy it to a file, modify it and the files that it references, and execute it.

At the completion of these steps, client requests for file restores are satisfied from the primary storage pool volumes. Clients should also be able to resume file backup, archive, and migration functions.

This REXX exec will often need modification at the recovery site because of differences between the original and the replacement systems.

This REXX exec invokes JCL contained in the following stanza:

   PRIMVOL.REPLACEC

This REXX exec also invokes the ADSM macros contained in the following stanzas:

   PRIMVOL.REPLACE
   STGPOOL.RESTORE

To help understand the operations being performed in this script, see the ADSM Backup and Recovery Scenarios in *ADSM Administrator's Reference*.

**CFGFILES.CREATE**

Contains JCL required to create the ADSM server options file, volume history file, and device configuration file. You can use it as a guide or optionally copy it to a file, modify it, and execute it.

This JCL is invoked by the REXX exec RECOVERY.DRMODE.

**LOGDBVOL.CREATE**

Contains JCL required to recreate the ADSM server database and log volumes that existed before the disaster. You can use it as a guide or optionally copy it to a file, modify it, and execute it.

This JCL is invoked by the REXX exec RECOVERY.DRMODE.

**LOGDBVOL.INSTALL**

Contains JCL required to install the ADSM server database and log volumes that existed before the disaster. You can use it as a guide or optionally copy it to a file, modify it, and execute it.

This JCL is invoked by the REXX exec RECOVERY.DRMODE.

**RESTORE.DB**

Contains JCL to restore the ADSM server database. This JCL is invoked by the REXX exec RECOVERY.DRMODE.

**START.SERVER**

Contains JCL to start the ADSM server. This JCL is invoked by the REXX exec RECOVERY.DRMODE.

**COPYVOL.AVAIL**

Contains an ADSM macro to mark copy storage pool volumes that were moved offsite as moved back onsite. You can use it as a guide and execute the ADSM administrative commands as needed from a command line or graphical user interface, or optionally copy it to a file, modify it, and execute it.

This macro is invoked by the REXX exec RECOVERY.DRMODE.

In the event of a disaster, compare the copy storage pool volumes listed in this stanza with the volumes you have obtained from the courier and the offsite vault. If you have not physically obtained all volumes, you should remove the entries for the missing volumes from this stanza.

**COPYVOL.DESTR**

Contains an ADSM macro to mark copy storage pool volumes as unavailable that were onsite at the time of the disaster. You can use it as a guide and execute the ADSM administrative commands as needed from a command line or graphical user interface, or optionally copy it to a file, modify it, and execute it.

This macro is invoked by the REXX exec RECOVERY.DRMODE.

In the event of a disaster, compare the copy storage pool volumes listed in this stanza with the volumes that were left onsite. If you have physically obtained any of the volumes, you should remove their entries from this stanza.

**PRIMVOL.DESTR**

Contains an ADSM macro to mark primary storage pool volumes as destroyed that were onsite at the time of disaster. You can use it as a guide and execute the ADSM administrative commands as needed from a command line or graphical user interface, or optionally copy it to a file, modify it, and execute it.

This macro is invoked by the REXX exec RECOVERY.DRMODE.

In the event of a disaster, compare the primary storage pool volumes listed in this stanza with the volumes that were onsite. If you have physically obtained any of the volumes and have determined they are usable, you should remove their entries from here.

**PRIMVOL.REPLACEC**

Contains JCL required to allocate and format the replacement primary storage pool volumes that were of device class DISK. You can use it as a guide or optionally copy it to a file, modify it, and execute it.

This JCL is invoked by the REXX exec RECOVERY.NMODE.

The SET DRMPLANVPOSTFIX character is appended to the end of the names of the original volumes listed in this stanza. This appended character serves two alternative strategies:

- Makes it easy to find volume names that require renaming in the stanzas.  Before using the volume names, change these names to new names that are valid for the device class and valid on the replacement system.

- Automatically generate a new name that can be used by the replacement server.  This strategy requires that a previously planned naming convention take into account the appended postfix character.

**Notes:**

1. Replacement primary volume names must be different from any other original volume name or replacement name.

2. The ADSM server RESTORE STGPOOL command restores storage pools on a logical basis.  There is no one-to-one relationship between an original volume and its replacement.

3. There will be corresponding entries to define these volumes in the stanza PRIMVOL.REPLACE.  If you choose to change the names of volumes in this stanza, you will also need to change the corresponding entries in PRIMVOL.REPLACE.

**PRIMVOL.REPLACE**

Contains an ADSM macro to define replacement primary storage pool volumes to the ADSM server.  You can use it as a guide and execute the ADSM administrative commands as needed from a command line or graphical user interface, or optionally copy it to a file, modify it, and execute it.

This macro is invoked by the REXX exec RECOVERY.NMODE.

Primary storage pool volumes that get entries in this stanza have at least one of the following three characteristics:

1. Original volume in a storage pool whose device class was DISK
2. Original volume in a storage pool with MAXSCRATCH=0
3. Original volume in a storage pool and volume scratch attribute=no

The SET DRMPLANVPOSTFIX character is appended to the end of the names of the original volumes listed in this stanza. This appended character serves two alternative strategies:

- Makes it easy to find volume names that require renaming in the stanzas.  Before using the volume names, change these names to new names that are valid for the device class and on the replacement system.

- Automatically generate a new name that can be used by the replacement server.  This strategy requires that a previously planned naming convention take into account the appended postfix character.

**Notes:**

1. Replacement primary volume names must be different from any other original volume name or replacement name.

2. The ADSM server RESTORE STGPOOL command restores storage pools on a logical basis.  There is no one-to-one relationship between an original volume and its replacement.

3. There will be entries for the same volume in PRIMVOL.REPLACEC and PRIMVOL.REPLACE if the volume has a device class of DISK. If you choose to change the names of the volumes in this stanza, you will also need to change the corresponding entries in PRIMVOL.REPLACEC.

4. You must be careful not to violate the data set name or removable volume label requirements of the MVS operating system. The PLANVOLPOSTFIX character increases the length of the data set name or removable volume label by 1. For example, for a primary volume of device type DISK:

| Original Name | DRMPLANVPOSTFIX | Replacement | Legal Name for MVS |
|---|---|---|---|
| xyz.abc.1234567 | R | xyz.abc.1234567R | Yes |
| xyz.abc.12345678 | R | xyz.abc.12345678R | No |

**STGPOOL.RESTORE**

Contains an ADSM macro to restore the primary storage pools. You can use it as a guide and execute the ADSM administrative commands as needed from a command line or graphical user interface, or optionally copy it to a file, modify it, and execute it.

This macro is invoked by the REXX exec RECOVERY.NMODE.

**VOLHIST.FILE**

Contains a copy of the server volume history information that existed at the time PREPARE was run. The volume history file is very important to server recovery because the DSMSERV RESTORE DB command uses the volume history file to determine what volumes are required to restore the database. This stanza is referenced by the REXX exec RECOVERY.DRMODE.

The following rules are used to determine where the volume history file is placed at restore time:

- If VOLUMEHISTORY entries are defined in the server options file, PREPARE uses the file name associated with the first entry.

- If a VOLUMEHISTORY entry is not defined in the server options file, PREPARE uses 'ADSM' as the prefix and appends DRMVOLH.TXT to the prefix. The file name generated by PREPARE will be 'ADSM.DRMVOLH.TXT'. This fully qualified file name is added to the stanza SERVOPT.FILE.

**DEVCONF.FILE**

Contains a copy of the server device configuration information that existed at the time PREPARE was run. The device configuration file is very important to server recovery because the DSMSERV RESTORE DB command uses this data to read the database backup volumes. This stanza is referenced by the REXX exec RECOVERY.DRMODE.

The following rules are used to determine where the device configuration file is placed at restore time:

- If DEVCONFIG entries are defined in the server options file, PREPARE uses the file name associated with the first entry.

- If a DEVCONFIG entry is not defined in the server options file, PREPARE uses the prefix 'ADSM' and appends DRMDEVC.TXT to the prefix 'ADSM'. The file name generated by PREPARE will be 'ADSM.DRMDEVC.TXT'. This fully qualified file name is added to the stanza SERVOPT.FILE.

**SERVOPT.FILE**

Contains a copy of the server options file used when the server was started. The server options file sets various server operating characteristics.

This stanza is referenced by the REXX exec RECOVERY.DRMODE.

Figure 2 lists the recovery plan file stanzas, and indicates what type of administrative processing is required during setup of DRM, routine processing, or disaster recovery. It also indicates whether the stanza contains a macro, JCL, script, or a configuration file.

| Stanza Name | Administrative Action during Setup or Periodic Updates | Recommended Administrative Action during Routine Processing | Administrative Action during Disaster Recovery |
|---|---|---|---|
| PLANFILE.DESCRIP | None | None | None |
| PLANFILE.CONTENTS | None | None | None |
| SERVER.REQUIRE | None | None | None |
| INSTR.GENERAL | Optionally edit the source file associated with the stanza | None | None |
| INSTR.OFFSITE | Optionally edit the source file associated with the stanza | None | None |
| INSTR.INSTALL | Optionally edit the source file associated with the stanza | None | None |
| INSTR.DATABASE | Optionally edit the source file associated with the stanza | None | None |
| INSTR.STGPOOL | Optionally edit the source file associated with the stanza | None | None |
| VOLUMES.REQUIRED | None | MOVE DRMEDIA | None |
| DEVICES.REQUIRED | None | None | None |
| RECOVERY.DRMODE REXX exec | None | None | Optionally edit/execute |
| RECOVERY.NMODE REXX exec | None | None | Optionally edit/execute |
| CFGFILES.CREATE jcl | None | None | Optionally edit/execute |
| LOGDBVOL.CREATE jcl | None | None | Optionally edit/execute |
| LOGDBVOL.INSTALL jcl | None | None | Optionally edit/execute |
| RESTORE.DB jcl | None | None | Optionally edit/execute |
| START.SERVER jcl | None | None | Optionally edit/execute |

*Figure 2 (Page 1 of 2). Administrative Tasks Associated with the Disaster Recovery Plan File*

| Stanza Name | Administrative Action during Setup or Periodic Updates | Recommended Administrative Action during Routine Processing | Administrative Action during Disaster Recovery |
|---|---|---|---|
| *Figure 2 (Page 2 of 2). Administrative Tasks Associated with the Disaster Recovery Plan File* | | | |
| COPYVOL.AVAIL macro | None | MOVE DRMEDIA | Optionally edit/execute |
| COPYVOL.DESTR macro | None | MOVE DRMEDIA | Optionally edit/execute |
| PRIMVOL.DESTR macro | None | None | Optionally edit/execute |
| PRIMVOL.REPLACEC jcl | None | None | Optionally edit/execute |
| PRIMVOL.REPLACE macro | None | None | Optionally edit/execute |
| STGPOOL.RESTORE macro | None | None | Optionally edit/execute |
| VOLHIST.FILE configuration file | None | None | Optionally copy |
| DEVCONF.FILE configuration file | None | None | Optionally edit/copy |
| SERVOPT.FILE configuration file | None | None | Optionally edit/copy |
| **Note:** In the column "Administrative Action during Setup or Periodic Updates," **None** indicates that DRM automatically collects this information for the file. | | | |

# Example of a Disaster Recovery Plan File

Figure 3 shows an example of a disaster recovery plan file generated by PREPARE.

```
*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin PLANFILE.DESCRIP

Recovery Plan for ADSM Server ADSM
Created by DRM PREPARE on 11/30/1995 12:01:54
ADSM Server for MVS - Version 2, Release 1, Level x

end PLANFILE.DESCRIP

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin PLANFILE.CONTENTS

PLANFILE.DESCRIP
PLANFILE.CONTENTS

Server Recovery Stanzas:
  SERVER.REQUIRE
  INSTR.GENERAL
  INSTR.OFFSITE
  VOLUMES.REQUIRED
  DEVICES.REQUIRED
  RECOVERY.DRMODE exec
  RECOVERY.NMODE exec
  CFGFILES.CREATE jcl
  LOGDBVOL.CREATE jcl
  LOGDBVOL.INSTALL jcl
  RESTORE.DB jcl
  START.SERVER jcl
  COPYVOL.AVAIL macro
  COPYVOL.DESTR macro
  PRIMVOL.DESTR macro
  PRIMVOL.REPLACEC jcl
  PRIMVOL.REPLACE macro
  STGPOOL.RESTORE macro
  VOLHIST.FILE
  DEVCONF.FILE
  SERVOPT.FILE

end PLANFILE.CONTENTS

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
```

*Figure 3 (Part 1 of 17). Example of a Disaster Recovery Plan File*

```
*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin SERVER.REQUIRE

Database Requirements Summary:

       Available Space (MB): 20
     Assigned Capacity (MB): 20
           Pct. Utilization: 2.7
   Maximum Pct. Utilization: 2.7
           Physical Volumes: 2

Recovery Log Requirements Summary:

       Available Space (MB): 20
     Assigned Capacity (MB): 20
           Pct. Utilization: 6.2
   Maximum Pct. Utilization: 6.2
           Physical Volumes: 2

end SERVER.REQUIRE

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin INSTR.GENERAL

 This ADSM server contains the backup and archive data for XYZ corporation
 accounts receivable system. It also is used by various end users in the
 finance and materials distribution organizations.
 The storage administrator in charge of this server is Jane Doe 444-561-3406.
 If a disaster is declared, here is the outline of steps that must be done.
 1. Determine the recovery site.  Our alternate recovery site vendor is IBM
    BRS in Tampa, Florida, U.S.A. 213-884-5647.
 2. Get the list of required recovery volumes from this recovery plan file
    and contact our offsite vault so that they can start pulling the
    volumes for transfer to the recovery site.

end INSTR.GENERAL

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin INSTR.OFFSITE

 Our offsite vault location is Irnvault.
 Their telephone number is 514-555-2341.  Our account rep is Joe Smith.
 Our account number is 1239992.  Their address is ...
 Here is a map to their warehouse ...
 Our courier is ...

end INSTR.OFFSITE

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
```

*Figure 3 (Part 2 of 17). Example of a Disaster Recovery Plan File*

```
*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin VOLUMES.REQUIRED

Volumes required for database restore

 Location = HsiaoVan
  Device Class = LIB3494
  Volume Name =
   DBTP02
 Location = Irnvault
  Device Class = LIB3494
  Volume Name =
   DBTP01

Volumes required for storage pool restore

 Location = HsiaoVan
  Copy Storage Pool = CSTORAGEPF
  Device Class = LIB3494
  Volume Name =
   CSTP01

 Location = Irnvault
  Copy Storage Pool = CSTORAGEPF
  Device Class = LIB3494
  Volume Name =
   CSTP05

 Location =
  Copy Storage Pool = CSTORAGEPFA
  Device Class = LIB3494
  Volume Name =
   CSTP07

end VOLUMES.REQUIRED

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin DEVICES.REQUIRED

 Purpose: Description of the devices required to read the
          volumes listed in the recovery volumes required stanza.

             Device Class Name: LIB3494
        Device Access Strategy: Sequential
            Storage Pool Count: 2
                   Device Type: CARTRIDGE
                     Unit Name:
          Est/Max Capacity (MB): 4.0
                   Mount Limit: 2
               Mount Wait (min):
          Mount Retention (min):
            Dataset Name Prefix:
Last Update by (administrator): M123456
         Last Update Date/Time: 10/12/1995 17:53:07

end DEVICES.REQUIRED

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
```

*Figure 3 (Part 3 of 17). Example of a Disaster Recovery Plan File*

```
*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin RECOVERY.DRMODE exec
 /*REXX*/
 parse ARG ID PASS SERV .
 trace 'r'

 /* Purpose: This REXX exec contains the steps required to recover the server */
 /*   to the point where client restore requests can be satisfied            */
 /*   directly from available copy storage pool volumes.                     */
 /* Note: This exec assumes that all volumes necessary for the restore have  */
 /*   been retrieved from the vault and are available. This exec assumes     */
 /*   the recovery environment is compatible (essentially the same) as the   */
 /*   original.  Any deviations require modification to this exec and the    */
 /*   macros and execs that it runs.  Alternatively, you can use this        */
 /*   exec as a guide and manually execute each step.                        */

 /* Restore server options, volume history, device configuration files. */
'SUBMIT ''DRM.DSM1509.CFGFILES.CREATE'''
pull PAUSE

 /* Create and format log and database files. */
'SUBMIT ''DRM.DSM1509.LOGDBVOL.CREATE'''
pull PAUSE

 /* Install the log and database files. */
'SUBMIT ''DRM.DSM1509.LOGDBVOL.INSTALL'''
pull PAUSE

 /* Restore the ADSM server database to latest version backed up per the */
 /* volume history file.                                                  */
'SUBMIT ''DRM.DSM1509.RESTORE.DB'''
pull PAUSE

 /* Start the server. */
'SUBMIT ''DRM.DSM1509.START.SERVER'''
pull PAUSE

 /* Tell ADSM Server these copy storage pool volumes are available for use. */
 /* Recovery Administrator: Remove from macro any volumes not obtained from */
 /*                         the vault.                                      */
'DSMADMC -id='ID' -pass='PASS' -serv='SERV' -ITEMCOMMIT',
  '-OUTFILE=''DRM.DSM1509.COPYVOL.AVAIL.LG''',
     'macro ''DRM.DSM1509.COPYVOL.AVAIL'''

 /* Volumes in this macro were not marked as 'offsite' at the time        */
 /* PREPARE ran. They were likely destroyed in the disaster.              */
 /* Recovery Administrator: Remove from macro any volumes not destroyed. */
'DSMADMC -id='ID' -pass='PASS' -serv='SERV' -ITEMCOMMIT',
  '-OUTFILE=''DRM.DSM1509.COPYVOL.DESTR.LG''',
     'macro ''DRM.DSM1509.COPYVOL.DESTR'''

 /* Mark primary storage pool volumes with ACCESS=DESTROYED.            */
 /* Recovery administrator: Remove from macro any volumes not destroyed. */
'DSMADMC -id='ID' -pass='PASS' -serv='SERV' -ITEMCOMMIT',
  '-OUTFILE=''DRM.DSM1509.PRIMVOL.DESTR.LG''',
     'macro ''DRM.DSM1509.PRIMVOL.DESTR'''

end RECOVERY.DRMODE exec

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
```

*Figure 3 (Part 4 of 17). Example of a Disaster Recovery Plan File*

```
*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin RECOVERY.NMODE exec
 /*REXX*/
 parse ARG ID PASS SERV .
 trace 'r'

 /* Purpose: This exec contains the steps required to recover the server */
 /*          primary storage pools. This mode allows you to return the    */
 /*          copy storage pool volumes to the vault and to run the         */
 /*          server as normal.                                            */
 /* Note: This exec assumes that all volumes necessary for the restore    */
 /*   have been retrieved from the vault and are available. This exec      */
 /*   assumes the recovery  environment is compatible (essentially the     */
 /*   same) as the original.  Any deviations require modification to      */
 /*   this exec and the macros and execs that it runs.  Alternatively,    */
 /*   you can use this exec as a guide and manually execute each step.     */

 /* Format replacement volumes in the primary storage pools (if any  */
 /* were implemented as DISK.)                                        */
 /* Volumes must have different name than original.                   */
 /* Recovery administrator: Edit exec for your replacement volumes.*/

 'SUBMIT ''DRM.DSM1509.PRIMVOL.REPLACEC'''
pull PAUSE

 /* Define replacement volumes in the primary storage pools to ADSM. */
 /* Volumes must have different name than original.                   */
 /* Recovery administrator: Edit macro for your replacement volumes. */
 'DSMADMC -id='ID' -pass='PASS' -serv='SERV' -ITEMCOMMIT',
   '-OUTFILE=''DRM.DSM1509.PRIMVOL.REPLACE.LG''',
      'macro ''DRM.DSM1509.PRIMVOL.REPLACE'''

 /* Restore the primary storage pools from the copy storage pools.   */
 /* Recovery administrator: Remove from macro any storage pools you  */
 /*                         do not want restored.                    */
 'DSMADMC -id='ID' -pass='PASS' -serv='SERV' -ITEMCOMMIT',
   '-OUTFILE=''DRM.DSM1509.STGPOOL.RESTORE.LG''',
      'macro ''DRM.DSM1509.STGPOOL.RESTORE'''

end RECOVERY.NMODE exec

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
```

*Figure 3 (Part 5 of 17). Example of a Disaster Recovery Plan File*

```
*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin CFGFILES.CREATE jcl

//DRMCFGFC JOB
//********************************************************************
//*
//* Purpose: Create options, volume history, and device configuration.
//* Recovery Administrator: Run this to create the options, volhist,
//*   and devconfig files.
//*
//********************************************************************
//* Create the ADSM server options file.
//********************************************************************
//SERVOPTD EXEC PGM=IEHPROGM
//SYSPRINT DD SYSOUT=*
//SYSABEND DD DUMMY
//DD1      DD UNIT=3390,VOL=SER=DRMSC1,DISP=OLD
//SYSIN    DD *
 SCRATCH DSNAME=ADSMSERV.DSM1509.DSMSERV.OPTX,                      C
              VOL=3390=DRMSC1,PURGE
 UNCATLG DSNAME=ADSMSERV.DSM1509.DSMSERV.OPTX
/*
//SERVOPT  EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSIN      DD DUMMY
//SYSUT1     DD DSN=DRM.DSM1509.SERVOPT.FILE,DISP=SHR
//SYSUT2     DD DSN=ADSMSERV.DSM1509.DSMSERV.OPTX,DISP=(,CATLG,DELETE),
//         UNIT=3390,VOL=SER=DRMSC1,
//           SPACE=(TRK,(1,10),RLSE),
//           DCB=*.SERVOPT.SYSUT1
//********************************************************************
//* Create the ADSM server volume history file.
//********************************************************************
//VOLHISTD EXEC PGM=IEHPROGM
//SYSPRINT DD SYSOUT=*
//SYSABEND DD DUMMY
//DD1      DD UNIT=3390,VOL=SER=DRMSC1,DISP=OLD
//SYSIN    DD *
 SCRATCH DSNAME=ADSMSERV.DSM1509.VOLHIST.TXTX,                      C
              VOL=3390=DRMSC1,PURGE
 UNCATLG DSNAME=ADSMSERV.DSM1509.VOLHIST.TXTX
/*
//VOLHIST  EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSIN      DD DUMMY
//SYSUT1     DD DSN=DRM.DSM1509.VOLHIST.FILE,DISP=SHR
//SYSUT2     DD DSN=ADSMSERV.DSM1509.VOLHIST.TXTX,DISP=(,CATLG,DELETE),
//         UNIT=3390,VOL=SER=DRMSC1,
//           SPACE=(TRK,(10,10),RLSE),
//           DCB=*.VOLHIST.SYSUT1
```

*Figure 3 (Part 6 of 17). Example of a Disaster Recovery Plan File*

```
//*******************************************************************
//* Create the ADSM server device configuration file.
//*******************************************************************
//DEVCONFD EXEC PGM=IEHPROGM
//SYSPRINT DD SYSOUT=*
//SYSABEND DD DUMMY
//DD1      DD UNIT=3390,VOL=SER=DRMSC1,DISP=OLD
//SYSIN    DD *
 SCRATCH DSNAME=ADSMSERV.DSM1509.DEVCONF.TXTX,                      C
               VOL=3390=DRMSC1,PURGE
 UNCATLG DSNAME=ADSMSERV.DSM1509.DEVCONF.TXTX
/*
//DEVCONF  EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=*
//SYSIN    DD DUMMY
//SYSUT1   DD DSN=DRM.DSM1509.DEVCONF.FILE,DISP=SHR
//SYSUT2   DD DSN=ADSMSERV.DSM1509.DEVCONF.TXTX,DISP=(,CATLG,DELETE),
//         UNIT=3390,VOL=SER=DRMSC1,
//         SPACE=(TRK,(1,10),RLSE),
//         DCB=*.DEVCONF.SYSUT1

 end CFGFILES.CREATE jcl

 *-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
```

*Figure 3 (Part 7 of 17). Example of a Disaster Recovery Plan File*

```
*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin LOGDBVOL.CREATE jcl

//DRMLGDBC JOB
//********************************************************************
//*
//* Purpose: Create log and database volumes.
//* Recovery Administrator: Run this to format ADSM server log
//* and database volumes.
//*
//********************************************************************
//* Create ADSM database volume ADSMSERV.DSM1509.DB01X 10M
//********************************************************************
//*
//* Allocate the VSAM data set
//*
//********************************************************************
//ALLOCAT  EXEC PGM=IDCAMS
//SYSPRINT  DD  SYSOUT=*
//SYSIN     DD  *
 DELETE (ADSMSERV.DSM1509.DB01X)  CLUSTER PURGE
 IF LASTCC = 8 THEN SET MAXCC = 0
 DEFINE CLUSTER( NAME(ADSMSERV.DSM1509.DB01X) LINEAR MB(10) -
       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='/ADSMSERV.DSM1509.DB01X'
//DSMAMENG  DD  DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT  DD  SYSOUT=*
//SYSTERM   DD  SYSOUT=*
//*
//* Create ADSM database volume ADSMSERV.DSM1509.DB02X 10M
//********************************************************************
//*
//* Allocate the VSAM data set
//*
//********************************************************************
//ALLOCAT  EXEC PGM=IDCAMS
//SYSPRINT  DD  SYSOUT=*
//SYSIN     DD  *
 DELETE (ADSMSERV.DSM1509.DB02X)  CLUSTER PURGE
 IF LASTCC = 8 THEN SET MAXCC = 0
 DEFINE CLUSTER( NAME(ADSMSERV.DSM1509.DB02X) LINEAR MB(10) -
       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='/ADSMSERV.DSM1509.DB02X'
//DSMAMENG  DD  DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT  DD  SYSOUT=*
//SYSTERM   DD  SYSOUT=*
//*
```

*Figure 3 (Part 8 of 17). Example of a Disaster Recovery Plan File*

```
//* Create ADSM log volume ADSMSERV.DSM1509.LG01X 10M
//*********************************************************************
//*
//* Allocate the VSAM data set
//*
//*********************************************************************
//ALLOCAT  EXEC PGM=IDCAMS
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
 DELETE (ADSMSERV.DSM1509.LG01X)  CLUSTER PURGE
 IF LASTCC = 8 THEN SET MAXCC = 0
 DEFINE CLUSTER( NAME(ADSMSERV.DSM1509.LG01X) LINEAR MB(10) -
        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='/ADSMSERV.DSM1509.LG01X'
//DSMAMENG DD  DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSTERM  DD  SYSOUT=*
//*
//* Create ADSM log volume ADSMSERV.DSM1509.LG02X 10M
//*********************************************************************
//*
//* Allocate the VSAM data set
//*
//*********************************************************************
//ALLOCAT  EXEC PGM=IDCAMS
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
 DELETE (ADSMSERV.DSM1509.LG02X)  CLUSTER PURGE
 IF LASTCC = 8 THEN SET MAXCC = 0
 DEFINE CLUSTER( NAME(ADSMSERV.DSM1509.LG02X) LINEAR MB(10) -
        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='/ADSMSERV.DSM1509.LG02X'
//DSMAMENG DD  DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSTERM  DD  SYSOUT=*

end LOGDBVOL.CREATE jcl

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
```

*Figure 3 (Part 9 of 17). Example of a Disaster Recovery Plan File*

```
*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin LOGDBVOL.INSTALL jcl

//DRMINST JOB
//****************************************************************
//*
//* Purpose: Install server database and log volumes.
//* Recovery Administrator: Run this to install the server database
//*   and log volumes.
//*
//****************************************************************
//SERVDSKD EXEC PGM=IEHPROGM
//****************************************************************
//SYSPRINT DD SYSOUT=*
//SYSABEND DD DUMMY
//DD1      DD UNIT=3390,VOL=SER=DRMSC1,DISP=OLD
//SYSIN    DD *
 SCRATCH DSNAME=ADSMSERV.DSM1509.DISKLOG,                        C
             VOL=3390=DRMSC1,PURGE
 UNCATLG DSNAME=ADSMSERV.DSM1509.DISKLOG
/*
//****************************************************************
//DELPARMS EXEC PGM=IDCAMS
//****************************************************************
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
 DELETE (ADSMSERV.DSM1509.LOGDBVOL.PARMLOG)
 DELETE (ADSMSERV.DSM1509.LOGDBVOL.PARMLOG) NOSCRATCH
 DELETE (ADSMSERV.DSM1509.LOGDBVOL.PARMDB)
 DELETE (ADSMSERV.DSM1509.LOGDBVOL.PARMDB) NOSCRATCH
 IF MAXCC <= 8 THEN SET MAXCC = 0
/*
//****************************************************************
//PARMLOG  EXEC PGM=IEBGENER         LOG PARAMETERS FOR INSTALL
//****************************************************************
//SYSIN    DD DUMMY
//SYSPRINT DD SYSOUT=*
//SYSUT2   DD DSN=ADSMSERV.DSM1509.LOGDBVOL.PARMLOG,
//         DISP=(,CATLG,DELETE),
//         SPACE=(TRK,(1,1)),
//         UNIT=SYSDA,
//         DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)
//SYSUT1   DD *
ADSMSERV.DSM1509.LG01X
ADSMSERV.DSM1509.LG02X
/*
//****************************************************************
//PARMDB   EXEC PGM=IEBGENER         DB PARAMETERS FOR INSTALL
//****************************************************************
//SYSIN    DD DUMMY
//SYSPRINT DD SYSOUT=*
//SYSUT2   DD DSN=ADSMSERV.DSM1509.LOGDBVOL.PARMDB,
//         DISP=(,CATLG,DELETE),
//         SPACE=(TRK,(1,1)),
//         UNIT=SYSDA,
//         DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)
//SYSUT1   DD *
ADSMSERV.DSM1509.DB01X
ADSMSERV.DSM1509.DB02X
/*
```

*Figure 3 (Part 10 of 17). Example of a Disaster Recovery Plan File*

```
//************************************************************/
//SERVER  EXEC PGM=DSMSERV,DYNAMNBR=300,
//************************************************************/
// PARM='/INSTALL 2 FILE:ADSMSERV.DSM1509.LOGDBVOL.PARMLOG
//            2 FILE:ADSMSERV.DSM1509.LOGDBVOL.PARMDB'
//OPT     DD DSN=ADSMSERV.DSM1509.DSMSERV.OPTX,DISP=SHR
//DSMAMENG DD DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
//HLPAMENG DD DSN=ADSMSERV.SANRHLP(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=ADSMSERV.DSM1509.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=*

end LOGDBVOL.INSTALL jcl

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin RESTORE.DB jcl

//DRMREST JOB
//********************************************************************
//*
//* Purpose: Restore ADSM server database.
//* Recovery Administrator: Run this job to restore the server
//*   database from database backup volumes.
//*
//********************************************************************
//SERVER  EXEC PGM=DSMSERV,DYNAMNBR=300,
// PARM='/RESTORE DB TODATE=09/03/1995 TOTIME=12:01:04'
//OPT     DD DSN=ADSMSERV.DSM1509.DSMSERV.OPTX,DISP=SHR
//DSMAMENG DD DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
//HLPAMENG DD DSN=ADSMSERV.SANRHLP(ANRMENU),DISP=SHR
//DSK      DD DSN=ADSMSERV.DSM1509.DISKLOG,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSTERM  DD SYSOUT=*

end RESTORE.DB jcl

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
```

*Figure 3 (Part 11 of 17). Example of a Disaster Recovery Plan File*

```
*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin START.SERVER jcl

//ADSM JOB
//****************************************************************
//*
//* Purpose: Start the ADSM server.
//* Recovery Administrator: Run this job to start the server.
//*
//****************************************************************
//SERVER   EXEC PGM=DSMSERV,DYNAMNBR=300
//OPT      DD DSN=ADSMSERV.DSM1509.DSMSERV.OPTX,DISP=MOD
//DSMAMENG DD DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
//HLPAMENG DD DSN=ADSMSERV.SANRHLP(ANRMENU),DISP=SHR
//DSK      DD DSN=ADSMSERV.DSM1509.DISKLOG,DISP=SHR
//SYSPRINT DD SYSOUT=*

end START.SERVER jcl

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin COPYVOL.AVAIL macro

 /* Purpose: Mark copy storage pool volumes as available for use in recovery. */
 /* Recovery Administrator: Remove any volumes that have not been obtained     */
 /*   from the vault or are not available for any reason.                      */
 /* Note: It is possible to use the mass update capability of the ADSM         */
 /*   UPDATE command instead of issuing an update for each volume. However,    */
 /*   the 'update by volume' technique used here allows you to select          */
 /*   a subset of volumes to be processed.                                     */

 upd vol ADSMSERV.DSM1509.BK07 acc=READW wherestg=CSTORAGEPF
 upd vol ADSMSERV.DSM1509.BK70 acc=READW wherestg=CSTORAGEPF
 upd vol ADSMSERV.DSM1509.BK99 acc=READW wherestg=CSTORAGEPFA

end COPYVOL.AVAIL macro

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
```

*Figure 3 (Part 12 of 17). Example of a Disaster Recovery Plan File*

```
*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin COPYVOL.DESTR macro

 /* Purpose: Mark destroyed copy storage pool volumes as unavailable.    */
 /*   Volumes in this macro were not marked as 'offsite' at the time the  */
 /*   PREPARE ran. They were likely destroyed in the disaster.           */
 /* Recovery Administrator: Remove any volumes that were not destroyed.   */

end COPYVOL.DESTR macro

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin PRIMVOL.DESTR macro

 /* Purpose: Mark primary storage pool volumes as ACCESS=DESTROYED.       */
 /* Recovery administrator: Delete any volumes listed here               */
 /*   that you do not want to recover.                                   */
 /* Note: It is possible to use the mass update capability of the ADSM   */
 /*   UPDATE command instead of issuing an update for each volume. However */
 /*   the 'update by volume' technique used here allows you to select    */
 /*   a subset of volumes to be marked as destroyed.                     */

 upd vol ADSMSERV.DSM1509.AR01 acc=DESTROYED wherestg=ARCHIVEPOOL
 upd vol ADSMSERV.DSM1509.BK02 acc=DESTROYED wherestg=BACKUPPOOL
 upd vol ADSMSERV.DSM1509.BK01x acc=DESTROYED wherestg=BACKUPPOOL
 upd vol ADSMSERV.DSM1509.BK03 acc=DESTROYED wherestg=BACKUPPOOLF
 upd vol BACK4X acc=DESTROYED wherestg=BACKUPPOOLT

end PRIMVOL.DESTR macro

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
```

*Figure 3 (Part 13 of 17). Example of a Disaster Recovery Plan File*

```
                *-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

                begin PRIMVOL.REPLACEC jcl

                //DRMPRIMC JOB
                //*******************************************************************
                //*
                //* Purpose: Create replacement volumes for primary storage pools that
                //*   use device class DISK.
                //* Recovery administrator: Edit this section for your replacement
                //*   volume names. New name must be unique, i.e. different from any
                //*   original or other new name.
                //*
                //*******************************************************************
                //* Replace ADSMSERV.DSM1509.AR01 DISK 5.0M in ARCHIVEPOOL
                //*******************************************************************
                //*
                //* Allocate the VSAM data set
                //*
                //*******************************************************************
                //ALLOCAT  EXEC PGM=IDCAMS
                //SYSPRINT  DD  SYSOUT=*
                //SYSIN     DD  *
                 DELETE (ADSMSERV.DSM1509.AR01@)  CLUSTER PURGE
                 IF LASTCC = 8 THEN SET MAXCC = 0
                 DEFINE CLUSTER( NAME(ADSMSERV.DSM1509.AR01@) LINEAR MB(5) -
                        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='/ADSMSERV.DSM1509.AR01@'
                //DSMAMENG  DD  DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
                //SYSPRINT  DD  SYSOUT=*
                //SYSTERM   DD  SYSOUT=*
                //*
                //* Replace ADSMSERV.DSM1509.BK02 DISK 16.0M in BACKUPPOOL
                //*******************************************************************
                //*
                //* Allocate the VSAM data set
                //*
                //*******************************************************************
                //ALLOCAT  EXEC PGM=IDCAMS
                //SYSPRINT  DD  SYSOUT=*
                //SYSIN     DD  *
                 DELETE (ADSMSERV.DSM1509.BK02@)  CLUSTER PURGE
                 IF LASTCC = 8 THEN SET MAXCC = 0
                 DEFINE CLUSTER( NAME(ADSMSERV.DSM1509.BK02@) LINEAR MB(16) -
                        VOL(ADSM01) )
                /*
                //*
```

*Figure 3 (Part 14 of 17). Example of a Disaster Recovery Plan File*

```
//********************************************************************
//*
//* 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='/ADSMSERV.DSM1509.BK02@'
//DSMAMENG DD  DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSTERM  DD  SYSOUT=*
//*
//* Replace ADSMSERV.DSM1509.BK01X DISK 5.0M in BACKUPPOOL
//********************************************************************
//*
//* Allocate the VSAM data set
//*
//********************************************************************
//ALLOCAT  EXEC PGM=IDCAMS
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
 DELETE (ADSMSERV.DSM1509.BK01X@)  CLUSTER PURGE
 IF LASTCC = 8 THEN SET MAXCC = 0
 DEFINE CLUSTER( NAME(ADSMSERV.DSM1509.BK01X@) LINEAR MB(5) -
        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='/ADSMSERV.DSM1509.BK01X@'
//DSMAMENG DD  DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSTERM  DD  SYSOUT=*

 end PRIMVOL.REPLACEC jcl

 *-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
```

*Figure 3 (Part 15 of 17). Example of a Disaster Recovery Plan File*

```
*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin PRIMVOL.REPLACE macro

 /* Purpose: Define replacement primary storage pool volumes for either:  */
 /*   1. Original volume in a storage pool whose device class was DISK.    */
 /*   2. Original volume in a storage pool with MAXSCRATCH=0.              */
 /*   3. Original volume in a storage pool and volume scratch=no.          */
 /* Recovery administrator: Edit this section for your replacement        */
 /*   volume names. New name must be unique, i.e. different from any       */
 /*   original or other new name.                                         */

   /* Replace ADSMSERV.DSM1509.AR01 DISK 5.0M in ARCHIVEPOOL */
 def vol ARCHIVEPOOL ADSMSERV.DSM1509.AR01@ acc=READW

   /* Replace ADSMSERV.DSM1509.BK02 DISK 16.0M in BACKUPPOOL */
 def vol BACKUPPOOL ADSMSERV.DSM1509.BK02@ acc=READW

   /* Replace ADSMSERV.DSM1509.BK01X DISK 5.0M in BACKUPPOOL */
 def vol BACKUPPOOL ADSMSERV.DSM1509.BK01X@ acc=READW

   /* Replace ADSMSERV.DSM1509.BK03 FILES 4.0M in BACKUPPOOLF */
 def vol BACKUPPOOLF ADSMSERV.DSM1509.BK03@ acc=READW

   /* Replace BACK4X COOL3494 0.0M in BACKUPPOOLT */
 def vol BACKUPPOOLT BACK4X@ acc=READW

end PRIMVOL.REPLACE macro

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

begin STGPOOL.RESTORE macro

/* Purpose: Restore the primary storage pools from copy storage pool(s). */
/* Recovery Administrator: Delete entries for any primary storage pools  */
/*   that you do not want to restore.                                    */

 restore stgp ARCHIVEPOOL
 restore stgp BACKUPPOOL
 restore stgp BACKUPPOOLF
 restore stgp BACKUPPOOLT
 restore stgp SPACEMGPOOL

end STGPOOL.RESTORE macro

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
```

*Figure 3 (Part 16 of 17). Example of a Disaster Recovery Plan File*

```
    *-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

    begin VOLHIST.FILE


    ********************************************************************************
    *
    *             IBM AdStar Distributed Storage Manager Sequential Volume Usage
    *                          Updated 09/03/1995 12:01:55
    *
    *      Operation          Volume  Backup Backup Volume Device     Volume
    *      Date/Time          Type    Series Oper.  Seq   Class Name Name
    ********************************************************************************
    * Location for volume DBTP01 is 'Irnvault'
     1995/06/01 12:00:53  BACKUPFULL    1      0      1 LIB3494    DBTP01
     1995/06/02 12:01:09  STGNEW        0      0      0 FILES      ADSMSERV.DSM1509.BK01
    * Location for volume DBTP02 is: 'Irnvault'
     1995/06/02 12:01:23  BACKUPFULL    2      0      1 LIB3494    DBTP02
     1995/09/03 12:00:46  STGNEW        0      0      0 FILES      ADSMSERV.DSM1509.BK02
    * Location for volume DBTP03 is: 'HsiaoVan'
     1995/09/03 12:01:04  BACKUPINCR    2      1      1 LIB3494    DBTP03
     1995/10/12 17:53:29  STGNEW        0      0      0 LIB3494    DBTP99
     1995/10/12 17:53:30  STGNEW        0      0      0 FILES      ADSMSERV.DSM1509.BK88
     1995/10/12 17:53:32  STGNEW        0      0      0 FILES      ADSMSERV.DSM1509.BK77
     1995/10/12 17:53:33  STGNEW        0      0      0 FILESSM    ADSMSERV.DSM1509.BK55

    end VOLHIST.FILE


    *-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

    begin DEVCONF.FILE

    /* IBM AdStar Distributed Storage Manager Device Configuration */
    DEFINE DEVCLASS COOL3494 DEVTYPE=CART FORMAT=DRIVE MOUNTLIMIT=1 MOUNTWAIT60 MOUNT
    DEFINE DEVCLASS FILES DEVTYPE=FILE MAXCAPACITY=4096K MOUNTLIMIT=2 DIRECTORY=DRMT
    DEFINE DEVCLASS FILESSM DEVTYPE=FILE MAXCAPACITY=100K MOUNTLIMIT=2 DIRECTORY=DRM
    DEFINE DEVCLASS LIB3494 DEVTYPE=CART FORMAT=DRIVE MOUNTLIMIT=1 MOUNTWAIT5 MOUNTR

    end DEVCONF.FILE


    *-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

    begin SERVOPT.FILE

    * Server options file located in ADSMSERV.DSM1509.DSMSERV.OPTX
    TCPPort 1509
    VOLUMEHISTORY ADSMSERV.DSM1509.VOLHIST.TXTX
    DEVCONFIG     ADSMSERV.DSM1509.DEVCONF.TXTX

    end SERVOPT.FILE


    *-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
```

*Figure 3 (Part 17 of 17). Example of a Disaster Recovery Plan File*

Figure 4 shows the SMS versions of some of the stanzas.

```
  SMS versions of
   LOGDBVOL.CREATE

  begin LOGDBVOL.CREATE jcl

  //DRMLGDBC JOB
  //*******************************************************************
  //*
  //* Purpose: Create log and database volumes.
  //* Recovery Administrator: Run this to format ADSM server log
  //* and database volumes.
  //*
  //*******************************************************************
  //* Create ADSM database volume ADSMSERV.DSM1509.DB01X 10M
  //*******************************************************************
  //*
  //* Allocate the VSAM data set
  //*
  //*******************************************************************
  //ALLOCAT  EXEC PGM=IDCAMS
  //SYSPRINT  DD  SYSOUT=*
  //SYSIN     DD  *
   DELETE (ADSMSERV.DSM1509.DB01X)  CLUSTER PURGE
   IF LASTCC = 8 THEN SET MAXCC = 0
   DEFINE CLUSTER( NAME(ADSMSERV.DSM1509.DB01X) LINEAR MB(10) -
         STORAGECLASS('SCLASS1') -
         MANAGEMENTCLASS('MCLASS1') -
         DATACLASS('DCLASS1')
  /*
  //*
  //*******************************************************************
  //*
  //* 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='/ADSMSERV.DSM1509.DB01X'
  //DSMAMENG  DD  DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
  //SYSPRINT  DD  SYSOUT=*
  //SYSTERM   DD  SYSOUT=*
  //*
```

*Figure 4 (Part 1 of 7). Example of a Disaster Recovery Plan File (SMS Versions)*

```
//* Create ADSM database volume DRMTEST.DSM1509.DB02X 10M
//********************************************************************
//*
//* Allocate the VSAM data set
//*
//********************************************************************
//ALLOCAT  EXEC PGM=IDCAMS
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
 DELETE (ADSMSERV.DSM1509.DB02X)  CLUSTER PURGE
 IF LASTCC = 8 THEN SET MAXCC = 0
 DEFINE CLUSTER( NAME(ADSMSERV.DSM1509.DB02X) LINEAR MB(10) -
        STORAGECLASS('SCLASS1') -
        MANAGEMENTCLASS('MCLASS1') -
        DATACLASS('DCLASS1')
/*
//*
//********************************************************************
//*
//* 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='/ADSMSERV.DSM1509.DB02X'
//DSMAMENG DD  DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSTERM  DD  SYSOUT=*
//*
//* Create ADSM log volume ADSMSERV.DSD1509.LG01X 10M
//*
//********************************************************************
//*
//* Allocate the VSAM data set
//*
//********************************************************************
//ALLOCAT  EXEC PGM=IDCAMS
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
 DELETE (ADSMSERV.DSM1509.LG01X)  CLUSTER PURGE
 IF LASTCC = 8 THEN SET MAXCC = 0
 DEFINE CLUSTER( NAME(ADSMSERV.DSM1509.LG01X) LINEAR MB(10) -
        STORAGECLASS('SCLASS1') -
        MANAGEMENTCLASS('MCLASS1') -
        DATACLASS('DCLASS1')
/*
//*
```

*Figure 4 (Part 2 of 7). Example of a Disaster Recovery Plan File (SMS Versions)*

```
//********************************************************************
//*
//* 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='/ADSMSERV.DSM1509.LG01X'
//DSMAMENG  DD  DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT  DD  SYSOUT=*
//SYSTERM   DD  SYSOUT=*
//*
//* Create ADSM log volume ADSMSERV.DSM1509.LG02X 10M
//********************************************************************
//*
//* Allocate the VSAM data set
//*
//********************************************************************
//ALLOCAT  EXEC PGM=IDCAMS
//SYSPRINT  DD  SYSOUT=*
//SYSIN     DD  *
 DELETE (ADSMSERV.DSM1509.LG02X)  CLUSTER PURGE
 IF LASTCC = 8 THEN SET MAXCC = 0
 DEFINE CLUSTER( NAME(ADSMSERV.DSM1509.LG02X) LINEAR MB(10) -
        STORAGECLASS('SCLASS1') -
        MANAGEMENTCLASS('MCLASS1') -
        DATACLASS('DCLASS1')
/*
//*
//********************************************************************
//*
//* 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='/ADSMSERV.DSM1509.LG02X'
//DSMAMENG  DD  DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT  DD  SYSOUT=*
//SYSTERM   DD  SYSOUT=*

end LOGDBVOL.CREATE jcl

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
```

*Figure 4 (Part 3 of 7). Example of a Disaster Recovery Plan File (SMS Versions)*

```
                 *-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

                 begin LOGDBVOL.INSTALL jcl

                 //DRMINST JOB
                 //*****************************************************************
                 //*
                 //* Purpose: Install server database and log volumes.
                 //* Recovery Administrator: Run this to install the server database
                 //*   and log volumes.
                 //*
                 //*****************************************************************
                 //SERVDSKD EXEC PGM=IEHPROGM
                 //SYSPRINT DD SYSOUT=*
                 //SYSABEND DD DUMMY
                 //DD1      DD UNIT=3390,VOL=SER=DRMSC1,DISP=OLD
                 //SYSIN    DD *
                  UNCATLG DSNAME=ADSMSERV.DSM1509.DISKLOG
                 /*
                 //*****************************************************************
                 //DELPARMS EXEC PGM=IDCAMS
                 //*****************************************************************
                 //SYSPRINT DD  SYSOUT=*
                 //SYSIN    DD  *
                  DELETE (ADSMSERV.DSM1509.LOGDBVOL.PARMLOG)
                  DELETE (ADSMSERV.DSM1509.LOGDBVOL.PARMLOG) NOSCRATCH
                  DELETE (ADSMSERV.DSM1509.LOGDBVOL.PARMDB)
                  DELETE (ADSMSERV.DSM1509.LOGDBVOL.PARMDB) NOSCRATCH
                  IF MAXCC <= 8 THEN SET MAXCC = 0
                 /*
                 //*****************************************************************
                 //PARMLOG  EXEC PGM=IEBGENER           LOG PARAMETERS FOR INSTALL
                 //*****************************************************************
                 //SYSIN    DD DUMMY
                 //SYSPRINT DD SYSOUT=*
                 //SYSUT2   DD DSN=ADSMSERV.DSM1509.LOGDBVOL.PARMLOG,
                 //         DISP=(,CATLG,DELETE),
                 //         SPACE=(TRK,(1,1)),
                 //         UNIT=SYSDA,
                 //         DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)
                 //SYSUT1   DD *
                 ADSMSERV.DSM1509.LG01X
                 ADSMSERV.DSM1509.LG02X
                 /*
```

*Figure 4 (Part 4 of 7). Example of a Disaster Recovery Plan File (SMS Versions)*

```
//****************************************************************
//PARMDB   EXEC PGM=IEBGENER          DB PARAMETERS FOR INSTALL
//****************************************************************
//SYSIN    DD DUMMY
//SYSPRINT DD SYSOUT=*
//SYSUT2   DD DSN=ADSMSERV.DSM1509.LOGDBVOL.PARMDB,
//         DISP=(,CATLG,DELETE),
//         SPACE=(TRK,(1,1)),
//         UNIT=SYSDA,
//         DCB=(RECFM=FB,LRECL=80,BLKSIZE=6160)
//SYSUT1   DD *
ADSMSERV.DSM1509.DB01X
ADSMSERV.DSM1509.DB02X
/*
//****************************************************************/
//SERVER  EXEC PGM=DSMSERV,DYNAMNBR=300,
//****************************************************************/
// PARM='/INSTALL 2 FILE:ADSMSERV.DSM1509.LOGDBVOL.PARMLOG
//               2 FILE:ADSMSERV.DSM1509.LOGDBVOL.PARMDB'
//DSMAMENG DD DSN=ADSMSERV.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=ADSMSERV.DSM1509.DISKLOG,DISP=(NEW,CATLG),
//            SPACE=(TRK,(1,1)),
//            STORCLAS=SCLASS1,
//            MGMTCLAS=MCLASS1,
//            DATACLAS=DCLASS1,
//            DCB=(RECFM=FB,BLKSIZE=800,LRECL=80)
//SYSPRINT DD SYSOUT=*
//SYSTERM  DD SYSOUT=*

end LOGDBVOL.INSTALL jcl

*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
```

*Figure 4 (Part 5 of 7). Example of a Disaster Recovery Plan File (SMS Versions)*

```
           *-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*

           begin PRIMVOL.REPLACEC jcl

           //DRMPRIMC JOB
           //*******************************************************************
           //*
           //* Purpose: Create replacement volumes for primary storage pools that
           //*   use device class DISK.
           //* Recovery administrator: Edit this section for your replacement
           //*   volume names.  New name must be unique, that is, different from any
           //*   original or other new name.
           //*
           //*******************************************************************
           //* Replace ADSMSERV.DSM1509.AR01 DISK 5.0M in ARCHIVEPOOL
           //*******************************************************************
           //*
           //* Allocate the VSAM data set
           //*
           //*******************************************************************
           //ALLOCAT  EXEC PGM=IDCAMS
           //SYSPRINT  DD  SYSOUT=*
           //SYSIN     DD  *
            DELETE (ADSMSERV.DSM1509.AR01@)  CLUSTER PURGE
            IF LASTCC = 8 THEN SET MAXCC = 0
            DEFINE CLUSTER( NAME(ADSMSERV.DSM1509.AR01@) LINEAR MB(5) -
                   STORAGECLASS('SCLASS1') -
                   MANAGEMENTCLASS('MCLASS1') -
                   DATACLASS('DCLASS1')
           /*
           //*
           //*******************************************************************
           //*
           //* 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='/ADSMSERV.DSM1509.AR01@'
           //DSMAMENG  DD  DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
           //SYSPRINT  DD  SYSOUT=*
           //SYSTERM   DD  SYSOUT=*
           /*
           //* Replace ADSMSERV.DSM1509.BK02 DISK 16.0M in BACKUPPOOL
           //*******************************************************************
           //*
           //* Allocate the VSAM data set
           //*
```

*Figure 4 (Part 6 of 7). Example of a Disaster Recovery Plan File (SMS Versions)*

```
//********************************************************************
//ALLOCAT  EXEC PGM=IDCAMS
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
 DELETE (ADSMSERV.DSM1509.BK02@)  CLUSTER PURGE
 IF LASTCC = 8 THEN SET MAXCC = 0
 DEFINE CLUSTER( NAME(ADSMSERV.DSM1509.BK02@) LINEAR MB(16) -
        STORAGECLASS('SCLASS1') -
        MANAGEMENTCLASS('MCLASS1') -
        DATACLASS('DCLASS1')
/*
//*
//********************************************************************
//*
//* 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='/ADSMSERV.DSM1509.BK02@'
//DSMAMENG  DD  DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSTERM   DD  SYSOUT=*
//*
//* Replace ADSMSERV.DSM1509.BK01X DISK 5.0M in BACKUPPOOL
//*
//********************************************************************
//*
//* Allocate the VSAM data set
//*
//********************************************************************
//ALLOCAT  EXEC PGM=IDCAMS
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
 DELETE (ADSMSERV.DSM1509.BK01X@)  CLUSTER PURGE
 IF LASTCC = 8 THEN SET MAXCC = 0
 DEFINE CLUSTER( NAME(ADSMSERV.DSM1509.BK01X@) LINEAR MB(5) -
        STORAGECLASS('SCLASS1') -
        MANAGEMENTCLASS('MCLASS1') -
        DATACLASS('DCLASS1')
/*
//*
//********************************************************************
//*
//* 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='/ADSMSERV.DSM1509.BK01X@'
//DSMAMENG  DD  DSN=ADSMSERV.SANRMSG(ANRMENU),DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSTERM   DD  SYSOUT=*

end PRIMVOL.REPLACEC jcl
```

*Figure 4 (Part 7 of 7). Example of a Disaster Recovery Plan File (SMS Versions)*

## Using Disaster Recovery Manager without a Tape Management Product

The following scenario demonstrates the use of the MOVE DRMEDIA and PREPARE commands to generate an up-to-date disaster recovery plan for disaster recovery preparation.

1. ADSM server ADSMSERV contains the backups for the FileRight Company accounts receivable application.

2. For *availability management*, FileRight uses ADSM server database mirroring and copy storage pools whose volumes are kept onsite.

3. For *disaster recovery management*, FileRight uses ADSM server database backup and copy storage pool whose volumes are immediately moved offsite after creation.

4. To prepare for a possible disaster, the administrator records the following site-specific recovery steps in the INSTR.GENERAL stanza source file:

   - Software license numbers
   - Sources of replacement hardware
   - The FileRight Company's specific recovery steps

5. The administrator defines the following ADSM policies for managing their ADSM volumes for disaster recovery protection:

   - Define a device class with a prefix of DR for ADSM volumes:

```
DEFINE DEVCLASS DISASTER DEVTYPE=CARTRIDGE
        PREFIX=DR
```

   - Define a copy storage pool, DRCOPYPOOL, associated with the device class name defined above.  The copy storage pool, DRCOPYPOOL, has its REUSEDELAY set to 30 days, which is the same as for the SET DRMDBBACKUPEXIPREDAYS:

```
DEFINE STGPOOL DRCOPYPOOL DISASTER POOLTYPE=COPY
        RECLAMATION=100 MAXSCRATCH=10000 REUSEDELAY=30
```

   **Note:**  The reclamation is turned off for disaster copy storage pool so that the partial filled copy storage pool volumes will not be reclaimed before they get shipped to the offsite location.  You need to schedule the reclamation for your disaster copy storage pool volumes periodically.

6. The following DRM system values are used by DRM Offsite Recovery Media processing:

```
SET DRMCOPYSTGPOOL DRCOPYPOOL

SET DRMDBBACKUPEXPIREDAYS 30

SET DRMNOTMOUNTABLENAME Dock/031

SET DRMCOURIERNAME HsiaoVan

SET DRMVAULTNAME Irnvault

SET DRMCMDFILENAME ADSM.DRM.EXEC.CMDS
```

# Scenario 1: Disaster Recovery Manager Controls the ADSM Volume Movement without the Tape Management Product

This scenario demonstrates how to use the policies defined with ADSM and DRM for moving ADSM volumes offsite for disaster recovery protection and back onsite for reuse.

## Routine Operations

- ADSM storage pool backup and database backup processing is performed nightly using ADSM central scheduling.

- At 8 a.m. the ADSM tape administrator issues the following command to create a list of volumes to be given to the courier:

```
query drmedia * wherestate=mountable
```

These volumes were created last night by the ADSM server storage pool backup and database backup processing.

- The administrator ejects the volumes from the library.

- To indicate the ejected volumes that are unavailable for ADSM onsite processing, issue the following command:

```
move drmedia * wherestate=mountable
```

This command marks the volumes unavailable to ADSM.

- The administrator then packages the volumes so that they can be given to the courier.

- The courier arrives to pick up today's backup tapes. The administrator records that the volumes will be given to the courier by issuing the following command:

```
move drmedia * wherestate=notmountable
```

- To generate a recovery plan file with the latest volume information, the administrator issues the following command:

```
prepare
```

The administrator copies the recovery plan file to a diskette that will be given to the courier.

- Several weeks ago during a scheduled ADSM server reclamation processing, copy storage pool volume CSP01 was reclaimed and its ADSM volume status was changed to PENDING. The volume is physically located at the offsite vault.

- Last night the PENDING window passed for volume CSP01 and its ADSM volume status is now EMPTY. Also, an ADSM database backup series at vault has exceeded the value specified by the SET DRMDBBACKUPEXPIREDAYS command. The volume no longer contains valid backup data and should be returned onsite for reuse or disposal.

- To determine if any tapes need to be returned from the vault, the administrator generates a list with the following command:

```
query drmedia * wherestate=vaultretrieve
```

These tapes no longer have valid backup data on them. Volume CSP01, DBTP55, and DBTP33 are included in the list.

- The administrator gives the database backup and copy storage pool tapes, the recovery plan file diskette, and the list of volumes to be returned from the vault to the courier.

- The courier gives the tapes that were on the previous day's return from the vault list to the administrator. To update the state of these tapes as returned to onsite, the administrator issues the following command:

```
move drmedia * wherestate=courierretrieve
```

- The courier drives to the vault with today's database backup and copy storage pool tapes, the recovery plan diskette, and the volumes to return from the vault list.

- At 4 p.m. the ADSM tape administrator calls the vault and verifies that today's backup database and storage pool tapes arrived and are secure. To set the location of these volumes to VAULT, the administrator issues the following command:

```
move drmedia * wherestate=courier
```

- The vault also tells the administrator that the volumes on today's return from the vault list have been given to the courier. The administrator issues the following command:

```
    move drmedia * wherestate=vaultretrieve
```

This command changes the status for this volume to COURIERRETRIEVE.

- Later that week, an audit team from headquarters arrives unannounced and asks the administrator for a copy of the disaster recovery plan for this server. The administrator gives the auditors a copy of the recovery plan file generated two hours earlier with up-to-date information that includes the volumes required for recovery, their location, and the commands required to use them to restore the server. The auditors are impressed by the plan's timeliness and completeness.

# Using Disaster Recovery Manager with a Tape Management Product

The following scenarios demonstrate the use of the MOVE DRMEDIA command, a tape management product, and the PREPARE command to generate an up-to-date disaster recovery plan for disaster recovery preparation.

1. ADSM server ADSMSERV contains the backups for the FileRight Company accounts receivable application.

2. FileRight uses a tape management product (for example, RMM) to manage its removable media.

3. For *availability management*, FileRight uses ADSM server database mirroring and copy storage pools whose volumes are kept onsite.

4. For *disaster recovery management*, FileRight uses ADSM server database backup and copy storage pool whose volumes are immediately moved offsite after creation.

5. To prepare for a possible disaster, the administrator records the following site-specific recovery steps in the INSTR stanza source files:

   - Software license numbers
   - Sources of replacement hardware
   - The FileRight Company's specific recovery steps

6. The administrator defines the following ADSM and RMM policies for managing their removable volumes for disaster recovery protection:

   a. ADSM commands

      - Define a device class with a prefix of DR for ADSM volumes:

```
DEFINE DEVCLASS DISASTER DEVTYPE=CARTRIDGE
       PREFIX=DR
```

      - Define a copy storage pool, DRCOPYPOOL, associated with the device class name defined above. The copy storage pool, DRCOPYPOOL, has its REUSEDELAY set to 30 days, which is the same as for the SET DRMDBBACKUPEXIPREDAYS:

```
DEFINE STGPOOL DRCOPYPOOL DISASTER POOLTYPE=COPY
       MAXSCRATCH=10000 REUSEDELAY=30 RECLAMATION=100
```

        **Note:** The reclamation is turned off for disaster copy storage pool so that the partial filled copy storage pool volumes will not be reclaimed before they get shipped to the offsite location. You need to schedule the reclamation for your disaster copy storage pool volumes periodically.

- The following DRM system values are used by DRM Offsite Recovery Media processing:

```
SET DRMCOPYSTGPOOL DRCOPYPOOL

SET DRMDBBACKUPEXPIREDAYS 30

SET DRMNOTMOUNTABLENAME Dock/031

SET DRMCOURIERNAME HsiaoVan

SET DRMVAULTNAME Irnvault

SET DRMCMDFILENAME ADSM.DRM.EXEC.CMDS
```

b. RMM commands ("Scenario 1: Disaster Recovery Manager Controls the ADSM Volume Movement" on page 56)

All newly created ADSM database backup volumes (DR.**.DBB) and copy storage pool volumes (DR.**.BFS) will stay in the home location until they are moved to another location:

```
ADDVRS DSNAME(DR.**.DBB) LOCATION(home) DAYS
       COUNT(99999) STORENUMBER(99999) OWNER(ADSM)

ADDVRS DSNAME(DR.**.BFS) LOCATION(home) DAYS
       COUNT(99999) STORENUMBER(99999) OWNER(ADSM)
```

c. RMM commands ("Scenario 2: Removable Media Management Controls the Volume Movement" on page 59)

All newly created ADSM database backup volumes (DR.**.DBB) and copy storage pool volumes (DR.**.BFS) will be shipped to an offsite location, Irnvault, for disaster recovery protection. The DB backup volumes will be kept in the offsite location until they are expired by DRM db backup series expiration, and the copy storage pool volumes will be kept in the offsite location until they are emptied by ADSM reclamation or expiration:

```
ADDVRS DSNAME(DR.**.DBB) LOCATION(Irnvault) DAYS
       COUNT(99999) STORENUMBER(99999) OWNER(ADSM)

ADDVRS DSNAME(DR.**.BFS) LOCATION(Irnvault) DAYS
       COUNT(99999) STORENUMBER(99999) OWNER(ADSM)
```

# Scenario 1: Disaster Recovery Manager Controls the ADSM Volume Movement

This scenario demonstrates how to use the policies defined with ADSM and DRM for moving ADSM volumes offsite for disaster recovery protection and back onsite for reuse, and how to update the tape management product database (for example, RMM) to reflect the current volume locations.

## Routine Operations

- ADSM storage pool backup and database backup processing is performed nightly using ADSM central scheduling.

- RMM Inventory Management (including Vital record processing, Expiration processing, and Storage location management processing) runs nightly after ADSM backups.

- At 8 a.m. the tape administrator issues the following command to mark the ADSM database backup and copy storage pool volumes created last night unavailable for ADSM processing, and also generate the RMM CHANGEVOLUME commands for each volume successfully processed by the MOVE DRMEDIA command and put the RMM commands in a file, ADSM.DRM.EXEC.CMDS (set by the previous SET DRMCMDFILENAME command):

```
MOVE DRMEDIA * WHERESTATE=MOUNTABLE
      CMD="RMM CHANGEVOLUME &VOL LOCATION(Irnvault) MANUALMOVE"
```

The content of the resulting ADSM.DRM.EXEC.CMDS file is:

```
RMM CHANGEVOLUME DBTP01 LOCATION(Irnvault) MANUALMOVE
RMM CHANGEVOLUME DBTP02 LOCATION(Irnvault) MANUALMOVE
RMM CHANGEVOLUME CSTP01 LOCATION(Irnvault) MANUALMOVE
RMM CHANGEVOLUME CSTP02 LOCATION(Irnvault) MANUALMOVE
```

The tape administrator executes the following TSO command to run the RMM commands. The volumes are ejected from the ATL1 library because the library is a system-managed library and marked in transit to Irnvault:

```
EXEC 'ADSM.DRM.EXEC.CMDS'
```

- The administrator then packages the volumes so that they can be given to the courier.

- The courier arrives to pick up today's backup tapes. The administrator records that the volumes will be given to the courier by issuing the following command:

```
MOVE DRMEDIA * WHERESTATE=NOTMOUNTABLE
```

- To generate a recovery plan file with the latest volume information, the administrator issues the following command:

```
PREPARE
```

The administrator copies the recovery plan file to a diskette that will be given to the courier.

- Several weeks ago during a scheduled ADSM server reclamation processing, copy storage pool volume CSP01 was reclaimed and its ADSM volume status was changed to PENDING. The volume is physically located at the offsite vault.

- Last night the PENDING window passed for volume CSP01 and its ADSM volume status is now EMPTY. Also, an ADSM database backup series at vault has exceeded the value specified by SET DRMDBBACKUPEXPIREDAYS command. The volumes no longer contain valid backup data and should be brought back onsite for reuse or disposal.

- To determine and delete any tapes from ADSM database and return them to scratch for reuse, the administrator issues the following command:

```
MOVE DRMEDIA * WHERESTATE=VAULTRETRIEVE TOSTATE=ONSITERETRIEVE
```

This command deletes ADSM volume records for the empty/expired volumes at vault. The volumes become 'PENDING SCRATCH' in the RMM database because the deletion exit, ARCTVEXT, is invoked during ADSM volume deletion.

- The administrator gives the database backup and copy storage pool tapes, the recovery plan file diskette, and the RMM Movement Report that lists the volumes to be returned from the vault to the courier.

- The courier gives the tapes that were on the previous day's return from the vault list to the administrator. When the volumes are physically entered into ATL1, the movement is automatically confirmed by RMM because the ATL1 is a system-managed library. The volumes are returned to scratch status.

- The courier drives to the vault with today's backup volumes, the recovery plan diskette, and the volumes to return from the vault list.

- At 4 p.m. the ADSM tape administrator calls the vault and verifies that today's backup volumes arrived and are secure. The administrator issues the following command:

```
MOVE DRMEDIA * WHERESTATE=COURIER
      CMD="RMM CHANGEVOLUME &VOL CONFIRMMOVE"
```

The MOVE DRMEDIA command sets the location of the volumes to lrnvault in the ADSM database, and also generates the RMM CHANGEVOLUME CONFIRMMOVE commands for each volume successfully processed, and saves the generated commands in a file, ADSM.DRM.EXEC.CMDS:

```
RMM CHANGEVOLUME DBTP01 CONFIRMMOVE
RMM CHANGEVOLUME DBTP02 CONFIRMMOVE
RMM CHANGEVOLUME CSTP01 CONFIRMMOVE
RMM CHANGEVOLUME CSTP02 CONFIRMMOVE
```

• The tape administrator executes the following TSO command:

```
EXEC 'ADSM.DRM.EXEC.CMDS'
```

After the command is executed, the RMM database is confirmed with the location, lrnvault, for each volume in the file.

**Note:** If you want the RMM CHANGEVOLUME commands to be written to a file other than the default one, ADSM.DRM.EXEC.CMDS, specify the file name on the MOVE DRMEDIA command with CMDFILENAME parameter.

• Later that week, an audit team from headquarters arrives unannounced and asks the administrator for a copy of the disaster recovery plan for this server. The administrator gives the auditors a copy of the recovery plan file generated two hours earlier with up-to-date information that includes the volumes required for recovery, their location, and the commands required to use them to restore the server. The auditors are impressed by the plan's timeliness and completeness.

# Scenario 2: Removable Media Management Controls the Volume Movement

This scenario demonstrates how to use the policies defined with RMM Vital Record Specification (VRS) for moving volumes offsite for disaster recovery protection and back onsite for reuse, and how to use policies defined with ADSM and DRM to expire or empty the volumes at the vault. If you use a tape management product to move your volumes to the offsite location today and you want to update ADSM database to reflect the movement of the ADSM volumes, you may consider following this scenario:

## Routine Operations

- ADSM storage pool backup and database backup is performed nightly using ADSM central scheduling.

- RMM Inventory Management (including Vital record processing, Expiration processing, and Storage location management processing) runs nightly after ADSM backups.

- RMM SEARCHVOLUME command runs after RMM Inventory Management processing:

```
SEARCHVOLUME VOLUME(*) LIMIT(*) DESTINATION(Irnvault)
             LOCATION(ATL1) INTRANSIT(NO) OWNER(ADSM)
             CLIST('RMM CHANGEVOLUME ',' LOCATION(Irnvault)')
```

**Note:** ATL1 is a system-managed library. If you want to eject all volumes scheduled to move from the library to Irnvault, the specification of the OWNER is not necessary.

The SEARCHVOLUME command builds CHANGEVOLUME commands for each volume belonging to ADSM and its tape data set name matches the data set name specified in VRS, and saves the commands in a CLIST data set, prefix.EXEC.RMM.CLIST:

```
RMM CHANGEVOLUME DBTP01 LOCATION(Irnvault)
RMM CHANGEVOLUME DBTP02 LOCATION(Irnvault)
RMM CHANGEVOLUME CSTP01 LOCATION(Irnvault)
RMM CHANGEVOLUME CSTP02 LOCATION(Irnvault)
```

- At 8 a.m. the tape administrator executes the following TSO command and all ADSM database backup and copy storage pool volumes created last night are ejected from the ATL1 library because the library is a system-managed library and marked in transit to Irnvault:

```
EXEC 'prefix.EXEC.RMM.CLIST'
```

- After the volumes are ejected from the library and packaged for sending to Irnvault, the tape administrator runs SEARCHVOLUME command to generate MOVE DRMEDIA commands for each ADSM volume in the transition to Irnvault:

```
SEARCHVOLUME VOLUME(*) LIMIT(*) DESTINATION(Irnvault)
             LOCATION(ATL1) INTRANSIT(Y) OWNER(ADSM)
             CLIST('MOVE DRMEDIA ',' TOSTATE=COURIER')
```

**Note:** OWNER is used here to restrict to only ADSM volumes. The MOVE DRMEDIA command is used to mark the volumes unavailable for ADSM onsite processing in the ADSM database.

The SEARCHVOLUME command generates the following MOVE DRMEDIA commands and saves them as an ADSM macro in a CLIST data set, prefix.EXEC.RMM.CLIST:

```
MOVE DRMEDIA DBTP01 TOSTATE=COURIER
MOVE DRMEDIA DBTP02 TOSTATE=COURIER
MOVE DRMEDIA CSTP01 TOSTATE=COURIER
MOVE DRMEDIA CSTP02 TOSTATE=COURIER
```

- The tape administrator then runs the ADSM macro with the CLIST data set, prefix.EXEC.RMM.CLIST, as the macro name to execute the MOVE DRMEDIA commands:

```
DSMADMC -id=xxxx -pa=yyyy MACRO 'prefix.EXEC.RMM.CLIST'
```

After the macro command is executed, the volumes are marked offsite and unavailable for ADSM processing in ADSM database.

- The courier arrives to pick up today's backup tapes. The administrator generates a recovery plan file with the latest volume information by issuing the following command:

```
PREPARE
```

The administrator copies the recovery plan file to a diskette that will be given to the courier.

- Several weeks ago during a scheduled ADSM server reclamation processing, copy storage pool volume CSP01 was reclaimed and its ADSM volume status was changed to PENDING. The volume is physically located at the offsite vault.

- Last night the PENDING window passed for volume CSP01 and its ADSM volume status is now EMPTY. The volume no longer contains valid backup data. Also, one ADSM database backup series at vault that is in DBTP55 and DBTP33 volumes has exceeded the value specified by the SET DRMDBBACKUPEXPIREDAYS command. These volumes no longer contain valid backup data and should be brought back onsite for reuse or disposal.

- To make the EMPTY/EXPIRED ADSM volumes become scratch volumes for moving back onsite for reuse, the administrator issues:

```
MOVE DRMEDIA * WHERESTATE=VAULTRETRIEVE TOSTATE=ONSITERETRIEVE
```

  This command deletes ADSM volume records for the empty/expired volumes at vault. The volumes become 'PENDING SCRATCH' in the RMM database because the deletion exit, ARCTVEXT, is invoked during ADSM volume deletion.

- The administrator gives the database backup and copy storage pool tapes, the recovery plan file diskette, and the RMM Movement Report that list the volumes to be returned from the vault to the courier.

- The courier gives the tapes that were on the previous day's return from the vault list to the administrator. When the volumes are physically entered into ATL1, the movement is automatically confirmed by RMM because the ATL1 is a system-managed library. The volumes are returned to the scratch status for reuse.

- The courier drives to the vault with today's backup volumes, the recovery plan diskette, and the volumes to return from the vault list.

- At 4 p.m. the ADSM tape administrator calls the vault and verifies that today's backup volumes arrived and are secure. The administrator run the SEARCHVOLUME command to generate MOVE DRMEDIA command for each ADSM volume received at Irnvault:

```
SEARCHVOLUME VOLUME(*) LIMIT(*) DESTINATION(Irnvault)
             LOCATION(ATL1) INTRANSIT(Y) OWNER(ADSM)
             CLIST('MOVE DRMEDIA ',' TOSTATE=VAULT')
```

**Note:** OWNER is used here to restrict to only ADSM volumes. The MOVE DRMEDIA command is used to update the volume location and state in the ADSM database.

The CLIST data set, prefix.EXEC.RMM.CLIST, contains the following MOVE DRMEDIA commands for each volume:

```
MOVE DRMEDIA DBTP01 TOSTATE=VAULT
MOVE DRMEDIA DBTP02 TOSTATE=VAULT
MOVE DRMEDIA CSTP01 TOSTATE=VAULT
MOVE DRMEDIA CSTP02 TOSTATE=VAULT
```

- The administrator runs the ADSM macro command with the CLIST data set, prefix.EXEC.RMM.CLIST, as the macro name to execute the MOVE DRMEDIA commands:

```
        DSMADMC -id=xxxx -pa=yyyy macro 'prefix.EXEC.RMM.CLIST'
```

  After the macro command is executed, the ADSM database is updated to reflect the new ORM state and location for each volume.

- The administrator run the SEARCHVOLUME command to generate the CHANGEVOLUME CONFIRMMOVE command for each ADSM volume received at Irnvault:

```
    SEARCHVOLUME VOLUME(*) LIMIT(*) DESTINATION(Irnvault)
                 LOCATION(ATL1) INTRANSIT(Y) OWNER(ADSM)
                 CLIST('RMM CHANGEVOLUME ',' CONFIRMMOVE')
```

  The CLIST data set, prefix.EXEC.RMM.CLIST, contains the following CHANGEVOLUME CONFIRMMOVE commands for each ADSM volume and the administrator runs the CLIST to confirm the movement:

```
      RMM CHANGEVOLUME DBTP01 CONFIRMMOVE
      RMM CHANGEVOLUME DBTP02 CONFIRMMOVE
      RMM CHANGEVOLUME CSTP01 CONFIRMMOVE
      RMM CHANGEVOLUME CSTP02 CONFIRMMOVE
```

  **Note:** If you want to confirm all volumes, including ADSM volumes, moved from ATL1 to Irnvault, the 'RMM CHANGEVOLUME * CONFIRMMOVE(ATL1, Irnvault)' command can be issued without running SEARCHVOLUME command to generate CONFIRMMOVE command for each volume.

- Later that week, an audit team from headquarters arrives unannounced and asks the administrator for a copy of the disaster recovery plan for this server. The administrator gives the auditors a copy of the recovery plan file generated two hours earlier with up-to-date information that includes the volumes required for recovery, their location, and the commands required to use them to restore the server. The auditors are impressed by the plan's timeliness and completeness.

# Storing the Client Recovery Information

DRM allows you to store recovery information for client machines backed up by the ADSM server.

| Task | Required Privilege Class |
|---|---|
| Defining the machine information | System |
| Associating the client nodes with the machines | |
| Defining and tracking the machine recovery media | |
| Associating the recovery media with the machines | |

# Defining Machine Information

Machine information is used to store details about the machine on which a client node resides.  In the event of a disaster, this information can help you identify what you need to rebuild or restore the replacement machines.

To assist with the recovery of an ADSM client machine, define the following information in the ADSM database:

- Machine location and business priority
- The ADSM client nodes associated with a machine
- Machine characteristics
- Machine recovery instructions

**Note:**  The machine characteristics and machine recovery instructions do not have to be defined during the setup process.  You can return to this step later.

1. To store information about the machine that contains the client, issue the DEFINE MACHINE command and specify the client's location and business priority.

   The following example defines machine mach22 in building 021, 2nd floor, in room 2929, and has a priority value of 1:

   ```
   define machine mach22 building=021 floor=2 room=2929 priority=1
   ```

2. To associate one or more ADSM client nodes with a machine, issue the DEFINE MACHNODEASSOCIATION command.

   During disaster recovery, this association information is used to determine what ADSM client nodes resided on machines that have been destroyed.  The file spaces associated with these client nodes should be restored.  The following example associates node CAMPBELL with machine mach22:

   ```
   define machnodeassociation mach22 campbell
   ```

   You can query your machine definitions by issuing the QUERY MACHINE command.  For an example, see the query machine output in "Example: Recovering ADSM Clients" on page 71.

3. To insert machine characteristics and recovery instructions into the ADSM database, issue the INSERT MACHINE command.  You must insert machine characteristics or recovery instructions line by line; therefore, you may want to create a REXX exec to do this process for you.  See Figure 5 on page 65 for an example.

The following two examples display how to insert machine characteristics and recovery instructions using a line-by-line method, and using a REXX exec.  You must first use an operating system query command or utility to identify the characteristics for your client machine.

- **INSERT MACHINE Command from an ADSM Prompt**

  The following example shows partial output from a query on an AIX client machine operating system.  For our example, we want to save the information from lines 1 and 4 with the INSERT MACHINE command.

  ```
  --1  Host Name: mach22 with 8 MB Memory Card
  ---    16 MB Memory Card
  ---
  --4  Operating System: AIX Version 3 Release 2
  ---
  ---  Hardware Address: 10:00:5x:a8:6a:46
  ```

  – The following example inserts the text "Host Name:  mach22 with 8 MB Memory Card" as line 1 and "Operating System: AIX Version 3 Release 2" as line 2 into the ADSM database for machine mach22:

  ```
  insert machine mach22 1 characteristics="Host Name: mach22 with 8 MB Memory Card"
  insert machine mach22 2 characteristics="Operating System: AIX Version 3 Release"
  ```

  – To specify recovery instructions for your client machine, use this same command but with the RECOVERYINSTRUCTIONS parameter.  Characteristics and recovery instructions cannot be specified on the same command:

  ```
  insert machine mach22 1 -
    recoveryinstructions="Recover this machine for accounts receivable dept."
  ```

- **INSERT MACHINE Command Using a REXX exec**

  In order to help automate the insertion of client machine information into the ADSM server database, DRM ships an example REXX exec named ANRMACHI.  It is located in the ADSM.SAMPLIB data set.

The following is an example procedure to show how you can write a local procedure to insert machine characteristics.

– On the AIX client machine, the output from an AIX operating system commands *lsdev, lsvg,* and *df* are written to the file clientinfo.txt. These commands will list the devices, logical volumes by volume group, and file systems:

```
echo "devices"                             > clientinfo.txt
lsdev -C | sort -d -f              >> clientinfo.txt
echo "logical volumes by volume group" >> clientinfo.txt
lsvg -o | lsvg -i -l                     >> clientinfo.txt
echo "file systems"                      >> clientinfo.txt
df                                       >> clientinfo.txt
```

The file, clientinfo.txt, is then transferred to the MVS operating system and processed by the REXX exec, which builds an ADSM macro of INSERT commands (one INSERT command for each line in clientinfo.txt).

Figure 5 is the example REXX exec named ANRMACHI that is shipped with the DRM feature.

```
/*REXX*/
/* Read machine characteristics from a file and build ADSM macro commands       */
/* to insert the information into the machine characteristics table.            */
/* Invoke with:                                                                 */
/*   exec anrmachi machinename infodsn outmacrodsn                              */

arg MACHINENAME INDSN OUTDSN .

'FREE FI(INDD OUTDD)'
'ALLOC DA('INDSN') F(INDD) SHR REUSE'
'DELETE 'OUTDSN
'ALLOC DA('OUTDSN') F(OUTDD) NEW REUSE RECFM(V) LRECL(255)'
OLINE.1 = 'delete machine 'MACHINENAME' type=characteri'
'EXECIO 1 DISKW OUTDD (STEM OLINE.'

L = 1
do forever
   'EXECIO 1 DISKR INDD (STEM ILINE.'
   if RC = 0 then do
      OLINE.1 = 'insert machine 'MACHINENAME L' characteri='''strip(ILINE.1,'TRAILING')''''
      'EXECIO 1 DISKW OUTDD (STEM OLINE.'
      L = L + 1
      end
   else leave
end /* do */

'EXECIO 0 DISKR INDD (FINIS'
'EXECIO 0 DISKW OUTDD (FINIS'
'FREE FI(INDD OUTDD)'
```

*Figure  5.  Example of a REXX exec File to Insert the Machine Characteristics*

The ANRMACHI REXX exec is executed from a TSO command line as follows:

```
exec anrmachi acctsrecv clininfo.txt clininfo.mac
```

The macro is then executed on an administrative client of the MVS operating system to load the data into the ADSM database:

– To insert the machine characteristics, start an administrative client and execute the macro. For example:

```
dsmadmc -id=xxx -pw=xxx macro clininfo.mac
```

You can view your machine characteristics by issuing the QUERY MACHINE command with FORMAT=CHARACTERISTICS parameter.

– To specify recovery instructions for your client machine, you can use this same REXX exec but with the RECOVERYINSTRUCTIONS parameter.

To insert recovery instructions for your client machine, you can use the same technique by changing the 'characteri=' parameter in the REXX exec to 'recoveryinst=' but with the RECOVERYINSTRUCTIONS parameter.

Your client recovery information is now saved in the ADSM database.

## Defining and Tracking Recovery Media

Use the following commands to save a description of the bootable media required to reinitialize or reinstall an operating system on a client machine, and associate one or more machines with this media. You can also use these commands to associate non-executable media such as application user guides with client machines.

1. Define your boot media needed for recovering one or more machines by issuing the DEFINE RECOVERYMEDIA command. In the following example, the boot recovery media name is tellerwrkstnimage. The volume list includes aix001, aix002, and aix003 for product AIX 4.1. The location of the recovery media is building 21.

```
define recoverymedia tellerwrkstnimage volumenames=aix001,aix002,aix003
   type=boot product="AIX 4.1" location="Building 21"
```

This command is usually only needed when a client machine configuration changes. For example, if you install a new level of AIX and create a bootable image with **mksysb**, issue the DEFINE RECOVERYMEDIA command to create a new recovery media definition that can be used to track the new mksysb volumes.

To query your recovery media definitions, issue the QUERY RECOVERYMEDIA command with the FORMAT=DETAILED parameter.

2. Use the DEFINE RECMEDMACHASSOCIATION command to associate one or more machines with a recovery media. Before you associate a machine with a recovery media, the specified machine must exist and the recovery media must exist.

   During disaster recovery, this association information can be used to determine what boot media to use in the replacement machines.

   The following example associates machine MACH255 with recovery media tellerwrkstnimage:

```
define recmedmachassociation tellerwrkstnimage mach255
```

3. When the boot media is moved offsite, update the location with the UPDATE RECOVERYMEDIA command.

   The following example updates the location of boot media tellerwrkstnimage to lrnvault:

```
update recoverymedia tellerwrkstnimage location=irnvault
```

In a *recovery* scenario, you may want to have softcopy manuals that are on a CD-ROM. You can define this to DRM with the DEFINE RECOVERYMEDIA command.

The following example defines the AIX 4.1 manuals, a volume identifier of cd0001, and a type of OTHER because it is a manual:

```
define recoverymedia aix41manuals description="AIX 4.1 Bookshelf" -
   volumes=cd0001 type=other
```

# Recovering the Server

The following list is a guideline to recovering your ADSM server using the DRM disaster recovery plan file:

- Obtain the latest disaster recovery plan file

- Break out the disaster recovery plan file to view, update, print, or execute as ADSM macros, script, or JCL

- Obtain the backup volumes from the vault

- Locate a suitable replacement machine

- Review the RECOVERY.DRMODE and RECOVERY.NMODE REXX execs because they are important for restoring the server to a point where clients can be recovered (see "About the Recovery Plan File Stanzas" on page 16).

# Example: Recovering the ADSM Server

This scenario demonstrates how an administrator uses the recovery plan file to recover the ADSM server.

1. A disaster is declared for the building that houses the distributed systems server facility at the FileRight Company. Complete recovery of the ADSM server is required.

2. The recovery administrator views the latest recovery plan file for the ADSM server. The recovery plan file stored all the required recovery information in one place. Following the predefined notes in the INSTR.GENERAL stanza, the administrator reviews the sequence of steps required to recover the server.

3. Step one is to begin the process of obtaining the backup tapes for the server. Fortunately, the backup tapes were stored offsite.

4. The administrator views the INSTR.OFFSITE stanza for the name and telephone number of the courier that the company uses to move tapes between the data center and the offsite vault.

5. The administrator uses a locally written procedure to break out the recovery plan file stanzas into multiple files. (See "Using a REXX EXEC to Break Out a Disaster Recovery Plan File" on page 82.) These files can be optionally viewed, updated, printed, or executed as ADSM macros, REXX exec, or JCL.

6. The administrator prints out the VOLUMES.REQUIRED file. The printout is handed to the courier who goes to the offsite vault to obtain the backup volumes.

7. In the meantime, the administrator must find a suitable replacement machine. Stanza DEVICES.REQUIRED specifies the required tape drive type that will be needed to read the backup tapes. Stanza SERVER.REQUIRE summarizes the required amount of disk space.

8. The administrator restores the ADSM server and administrative client software. The software and its location were specified in the INSTR.INSTALL stanza.

9. The administrator reviews the ADSM macros contained in the recovery plan. At the time of the disaster, the courier had not picked up the database and storage pool incremental backup volumes created the previous night. However, they were not destroyed. The administrator removes the entry for the storage pool backup volume from the COPYVOL.DESTR file.

10. The courier returns with the required volumes.  Somehow, the vault could not find one of the copy storage pool volumes.  There is not enough time to wait for the vault location to find the lost volume.  The administrator removes the entry for that volume from the COPYVOL.AVAIL file.

11. All of the server's primary volumes were destroyed.  The administrator decides there are no changes required to the PRIMVOL JCL and ADSM macro files.

12. To restore the server database to a point where clients can be recovered, the administrator invokes the RECOVERY.DRMODE REXX exec by entering the TSO command:

    ```
    exec recovery.drmode 'adsmadm1 adm1pw dsm1599'
    ```

    **Note:**  Alternatively, the administrator could have used the steps in the RECOVERY.DRMODE REXX exec as a guide and manually executed each step.

    The following are the steps executed in this recovery REXX exec:

    a. Restore the ADSM server options file from the SERVOPT.FILE file to its original location.

    b. Restore the volume history file required by ADSM DSMSERV RESTORE DB processing from the VOLHIST.FILE file to its original location.

       **Note:**  Use this copy of the volume history file unless you have a more recent copy (after the disaster occurred).

    c. Restore the device configuration file required by ADSM DSMSERV RESTORE DB processing from the DEVCONF.FILE file to its original location.

    d. Create the ADSM server recovery log and database volumes using DSMFMT.

    e. Issue DSMSERV INSTALL for the recovery log and database files.

    f. Issue the DSMSERV RESTORE DB command.

    g. Start the server in the background.

13. The ADSM server is now recovered to the point where it can service the restore requests of any of its connected clients.

14. The administrator invokes the RECOVERY.NMODE REXX exec file to restore the server primary storage pools.  However, in this scenario, the client machines were not damaged so the focus of the administrator is to restore full ADSM server operation.

    Alternatively, the administrator could have used the steps in the RECOVERY.NMODE REXX exec as a guide and manually executed each step.

    The steps executed in this recovery REXX exec are as follows:

    a. Create replacement primary volumes.

    b. Define the replacement primary volumes to ADSM.

    c. Restore the primary storage pools.

**Note:** This action is optional at this time because ADSM can access the copy storage pool volumes directly to restore client data. Using this feature, the administrator can minimize client recovery time because server primary storage pools do not have to be restored first.

15. The administrator collects the database backup and copy storage pool volumes used in the recovery so that they can be returned to the vault. For these backup volumes to be returned to the vault using the routine MOVE DRMEDIA process, the administrator executes the following ADSM administrative commands for the database backup volumes:

```
update volhist TPBK50 devcl=lib3494 ormstate=mountable
update volhist TPBK51 devcl=lib3494 ormstate=mountable
```

The copy storage pool volumes used in the recovery already have the correct ORMSTATE.

16. At this point, you are back to daily operations. You may want to run the BACKUP DB command to back up the newly restored database to start normal procedures again.

17. The administrator issues the MOVE DRMEDIA * WHERESTATE=MOUNTABLE command to mark the volumes unavailable for ADSM onsite processing and to generate the tape management product commands to check the volumes out of the library.

18. To create a list of the volumes to be given to the courier, the administrator issues the QUERY DRMEDIA * WHERESTATE=NOTMOUNTABLE.

19. After the administrator packages the volumes and gives them to the courier, the MOVE DRMEDIA * WHERESTATE=NOTMOUNTABLE command is issued.

20. The administrator issues PREPARE and celebrates the successful disaster recovery.

# Recovering the Clients

You can use DRM to store information that you need to recover ADSM clients. This information may include:

- Description of the machine that contains the ADSM client, along with its location and restore priority value
- The boot recovery media for the machine
- Specific recovery instructions for the machine
- Hardware requirements for the machine

# Example: Recovering ADSM Clients

The following scenario demonstrates how to use DRM query commands to guide an administrator through the recovery of ADSM clients.

1. A week after the ADSM server was recovered, another water pipe burst in the building that houses distributed systems applications. Many machines that were backed up using ADSM clients are destroyed. A disaster is declared.

2. To view a list of client machines that were lost in building 21 and their restore priority, the administrator issues the following command:

```
query machine building=021 format=detailed
```

ADSM displays information similar to the following:

```
            Machine Name: POLARIS
        Machine Priority: 1
                Building: 21
                   Floor: 2
                    Room: 1
             ADSM Server?: No
             Description: Payroll
               Node Name: POLARIS
     Recovery Media Name: MKSYSB1
         Characteristics?: Yes
  Recovery Instructions?: Yes
```

3. For *each* machine, the administrator issues the following commands:

   a. To determine the location of the boot media, the administrator issues the QUERY RECOVERYMEDIA command.  For example:

```
query recoverymedia mksysb1
```

   ADSM displays the following information:

```
Recovery Media Name  Volume Names   Location    Machine Name
-------------------- -----------    ----------  ----------------
MKSYSB1              vol1 vol2      IRNVAULT     POLARIS
                     vol3
```

   b. To determine the machine specific recovery instructions for the POLARIS machine, the administrator issues:

```
query machine polaris format=recoveryinstructions
```

   ADSM displays the following information:

```
Recovery Instructions for Polaris.
Primary Contact:
   Jane Smith (wk 520-000-0000 hm 520-001-0001)
Secondary Contact:
   John Adams (wk 520-000-0001 hm 520-002-0002)
```

   c. To determine the machine hardware requirements for POLARIS, the administrator issues:

```
query machine polaris format=characteristics
```

ADSM displays information similar to the following:

```
devices
aio0        Defined                    Asynchronous I/O
fd0         Available 00-00-0D-00  Diskette Drive
fda0        Available 00-00-0D     Standard I/O Diskette Adapter
fpa0        Available 00-00        Floating Point Processor
hd1         Defined                    Logical volume
hd2         Defined                    Logical volume
hd3         Defined                    Logical volume
hdisk0      Available 00-01-00-00  400 MB SCSI Disk Drive
inet0       Available                  Internet Network Extension
lb0         Available 00-02-00-20  ADSM Library
lo0         Available                  Loopback Network Interface
loglv00     Defined                    Logical volume
lv03        Defined                    Logical volume
lv04        Defined                    Logical volume
mem0        Available 00-0B        8 MB Memory Card
mem1        Available 00-0C        16 MB Memory Card
mous0       Defined    00-00-0M-00  3 button mouse
mt0         Available 00-02-00-40  ADSM Tape Drive
ppa0        Available 00-00-0P     Standard I/O Parallel Port Adapter
rootvg      Defined                    Volume group
sa0         Available 00-00-S1     Standard I/O Serial Port 1
sa1         Available 00-00-S2     Standard I/O Serial Port 2
scsi0       Available 00-01        SCSI I/O Controller
scsi1       Available 00-02        SCSI I/O Controller
tok0        Available 00-03        Token-Ring High-Performance Adapter
tr0         Available                  Token Ring Network Interface
usrvice     Defined                    Logical volume
veggie2     Defined                    Volume group
logical volumes by volume group
veggie2:
LV NAME          TYPE      LPs   PPs  PVs  LV STATE      MOUNT POINT
hd2              jfs       103   103  1    open/syncd    /usr
hd1              jfs       1     1    1    open/syncd    /home
hd3              jfs       3     3    1    open/syncd    /tmp
hd9var           jfs       1     1    1    open/syncd    /var
file systems
Filesystem    Total KB    free %used   iused %iused Mounted on
/dev/hd4          8192     420  94%       909    44% /
/dev/hd9var       4096    2972  27%        87     8% /var
/dev/hd2        421888   10964  97%     17435    16% /usr
/dev/hd3         12288   11588   5%        49     1% /tmp
/dev/hd1          4096    3896   4%        26     2% /home
```

d. With the necessary recovery information now available, the administrator successfully restores each client machine.

# Customizing Disaster Recovery Manager

You can customize DRM with SET commands to specify the management of the following:

- Storage pools

- File name prefixes that the recovery plan instructions and disaster recovery plan files should use

- Replacement volume identifier

- Courier name, vault name, database backup series expiration days, and file name containing executable commands

You can also customize the site-specific recovery instructions.  You can create the site-specific recovery instructions files by using the predetermined file names (for example, INSTR.GENERAL).  These files must be physical sequential files.  The site-specific recovery instructions are read by the PREPARE command when a new disaster recovery plan is generated.

| Task | Required Privilege Class |
|---|---|
| Specifying the copy storage pools to be managed | System |
| Specifying the primary storage pools to be managed | |
| Specifying the character ID for the replacement volume names | |
| Specifying the prefix portion of the file name for recovery plan instructions | |
| Specifying the prefix portion for the recovery plan files | |

# Customizing the Management of Storage Pools, File Prefix, and Replacement Volume Identifiers

This section describes the SET commands to configure the disaster recovery plan for ADSM server.

## Copy Storage Pools

Issue the SET DRMCOPYSTGPOOL command to specify the copy storage pools to be managed by DRM.  Specify the name of the copy storage pools used for backing up the primary storage pools defined with the SET DRMPRIMSTGPOOL command.  These copy storage pools will be processed by the PREPARE, MOVE DRMEDIA, and QUERY DRMEDIA commands.  You can specify a list of copy storage names or a null string (" ") to indicate that all copy storage pools defined to the server are eligible for processing.  At installation, all primary storage pools defined to the server are eligible for processing.

Copy storage pools that you may not want DRM to manage can include onsite copy storage pools used for recovery from media failures.

The following example specifies that copy storage pools with the pattern-matching expression of COPY are to be managed by DRM:

```
set drmcopystgpool copy*
```

You can override this SET command by using the COPYSTGPOOL parameter with the PREPARE command.

## Primary Storage Pools

You can specify the primary storage pools that you want to restore.  Eligible primary storage pool volumes defined to these storage pools are included in the plan file stanzas generated by the PREPARE command.

Use the SET DRMPRIMSTGPOOL command to specify which primary storage pools should be processed by the PREPARE command.  You can specify a list of primary storage pool names or a null string (" ") to indicate that all primary storage pools defined to the server are eligible for processing.  At installation, all the primary storage pools defined to the server are eligible for processing.

The following example specifies that primary storage pools PRIM1 and PRIM2 are to be managed by DRM:

```
set drmprimstgpool prim1,prim2
```

You can override this setting using the PRIMSTGPOOL parameter with the PREPARE command.

## Character Identification for Replacement Volume Names

Issue the SET DRMPLANVPOSTFIX command to specify one character to be added to the end of the replacement volumes names in the disaster recovery plan. At installation, the character is set to @.  After installation, use this command to change the character.

This command can be used to make the replacement primary storage pool volumes easy to find in the recovery plan stanzas, or to automatically generate replacement volume names.

The following example defines the character identification as R:

```
set drmplanvpostfix R
```

### Prefix for Recovery Instructions

Issue the SET DRMINSTRPREFIX command to specify the prefix portion of the file names for the recovery instructions source files. These source files must be physical sequential files.

The following example specifies the prefix as ADSM.RECOVERY:

```
set drminstrprefix ADSM.RECOVERY
```

PREPARE processing will include the information from the following files in the disaster recovery plan file:

```
ADSM.RECOVERY.INSTR.GENERAL
ADSM.RECOVERY.INSTR.OFFSITE
ADSM.RECOVERY.INSTR.INSTALL
ADSM.RECOVERY.INSTR.DATABASE
ADSM.RECOVERY.INSTR.STGPOOL
```

You can override this SET command using the INSTRPREFIX parameter with the PREPARE command.

### Prefix for Recovery Plan File

Issue the SET DRMPLANPREFIX command to specify the prefix portion for the generated recovery plan file.

This prefix is used by PREPARE to generate the file names containing the server recovery plan.

The following example specifies the prefix as ADSM.RECOVERY.PLAN:

```
set drmplanprefix ADSM.RECOVERY.PLAN
```

The disaster recovery plan file name created by PREPARE processing will be in the following format:

```
ADSM.RECOVERY.PLAN.J1995103.T013030
```

You can override this SET command using the PLANPREFIX parameter with the PREPARE command.

# Customizing the Management of Offsite Recovery Media

This section describes the SET commands to configure DRM with information necessary for offsite recovery media management.

| Task | Required Privilege Class |
|---|---|
| Specifying the copy storage pools to be managed | System |
| Specifying the name of the not mountable location | |
| Specifying the name of the courier | |
| Specifying expiration of a database backup series | |
| Specifying processing of the backup volumes | |
| Specifying the name of the vault where volumes are stored | |
| Specifying the file name for containing the executable commands | |

## Copy Storage Pools

To specify the copy storage pools to be managed by Offsite Recovery Media Management, see "Copy Storage Pools" on page 74.

## Not Mountable Location Name

Issue the SET DRMNOTMOUNTABLENAME command to specify the location name for storing your media that are ejected from the library and to be shipped to the offsite location.  At installation, the name of this location is set to NOTMOUNTABLE.  After installation, this command can be used to modify the name of the location.  The location name is used by the MOVE DRMEDIA command to set the location of volumes that are transitioned to the NOTMOUNTABLE state.

The following example specifies the location name as Local:

```
set drmnotmountablename Local
```

## Courier Name

Issue the SET DRMCOURIERNAME command to specify the courier name.  At installation, the name of the courier is set to COURIER.  After installation, this command can be used to modify the name of the courier.  The courier name is used by the MOVE DRMEDIA command to set the location of volumes that are transitioned to the COURIER state.

The following example specifies the courier name as HsiaoVan:

```
set drmcouriername HsiaoVan
```

## Expiration of a Database Backup Series

Issue the SET DRMDBBACKUPEXPIREDAYS command to specify the number of days before a database backup series is expired. At installation, the number of days before expiration is set to 60. After installation, use this command to modify the number of days that must elapse before a database backup series is expired. A volume is considered eligible for expiration if all of the following conditions are true:

- The last volume of the series exceeds the expiration value specified with SET DRMDBBACKUPEXPIREDAYS. The expiration value specifies the number of days that must elapse since the volume was used by database backup.

- The volume state is VAULT.

- The volume is not part of the most recent series. (DRM will not expire the most recent database backup series.)

The following example specifies that 30 days should pass before a database backup series is expired:

```
set drmdbbackupexpiredays 30
```

## Processing of Backup Volumes

Issue the SET DRMFILEPROCESS command to specify whether the MOVE DRMEDIA or QUERY DRMEDIA commands should process database backup volumes and copy storage pool volumes that are associated with a device class with DEVTYPE=FILE. This command is useful for testing of the DRM environment. At installation, the value is set to No. After installation, you can modify this value.

```
set drmfileprocess yes
```

## Specify the Vault Name

Issue the SET DRMVAULTNAME command to specify the vault name where volumes are stored. At installation, the name of the vault is set to VAULT. After installation, you can modify this value.

The vault name is used by the MOVE DRMEDIA command to set the location of volumes that are transitioned to the VAULT state.

The following example specifies the vault name as Vault1:

```
set drmvaultname Vault1
```

### File Name for Containing Executable Commands

Issue the SET DRMCMDFILENAME command to specify the file name that will contain the executable commands generated by the MOVE DRMEDIA or QUERY DRMEDIA command. At installation, the file name is set to ADSM.DRM.EXEC.CMDS. After installation, you can modify the file name.

The following example specifies the file name as DRM.ORM.EXEC.CMDS:

```
set drmcmdfilename DRM.ORM.EXEC.CMDS
```

## Querying the Disaster Recovery Manager System Parameters

To query the settings defined for DRM, issue the QUERY DRMSTATUS command. For example:

```
query drmstatus
```

ADSM displays information similar to the following:

```
          Recovery Plan Prefix: ADSM.RECOVERY.PLAN
      Plan Instructions Prefix: ADSM.RECOVERY
     Replacement Volume Postfix: @
          Primary Storage Pools: PRIM1 PRIM2
             Copy Storage Pools: COPY*
    Not Mountable Location Name: Local
                   Courier Name: HsiaoVan
                Vault Site Name: Vault1
 DB Backup Series Expiration Days: 30 Day(s)
        Process FILE Device Type?: Yes
              Command File Name: DRM.ORM.EXEC.CMDS
```

## Customizing the Site-Specific Recovery Instructions

The PREPARE command includes the site-specific recovery instructions as stanzas in the disaster recovery plan.

Using the following file names, you can create and edit files with specific recovery instructions for your site:

- instructionsprefix.INSTR.GENERAL
- instructionsprefix.INSTR.OFFSITE
- instructionsprefix.INSTR.INSTALL
- instructionsprefix.INSTR.DATABASE
- instructionsprefix.INSTR.STGPOOL

When you create and edit these files and then issue the PREPARE command, the information in these files is included in the disaster recovery plan as stanzas.

The files created for the recovery instructions must be physical sequential files.

The following examples show sample entries for these files.

**instructionsprefix.INSTR.GENERAL**

Include information such as administrator names, telephone numbers, location of passwords, and so on.

The following is example text for this file:

```
Recovery Instructions for ADSM Server ACMESRV on system ZEUS.
Joe Smith  (wk 002-000-1111 hm 002-003-0000)is the primary system programmer.
Sally Doe (wk 002-000-1112 hm 002-005-0000) is primary recovery administrator.
Jane Smith (wk 002-000-1113 hm 002-004-0000) is the responsible manager.
Security Considerations:
 Joe Smith has the password for the Admin ID ACMEADM.  If Joe is unavailable,
 you will need to either issue SET AUTHENTICATION OFF or define a new
 administrative user ID at the replacement ADSM server console.
```

**instructionsprefix.INSTR.OFFSITE**

Include information such as the offsite vault location, courier's name, and telephone numbers.

The following is example text for this file:

```
Our offsite vault location is Irnvault, Safetown, AZ.
The phone number is 1-800-000-0008.  You need to contact them directly
to authorize release of the tapes to the courier.
Our courier's name is Fred Harvey.  You can contact him at 1-800-444-0000.
Because our vault is so far away, be sure to give the courier a list
of both the database backup and copy storage pool volumes required.  Fred
is committed to returning these volumes to us in less than 12 hours.
```

**instructionsprefix.INSTR.INSTALL**

Include information about how to install the ADSM server and where the installation volumes and license number are located.

The disaster recovery plan file issues commands using the ADSM administrative client, for example, dsmadmc.  Ensure the administrative client is established prior to executing the REXX exec RECOVERY.DRMODE and RECOVERY.NMODE.

The following is example text for this file:

```
The install volume for the ADSM server is INS001.  If that is lost, you
will need to contact Copy4You Software, at 1-800-000-0000, and obtain
a new copy.  Another possibility is the local IBM Branch office at 555-7777.
Our license number is 0000000000.0
```

**instructionsprefix.INSTR.DATABASE**

Include information about how to recover the database along with how much hardware space is needed.

The following is example text for this file:

```
You will need to find replacement disk space for the server database.  We have
an agreement with Joe Replace that in the event of a disaster, he will
provide us with disk space.
```

**instructionsprefix.INSTR.STGPOOL**

Include information on primary storage pool recovery instructions.

The following is example text for this file:

```
Do not worry about the archive storage pools during this disaster recovery.
Focus on migration and backup storage pools.
The most important storage pool is XYZZZZ.
```

# Using a REXX EXEC to Break Out a Disaster Recovery Plan File

If you want to restore the ADSM server, you can use a REXX exec or an editor to break out the stanzas in the disaster recovery plan file into individual files as appropriate.

An example REXX exec ANRPLANX is shipped with the DRM feature and is located in the ADSM.SAMPLIB data set. This REXX exec shows how you can write a local REXX exec to process your disaster recovery plan file.

Figure 6 shows an example of the REXX exec that breaks out the stanzas in the recovery plan file into individual files.

```
/*REXX*/
/* Explode a recovery plan file into separate files (macros, JCL,   */
/* and volume history file).                                        */
/* Invoke with:                                                     */
/*    exec anrplanx recoveryplandatasetname outdsnprefix            */

arg RPDSN OUTDSNPREFIX .

STANZAS =,
  'RECOVERY.DRMODE 255',
  'RECOVERY.NMODE 255',
  'VOLUMES.REQUIRED 132',
  'DEVICES.REQUIRED 132',
  'CFGFILES.CREATE 80',
  'LOGDBVOL.CREATE 80',
  'LOGDBVOL.INSTALL 80',
  'RESTORE.DB 80',
  'START.SERVER 80',
  'COPYVOL.AVAIL 255',
  'COPYVOL.DESTR 255',
  'PRIMVOL.DESTR 255',
  'PRIMVOL.REPLACEC 80',
  'PRIMVOL.REPLACE 255',
  'STGPOOL.RESTORE 255',
  'INSTR.GENERAL 132',
  'INSTR.OFFSITE 132',
  'INSTR.INSTALL 132',
  'INSTR.DATABASE 132',
  'INSTR.STGPOOL 132',
  'VOLHIST.FILE 1024',
  'DEVCONF.FILE 1024',
  'SERVOPT.FILE 255'

'FREE FI(INDD)'
'ALLOC DA('RPDSN') F(INDD) SHR REUSE'
```

*Figure 6 (Part 1 of 2). Example of a REXX exec to Break Out a Disaster Recovery Plan File*

```
OUTDSN = ''
do forever
   'EXECIO 1 DISKR INDD (STEM ALINE.'
   if RC = 0 then do
      parse var ALINE.1 WORD1 WORD2 .
      select
        when WORD1 = 'begin',
           & (wordpos(WORD2,STANZAS) > 0) then do
              if OUTDSNPREFIX <> '' then,
                 OUTDSN = ''''OUTDSNPREFIX'.'WORD2''''
              else OUTDSN = WORD2
              LRECL = word(STANZAS,wordpos(WORD2,STANZAS)+1)
              'FREE FI(OUTDD)'
              'DELETE 'OUTDSN
              'ALLOC DA('OUTDSN') F(OUTDD) NEW REUSE RECFM(V) LRECL('LRECL')'
              say 'Creating file 'OUTDSN
              end
        when WORD1 = 'end',
           & (wordpos(WORD2,STANZAS) > 0) then do
              'EXECIO 0 DISKW OUTDD (FINIS'
              'FREE FI(OUTDD)'
              OUTDSN = ''
              end
        when OUTDSN <> '' then do
              'EXECIO 1 DISKW OUTDD (STEM ALINE.'
              end
        otherwise nop
      end /* select */
      end /* do */
   else leave

end /* do */

'EXECIO 0 DISKR INDD (FINIS'
'EXECIO 0 DISKW OUTDD (FINIS'
'FREE FI(INDD OUTDD)'
```

*Figure 6 (Part 2 of 2). Example of a REXX exec to Break Out a Disaster Recovery Plan File*

Figure 7 shows an example of local modifications made to ANRPLANX. This modified version inserts JOB and STEPLIB cards into the JCL stanzas.

```
/*REXX*/
/* Explode a recovery plan file into separate files (macros, JCL,     */
/* and volume history file).                                          */
/* Invoke with:                                                       */
/*    exec planexpl.rex recoveryplandatasetname outdsnprefix          */

arg RPDSN OUTDSNPREFIX .

STANZAS =,
  'RECOVERY.DRMODE 255',
  'RECOVERY.NMODE 255',
  'VOLUMES.REQUIRED 132',
  'DEVICES.REQUIRED 132',
  'CFGFILES.CREATE 80',
  'LOGDBVOL.CREATE 80',
  'LOGDBVOL.INSTALL 80',
  'RESTORE.DB 80',
  'START.SERVER 80',
  'COPYVOL.AVAIL 255',
  'COPYVOL.DESTR 255',
  'PRIMVOL.DESTR 255',
  'PRIMVOL.REPLACEC 80',
  'PRIMVOL.REPLACE 255',
  'STGPOOL.RESTORE 255',
  'INSTR.GENERAL 132',
  'INSTR.OFFSITE 132',
  'INSTR.INSTALL 132',
  'INSTR.DATABASE 132',
  'INSTR.STGPOOL 132',
  'VOLHIST.FILE 1024',
  'DEVCONF.FILE 1024',
  'SERVOPT.FILE 255'

'FREE FI(INDD)'
'ALLOC DA('''RPDSN''') F(INDD) SHR REUSE'
```

*Figure 7 (Part 1 of 2). Example of a Locally Modified REXX exec*

```
OUTDSN = ''
do forever
   'EXECIO 1 DISKR INDD (STEM ALINE.'
   if RC = 0 then do
      parse var ALINE.1 WORD1 WORD2 THEREST
      select
        when WORD1 = 'begin',
           & (wordpos(WORD2,STANZAS) > 0) then do
              if OUTDSNPREFIX <> '' then,
                 OUTDSN = ''''OUTDSNPREFIX'.'WORD2''''
              else OUTDSN = WORD2
              LRECL = word(STANZAS,wordpos(WORD2,STANZAS)+1)
              'FREE FI(OUTDD)'
              'DELETE 'OUTDSN
              'ALLOC DA('OUTDSN') F(OUTDD) NEW REUSE RECFM(F) LRECL('LREC
              say 'Creating file 'OUTDSN
              FIRSTLINE = YES
              end
        when WORD1 = 'end',
           & (wordpos(WORD2,STANZAS) > 0) then do
              'EXECIO 0 DISKW OUTDD (FINIS'
              'FREE FI(OUTDD)'
              OUTDSN = ''
              end
        when OUTDSN <> '' then do
              /* Forget blank first line of stanzas.(JCL,EXEC grief) */
              if FIRSTLINE = YES then FIRSTLINE = NO
              else do
                   /* Add local parameters to job cards. */
                   if substr(WORD1,1,2) = '//',
                    & WORD2 = 'JOB',
                    & THEREST = '' then do
                      ALINE.1 =,
 WORD1' 'WORD2' MSGLEVEL=(1,1),MSGCLASS=H,CLASS=A,TIME=1440,REGION=40M'
                      end
                   /* Add local steplib for server. */
                   if WORD1 = '//OPT',
                    & WORD2 = 'DD' then do
                      TEMP = ALINE.1
                      ALINE.1 =,
                           '//STEPLIB  DD DSN=SYSX.LINKLIB,DISP=SHR'
                      'EXECIO 1 DISKW OUTDD (STEM ALINE.'
                      ALINE.1 = TEMP
                      end
                   /* Write out the stanza line read in. */
                   'EXECIO 1 DISKW OUTDD (STEM ALINE.'
                   end
              end
        otherwise nop
      end /* select */
      end /* do */
   else leave
end /* do */

'EXECIO 0 DISKR INDD (FINIS'
'EXECIO 0 DISKW OUTDD (FINIS'
'FREE FI(INDD OUTDD)'
```

*Figure 7 (Part 2 of 2). Example of a Locally Modified REXX exec*

# Using Disaster Recovery Manager

This section is an example outline to show how you use DRM in normal routine processing and during a disaster recovery procedure.

*Setup*

1. Enable DRM by registering the license.
2. Ensure the device configuration and volume history information files exist.
3. Back up your storage pools and database.
4. Define the site-specific ADSM server recovery instructions.
5. Describe the priority ADSM client machines.

*Daily Operations*

Day 1

- Back up the client files.
- Back up the ADSM server storage pools.
- Back up the ADSM server database (full backup).
- Determine which backup volumes have been created.
- Mark the volumes unavailable to ADSM.
- Generate the disaster recovery plan with the PREPARE command.
- Hand the volumes and generated plan file to the courier.

Day 2

- Back up the client files.
- Back up the ADSM server storage pools.
- Back up the ADSM server database (full backup).
- Acknowledge receipt of previously sent volumes at the vault (from Day 1).
- Generate the disaster recovery plan with the PREPARE command.
- Move the new backup volumes and generated plan file offsite.

Day 3

- Run the scheduled storage pool reclamation processing.
- Back up the ADSM server database (incremental).
- Acknowledge receipt of previously sent volumes at the vault (from Day 2).
- Give courier a list of empty volumes to be returned from the vault.
- Move the new backup volumes and generated plan file offsite.
- Generate the disaster recovery plan with the PREPARE command.

*Disaster Occurs*

Day 4

- The ADSM server machine and the client machines have been destroyed in the disaster.

*Disaster Recovery*

Day 4 (continued)

1. Restore the ADSM server by using the latest recovery plan.
2. Identify the top priority client node in the building where the disaster occurred.
3. Restore the client machine files from the ADSM server copy storage pools.
4. Restore the ADSM server primary storage pools.
5. Move the database backup and copy storage pool volumes back to the vault.

*Daily Operations*

Day 5

- Back up the client files.
- Back up the ADSM server storage pools.
- Back up the ADSM server database (full backup).
- Determine which backup volumes have been created.
- Generate the disaster recovery plan with the PREPARE command.
- Move the new backup volumes and generated plan file offsite.

# Chapter 2.  DRM Commands

Figure 8 provides a quick reference to DRM commands.

| Figure 8. DRM Commands | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| DEFINE MACHINE | Defines a machine for DRM. | Page 90 |
| DEFINE MACHNODEASSOCIATION | Associates an ADSM node with a machine. | Page 93 |
| DEFINE RECMEDMACHASSOCIATION | Associates recovery media with a machine. | Page 95 |
| DEFINE RECOVERYMEDIA | Defines the media required to recover a machine. | Page 97 |
| DELETE MACHINE | Deletes an existing machine. | Page 100 |
| DELETE MACHNODEASSOCIATION | Deletes association between a machine and node. | Page 102 |
| DELETE RECMEDMACHASSOCIATION | Deletes association between recovery media and a machine. | Page 104 |
| DELETE RECOVERYMEDIA | Deletes existing recovery media. | Page 106 |
| INSERT MACHINE | Inserts machine characteristics into the ADSM database. | Page 107 |
| MOVE DRMEDIA | Moves DRM media onsite and offsite. | Page 109 |
| PREPARE | Creates a recovery plan file | Page 122 |
| QUERY DRMEDIA | Displays information about disaster recovery volumes. | Page 127 |
| QUERY DRMSTATUS | Displays DRM system parameters. | Page 136 |
| QUERY MACHINE | Displays information about one or more machines. | Page 139 |
| QUERY RECOVERYMEDIA | Displays media available for machine recovery. | Page 144 |
| SET DRMCMDFILENAME | Specifies a file name to contain the executable commands. | Page 148 |
| SET DRMCOPYSTGPOOL | Specifies that copy storage pools are managed by DRM. | Page 150 |
| SET DRMCOURIERNAME | Specifies the name of the courier for the disaster recovery media. | Page 152 |
| SET DRMDBBACKUPEXPIREDAYS | Specifies criteria for database backup series expiration. | Page 154 |
| SET DRMFILEPROCESS | Specifies whether the MOVE DRMEDIA command processes files associated with a device type of file. | Page 156 |
| SET DRMINSTRPREFIX | Specifies the prefix portion of the path name for the recovery plan instructions. | Page 158 |
| SET DRMNOTMOUNTABLENAME | Specifies the not mountable location name. | Page 160 |
| SET DRMPLANPREFIX | Specifies the prefix portion of the path name for the recovery plan. | Page 162 |
| SET DRMPLANVPOSTFIX | Specifies the replacement volume names in the recovery plan file. | Page 164 |
| SET DRMPRIMSTGPOOL | Specifies that primary storage pools are managed by DRM. | Page 166 |
| SET DRMVAULTNAME | Specifies the name of the vault where DRM media is stored. | Page 168 |
| UPDATE MACHINE | Changes the information of an existing machine. | Page 170 |
| UPDATE RECOVERYMEDIA | Changes the attributes of existing recovery media. | Page 172 |

# DEFINE MACHINE (Define a Machine)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the DEFINE MACHINE command to save the description and recovery-related information for a machine that contains an ADSM backup/archive client node or ADSM server.

This command is provided for your use in documenting, in the ADSM server database, the machine information required to recover an ADSM client machine should a disaster occur. The ADSM server database will be used to store this information for you, and QUERY commands are provided to retrieve the information should you need to reference it in the case of a disaster. The information provided by this command is NOT used by the server in any way to coordinate disaster recovery or to manage the server under normal operation. The information provided in this command is solely determined by you in planning for client machine disaster recovery.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──DEFine MAchine──machinename──────────────────────────────────────────►
                              └─DESCription──=──description─┘

►──────────────────────────────────────────────────────────────────────►
   └─BUilding──=──building─┘  └─FLoor──=──floor─┘  └─ROom──=──room─┘

►──┬─PRIority──=──50────────────────┬──┬─ADSMServer──=──No────────┬──►◄
   └─PRIority──=──priorityvalue──────┘  └─ADSMServer──=──┬─No──┬───┘
                                                         └─Yes─┘
```

## Parameters

*machinename*
> Specifies the name of the machine to be defined. This parameter is required. The maximum length of the machine name is 64 characters.

**DESCription**=*description*
> Specifies the description of the machine. This parameter is optional. The maximum length of the description is 255 characters. The description must be enclosed in quotation marks if it contains any blank characters. The default is no description.

**BUilding**=*building*
> Specifies the building name or number that this machine is in. This parameter is optional. You can enter a building name or a building number. The maximum length of the building name or number is 16 characters. The default is no building name or number.

**FLoor**=*floor*
> Specifies the floor name or number that this machine is in. This parameter is optional. You can enter a floor name or a floor number. The maximum

length of the floor name or number is 16 characters. The default is no floor name or number.

**ROom**=*room*
Specifies the room name or number that this machine is in. This parameter is optional. You can enter a room name or a room number. The maximum length of the room name or number is 16 characters. The default is no room name or number.

**PRIority**=*priorityvalue*
Specifies the restore priority value for the machine. This parameter is optional. The default value is 50. You can specify an integer in the range of 1 to 99, inclusive, with 1 being the highest priority and 99 being the lowest. This value is used to provide a prioritized list for client machine recovery.

**ADSMServer**=*adsmservervalue*
Specifies whether the machine being defined contains an ADSM server. This parameter is optional. This parameter is also used by PREPARE as an indication to include the machine information for the server in the ADSM server plan file. The default value is no. Possible values are:

**No**
Specifies that this machine does not contain an ADSM server.

**Yes**
Specifies that this machine contains an ADSM server. Only one machine can be defined as containing the ADSM server.

## Examples

**Task**

Define a machine with the name DISTRICT5, a location of building 101, a floor of 27, and a room named datafacilities. This machine contains mission critical data and, therefore, requires a setting of priority one.

**Command:** `DEFine MAchine district5 BUilding=101 FLoor=27`
`ROom=datafacilities PRIority=1`

**Output:**

```
ANR6609I Machine DISTRICT5 defined.
```

## Related Commands

Figure 9 provides references to related commands.

| Figure 9 (Page 1 of 2). Commands Related to DEFINE MACHINE | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| DEFINE MACHNODEASSOCIATION | Associates an ADSM node with a machine. | Page 93 |
| DEFINE RECMEDMACHASSOCIATION | Associates recovery media with a machine. | Page 95 |
| DELETE MACHINE | Deletes an existing machine. | Page 100 |

| Figure 9 (Page 2 of 2). Commands Related to DEFINE MACHINE | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| INSERT MACHINE | Inserts machine characteristics into the ADSM database. | Page 107 |
| QUERY MACHINE | Displays information about one or more machines. | Page 139 |
| UPDATE MACHINE | Changes the information of an existing machine. | Page 170 |

# DEFINE MACHNODEASSOCIATION (Associate an ADSM Node with a Machine)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the DEFINE MACHNODEASSOCIATION command to associate one or more ADSM client nodes with a machine. During disaster recovery, this association information is used to determine what ADSM client nodes resided on machines that were destroyed.

This command is provided for your use in documenting, in the ADSM server database, the machine information required to recover an ADSM client machine should a disaster occur. The ADSM server database will be used to store this information for you, and QUERY commands are provided to retrieve the information should you need to reference it in the case of a disaster. The information provided by this command is NOT used by the server in any way to coordinate disaster recovery or to manage the server under normal operation. The information provided in this command is solely determined by you in planning for client machine disaster recovery.

Before associating a node with a machine, the following conditions must be true:

- The specified machine is defined.
- The specified node is registered.
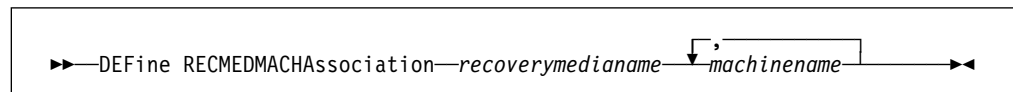
A node remains associated with a machine until one of the following steps occurs:

- Delete the association between the machine and the node by issuing the DELETE MACHNODEASSOCIATION command.

- Delete the node by issuing the REMOVE NODE command.

- Delete the machine by issuing the DELETE MACHINE command.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──DEFine MACHNODEAssociation──machinename──┬─◄──,──┐──────────────►◄
                                             └──▼──nodename──┘
```
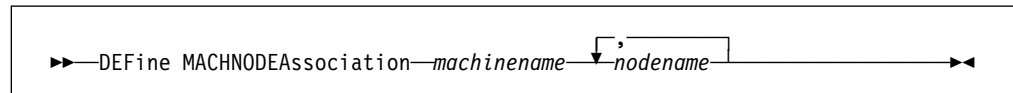
## Parameters

*machinename*
  Specifies the name of the machine to which one or more nodes are to be associated. This parameter is required.

*nodename*
  Specifies the name of the node to be associated with the machine. This parameter is required. You can specify a list of nodes that you want to associate with the specified machine. The items in the list are separated with commas, with no intervening spaces. You can use a pattern-matching

expression to specify a name. All matching nodes are associated with the machine. A node can only be associated with one machine.

## Examples

**Task**

Create an association between the DISTRICT5 machine and a node with the name of ACCOUNTSPAYABLE.

**Command:** `DEFine MACHNODEAssociation district5 accountspayable`

**Output:**

```
ANR6619I Node ACCOUNTSPAYABLE associated with
machine DISTRICT5.
```

## Related Commands

Figure 10 provides references to related commands.

| Figure 10. Commands Related to DEFINE MACHNODEASSOCIATION | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| DEFINE MACHINE | Defines a machine for DRM. | Page 90 |
| DELETE MACHINE | Deletes an existing machine. | Page 100 |
| DELETE MACHNODEASSOCIATION | Deletes association between a machine and node. | Page 102 |
| QUERY MACHINE | Displays information about one or more machines. | Page 139 |
| REGISTER NODE | Defines a client to the server and sets options for that user. | *ADSM Administrator's Reference*, SH26-4040 |
| REMOVE NODE | Removes a client from the list of registered nodes for a specific policy domain. | *ADSM Administrator's Reference*, SH26-4040 |

# DEFINE RECMEDMACHASSOCIATION (Associate Recovery Media with a Machine)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

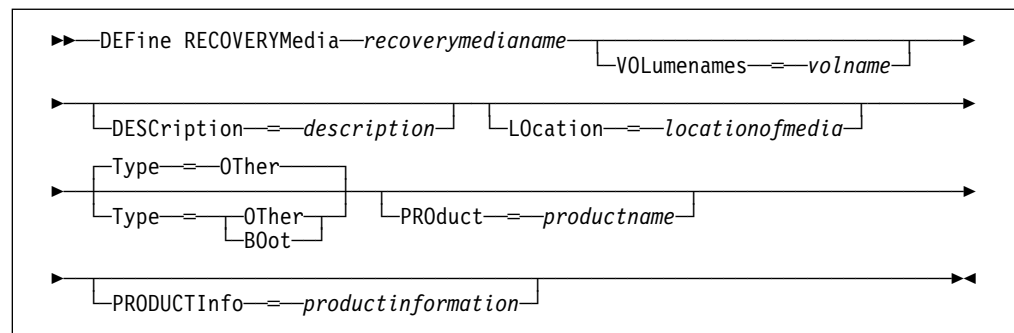Use the DEFINE RECMEDMACHASSOCIATION command to associate a machine with the recovery media. A machine is associated with recovery media so that the location of the boot media and its list of volume names are available when the machine requires recovery. Multiple machines can be associated with the same recovery media.

This command is provided for your use in documenting, in the ADSM server database, the machine information required to recover an ADSM client machine should a disaster occur. The ADSM server database will be used to store this information for you, and QUERY commands are provided to retrieve the information should you need to reference it in the case of a disaster. The information provided by this command is NOT used by the server in any way to coordinate disaster recovery or to manage the server under normal operation. The information provided in this command is solely determined by you in planning for client machine disaster recovery.

Before associating a machine with a recovery media, the following conditions must be true:

- The specified machine is defined.
- The specified recovery media is defined.

A machine remains associated with recovery media until one of the following steps occurs:

- Delete the association between the recovery media and the machine by issuing the DELETE RECMEDMACHASSOCIATION command.

- Delete the recovery media by issuing the DELETE RECOVERYMEDIA command.

- Delete the machine by issuing the DELETE MACHINE command.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──DEFine RECMEDMACHAssociation──recoverymedianame──┬──────────────┬──►◄
                                                      │      ,       │
                                                      └─machinename──┘
```

## Parameters

*recoverymedianame*
   Specifies the name of the recovery media to which one or more machines are to be associated. This parameter is required.

*machinename*
>    Specifies the name of the machine to be associated with the recovery media. This parameter is required.  You can specify a list of machines that you want to associate with the specified recovery media.  The items in the list are separated with commas, with no intervening spaces.  You can use a pattern-matching expression to specify a name.  All matching machines are associated with the recovery media.  If a machine is listed, but is already associated with the specified recovery media, the command has no effect for that machine.  A machine can be associated with more than one recovery media.

# Examples

**Task**

Associate machines DISTRICT1 and DISTRICT5 to the DIST5RM recovery media.

**Command:** `DEFine RECMEDMACHAssociation dist5rm district1,district5`

**Output:**

```
ANR6625I Machine DISTRICT1 associated with recovery
media DIST5RM.
ANR6625I Machine DISTRICT5 associated with recovery
media DIST5RM.
```

# Related Commands

Figure 11 provides references to related commands.

*Figure 11. Commands Related to DEFINE RECMEDMACHASSOCIATION*

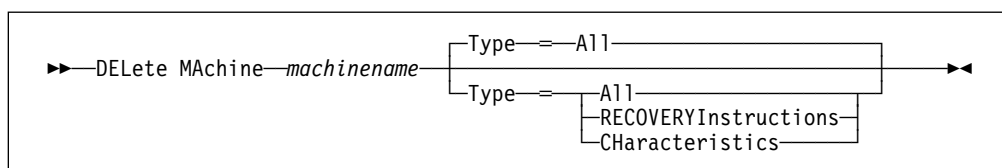| Command | Description | Reference |
|---------|-------------|-----------|
| DEFINE MACHINE | Defines a machine for DRM. | Page 90 |
| DEFINE RECOVERYMEDIA | Defines the media required to recover a machine. | Page 97 |
| DELETE MACHINE | Deletes an existing machine. | Page 100 |
| DELETE RECMEDMACHASSOCIATION | Deletes association between recovery media and a machine. | Page 104 |
| DELETE RECOVERYMEDIA | Deletes existing recovery media. | Page 106 |
| QUERY MACHINE | Displays information about one or more machines. | Page 139 |
| QUERY RECOVERYMEDIA | Displays media available for machine recovery. | Page 144 |

# DEFINE RECOVERYMEDIA (Define Recovery Media)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the DEFINE RECOVERYMEDIA command to describe the media (for example, boot media) needed for recovering a machine. Recovery media can be associated with one or more machines.

This command is provided for your use in documenting, in the ADSM server database, the media required to recover an ADSM client machine should a disaster occur. The ADSM server database will be used to store this information for you, and QUERY commands are provided to retrieve the information should you need to reference it in the case of a disaster. The information provided by this command is NOT used by the server in any way to coordinate disaster recovery or to manage the server under normal operation. The information provided in this command is solely determined by you in planning for client machine disaster recovery.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──DEFine RECOVERYMedia──recoverymedianame──────────────────────────────►
                                        └─VOLumenames──=──volname─┘

►────────────────────────────────────────────────────────────────────────►
     └─DESCription──=──description─┘  └─LOcation──=──locationofmedia─┘

      ┌─Type──=──OTher─────────┐
►─────┼────────────────────────┼──────────────────────────────────────────►
      └─Type──=──┬─OTher─┬──┘   └─PROduct──=──productname─┘
                 └─BOot──┘

►────────────────────────────────────────────────────────────────────────►◄
     └─PRODUCTInfo──=──productinformation─┘
```

## Parameters

*recoverymedianame*
> Specifies the name of the recovery media to be defined. This parameter is required. The maximum length of the name is 30 characters.

**DESCription**=*description*
> Specifies the description of the recovery media. This parameter is optional. The maximum length of the description is 255 characters. The description must be enclosed in quotation marks if it contains any blank characters. The default is no description.

**VOLumenames**=*volname*
> Specifies the list of volume names that contain the recoverable data (for example, OS/2.2.1 Operating System image copies). This parameter is optional. It is recommended that the boot media volume names specified in the list are in the same order the boot media volumes are inserted into the machine at recovery time. The maximum length of the volume names list is 255 characters. The volume names list must be enclosed in quotation marks

if it contains any blank characters. If a boot type recovery media is specified, the volume names that contain the boot media must be specified.

**LOcation**=*locationofmedia*
Specifies the location of the recovery media. For example, "Building=021 Floor=02 Room=2846 Cabinet=1A0". This parameter is optional. The maximum length of the location is 255 characters. The location description must be enclosed in quotation marks if it contains any blank characters. The default is no location.

**Type**=*typemode*
Specifies the type of recovery media. This parameter is optional. The default value is OTHER. Possible values are:

**BOot**
Specifies that it is boot media. Volume names must be specified when BOot is specified.

**OTher**
Specifies that it is not boot media. Example usage may include tracking a CD-ROM that contains AIX manuals.

**PROduct**=*productname*
Specifies the product name that wrote to this media. This parameter is optional. The maximum length of the product name is 16 characters. The product name must be enclosed in quotation marks if it contains any blank characters. The default is no product name for this recovery media.

**PRODUCTInfo**=*productinformation*
Specifies any information about the product that wrote to the media which may be needed for restoring the machine. This parameter is optional. The maximum length of the product information is 255 characters. The product information must be enclosed in quotation marks if it contains any blank characters. The default is no product information.

## Examples

**Task**

Define the recovery media named DIST5RM with a short description and a location of district 1 vault.

**Command:** `DEFine RECOVERYMedia dist5rm DESCription='District 5 base system image' LOcation='District 1 vault'`

**Output:**

```
ANR6632I Recovery media DIST5RM defined.
```

# Related Commands

Figure 12 provides references to related commands.

| *Figure 12. Commands Related to DEFINE RECOVERYMEDIA* | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| DEFINE RECMEDMACHASSOCIATION | Associates recovery media with a machine. | Page 95 |
| DELETE RECOVERYMEDIA | Deletes existing recovery media. | Page 106 |
| QUERY RECOVERYMEDIA | Displays media available for machine recovery. | Page 144 |
| UPDATE RECOVERYMEDIA | Changes the attributes of existing recovery media. | Page 172 |

# DELETE MACHINE (Delete a Machine)

This command only applies to environments licensed to use the ADSM Disaster
Recovery Manager (DRM) feature.

Use the DELETE MACHINE command to delete machine description information
from the ADSM server.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
              ┌─Type──=──All───────────────────┐
►►──DELete MAchine──machinename──┤                                ├──►◄
              └─Type──=──┬─All───────────────┬─┘
                         ├─RECOVERYInstructions─┤
                         └─CHaracteristics──────┘
```

## Parameters

*machinename*
>    Specifies the name of the machine to be deleted from the ADSM server.  This
>    parameter is required.

**Type**=*typevalue*
>    Specifies the type of machine information to be deleted.  This parameter is
>    optional.  The default value is ALL.  Possible values are:
>
>    **All**
>    >    Specifies to delete from the server the machine definition, including
>    >    recovery instructions and characteristics.
>
>    **RECOVERYInstructions**
>    >    Specifies that the recovery instructions associated with the machine are
>    >    deleted.  Recovery instructions are added to machine information with
>    >    the INSERT command.
>    >
>    >    To replace existing recovery instructions, perform the following:
>    >
>    >    • Issue the DELETE MACHINE machinename
>    >      TYPE=RECOVERYInstructions.
>    >
>    >    • Issue the INSERT command for each line of recovery instructions.

**CHaracteristics**

Specifies that the machine characteristics associated with the machine are deleted. Machine characteristics are added to machine information with the INSERT command.

To replace existing machine characteristics, perform the following:

- Issue the DELETE MACHINE machinename TYPE=CHaracteristics.

- Issue the INSERT command for each line of machine characteristics.

# Examples

**Task**

Delete the machine characteristics associated with the DISTRICT5 machine.

**Command:** `DELete MAchine district5 Type=CHaracteristics`

**Output:**

```
ANR6754I Machine DISTRICT5 characteristics deleted.
```

# Related Commands

Figure 13 provides references to related commands.

| Figure 13. Commands Related to DELETE MACHINE | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| DEFINE MACHINE | Defines a machine for DRM. | *ADSM Administrator's Reference*, SH26-4040 |
| INSERT MACHINE | Inserts machine characteristics into the ADSM database. | Page 107 |
| QUERY MACHINE | Displays information about one or more machines. | Page 139 |
| QUERY RECOVERYMEDIA | Displays media available for machine recovery. | Page 144 |
| UPDATE MACHINE | Changes the information of an existing machine. | Page 170 |

# DELETE MACHNODEASSOCIATION (Delete Association between a Machine and a Node)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

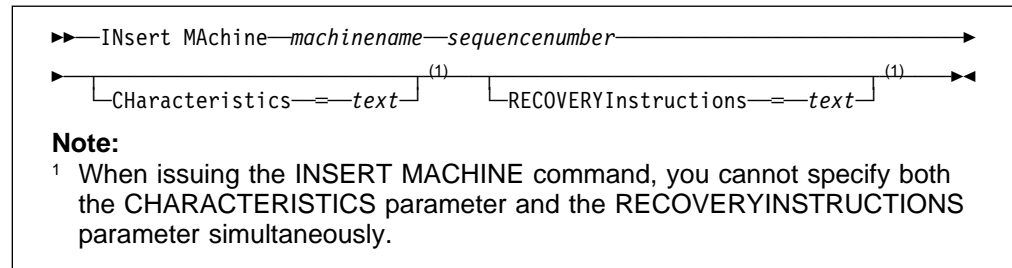Use the DELETE MACHNODEASSOCIATION command to remove the association of one or more nodes with a machine.

This command cannot be used to delete a node from ADSM. It only removes the association of the node with a machine.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──DELete MACHNODEAssociation──machinename──┬──────────────┬──────►◄
                                             │    ┌─,──────┐ │
                                             └────▼─nodename┘
```

## Parameters

*machinename*
>    Specifies the name of the machine from which nodes are to be disassociated. This parameter is required.

*nodename*
>    Specifies the name of the node that is no longer associated with the machine. This parameter is required. You can specify a list of nodes that are no longer to be associated with the specified machine. The items in the list are separated with commas, with no intervening spaces. You can use a pattern-matching expression to specify a name. All matching nodes are disassociated from the specified machine. If a node is listed, but is not associated with the specified machine, the command has no effect for that node.

## Examples

**Task**

Delete the association between the DISTRICT5 machine and the ACCOUNTSPAYABLE node.

**Command:** `DELete MACHNODEAssociation district5 accountspayable`

**Output:**

```
ANR6621I Node ACCOUNTSPAYABLE disassociated from machine
DISTRICT5.
```

## Related Commands

Figure 14 provides references to related commands.

| Figure 14. Commands Related to DELETE MACHNODEASSOCIATION | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| DEFINE MACHNODEASSOCIATION | Associates an ADSM node with a machine. | Page 93 |
| QUERY MACHINE | Displays information about one or more machines. | Page 139 |

## DELETE RECMEDMACHASSOCIATION (Delete Association between Recovery Media and a Machine)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the DELETE RECMEDMACHASSOCIATION command to remove the association of one or more machines with a recovery media.

This command cannot be used to delete a machine from ADSM. It only removes the association of the machine with a recovery media.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──DELete RECMEDMACHAssociation──recoverymedianame──┬──────────────►──machinename──┬──────►◄
                                                     └──────,────────┘
```

## Parameters

*recoverymedianame*
> Specifies the name of the recovery media from which machines are to be disassociated. This parameter is required.

*machinename*
> Specifies the name of the machine that is no longer associated with the recovery media. This parameter is required. You can specify a list of machines that are no longer to be associated with the specified recovery media. The items in the list are separated with commas, with no intervening spaces. You can use a pattern-matching expression to specify a name. All matching machines are disassociated from the specified recovery media. If a machine is listed, but is not associated with a specified recovery media, the command has no effect for that machine.

## Examples

**Task**

Delete the association between the DIST5RM recovery media and the DISTRICT1 and DISTRICT5 machines.

**Command:** `DELete RECMEDMACHAssociation dist5rm district1,district5`

**Output:**

```
ANR6627I Machine DISTRICT1 disassociated from recovery
media DIST5RM.
ANR6627I Machine DISTRICT5 disassociated from recovery
media DIST5RM.
```

## Related Commands

Figure 15 provides references to related commands.

| Figure 15. Commands Related to DELETE RECMEDMACHASSOCIATION | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| DEFINE RECMEDMACHASSOCIATION | Associates recovery media with a machine. | Page 95 |
| QUERY MACHINE | Displays information about one or more machines. | Page 139 |
| QUERY RECOVERYMEDIA | Displays media available for machine recovery. | Page 144 |

# DELETE RECOVERYMEDIA (Delete Recovery Media)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the DELETE RECOVERYMEDIA command to delete recovery media information from the ADSM server.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──DELete RECOVERYMedia──recoverymedianame───────────────────────►◄
```

## Parameters

*recoverymedianame*
 Specifies the name of the recovery media to be deleted.  This parameter is required.

## Examples

**Task**

Delete the DIST5RM recovery media.

**Command:** `DELete RECOVERYMedia dist5rm`

**Output:**

```
ANR6634I Recovery media DIST5RM deleted.
```

## Related Commands

Figure 16 provides references to related commands.

*Figure 16. Commands Related to DELETE RECOVERYMEDIA*

| Command | Description | Reference |
|---|---|---|
| DEFINE RECOVERYMEDIA | Defines the media required to recover a machine. | Page 97 |
| QUERY RECOVERYMEDIA | Displays media available for machine recovery. | Page 144 |
| UPDATE RECOVERYMEDIA | Changes the attributes of existing recovery media. | Page 172 |

# INSERT MACHINE (Insert Machine Characteristics Information or Recovery Instructions)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the INSERT MACHINE command to insert machine characteristics or machine recovery instructions into the ADSM database. An exec can be written to read files containing recovery instructions or machine characteristics and generate the appropriate INSERT commands.

This command is provided for your use in documenting, in the ADSM server database, the machine information required to recover an ADSM client machine should a disaster occur. The ADSM server database will be used to store this information for you, and QUERY commands are provided to retrieve the information should you need to reference it in the case of a disaster. The information provided by this command is NOT used by the server in any way to coordinate disaster recovery or to manage the server under normal operation. The information provided in this command is solely determined by you in planning for client machine disaster recovery.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──INsert MAchine──machinename──sequencenumber──────────────────────►

►─┬────────────────────────┬──┬──────────────────────────────────┬──►◄
  └─CHaracteristics─=─text─┘(1) └─RECOVERYInstructions─=─text─┘(1)
```

**Note:**
1 When issuing the INSERT MACHINE command, you cannot specify both the CHARACTERISTICS parameter and the RECOVERYINSTRUCTIONS parameter simultaneously.

## Parameters

*machinename*
Specifies the name of the machine whose characteristics or recovery instructions are to be updated. The machine name must have been previously defined to ADSM with the DEFINE MACHINE command.

*sequencenumber*
Specifies the sequence number that the line of text will have in the ADSM database.

**CHaracteristics**=*text*
Specifies a line of text that contains information describing machine characteristics. If you specify the CHARACTERISTICS parameter, you cannot specify the RECOVERYINSTRUCTIONS parameter. The text must be enclosed in quotation marks if it contains any blank characters. The maximum length of the text is 1024.

**RECOVERYInstructions**=*text*
> Specifies a line of text that contains machine recovery instructions. If you specify the RECOVERYINSTRUCTIONS parameter, you cannot specify the CHARACTERISTICS parameter. The text must be enclosed in quotation marks if it contains any blank characters. The maximum length of the text is 1024.

# Examples

### Task

For the machine named DISTRICT5, insert a line of machine characteristics text stating 'Machine owner is Mary Smith' on line 1.

**Command:**  `INsert MAchine district5 1 CHaracteristics='Machine owner is Mary Smith'`

**Output:**   None

# Related Commands

Figure 17 provides references to related commands.

| *Figure 17. Commands Related to INSERT MACHINE* | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| DEFINE MACHINE | Defines a machine for DRM. | Page 90 |
| DELETE MACHINE | Deletes an existing machine. | Page 100 |
| QUERY MACHINE | Displays information about one or more machines. | Page 139 |

# MOVE DRMEDIA (Move Disaster Recovery Media Offsite and Back Onsite)
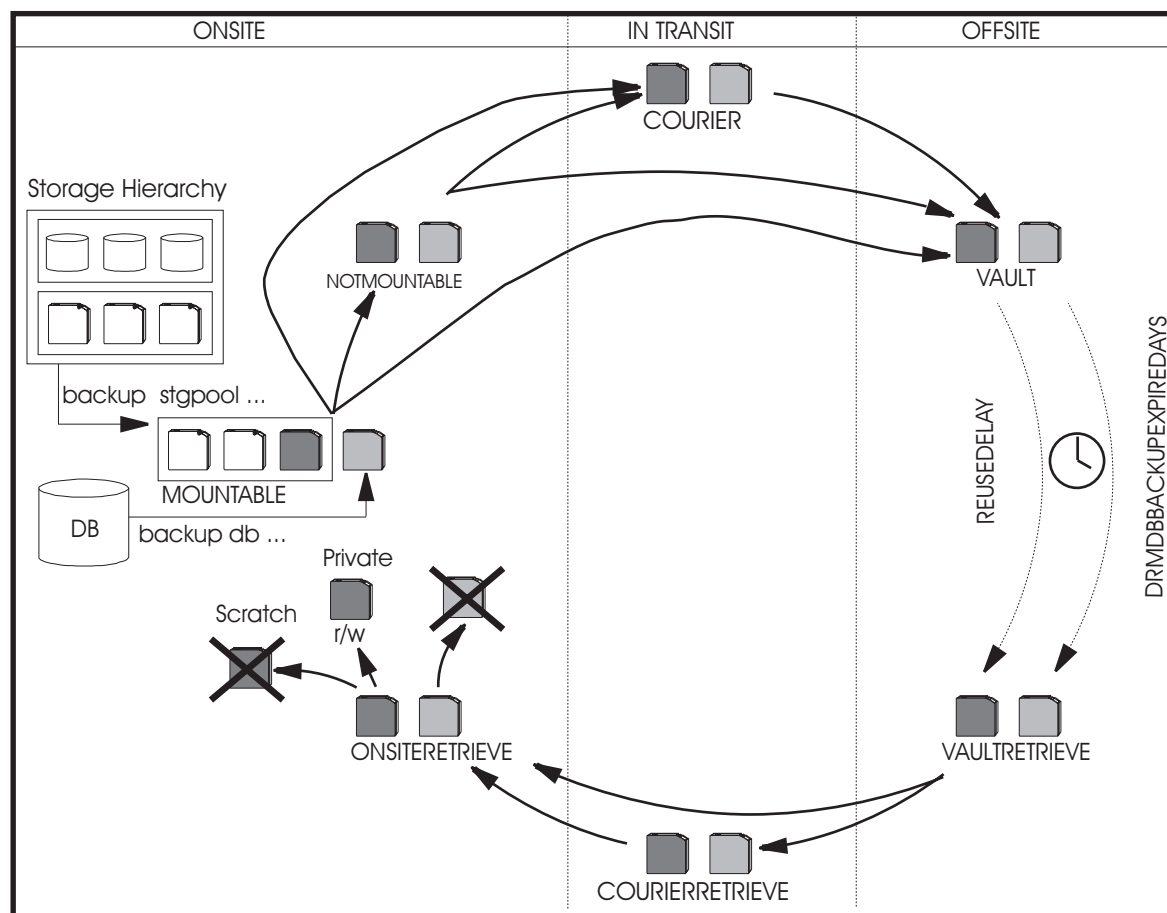


This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the MOVE DRMEDIA command to identify and track volumes that are moved offsite for disaster recovery protection.

Use the MOVE DRMEDIA command to identify the expired or empty volumes that are moved back to the onsite location for reuse.

This command processes one or more database backup and copy storage pool volumes.

If your offsite vault storage is managed by a tape management product, you can use the MOVE DRMEDIA command to generate the tape management product commands to update your tape management product database to reflect the movement of ADSM volumes.

This command generates a background process that can be canceled with the CANCEL PROCESS command. To display information on background processes, use the QUERY PROCESS command.

You can use the QUERY ACTLOG command to view whether the MOVE DRMEDIA command was successful. You can also view this information from the server console.

The MOVE DRMEDIA command defines a staged process that allows volumes to transition through the following states. You may choose to transition your offsite volumes through each of the following states or may choose to simplify your volume movements by skipping some of the states using the TOSTATE parameter.

**MOUNTABLE**
> Volumes in this state contain valid data and are accessible for onsite processing.

**NOTMOUNTABLE**
> Volumes in this state are onsite, contain valid data, and are not available for onsite processing.

**COURIER**
> Volumes in this state are with the courier and being moved to an offsite location.

**VAULT**
> Volumes in this state contain valid data and are at the offsite location. There is no MOVE DRMEDIA command to move the volumes in this state to any state.

**VAULTRETRIEVE**
> Volumes in this state do not contain valid data and are at the offsite vault. Copy storage pool volumes are empty and met REUSEDELAY days and database backup volumes are associated with the series that is expired based on the SET DRMDBBACKUPEXPIREDAYS command. These volumes are to be reused.

**COURIERRETRIEVE**
> Volumes in this state do not contain valid data and are with the courier and being moved back to the onsite location.

**ONSITERETRIEVE**
> Volumes in this state do not contain valid data and are at the onsite location. The volume records of the database backup and scratch copy storage pool volumes are deleted from the ADSM database. The volume records of the private copy storage pool volumes are updated with the READWRITE access mode in ADSM database.

## Privilege Class

To issue this command, you must have system, unrestricted storage, or operator privilege.

## Syntax

```
►►──MOVe DRMedia──volname──────────────────────────────────────────────────►
                         └─WHERESTate──=──┬─MOuntable───────┬─┘
                                          ├─NOTMOuntable────┤
                                          ├─COUrier─────────┤
                                          ├─VAULTRetrieve───┤
                                          └─COURIERRetrieve─┘

►──────────────────────────────────────────────────────────────────────────►
      └─BEGINDate──=──date─┘  └─ENDDate──=──date─┘  └─BEGINTime──=──time─┘

►──────────────────────────────────────────────────────────────────────────►
   └─ENDTime──=──time─┘  └─COPYstgpool──=──poolname─┘

   ┌─DBBackup──=──Yes─┐
►──┼──────────────────┼──────────────────────────────────────────────────────►
   └─DBBackup──=──┬─Yes─┬─┘  └─TOSTate──=──┬─NOTMOuntable───┬─┘
                 └─No──┘                   ├─COUrier────────┤
                                           ├─VAult──────────┤
                                           ├─COURIERRetrieve┤
                                           └─ONSITERetrieve─┘

►──────────────────────────────────────────────────────────────────────────►
   └─WHERELOcation──=──location─┘  └─TOLOcation──=──location─┘

►──────────────────────────────────────────────────────────────────────────►
   └─CMd──=──"string substitution string substitution string"─┘

►──────────────────────────────────────────────────────────────────────────►◄
   └─CMDFilename──=──filename─┘
```
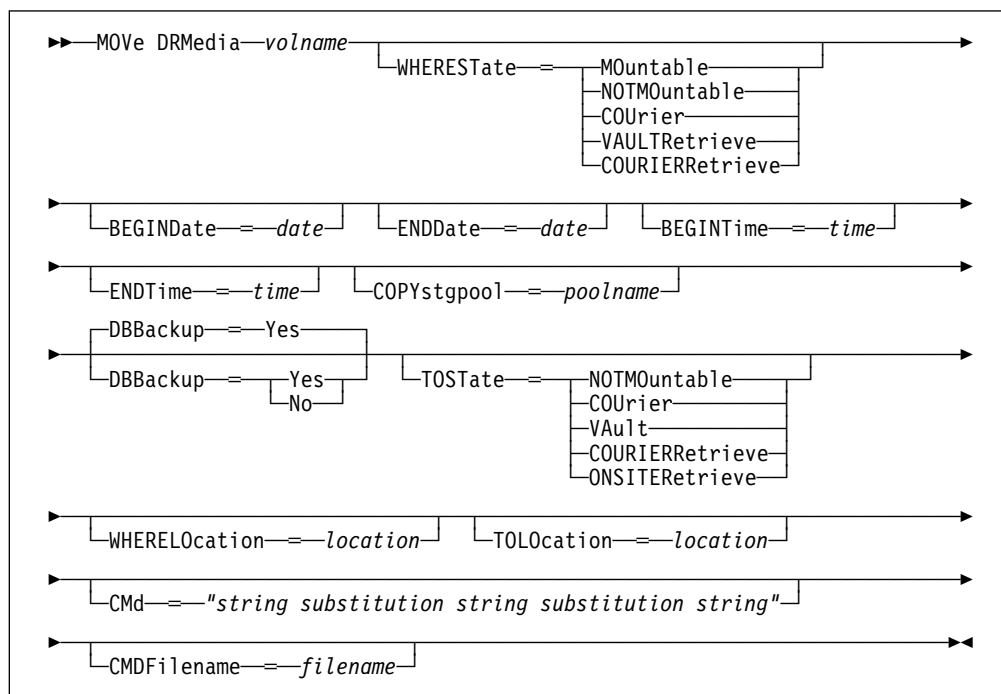
## Parameters

*volname*

Specifies the name of the database backup or copy storage pool volume to be processed. This parameter is required. You can use a pattern-matching expression to specify this name. All matching volumes are considered for processing. If you use a pattern-matching expression, you must specify WHERESTATE.

**WHERESTate**=*statevalue*

Specifies the state of volumes to be processed. This parameter is used to restrict processing to volumes that are currently in the specified state. This parameter is required if the TOSTATE is not specified. If you use a pattern-matching expression for the volume name, you must specify WHERESTATE. For more information, see "Destination State and Location" on page 117 and "State Transition" on page 118.

Possible values are:

**MOuntable**

Specifies that volumes are to transition from the MOUNTABLE state to the NOTMOUNTABLE state if the TOSTATE is not specified. Volumes in the MOUNTABLE state contain valid data and are available for onsite processing.

**NOTMOuntable**

Specifies that volumes are to transition from the NOTMOUNTABLE state to the COURIER state if the TOSTATE is not specified. Volumes in the NOTMOUNTABLE state are onsite, contain valid data, and are not available for onsite processing.

**COUrier**
> Specifies that volumes are to transition from the COURIER state to the VAULT state. The only valid destination state for the volumes in the COURIER state is VAULT. Volumes in the COURIER state are with the courier and being moved to an offsite location.

**VAULTRetrieve**
> Specifies that volumes are to transition from the VAULTRETIEVE state to the COURIERRETRIEVE state if TOSTATE is not specified. Volumes in the VAULTRETRIEVE state do not contain valid data and are at the offsite vault.

**COURIERRetrieve**
> Specifies that volumes are to transition from the COURIERRETIEVE state back to the onsite location. The only valid destination state for the volumes in COURIERRETRIEVE state is ONSITERETRIEVE. The volume records of the database backup and scratch copy storage pool volumes are deleted from the ADSM database. Volumes in the COURIERRETRIEVE state are with the courier and being moved back to the onsite location.

**BEGINDate**=*date*
> Specifies the beginning date used to select volumes for processing. Volumes are considered eligible if the MOVE DRMEDIA command has transitioned the state of the volume on or after the specified date. The default is the earliest date for which volume information exists. Possible values are:

> **MM/DD/YYYY**
>> Specifies that you want to process volumes that were transitioned into their current state on or after a specific date, using MM/DD/YYYY format (for example, 01/31/1996).

> **TODAY**
>> Specifies that you want to process volumes that were transitioned into their current state today.

> **TODAY-**numdays **or -**numdays
>> Specifies that you want to process volumes that were transitioned into their current state beginning with a date determined by today minus a specific number of days. The maximum value for the number of days is 9999.
>>
>> For example, to move volumes beginning with records transitioned into their current state a week ago, you can specify TODAY-7 or simply -7.

**ENDate**=*date*
> Specifies the ending date used to select volumes for processing. Volumes are considered eligible if the MOVE DRMEDIA command has transitioned the state of the volume on or before the specified date. The default is the current date. Possible values are:

> **MM/DD/YYYY**
>> Specifies that you want to process volumes that were transitioned into their current state on or before a specific date, using MM/DD/YYYY format (for example, 01/31/1996).

**TODAY**

> Specifies that you want to process volumes that were transitioned into their current state ending with today.

**TODAY-***numdays* **or -***numdays*

> Specifies that you want to process volumes that were transitioned into their current state ending with a date determined by today minus a specific number of days. The maximum value for the number of days is 9999.
>
> For example, to move volumes beginning with records transitioned into their current state a week ago, you can specify TODAY-7 or simply -7.

**BEGINTime=***time*

Specifies the beginning time used to select volumes for processing. Volumes are considered eligible if the MOVE DRMEDIA command has transitioned the state of the volume on or after the specified time and date. The default is midnight (00:00:00) on the date specified with the BEGINDATE parameter. Possible values are:

**HH:MM:SS**

> Specifies that you want to process volumes that were transitioned into their current state on or after a specific time on the specified date, using HH:MM:SS format (for example, 12:33:28).

**NOW**

> Specifies that you want to process volumes that were transitioned into their current state beginning with the current time on the specified begin date.

**NOW+***numhours:numminutes* **or +***numhours:numminutes*

> Specifies that you want to process volumes that were transitioned into their current state beginning with a time determined by the current time plus a specific number of hours (and, optionally, minutes) on the specified date.

**NOW-***numhours:numminutes* **or -***numhours:numminutes*

> Specifies that you want to process volumes that were transitioned into their current state beginning with a time determined by the current time minus a specific number of hours (and, optionally, minutes) on the specified date.

**ENDTime=***time*

Specifies the ending time used to select volumes for processing. Volumes are considered eligible if the MOVE DRMEDIA command has transitioned the state of the volume on or before the specified time and date. The default is 23:59:59. Possible values are:

**HH:MM:SS**

> Specifies that you want to process volumes that were transitioned into their current state on or before a specific time on the specified date, using HH:MM:SS format (for example, 12:33:28).

**NOW**

> Specifies that you want to process volumes that were transitioned into their current state beginning with the current time on the specified begin date.

**NOW+***numhours:numminutes* **or +***numhours:numminutes*
Specifies that you want to process volumes that were transitioned into their current state ending with a time determined by the current time plus a specific number of hours (and, optionally, minutes) on the specified date.

**NOW-***numhours:numminutes* **or -***numhours:numminutes*
Specifies that you want to process volumes that were transitioned into their current state ending with a time determined by the current time minus a specific number of hours (and, optionally, minutes) on the specified date.

**COPYstgpool**=*poolname*
Specifies the name of the copy storage pool that is used to limit the selection of copy storage pool volumes for processing.  This parameter is optional.  You can use a pattern-matching expression to specify this name.  All matching storage pools are processed.  The copy storage pools specified with this parameter override the copy storage pools specified with the SET DRMCOPYSTGPOOL command.  If you do not specify a copy storage pool name, all volumes in the specified state, except the MOUNTABLE state, are considered for processing.  See SET DRMCOPYSTGPOOL command for processing the volumes in the MOUNTABLE state.

**DBBackup**=*dbvalue*
Specifies whether database backup volumes are included in the selection of volumes for processing.  This parameter is optional.  The default is to consider database backup volumes for processing.  Possible values are:

**Yes**
Specifies to consider database backup volumes for processing.

**No**
Specifies to not consider database backup volumes for processing.

**TOSTate**=*statevalue*
Specifies the destination state of the volumes being processed.  This parameter is required if WHERESTATE is not specified.  If TOSTATE is specified without specifying WHERESTATE, the volume name has to be explicitly specified, and pattern matching is not allowed.  For more information, see "Destination State and Location" on page 117 and "State Transition" on page 118.

Possible values are:

**NOTMOuntable**
Specifies that volumes are to transition to the NOTMOUNTABLE state.  This value is only valid when the volumes being processed have a MOUNTABLE state.

**COUrier**
Specifies that volumes are to transition to the COURIER state.  This value is only valid when the volumes being processed have a MOUNTABLE or NOTMOUNTABLE state.

**VAult**

> Specifies that volumes are to transition to the VAULT state. This value is only valid when the volumes being processed have a MOUNTABLE, NOTMOUNTABLE, or COURIER state.

**COURIERRetrieve**

> Specifies that volumes are to transition to the COURIERRETRIEVE state. This value is only valid when the volumes being processed have a VAULTRETRIEVE state.

**ONSITERetrieve**

> Specifies that volumes are to transition to the ONSITERETRIEVE state. This value is only valid when the volumes being processed have a VAULTRETRIEVE or COURIERRETRIEVE state. The volume records are deleted from the ADSM database for the database backup and scratch copy storage pool volumes that are in transition to the ONSITERETRIEVE state.

**WHERELOcation**=*location*

> Specifies the from location of the volumes being processed. This parameter is optional. This parameter is used to restrict processing to volumes that are in the specified location. The maximum length of the location specified is 255 characters. The location must be enclosed in quotation marks if it contains any blank characters.

**TOLOcation**=*location*

> Specifies the destination location of the volumes being processed. This parameter is optional. The maximum length of the location specified is 255 characters. The location must be enclosed in quotation marks if it contains any blank characters. If the destination location is not specified with the TOLOCATION, the location defined by the DRM SET command for the state that the volume is transitioned to will be used.

**CMd**=*"string substitution string substitution string"*

> Specifies the creation of executable commands. This parameter is optional. You must enclose your executable command specification in quotation marks. The maximum length of the executable command specification is 255 characters. For each volume successfully processed by the MOVE DRMEDIA command, DRM writes one line to the file specified with CMDFILENAME parameter or to the file specified with SET DRMCMDFILENAME if the file name is not specified with CMDFILENAME. If the length of the line written exceeds 255 characters, it is split into multiple lines and a continuation character, +, is added to all but the last line of the command. You may need to alter the continuation character according to the rule of the product that executes the commands.

> If you do not specify CMD or specify a " " for CMD, MOVE DRMEDIA will not generate any executable commands.

**string**

> Specifies the string to build an executable command to process the volume name and/or volume location obtained by the MOVE DRMEDIA command. You can specify any free form text for the string. Do not enclose the string in quotation marks even if it contains blanks. For example, the following is a valid executable command specification:

```
CMD="RMM CHANGEVOLUME &VOL"
```

The following is an invalid executable command specification:

```
CMD=""RMM CHANGEVOLUME" &VOL"
```

**substitution**

Specifies a substitution variable to tell MOVE DRMEDIA to substitute a value for the variable.  The possible substitution variables are:

**&VOL**

Specifies &VOL to tell MOVE DRMEDIA to substitute &VOL with the volume name successfully processed.  You can specify the lowercase characters, &vol.  No spaces or blanks are allowed between the ampersand, &, and VOL.  If there are spaces or blanks between the ampersand and VOL, MOVE DRMEDIA will treat them as strings and no substitution will be set.  If &VOL is not specified, no volume name is set in the executable command.  If the volume name is to be placed within parentheses, specify &VOL within the parentheses, for example, (&VOL).  MOVE DRMEDIA will substitute the &VOL with the volume name within the parentheses.

**&LOC**

Specifies &LOC to tell MOVE DRMEDIA to substitute &LOC with the location of the volume successfully processed.  You can specify the lowercase characters, &loc.  No spaces or blanks are allowed between the ampersand, &, and LOC.  If there are spaces or blanks between the ampersand and LOC, MOVE DRMEDIA will treat them as strings and no substitution will be set.  If &LOC is not specified, no location name is set in the executable command.  If the location name is to be placed within parentheses, specify &LOC within the parentheses, for example, (&LOC).  MOVE DRMEDIA will substitute the &LOC with the location name within the parentheses.

If none of the string text is specified, MOVE DRMEDIA only writes the volume name, if &VOL is specified, or the location of the volume, if &LOC is specified, to the file.

**CMDFilename**=*filename*

Specifies the name of the file for containing the command string specified with CMD.  This parameter is optional.  The maximum length of the file name is 44 characters.  You can specify any valid MVS file name.  If you do not specify a file name or specify " " with CMDFILENAME, the file name specified with SET DRMCMDFILENAME will be used.  MOVE DRMEDIA automatically allocates the file name specified as a physical sequential file if it has not been preallocated.  If you choose to preallocate the file, the file must be a physical sequential file.  If the file name exists, MOVE DRMEDIA will attempt to use it and the existing data, if any, in the file will be overwritten.  If this should happen and the executable commands in the file have not been run, issue the QUERY DRMEDIA command to rebuild the executable commands for the desired date and volume transition.  If the MOVE DRMEDIA command fails and none of the command string specified with the CMD parameter has been written for the volume successfully moved, then the allocated file name is deleted.

# Destination State and Location

Figure 18 shows how DRM determines the volume destination state and location:

1. Destination state:

   - TOSTATE specified.

   - The next state of the WHERESTATE specified, if the TOSTATE is not specified.

2. Destination location:

   - TOLOCATION specified.

   - The location of the TOSTATE specified, if the TOLOCATION is not specified.

   - The location of the next state of the WHERESTATE specified, if the TOLOCATION and TOSTATE are not specified.

| Figure 18. Destination State and Location | | |
|---|---|---|
| **Parameter Specified** | **Destination State** | **Destination Location** |
| WHERESTATE | The next state of the WHERESTATE | Location of the next state |
| WHERESTATE TOSTATE | TOSTATE | Location of the TOSTATE |
| WHERESTATE TOLOCATION | The next state of the WHERESTATE | TOLOCATION |
| WHERESTATE TOSTATE TOLOCATION | TOSTATE | TOLOCATION |
| TOSTATE | TOSTATE | Location of the TOSTATE |
| TOSTATE WHERELOCATION | TOSTATE | Location of the TOSTATE |
| TOSTATE WHERELOCATION TOLOCATION | TOSTATE | TOLOCATION |

## State Transition

Figure 19 shows the eligible state transition.

| Figure 19. State Transition | | | | | | |
|---|---|---|---|---|---|---|
| **Destination State** | | | | | | |
| **Volume Current State** | MOUNTABLE | NOT MOUNTABLE | COURIER | VAULT | VAULT RETRIEVE | COURIER RETRIEVE | ONSITE RETRIEVE |
| MOUNTABLE | No | Yes | Yes | Yes | No | No | No |
| NOT MOUNTABLE | No | No | Yes | Yes | No | No | No |
| COURIER | No | No | No | Yes | No | No | No |
| VAULT | No | No | No | No | No | No | No |
| VAULT RETRIEVE | No | No | No | No | No | Yes | Yes |
| COURIER RETRIEVE | No | No | No | No | No | No | Yes |
| ONSITE RETRIEVE | No | No | No | No | No | No | No |

## Examples

**Task 1**

Move DRM media that is in the NOTMOUNTABLE state to the COURIER state.

**Command:** `MOVe DRMedia * WHERESTate=NOTMOuntable`

**Output:**

```
ANR0609I MOVE DRMEDIA started as process 10.
ANS5104I Process number 10 started.
```

**Command:** `QUERY ACTLOG search="MOVE DRMEDIA"`

**Output:**

```
01/11/1996 11:12:24      ANR0610I MOVE DRMEDIA started by HSIAO
                          as process 10.
01/11/1996 11:12:25      ANR6683I MOVE DRMEDIA: Volume TAPE0P was
                          moved from NOTMOUNTABLE state to COURIER.
01/11/1996 11:12:25      ANR6683I MOVE DRMEDIA: Volume TAPE1P was
                          moved from NOTMOUNTABLE state to COURIER.
01/11/1996 11:12:25      ANR6683I MOVE DRMEDIA: Volume DBTP02 was
                          moved from NOTMOUNTABLE state to COURIER.
01/11/1996 11:12:25      ANR6683I MOVE DRMEDIA: Volume DBTP01 was
                          moved from NOTMOUNTABLE state to COURIER.
01/11/1996 11:12:25      ANR6682I MOVE DRMEDIA command ended:
                          4 volumes processed.
01/11/1996 11:12:25      ANR0611I MOVE DRMEDIA started by HSIAO
                          as process 10 has ended.
```

MOVE DRMEDIA

**Task 2**

Move DRM media that is in the MOUNTABLE state to the VAULT state.

**Command:** `MOVe DRMedia * WHERESTate=MOuntable TOSTate=VAult`

**Output:**

```
ANR0609I MOVE DRMEDIA started as process 12.
ANS5104I Process number 12 started.
```

**Command:** `QUERY ACTLOG search="MOVE DRMEDIA"`

**Output:**

```
01/12/1996 10:12:24     ANR0610I MOVE DRMEDIA started by HSIAO
                          as process 12.
01/12/1996 10:12:25     ANR6683I MOVE DRMEDIA: Volume TAPE01 was
                          moved from MOUNTABLE state to VAULT.
01/12/1996 10:12:25     ANR6683I MOVE DRMEDIA: Volume TAPE02 was
                          moved from MOUNTABLE state to VAULT.
01/12/1996 10:12:25     ANR6683I MOVE DRMEDIA: Volume DBTP05 was
                          moved from MOUNTABLE state to VAULT.
01/12/1996 10:12:25     ANR6683I MOVE DRMEDIA: Volume DBTP04 was
                          moved from MOUNTABLE state to VAULT.
01/12/1996 10:12:25     ANR6682I MOVE DRMEDIA command ended:
                          4 volumes processed.
01/12/1996 10:12:25     ANR0611I MOVE DRMEDIA started by HSIAO
                          as process 12 has ended.
```

**Task 3**

Move DRM media that is in the MOUNTABLE state to the VAULT state, and
generate a RMM CHANGEVOLUME command for each volume successfully
processed in a file, DRM.MOVE.EXEC.CMDS.

**Note:** It is assumed that a Vital Record Specification (VRS) was defined with
Removable Media Management (RMM) to move the ADSM database backup and
copy storage pool volumes from an automated library to an offsite location, Irnvault.

**Command:** `MOVe DRMedia * WHERESTate=MOuntable TOSTate=VAult`
`CMDFilename=DRM.MOVE.EXEC.CMDS CMd="RMM CHANGEVOLUME &VOL`
`LOCATION(&LOC)"`

**Output:**

```
ANR0609I MOVE DRMEDIA started as process 15.
ANS5104I Process number 15 started.
```

**Command:** `QUERY ACTLOG search="MOVE DRMEDIA"`

**Output:**

```
01/13/1996 09:12:24     ANR0610I MOVE DRMEDIA started by HSIAO
                         as process 15.
01/13/1996 09:12:25     ANR6683I MOVE DRMEDIA: Volume CSTP01 was
                         moved from MOUNTABLE state to VAULT.
01/13/1996 09:12:25     ANR6683I MOVE DRMEDIA: Volume CSTP02 was
                         moved from MOUNTABLE state to VAULT.
01/13/1996 09:12:26     ANR6683I MOVE DRMEDIA: Volume DBTP10 was
                         moved from MOUNTABLE state to VAULT.
01/13/1996 09:12:27     ANR6683I MOVE DRMEDIA: Volume DBTP11 was
                         moved from MOUNTABLE state to VAULT.
01/13/1996 09:12:27     ANR6682I MOVE DRMEDIA command ended:
                         4 volumes processed.
01/13/1996 09:12:42     ANR0611I MOVE DRMEDIA started by HSIAO
                         as process 15 has ended.
```

**Output:**    MOVE DRMEDIA also created RMM-executable commands in
         DRM.MOVE.EXEC.CMDS:

```
RMM CHANGEVOLUME CSTP01 LOCATION(Irnvault)
RMM CHANGEVOLUME CSTP02 LOCATION(Irnvault)
RMM CHANGEVOLUME DBTP10 LOCATION(Irnvault)
RMM CHANGEVOLUME DBTP11 LOCATION(Irnvault)
```

# Related Commands

Figure 20 provides references to related commands.

| Figure 20 (Page 1 of 2). Commands Related to MOVE DRMEDIA | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| BACKUP DB | Backs up the ADSM database to sequential access volumes. | *ADSM Administrator's Reference*, SH26-4040 |
| BACKUP STGPOOL | Backs up a primary storage pool to a copy storage pool. | *ADSM Administrator's Reference*, SH26-4040 |
| CANCEL PROCESS | Cancels a background server process. | *ADSM Administrator's Reference*, SH26-4040 |
| PREPARE | Creates a recovery plan file | Page 122 |
| QUERY ACTLOG | Searches for and displays messages from the server activity log. | *ADSM Administrator's Reference*, SH26-4040 |
| QUERY DRMEDIA | Displays information about disaster recovery volumes. | Page 127 |
| QUERY DRMSTATUS | Displays DRM system parameters. | Page 136 |

| Figure 20 (Page 2 of 2). Commands Related to MOVE DRMEDIA | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| QUERY PROCESS | Displays information about one or all background server processes. | *ADSM Administrator's Reference*, SH26-4040 |
| SET DRMCMDFILENAME | Specifies a file name to contain the executable commands. | Page 148 |
| SET DRMCOPYSTGPOOL | Specifies that copy storage pools are managed by DRM. | Page 150 |
| SET DRMCOURIERNAME | Specifies the name of the courier for the disaster recovery media. | Page 152 |
| SET DRMDBBACKUPEXPIREDAYS | Specifies criteria for database backup series expiration. | Page 154 |
| SET DRMFILEPROCESS | Specifies whether the MOVE DRMEDIA command processes files associated with a device type of file. | Page 156 |
| SET DRMNOTMOUNTABLENAME | Specifies the not mountable location name. | Page 160 |
| SET DRMVAULTNAME | Specifies the name of the vault where DRM media is stored. | Page 168 |

# PREPARE (Create a Recovery Plan File)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

The objective of the PREPARE command is to generate a recovery plan file. The recovery plan file contains the information required for recovery of an ADSM server to the point in time represented by the last database backup operation that has completed prior to issuing the PREPARE command. The recovery plan file contains the information and procedures necessary to assist with the recovery of the ADSM server. The information in the plan file includes:

- Site-specific server recovery instructions as defined by the administrator (for example, contact names and telephone numbers).

- The sequence of steps necessary to recover an ADSM server.

- List of ADSM database backup and copy storage pool volumes required to perform the recovery. The location where the volumes reside is included.

- Devices required to read the database backup and copy storage pool volumes.

- Space requirements for the ADSM database and recovery log.

- Copy of ADSM server options file, device configuration file, and volume history information file.

- Commands for performing server database recovery and primary storage pool recovery.

This command generates a background process that can be canceled with the CANCEL PROCESS command. To display information on background processes, use the QUERY PROCESS command.

You can use the QUERY ACTLOG command to view whether the PREPARE command was successful. You can also view this information from the server console.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──PREPARE─────────────────────────────────────────────────────────►
                  └─PLANPrefix──=──prefix─┘   └─INSTRPrefix──=──prefix─┘

►──────────────────────────────────────────────────────────────────►◄
        │              ┌─,─┐                            ┌─,─┐        │
        └─COPYstgpool──=─▼─poolname─┘   └─PRIMstgpool──=─▼─poolname─┘
```
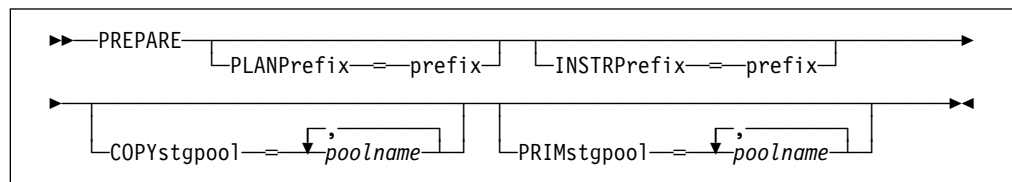
## Parameters

**PLANPrefix**=*prefix*

Specifies the high-level qualifier used to generate a recovery plan filename. This parameter is optional. The maximum length of the high-level qualifier is 18 characters.

To build a unique recovery plan filename, the sortable Julian date and time format Jyyyyddd.Thhmmss (for example, J1995115.T051421) is appended to the prefix. PREPARE allocates the file name generated as a physical sequential file. If this parameter is not specified or " " is specified, refer to the section "When the PLANPREFIX Parameter is Not Specified" to see how the high-level qualifier is selected.

### When the PLANPREFIX Parameter is Specified

Specifies the high-level qualifier for the prefix. You can specify any valid MVS file qualifier. The PREPARE command appends to the prefix the date and time information using the *Jyyyyddd.Thhmmss* format. For example, a PREPARE command is issued with the following parameter:

```
PLANPREFIX=ADSMSRV.RECPLANS
```

The resulting recovery plan filename is the following:

```
ADSMSRV.RECPLANS.J1995115.T051421
```

### When the PLANPREFIX Parameter is Not Specified

If the PLANPREFIX parameter is not specified, the high-level qualifier is selected from the high-level qualifier defined by the SET DRMPLANPREFIX command. For additional information, see the SET DRMPLANPREFIX command.

**INSTRPrefix**=*prefix*
Specifies the high-level qualifier used by the PREPARE command to locate the files that contain the recovery instructions. This parameter is optional. The maximum length of the high-level qualifier is 18 characters. These files must be physical sequential files. If this parameter is not specified or " " is specified, refer to the section "When the INSTRPREFIX Parameter is Not Specified."

These site-specific recovery instructions can include:

- General ADSM server recovery instructions. To find the file containing these instructions, the PREPARE command appends the *INSTR.GENERAL* string to the instruction prefix.

- Offsite ADSM server tapes instructions. To find the file containing these instructions, the PREPARE command appends the *INSTR.OFFSITE* string to the instruction prefix.

- ADSM server software installation instructions. To find the file containing these instructions, the PREPARE command appends the *INSTR.INSTALL* string to the instruction prefix.

- ADSM server database recovery instructions. To find the file containing these instructions, the PREPARE command appends the *INSTR.DATABASE* string to the instruction prefix.

- ADSM server primary storage pool recovery instructions. To find the file containing these instructions, the PREPARE command appends the *INSTR.STGPOOL* string to the instruction prefix.

**When the INSTRPREFIX Parameter is Specified**

Specifies the high-level qualifier for the prefix.  You can specify any valid MVS file qualifier.  For example, a PREPARE command is issued with the following parameter:

```
INSTRPREFIX=ADSMSRV.RECINSTR
```

The PREPARE command obtains the recovery instructions from the following files:

```
ADSMSRV.RECINSTR.INSTR.GENERAL
ADSMSRV.RECINSTR.INSTR.OFFSITE
ADSMSRV.RECINSTR.INSTR.INSTALL
ADSMSRV.RECINSTR.INSTR.DATABASE
ADSMSRV.RECINSTR.INSTR.STGPOOL
```

**When the INSTRPREFIX Parameter is Not Specified**

If the INSTRPREFIX parameter is not specified, the prefix is selected from the prefix defined by the SET DRMINSTRPREFIX command.  For additional information, see the SET DRMINSTRPREFIX command.

**COPYstgpool**=*name*
Specifies a list of copy storage pool names.  This parameter is optional.  The list should contain the copy storage pools that are used during backup of the primary storage pools specified by the PRIMSTGPOOL parameter or its defaults.  The PREPARE command collects the volume information for these storage pools and generates the appropriate plan file stanzas.  Separate each storage pool name with a comma and no intervening spaces.  You can use pattern-matching expressions for each storage pool name.  The default is determined in the following order:

1. If a list has been defined with the SET DRMCOPYSTGPOOL command, the PREPARE command uses this list.

2. If a list has not been defined with the SET DRMCOPYSTGPOOL command, all copy storage pools defined to the server are eligible for PREPARE command processing.

**PRIMstgpool**=*name*
Specifies a list of primary storage pool names.  This parameter is optional. The list should contain the primary storage pools you want to restore. PREPARE generates the appropriate plan file stanzas for these storage pools.  Separate each storage pool name with a comma and no intervening spaces.  You can use pattern-matching expressions for each storage pool name.  The default is determined in the following order:

1. If a list has been defined with the SET DRMPRIMSTGPOOL command, the PREPARE command uses this list.

2. If a list has not been defined with the SET DRMPRIMSTGPOOL command, all primary storage pools defined to the server are eligible for PREPARE command processing.

## Examples

**Task**

Issue the PREPARE command and query the activity log to check the results.

**Command:** PREPARE

**Output:**

```
ANR0609I PREPARE started as process 12.
ANS5104I Process number 12 started.
```

**Command:** QUERY ACTLOG search=PREPARE

**Output:**

```
09/03/1996 12:01:13  ANR0610I PREPARE started by DFDSM2 as process 12.
09/03/1996 12:01:13  ANR6918W PREPARE: Recovery instructions file
                       ADSM.INSTR.DATABASE not found.
09/03/1996 12:01:13  ANR6918W PREPARE: Recovery instructions file
                       ADSM.INSTR.STGPOOL not found.
09/03/1996 12:01:13  ANR6913W PREPARE: No volumes with backup data
                       exist in copy storage pool CSTORAGEP.
09/03/1996 12:01:13  ANR6913W PREPARE: No volumes with backup data
                       exist in copy storage pool CSTORAGEPSM.
09/03/1996 12:01:14  ANR6920W PREPARE: Generated replacement volume
                       name BACK4X@ is not valid for device
                       class DEV3490.
                       Original volume name: BACK4X. Stanza is
                       PRIMVOL.REPLACE macro.
09/03/1996 12:01:14  ANR6900I PREPARE: The recovery plan file
                       ADSM.J1995247.T120113 was created.
09/03/1996 12:01:14  ANR0611I PREPARE: Started by DFDSM2 as process
                       12 has ended.
```

## Related Commands

Figure 21 provides references to related commands.

| Figure 21 (Page 1 of 2). Commands Related to PREPARE | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| BACKUP DB | Backs up the ADSM database to sequential access volumes. | *ADSM Administrator's Reference*, SH26-4040 |
| BACKUP STGPOOL | Backs up a primary storage pool to a copy storage pool. | *ADSM Administrator's Reference*, SH26-4040 |
| CANCEL PROCESS | Cancels a background server process. | *ADSM Administrator's Reference*, SH26-4040 |
| MOVE DRMEDIA | Moves DRM media onsite and offsite. | Page 109 |
| QUERY ACTLOG | Searches for and displays messages from the server activity log. | *ADSM Administrator's Reference*, SH26-4040 |

| Figure 21 (Page 2 of 2). Commands Related to PREPARE | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| QUERY DRMSTATUS | Displays DRM system parameters. | Page 136 |
| QUERY PROCESS | Displays information about one or all background server processes. | *ADSM Administrator's Reference*, SH26-4040 |
| SET DRMCOPYSTGPOOL | Specifies that copy storage pools are managed by DRM. | Page 150 |
| SET DRMINSTRPREFIX | Specifies the prefix portion of the path name for the recovery plan instructions. | Page 158 |
| SET DRMPLANPREFIX | Specifies the prefix portion of the path name for the recovery plan. | Page 162 |
| SET DRMPLANVPOSTFIX | Specifies the replacement volume names in the recovery plan file. | Page 164 |
| SET DRMPRIMSTGPOOL | Specifies that primary storage pools are managed by DRM. | Page 166 |

## QUERY DRMEDIA (Query Disaster Recovery Media)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the QUERY DRMEDIA command to display information about disaster recovery volumes. Disaster recovery volumes include database backup and copy storage pool volumes.

## Privilege Class
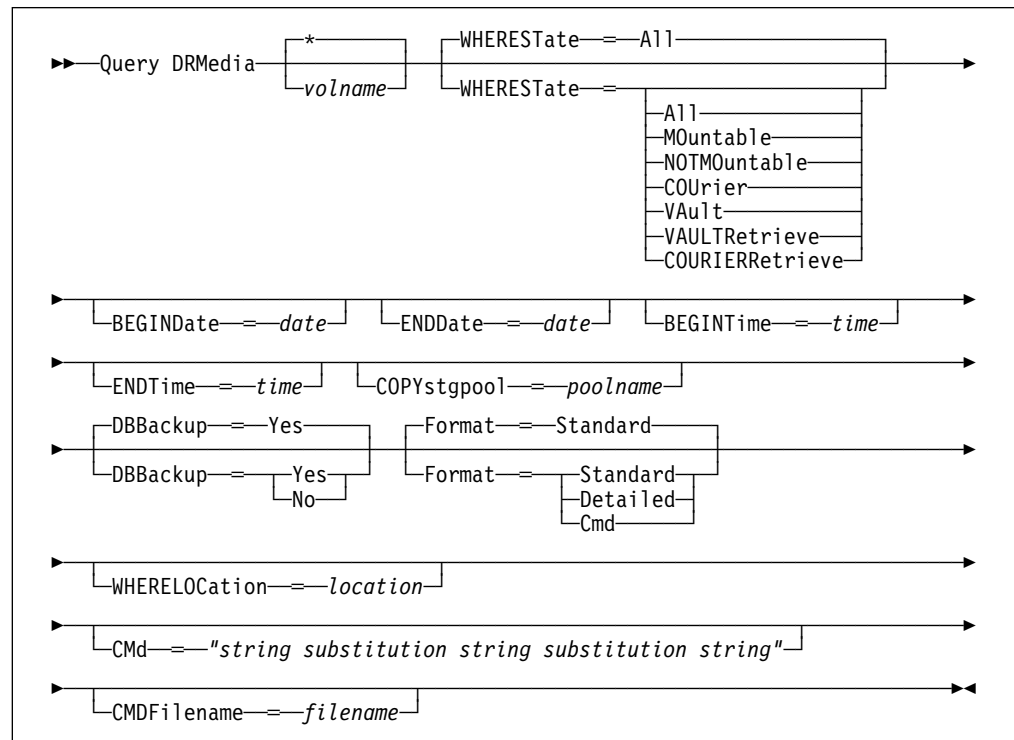
Any administrator can issue this command.

## Syntax



## Parameters

*volname*
> Specifies the name of the database backup and copy storage pool volumes to be queried. This parameter is optional. You can use a pattern-matching expression to specify this name. All matching volumes are considered for processing. If you do not specify this parameter, all database backup volumes and all copy storage pool volumes are considered for processing.

**WHEREState**=*statevalue*
> Specifies the state of volumes to be processed. This parameter is used to restrict processing to volumes that have the specified state. This parameter is optional. The default is ALL. Possible values are:

**All**
> Specifies that volumes in all states are to be queried. The valid states are MOUNTABLE, NOTMOUNTABLE, COURIER, VAULT, VAULTRETRIEVE, and COURIERRETRIEVE.

**MOuntable**
> Specifies that volumes that are currently in the MOUNTABLE state are to be queried. Volumes in the MOUNTABLE state contain valid data and are accessible for onsite processing.

**NOTMOuntable**
> Specifies that volumes that are currently in the NOTMOUNTABLE state are to be queried. Volumes in the NOTMOUNTABLE state are onsite, contain valid data, and are not accessible for onsite processing.

**COUrier**
> Specifies that volumes that are currently in the COURIER state are to be queried. Volumes in the COURIER state are with the courier and being moved to an offsite location.

**VAult**
> Specifies the volumes that are currently in the VAULT state are to be queried. Volumes in the VAULT state are offsite, contain valid data, and are not accessible for onsite processing.

**VAULTRetrieve**
> Specifies that volumes that are currently in the VAULTRETRIEVE state are to be queried. Volumes in the VAULTRETRIEVE state do not contain valid data and are at the offsite vault.

**COURIERRetrieve**
> Specifies that volumes that are currently in the COURIERRETRIEVE state are to be queried. Volumes in the COURIERRETRIEVE state are with the courier and being moved back to the onsite location.

**BEGINDate**=*date*
Specifies the beginning date used to select volumes for query processing. Volumes are considered eligible if the MOVE DRMEDIA command has transitioned the state of the volume on or after the specified date. The default is the earliest date for which volume information exists. Possible values are:

**MM/DD/YYYY**
> Specifies that you want to query volumes that were transitioned into their current state on or after a specific date, using MM/DD/YYYY format (for example, 01/31/1995).

**TODAY**
> Specifies that you want to query volumes that were transitioned into their current state today.

**TODAY-***numdays* **or -***numdays*
> Specifies that you want to query volumes that were transitioned into their current state beginning with a date determined by today minus a specific number of days. The maximum value for the number of days is 9999.
>
> For example, to move volumes beginning with records transitioned into their current state a week ago, you can specify TODAY-7 or simply -7.

**ENDate**=*date*

Specifies the ending date used to select volumes for query processing. Volumes are considered eligible if the MOVE DRMEDIA command has transitioned the state of the volume on or before the specified date. The default is the current date. Possible values are:

**MM/DD/YYYY**

Specifies that you want to query volumes that were transitioned into their current state on or before a specific date, using MM/DD/YYYY format (for example, 01/31/1995).

**TODAY**

Specifies that you want to query volumes that were transitioned into their current state ending with today.

**TODAY-**ct*numdays* **or -**ct*numdays*

Specifies that you want to query volumes that were transitioned into their current state ending with a date determined by today minus a specific number of days. The maximum value for the number of days is 9999.

For example, to query volumes beginning with records transitioned into their current state a week ago, you can specify TODAY-7 or simply -7.

**BEGINTime**=*time*

Specifies the beginning time used to select volumes for query processing. Volumes are considered eligible if the MOVE DRMEDIA command has transitioned the state of the volume on or after the specified time and date. The default is midnight (00:00:00) on the date specified with the BEGINDATE parameter. Possible values are:

**HH:MM:SS**

Specifies that you want to query volumes that were transitioned into their current state on or after a specific time on the specified date, using HH:MM:SS format (for example, 12:33:28).

**NOW**

Specifies that you want to query volumes that were transitioned into their current state beginning with the current time on the specified begin date.

**NOW+**ct*numhours:numminutes* **or +**ct*numhours:numminutes*

Specifies that you want to query volumes that were transitioned into their current state beginning with a time determined by the current time plus a specific number of hours (and, optionally, minutes) on the specified date.

**NOW-**ct*numhours:numminutes* **or -**ct*numhours:numminutes*

Specifies that you want to query volumes that were transitioned into their current state beginning with a time determined by the current time minus a specific number of hours (and, optionally, minutes) on the specified date.

**ENDTime**=*time*

Specifies the ending time used to select volumes for query processing. Volumes are considered eligible if the MOVE DRMEDIA command has

transitioned the state of the volume on or before the specified time and date. The default is 23:59:59. Possible values are:

**HH:MM:SS**

Specifies that you want to query volumes that were transitioned into their current state on or before a specific time on the specified date, using HH:MM:SS format (for example, 12:33:28).

**NOW**

Specifies that you want to query volumes that were transitioned into their current state beginning with the current time on the specified begin date.

**NOW+***numhours:numminutes* **or +***numhours:numminutes*

Specifies that you want to query volumes that were transitioned into their current state ending with a time determined by the current time plus a specific number of hours (and, optionally, minutes) on the specified date.

**NOW-***numhours:numminutes* **or -***numhours:numminutes*

Specifies that you want to query volumes that were transitioned into their current state ending with a time determined by the current time minus a specific number of hours (and, optionally, minutes) on the specified date.

**COPYstgpool**=*poolname*

Specifies the name of the copy storage pool that is used to limit the selection of volumes for processing. This parameter is optional. You can use a pattern-matching expression to specify this name. All volumes associated with the matching storage pool are considered for processing. The copy storage pools specified with this parameter override the copy storage pools specified with the SET DRMCOPYSTGPOOL command. If you do not specify a copy storage pool name, all volumes in the specified state, except the MOUNTABLE state, are considered for processing. See SET DRMCOPYSTGPOOL command for processing the volumes in the MOUNTABLE state.

**DBBackup**=*dbvalue*

Specifies whether database backup volumes are included in the selection of volumes for processing. This parameter is optional. The default is to consider database backup volumes for processing. Possible values are:

**Yes**

Specifies to consider database backup volumes for processing.

**No**

Specifies to not consider database backup volumes for processing.

**Format**=*formatvalue*

Specifies how the information is displayed. This parameter is optional. The default value is STANDARD. Possible values are:

**Standard**

Specifies that partial information is displayed for the disaster recovery media.

**Detailed**

Specifies that complete information is displayed for the specified disaster recovery media.

**Cmd**

Specifies that executable commands are to be built for the disaster recovery media processed by the QUERY DRMEDIA command. The executable command syntax is specified with the CMD parameter and the commands built by QUERY DRMEDIA will be in the file specified by CMDFILENAME or in the file name specified by SET DRMCMDFILENAME if the file name is not specified with CMDFILENAME. If you want the commands to be displayed on the console only, specify " " for the CMDFILENAME. If a FORMAT=CMD is specified but no command string is specified with CMD parameter, the QUERY DRMEDIA command will not be performed.

**WHERELOcation**=*location*

Specifies the location of the volumes to be displayed. This parameter is optional. This parameter is used to restrict processing to volumes that are in the specified location. The maximum length of the location is 255 characters. The location must be enclosed in quotation marks if it contains any blank characters.

**CMd**=*"string substitution string substitution string"*

Specifies the creation of executable commands. This parameter is optional. You must enclose your command specification in quotation marks. The maximum length of the command specification is 255 characters. For each volume successfully processed by the QUERY DRMEDIA command, DRM writes one line to the file specified with CMDFILENAME or to the file specified by SET DRMCMDFILENAME if the file name is not specified with CMDFILENAME. If the length of the command written exceeds 255 characters, it is split into multiple lines and a continuation character, +, is added to all but the last line of the command. You may need to alter the continuation character according to the product rule that executes the commands.

If you do not specify CMD or specify " " for CMD, QUERY DRMEDIA will not generate any executable commands. If an executable command string is specified with the FORMAT other than CMD, the executable command string specification is ignored and QUERY DRMEDIA command will not write any executable command line.

**string**

Specifies the string to build an executable command to process the volume name and/or volume location obtained by the QUERY DRMEDIA command. You can specify any free form text for the string. Do not enclose the string in quotation marks even if it contains blanks. For example, the following is a valid executable command specification:

```
CMD="RMM CHANGEVOLUME &VOL"
```

The following is an invalid executable command specification:

```
CMD=""RMM CHANGEVOLUME" &VOL"
```

**substitution**

Specifies a substitution variable to tell QUERY DRMEDIA to substitute a value for the variable. The possible substitution variables are:

**&VOL**

Specifies &VOL to tell QUERY DRMEDIA to substitute &VOL with the volume name successfully processed.  You can specify the lowercase characters, &vol.  No spaces or blanks are allowed between the ampersand, &, and VOL.  If there are spaces or blanks between the ampersand and VOL, QUERY DRMEDIA will treat them as strings and no substitution will be set.  If &VOL is not specified, no volume name is set in the executable command.  If the volume name is to be placed within parentheses, specify the &VOL within the parentheses, for example, (&VOL).  QUERY DRMEDIA will substitute &VOL with the volume name within the parentheses.

**&LOC**

Specifies &LOC to tell QUERY DRMEDIA to substitute &LOC with the location of the volume successfully processed.  You can specify the lowercase characters, &loc.  No spaces or blanks are allowed between the ampersand, &, and LOC.  If there are spaces or blanks between the ampersand and LOC, QUERY DRMEDIA will treat them as strings and no substitution will be set.  If &LOC is not specified, no location name is set in the executable command.  If the location name is to be placed within parentheses, specify the &LOC within the parentheses, for example, (&LOC).  QUERY DRMEDIA will substitute &LOC with the location name within the parentheses.

If none of the string text is specified, QUERY DRMEDIA only writes the volume name, if &VOL is specified, or the location of the volume, if &LOC is specified, to the file.

**CMDFilename**=*filename*

Specifies the name of the file that will contain the commands specified with CMD parameter when FORMAT=CMD is specified.  This parameter is optional.  The maximum length of the file name is 44 characters.  You can specify any valid MVS file name.  If you do not specify any file name with CMDFILENAME, the file name specified with SET DRMCMDFILENAME will be used.  If you specify " " for the CMDFILENAME, the commands built are displayed on the console only.  If desired, you can redirect the commands displayed to a file by using > or >> provided by the MVS system.  QUERY DRMEDIA automatically allocates the file name specified as a physical sequential file if it has not been preallocated.  If you choose to preallocate the file, the file must be a physical sequential file.  If the file name exists, QUERY DRMEDIA will attempt to use it and the existing data, if any, in the file will be overwritten.  If the QUERY DRMEDIA command fails, the allocated file name is deleted.

## Examples

### Task 1

Display all volumes to be given to a courier for offsite storage.

**Command:** `Query DRMedia WHERESTate=NOTMOuntable Format=Standard`

**Output:**

```
Volume Name                       State          Last Update
                                                 Date/Time
-------------------------------   --------------  --------------------
TAPE01                            Not mountable   09/20/1995 14:25:22
DBTP01                            Not mountable   09/20/1995 14:25:22
DBTP03                            Not mountable   09/20/1995 14:31:53
```

where:

**Volume Name**
> Specifies the name of the database backup or copy storage pool volume.

**State**
> Specifies the state of the database backup or copy storage pool volume.

**Last Update Date/Time**
> Date and time that disaster recovery media information for this volume was modified.

### Task 2

Display in full detail all volumes located at the vault.

**Command:** `Query DRMedia WHERESTate=Vault Format=Detailed`

**Output:**

```
         Volume Name: DBTP02
               State: Vault
 Last Update Date/Time: 09/20/1995 13:29:02
            Location: Irnvault
         Volume Type: DBBackup
Copy Storage Pool Name:

         Volume Name: TAPE3S
               State: Vault
 Last Update Date/Time: 09/20/1995 13:29:02
            Location: Irnvault
         Volume Type: DBBackup
Copy Storage Pool Name:
```

where:

**Volume Name**
Specifies the name of the database backup or copy storage pool volume.

**State**
Specifies the state of the database backup or copy storage pool volume.

**Last Update Date/Time**
Date and time that disaster recovery media information for this volume was modified.

**Location**
Specifies where the database backup or copy storage pool volume is stored.

**Volume Type**
Specifies the type of volume.  Possible values are:

**DBBackup**
The volume is a database backup volume.

**CopyStgPool**
The volume is a copy storage pool volume.

**Copy Storage Pool Name**
Specifies the name of the copy storage pool where the volume is associated if the volume type is CopyStgPool.

**Task 3**

Generate a RMM CHANGEVOLUME command for each volume that was moved by the MOVE DRMEDIA command to an offsite location, Irnvault, 2 days ago, and put the generated commands in a file, DRM.QUERY.EXEC.CMDS.

**Note:**  It is assumed that a Vital Record Specification (VRS) has been defined with Removable Media Management (RMM) to move ADSM database backup and copy storage pool volumes from an automated library to an offsite location, Irnvault.

**Command:** `Query DRMedia * WHERELOCation=Irnvault Format=Cmd`
`             BEGINDate=TODAY-2 CMd="RMM CHANGEVOLUME &VOL LOCATION(&LOC)"`
`             CMDFilename=DRM.QUERY.EXEC.CMDS`

**Output:**    **File DRM.QUERY.EXEC.CMDS contains:**

```
RMM CHANGEVOLUME CSTP33 LOCATION(Irnvault)
RMM CHANGEVOLUME CSTP45 LOCATION(Irnvault)
RMM CHANGEVOLUME DBTP24 LOCATION(Irnvault)
RMM CHANGEVOLUME DBTP42 LOCATION(Irnvault)
```

# Related Commands

Figure 22 provides references to related commands.

| Figure 22. Commands Related to QUERY DRMEDIA | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| BACKUP DB | Backs up the ADSM database to sequential access volumes. | *ADSM Administrator's Reference*, SH26-4040 |
| BACKUP STGPOOL | Backs up a primary storage pool to a copy storage pool. | *ADSM Administrator's Reference*, SH26-4040 |
| MOVE DRMEDIA | Moves DRM media onsite and offsite. | Page 109 |
| SET DRMCMDFILENAME | Specifies a file name to contain the executable commands. | Page 148 |
| SET DRMCOPYSTGPOOL | Specifies that copy storage pools are managed by DRM. | Page 150 |
| SET DRMDBBACKUPEXPIREDAYS | Specifies criteria for database backup series expiration. | Page 154 |
| SET DRMFILEPROCESS | Specifies whether the MOVE DRMEDIA command processes files associated with a device type of file. | Page 156 |

## QUERY DRMSTATUS (Query DRM System Parameters)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the QUERY DRMSTATUS command to display information about the system parameters defined for the Disaster Recovery Manager (DRM) feature, such as those defined by the SET commands.

## Privilege Class

Any administrator can issue this command.

## Syntax

```
►►──Query DRMSTatus────────────────────────────────────────────────►◄
```

## Parameters

No parameters are available.  The QUERY DRMSTATUS command does not allow format=detailed.

## Examples

**Task**

Display information about the DRM system parameters.

**Command:** Query DRMSTatus

**Output:**

```
          Recovery Plan Prefix: ADSM.SERVER.RECVPLAN
      Plan Instructions Prefix: ADSM.SERVER.RECOVERY
     Replacement Volume Postfix: @
          Primary Storage Pools: PRIM1 PRIM2
            Copy Storage Pools: COPY*
     Not Mountable Location name: Local
                  Courier Name: HsiaoVan
                Vault Site Name: Irnvault
DB Backup Series expiration days: 30 Day(s)
        Process FILE Device Type?: No
              Command File Name: ADSM.DRM.ORM.EXEC.CMDS
```

where:

**Recovery Plan Prefix**
> User-specified prefix portion of the file name for the generated recovery plan file.

**Plan Instructions Prefix**
> User-specified prefix portion of the file names for the ADSM server recovery instructions files.

**Replacement Volume Postfix**
Specifies the character added to the end of the replacement volume names in the recovery plan file.

**Primary Storage Pools**
Specifies the primary storage pools that are eligible for processing by the PREPARE command. If this field is blank, all primary storage pools defined to the ADSM server are eligible for processing.

**Copy Storage Pools**
Specifies the copy storage pools that are eligible for processing by the MOVE DRMEDIA, PREPARE, and QUERY DRMEDIA commands. If this field is blank, all copy storage pools defined to the ADSM server are eligible for processing.

**Not Mountable Location Name**
Specifies the name of the location where the media to be shipped offsite is stored.

**Courier Name**
Specifies the name of the courier used to carry the media to the vault.

**Vault Site Name**
Specifies the name of the vault where the media is stored.

**DB Backup Series Expiration Days**
Specifies the minimum number of days that must elapse since a database series has been created before it is eligible to be expired by the MOVE DRMEDIA command.

**Process FILE Device Type?**
Specifies whether MOVE DRMEDIA or QUERY DRMEDIA commands will process volumes associated with a device class with a FILE device type. Possible values are:

**Yes**
Specifies that MOVE DRMEDIA and QUERY DRMEDIA commands will process database backup and copy storage pool volumes that are associated with a device class with a FILE device type.

**No**
Specifies that MOVE DRMEDIA and QUERY DRMEDIA commands will not process database backup and copy storage pool volumes that are associated with a device class with a FILE device type.

**Command File Name**
Specifies the name of the file that contains the executable commands generated by the MOVE DRMEDIA or QUERY DRMEDIA command.

## Related Commands

Figure 23 provides references to related commands.

| Command | Description | Reference |
|---|---|---|
| SET DRMCMDFILENAME | Specifies a file name to contain the executable commands. | Page 148 |
| SET DRMCOPYSTGPOOL | Specifies that copy storage pools are managed by DRM. | Page 150 |
| SET DRMCOURIERNAME | Specifies the name of the courier for the disaster recovery media. | Page 152 |
| SET DRMDBBACKUPEXPIREDAYS | Specifies criteria for database backup series expiration. | Page 154 |
| SET DRMFILEPROCESS | Specifies whether the MOVE DRMEDIA command processes files associated with a device type of file. | Page 156 |
| SET DRMINSTRPREFIX | Specifies the prefix portion of the path name for the recovery plan instructions. | Page 158 |
| SET DRMNOTMOUNTABLENAME | Specifies the not mountable location name. | Page 160 |
| SET DRMPLANPREFIX | Specifies the prefix portion of the path name for the recovery plan. | Page 162 |
| SET DRMPLANVPOSTFIX | Specifies the replacement volume names in the recovery plan file. | Page 164 |
| SET DRMPRIMSTGPOOL | Specifies that primary storage pools are managed by DRM. | Page 166 |
| SET DRMVAULTNAME | Specifies the name of the vault where DRM media is stored. | Page 168 |

Figure 23. Commands Related to QUERY DRMSTATUS

## QUERY MACHINE (Query Machine Information)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the QUERY MACHINE command to display information for one or more machines. This command can be used to display the following information:

- All machines defined to the ADSM database

- A specific machine

- Recovery instructions for a specific machine

- Machine characteristics for a specific machine

- All machines matching the specified selection criteria. The parameters machinename (using pattern-matching expressions), BUILDING, FLOOR, ROOM, PRIORITY, and ADSMSERVER can be used to restrict the selection of machines. A machine must meet all the specified selection criteria before it is displayed.
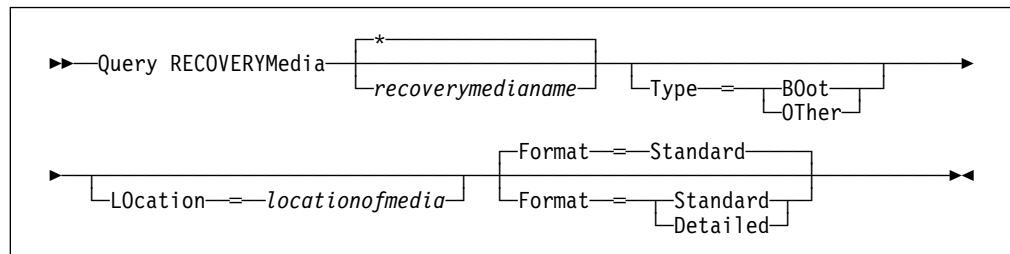
When displaying multiple machines, the order for displaying the machine information is the following:

- Priority order.

- Within a given priority, machines are sorted based on location (that is, building, floor, and room), and machine name.

The ADSM server database is used to store machine information for you. The QUERY MACHINE command is provided to retrieve the information should you need to reference it in the case of a disaster. The information provided by this command is NOT used by the server in any way to coordinate disaster recovery or to manage the server under normal operation. The information provided in this command is solely determined by you in planning for client machine disaster recovery.

### Privilege Class

Any administrator can issue this command.

### Syntax

```
►►──Query MAchine──┬─────────────*──────────┬──┬──────────────────────────┬──►
                   └──machinename──┘         └─BUilding──=──building─┘

►──┬──────────────────┬──┬────────────────┬──┬──────────────────────┬──►
   └─FLoor──=──floor─┘   └─ROom──=──room─┘    └─PRIority──=──priority─┘

                                    ┌──Format──=──Standard──────┐
►──┬────────────────────────┬──┬───────────────────────────────┬──►◄
   └─ADSMServer──=──┬─Yes─┬─┘    └─Format──=──┬─Standard─────────┬─┘
                    └─No──┘                   ├─Detailed─────────┤
                                              ├─RECOVERYInstructions─┤
                                              └─CHaracteristics──┘
```
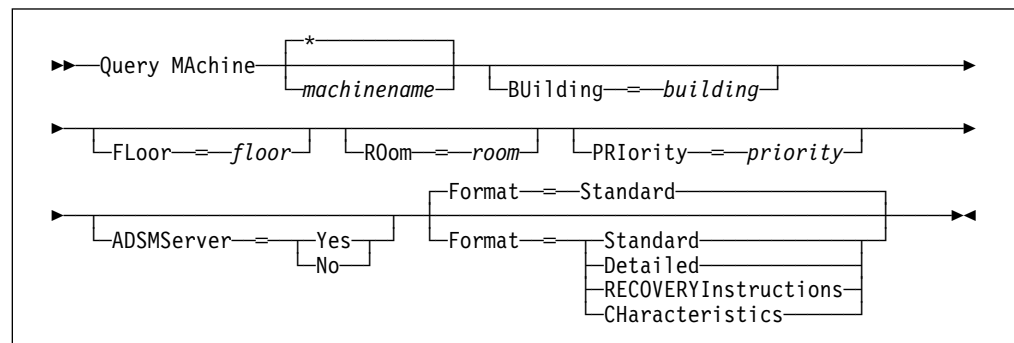
# Parameters

*machinename*

Specifies the name of the machine to be queried. This parameter is optional. You can use a pattern-matching expression to specify this name. All matching machines are queried. If you do not specify this parameter, all machines are queried. Note that the BUILDING, FLOOR, ROOM, PRIORITY, and ADSMSERVER parameters can be used to restrict the machine output.

**BUilding**=*building*

Specifies the building name or number associated with machines to be queried. This parameter is optional. You can enter a building name or a building number. The default is no building name or number.

**FLoor**=*floor*

Specifies the floor name or number associated with machines to be queried. This parameter is optional. You can enter a floor name or a floor number. The default is no floor name or number.

**ROom**=*room*

Specifies the room name or number associated with machines to be queried. This parameter is optional. You can enter a room name or a room number. The default is no room name or number.

**PRIority**=*priority*

Specifies the priority associated with machines to be queried. This parameter is optional. The default is no priority.

**ADSMServer**=*adsmservervalue*

Specifies whether this machine contains an ADSM server. This parameter is optional. The default is to display machines with and without an ADSM server. Possible values are:

**Yes**

Specifies to query the machine definition containing the ADSM server.

**No**

Specifies to query the machine definitions that do not contain an ADSM server.

**Format**=*formatvalue*

Specifies how the information is displayed. This parameter is optional. The default value is STANDARD. Possible values are:

**Standard**

Specifies that partial information is displayed for the specified machine.

**Detailed**

Specifies that complete information is displayed for the specified machine.

**RECOVERYInstructions**

Specifies that machine recovery instructions are displayed for the specified machine. This option is only supported when querying a specific machine.

**CHaracteristics**
Specifies that machine characteristics are displayed for the specified machine. This option is only supported when querying a specific machine.

# Examples

**Task 1**

Display information for a specific machine named MACH1.

**Command:** `Query MAchine MACH1`

**Output:**

```
Machine  Machine  Building Floor Room  Node Name  Recovery
Name     Priority                                 Media Name
-------  -------- -------- ----- ----- ---------  ----------
MACH1       1        21      2    2929  VIRGINIA   RECMED1
```

where:

**Machine Name**
Specifies the name of the machine.

**Machine Priority**
Specifies the recovery priority of the machine.

**Building**
Specifies the building in which the machine is located.

**Floor**
Specifies the floor on which the machine is located.

**Room**
Specifies the room in which the machine is located.

**Node Name**
Specifies the ADSM client nodes that are associated with this machine.

**Recovery Media Name**
Specifies the recovery media that are associated with this machine.

**Task 2**

Display information for all priority 1 machines residing on the second floor of
building 21.

**Command:** `Query MAchine * BUilding=21 FLoor=2 PRIority=1 Format=Detailed`

**Output:**

```
                       Machine Name: MACH1
                   Machine Priority: 1
                           Building: 21
                              Floor: 2
                               Room: 2929
                       ADSM Server?: Yes
                        Description: ADSM server machine
                          Node Name: VIRGINIA
                Recovery Media Name: RECMED1
                    Characteristics?: Yes
              Recovery Instructions?: Yes
```

where:

**Machine Name**
    Specifies the name of the machine.

**Machine Priority**
    Specifies the recovery priority of the machine.

**Building**
    Specifies the building in which the machine is located.

**Floor**
    Specifies the floor on which the machine is located.

**Room**
    Specifies the room in which the machine is located.

**ADSM Server?**
    Specifies whether the machine contains an ADSM server. Possible values
    are:

    **Yes**
        Specifies that this machine contains the ADSM server.

    **No**
        Specifies that this machine does not contain the ADSM server.

**Description**
    Specifies any description information for the machine.

**Node Name**
    Specifies the ADSM client nodes that are associated with this machine.

**Recovery Media Name**
    Specifies the recovery media that are associated with this machine.

**Characteristics?**
> Specifies whether characteristics text for a machine is stored in the ADSM database. Possible values are:

> **Yes**
>> Specifies that characteristics text for this machine is stored in the ADSM database.

> **No**
>> Specifies that characteristics text for this machine is not stored in the ADSM database.

**Recovery Instructions?**
> Specifies whether recovery instructions text for a machine is stored in the ADSM database. Possible values are:

> **Yes**
>> Specifies that recovery instructions text for this machine is stored in the ADSM database.

> **No**
>> Specifies that recovery instructions text for this machine is not stored in the ADSM database.

# Related Commands

Figure 24 provides references to related commands.

| *Figure 24. Commands Related to QUERY MACHINE* | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| DEFINE MACHINE | Defines a machine for DRM. | Page 90 |
| DEFINE MACHNODEASSOCIATION | Associates an ADSM node with a machine. | Page 93 |
| DEFINE RECMEDMACHASSOCIATION | Associates recovery media with a machine. | Page 95 |
| DELETE MACHINE | Deletes an existing machine. | Page 100 |
| INSERT MACHINE | Inserts machine characteristics into the ADSM database. | Page 107 |
| UPDATE MACHINE | Changes the information of an existing machine. | Page 170 |

## QUERY RECOVERYMEDIA (Query Recovery Media)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the QUERY RECOVERYMEDIA command to display the media (for example, boot media) needed for recovering a machine. This command can be used to display:

- All recovery media defined to the ADSM database

- Specific recovery media

- All recovery media matching the specified selection criteria. The parameters *recoverymedianame* (using pattern-matching expressions), TYPE, LOCATION can be used to restrict the selection of recovery media. A recovery media must meet all the specified selection criteria before it is displayed.

When displaying multiple recovery media, the display is in alphabetical order according to the recovery media name.

The ADSM server database is used to store recovery media information for you. The QUERY RECOVERYMEDIA command is provided to retrieve the information should you need to reference it in the case of a disaster. The information provided by this command is NOT used by the server in any way to coordinate disaster recovery or to manage the server under normal operation. The information provided in this command is solely determined by you in planning for client machine disaster recovery.

## Privilege Class

Any administrator can issue this command.

## Syntax

```
>>──Query RECOVERYMedia─┬──────────────────┬─┬────────────────────┬──>
                        │        ┌─*─┐      │ │ └─Type──=─┬─BOot─┐ │
                        └─recoverymedianame─┘ │           └─OTher┘ │

   ┌──────────────────────────────┐ ┌─Format───=───Standard────┐
>──┴─LOcation──=──locationofmedia─┴─┼──────────────────────────┼──><
                                    └─Format──=─┬─Standard─┐    │
                                                └─Detailed─┘
```

## Parameters

*recoverymedianame*
: Specifies the name of the recovery media to be queried. This parameter is optional. You can use a pattern-matching expression to specify this name. All matching recovery media are queried. If you do not specify this parameter, all recovery media are queried.

**Type**=*typevalue*
: Specifies the type of media to be queried. This parameter is optional. The default is no type. Possible values are:

**BOot**
> Specifies that recovery media of type boot are queried.

**OTher**
> Specifies that recovery media of type other are queried.

**LOcation**=*locationofmedia*
> Specifies the location of the recovery media to be queried, for example, "Building=021 Floor=02 Room=2846 Cabinet=1A0".  This parameter is optional.  The maximum length of the location is 255 characters.  The location description must be enclosed in quotation marks if it contains any blank characters.  The location information is case sensitive.  The default is no location.

**Format**=*formatvalue*
> Specifies how the information is displayed.  This parameter is optional.  The default value is STANDARD.  Possible values are:

**Standard**
> Specifies that partial information is displayed for the specified recovery media.

**Detailed**
> Specifies that complete information is displayed for the specified recovery media.

# Examples

**Task 1**

Display information for the recovery media named RECMED1.

**Command:** `Query RECOVERYMedia RECMED1`

**Output:**

```
Recovery Media Name   Volume Names      Location          Machine Name
-------------------   ---------------   ----------------  ------------
RECMED1               vol1 vol2 vol3    IRNVAULT          MACH1
                        vol4
```

where:

**Recovery Media Name**
> Specifies the name of the recovery media.

**Volume Names**
> Specifies the set of volumes that contain the recoverable data needed at recovery time for machines associated with this recovery media.

**Location**
> Specifies where the recovery media is stored.

**Machine Name**
> Specifies the machines that are associated with this recovery media.

**Task 2**

Display detailed information for the recovery media named RECMED1.

**Command:** `Query RECOVERYMedia RECMED1 Format=Detailed`

**Output:**

```
Recovery Media Name: RECMED1
              Type: Boot
      Volume Names: vol1 vol2 vol3 vol4
          Location: Irnvault
       Description:
           Product:
Product Information:
      Machine Name: MACH1
```

where:

**Recovery Media Name**
> Specifies the name of the recovery media.

**Type**
> Specifies whether the recovery media is boot media or another type of media. Possible values are:

> **Boot**
>> Specifies that the recovery media is boot media.

> **Other**
>> Specifies that the recovery media is not boot media.

**Volume Names**
> Specifies the set of volumes that contain the recoverable data needed at recovery time for machines associated with this recovery media.

**Location**
> Specifies where the recovery media is stored.

**Description**
> Specifies any description information for the recovery media.

**Product**
> Specifies the product used to create the boot media.

**Product Information**
> Specifies information about the product that created the boot media. This information may be needed for restoring the machine.

**Machine Name**
> Specifies the machines that are associated with this recovery media.

# Related Commands

Figure 25 provides references to related commands.

| Command | Description | Reference |
|---|---|---|
| DEFINE RECMEDMACHASSOCIATION | Associates recovery media with a machine. | Page 95 |
| DEFINE RECOVERYMEDIA | Defines the media required to recover a machine. | Page 97 |
| DELETE RECOVERYMEDIA | Deletes existing recovery media. | Page 106 |
| UPDATE RECOVERYMEDIA | Changes the attributes of existing recovery media. | Page 172 |

*Figure 25. Commands Related to QUERY RECOVERYMEDIA*

## SET DRMCMDFILENAME (Specify a File Name for the Executable Commands)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the SET DRMCMDFILENAME command to specify a file name that will contain the commands specified with the CMD parameter on the MOVE DRMEDIA or QUERY DRMEDIA FORMAT=CMD command. This file name is used when the MOVE DRMEDIA CMD and QUERY DRMEDIA FORMAT=CMD command is issued without specifying the CMDFILENAME parameter.

Use the SET DRMCMDFILENAME command to specify the default file name to be used by the MOVE DRMEDIA or QUERY DRMEDIA command.

At installation, this file name is set to ADSM.DRM.EXEC.CMDS. After installation, this command can be used to modify the name of the file.

You can use the QUERY DRMSTATUS command to display the current file name for containing the executable commands.

### Privilege Class

To issue this command, you must have system privilege.

### Syntax

```
►►──Set DRMCMDFilename──filename────────────────────────────────►◄
```

### Parameters

*filename*

Specifies a file name for containing the executable commands built by the MOVE DRMEDIA or QUERY DRMEDIA command. This parameter is required. The maximum length of the file name is 44 characters. You can specify any valid MVS file name.

This file name is used when the MOVE DRMEDIA CMD or QUERY DRMEDIA FORMAT=CMD command is issued without the CMDFILENAME parameter. MOVE DRMEDIA or QUERY DRMEDIA automatically allocates this file name as a physical sequential file if it has not been preallocated. If you choose to preallocate the file, it must be a physical sequential file. If the file name exists and contains any data, MOVE DRMEDIA or QUERY DRMEDIA command will attempt to use it and the existing data will be overwritten.

## Examples

**Task**

Specify to store the generated executable commands in a file
ADSM.DRM.ORM.EXEC.CMDS.

**Command:** `Set DRMCMDFilename ADSM.DRM.ORM.EXEC.CMDS`

**Output:**

```
ANR6700I SET DRMCMDFILENAME command completed successfully.
```

## Related Commands

Figure 26 provides references to related commands.

| Figure 26. Commands Related to SET DRMCMDFILENAME | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| MOVE DRMEDIA | Moves DRM media onsite and offsite. | Page 109 |
| QUERY DRMEDIA | Displays information about disaster recovery volumes. | Page 127 |
| QUERY DRMSTATUS | Displays DRM system parameters. | Page 136 |

## SET DRMCOPYSTGPOOL (Specify the Copy Storage Pools to be Managed by DRM)

Use the SET DRMCOPYSTGPOOL command to specify a list of copy storage pool names.

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

The PREPARE command processes this list of copy storage pools when the COPYSTGPOOL parameter is not specified with the PREPARE command. The list should contain the copy storage pools that are used when backing up the primary storage pools that are specified by either the SET DRMPRIMSTGPOOL command or the PRIMSTGPOOL parameter of the PREPARE command. For additional information, see the PREPARE and the SET DRMPRIMSTGPOOL commands.

The MOVE DRMEDIA or QUERY DRMEDIA command processes the volumes in the MOUNTABLE state that are associated with this list of copy storage pool names when the COPYSTGPOOL parameter is not specified with the MOVE DRMEDIA or QUERY DRMEDIA command.

At installation, all copy storage pools defined to the server are eligible for DRM processing. Also, if a copy storage pool list has not been specified by the SET DRMCOPYSTGPOOL command or the null (" ") string was specified with the SET DRMCOPYSTGPOOL command to remove previously defined copy storage pool names, all copy storage pools defined to the ADSM server are eligible for DRM processing.

You can issue the QUERY DRMSTATUS command to display the current settings.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──Set DRMCOPYstgpool──┬─▼──────────────,─────────┬──────────────────►◄
                        └──copystgpoolname─────────┘
```

## Parameters

*copystgpoolname*
  Specifies a list of copy storage pool names. This parameter is required. Separate each storage pool name with a comma and no intervening spaces. You can use a pattern-matching expression for each storage pool name.

  Note that the copy storage pool names specified are a complete replacement of the previous setting.

## Examples

**Task**

Set the copy storage pool to be managed by DRM to copystgpool1.

**Command:** Set DRMCOPYstgpool copystgpool1

**Output:**

```
ANR6700I SET DRMCOPYSTGPOOL command completed successfully.
```

## Related Commands

Figure 27 provides references to related commands.

| Figure 27. Commands Related to SET DRMCOPYSTGPOOL | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| MOVE DRMEDIA | Moves DRM media onsite and offsite. | Page 109 |
| PREPARE | Creates a recovery plan file | Page 122 |
| QUERY DRMEDIA | Displays information about disaster recovery volumes. | Page 127 |
| QUERY DRMSTATUS | Displays DRM system parameters. | Page 136 |

# SET DRMCOURIERNAME (Specify the Courier Name)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the SET DRMCOURIERNAME command to specify the courier name. At installation, the name of the courier is set to COURIER. After installation, this command can be used to modify the name of the courier.

You can use the QUERY DRMSTATUS to see the name of the courier.

The courier name is used by the MOVE DRMEDIA command to set the location of volumes that are transitioning to the COURIER state.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──Set DRMCOUriername──couriername────────────────────────────►◄
```

## Parameters

*couriername*
Specifies the name of the courier. This parameter is required. The maximum length of the courier name is 255. The courier name must be enclosed in quotation marks if it contains any blank characters.

## Examples

**Task**

Set the name of the courier to HsiaoVan.

**Command:** `Set DRMCOUriername HsiaoVan`

**Output:**

```
ANR6700I SET DRMCOURIERNAME command completed successfully.
```

## Related Commands

Figure 28 provides references to related commands.

| Figure 28. Commands Related to SET DRMCOURIERNAME | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| MOVE DRMEDIA | Moves DRM media onsite and offsite. | Page 109 |
| QUERY DRMEDIA | Displays information about disaster recovery volumes. | Page 127 |
| QUERY DRMSTATUS | Displays DRM system parameters. | Page 136 |

## SET DRMDBBACKUPEXPIREDAYS (Specify Criteria for Database Backup Series Expiration)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the SET DRMDBBACKUPEXPIREDAYS command to specify the number of days before expiration is used to expire a database series. To ensure that the database can be restored to an earlier level and database references to files in the storage pool are still valid, the number of days specified by this command and the number of days specified by the REUSEDELAY parameter in the copy storage pool definitions should be the same for the copy storage pools managed by DRM.

A database backup volume is considered eligible for expiration if all of the following conditions exist:

- The last volume of the series has exceeded the expiration value specified with the SET DRMDBBACKUPEXPIREDAYS command. The expiration value specifies the number of days that must elapse since the volume has been used by database backup.

- The volume's state is at the vault.

- The volume is not part of the most recent series. (DRM will not expire the most recent database backup series.)

At installation, the number of days before database backup series expiration is set to 60. After installation, this command can be used to modify the number of days that must elapse before a database backup series is expired.

You can use the QUERY DRMSTATUS to see the value of the number of days before database backup series expiration.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──Set DRMDBBackupexpiredays──numberofdaysbeforeexpiration───────────►◄
```

## Parameters

*numberofdaysbeforeexpiration*
    Specifies the minimum number of days that must elapse since a database series was created before it is eligible to be expired by the MOVE DRMEDIA command. Only database backup volumes that are at the vault are expired with the MOVE DRMEDIA command. This parameter is required. You can specify an integer in the range of 0 to 9999.

## Examples

**Task**

Set the database backup series expiration value to 60.

**Command:** `Set DRMDBBackupexpiredays 60`

**Output:**

```
ANR6700I SET DRMDBBACKUPEXPIREDAYS command
completed successfully.
```

## Related Commands

Figure 29 provides references to related commands.

| *Figure 29. Commands Related to SET DRMDBBACKUPEXPIREDAYS* | | |
| --- | --- | --- |
| **Command** | **Description** | **Reference** |
| DSMSERV RESTORE DB | Restores an ADSM database or database volume. | *ADSM Administrator's Reference*, SH26-4040 |
| MOVE DRMEDIA | Moves DRM media onsite and offsite. | Page 109 |
| QUERY DRMEDIA | Displays information about disaster recovery volumes. | Page 127 |
| QUERY DRMSTATUS | Displays DRM system parameters. | Page 136 |
| QUERY VOLHISTORY | Displays sequential volume history information that has been collected by the server. | *ADSM Administrator's Reference*, SH26-4040 |

## SET DRMFILEPROCESS (Specify File Processing)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the SET DRMFILEPROCESS command to specify whether the MOVE DRMEDIA or QUERY DRMEDIA commands should process database backup volumes and copy storage pool volumes that are associated with a device class with DEVTYPE=FILE. At installation, the value of the DRMFILEPROCESS is set to No. After installation, this command can be used to modify the value.

You can use the QUERY DRMSTATUS to determine whether the MOVE DRMEDIA or QUERY DRMEDIA commands will process volumes associated with a device class with DEVTYPE=FILE.

### Privilege Class

To issue this command, you must have system privilege.

### Syntax

```
                              ┌─No──┐
►►──Set DRMFILEProcess──┼─────┼──────────────────────►◄
                              ├─No──┤
                              └─Yes─┘
```
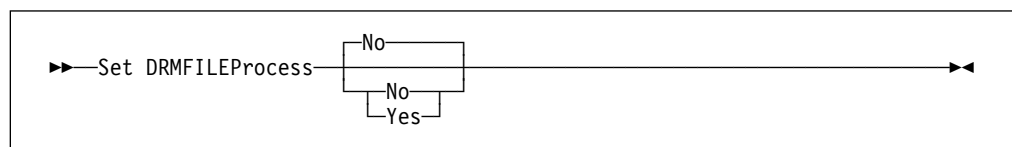
### Parameters

**No**

Specifies that the MOVE DRMEDIA and QUERY DRMEDIA commands should not process database backup and copy storage pool volumes that are associated with a device class with DEVTYPE=FILE.

**Yes**

Specifies that the MOVE DRMEDIA and QUERY DRMEDIA commands should process database backup and copy storage pool volumes that are associated with a device class with DEVTYPE=FILE.

### Examples

**Task**

Set the file processing value to no.

**Command:** `Set DRMFILEProcess No`

**Output:**

```
ANR6700I SET DRMFILEPROCESS command completed successfully.
```

# Related Commands

Figure 30 provides references to related commands.

| *Figure 30. Commands Related to SET DRMFILEPROCESS* | | |
| --- | --- | --- |
| **Command** | **Description** | **Reference** |
| MOVE DRMEDIA | Moves DRM media onsite and offsite. | Page 109 |
| QUERY DRMEDIA | Displays information about disaster recovery volumes. | Page 127 |
| QUERY DRMSTATUS | Displays DRM system parameters. | Page 136 |

# SET DRMINSTRPREFIX (Specify the Prefix for Recovery Instructions Filenames)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the SET DRMINSTRPREFIX to specify the prefix that the PREPARE command uses to locate the file containing the recovery instructions. This prefix is used when the PREPARE command is issued without the INSTRPREFIX parameter.

Use the SET DRMINSTRPREFIX to specify the default file prefix to be used by PREPARE command.

At installation, the prefix is set to ADSM.SERVER.PLAN. After installation, this command can be used to modify the prefix.

You can use the QUERY DRMSTATUS command to display the current prefix for the recovery instructions files.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──Set DRMINSTRPrefix──prefix──────────────────────────────────────►◄
```

## Parameters

*prefix*

Specifies the high-level qualifier of the file names used by the PREPARE command to locate the files containing the recovery instructions. This parameter is required. The maximum length of the prefix is 18 characters. This prefix is used when the PREPARE command is issued without the INSTRPREFIX parameter.

These site-specific recovery instructions files are physical sequential files and can include:

- General ADSM server recovery instructions. To find the file containing these instructions, the PREPARE command appends to the instruction prefix the string *INSTR.GENERAL*.

- Offsite ADSM server tapes instructions. To find the file containing these instructions, the PREPARE command appends to the instruction prefix the string *INSTR.OFFSITE*.

- ADSM server software install instructions. To find the file containing these instructions, the PREPARE command appends to the instruction prefix the string *INSTR.INSTALL*.

  • ADSM server database recovery instructions.  To find the file containing
    these instructions, the PREPARE command appends to the instruction
    prefix the string *INSTR.DATABASE*.

  • ADSM server primary storage pool recovery instructions.  To find the file
    containing these instructions, The PREPARE command appends to the
    instruction prefix the string *INSTR.STGPOOL*.

You can specify any valid MVS file qualifier.  For example, a PREPARE
command is issued without the INSTRPREFIX parameter and the SET
DRMINSTRPREFIX command is set to the following:

```
ADSMSRV.RECINSTR
```

The PREPARE command obtains the recovery instructions from the following
files:

```
ADSMSRV.RECINSTR.INSTR.GENERAL
ADSMSRV.RECINSTR.INSTR.OFFSITE
ADSMSRV.RECINSTR.INSTR.INSTALL
ADSMSRV.RECINSTR.INSTR.DATABASE
ADSMSRV.RECINSTR.INSTR.STGPOOL
```

# Examples

### Task

Specify reading the recovery plan instructions from files having high-level qualifier
DRMPLAN.RECOVERY

**Command:** `Set DRMINSTRPrefix DRMPLAN.RECOVERY`

**Output:**

```
ANR6700I SET DRMINSTRPREFIX command completed successfully.
```

# Related Commands

Figure 31 provides references to related commands.

| Figure 31. Commands Related to SET DRMINSTRPREFIX | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| PREPARE | Creates a recovery plan file | Page 122 |
| QUERY DRMSTATUS | Displays DRM system parameters. | Page 136 |

## SET DRMNOTMOUNTABLENAME (Specify the Not Mountable Location Name)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the SET DRMNOTMOUNTABLENAME command to specify the location name for storing the media that are to be sent to offsite location.  At installation, the name of the location is set to NOTMOUNTABLE.  After installation, this command can be used to modify the name of the location.

You can use the QUERY DRMSTATUS to see the name of the location.

The location name is used by the MOVE DRMEDIA command to set the location of volumes that are transitioning to the NOTMOUNTABLE state.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──Set DRMNOTMOuntablename──locationname────────────────────────►◄
```

## Parameters

*notmountablename*
> Specifies the name of the location for storing the media to be sent to offsite location.  This parameter is required.  The maximum length of the location name is 255.  The location name must be enclosed in quotation marks if it contains any blank characters.

## Examples

**Task**

Set the name of the location to rm123/31.

**Command:** `Set DRMNOTMOuntablename rm123/31`

**Output:**

```
ANR6700I SET DRMNOTMOUNTABLENAME command completed successfully.
```

# Related Commands

Figure 32 provides references to related commands.

| *Figure 32. Commands Related to SET DRMNOTMOUNTABLENAME* | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| MOVE DRMEDIA | Moves DRM media onsite and offsite. | Page 109 |
| QUERY DRMEDIA | Displays information about disaster recovery volumes. | Page 127 |
| QUERY DRMSTATUS | Displays DRM system parameters. | Page 136 |

# SET DRMPLANPREFIX (Specify a Prefix for Recovery Plan File Names)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

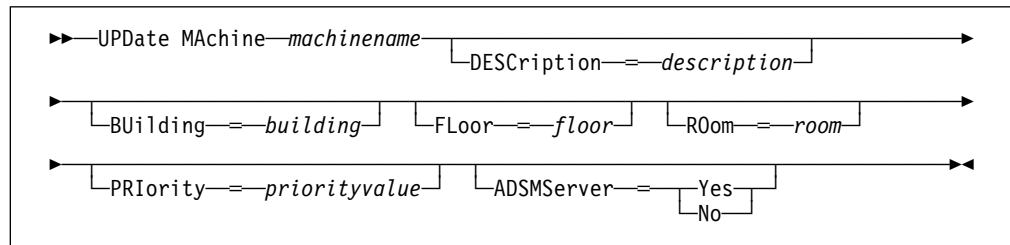Use the SET DRMPLANPREFIX command to specify the prefix for a recovery plan filename. This prefix is used when the PREPARE command is issued without the PLANPREFIX parameter.

Use the SET DRMPLANPREFIX to specify the default prefix to be used by the PREPARE command to generate the recovery plan filename.

At installation, the prefix is set to ADSM.SERVER.PLAN. After installation, this command can be used to modify the prefix.

You can use the QUERY DRMSTATUS command to display the current value for the recovery plan prefix.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──Set DRMPLANPrefix──prefix───────────────────────────────►◄
```

## Parameters

*prefix*

Specifies the high-level qualifier to be used to generate a recovery plan filename. This parameter is required. The maximum length of the prefix is 18 characters.

This prefix is used when the PREPARE command is issued without the PLANPREFIX parameter. During PREPARE processing, to build a unique recovery plan filename, the sortable Julian date and time format Jyyyyddd.Thhmmss (for example, J1995115.T051421) is appended to the prefix.

PREPARE will allocate the generated file as a physical sequential file.

For the prefix, you can specify any valid MVS file qualifier. For example, a PREPARE command is issued without the PLANPREFIX parameter and the SET DRMPLANPREFIX is set to the following:

    ADSMSRV.RECPLANS

The resulting recovery plan filename is the following:

    ADSMSRV.RECPLANS.J1995115.T051421

## Examples

**Task**

Specify to store the generated recovery plan files using high-level qualifier DRMPLAN.PRIMSRV.

**Command:** `Set DRMPLANPrefix DRMPLAN.PRIMSRV`

**Output:**

```
ANR6700I SET DRMPLANPREFIX command completed successfully.
```

## Related Commands

Figure 33 provides references to related commands.

| Figure 33. Commands Related to SET DRMPLANPREFIX | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| PREPARE | Creates a recovery plan file | Page 122 |
| QUERY DRMSTATUS | Displays DRM system parameters. | Page 136 |

# SET DRMPLANVPOSTFIX (Specify Replacement Volume Names)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the SET DRMPLANVPOSTFIX command to specify the character to be added to the end of the replacement volumes names in the recovery plan file. The DRMPLANVPOSTFIX can be used for two alternative purposes:

1. Make it easy to find the replacement primary storage pool volume names in the recovery plan stanzas so that you can change them to the desired names by using an editor.

2. Automatically generate the replacement volume names. To use this strategy, you need to devise a volume-naming strategy that works for any device type in your primary storage pools. Considerations include:

   - Generated length of the replacement volume name

   - Legal characters in the replacement volume name

   - Conflicts with existing volume names

   - Each replacement volume name must be unique (that is, different from any other destroyed, existing, or new volume name)

At installation, the character is set to @. After installation, this command can be used to change the character.

You can use the QUERY DRMSTATUS to see the character added to the end of the replacement volume names.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──Set DRMPLANVpostfix──postfixcharacter───────────────────────►◄
```

## Parameters

*postfixcharacter*
> Specifies the character added to the end of the replacement volume names in the recovery plan file. This parameter is required. You can specify one alphanumeric character or special character (examples of special characters are @, &, or +)

## Examples

**Task**

Set the character appended to the replace volume names to R.

**Command:** `Set DRMPLANVpostfix R`

**Output:**

```
ANR6700I SET DRMPLANVPOSTFIX command completed successfully.
```

## Related Commands

Figure 34 provides references to related commands.

| *Figure 34. Commands Related to SET DRMPLANVPOSTFIX* | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| PREPARE | Creates a recovery plan file | Page 122 |
| QUERY DRMSTATUS | Displays DRM system parameters. | Page 136 |

# SET DRMPRIMSTGPOOL (Specify the Primary Storage Pools to be Managed by DRM)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

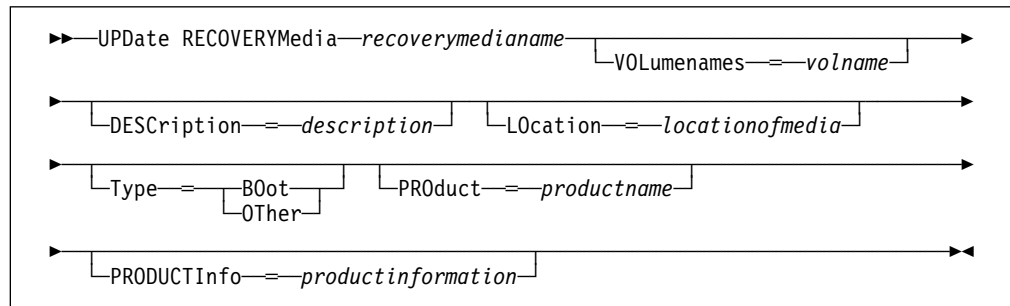Use the SET DRMPRIMSTGPOOL command to specify the list of primary storage pool names that you want to recover. The PREPARE command processes this list of primary storage pools when the PRIMSTGPOOL parameter is not specified with the PREPARE command. For additional information, see the PREPARE command.

At installation, all primary storage pools defined to the server are eligible for DRM processing. Also, if a primary storage pool list has not been specified by the SET DRMPRIMSTGPOOL command or the null (" ") string was specified with the SET DRMPRIMSTGPOOL command to remove previously defined primary storage pool names, all primary storage pools defined to the ADSM server are eligible for processing.

You can issue the QUERY DRMSTATUS command to display the current settings.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──Set DRMPRIMstgpool──┬──►──primstgpoolname──┬──────────────────────►◄
                        └──────────,──────────┘
```

## Parameters

*primstgpoolname*
Specifies a list of primary storage pool names. This parameter is required. This list should contain the primary storage pools you want to recover. Separate each storage pool name with a comma and no intervening spaces. You can use a pattern-matching expression for each storage pool name.

Note that the primary storage pool names specified are a complete replacement of the previous setting.

## Examples

**Task**

Set the primary storage pool to be managed by DRM to primstgpool1.

**Command:** `Set DRMPRIMstgpool primstgpool1`

**Output:**

```
ANR6700I SET DRMPRIMSTGPOOL command completed successfully.
```

# Related Commands

Figure 35 provides references to related commands.

| *Figure 35. Commands Related to SET DRMPRIMSTGPOOL* | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| PREPARE | Creates a recovery plan file | Page 122 |
| QUERY DRMSTATUS | Displays DRM system parameters. | Page 136 |
| SET DRMCOPYSTGPOOL | Specifies that copy storage pools are managed by DRM. | Page 150 |

# SET DRMVAULTNAME (Specify the Vault Name)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the SET DRMVAULTNAME command to specify the vault name. At installation, the name of the vault is set to VAULT. After installation, this command can be used to modify the name of the vault.

You can use the QUERY DRMSTATUS to see the name of the vault.

The vault name is used by the MOVE DRMEDIA command to set the location of volumes that are transitioning to the VAULT state.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──SET DRMVAultname──vaultname──────────────────────────────────►◄
```

## Parameters

*vaultname*
> Specifies the name of the vault. This parameter is required. The maximum length of the vault name is 255. The vault name must be enclosed in quotation marks if it contains any blank characters.

## Examples

**Task**

Specify a vault name of Irnvault.

**Command:** `Set DRMVAultname Irnvault`

**Output:**

```
ANR6700I SET DRMVAULTNAME command completed successfully.
```

# Related Commands

Figure 36 provides references to related commands.

| Figure 36. Commands Related to SET DRMVAULTNAME | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| MOVE DRMEDIA | Moves DRM media onsite and offsite. | Page 109 |
| QUERY DRMEDIA | Displays information about disaster recovery volumes. | Page 127 |
| QUERY DRMSTATUS | Displays DRM system parameters. | Page 136 |

# UPDATE MACHINE (Update Machine Information)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the UPDATE MACHINE command to modify a defined machine.

This command is provided for your use in documenting, in the ADSM server database, the machine information required to recover an ADSM client machine should a disaster occur. The ADSM server database will be used to store this information for you, and QUERY commands are provided to retrieve the information should you need to reference it in the case of a disaster. The information provided by this command is NOT used by the server in any way to coordinate disaster recovery or to manage the server under normal operation. The information provided in this command is solely determined by you in planning for client machine disaster recovery.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──UPDate MAchine──machinename─────────────────────────────────────────►
                              └─DESCription──=──description─┘

►──┬────────────────────────┬──┬───────────────────┬──┬─────────────────┬──►
   └─BUilding──=──building─┘   └─FLoor──=──floor─┘   └─ROom──=──room─┘

►──┬──────────────────────────────┬──┬──ADSMServer──=──┬─Yes─┬──┬──────►◄
   └─PRIority──=──priorityvalue─┘                       └─No──┘
```

## Parameters

*machinename*
> Specifies the name of the machine to be updated. This parameter is required.

**DESCription**=*description*
> Specifies the description of the machine. This parameter is optional. The maximum length of the description is 255 characters. The description must be enclosed in quotation marks if it contains any blank characters. To remove a previously defined description, specify a null string (" ") for the value.

**BUilding**=*building*
> Specifies the building name or number that this machine is in. You can enter a building name or a building number. The maximum length of the building name or number is 16 characters. To remove a previously defined building, specify a null string (" ") for the value.

**FLoor**=*floor*
> Specifies the floor name or number that this machine is in. You can enter a floor name or a floor number. The maximum length of the floor name or number is 16 characters. To remove a previously defined floor, specify a null string (" ") for the value.

**ROom**=*room*
> Specifies the room name or number that this machine is in. You can enter a room name or a room number. The maximum length of the room name or number is 16 characters. To remove a previously defined room, specify a null string (" ") for the value.

**PRIority**=*priorityvalue*
> Specifies the restore priority value for the machine. You can specify an integer in the range of 1 to 99, inclusive, with 1 being the highest priority and 99 being the lowest. This value is used to provide a prioritized list for client machine recovery.

**ADSMServer**=*adsmservervalue*
> Specifies whether the machine being defined contains the ADSM server. Possible values are:

> **No**
>> Specifies that this machine does not contain an ADSM server.

> **Yes**
>> Specifies that this machine contains an ADSM server. Only one machine can be defined as containing the ADSM server.

# Examples

**Task**

Update the DISTRICT5 machine information to reflect that it contains the ADSM server.

**Command:** `UPDate MAchine district5 ADSMServer=Yes`

**Output:**

```
ANR6612I Machine DISTRICT5 updated.
```

# Related Commands

Figure 37 provides references to related commands.

| Figure 37. Commands Related to UPDATE MACHINE | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| DEFINE MACHINE | Defines a machine for DRM. | Page 90 |
| DELETE MACHINE | Deletes an existing machine. | Page 100 |
| INSERT MACHINE | Inserts machine characteristics into the ADSM database. | Page 107 |
| QUERY MACHINE | Displays information about one or more machines. | Page 139 |

## UPDATE RECOVERYMEDIA (Update Recovery Media)

This command only applies to environments licensed to use the ADSM Disaster Recovery Manager (DRM) feature.

Use the UPDATE RECOVERYMEDIA command to modify a defined recovery media.

This command is provided for your use in documenting, in the ADSM server database, the media required to recover an ADSM client machine should a disaster occur. The ADSM server database will be used to store this information for you, and QUERY commands are provided to retrieve the information should you need to reference it in the case of a disaster. The information provided by this command is NOT used by the server in any way to coordinate disaster recovery or to manage the server under normal operation. The information provided in this command is solely determined by you in planning for client machine disaster recovery.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──UPDate RECOVERYMedia──recoverymedianame──────────────────────────────►
                                              └─VOLumenames──=──volname─┘

►──────────────────────────────────────────────────────────────────────►
   └─DESCription──=──description─┘   └─LOcation──=──locationofmedia─┘

►──────────────────────────────────────────────────────────────────────►
   └─Type──=──┬─BOot──┬─┘   └─PROduct──=──productname─┘
              └─OTher─┘

►──────────────────────────────────────────────────────────────────────►◄
   └─PRODUCTInfo──=──productinformation─┘
```

## Parameters

*recoverymedianame*
  Specifies the name of the recovery media to be updated. This parameter is required.

**DESCription**=*description*
  Specifies the description of the recovery media. The maximum length of the description is 255 characters. The description must be enclosed in quotation marks if it contains any blank characters. To remove a previously defined description, specify a null string (" ") for the value.

**VOLumenames**=*volname*
  Specifies the list of volume names that contain the recoverable data (for example, OS/2.2.1 Operating System image copies). This parameter is optional. It is recommended that the boot media volume names specified in the list are in the same order the boot media volumes are inserted into the machine at recovery time. The volume names list must be enclosed in quotation marks if it contains any blank characters. The maximum length of the volume names list is 255 characters. If a boot type recovery media is specified, the volume names that contain the boot media must be specified.

To remove a previously defined volume names list, specify a null string (" ") for the value.

**LOcation**=*locationofmedia*
Specifies the location of the recovery media, for example, "Building=021 Floor=02 Room=2846 Cabinet=1A0 Drawer=#2 Key=behind the cabinet". The maximum length of the location is 255 characters. The location description must be enclosed in quotation marks if it contains any blank characters. To remove a previously defined location, specify a null string (" ") for the value.

**Type**=*typemode*
Specifies the type of recovery media. Possible values are:

**BOot**
Specifies that this is boot media. VOLumenames must be specified when BOot is specified.

**OTher**
Specifies that this is not boot media. Example usage may include tracking a CD-ROM that contains AIX manuals.

**PROduct**=*productname*
Specifies the product name that wrote to this media. This parameter is optional. The maximum length of the product is 16 characters. The product name must be enclosed in quotation marks if it contains any blank characters. To remove a previously defined product name, specify a null string (" ") for the value.

**PRODUCTInfo**=*productinformation*
Specifies any information about the product that wrote to the media which may be needed for restoring the machine. The maximum length of the product information is 255 characters. The product information must be enclosed in quotation marks if it contains any blank characters. To remove a previously defined product information, specify a null string (" ") for the value.

# Examples

**Task**

Update the DIST5RM recovery media's location to the corporate headquarters data vault.

**Command:** `UPDate RECOVERYMedia dist5rm LOcation='Corporate Headquarters Data Vault'`

**Output:**

```
ANR6633I Recovery media DIST5RM updated.
```

## Related Commands

Figure 38 provides references to related commands.

| Figure 38. Commands Related to UPDATE RECOVERYMEDIA | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| DEFINE RECOVERYMEDIA | Defines the media required to recover a machine. | Page 97 |
| DELETE RECOVERYMEDIA | Deletes existing recovery media. | Page 106 |
| QUERY RECOVERYMEDIA | Displays media available for machine recovery. | Page 144 |

# Chapter 3.  Modified ADSM Commands

Figure 39 provides a quick reference to the modified ADSM commands.

| Figure 39. Modified ADSM Commands | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| AUDIT LICENSES | Checks for compliance with defined licenses. | Page 176 |
| DSMSERV AUDITDB | Verifies information in the ADSM database. | Page 178 |
| QUERY LICENSE | Displays information about licenses and audits. | Page 182 |
| REGISTER LICENSE | Registers a new license with the ADSM server. | Page 185 |
| UPDATE VOLHISTORY | Adds or changes location information for a volume in the volume history file. | Page 188 |

## AUDIT LICENSES (Audit for Compliance with License Terms)

Use the AUDIT LICENSES command to start a background process that audits the number of registered client nodes and other supported license factors. The results of this audit are compared to the terms of the license that have been defined to the server to determine if the current server configuration is in compliance with the license terms.

If the maximum period of 30 days has elapsed since the last license audit, the audit process will continue until complete. The ADSM administrator will not be able to cancel the background process.

After the license terms are changed via the REGISTER LICENSE command, the server does not recognize these changes until a license audit occurs. There are two ways for a license audit to occur:

- The AUDIT LICENSES command is issued from the command line.
- The automatic license audit (scheduled with the SET LICENSEAUDITPERIOD command) occurs.

The administrator will receive a warning message when the server does not comply with the licensing terms.

The information gathered during the audit is used to determine server compliance with license terms and is available for viewing after the audit is complete. You can view this information by issuing the QUERY LICENSE command.

The AUDIT LICENSES command also may be used after new licenses have been registered with the REGISTER LICENSE command so that the new license terms are known to the server before the next automatic license audit is run.

This command creates a background process that can be canceled with the CANCEL PROCESS command. To display information on background processes, use the QUERY PROCESS command.

### Privilege Class

To issue this command, you must have system privilege.

### Syntax

```
►►──AUDit LICenses──────────────────────────────────────────►◄
```

### Parameters

None.

## Examples

**Task**

Issue the AUDIT LICENSES command.

**Command:** `AUDit LICenses`

**Output:**

```
ANR2817I AUDIT LICENSES: License audit started as
process 2.

ANR2825I License audit process 2 completed successfully -
10 nodes audited.
ANR2811I Audit License completed - Server is in compliance
with license terms.
```

## Related Commands

Figure 40 provides references to related commands.

| Command | Description | Reference |
|---|---|---|
| *Figure 40. Commands Related to AUDIT LICENSES* | | |
| **Command** | **Description** | **Reference** |
| CANCEL PROCESS | Cancels a background server process. | *ADSM Administrator's Reference*, SH26-4040 |
| QUERY AUDITOCCUPANCY | Displays the data storage utilization for a client node. | *ADSM Administrator's Reference*, SH26-4040 |
| QUERY LICENSE | Displays information about licenses and audits. | Page 182 |
| QUERY PROCESS | Displays information about one or all background server processes. | *ADSM Administrator's Reference*, SH26-4040 |
| QUERY STATUS | Displays the settings of server parameters, such as those selected by the SET commands. | *ADSM Administrator's Reference*, SH26-4040 |
| REGISTER LICENSE | Registers a new license with the ADSM server. | Page 185 |
| SET LICENSEAUDITPERIOD | Specifies the number of days between automatic license audits. | *ADSM Administrator's Reference*, SH26-4040 |

## DSMSERV AUDITDB (Verify Database Information)

Use the DSMSERV AUDITDB command when required to ensure that the database is returned to a synchronized state after it is reloaded via the DSMSERV LOADDB command. A message at the end of the output from the DSMSERV LOADDB command indicates whether this command is required.

You must issue this command prior to starting the server. To successfully use this command, one of the following conditions must be true:

- The recovery log mode was set to normal before the server was halted (by using the SET LOGMODE command).

- A backup of the database was completed just before the server was halted.

No other server activity is allowed during DSMSERV AUDITDB command processing.

## Syntax

```
►►──DSMSERV AUDITDB──┬─────────────────┬──┬───────────────────┬──►◄
                     ├─Fix─=─No────────┤  ├─Detail─=─No───────┤
                     └─Fix─=─┬─No──┬───┘  └─Detail─=─┬─No──┬──┘
                             └─Yes─┘                 └─Yes─┘
```
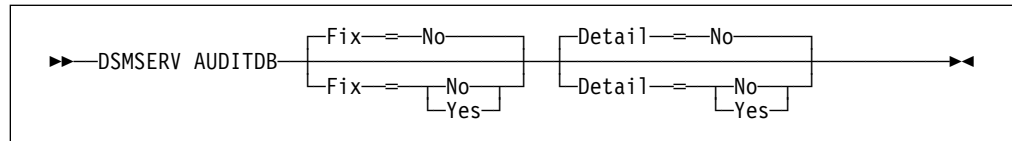
## Parameters

**Fix**=*fixvalue*

Specifies how ADSM resolves any inconsistencies in the database. This parameter is optional. The default value is NO. Possible values are:

**No**

Specifies that ADSM reports but does not fix any logical inconsistencies.

If the audit finds inconsistencies when the command is run with FIX=NO specified, before making the server available for production work, you must reissue the command specifying FIX=YES. Because AUDITDB must be run with FIX=YES to recover the database, the recommended usage in a recovery situation is FIX=YES the first time.

**Yes**

Specifies that ADSM fixes any inconsistencies and issues messages indicating the corrective actions.

**Detail**=*detailvalue*

Specifies the level of database testing to be performed by ADSM. This parameter is optional. The default value is NO. Possible values are:

**No**

Specifies that ADSM only tests referential integrity of the database.

**Yes**

Specifies that ADSM tests referential integrity of the database and the integrity of each individual database entry.

# Examples

**Task 1**

Audit the ADSM database for inconsistencies, but do not fix inconsistencies if they exist.

**Command:** DSMSERV AUDITDB Fix=No

Sample JCL:

```
//ADSMSRV0 JOB ,                              JOB00263
//          REGION=40M,TIME=1440,CLASS=A,MSGCLASS=H
//ADSMSRV0 EXEC PGM=ANRSERV,DYNAMNBR=300,TIME=NOLIMIT,
//  PARM='/AUDITDB FIX=NO'
//STEPLIB  DD DSN=EDC.V2R1M0.SEDCLINK,DISP=SHR
//         DD DSN=PLI.MINI.SIBMLINK,DISP=SHR
//         DD DSN=SYS1.LINKLIB,DISP=SHR
//         DD DSN=ADSM.LINKLIB,DISP=SHR
//OPT      DD DSN=ADSM.OPTIONS,DISP=SHR,FREE=CLOSE
//DSMAMENG DD DSN=ADSM.ANRMSG(ANRMENU),DISP=SHR
//HLPAMENG DD DSN=ADSM.ANRHLP(ANRHENU),DISP=SHR
//DSK      DD DSN=ADSM.DISKLOG,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSTERM  DD SYSOUT=*
```

## DSMSERV AUDITDB

**Output:**

```
ANR5962I DSMSERV generated at 14:05:28 on May  8 1995.


ANR0900I Processing options file DD:OPT.
ANR0990I ADSM server restart-recovery in progress.
ANR0200I Recovery log assigned capacity is 28 megabytes.
ANR0201I Database assigned capacity is 32 megabytes.
ANR0306I Recovery log volume mount in progress.
ANR0353I Recovery log analysis pass in progress.
ANR0354I Recovery log redo pass in progress.
ANR0355I Recovery log undo pass in progress.
ANR0352I Transaction recovery complete.
ANR4140I AUDITDB: Database audit process started.
ANR4075I AUDITDB: Auditing policy definitions.
ANR4040I AUDITDB: Auditing client node and administrator definitions.
ANR4135I AUDITDB: Auditing central scheduler definitions.
ANR2833I AUDITDB: Auditing license definitions.
ANR4136I AUDITDB: Auditing server inventory.
ANR4306I AUDITDB: Processed 10000 database entries (cumulative).
ANR4306I AUDITDB: Processed 20000 database entries (cumulative).
ANR4137I AUDITDB: Auditing inventory file spaces.
ANR4307I AUDITDB: Auditing inventory external space-managed objects.
ANR4138I AUDITDB: Auditing inventory backup objects.
ANR4306I AUDITDB: Processed 30000 database entries (cumulative).
ANR4306I AUDITDB: Processed 40000 database entries (cumulative).
ANR4139I AUDITDB: Auditing inventory archive objects.
ANR4310I AUDITDB: Auditing inventory space-managed objects.
ANR4230I AUDITDB: Auditing data storage definitions.
ANR4264I AUDITDB: Auditing file information.
ANR4265I AUDITDB: Auditing disk file information.
ANR4306I AUDITDB: Processed 50000 database entries (cumulative).
ANR4306I AUDITDB: Processed 60000 database entries (cumulative).
ANR4306I AUDITDB: Processed 70000 database entries (cumulative).
ANR4266I AUDITDB: Auditing sequential file information.
ANR4306I AUDITDB: Processed 80000 database entries (cumulative).
ANR4306I AUDITDB: Processed 90000 database entries (cumulative).
ANR4306I AUDITDB: Processed 100000 database entries (cumulative).
ANR4271E AUDITDB: Missing or incorrect occupancy information detected.
ANR4306I AUDITDB: Processed 110000 database entries (cumulative).
ANR4306I AUDITDB: Processed 120000 database entries (cumulative).
ANR4306I AUDITDB: Processed 130000 database entries (cumulative).
ANR4256I AUDITDB: Auditing data storage definitions for disk volumes.
ANR4306I AUDITDB: Processed 140000 database entries (cumulative).
ANR4263I AUDITDB: Auditing data storage definitions for sequential
volumes.
ANR6646I AUDITDB: Auditing disaster recovery manager definitions.
ANR4141I AUDITDB: Database audit process completed.
ANR5963I ADSM server termination complete.
```

**Task 2**

Audit the ADSM database for inconsistencies and fix any inconsistencies if they exist.

**Command:** `DSMSERV AUDITDB Fix=Yes`

**Output:**

```
ANR7800I DSMSERV generated at 16:44:34 on Jan 25 1994.
ANR0990I ADSM server restart-recovery in progress.
ANR0200I Recovery log assigned capacity is 16 megabytes.
ANR0201I Database assigned capacity is 12 megabytes.
ANR0306I Recovery log volume mount in progress.
ANR0353I Recovery log analysis pass in progress.
ANR0354I Recovery log redo pass in progress.
ANR0355I Recovery log undo pass in progress.
ANR0352I Transaction recovery complete.
ANR4140I AUDITDB: Database audit process started.
ANR4075I AUDITDB: Auditing policy definitions.
ANR4087I AUDITDB: Invalid node 88 found assigned to domain STANDARD
reference will be deleted.
ANR4077I AUDITDB: Invalid client node count detected for policy domain
STANDARD count will be corrected.
ANR4096E AUDITDB: An invalid management class identifier (22) was
encountered for management class STANDARD in policy set STANDARD,
domain STANDARD (expected 15) - the correct identifier will be stored.
ANR4090E AUDITDB: Active Policy set for domain STANDARD does not contain
a valid default management class - policy will fail for this domain.
Please correct the ACTIVE policy set.
ANR4040I AUDITDB: Auditing client node and administrator definitions.
ANR4042I AUDITDB: Node DAVE is assigned to Domain STANDARD, but not
verified by the Policy Manager - attempting to assign the node to
domain STANDARD.
ANR4066I AUDITDB: Administrator 99 not found in the server database
- reference will be removed.
ANR4135I AUDITDB: Auditing central scheduler definitions.
ANR2833I AUDITDB: Auditing license definitions.
ANR4136I AUDITDB: Auditing server inventory.
ANR4137I AUDITDB: Auditing inventory file spaces.
ANR4138I AUDITDB: Auditing inventory backup objects.
ANR4139I AUDITDB: Auditing inventory archive objects.
ANR4230I AUDITDB: Auditing data storage definitions.
ANR4264I AUDITDB: Auditing file information.
ANR4265I AUDITDB: Auditing disk file information.
ANR4266I AUDITDB: Auditing sequential file information.
ANR4256I AUDITDB: Auditing data storage definitions for disk volumes.
ANR4306I AUDITDB: 25000 Records processed.
ANR4263I AUDITDB: Auditing data storage definitions for sequential
volumes.
ANR4210I AUDITDB: Auditing physical volume repository definitions.
ANR6646I AUDITDB: Auditing disaster recovery manager definitions.
ANR4141I AUDITDB: Database audit process completed.
```

## QUERY LICENSE (Display License Information)

Use the QUERY LICENSE command to display information about the results of the latest license audit and the server license terms. The information displayed indicates whether the server is in compliance with the license terms. This information is useful for determining how to manage license terms or policy changes.

## Privilege Class

Any administrator can issue this command.

## Syntax

```
►►──Query LICense──────────────────────────────────────────────────►◄
```

## Parameters

None.

## Examples

**Task**

Display information about license terms and compliance information.

**Command:** `Query LICense`

**Output:**

```
                           Last License Audit: 02/23/1996
                         Registered Client Nodes: 20
                           Licensed Client Nodes: 50
                    Are UNIX clients registered ?: No
                       Are UNIX clients licensed ?: No
                  Are desktop clients registered ?: Yes
                    Are desktop clients licensed ?: Yes
                    Are OEMVS clients registered ?: Yes
                      Are OEMVS clients licensed ?: Yes
         Is space management in use on the server ?: Yes
       Is space management licensed on the server ?: Yes
   Is disaster recovery manager in use on the server ?: Yes
 Is disaster recovery manager licensed on the server ?: Yes
                 Device support module 1 licensed ?: Yes
                 Device support module 2 licensed ?: Yes
                 Device support module 3 licensed ?: No
                 Device support module 4 licensed ?: No
             Secondary Server Attachment licensed ?: No
                        Server License Compliance: Valid
```

where:

**Last License Audit On**
Specifies the date and time when the last license audit took place. The displayed information is valid as of this date and time.

**Registered Client Nodes**
Specifies the total number of registered client nodes.

**Licensed Client Nodes**
Specifies the total number of client nodes that can be registered as defined in the license terms.

**Are UNIX clients registered?**
Specifies whether UNIX clients are registered with the server.

**Are UNIX clients licensed?**
Specifies whether the server is licensed to support UNIX clients.

**Are DeskTop clients registered?**
Specifies whether desktop clients (such as DOS) are registered with the server.

**Are DeskTop clients licensed?**
Specifies whether the server is licensed to support desktop clients.

**Are OEMVS clients registered?**
Specifies whether OpenEdition MVS clients are registered with the server.

**Are OEMVS clients licensed?**
Specifies whether the server is licensed to support OpenEdition MVS clients.

**Is space management in use on the server?**
Specifies whether HSM clients are attached to the server.

**Is space management licensed on the server?**
Specifies whether the server is licensed to support HSM clients.

**Is disaster recovery manager in use on the server?**
Specifies whether the server is implementing the ADSM Disaster Recovery Manager (DRM) feature.

**Is disaster recovery manager licensed on the server?**
Specifies whether the server is licensed for the DRM feature.

**Device support module** *n* **licensed?**
Specifies whether the server is licensed for the device support module.

**Secondary Server Attachment licensed?**
Specifies whether the server is licensed for support of devices through the secondary server attachment feature.

**Server License Compliance:**
Specifies whether the ADSM server is in compliance, pending failure, or out of compliance with registered client node license terms. The server is in compliance when the registered client nodes are less than 100 percent of the license terms. When registered client nodes are between 100 percent and 120 percent of the license terms, a pending failure condition is present. When the registered client nodes exceed 120 percent of the license terms, the server is out of compliance.

## Related Commands

Figure 41 provides references to related commands.

| Command | Description | Reference |
|---|---|---|
| Figure 41. Commands Related to QUERY LICENSE | | |
| AUDIT LICENSES | Checks for compliance with defined licenses. | Page 176 |
| QUERY STATUS | Displays the settings of server parameters, such as those selected by the SET commands. | *ADSM Administrator's Reference*, SH26-4040 |
| REGISTER LICENSE | Registers a new license with the ADSM server. | Page 185 |
| SET LICENSEAUDITPERIOD | Specifies the number of days between automatic license audits. | *ADSM Administrator's Reference*, SH26-4040 |

# REGISTER LICENSE (Register a New License)

Use the REGISTER LICENSE command to register a new license with the ADSM server, to change existing server license terms. You can register a new license for the following:

- Additional clients

- Environment support for desktop clients (clients other than UNIX and OpenEdition MVS clients; for example, DOS clients)

- Environment support for OpenEdition MVS clients

- Environment support for UNIX clients

- Support for space management

- Support for disaster recovery manager

- Device support for specified removable media libraries and drives, including device support via the secondary server attachment feature

**Note:** The REGISTER LICENSE command adds a LICENSE statement to the end of the server options file if it completes successfully. To use this command, ensure that the options file as specified in the server startup JCL (OPT DD statement) is coded with a DISP=MOD parameter, and not DISP=SHR.

## Privilege Class

To issue this command, you must have system privilege.

## Syntax

```
►►──REGister LICense──┬─CLIENTS──number─────────┬──────────────►◄
                      ├─DESKTOP─────────────────┤
                      ├─OPENEDITION─────────────┤
                      ├─UNIX────────────────────┤
                      ├─SPACEMGMT───────────────┤
                      ├─DRM─────────────────────┤
                      ├─DEVICEMOD3──────────────┤
                      ├─DEVICEMOD4──────────────┤
                      └─SECONDARYSERVERATTACH───┘
```
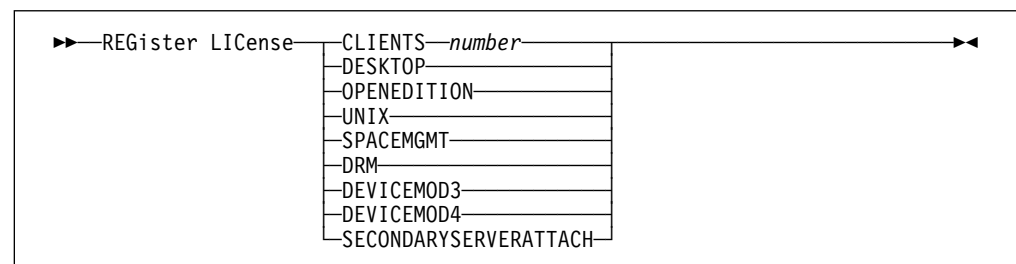
## Parameters

**CLIENTS** *number*
> Specifies the licensed number of client connections for the server.

**DESKTOP**
> Specifies that the server is licensed to support desktop clients (clients on platforms other than UNIX and OpenEdition MVS clients; for example, DOS clients).

**OPENEDITION**
> Specifies that the server is licensed to support OpenEdition MVS clients.

**UNIX**
> Specifies that the server is licensed to support UNIX clients.

**SPACEMGMT**
Specifies that the server is licensed to support space managed clients. If the server is not licensed for space management, migration operations for clients using space management fail.

**DRM**
Specifies that the server is licensed to support disaster recovery manager (DRM). If the server is not licensed for DRM, DRM operations will fail.

**DEVICEMOD3**
Specifies that the server is licensed for Device Support Module 3.

**DEVICEMOD4**
Specifies that the server is licensed for Device Support Module 4.

**SECONDARYSERVERATTACH**
Specifies that the server is licensed for device support via a secondary server attachment feature.

# Examples

**Task**

Register a new license with the ADSM server for support of 500 client connections.

**Command:** `REGister LICense CLIENTS 500`

**Output:**

```
ANR2852I Current license information:
ANR2835I Server is licensed for 1 clients.
ANR2844I Server is licensed to support desktop clients.
ANR2855I Server is licensed to support space-managed clients.
ANR2860I Server is licensed to support disaster recovery manager.
ANR2854I Server is licensed for device support module 2.
ANR2853I New license information:
ANR2835I Server is licensed for 500 clients.
ANR2844I Server is licensed to support desktop clients.
ANR2855I Server is licensed to support space-managed clients.
ANR2860I Server is licensed to support disaster recovery manager.
ANR2854I Server is licensed for device support module 2.
```

# Related Commands

Figure 42 provides references to related commands.

| Figure 42 (Page 1 of 2). Commands Related to REGISTER LICENSE | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| AUDIT LICENSES | Checks for compliance with defined licenses. | Page 176 |
| QUERY LICENSE | Displays information about licenses and audits. | Page 182 |

| *Figure 42 (Page 2 of 2). Commands Related to REGISTER LICENSE* | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| QUERY STATUS | Displays the settings of server parameters, such as those selected by the SET commands. | *ADSM Administrator's Reference*, SH26-4040 |
| SET LICENSEAUDITPERIOD | Specifies the number of days between automatic license audits. | *ADSM Administrator's Reference*, SH26-4040 |

# UPDATE VOLHISTORY (Add the Location of a Database Dump, Database Backup, or Export Volume)

Use the UPDATE VOLHISTORY command to add volume location information to volume history files. You can use this location information to help track volumes that move offsite. The physical location information can be added only for a volume that contains the results of a database dump, a database backup (full or incremental), or an export operation. The location is added to the volume history files as a comment above the specified volume's detail information.

## Privilege Class

To issue this command, you must have system privilege or unrestricted storage privilege.

## Syntax

```
►►──UPDate VOLHistory──volumename──DEVclass──=──devclassname──────────────────►

►──LOcation──=──location──ORMSTate──=──state──────────────────────────────►◄
```

## Parameters

*volumename*
> Specifies the name of the volume for which you want to add location information or change the volume state. The volume must have been used for a database dump, a database backup (full or incremental), or an export operation. This parameter is required.

**DEVclass**=*devclassname*
> Specifies the name of the device class for the volume specified. This parameter is required.

**LOcation**=*location*
> Describes the location of the volume. This parameter is required. The maximum length of the location is 255 characters. The location must be enclosed in quotation marks if it contains any blank characters.

**ORMSTate**=*state*
> Specifies a change to the state of a database backup volume. This parameter is optional and only applies to environments using the ADSM Disaster Recovery Manager (DRM) feature. The ORMSTate is managed and used by the MOVE DRMEDIA and QUERY DRMEDIA commands. Use caution when invoking this parameter. Possible values are:

> **MOUNTABLE**
>> Specifies that the volume in the MOUNTABLE state contains valid data and is accessible for onsite processing.

> **NOTMOUNTABLE**
>> Specifies that the volume in the NOTMOUNTABLE state contains valid data, and not available for onsite processing.

> **COURIER**
>> Specifies that the volume in the COURIER state is with the courier and being moved to an offsite location.

**VAULT**
>>>Specifies that the volume in the VAULT state is at the offsite location.

**COURIERRETRIEVE**
>>>Specifies that the volume in the COURIERRETRIEVE state does not contain valid data and is with the courier and being moved back to the onsite location.

# Examples

**Task**

Update the location of a volume used for database backup, BACKUP1, to show that it has been moved to an offsite location.

**Command:** `UPDate VOLHistory backup1 DEVclass=tapebkup LOcation="700 W. Magee Rd."`

**Output:**

```
ANR2473I UPDATE VOLHISTORY for volume backup1 completed.
```

# Related Commands

Figure 43 provides references to related commands.

| *Figure 43. Commands Related to UPDATE VOLHISTORY* | | |
|---|---|---|
| **Command** | **Description** | **Reference** |
| BACKUP VOLHISTORY | Records sequential volume history information in external files. | *ADSM Administrator's Reference*, SH26-4040 |
| DELETE VOLHISTORY | Removes sequential volume history information from the volume history file. | *ADSM Administrator's Reference*, SH26-4040 |
| MOVE DRMEDIA | Moves DRM media onsite and offsite. | Page 109 |
| QUERY DRMEDIA | Displays information about disaster recovery volumes. | Page 127 |
| QUERY VOLHISTORY | Displays sequential volume history information that has been collected by the server. | *ADSM Administrator's Reference*, SH26-4040 |

# Appendix.  ADSM DRM Project Plan

| Figure 44 (Page 1 of 3). ADSM DRM Project Plan | | | | | |
|---|---|---|---|---|---|
| **Activity** | **Start Date** | **End Date** | **Status** | **Person Resp.** | **Backup Person** |
| **DRM Planning** | | | | | |
| **Evaluate your disaster recovery requirements**<br><br>• What are the business priorities for recovering your ADSM clients?<br>• Where is the recovery site?<br>• Is the recovery site hot, warm, or cold?<br>• Do the clients have connectivity to recovery server?<br>• Who are the system and ADSM administrators?<br>• Will you need to return to the original site? | | | | | |
| **Evaluate your vault requirements**<br><br>• Where are the offsite backups stored?<br>• How does the vault handle the backup media?<br>• How are the backups packaged or processed?<br>• Who provides the courier service? | | | | | |
| **Evaluate the current SP backup implementation**<br><br>• What primary SPs are being backed up?<br>• When are the backups performed?<br>• Backup purpose: offsite or onsite<br>• Backup media<br>• Naming conventions for replacement volumes for primary storage pools | | | | | |
| **Evaluate the current database backup implementation**<br><br>• When are the backups performed?<br>• Backup purpose: offsite or onsite<br>• Backup media<br>• How many backup series do you want maintained and for how long?  Review the copy SP REUSEDELAY value and verify that it is the same as the SET DRMDBBACKUPEXPIREDAYS value. | | | | | |
| **Determine which primary SPs are to be managed by DRM** | | | | | |
| **Determine which copy SPs are to be managed by DRM**<br><br>• Offsite copy SPs | | | | | |
| **Plan for the Recovery Plan File (RPF)**<br><br>• Where should the RPF be created?<br>  – AIX: What is the RPF pathname prefix?<br>  – MVS: What is the RPF dsname prefix?<br>• How many RPFs should be kept?<br>• How will RPFs be made available at the recovery site?<br>  – Print and store offsite<br>  – Tape/diskette copy stored offsite<br>  – Copy sent/NFS to recovery site | | | | | |
| **Determine where you want to create the user-specified recovery instructions**<br><br>• AIX: What is the instructions pathname prefix?<br>• MVS: What is the instructions dsname prefix? | | | | | |

| Activity | Start Date | End Date | Status | Person Resp. | Backup Person |
|---|---|---|---|---|---|
| **MVS: Evaluate the TMS/DRM interaction options**<br><br>• Will DRM drive the backup volume movement?<br>• Will TMS drive the backup volume movement?<br>• How to notify the other of volume movement?<br>• What TMS policies need to be created? | | | | | |
| **Analyze the sequence of steps related to the PREPARE command backup movement**<br><br>• Document the flow of activities and timings<br> – Sending of volumes offsite<br> – Return on empty volumes<br> – PREPARE timing | | | | | |
| **DRM Installation** | | | | | |
| **Receive the ADSM code** | | | | | |
| **Install the ADSM code** | | | | | |
| **Get licensed for DRM**<br><br>• REGISTER LICENSE or<br>• Update the server options | | | | | |
| **Customize the DRM options**<br><br>The administrator with system authority issues:<br><br>• SET DRMBACKUPEXPIREDAYS to define the DB backup expiration<br>• SET DRMPRIMSTGPOOL to specify the DRM-managed SPs<br>• SET DRMCOPYSTGPOOL to specify the DRM-managed copy SPs<br>• SET DRMPLANVPOSTFIX to specify 1 character to be appended to new SPs<br>• SET DRMPLANPREFIX to specify the RPF prefix<br>• SET DRMINSTRPREFIX to specify the user instruction file prefix<br>• SET DRMNOTMOUNTABLENAME to specify the default location for media to be sent offsite<br>• SET DRMCOURIERNAME to specify the default courier<br>• SET DRMVAULTNAME to specify the default vault<br>• SET DRMCMDFILENAME to specify the default file name to contain the commands specified with the CMD parameter on MOVE and QUERY DRMEDIA<br>• SET DRMCHECKLABEL (AIX only) to specify whether volume labels are verified when checked out by the MOVE DRMEDIA command | | | | | |
| **Define the site-specific recovery instructions**<br><br>Identify:<br><br>• Target disaster recovery server location<br>• Target server software requirements (OS or ADSM)<br>• Target server hardware requirements (storage devices)<br>• ADSM administrator contact<br>• Courier name and telephone number<br>• Vault location and contact person<br><br>• Defined in path/HLQ specified by SET DRMINSTRPREFIX<br>• Create files and enter the data | | | | | |

*Figure 44 (Page 2 of 3). ADSM DRM Project Plan*

| Activity | Start Date | End Date | Status | Person Resp. | Backup Person |
|---|---|---|---|---|---|
| *Figure 44 (Page 3 of 3). ADSM DRM Project Plan* | | | | | |
| **DRM Test** | | | | | |
| **Test the DRM installation and customization**<br><br>• Q DRMSTATUS to display the DRM setup<br>• Back up the primary storage pools<br>• Back up the ADSM database<br>• Q DRMEDIA to list the backup volumes<br>• MOVE DRMEDIA to move offsite<br>• PREPARE to create the RPF | | | | | |
| **Examine the RPF created** | | | | | |
| **Test the RPF break out**<br><br>• AIX: awk script planexpl.awk.script<br>• MVS: REXX exec ANRPLANX<br>• Locally written procedure | | | | | |
| **DRM Production** | | | | | |
| **Set up the schedules for automated functions** | | | | | |
| **Implement the DRM procedures** | | | | | |

# 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.

**availability management**.   Managing recovery from relatively common computer system outages such as a disk drive head crash.  Recovery is often accomplished by using disk mirroring and other forms of RAID technology, or by maintaining onsite backup copies of data.

**boot media**.   Media that contains operating system and other files essential to running a workstation or server.

**disaster recovery**.   Recovery from catastrophic interruptions of computer systems, such as loss of the system location because of natural events.  Backup data is kept offsite to protect against such catastrophes.

**Disaster Recovery Manager (DRM)**.   An ADSM feature that assists in preparing and later using a disaster recovery plan for the ADSM server.

**disaster recovery plan**.   A document that contains information about how to recover computer systems if a disaster occurs.  With DRM, the plan is a file that contains information about the software and hardware used by the ADSM server, and the location of recovery media.

**DRM**.   Disaster Recovery Manager.

**machine information**.   Details about the machine on which a client node resides.

**offsite recovery media**.   Media that is kept at a different location to ensure its safety if a disaster occurs at the primary location of the computer system.  The media contains data necessary to recover the ADSM server and clients.  The offsite recovery media manager, which is part of DRM, identifies recovery media to be moved offsite and back onsite, and tracks the media and location status.

**recovery media**.   Media that contains data necessary to recover the ADSM server and clients.

# Index

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