Adabas Delta Save

Adabas Delta Save Facility Administration

Version 8.5.4

September 2025

ADABAS & NATURAL

Table of Contents

Preface

This document addresses administrators responsible for configuring and running Adabas Delta Save Facility once the product is installed.

This document is organized as follows:

Overview	Provides an overview of Adabas Delta Save Facility administration.
ADARUN Parameter DSF	Describes the use of the DSF parameter of ADARUN with respect to the Delta Save Facility.
ADARUN Parameter DSFEX1	Describes the use of the DSFEX1 parameter of ADARUN with respect to the Delta Save Facility.
Special Online Functions	Describes the special online functions of the Delta Save Facility available through the Adabas Online System.
Calculating the DLOG Area Size	Describes how to calculate the Delta Save Facility logging (DLOG) area size.
Calculating the DSIM Data Set Size	Describes how to calculate the Delta Save Images (DSIM) data set size for the Delta Save Facility.

1   About this Documentation

Document Conventions

Convention	Description
Bold	Identifies elements on a screen.
`Monospace font`	Identifies service names and locations in the format *`folder.subfolder.service`*, APIs, Java classes, methods, properties.
Italic	Identifies: Variables for which you must supply values specific to your own situation or environment. New terms the first time they occur in the text. References to other documentation sources.
`Monospace font`	Identifies: Text you must type in. Messages displayed by the system. Program code.
{ }	Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols.
|	Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the | symbol.
[ ]	Indicates one or more options. Type only the information inside the square brackets. Do not type the [ ] symbols.
...	Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...).

Online Information and Support

Product Documentation

You can find the product documentation on our documentation website at **https://documentation.softwareag.com**.

Product Training

You can find helpful product training material on our Learning Portal at **https://learn.softwareag.com**.

Tech Community

You can collaborate with Software GmbH experts on our Tech Community website at **https://tech-community.softwareag.com**. From here you can, for example:

- Browse through our vast knowledge base.

- Ask questions and find answers in our discussion forums.

- Get the latest Software GmbH news and announcements.

- Explore our communities.

- Go to our public GitHub and Docker repositories at **https://github.com/softwareag** and **https://hub.docker.com/publishers/softwareag** and discover additional Software GmbH resources.

Product Support

Support for Software GmbH products is provided to licensed customers via our Empower Portal at **https://empower.softwareag.com**. Many services on this portal require that you have an account. If you do not yet have one, you can request it at **https://empower.softwareag.com/register**. Once you have an account, you can, for example:

- Download products, updates and fixes.

- Search the Knowledge Center for technical information and tips.

- Subscribe to early warnings and critical alerts.

- Open and update support incidents.

- Add product feature requests.

Data Protection

Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR). Where applicable, appropriate steps are documented in the respective administration documentation.

2 Overview

The DBA is concerned with four types of administrative activity for the Adabas Delta Save Facility:

- Setting the ADARUN DSF parameter for Delta Save operation mode

  The ADARUN DSF parameter must be set to DSF=YES to enable Delta Save operation. See **ADARUN Parameter DSF** for more information.

  In addition, the ADARUN DSFEX1 parameter can be set if a user exit will be used to automate deta save job submission. See **ADARUN Parameter DSFEX1**.

- Starting, controlling, and ending Delta Save operation with Adabas basic online services

  The Delta Save online functions allow you to

  - display Delta Save status;

  - install, change, or remove the Delta Save logging (DLOG) area;

  - disable Delta Save logging activity.

  For more information about selecting online menus and functions, see the *Adabas DBA Tasks* documentation.

- Allocating the Delta Save logging (DLOG) area

  Delta Save uses the DLOG area within the Associator to keep track of the RABNs of all blocks changed during normal nucleus operation. This information is used in Delta Save operations. See **Calculating the DLOG Area Size** for information about allocating the DLOG area.

- Allocating the Delta Save Images (DSIM) data set

  The DSIM data set holds the images of all blocks changed during an online save. Following the save, these blocks are used to construct a full or delta save tape for restoring the database later. See **Calculating the DSIM Data Set Size** for information about allocating the DSIM data set.

3 ADARUN Parameter DSF

The ADARUN parameter DSF specifies the Delta Save operation mode. For more information about ADARUN parameters, see the *Adabas Operations* documentation.

Parameter	Use	Possible Values	Default
DSF	Specifies Delta Save mode	YES|NO	NO

This parameter is only valid if the Adabas Delta Save Facility is installed on your system. If Delta Save is not installed in the system, specifying this parameter may cause an error.

Value	Meaning
YES	Run this nucleus or utility (as specified in the ADARUN PROGRAM parameter) in Delta Save mode. This enables Delta Save functions such as installing or removing the DLOG area, performing Delta Save operations, or merging full and/or delta save tapes. Specifying DSF=YES causes certain Delta Save program modules to be loaded.
NO	Run this nucleus or utility in non-Delta Save mode. If DSF=NO (the default) is specified or the parameter is omitted, Delta Save functions cannot be performed. For the nucleus, specifying DSF=NO after specifying DSF=YES switches from Delta Save to non-Delta Save mode. If a DLOG area is defined when the nucleus is started, and DSF=NO is specified, the nucleus removes the DLOG area. If a DLOG area is defined when the nucleus is started, the DSF parameter may *not* be omitted. You can also remove the DLOG area from the database using the "Remove DSF" command (see the section **Removing Delta Save Logging**).

Example:

```
ADARUN PROG=ADANUC,DSF=YES
```

Run the nucleus in Delta Save mode; Delta Save-related functions can be performed.

DSF=YES is required for the nucleus and for Delta Save functions of the ADASAV and ADARES utilities; it is optional for the other functions and utilities.

> **Note:** If a DLOG area is defined when the nucleus is started, the DSF parameter may *not* be omitted.

DSF=YES is required for

- ADASAV SAVE database (if a DLOG area exists);
- ADASAV SAVE DELTA;
- ADASAV MERGE;
- ADASAV RESTORE database*;
- ADASAV RESTORE DELTA;
- ADARES PLCOPY (only if online saves are performed);
- ADARES COPY (only for rebuilding the DSIM data set).
- ADAULD UNLOAD FILE (from full and delta save tapes with or without DSIM data sets)

Examples of functions and utilities for which DSF=YES is optional include

- ADASAV SAVE FILE
- ADASAV SAVE INCREMENTAL
- ADASAV RESTORE FILE
- ADARES REGENERATE
- ADAREP . . .

* Full save tapes (merged or unmerged) are restored with the normal "RESTORE database" function. In this case:

- *if DSF=YES is specified or the DSF parameter is omitted, ADASAV restores the database including all Delta Save status information; that is, the restored database has a DLOG area, the delta save ID equals that of the save tape, and Delta Save logging is enabled.*
- *if DSF=NO is specified, ADASAV restores the database without the Delta Save status information and the Delta Save Facility is no longer installed on the restored database.*

4 ADARUN Parameter DSFEX1

The ADARUN parameter DSFEX1 names the delta save user exit that reads the job stream from a data set specified in the nucleus JCL. The user exit is loaded if the ADARUN parameter DSF=YES is specified for an Adabas nucleus run. For more information about ADARUN parameters, see the *Adabas Operations* documentation.

Parameter	Use	Default
DSFEX1=exit-name	Specifies name of the delta save user exit	none

This parameter is only valid if the Delta Save Facility is installed on your system. If Delta Save is not installed in the system, specifying this parameter may cause an error.

Automatic Delta Save Job Submission

An overflow of the Delta Save logging (DLOG) area makes a full save operation necessary outside the normal schedule. Although the Delta Save Facility prints warning messages to the operator console as the DLOG area fills, these are easily overlooked as they scroll over the console screen buried among unreleated messages from other jobs. Even if such messages were highlighted or fixed on the operator screen, it would still be necessary for the operator to discover the messages and react properly by submitting an online SAVE DELTA job before the DLOG area is completely filled.

The Delta Save Facility instead provides a user exit named in the ADARUN DSFEX1 parameter that automatically submits the necessary job when the DLOG reaches a user-defined threshold percentage (1-99) of the total area size. No operator intervention is required. The job resets the DLOG area to start another cycle.

Activating the Sample User Exit

Adabas provides a sample user exit called DSFUEX1. This section describes how to activate it in each operating environment.

- z/OS

⚠ **Caution:** DSFUEX1 is a sample user program and is not supported under any maintenance contract agreement.

z/OS

The sample user exit is delivered on z/OS as source and as a load module that can be used without change or reassembly.

The source form of the user exit DSFUEX1 is delivered in the Adabas source library. The job to assemble the user exit, ASMDUEX1, is located in the Adabas jobs library. The jobs library also contains a sample (DSFUJOB) of the job submitted by DSFUEX1 that

- runs an online delta save;

- switches the PLOG with FEOFPL causing the PLOG containing the SYN2 checkpoint to be copied to the DSIM data set using user exit 2 (dual logging) or 12 (multiple logging); and

- merges the actual online delta save with the most recently created delta save to produce a new consolidated delta save.

On successful completion of DSFUJOB, the DLOG area is reset and the DSIM data set is set to a status `unused'. The next delta save job can then be submitted normally.

≫ **Activate the sample user exit as follows:**

1   In addition to ADARUN DSF=YES, specify ADARUN DSFEX1=DSFUEX1 for the Adabas nucleus.

2   Supply the delta save job control that the user exit is supposed to submit under the DD-name/DLBL/link-name SAVEJOB.

     Provide the following DD statement:

```
//INTRDR2  DD  SYSOUT=(*,INTRDR)
```

> **Note:** The same DD statement is used by the sample user exit 2 or 12 for submitting PLCOPY or CLCOPY jobs.

3   The sample user exit is set to submit the supplied job when the DLOG area usage reaches 75 percent. You can modify this threshold value by

- changing, assembling, and linking the supplied user exit source; or

- zapping the supplied user exit load module as follows:

```
NAME DSFUEX1

VER 003E 004B

REP 003E 00xx
```

-where "xx" is the desired percent value in hexadecimal notation.

User Exit Interface

The Adabas Delta Save Facility calls the user exit during initialization to determine the DLOG area usage threshold specified in the exit. The exit is thereafter called whenever the DLOG usage reaches the specified threshold.

Optionally, the user exit may initialize its operation. It may store any value in the USERENV field of the parameter block to keep track of its resources. This field is considered as "owned" by the user exit and is supplied again for all subsequent executions of the exit.

The user exit is called again during termination to do any necessary finishing or `cleanup' work.

- Parameters
- DSECT of the Parameter Block

Parameters
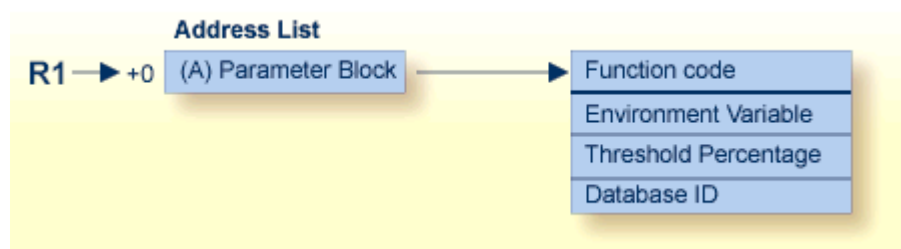
Delta Save Facility User Exit Parameters

DSECT of the Parameter Block

```
PARAM     DSECT

FNCODE    DS    F              FUNCTION CODE:

*                                     01 - INITIALIZATION

*                                     02 - THRESHOLD REACHED

*                                     03 - FINALIZATION

USERENV   DS    A              USER ENVIRONMENT

PERCENT   DS    F              THRESHOLD PERCENTAGE

DBID      DS    F              DATABASE ID
```

5 Special Online Functions

When the Adabas Delta Save Facility is installed on your system, either the demo or full version of Adabas Online System (AOS) provides access to the optional Delta Save control screens.

```
 14:40:40          *****  A D A B A S  BASIC SERVICES *****          YYYY-MM-DD

                            -  Main Menu  -                    PMAINO2


           Code  Basic Services              Code  Other Services

           ----  ---------------------       ----  ------------------

            A    Session monitoring           1    Adabas Cache Facility

            C    Checkpoint maintenance       2    Delta Save Facility

            F    File maintenance             3    Trigger Maintenance

            *    Database maintenance         4    AOS Security

            O    Session opercoms             5    Transaction Manager

            R    Database report              6    Adabas Statistics

            *    Space calculation            7    Vista

            ?    Help                         8    Fastpath

            .    Exit                         9    SAF Security

           ----  ---------------------       ----  ------------------



  Code ....... _

  Database ... 105     (RD-105)



Command ==>

PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8-----PF12-----

Help               Exit
```

> **Note:** The exact sequence of screens and display characteristics (intensified values, etc.) displayed when using AOS depends on the configuration, the features installed on the system, and the current operating status of the system, and therefore may differ from the features and characteristics described in this document.

The remainder of this section describes how to use the Delta Save control screens to install, change, disable, and remove Delta Save logging from the system.

Logging On to the Adabas Delta Save Facility

Select the "Delta Save Facility" option on the Adabas Online System (AOS) Main Menu.

When the Delta Save Facility is active, the Delta Save Facility main menu is displayed.

```
  13:16:45            *****  A D A B A S   BASIC  SERVICES *****        YYYY-MM-DD

   Enabled                    -  Delta Save Facility    -                PDSF002

                        Code    Function

                        ----    ---------------------------

                         A      Allocation/Status of DSF

                         C      Change DSF logging area

                         D      Disable DSF logging

                         E      Enable DSF logging

                         F      Files modified by utilities

                         I      Install DSF logging area

                         R      Remove/Deinstall DSF

                         S      Size Estimate for Delta

                         ?      Help

                         .      Exit

                      --------  ---------------------------



         Code ......... _

         Database ID .. 105    (ADA-MPM105)



         Command ==>

  PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8-----PF12-----

  Help            Exit                                            Menu
```

This menu indicates the status of the Delta Save Facility in the upper left corner:

Not installed	The ADARUN DSF=YES parameter is set but the Delta Save Facility is not yet installed.
Enabled	The Delta Save Facility is currently active and functioning normally.
Disabled	Delta Save logging has been deactivated.
Initializing	The Delta Save Facility has been installed but the initialization process has not yet completed. If this status continues, deinstall and then reinstall the product.

Installing Delta Save Logging

If the Delta Save Facility is not yet installed, option I displays the following window:

```
14:55:16         *****  A D A B A S   BASIC  SERVICES *****        YYYY-MM-DD

 Not installed                - Delta Save Facility  -              PDSF002



       +-----------------------------------------------------------+

       |                                                           |

       | 15:16:44              Install DSF              YYYY-MM-DD |

       |                                                           |

       |    DSF Status .... Not installed                          |

       |                                                           |

       |    Specify the values for the following parameters:-      |

       |                                                           |

       |        DLOG Area Size ......            (in Blocks)        |

       |        DLOG Area Location ..           (1st RABN) optional |

       |        Device Type ......... 3390               optional   |

       |                                                           |

       |                                                           |

       |   PF1----- PF2------ PF3------ PF4------ PF6----- PF12    |

       |   Help           Exit                           Menu     |

       +-----------------------------------------------------------+



 Command ==>

PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8-----PF12-----

Help            Exit                                         Menu
```

The DLOG area must be defined before Delta Save can begin operation.

Use the Install DSF screen to define the Delta Save logging (DLOG) area and thereby install Delta Save logging. Enter the DLOG size in blocks, and, optionally, the starting RABN in the Associator and/or the device type to be used for allocation:

- *DLOG Area Size* (required) is the number of Associator blocks to be allocated. The area must be large enough to hold all blocks changed between two consecutive Delta Save operations. About 5 bytes of DLOG area storage are needed for every database write operation. To calculate the size of the DLOG area, see **Calculating the DLOG Area Size**

- *DLOG Area Location* (optional) is the first RABN to be allocated.

- *Device Type* (optional) is the device type to be used for DLOG area allocation.

When the DLOG area is defined, you are returned to the Delta Save Facility main menu and the message

```
DSF function Install DSF successfully executed
```

-is displayed. The status of the Delta Save Facility in the upper left corner of the screen is "disabled". The "disabled" state continues until the next successful full save operation is performed with the ADASAV SAVE utility function.

Enabling Delta Save Logging

If the Delta Save Facility is disabled, option E displays the following window:

```
 13:20:36          *****  A D A B A S   BASIC  SERVICES *****        YYYY-MM-DD

  Disabled                   -  Delta Save Facility   -               PDSF002



                 +---------------------------------------------+

                 |                                             |

                 | DSF is currently disabled and needs to be   |

                 | enabled before it can start logging.        |

                 | To enable DSF, a FULL database backup must  |

                 | be run using ADASAV SAVE. Once the FULL     |

                 | database save completes, DSF will become    |

                 | enabled automatically.                      |

                 |                                             |

                 |                                             |

                 +---------------------------------------------+

                       .       Exit

                      --------  ----------------------------



            Code ......... e

            Database ID .. 105    (ADA-MPM105)



  Command ==>

 PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8-----PF12-----

 Help              Exit                                           Menu
```

Once a successful full save operation is performed with the ADASAV SAVE utility function, Delta Save logging is automatically enabled.

Displaying Current Allocation Information

You can use option A to display additional status and allocation information:

```
  13:16:45          *****  A D A B A S   BASIC  SERVICES *****        YYYY-MM-DD

   Enabled                    -  Delta Save Facility    -             PDSF002




          +-------------------------------------------------------------+

          |                                                             |

          |                        Allocation Display                   |

          |                                                             |

          |  DSF Status .......... Enabled                              |

          |                                                             |

          |  Last full save no ... 20         on 1997-01-30 at 11:19:04 |

          |  Last delta save no ..  5         on 1997-03-03 at 05:06:56 |

          |                                                             |

          |  DLOG area size ...... 500        blocks                    |

          |  DLOG area usage ..... 5%                                   |

          |  DLOG area location .. 6292       (start RABN)              |

          |  Device type ......... 3390                                 |

          |                                                             |

          |                 Press 'Enter' to continue/exit             |

          +-------------------------------------------------------------+



   Command ==>

  PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8-----PF12-----

  Help               Exit                                          Menu
```

In addition to information about the last full save and the last delta save, this display provides information about the current DLOG area size and location, the device type, and the percentage of the DLOG area size currently being used.

Displaying Files Modified by Utilities

Option F, files modified by utilities, indicates the name and number of the files changed on the first line and other information for the file on a second line.

The second line indicates the areas logged (IX for index; DS for Data Storage; AC for address converter) as well as block use and modification statistics for each file:

- total blocks changed in all logged areas;
- total DS/AC blocks used, changed, and the percentage of the used that were changed;
- total index blocks used, changed, and the percentage of the used that were changed.

Another line provides separate totals for the number of DS/AC blocks and index blocks changed for all files listed.

```
12:55:42          *****  A D A B A S   BASIC  SERVICES *****        YYYY-MM-DD

 DBID 105                     - Display DSF Files -                  PDSFF02



File No    Logged    Tot Blks    AC/DS   AC/DS Blk D %   Index   Indx Blks I %

 /Name     Areas     Changed    Blks Used  Changed   Log Blks Used Changed  Log

-------  ------------- ---------- --------- --------- --- --------- --------- ---

13 - ADABAS-LISTING

        IX             1081       281        0   0     1081     1081 100

80 - PRIME-TIME

        IX                3         2        0   0        3        3 100




         Accumulated Totals:  DS/AC ..       0      Index ..     1084













PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8-----PF12-----

Help    Repos    Exit                  --       -        +       Menu
```

PF2 invokes a window that allows you to reposition the list to a specified file number.

Estimating the Size of a Delta Save Operation

Option S, size estimate for delta, displays the estimated number of changed blocks. This number provides an estimate of the number of database blocks that would be saved in a Delta Save operation at the current time.

Allow a few seconds for the system to perform the calculation. The estimate is not precise: the actual size may be larger or smaller.

```
17:05:45          *****  A D A B A S   BASIC  SERVICES *****          YYYY-MM-DD

 Enabled                     -  Delta Save Facility   -              PDSF002

    +----------------------------------------------------------------+
    |                                                                |
    |               - Estimated Number of Changed Blocks -           |
    |                                                                |
    |                                                                |
    |   Fixed number of RABNs to be saved ....          530 blocks   |
    |   Index RABNs changed by utilities .....         1084 blocks   |
    |   DS/AC RABNs changed by utilities .....            0 blocks   |
    |                                                                |
    |   Number of RABNs logged in DLOG Area .. ca.     2000 blocks   |
    |                                                                |
    |                                                                |
    |   Approximately     3600 blocks will be saved with the next    |
    |   SAVE DELTA function.                                         |
    |                                                                |
    |                                                                |
    |                  Press 'Enter' to continue/exit               |
    +----------------------------------------------------------------+



 Command ==>

PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8-----PF12-----

Help            Exit                                          Menu
```

The fixed area includes the blocks for the first 30 RABNs, all FDTs and all FCBs.

Separate totals are provided for the number of index blocks as opposed to the number Data Storage and address converter blocks changed by utilities.

The calculated number of blocks for the DLOG area is a rounded number.

The total of all blocks to be saved is approximate to the nearest 100.

Disabling Delta Save Logging

Disabling Delta Save logging stops the logging and prevents any further ADASAV SAVE DELTA utility operations.

Option D displays a warning about disabling the Delta Save Facility and asks for confirmation.

```
 13:18:20           *****  A D A B A S   BASIC  SERVICES *****        YYYY-MM-DD

  Enabled                    -  Delta Save Facility   -               PDSF002



                +---------------------------------------------+

                |                                             |

                |                   - Warning -               |

                |                                             |

                | When DSF logging is disabled, you may no    |

                | longer perform Delta Save operations. To    |

                | enable DSF logging again, you will need to  |

                | do a full database save using ADASAV SAVE.  |

                |                                             |

                | To confirm that you want to disable DSF     |

                | logging, enter 'CONFIRM' ... _____        |

                |                                             |

                +---------------------------------------------+



         Code ......... d

         Database ID .. 105    (ADA-MPM105)

 DSFF04: Size Estimate found nothing for this request

 Command ==>

PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8-----PF12-----

Help            Exit                                            Menu
```

> **Note:** It is not possible to start or restart Delta Save logging with an online function. Delta Save logging is started ("enabled") only after successful completion of a full save operation.

If you confirm, you are returned to the Delta Save Facility main menu and the following message is displayed:

```
 DSF function Disable DSF logging successfully executed.
```

Once Delta Save logging is disabled, you can either change the DLOG area (see the section **Changing the DLOG Area**) or logically remove Delta Save logging from the system (see the section **Removing Delta Save Logging**).

Changing the DLOG Area

You can close the current DLOG area and allocate a new and possibly larger DLOG area elsewhere in the Associator. However, the DLOG area specification can only be changed when Delta Save logging is "disabled".

Option C displays a the following window allowing you to change the values for the DLOG area size and location, and the device type.

```
13:19:01          *****  A D A B A S   BASIC  SERVICES *****       YYYY-MM-DD

 Disabled                    -  Delta Save Facility    -            PDSF002



       +-----------------------------------------------------------+

       |                                                           |

       | 13:19:27            Change DLOG area              1997-02-20 |

       |                                                           |

       |    DSF Status .... Disabled                               |

       |                                                           |

       |    Change the values for the following parameters:-       |

       |                                                           |

       |        DLOG Area Size ...... 500        (in Blocks)       |

       |        DLOG Area Location .. 6292       (1st RABN) optional |

       |        Device Type ......... 3380                optional  |

       |                                                           |

       |                                                           |

       |   PF1----- PF2------ PF3------ PF4------ PF6----- PF12     |

       |   Help              Exit                         Menu     |

       +-----------------------------------------------------------+



 DSF function Disable DSF logging successfully executed

 Command ==>

PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8-----PF12-----

Help            Exit                                       Menu
```

In the "Change DLOG Area" window, enter the new DLOG size in blocks and optionally, the starting RABN in the Associator and/or the device type to be used for allocation.

Removing Delta Save Logging

Once Delta Save logging is "disabled", you can logically remove the Delta Save Facility from the system. This means that the DLOG is deallocated and the Delta Save logging status is reset to "not installed".

Option R displays the following window warning you about removing the Delta Save Facility and asking for confirmation.

```
 13:20:36          *****  A D A B A S   BASIC  SERVICES *****        YYYY-MM-DD

  Disabled                    -  Delta Save Facility   -              PDSF002


                +---------------------------------------------+

                |                                             |

                |                   - Warning -               |

                |                                             |

                | When DSF logging is removed, Delta Save     |

                | operations will no longer be possible. To   |

                | use DSF again, a completely new install     |

                | (including a full database save with        |

                | ADASAV SAVE) must be done.                  |

                |                                             |

                | To confirm the removal of DSF, enter        |

                | 'CONFIRM' ... _____                       |

                |                                             |

                +---------------------------------------------+

         Code ......... r

         Database ID .. 105    (ADA-MPM105)

  Function interrupted with PF-key

  Command ==>

 PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8-----PF12-----

 Help           Exit                                              Menu
```

If you confirm, your are returned to the Delta Save Facility main menu and the following message
is displayed:

```
DSF004: Delta Save Facility terminated at user's request.
```

6 Calculating the DLOG Area Size

To calculate a DSF logging area size (DLOGSIZE), use the following procedure as a guide:

1   First, determine

   ■ the estimated number of Associator/Data Storage write I/O operations that will occur between consecutive delta save operations (WIOS);

   ■ the Associator data set block size (ASSOBSIZ) for the Associator device from the tables in appendix A of the *Adabas Operations* documentation, and

   ■ the security factor (DLOGFAC), a multiplier to ensure that no DLOG overrun occurs.

2   Calculate the approximate number of logged RABNs per DLOG block (LOGRABNS):

$$\text{LOGRABNS} = \frac{\text{ASSOBSIZ}}{5}$$

3   Calculate the needed number of DLOG detail blocks (DLOGBLKS):

$$\text{DLOGBLKS} = \frac{\text{WIOS}}{\text{LOGRABNS}}$$

4   Calculate the DLOG block count (DLOGRAW), including the security factor:

```
DLOGRAW = DLOGBLKS * DLOGFAC
```

The value DLOGSIZE is the calculated size of the DLOG area, in blocks.

Example:

The DLOG size is calculated using an average number of I/O operations between Delta Save operations of 1,000,000 based on a 3390 device type:

The approximate number of logged RABNs per block is

$$\frac{2544}{5} = 508$$

The required detail blocks are calculated as

$$\frac{1000000}{508} = 1968$$

The total DLOG block count including the security factor (in this case, 3) is calculated as

```
1968 * 3 = 5904
```

or 5904 blocks of DLOG area.

This value is entered in the "DLOG Area Size" field.

7 Calculating the DSIM Data Set Size

The Delta Save Images (DSIM) data set must be large enough to hold an image of every Associator and Data Storage block written or changed by the database nucleus while an online save operation is active.

The DSIM data set can be any device type. If an Associator or Data Storage block to be stored in the DSIM data set does not fit into one DSIM block, it is split into two or more components. Using a device type with a block size large enough to prevent a split reduces the number of DSIM I/Os and thereby improves performance.

≫ **The following sequence of calculations can be used to estimate and define the size, in cylinders, of the DSIM data set (DSIMSIZE):**

1   First, determine the following factors:

PLBLKS	estimated number of PLOG blocks written during an online save operation.
PLBLOKSIZ	PLOG block size, by device type. This is available from the block tables in the *Adabas Installation* documentation .
DSIMBSIZ	DSIM data set block size for the DSIM device type. The DSIM device type is the same as the sort/temp device type.
DSIMBCYL	DSIM data set blocks per cylinder for the DSIM device type. Obtain the number by multiplying the "RABNs/track" table value by the "tracks/cylinder"; see the block tables in the *Adabas Installation* documentation.
SECFAC	security factor, a multiplier to ensure that no DSIM overrun occurs.

2   Convert the PLOG block count (PLBLKS) into a DSIM block count (DSIMBLKS):

$$DSIMBLKS = \frac{PLBLKS * PLBLOKSIZ}{DSIMBSIZ}$$

When the PLOG block size and the DSIM block size are equal, then this calculation is not necessary; just set DSIMBLKS equal to PLBLKS.

3   Calculate a secured (using the security factor SECFAC) "raw" DSIM size, in blocks:

```
DSIMRAW = DSIMBLKS * SECFAC
```

4   Round the DSIM size, in blocks, to the next larger cylinder boundary:

$$DSIMSIZE = \frac{DSIMRAW + DSIMBCYL - 1}{DSIMBCYL}$$

The value DSIMSIZE is the calculated size of the DSIM data set, in cylinders.

Example:

If the average number of PLOG blocks written per save is 5000, based on a 3390 device type for both the PLOG and the DSIM data set, the DSIM size is calculated as follows:

$$\frac{5000 * 5724}{8904} = 3214$$

The total "raw" DSIM block count is determined by multiplying the DSIM block count by the security factor. In this case, 2:

```
3214 * 2 = 6248
```

The "raw" block count is rounded up to the next 3390 cylinder boundary:

$$\frac{6428 + 90 - 1}{90} = 72$$

or 72 cylinders for the DSIM data set.

Index