

## **Adabas Delta Save**

### **Adabas Delta Save Facility Installation**

Version 8.4.3

October 2018

This document applies to Adabas Delta Save Version 8.4.3 and all subsequent releases.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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## Table of Contents

Preface .....	v
1 About this Documentation .....	1
Document Conventions .....	2
Online Information and Support .....	2
Data Protection .....	3
2 System Requirements .....	5
Supported Operating System Platforms .....	6
Supported Hardware .....	7
Required Software AG Products .....	7
3 Installation Procedure .....	9
VSE/ESA and z/VSE Considerations for Installing Delta Save .....	10
4 Sequential File Table .....	13
5 Applying Fixes to Delta Save .....	15
Applying Fixes to Delta Save Using MSHP PATCH .....	16
Applying Fixes to Delta Save Using MSHP CORRECT .....	17
6 User ZAPs to Change Data Set Options .....	19
VSE/ESA and z/VSE ZAP Table for Delta Save .....	20
BS2000/OSD ZAP Table for Delta Save .....	20
Index .....	23



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# Preface

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This document describes the prerequisites and installation procedure for installing the Adabas Delta Save Facility.

This document is organized as follows:

<i>System Requirements</i>	Describes the system requirements of Adabas Delta Save Facility.
<i>Installation Procedure</i>	Describes the steps to install the Adabas Delta Save Facility.
<i>Sequential File Table</i>	Summarizes the sequential files added or changed by the Adabas ADASAV utility for Delta Save operations.
<i>Applying Fixes to Adabas Delta Save Facility</i>	Describes how to apply fixes to the Adabas Delta Save Facility.
<i>User ZAPs to Change Data Set Options</i>	Provides tables showing items that can be zapped for the Delta Save Facility in VSE and BS2000 environments.

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# 1 About this Documentation

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▪ Document Conventions .....	2
▪ Online Information and Support .....	2
▪ Data Protection .....	3

## Document Conventions

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Convention	Description
<b>Bold</b>	Identifies elements on a screen.
Monospace font	Identifies service names and locations in the format <i>folder.subfolder.service</i> , APIs, Java classes, methods, properties.
<i>Italic</i>	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

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### Software AG Documentation Website

You can find documentation on the Software AG Documentation website at <http://documentation.softwareag.com>. The site requires credentials for Software AG's Product Support site Empower. If you do not have Empower credentials, you must use the TECHcommunity website.

### Software AG Empower Product Support Website

If you do not yet have an account for Empower, send an email to [empower@softwareag.com](mailto:empower@softwareag.com) with your name, company, and company email address and request an account.

Once you have an account, you can open Support Incidents online via the eService section of Empower at <https://empower.softwareag.com/>.



You can find product information on the Software AG Empower Product Support website at <https://empower.softwareag.com>.

To submit feature/enhancement requests, get information about product availability, and download products, go to [Products](#).

To get information about fixes and to read early warnings, technical papers, and knowledge base articles, go to the [Knowledge Center](#).

If you have any questions, you can find a local or toll-free number for your country in our Global Support Contact Directory at [https://empower.softwareag.com/public\\_directory.asp](https://empower.softwareag.com/public_directory.asp) and give us a call.

### **Software AG TECHcommunity**

You can find documentation and other technical information on the Software AG TECHcommunity website at <http://techcommunity.softwareag.com>. You can:

- Access product documentation, if you have TECHcommunity credentials. If you do not, you will need to register and specify "Documentation" as an area of interest.
- Access articles, code samples, demos, and tutorials.
- Use the online discussion forums, moderated by Software AG professionals, to ask questions, discuss best practices, and learn how other customers are using Software AG technology.
- Link to external websites that discuss open standards and web technology.

## **Data Protection**

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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.

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# 2 System Requirements

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- Supported Operating System Platforms ..... 6
- Supported Hardware ..... 7
- Required Software AG Products ..... 7

This chapter describes the system requirements for Adabas Delta Save Facility.

## Supported Operating System Platforms

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Software AG generally provides support for the operating system platform versions supported by their respective manufacturers; when an operating system platform provider stops supporting a version of an operating system, Software AG will stop supporting that version.

For information regarding Software AG product compatibility with IBM platforms and any IBM requirements for Software AG products, please review the [Product Compatibility for IBM Platforms](#) web page.

Before attempting to install this product, ensure that your host operating system is at the minimum required level. For information on the operating system platform versions supported by Software AG products, complete the following steps.

1. Access Software AG's Empower web site at <https://empower.softwareag.com>.
2. Log into Empower. Once you have logged in, you can expand **Products & Documentation** in the left menu of the web page and select **Product Version Availability** to access the Product Version Availability screen.
3. Use the fields on the top of this screen to filter its results for your Software AG product. When you click the **Search** button, the supported Software AG products that meet the filter criteria are listed in the table below the filter criteria.

This list provides, by supported operating system platform:

- the Software AG general availability (GA) date of the Software AG product;
- the date the operating system platform is scheduled for retirement (OS Retirement);
- the Software AG end-of-maintenance (EOM) date for the product; and
- the Software AG end-of-sustained-support (EOSS) date for the product.



**Note:** Although it may be technically possible to run a new version of your Software AG product on an older operating system, Software AG cannot continue to support operating system versions that are no longer supported by the system's provider. If you have questions about support, or if you plan to install this product on a release, version, or type of operating system other than one listed on the Product Version Availability screen described above, consult Software AG technical support to determine whether support is possible, and under what circumstances.

## Supported Hardware

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For general information regarding Software AG product compatibility with other platforms and their requirements for Software AG products, visit Software AG's [Hardware Supported](#) web page.

## Required Software AG Products

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This version of Adabas Delta Save Facility requires the following Software AG products and versions and additional software:

- Adabas version 8.4
- Adabas Online System (AOS) demo version delivered with Adabas or alternatively, the full version AOS selectable unit. The load module AOSASM from the Adabas load library must be included in the link of the Natural nucleus.

If you want to use online facilities to restart an interrupted online save operation after a system or other user ABEND (see section *Restarting an Interrupted Save Operation* in the *Adabas Delta Save Facility Utilities Manual*), you will need to use the selectable unit AOS.

For information regarding Software AG product compatibility with IBM platforms and any IBM requirements for Software AG products, please review the [Product Compatibility for IBM Platforms](#) web page.



# 3 Installation Procedure

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- VSE/ESA and z/VSE Considerations for Installing Delta Save ..... 10

➤ **To install the Adabas Delta Save Facility, perform the following steps:**

- 1 Install the ADADSF load modules in the load library used for running the Adabas nucleus and utilities.
- 2 If you plan to perform save operations online, allocate space for the DSIM data set and format the data set with the ADAFRM DSIMFRM function, as described in *Adabas Utility Functions for Delta Save* in the *Adabas Delta Save Facility Utilities Manual*.
- 3 Add the ADARUN parameter DSF=YES to the nucleus and utility jobs used to operate the database (DSF=YES is required for the nucleus and the DSF-related functions of the ADASAV, ADARES, and ADAULD utilities; it is optional for the other utilities. See the section *ADARUN Parameter DSF* in the *Adabas Delta Save Facility Administration Guide* for more information);
- 4 To automatically submit a delta save job when the DLOG area usage exceeds a certain threshold, provide the delta save user exit along with the job control statements it requires, and specify the ADARUN DSFEX1 parameter.
- 5 Start the nucleus (with DSF=YES);
- 6 Using the Adabas Online System (either the demo or full version) "Install DSF" special function described in section *Special Online Functions* in the *Adabas Delta Save Facility Administration Guide*, allocate the DSF logging area;
- 7 Perform a normal Adabas database save operation (ADASAV SAVE) to create a full save data set and to enable Delta Save logging. If the save operation is online, merge the online full save data set with the DSIM data set to produce an offline full save, and to free the DSIM data set for further use.

## VSE/ESA and z/VSE Considerations for Installing Delta Save

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- [Defining the Delta Save Sublibrary](#)
- [Restoring the Delta Save Sublibrary](#)
- [Cataloging Procedures for Defining the Delta Save Libraries and Files](#)

### Defining the Delta Save Sublibrary

Delta Save users must define an additional sublibrary in the Adabas library for the Delta Save components. A sample job to accomplish this is as follows:



```

// JOB ADEDEF          DEFINE NON-VSAM DELTA SAVE SUBLIB
// OPTION LOG
// DLBL SAGLIB,'ADABAS.Vvrs.LIBRARY',2099/365,SD
// EXTENT SYS010
// ASSGN SYS010,DISK,VOL=vvvvvv,SHR
// EXEC LIBR
    DEFINE S=SAGLIB.ADEvrs REUSE=AUTO R=Y
    LD L=SAGLIB OUTPUT=STATUS
/*
/ &

```

-where

SYS010	is the logical unit for the Adabas library
vvvvvv	is the volume for the Adabas library
vrs	is the Adabas version/revision/system maintenance (SM) level

### Restoring the Delta Save Sublibrary

A sample job to restore the Delta Save components is as follows:

```

// JOB ADERST          RESTORE NON-VSAM DELTA SAVE
// OPTION LOG
// ASSGN SYS006,cuu
// PAUSE MOUNT ADABAS INSTALL TAPE cuu
// MTC REW,SYS006
// MTC FSF,SYS006,tt
// DLBL SAGLIB,'ADABAS.Vvrs.LIBRARY'

```

```
// EXTENT SYS010
// ASSGN SYS010,DISK,VOL=vvvvvv,SHR
// EXEC LIBR
    RESTORE SUB=SAGLIB.ADEvrs          -
        TAPE=SYS006 LIST=Y R=Y
    LD SUB=ADEvrs OUTPUT=NORMAL
/*
// MTC REW, SYS006
/ &
```

-where

SAGLIB	is the Adabas library name
SYS010	is the logical unit for the Adabas library
SYS006	is the Adabas installation tape
cuu	is the physical unit address of the tape drive
tt	is the number of tape marks to space forward (see <i>Software AG Product Delivery Report</i> )
vvvvvv	is the volume for the Adabas library
vrs	is the Adabas version/revision/system maintenance (SM) level

### Cataloging Procedures for Defining the Delta Save Libraries and Files

Sample JCL for cataloging the VSE/ESA z/VSE procedures is available in member ADEPROC.X on the Delta Save sublibrary.

Job ADEPROC contains procedures ADAVvLIB and ADAVvFIL to define the Delta Save Adabas libraries and files.

Customize these procedures before cataloging them into the procedure library.

These procedures can then be used by Delta Save users for all subsequent Adabas jobs.

## 4 Sequential File Table

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This section summarizes the sequential files added or changed by the Adabas ADASAV utility for Delta Save operation. BS2000/OSD, z/VM, z/OS and OS-compatible files have "DD..." names (DDFULL, DDDEL1, etc.); VSE/ESA and z/VSE file names are without the "DD..." prefix. Appendix A of either volume of the *Adabas Utilities* documentation contains a listing of all sequential files, by utility.

Utility	File Name	VSE Tape SYS	Out	In	BLKSIZE by device	Concatenation
ADASAV	DD/FULL	30		x		Yes
	DD/DEL1	31		x		Yes
	DD/DEL2	32		x		Yes
	DD/DEL3	33		x		Yes
	DD/DEL4	34		x		Yes
	DD/DEL5	35		x		Yes
	DD/DEL6	36		x		Yes
	DD/DEL7	37		x		Yes
	DD/DEL8	38		x		Yes



**Note:** For VSE users, the highest logical unit is SYS038 for the new ADASAV MERGE function. Be sure to provide enough programmer logical units to run the ADASAV MERGE function in the desired partition.



# 5 Applying Fixes to Delta Save

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- Applying Fixes to Delta Save Using MSHP PATCH ..... 16
- Applying Fixes to Delta Save Using MSHP CORRECT ..... 17

Fixes to Delta Save follow the same guidelines as fixes to Adabas. See the *Adabas Installation* documentation for information about applying fixes to Adabas.

## Applying Fixes to Delta Save Using MSHP PATCH

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A sample job to insert a fix to Adabas Delta Save facility using MSHP PATCH is as follows:

```
// JOB PATCHD          APPLY PATCH TO ADABAS DELTA SAVE
// OPTION LOG
// EXEC PROC=ADEVvLIB
// EXEC MSHP
    PATCH SUBLIB=saglib.ADEVvrs
    AFFECTS PHASE=phasenam
    ALTER offset vvvv: rrrr
/*
/&
```

-where

vrs	is the Adabas version/revision/system maintenance (SM) level
saglib	is the Adabas library name in the procedure ADEVvFIL
phasenam	is the Adabas phase to be zapped
offset	is the hexadecimal offset into the phase
vvvv	is the verify data for the ZAP
rrrr	is the replace data for the ZAP

The above sample JCL is available in member MSHPATD.X on the Delta Save sublibrary.

## Applying Fixes to Delta Save Using MSHP CORRECT

Because Delta Save is installed into a separate sublibrary (ADEvrs) and has a separate product code, it is maintained as a separate MSHP component. Delta Save users must therefore run a MSHP ARCHIVE job for Delta Save.



**Note:** This job uses the history file identified by the IJSYSHF label in the VSE standard label area.

```
// JOB ARCHIVE          ARCHIVE ADABAS DELTA SAVE
// OPTION LOG
// EXEC PROC=ADAVvLIB
// EXEC MSHP
ARCHIVE ADEvrs
  COMPRISES 9001-ADE-00
  RESOLVES 'SOFTWARE AG - ADABAS DSF Vv.r'
ARCHIVE 9001-ADA-0E-vrs
  RESIDENCE PRODUCT=ADEvrs -
            PRODUCTION=saglib.ADEvrs -
            GENERATION=saglib.ADEvrs
/*
/ &
```

-where

vrs	is the Adabas version/revision/system maintenance (SM) level
saglib	is the Adabas library name in the procedure ADEVvFIL

The above sample job is available in member MSHPARCD.X on the Delta Save sublibrary.

A sample job illustrating the use of MSHP CORRECT to install a fix to Adabas Delta Save is as follows:

```
// JOB CORRECT      APPLY FIX TO ADABAS DSF
// OPTION LOG
// EXEC MSHP

CORRECT 9001-ADE-00-vrs: ATnnnnn

AFFECTS MODE=modname

ALTER  offset vvvv: rrrr

INVOLVES LINK=lnkname

/*
/ &
```

-where

vrs	is the Adabas version/revision/system maintenance (SM) level
nnnnn	is the Adabas fix number
modname	is the Adabas object module to be zapped and then relinked
offset	is the hexadecimal offset to the beginning of the ZAP
vvvv	is the verify data for the ZAP
rrrr	is the replace data for the ZAP
lnkname	is the link book for the phase affected

The above sample JCL is available in member MSHPCORD.X on the Delta Save sublibrary.

The following link books are defined on the Delta Save sublibrary:

ADADSFN ADADSFN ADADSFN ADAMGS



# 6 User ZAPs to Change Data Set Options

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- VSE/ESA and z/VSE ZAP Table for Delta Save ..... 20
- BS2000/OSD ZAP Table for Delta Save ..... 20

This chapter describes items that can be zapped for the Delta Save Facility. The *Adabas Installation* documentation contains a complete table of values.

## VSE/ESA and z/VSE ZAP Table for Delta Save

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The "verify/replace" values (VER/REP) shown in the following table permit user-specified device types to be changed ("zapped") for VSE/ESA files.

Utility	VSE/ESA, z/VSE File*	Default SYS Number	PTT Offset*	VER	REP
ADASAV	FULL	SYS030	2D8	1A1E	1Axx
	DEL1	SYS031	2E8	1A1F	1Axx
	DEL2	SYS032	2F8	1A20	1Axx
	DEL3	SYS033	308	1A21	1Axx
	DEL4	SYS034	318	1A22	1Axx
	DEL5	SYS035	328	1A23	1Axx
	DEL6	SYS036	338	1A24	1Axx
	DEL7	SYS037	348	1A25	1Axx
	DEL8	SYS038	358	1A26	1Axx

## BS2000/OSD ZAP Table for Delta Save

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The tape rewind defaults in the following table can be changed to

0000:	rewind
1000:	no rewind
2000:	rewind/unload

All offset values are hexadecimal:

Utility	BS2000 File*	PTT Offset*	Default
ADASAV	FULL	2DC	2000
	DEL1	2EC	2000
	DEL2	2FC	2000
	DEL3	30C	2000
	DEL4	31C	2000
	DEL5	32C	2000

---

Utility	BS2000 File*	PTT Offset*	Default
	DEL6	33C	2000
	DEL7	34C	2000
	DEL8	35C	2000

*\* The PTT base address is CSECT I\_PTT in module ADAIOR. Add the PTT offset value to this base address to obtain the complete address.*



# Index

---

## B

BS2000/OSD  
rewind options  
changing, 19

## E

Empower  
platform support, 6

## F

Files  
sequential  
determining names and blocks sizes, 13

## H

hardware support, 7

## I

installation instructions, v

## L

Logical  
units  
changing VSE, 19

## M

Microsoft Windows support, 6

## O

operating system coverage, 6  
Options  
tape rewind  
changing BS2000/OSD, 19

## P

platform support, 6  
product support  
supported platforms, 6

## R

requirements  
operating system coverage, 6

## S

support  
platforms supported, 6  
supported hardware, 7  
supported operating systems, 6  
supported platforms, 6

## U

UNIX  
supported platforms, 6

## V

VSE  
logical units  
changing, 19

## Z

ZAPs  
for changing BS2000/OSD rewind options, 19  
for changing VSE logical units, 19

