

Adabas Encryption for z/OS

Installation

Version 8.5.1

October 2021

This document applies to Adabas Encryption for z/OS Version 8.5.1 and all subsequent releases.

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

Copyright © 2021 Software AG, Darmstadt, Germany and/or Software AG USA, Inc., Reston, VA, USA, and/or its subsidiaries and/or its affiliates and/or their licensors.

The name Software AG and all Software AG product names are either trademarks or registered trademarks of Software AG and/or Software AG USA, Inc. and/or its subsidiaries and/or its affiliates and/or their licensors. Other company and product names mentioned herein may be trademarks of their respective owners.

Detailed information on trademarks and patents owned by Software AG and/or its subsidiaries is located at <http://softwareag.com/licenses>.

Use of this software is subject to adherence to Software AG's licensing conditions and terms. These terms are part of the product documentation, located at <http://softwareag.com/licenses/> and/or in the root installation directory of the licensed product(s).

This software may include portions of third-party products. For third-party copyright notices, license terms, additional rights or restrictions, please refer to "License Texts, Copyright Notices and Disclaimers of Third-Party Products". For certain specific third-party license restrictions, please refer to section E of the Legal Notices available under "License Terms and Conditions for Use of Software AG Products / Copyright and Trademark Notices of Software AG Products". These documents are part of the product documentation, located at <http://softwareag.com/licenses> and/or in the root installation directory of the licensed product(s).

Use, reproduction, transfer, publication or disclosure is prohibited except as specifically provided for in your License Agreement with Software AG.

Document ID: EZ-INSTALL-851-20210730EN

Table of Contents

Installation	v
1 About this Documentation	1
Document Conventions	2
Online Information and Support	2
Data Protection	3
2 System Requirements	5
Platform Prerequisites for Adabas Encryption	6
Software AG Products and Compatible Operating System Platforms	6
Supported Hardware	7
Compatible Adabas Versions	7
3 About the Installation Tape	9
Datasets Delivered	10
Copying the Tape Contents	10
4 Installing Adabas Encryption Software	13
Install the Adabas Encryption Load Modules	14
Apply the Necessary Zaps	14
Check, Prepare, and Install the Product License File	14
AOS Features Supporting Adabas Encryption	16

Installation

This document describes the installation of Adabas Encryption on z/OS systems.

You install Adabas Encryption the same way you install Adabas. All ADARUN parameters are available and all selectable units of Adabas are supported. Adabas Encryption introduces the new ADARUN parameter ENCRYPTION.

To use Adabas Encryption with encrypted database container datasets in a production environment, substantial organizational and configuration work must have been performed in z/OS to set up z/OS Dataset Encryption.

This document describes the preparation and actions needed to install Adabas Encryption on z/OS systems.

System Requirements	Describes the system requirements of Adabas Encryption.
About the Installation Tape	Describes the installation tape of Adabas Encryption.
Installing Adabas Encryption software	Describes the steps needed to install Adabas Encryption on z/OS.

1

About this Documentation

■ Document Conventions	2
■ Online Information and Support	2
■ Data Protection	3

Document Conventions

Convention	Description
Bold	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

Software AG Documentation Website

You can find documentation on the Software AG Documentation website at <https://documentation.softwareag.com>.

Software AG Empower Product Support Website

If you do not yet have an account for Empower, send an email to 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.aspx and give us a call.

Software AG Tech Community

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

- Access product documentation, if you have Tech Community 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

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 System Requirements

■ Platform Prerequisites for Adabas Encryption	6
■ Software AG Products and Compatible Operating System Platforms	6
■ Supported Hardware	7
■ Compatible Adabas Versions	7

This section describes the system requirements of Adabas Encryption on z/OS.

Platform Prerequisites for Adabas Encryption

The minimum prerequisite for Adabas Encryption is a z13 mainframe running z/OS 2.3, with the following additional services:

Component	Required Level	Description
Hardware	z13 CPACF	Might offer lower performance than required
	z13 Crypto Express5S (CEX5S)	Recommended for secure-key cryptography
	z14 CPACF	Substantially better performance than z13 CPACF
	z14 Crypto Express6S (CEX6S)	Recommended for secure-key cryptography
	z15 CPACF	Better performance than z14 CPACF
	z15 Crypto Express7S (CEX7S)	Improved throughput capacity over z14 CEX6S
DFSMS	z/OS 2.3 + OA56622 PTFs	OA56622 supports encryption of basic & large format sequential datasets (several prerequisites)
	z/OS 2.4 + OA56622 PTFs	
ICSF	HCR77C0 or HCR77C1	Protected-key read
	HCR77A0-B1 + OA50450 PTFs	

Software AG Products and Compatible Operating System Platforms

Software AG generally supports operating system platform versions that are supported by their respective manufacturers. When an operating system platform provider stops supporting a version of an operating system, Software AG also stops 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 any Software AG 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, expand **Products & Documentation** in the left menu of the web page and select **Product Version Availability** screen.
3. Use the fields on the top of this screen to filter the 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.
- the Software AG end-of-sustained-support (EOSS) date for the product.



Note: Although it might 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

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.

Compatible Adabas Versions

Adabas Encryption version 8.5 SP1 is compatible with all currently supported Adabas versions, with specific maintenance updates as follows:

Adabas Version	Required Zaps
Adabas 8.5 SP3	None
Adabas 8.5 SP2	AI852005, AI852006, AN852023, AU852012, AU852016
Adabas 8.5 SP1	AI851014, AN851058, AU851026, AU851027
Adabas for zIIP 8.4 SP3	AI843018, AN843117, AU843045, AU843046
Adabas 8.4 SP2	AI842016, AN842088, AU842042, AU842043



Note: Mainframe License Check (MLC) version 1.3 SP5 or higher must always be running alongside Adabas and the Adabas Encryption modules.

3

About the Installation Tape

■ Datasets Delivered	10
■ Copying the Tape Contents	10

This section describes the installation tape.

Datasets Delivered

This section describes the datasets that are delivered with Adabas Encryption. In all dataset names, *vrs* represents the version, release, and maintenance level numbers of the release of Adabas Encryption. The following datasets are delivered with Adabas Encryption for z/OS:

Dataset Name	Contains
AEZ <i>vrs</i> .JOBS	Sample JCL
AEZ <i>vrs</i> .LOAD	Load modules
AEZ <i>vrs</i> .ZAPS	Contains Adabas fixes that are required for running Adabas Encryption.

Copying the Tape Contents

Copy the datasets from the supplied installation medium to your disk before you perform the individual installation procedure for each component to be installed. The way you copy the datasets depends on the installation method and the medium used:

- If you use *System Maintenance Aid* (SMA), refer to the copy job instructions provided in the *System Maintenance Aid* documentation.
- If you are not using SMA and want to copy the datasets from CD-ROM, refer to the README.TXT file on the CD-ROM.
- If you are not using SMA and want to copy the datasets from tape, follow the instructions in this section.

The following steps explain how to copy all datasets from tape to disk:

- [Step 1: Copy Dataset COPY.JOB from Tape to Disk](#)
- [Step 2: Modify hilev.COPY.JOB on Your Disk](#)

■ Step 3: Submit COPY.JOB

Step 1: Copy Dataset COPY.JOB from Tape to Disk

- Modify the following sample job according to your requirements:

```
//SAGTAPE JOB SAG,CLASS=1,MSGCLASS=X
//* -----
//COPY EXEC PGM=IEBGENER
//SYSUT1 DD DSN=COPY.JOB,
// DISP=(OLD,PASS),
// UNIT=(CASS,,DEFER),
// VOL=(,RETAIN,SER=tape-volser),
// LABEL=(2,SL)
//SYSUT2 DD DSN=hilev.COPY.JOB,
// DISP=(NEW,CATLG,DELETE),
// UNIT=3390,VOL=SER=disk-volser,
// SPACE=(TRK,(1,1),RLSE),
// DCB=*.SYSUT1
//SYSPRINT DD SYSOUT=*
//SYSIN DD DUMMY
//
```

where:

tape-volser is the VOLSER of the tape, for example: T12345,
hilev is a valid high-level qualifier, and
disk-volser is the VOLSER of the disk.

- Execute the job to copy the dataset COPY.JOB to your disk.

Step 2: Modify hilev.COPY.JOB on Your Disk

Modify hilev.COPY.JOB according to your requirements:

- Modify *hilev.COPY.JOB* according to your requirements.
- Set EXPDT to a valid expiration date, for example, 99365.
- Set HILEV to a valid high-level qualifier, for example, USERLIB.
- Set LOCATION to a storage location, for example, STORCLAS=ABC or UNIT=3390,VOL=SER=USR123.

Step 3: Submit COPY.JOB

- Execute `hilev.COPY.JOB` to copy single, multiple, or all datasets to your disk.

4

Installing Adabas Encryption Software

■ Install the Adabas Encryption Load Modules	14
■ Apply the Necessary Zaps	14
■ Check, Prepare, and Install the Product License File	14
■ AOS Features Supporting Adabas Encryption	16

Make sure your system meets the requirements described in the previous section System Requirements with respect to z/OS prerequisites, hardware prerequisites, and compatible Adabas versions.

To install Adabas Encryption, complete the steps below:

Install the Adabas Encryption Load Modules

Install the Adabas Encryption load modules by concatenating the delivered AEZ load library first in the sequence of libraries used for running the Adabas nucleus and utilities. Alternatively, if a combined load library is to be used, ensure that the combined library contains all modules from the delivered AEZ load library. The Adabas Encryption load modules can be found in `AEZvrs.LOAD`.

Apply the Necessary Zaps

Apply any necessary zaps, as described in the \$README member in the `AEZvrs.MVSZAPS` library and in any subsequent `AEZvrs.MVSZnnn` datasets (if they have been provided).



Note: The `AEZvrs.LOAD` library contains replacement ADAIOR and ADAIOS modules with encryption support. Zap IDs for these replacement modules have the prefix AE (for example, AE851001, AE851002 and others). These AE prefixed zaps are not applicable to the ADAIOR/ADAIOS modules from the standard ADA/AZP load libraries. Likewise, standard ADA/AZP zaps (with prefix AI or AO) are not applicable to the ADAIOR/ADAIOS from the AEZ load library.

Check, Prepare, and Install the Product License File

You must install a valid license file on all mainframe platforms in which your Software AG mainframe product is installed. The license file is provided as an XML document (encoding is US-ASCII) and must remain in that format, even on the mainframe. It must not be modified. Any modification of the license file will invalidate the digital signature and the license check will fail. In the event of a check failure, please contact your Software AG technical support representative.

For a full product list of license file names, load modules and DD/Link names, refer to the Adabas installation documentation.



Note: Thirty days before the license expires, license check failure messages are produced. Your software product will still function, but these messages warn you that it is time to obtain a new license.

In the following steps, you will prepare the license file and then install it:

- [Preparing the Product License File](#)
- [Installing the Product License File](#)

Preparing the Product License File

The product license file is supplied on the individual customer installation tape or separately via an e-mail attachment. Before you can install the license, you must transfer it from e-mail or the installation tape and store it on a z/OS system. This section describes how to do this for a license distributed either by e-mail or on the installation tape.

➤ To prepare the license file from an e-mail attachment, complete the following steps:

- 1 Transfer the license to z/OS, as described in the Adabas documentation *Software AG Mainframe Product Licensing > Transferring a License File from PC to a z/OS Host Using FTP*.
- 2 Verify that the transferred license file is stored in an Adabas source library (with RECFM=F or FB and LRECL=80), taking care to preserve its format as ASCII.

➤ To prepare the license file from the installation tape, complete the following step:

- Verify that the license file is stored from the tape into an Adabas source library (with RECFM=F or FB and LRECL=80), taking care to preserve its format as ASCII.

Installing the Product License File

Once the license file has been prepared, you can install it in one of two ways:

- You can convert the license to a load module (AEZLIC) that is then loaded by the Adabas nucleus/utility job.
- You can reference the license file in the Adabas nucleus/utility job by DD statement.

This section describes both methods.

➤ To convert the license file to a load module, complete the following steps:

- 1 Review and modify sample job ASMLICAM in the AEZ_{vr}s.JOBS library, as follows:
 Set the variable MLCLOAD to point to the license load library (MLC_{vr}s.LOAD).
 Set the variable USRLOAD to point to an appropriate user load library.



Note: This user load library must also be included in the STEPLIB concatenation for Adabas nuclei and utilities.

Set the LICFILE parameter to point to the dataset containing the Adabas Encryption license file you transferred to z/OS earlier.

Set the LMOD parameter to the load module name AEZLIC.

- 2 Submit sample job ASMLICAM. This job runs the MAKE function of the LICUTIL utility to convert the license text file to an assembler source module. ASMLICAM then links and assembles the assembler source to generate a load module called AEZLIC, which is stored in the specified user load library (USRLOAD). For more information about the LICUTIL utility, refer to the Adabas documentation's *Software AG Mainframe Product Licensing > Using the License Utility: LICUTIL*.
- 3 Update your Adabas nuclei and utility jobs to reference the user load library so AEZLIC will be loaded by the Adabas nuclei and utilities.

➤ To reference the license file in Adabas nuclei and utility jobs, complete the following steps:

- 1 Make sure any previously created AEZLIC load module is inaccessible to your nuclei and utility jobs. The nucleus or utility first tries to load AEZLIC and, if unsuccessful, it reads from a dataset defined to the DD statement DDLAEZ.
- 2 Update your Adabas nuclei and utility jobs to reference the license.

AOS Features Supporting Adabas Encryption

In the Adabas Online System, the **Display Installed Products** screen shows whether the selected Adabas nucleus supports encryption (ADARUN parameter ENCRYPTION=YES).

To display the Installed Products screen:

1. Select option A (**Session Monitoring**) from the main menu
2. Select option I (**Display Installed Products**) from the Session Monitoring menu

This is supported at the following Adabas Online Services fix levels:

AOS Version	Fix level
Version 8.5 SP3	AOS853I001
Version 8.5 SP2	AOS852I001
Version 8.5 SP1	AOS851I002
Version 8.4 SP3	AOS843I004
Version 8.4 SP2	AOS842I005