

Adabas Parallel Services

Installation

Version 8.5.4

October 2019

This document applies to Adabas Parallel Services Version 8.5.4 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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Installation

This documentation describes the installation process for Adabas Parallel Services.

It is important to review the entire installation procedure before starting the physical installation. Depending on which components you actually install, it may be useful to group certain installation activities together, even though they may not be in the same installation section.

Refer to Adabas Parallel Services Release Notes for specific information about late changes to this section.

Using System Maintenance Aid

If you use Software AG's System Maintenance Aid (SMA), refer to the *System Maintenance Aid* documentation for information about the installation process.

The installation procedures described in this section correspond to the jobs that SMA creates to install the product.

If you do not use SMA, you can modify and use the sample JCL provided to unload the Adabas Parallel Services libraries from the installation tape.

The Adabas Cluster Services Installation documentation is organized in the following topics:

System Requirements
Using System Maintenance Aid
Data Sets Delivered
z/OS Systems Installation
Modifying the z/OS Common Storage (CSA) Key

1 Conventions

Notation *vrs* or *vr*: When used in this documentation, the notation *vrs* or *vr* stands for the relevant version, release, and system maintenance level numbers. For further information on product versions, see *version* in the *Glossary*.

2 About this Documentation

Document Conventions
Online Information and Support
Data Protection

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.
1	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.

3 System Requirements

Supported Operating System Platforms
Supported Hardware
Prerequisite Software AG Software

Adabas Parallel Services can be installed on z/OS and z/VSE operating systems.

This chapter describes the system requirements of Adabas Parallel Services.

Supported Operating System Platforms

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.

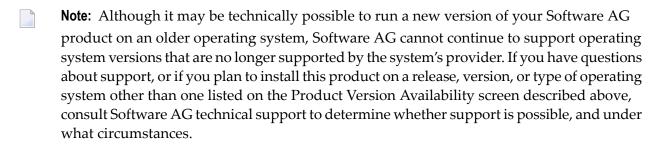
For information regarding Software AG product compatibility with IBM platforms and any IBM requirements for Software AG products, please review the *Product Compatibility for IBM Platforms* web page.

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.
- 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.



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.

Prerequisite Software AG Software

This section describes the Software AG product and SVC (router) requirements for Adabas Parallel Services.

- Adabas Requirements
- Adabas Online System Requirements
- Router (SVC) Requirements and Support

Adabas Requirements

Adabas Parallel Services version 8.5 SP1 requires Adabas version 8.5 SP1, with appropriate Adabas 8.5 SP1 zaps applied.

Please be sure to check the Knowledge Center in Software AG's Empower (https://empower.soft-wareag.com) web site for additional cluster-related Adabas zaps when installing Adabas Parallel Services. The complete Adabas zaps may not be supplied with your Adabas Parallel Services product.

All Adabas nuclei in the same cluster must run with the same version, release, and modification levels of Adabas and of Adabas Parallel Services. For example, if one nucleus in a cluster runs with Adabas Parallel Services 8.5 SP1 and Adabas 8.5 SP1, the other nuclei in the cluster must also run with Adabas Parallel Services 8.5 SP1 and Adabas 8.5 SP1; they cannot run with different versions.

The following table identifies the Software AG cluster products and the Adabas product combinations with which they are compatible:

Software AG Cluster Product		Compatible Adabas	
Name	Library Version	Library Version	SVC Version
Adabas Parallel Services	8.5 SP1	8.5 SP1	8.5 SP1
	8.4 SP1	8.4 SP1	8.4 SP1

Adabas Online System Requirements

If you install Adabas Online System (AOS), either the demo version delivered with Adabas 8.5 SP1 or the version 8.5 SP1 selectable unit is required.

Router (SVC) Requirements and Support

Adabas Parallel Services requires a compatible version of the Adabas router (ADASVC), which contains the Adabas Parallel Services component SVCCLU. The router must be installed on each operating system image in the parallel sysplex where either Adabas cluster nuclei or users are located.

The Adabas router (SVC) provided with Adabas 8.5 SP1 supports clusters running Adabas Parallel Services 8.4 SP1 as well as clusters running Adabas Parallel Services 8.5.

For more information about Adabas router compatibility, review the table showing valid Adabas and cluster product combinations in *Adabas Requirements*, elsewhere in this section.

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Using System Maintenance Aid

If you use Software AG's System Maintenance Aid (SMA) , refer to the *System Maintenance Aid Manual* for information about the installation process.

The installation procedures described in this section correspond to the jobs that SMA creates to install the product.

5 Data Sets Delivered

The following data sets are delivered with Adabas Parallel Services on z/OS platforms:

Data Set Name	Contains	
ADAvrs.LOAD	D Packaged in the Adabas load library containing the load modules ADASMC, ADASM	
	ADASMM and ADAS6C; are now executable with the distributed ASM license module.	

5 z/OS Systems Installation

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This section describes the preparation for and installation of Adabas Parallel Services on z/OS systems.



Important: Before proceeding with the installation, ensure that the prerequisite environment has been established. Review the earlier sections of this part of the documentation for detailed information.

The installation procedure outlined in this section corresponds to the jobs that SMA creates to install the product.

Step 1: APF-Authorize All Load Libraries

Ensure that Adabas Parallel Services runs authorized.

To run authorized, the Adabas version load libraries and all other load libraries in the STEPLIB concatenation must be APF-authorized. .

■ Ensure that all load libraries referenced in the STEPLIB concatenation for your Entire Net-Work, ADACOM, and Adabas cluster nuclei startup procedures are defined to the operating system as authorized libraries. If this is not done, ADACOM or the cluster nuclei will not initialize and may abnormally terminate, usually with an ABENDS047 or ABENDS306.

Either copy the base Adabas modules and the Adabas Parallel Services modules to an existing APF-authorized library or APF-authorize the Adabas load library unloaded from the base Adabas installation tape

Step 2: Customize ADACOM

Make any needed additions and modifications to the ADACOM member.

Read *ADACOM Initialization Parameters* in the *Adabas Parallel Services Reference Guide* for more information about specifying values for ADACOM parameters.

Step 3: Create a Startup Procedure for ADACOM

An ADACOM initialization task is provided. This task must be active on the operating system image before any Adabas Parallel Services cluster nucleus is started. All load libraries in the STEPLIB concatenation of ADACOM must be APF-authorized.

ADACOM allocates the nucleus table for monitoring the active nuclei and the user table for monitoring users in the extended CSA (ECSA) above the 16MB line.

■ The following is a sample job for running ADACOM:

```
//ADACOM PROC
//*------*

//* ADABAS PARALLEL SERVICES ADACOM Vv.r.s STARTUP *

//*-----*

//ASMvrs EXEC PGM=ADARUN, REGION=4M, TIME=1440

//STEPLIB DD DISP=SHR, DSN=ADABAS. Vvrs. LOAD

//*

//COMPRINT DD SYSOUT=*

//DDPRINT DD SYSOUT=X

//DDCARD DD *

ADARUN PROGRAM=ADACOM
/*

//DDKARTE DD *

ADACOM SVC=sv1, DBID=dbid1, NU=150

ADACOM SVC=sv1, DBID=dbid2, NU=150, F=Y

ADACOM SVC=sv2, DBID=dbid1, NU=500

ADACOM SVC=sv2, DBID=dbid3, NU=500

/*
```

The COMPRINT DD statement must be specified when running ADACOM. It defines an output data set for all general messages printed by ADACOM. For each SVC/DBID set specified in the ADACOM task, two subtasks are attached and SYSOUT data sets are dynamically allocated to receive all messages specific to that combination. The DD-name of the SYSOUT data sets are "Pssddddd" and "Dssddddd", where ss represents the last two digits of the SVC number and ddddd are the five digits of the DBID.

ADACOM can also be installed as a started task; no special considerations apply.

You may also want to add the ADACOM task's start command to member COMMNDxx of SYS1.PARMLIB; this enables the ADACOM task to begin automatically at IPL.

Step 4: Create a Startup Procedure for Each Cluster Nucleus

> Complete the following steps:

1 Customize a startup procedure to execute ADARUN.

For each Adabas cluster nucleus, customize the appropriate startup parameters and execute ADARUN from the Adabas load library.

The following sample JCL (job ASMNUC in the MVSJOBS data set) executes the Adabas ADARUN program to implement session parameters for an Adabas Parallel Services cluster nucleus.

Note that the Adabas Parallel Services library is concatenated ahead of the Adabas library in the STEPLIB.

```
//ADANUC
           JOB MSGCLASS=X,TIME=1440
     THIS IS A STARTUP JOB FOR A PARALLEL SERVICES NUCLEUS
//*
//*
//*
     THE ADARUN PARMS HAVE TO BE CUSTOMIZED
//*
     DEPENDING ON THE USER'S ENVIRONMENT
     DETAILS ARE PROVIDED IN THE OPERATIONS MANUAL
//NUC EXEC PGM=ADARUN, REGION=10M
//STEPLIB DD DISP=SHR,DSN=ADABAS.Vvrs.LOAD <=== ADABAS LOAD
//DDASSOR1 DD DISP=SHR, DSN=EXAMPL.DByyy.ASSOR1 <=== ASSO
//DDDATAR1 DD DISP=SHR, DSN=EXAMPL. DB, y, y, DATAR1 <=== DATA
//DDWORKR1 DD DISP=SHR, DSN=EXAMPL.DByyy.WORKR1 <=== WORK
//DDPLOGR1 DD DISP=SHR, DSN=EXAMPL.DB, y, y, PLOGR1 <=== PLOG1
//DDPLOGR2 DD DISP=SHR,DSN=EXAMPL.DByyy.PLOGR2 <=== PLOG2
//DDDRUCK DD SYSOUT=X
//DDPRINT DD SYSOUT=X
//MPMDUMP DD
               SYSOUT=X
//DDCARD DD
ADARUN PROG-ADANUC
ADARUN CLUSTER=LOCAL
ADARUN MODE=MULTI
ADARUN DEVICE=3390
ADARUN CT=60
ADARUN OPENRQ=NO
                          ---> DEFAULT = YES
ADARUN PLOGRQ=NO
                          ---> DEFAULT = YES
ADARUN LBP=900000
```

```
ADARUN LFIOP=300000
ADARUN LCP=10000
ADARUN LFP=12000
ADARUN LWP=350000
ADARUN LI=10000
ADARUN LS=20000
ADARUN LU=65535
ADARUN LP=1500
ADARUN NAB=16
                              ---> FOR BATCH NATURAL INPL
ADARUN NISNHQ=1000
ADARUN NT=8
ADARUN TT=600
ADARUN TNAA=600
ADARUN TNAE=600
ADARUN TLSCMD=300
ADARUN DUALPLS=6750
                              ---> 50 CYL
ADARUN DUALPLD=3390
ADARUN LOGGING=NO
```

Step 5: Modify the z/OS Common Storage (CSA) Key

If necessary, modify the z/OS Common Storage (CSA) key.

With z/OS version 1.9, the default setting of the ALLOWUSERKEYCSA parameter has been changed to NO, prohibiting the allocation of CSA storage in a non-privileged storage key. In past releases of Adabas Parallel Services, its data structures in common storage (PLXCB and subordinate control blocks) were stored in user key storage. Due to the change of the ALLOWUSERKEYCSA default, you must either change the ALLOWUSERKEYCSA setting in z/OS 1.9 to YES or accept the ALLOWUSERKEYCSA default setting in z/OS 1.9 (NO). If you accept the default, you will need to modify your Adabas Parallel Services installation and the Adabas Parallel Services and ADACOM startup procedures to use a system key.

For more information, read *Modifying the z/OS Common Storage (CSA) Key*, elsewhere in this guide.

Step 6: Start Adabas Parallel Services

> To start Adabas Parallel Services, complete the following steps:

- 1 Start the ADACOM initialization task on the operating system image that is hosting the Adabas Parallel Services cluster environment.
- 2 Start the Adabas Parallel Services cluster nuclei in any order.
 - The Adabas Parallel Services cluster is now ready to process user requests.

Rules for subsequent starts of Adabas Parallel Services are described in *Restart/Recovery Processing* in the *Adabas Parallel Services Operations Guide*.

Modifying the z/OS Common Storage (CSA) Key

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With z/OS version 1.9, the default setting of the ALLOWUSERKEYCSA parameter has been changed to NO, prohibiting the allocation of CSA storage in a non-privileged storage key. In past releases of Adabas Cluster Services and Adabas Parallel Services, its data structures in common storage (PLXCB and subordinate control blocks) were stored in user key storage. Due to the change of the ALLOWUSERKEYCSA default, you must either:

- Change the ALLOWUSERKEYCSA setting in z/OS 1.9 to YES. In this case, you need do nothing more, but you incur the security risk that unauthorized programs might modify storage owned by Adabas Cluster Services and Adabas Parallel Services.
- Accept the ALLOWUSERKEYCSA default setting in z/OS 1.9 (NO), thus eliminating the security risk. If you choose this option, however, you will need to modify your Adabas Cluster Services or Adabas Parallel Services installation and the Adabas Cluster Services, Adabas Parallel Services, and ADACOM startup procedures to use a system key. This chapter provides information on modifying the Adabas Cluster Services and the startup procedures to use a system key and on the prerequisites for doing so.

Requirements and Recommendations

The following requirements and recommendations apply when modifying the CSA storage key:

- The Adabas version 8 ADASVC is required. This procedure, when used with the Adabas 8 ADASVC, supports Adabas 7 and 8 used with Adabas Cluster Services versions 7.4 and 8, and with Adabas Parallel Services versions 7.4, 7.5 and 8. Older releases of Adabas Cluster Services or Adabas Parallel Services may require that some fixes be applied before attempting this, so be sure to check the Knowledge Center of Software AG's Empower (at https://empower.soft-wareag.com) web site for them.
- APF authorization is required to be assigned a system key. Adabas Parallel Services and Adabas Cluster Services nuclei must run authorized, but utilities and classic nuclei may bypass APF authorization by applying an optional fix to ADASVC. If APF authorization is not in effect and the execution JCL has been modified as described below, the following message will appear during initiation:

IEF188I PROBLEM PROGRAM ATTRIBUTES ASSIGNED

Steps to Modify the CSA Key

In general, you can modify the CSA key one system at a time for each database. On each system, you can apply the modifications to each DBID/SVC combination independently. One exception to this is when ADACOM controls more than one DBID/SVC pair. In this case, you must modify all DBID/SVC combinations defined to that ADACOM at the same time. All database member nuclei on the system using that ADASVC or ADACOM must be stopped and restarted.

The modification to the CSA storage key involves the use of program name ADARUNK, which is an alias for ADARUN. When your modifications are complete (see the steps below), your installation and all of the appropriate execution JCL will have been changed to use ADARUNK (PGM=ADARUNK) instead of ADARUN. Once this is done, z/OS will assign a system key to all tasks for the nuclei or ADACOM processes. Although only ADACOM tasks and nuclei associated with Adabas Cluster Services or Adabas Parallel Services obtain CSA storage and are required to perform these modification steps to avoid using a user key, the ADARUNK program can also be used for classic Adabas nuclei and utilities.

> To modify the CSA storage key to a system key:

Add the following entry for program ADARUNK to an active Program Properties Table description in SYS1.PARMLIB(SCHEDxx):

```
PPT PGMNAME(ADARUNK) KEY(4)
```

- Activate the new PPT entry. This will occur automatically at the next IPL, or you can use the z/OS operator command SET SCH(xx) to activate it without an IPL.
- 3 Optionally, create permissions for the FACILITY class resource IEAABD.DMPAKEY to allow SYSUDUMP to include system key storage.

When executing with a system key, SYSUDUMP will not contain the system key storage. The following message will appear:

```
IEA848I DUMP SUPPRESSED - ABDUMP MAY NOT DUMP STORAGE FOR KEY 0-7
```

Since cluster nuclei and ADACOM may obtain large storage objects, we suggest including a //SYSUDUMP DD statement in the execution JCL instead of a //SYSUDUMP DD statement. Otherwise, enable SYSUDUMP for system key tasks by permitting the user to have read access to the IEAABD.DMPAKEY resource in the FACILITY class. For more information, refer to your z/OS Security Server (RACF) Security Administrator's Guide.

Examine the Adabas load library to see if an entry exists for ADARUNK. If it does not, create an alias ADARUNK for member ADARUN. You can do this using programs such as PDSTOOLS or the freeware PDS or use the Linker/Binder to relink ADARUN and create the alias:

```
//LINK EXEC PGM=IEWL,PARM='Map,Let,List(All),Ncal'
//SYSPRINT DD SYSOUT=*
//SYSLMOD DD DSNAME=<Adabas load library>,DISP=SHR
//SYSLIN DD *
    Include SYSLMOD(ADARUN)
        Order RUNMVS,USRZAP,RUNIND
        Mode AMode(31),RMode(24)
        Setcode AC(1)
        Entry RUNMVS
        Alias ADARUNK
        Name ADARUN(R)
/*
```

- 5 Stop all Adabas Parallel Services and Adabas Cluster Services member nuclei that use the same DBID/SVC pair.
- Any existing user key PLXCB structures for a DBID/SVC combination must be deleted. This happens automatically at the next IPL or if ADASVC is reinstalled using ADASIP.

ADACOM may be used to deallocate the PLXCB without an IPL by specifying NU=0 for every DBID/SVC pair, and then stop and restart ADACOM.

The following sequence of operator commands may also be used to deallocate a PLXCB after stopping all nuclei but before stopping ADACOM:

```
F <ADACOM job>, DBID=<dbid>, SVC=<svc>, ADAEND
F <ADACOM job>, DBID=<dbid>, SVC=<svc>, NU=0
```

- 7 If ADACOM is running and controlling the database, it must be stopped.
 - **Caution:** If ADACOM is controlling more than one DBID/SVC pair, all pairs must be processed at the same time.
- Modify the startup JCL for each Adabas Parallel Services or Adabas Cluster Services member nucleus and ADACOM to specify program ADARUNK instead of ADARUN. For example, for an Adabas Parallel Services or Adabas Cluster Services nucleus you might specify:

```
//NUC240 EXEC PGM=ADARUNK
```

For an ADACOM startup procedure, you might specify:

//ALSvrs EXEC PGM=ADARUNK, REGION=4M, TIME=nnnnn

- 9 Modify the JCL for each Adabas Parallel Services or Adabas Cluster Services member nucleus and ADACOM to include a //SVCDUMP DD DUMMY statement.
- 10 Restart all ADACOM jobs and Adabas Parallel Services and Adabas Cluster Services nuclei that you stopped in Step 5.
- 11 Repeat steps 5 through 10 for each DBID/SVC pair.
 - 1

Caution: If ADACOM is controlling more than one DBID/SVC pair, all pairs must be processed at the same time.

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