

# **Adabas Parallel Services**

## **Installation**

Version 8.4.1

April 2018

This document applies to Adabas Parallel Services Version 8.4.1 and all subsequent releases.

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

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# Installation

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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 Parallel Services Installation documentation is organized in the following topics:

<a href="#"><i>System Requirements</i></a>
<a href="#"><i>Using System Maintenance Aid</i></a>
<a href="#"><i>Data Sets Delivered</i></a>
<a href="#"><i>z/OS Systems Installation</i></a>
<a href="#"><i>Modifying the z/OS Common Storage (CSA) Key</i></a>
<a href="#"><i>z/VSE Systems Installation</i></a>

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# 1 Conventions

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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 System Requirements

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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

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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

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 8.4 SP1 requires Adabas version 8.4 SP1 and above, with appropriate Adabas 8.4 zaps applied.

Please be sure to check the Knowledge Center in Software AG's Empower (<https://empower.softwareag.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 8.4 SP1 and Adabas 8.4 SP1, the other nuclei in the cluster must also run with Adabas Parallel Services 8.4 SP1 and Adabas 8.4 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	8.4 SP1	8.4 SP1	8.4 SP1
	8.4 SP1	8.4 SP1	8.4 SP2
	8.4 SP1	8.4 SP2	8.4 SP2
	8.3 SP1	8.3 SP4	8.3 SP4
	8.3 SP1	8.3 SP4	8.4 SP1

Software AG Cluster Product		Compatible Adabas	
Name	Library Version	Library Version	SVC Version
	8.3 SP1	8.3 SP4	8.4 SP2

### Adabas Online System Requirements

If you install Adabas Online System (AOS), either the demo version delivered with Adabas 8.3 SP1 or the version 8.3 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 8.4 SP1 and above support clusters running Adabas Parallel Services 8.4 SP1 as well as clusters running Adabas Parallel Services 8.3. In addition, please note that there are no intermediate releases of Adabas Parallel Services between Version 8.4 SP1 and 8.4 SP2. The version of the ADABAS SVC or router(BS2000) used must be the same as or greater than the version of any database used in your Adabas environment.

For more information about Adabas router compatibility, review the table showing valid Adabas and cluster product combinations in [Adabas Requirements](#), elsewhere in this section.

# 3

## 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.

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.



# 4 Data Sets Delivered

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

In all data set names, *vrs* represents the version, release, and maintenance level numbers of the release of Adabas Parallel Services.

Data Set Name	Contains
ASM <i>vrs</i> .LOAD	Adabas Parallel Services load modules.  Please be sure to check the Knowledge Center in Software AG's Empower ( <a href="https://empower.softwareag.com">https://empower.softwareag.com</a> ) web site for additional cluster-related Adabas zaps when installing Adabas Cluster Services.

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

Data Set Name	Description
ASM <i>vrs</i> .LIBR	Adabas Parallel Services objects, phases, sample source, and jobs.





# 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. If you do not use SMA, you can modify and use the sample JCL provided in section [Unload the Installation Libraries to Disk](#) to unload the libraries from the installation tape.

## Step 1: Unload the Installation Libraries to Disk

---

Sample JCL is provided in the base Adabas source library. This JCL can be modified and used to unload the Adabas Parallel Services libraries from the installation tape.

The Adabas Parallel Services installation tape is a standard label tape. Refer to the *Software AG Product Delivery Report* that accompanies the tape for the volume serial number, density, media type, data set names, and data set sequence numbers.

The tape contains the installation data sets, a data set required by SMA, and one or more data sets containing maintenance fixes. Refer to *Zap Information* in the *Adabas Parallel Services Release Notes* for information about applying fixes.

- [Allocate DASD](#)
- [Copy the Contents of the Tape to Disk](#)

### Allocate DASD

The load library for Adabas Parallel Services requires one cylinder.

### Copy the Contents of the Tape to Disk

Copy the data sets 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 data sets 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 data sets from CD-ROM, refer to the README.TXT file on the CD-ROM.
- If you are not using SMA and want to copy the data sets from tape, follow the instructions in this section.

This section explains how to copy all data sets from tape to disk.

- [Step 1: Copy Data Set COPY.JOB from Tape to Disk](#)
- [Step 2: Modify hilev.COPY.JOB on Your Disk](#)
- [Step 3: Submit COPY.JOB](#)

### Step 1: Copy Data Set 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 data set COPY.JOB to your disk.

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

- 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 `hldev.COPY.JOB` to copy single, multiple, or all data sets to your disk.

## Step 2: APF-Authorize All Load Libraries

---

Ensure that Adabas Parallel Services runs authorized.

To run authorized, the Adabas Parallel Services and 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 Parallel Services library that was unloaded from the installation tape and the Adabas load library unloaded from the base Adabas installation tape.

## Step 3: 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 4: 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 "Pssdddd" and "Dssdddd", where *ss* represents the last two digits of the SVC number and *dddd* 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 COMMND<sub>xx</sub> of SYS1.PARMLIB; this enables the ADACOM task to begin automatically at IPL.

## Step 5: 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.
- 2 Concatenate the Adabas Parallel Services load library ahead of the Adabas load library in the STEPLIB.
- 3 Allocate and format a Work data set for each nucleus.

All nuclei in an Adabas Parallel Services cluster share a common database resource; i.e., the same ASSO and DATA data sets. Each nucleus in the cluster must have its own Work data

set; and all Work data sets within a cluster must have the same size and device type as defined in the general control block (GCB).

Use DISP=SHR on the DD card for the Work data set (DDWORKR1). During an offline or online restart/recovery, a nucleus may access the Work data sets belonging to other nuclei in the cluster.

- 4 Specify for each nucleus the ADARUN parameters CLUSTER, NUCID, CLUCACHETYPE, CLUCACHESIZE, CLULOCKSIZE, and CLUCACHEUNCHANGED.

Although each nucleus of an Adabas cluster shares the same database resource (DBID), each nucleus must have a unique NUCID value:

- a single (noncluster) nucleus: NUCID=0 (default)
- a cluster nucleus: NUCID=1-65000

Values for the CLUCACHESIZE and CLULOCKSIZE parameters are required for allocating the global data spaces. Read *Performance and Tuning in the Adabas Parallel Services Operations Guide* for sizing recommendations.

Use current values for all other ADARUN parameters, then reevaluate the values after monitoring the result. Ensure that each nucleus in the cluster is prepared to handle the entire workload for the common database, if necessary.

- 5 If protection logs are used, they must be dual or multiple logs and each nucleus must have its own. If one nucleus in the cluster runs with PLOGs, all nuclei in the cluster must run with PLOGs. The ADARUN PLOGRQ parameter must be the same for all nuclei (global parameter).

If user exit 2 or user exit 12 is supplied for one nucleus, the same user exit must be supplied for all nuclei in the cluster. User exit 12 must be used instead of user exit 2 if NCLOG/NPLOG is specified.

- 6 If command logs are used, each nucleus must have its own. If command logs are to be merged, they must be dual or multiple command logs and each nucleus in the cluster must have the same CLOG definition. To invoke automatic CLOG merging, CLOGMRG=YES must be specified in the ADARUN parameters or given as an operator or AOS/ADADBS command to any nucleus in the cluster.
- 7 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=ASM.Vvrs.LOAD      <=== ASM LOAD
//          DD    DISP=SHR,DSN=ADABAS.Vvrs.LOAD  <=== ADABAS LOAD
//DDASSOR1 DD    DISP=SHR,DSN=EXAMPL.DByyy.ASSOR1 <=== ASSO
//DDDATAR1 DD    DISP=SHR,DSN=EXAMPL.DByyy.DATAR1 <=== DATA
//DDWORKR1 DD    DISP=SHR,DSN=EXAMPL.DByyy.WORKR1 <=== WORK
//DDPLOGR1 DD    DISP=SHR,DSN=EXAMPL.DByyy.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  SVC=num          <--- INSERT YOUR SVC NUMBER
ADARUN  DBID=yyy         <--- INSERT YOUR DATABASE ID
ADARUN  NUCID=nnnnn     <--- INSERT YOUR NUCLEUS ID
ADARUN  CLUCACHESIZE=size <--- INSERT YOUR CACHE SIZE
ADARUN  CLULOCKSIZE=size <--- INSERT YOUR LOCK SIZE
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
ADARUN  NISNHQ=1000     ---> FOR BATCH NATURAL INPL
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 6: 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 7: 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*.



# 6 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.softwareag.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:

- 1 Add the following entry for program ADARUNK to an active Program Properties Table description in SYS1.PARMLIB(SCHED<sub>xx</sub>):

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

- 2 Activate the new PPT entry. This will occur automatically at the next IPL, or you can use the z/OS operator command SET SCH(<sub>xx</sub>) 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 //SVCDUMP 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*.

- 4 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 DSNNAME=<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.
- 6 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.

- 8 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.



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



# 7 z/VSE Systems Installation

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

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

## Step 1: Unload the Installation Libraries to Disk

---

The Adabas Parallel Services installation tape is a standard label tape. Refer to the *Software AG Product Delivery Report* that accompanies the tape for the volume serial number, density, media type, data set names, and data set sequence numbers.

The tape contains the installation data sets, a data set required by SMA, and one or more data sets containing maintenance fixes. Refer to *Zap Information* in the *Adabas Parallel Services Release Notes* for information about applying fixes.

- [Copy the Contents of the Tape to Disk](#)

### Copy the Contents of the Tape to Disk

Copy the data sets 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 data sets 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 data sets from CD-ROM, refer to the README.TXT file on the CD-ROM.
- If you are not using SMA and want to copy the data sets from tape, follow the instructions in this section.

This section explains how to copy the data sets .LIBJ, .LIBR and .LICS from tape to disk. All other data sets can be installed directly from the tape.

- [Step 1: Copy Data Set COPYTAPE.JOB to Disk](#)
- [Step 2: Modify COPYTAPE.JOB on Your Disk](#)



- Step 3: Submit COPYTAPE.JOB

### Step 1: Copy Data Set COPYTAPE.JOB to Disk

- Modify the following sample job according to your requirements:

```
* $$ JOB JNM=LIBRCAT,CLASS=0,                                     +
* $$ DISP=D,LDEST=(*,UID),SYSID=1
* $$ LST CLASS=A,DISP=D
// JOB LIBRCAT
* *****
*     STORE COPYTAPE.JOB IN LIBRARY
* *****
// ASSGN SYS004,nnn
// MTC REW,SYS004
// MTC FSF,SYS004,4
ASSGN SYSIPT,SYS004
// TLBL IJSYSIN,'COPYTAPE.JOB'
// EXEC LIBR,PARM='MSHP; ACC S=lib.sublib'
/*
// MTC REW,SYS004
ASSGN SYSIPT,FEC
/*
/&
* $$ EOJ
```

where:

*nnn* is the tape address, and

*lib.sublib* is the library and sublibrary in which the data set COPYTAPE.JOB is to be stored.

- Execute the job to copy the data set COPYTAPE.JOB to disk.

COPYTAPE.JOB contains the JCL required to copy the data sets .LIBJ, .LIBR and .LICS from tape to disk.

### Step 2: Modify COPYTAPE.JOB on Your Disk

- Modify COPYTAPE.JOB according to your requirements and set the disk space parameters as appropriate.

### Step 3: Submit COPYTAPE.JOB

- Execute COPYTAPE.JOB to copy the data sets .LIBJ, .LIBR and .LICS to your disk.

## Step 2: Install the Adabas Parallel Services Library

---

- [Define the Sublibrary](#)
- [Restore the Adabas Parallel Services Sublibrary](#)

### Define the Sublibrary

Adabas Parallel Services users must define an additional sublibrary in the Adabas library for the Adabas Parallel Services components.

A sample job to accomplish this is as follows:

```
// JOB ASMDEF DEFINE NON-VSAM SUBLIB
// OPTION LOG
// DLBL SAGLIB,'ADABAS.Vvrs.LIBRARY',2099/365,SD
// EXTENT SYS010
// ASSGN SYS010,DISK,VOL=vvvvvv,SHR
// EXEC LIBR
DEFINE S=SAGLIB.ASMvrs 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

### Restore the Adabas Parallel Services Sublibrary

A sample job to restore the Adabas Parallel Services components is as follows:

```

// JOB ASMRST RESTORE NON-VSAM
// 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.ASMvrs -
TAPE=SYS006 LIST=Y R=Y
LD SUB=SAGLIB.ASMvrs 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 the <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

### Step 3: Customize the ADACOM Procedure

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 4: 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.

ADACOM allocates the nucleus table for monitoring the active nuclei and the user table for monitoring users in the SVA above the 16MB line.

The following is a sample job for running ADACOM:

```
// JOB ADACOM
//*-----*
//*      ADABAS PARALLEL SERVICES ADACOM Vv.r.s STARTUP      *
//*-----*
// LIBDEF PHASE,SEARCH=(SAGLIB.ASMvrs,SAGLIB.ADAvrs)
// EXEC ADARUN,SIZE=ADARUN
ADARUN PROG=ADACOM
/*
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
/*
/ &
```



**Note:** ADACOM must run in a dynamic partition.

## Step 5: Create a Startup Procedure for Each Cluster Nucleus

➤ To 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.



**Note:** Each Adabas cluster nucleus must run in a dynamic partition.

- 2 Concatenate the Adabas Parallel Services load library ahead of the Adabas load library in the LIBDEF PHASE SEARCH statement.
- 3 Allocate and format a Work data set for each nucleus.

All nuclei in an Adabas Parallel Services cluster share a common database resource; i.e., the same ASSO and DATA data sets. Each nucleus in the cluster must have its own Work data set; and all Work data sets within a cluster must have the same size and device type as defined in the general control block (GCB).

- 4 Specify for each nucleus the ADARUN parameters CLUSTER, NUCID, CLUCACHESIZE, CLULOCKSIZE, and CLUCACHEUNCHANGED.

Although each nucleus of an Adabas cluster shares the same database resource (DBID), each nucleus must have a unique NUCID value:

- a single (noncluster) nucleus: NUCID=0 (default)
- a cluster nucleus: NUCID=1-65000

Values for the `CLUCACHESIZE` and `CLULOCKSIZE` parameters are required for allocating the global data spaces. Read *Performance and Tuning* in the *Adabas Parallel Services Operations Guide*.

Use current values for all other ADARUN parameters, then reevaluate the values after monitoring the result. Ensure that each nucleus in the cluster is prepared to handle the entire workload for the common database, if necessary.

- 5 If protection logs are used, they must be dual or multiple logs and each nucleus must have its own. If one nucleus in the cluster runs with PLOGs, all nuclei in the cluster must run with PLOGs. The ADARUN `PLOGRQ` parameter must be the same for all nuclei (global parameter). If user exit 2 or user exit 12 is supplied for one nucleus, the same user exit must be supplied for all nuclei in the cluster.
- 6 If command logs are used, each nucleus must have its own. If command logs are to be merged, they must be dual or multiple command logs and each nucleus in the cluster must have the same CLOG definition. To invoke automatic CLOG merging, `CLOGMRG=YES` must be specified in the ADARUN parameters or given as an operator or AOS/ADADBS command to any nucleus in the cluster.

The following sample JCL executes the Adabas ADARUN program to implement session parameters for an Adabas Parallel Services cluster nucleus.



**Note:** The Adabas Parallel Services library is concatenated ahead of the Adabas library in the `LIBDEF PHASE SEARCH` statement.

```
// JOB ADANUC
//*-----
//* 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
//*-----
// LIBDEF PHASE,SEARCH=(SAGLIB.ASMvrs,SAGLIB.ADAvrs)
// DLBL ASSOR1,'EXAMPL.DBYYY.ASSOR1'
// EXTENT SYS020
// DLBL DATAR1,'EXAMPL.DBYYY.DATAR1'
// EXTENT SYS021
// DLBL WORKR1,'EXAMPL.DBYYY.WORKR1'
// EXTENT SYS022
// DLBL PLOGR1,'EXAMPL.DBYYY.PLOGR1'
// EXTENT SYS027
// DLBL PLOGR2,'EXAMPL.DBYYY.PLOGR2'
// EXTENT SYS028
// ASSGN SYS009,PRINTER
// EXEC ADARUN,SIZE=ADARUN
ADARUN PROG=ADANUC
ADARUN CLUSTER=LOCAL
ADARUN MODE=MULTI
ADARUN SVC=SSS <--- INSERT YOUR SVC NUMBER
```

```
ADARUN DBID=YYY          <--- INSERT YOUR DATABASE ID
ADARUN NUCID=NNNNN      <--- INSERT YOUR NUCLEUS ID
ADARUN CLUCACHESIZE=XXXXXXX <--- INSERT YOUR CACHE SIZE
ADARUN CLULOCKSIZE=XXXXXXX <--- INSERT YOUR LOCK SIZE
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
ADARUN NISNHQ=1000      ---> FOR BATCH NATURAL INPL
ADARUN NT=8
ADARUN TT=600
ADARUN TNA=600
ADARUN TNAE=600
ADARUN TLSCMD=300
ADARUN DUALPLS=6750     ---> 50 CYL
ADARUN DUALPLD=3390
ADARUN LOGGING=NO
/*
/ &
```

## 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*.

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