software AG

Adabas Cluster Services

Release Notes

Version 8.1.3

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Adabas Cluster Services

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This documentation provides detailed information on Adabas Cluster Services version 8.1 and describes the updates and modifications of this version.

Adabas Cluster Services 8.1.3 Enhancements

This section provides information on enhancements made to Adabas Cluster Services for this release.

The section covers the following topics:

- Support for Adabas 8.1
- Alert Enhancements
- New ADARUN Parameters
- New and Changed Operator Commands
- Adabas Cluster Services-Entire Net-Work Enhancements
- New Structure Size Calculators
- Serialization Scope Reduction
- z/OS Common Storage (CSA) Key Handling
- Support for Distributed Transactions

Support for Adabas 8.1

Adabas Cluster Services 8.1.3 supports Adabas 8.1, SM3 or later. Adabas 8 includes enhancements that lift many of the limits imposed by prior releases of Adabas. This includes support for increased limits for the number of database and file extents and the number of MU and PE field occurrences, as well as support for spanned records and large objects (LOBs).

The Adabas router (SVC) provided with Adabas 8.1.3 supports clusters running Adabas Cluster Services 8.1.3 as well as clusters running Adabas Cluster Services 7.4.2. In addition, please note that there are no intermediate releases of Adabas Cluster Services between Version 7.4.2 and 8.1.3.

All Adabas nuclei in the same cluster must run with the same version, release, and modification levels of Adabas and of Adabas Cluster Services. For example, if one nucleus in a cluster runs with Adabas Cluster Services 8.1.3 and Adabas 8.1.3, the other nuclei in the cluster must also run with Adabas Cluster Services 8.1.3 and Adabas 8.1.3; 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 Cluster Services	8.1.3	8.1.3	8.1.3
	7.4.2	8.1.2	8.1.x
		7.4.x	8.1.x 7.4.x

Alert Enhancements

This version of Adabas Cluster Services includes alert and timeout enhancements designed to help you prevent or handle critical situations where system problems might cause the prolonged unavailability of one cluster member, thus endangering the ability of the cluster member (or in severe cases, the entire cluster) to provide service. These enhancements include:

■ A cancel alert that generates an operator message can be invoked when a cluster member is unresponsive to an intracluster command for a specified period of time. If the cluster member does not respond before the message times out, it is canceled.

■ Self-termination alerts that generate operator messages can be invoked when a canceled cluster member does not terminate as requested (in a specified period of time) and the other cluster members prepare to self-terminate.

■ An operator query that prints an operator console message and requests a response from the operator. This can be invoked by cluster members that are preparing to self-terminate because a canceled peer member remains active.

■ XCF system- and member-level status monitoring can be used to determine if a cluster member is unable to respond to internal intracluster requests. This monitoring process prints operator messages that provide early warning information about the cluster member.

■ Enhanced messaging statistics provide information about the performance of message transmission events. These statistics can be used to determine the impact of messaging on system performance and to determine how to set the ADARUN parameters related to the alert and timeout enhancements.

For more information about these alerts, read *Using Alert and Timeout Settings*, in *Adabas Cluster Services Operations*.

New ADARUN Parameters

The following new ADARUN parameters were introduced for this release of Adabas Cluster Services:

■ MXCANCELWARN

■ MXMSGWARN

■ MXSTATUS

■ MXWTOR

All of these parameters are local and modifiable. That is, they can be set differently for each nucleus in the cluster (local) and they can be modified in one cluster nucleus while it is running using corresponding operator commands.

For complete information about these ADARUN parameters, read *Useful ADARUN Parameters*, in *Adabas Cluster Services Reference*.

New and Changed Operator Commands

The output produced by the following operator commands was enhanced for this release of Adabas Cluster Services:

■ DPARM

■ DMEMTB

The following new operator commands were introduced for this release of Adabas Cluster Services:

■ DXMSG

■ MXCANCEL

■ MXCANCELWARN

■ MXMSG

■ MXMSGWARN

■ MXSTATUS

■ MXWTOR

> **Note:** At this time, these new commands can be issued only from the operator console. Support using the ADADBS OPERCOM function or the Adabas Online System (AOS) is not yet provided.

For complete information about these operator commands, read *Adabas Cluster Nucleus Operator Commands*, in *Adabas Cluster Services Reference*.

Adabas Cluster Services-Entire Net-Work Enhancements

The following internal updates have been made in this release of Adabas Cluster Services to enhance the interaction of cluster members with Entire Net-Work.

■ An improved method by which cluster members declare DBID targets to Entire Net-Work is provided in this release. This ensures that Entire Net-Work never perceives the database to be active on different nodes at the same time, thus reducing the risk of the database becoming unavailable to users until the conflict is resolved.

■ Improvements have been made to minimize the perceived database downtime. With this release, when a DBID target is lost due to the shutdown of the Entire Net-Work node that hosts the target, the target is redeclared automatically, as soon as is feasible when the Entire Net-Work node restarts.

■ The use of Entire Net-Work for transporting intracluster control information has been reduced. XCF (Cross-System Coupling Facility Services) is used instead, where feasible. This improves the effect of any Entire Net-Work outages on Adabas Cluster Services.

> **Note:** Adabas Cluster Services heavily uses the messaging, lock, and cache services provided by XCF and XES (Cross-System Extended Services for Data Sharing) as a foundation of its work. Any XCF or XES outage may well cause the abnormal termination of one or more cluster members or the entire cluster.

New Structure Size Calculators

A new set of Adabas Online System (AOS) functions is provided in this release to help you calculate appropriate sizes for cache and lock structures in the coupling facility:

■ The cache structure calculator helps you estimate an adequate cache structure size and related ADARUN DIRRATIO and ELEMENTRATIO parameters in a cluster environment. The cache structure must be large enough to provide sufficient space tor tracking all blocks kept in the buffer pools of all connected cluster nuclei (directory elements) and for keeping all changed blocks until they are written to the database (data elements). For more information, read *Estimating Sizes for the Cache Structure in a Cluster Environment*, in *Adabas Cluster Services Operations*.

■ The lock structure calculator helps you estimate an adequate lock structure size in a cluster environment. The lock structure must be large enough to provide sufficient space for keeping the lock record elements for all locks held at the same time and to avoid too much false contention between locks on different resources. For more information, read *Estimating Sizes for the Lock Structure in a Cluster Environment*, in *Adabas Cluster Services Operations*.

> **Note:** The lock structure formula has changed. You may find it necessary to either increase the size in the CFRM policy or decrease the value of the ADARUN parameters NU, NH, or LDEUQP.

Serialization Scope Reduction

Wherever possible in this release, the scope of the system- or sysplex-wide serialization (ENQ operations with SCOPE= SYSTEM or SYSTEMS) has been reduced to the smallest possible level that accurately reflects the sources to be protected. This is done to ensure that only the databases and servers that work on the same resources at the same time are impacted by serialization operations.

z/OS Common Storage (CSA) Key Handling

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, 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.

- 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 installation and the Adabas Cluster Services and ADACOM startup procedures to use a system key. For information on modifying the Adabas Cluster Services startup procedure to use a system key and on the prerequisites for doing so, read *Modifying the z/OS Common Storage (CSA) Key*, in *Adabas Cluster Services Installation*.

Support for Distributed Transactions

Adabas Cluster Services 8.1.3 fully supports distributed transactions (in other words, ADARUN parameter setting DTP=RM), when run in conjunction with Adabas Transaction Manager 8.1 (or Adabas Transaction Manager 7.5 plus appropriate fixes for Adabas 8.1 support).

Required Environment

This part of the documentation describes the environment settings required for running Adabas Cluster Services 8.1.3. The required environment is essentially the same as the one for Adabas Cluster Services 7.4.2.

The section covers the following topics:

- Parallel Sysplex System
- Software AG Product Environment

  ■ Sysplex System Prerequisites

Parallel Sysplex System

One or more z/OS operating system images defined as members of a parallel sysplex are required that are:

■ connected with an IBM Sysplex Timer™, and

■ connected to a coupling facility, and

■ running z/OS or z/OS.e (any version supported by IBM)

* Support for z/OS.e is currently restricted to client programs executing in batch or under TSO or Com-plete.

Software AG Product Environment

Adabas Cluster Services version 8.1.3 requires Adabas version 8.1, SM3 or later. This delivery includes required Adabas zaps that existed when Adabas Cluster Services 8.1.3 was released. Please check Empower for additional cluster-related Adabas zaps when installing Adabas Cluster Services.

Adabas Cluster Services version 8.1.3 requires Entire Net-Work version 6.1 or above. The necessary components of Entire Net-Work are delivered with Adabas Cluster Services. Please check Empower for Entire Net-Work zaps that must be applied to Entire Net-Work 6.1.

If you install Adabas Online System (AOS), either the demo version delivered with Adabas 8.1.3 or the version 8.1.3 selectable unit is required. AOS is compiled under Natural version 3.1 and runs on that and all subsequent versions of Natural.

Sysplex System Prerequisites

An operational IBM parallel sysplex environment is required, if Adabas Cluster Services is to provide 24-by-7 availability for an indefinite period of time. This includes the necessary hardware to support the configuration, the necessary links and channels for connectivity, and the power to provide the required performance during peak production periods. The knowledge and experience required to implement and maintain such an environment should be acquired from IBM.

Adabas Cluster Services uses:

■ a coupling facility cache structure

■ a coupling facility lock structure

■ multiple protection logs, command logs, and Work data sets on shared DASD

For testing purposes only, the hardware, operating system, and software environment may be totally different. You may simulate the sysplex cluster using a series of LPARs, including the

coupling facility itself. However, under these circumstances, system performance cannot be accurately measured.

Adabas Add-on Product Support

Adabas Cluster Services version 8.1.3 supports add-on products as follows:

Adabas Product	Compatible Version Level
Adabas Caching Facility (ACF)	8.1
Adabas Delta Save (ADE)	8.1
Adabas Fastpath (AFP)	8.1 (or version 7.4 with appropriate fixes applied)
Adabas Manager (AMA)	Support is planned in a future version
Adabas Online System (AOS)	8.1
Adabas Review (REV)	4.4
Adabas SAF Security (AAF)	8.1 (or version 7.4 with appropriate fixes applied)
Adabas Statistics Facility (ASF)	No support is provided at this time.
Adabas Transaction Manager (ATM)	8.1 (or version 7.5 with appropriate fixes applied)
Adabas Vista (AVI)	8.1 (or version 7.4 with appropriate fixes applied)
Event Replicator for Adabas (ARK)	3.1

Restricted Support for Adabas Features

This section describes facilities internal to Adabas that are not supported for sysplex cluster nuclei running under this Adabas Cluster Services version. The facilities are supported normally for noncluster nuclei; however, no Adabas Cluster Services functionality is available to them.

For an Adabas cluster nucleus running in an parallel sysplex environment, the following features are not available and cannot be specified:

- MODE=SINGLE

- sequential protection log (DDSIBA)

- synchronous buffer flush (LFIOP=0)

The following features are not currently supported for a cluster nucleus running in an parallel sysplex environment under this Adabas Cluster Services version, but may be supported in subsequent versions of the product:

- READONLY=YES (receives PARM ERROR 71 if attempted).

- ■ `UTIONLY=YES` can be specified for a sysplex cluster nucleus; if you start cluster nuclei with conflicting settings of `UTIONLY`, the system will change them to conform to the setting of the first active nucleus. Currently, however, the `UTIONLY` setting cannot be changed using an ADADBS OPERCOM or Adabas Online System function. Once the cluster is started, the only way to change the `UTIONLY` setting is to bring down the whole cluster and restart it with a different setting.

- ■ advance file lock (ALOCKF).

- ■ online reorder.

Enhanced error recovery is supported; however, option changes are effective only for the local nucleus.

TCP/IP direct links are supported; however, the IP address/port is tied to an individual nucleus.

Migrating from Adabas Cluster Services 7.4.2

▶ **To migrate from Adabas Cluster Services 7.4.2 to Adabas Cluster Services 8.1.3, complete the following steps:**

1 Shut down the whole cluster. Run the Adabas ADARES PLCOPY or ADASAV SAVE utility operations as necessary for your installation. For more information on these utility functions, refer to your Adabas documentation.

2 Replace the load library in your existing installation with the library supplied by Software AG containing Adabas 8.1.3 (ADA813) and Adabas Cluster Services 8.1.3 (ALS813) data sets. Then apply the zaps delivered with Adabas Cluster Services 8.1.3 and any Adabas Cluster Services zaps and pertinent Adabas zaps downloaded from Empower.

3 Install the Adabas 8.1.3 SVC if you have not already done so.

4 Run the ADACNV utility to convert your database to Adabas 8.1 format. For more information about using the ADACNV utility, refer to your Adabas 8 documentation (available at *http://documentation.softwareag.com/adabas/default.htm*).

5 Restart the cluster.

End of Maintenance

For information on how long a product is supported by Software AG, access Software AG's Empower web site at *https://empower.softwareag.com*.

Log into Empower. Once you have logged in, you can expand **Products** in the left menu of the web page and select **Product Version Availability** to access the Product Version Availability application. This application allows you to review support information for specific products and releases.

Zap Information

This section covers the following topics related to zaps and your use of Adabas Cluster Services:

- Adabas Zaps on Empower
- Applying Zaps to Adabas Cluster Services Components

Adabas Zaps on Empower

Please be sure to check the Knowledge Center in Software AG's Empower (*https://empower.software-ag.com*) web site for any cluster-related Adabas zaps when you install Adabas Cluster Services. The complete Adabas zaps may not be supplied with your Adabas Cluster Services product.

Applying Zaps to Adabas Cluster Services Components

Usually, zaps for components of Adabas Cluster Services (Adabas nuclei, the SVCCLU component of the Adabas SVC, the ADACOM task) can be applied and made active one component at a time. That is, individual components can be shut down, have the zap applied, and be brought up again without ever shutting down the entire cluster. This is the default method of applying zaps, which is in effect if the zap description does not explicitly state otherwise.

In some cases, it may be possible that applying and activating a zap one component at a time would introduce erroneous behavior in the components that have not yet been zapped. If this is the case for a zap, it will be clearly indicated in the zap description, and instructions will be given for how to apply and activate the zap properly.

Documentation

The documentation for this product is new with this release. When additional updated versions of the documentation are created, you can review them by linking to the Software AG document-

ation web site: *http://documentation.softwareag.com/*. If you have an Empower account, updated and past versions of the documentation can also be reviewed and downloaded by linking to the Software AG Empower web site: *https://empower.softwareag.com*. If you do not have an Empower user ID and password yet, you will find instructions for registering on this site (free for customers with maintenance contracts).

The Adabas Cluster Services documentation includes:

- online HTML topics describing all aspects of the product;

- Adobe Acrobat Reader Portable Document Format (PDF) files created from the HTML topics;

- Adobe Acrobat Reader Portable Document Format (PDF) files for a series of manuals created from the HTML topics.

No hard-copy documentation is provided, but you can print the PDF and HTML files on your local printer.

Viewing Software AG Product Documentation under Windows XP SP2

With Service Pack 2 (SP2) for Windows XP and Service Pack 1 (SP1) for Server 2003, Microsoft introduced a range of powerful new security features that restrict active content that runs locally on your computer. Active content includes ActiveX controls, Java applets, and JavaScript. Software AG's documentation web pages contain some JavaScript, and the SEARCH, INDEX and CONTENTS capabilities are implemented as Java applets. As a result, when viewing documentation web pages that reside on your PC using Internet Explorer and Mozilla Firefox under Windows XP SP2, note that active content is blocked. You must explicitly and repeatedly allow active content if you want to make use of the documentation's full navigation features. Note that this behavior is only observed when reading web pages installed locally on your PC, including those on CD in the PCs CD-ROM drive.

The active content for which Software AG is responsible, that is, the JavaScript code in our HTML documentation pages, will not harm your computers. The risk in using the navigation applets is negligible: Software AG has received no reports from users concerning any harm caused to a computer by the applets. We therefore suggest that when reading Software AG documentation in a local context, you should allow active content via the Security settings in the browser (with Internet Explorer, usually found under Tools > Internet Options > Advanced).

Full details of alternatives can be found on the home page of the suppliers of the navigation applets: *http://www.phdcc.com/xpsp2.htm*.

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