Prerequisite Software and Required Operating Environment

Adabas Cluster Services requires a parallel sysplex environment.

Note:
Fujitsu Technology Systems' HIPLEX is not supported.

This chapter describes the operating environment and the other Software AG software required to install and run Adabas Cluster Services successfully.

- Required Operating Environment

- Performance Recommendations

- Prerequisite Software AG Software

Required Operating Environment

This section describes the operating environment required to install and run Adabas Cluster Services successfully.

- Operating System Requirements

- Sysplex System Requirements

- Coupling Facility

- XCF and XES Services

Operating System Requirements

Adabas Cluster Services can be installed on z/OS operating systems. 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 (any version supported by IBM)

Before attempting to install Adabas Cluster Services, ensure that the host operating system is at the minimum required level. For information on the platform versions supported by Software AG products, access the Software AG web site at
http://www.softwareag.com/corporate/products/bis/platforms/default.asp.

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

To determine the particular platforms supported by this release of Adabas Cluster Services, review the product version availability information, available on Software AG's Empower web site: *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.

Although it may be technically possible to run a new version of Adabas or Adabas Cluster Services on an old 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 Adabas or Adabas Cluster Services on a release, version, or type of operating system other than those included at the link above, consult Software AG technical support to determine whether support is possible, and under what circumstances.

Sysplex System Requirements

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.

Coupling Facility

The coupling facility configuration must have sufficient resources to support the cache and lock structures used by Adabas Cluster Services. You can duplex these structures, if at least two coupling facilities are available. Adabas Cluster Services can coexist without restriction with other coupling facility users such as GRS Star.

Each Adabas Cluster Services database uses one cache structure and one lock structure. For each, you must define all of the following in the coupling facility resource management (CFRM) policy:

- the name of the structure (NAME)

- the structure size (SIZE or INITSIZE)

- the preference list of one or more coupling facilities where the structure should be allocated (PREFLIST).

You can also allow duplexing (DUPLEX) or dynamic reallocation (ALLOWREALLOCATE) of either structure.

XCF and XES Services

Adabas Cluster Services uses parallel sysplex XCF (Cross-System Coupling Facility) services for intracluster communication and XES (Cross-System Extended Services) for intracluster data sharing. Entire Net-Work may also use XCF services. XCF and XES must be available and functioning at all times for Adabas Cluster Services to operate smoothly.

Performance Recommendations

The inherent necessity to synchronize and share data across system boundaries makes it a challenge for Adabas Cluster Services to perform as well or better than the base Adabas, especially when measured by CPU consumption. Adabas Cluster Services performance is best when the following recommendations are applied:

- The coupling facility processors (CFCPs) should be at least as fast as the central processors running Adabas Cluster Services and they should have sufficient capacity to avoid delays in the execution of coupling facility requests.

- The coupling facility link speed should match the coupling facility processor speed.

- The buffer efficiency in a cluster nucleus when functioning as a non-cluster nucleus should be equal to or greater than 50.

- The buffer pool size (LBP) used for a cluster nucleus should not be lower than when the nucleus is functioning as a non-cluster nucleus.

- The rate of throwbacks due to ISN contention should not be greater than two percent (2%).

- The size of the cache and lock structures specified in the coupling facility resource management (CFRM) policy should be appropriate. For more information, read *Optimizing Lock and Cache Structures in the Coupling Facility* .

  You may use the cache and lock structure size calculators provided for Adabas Cluster Services in Adabas Online System to estimate adequate structure sizes. For more information about these calculators, read *Estimating Sizes for the Cache Structure in a Cluster Environment* and *Estimating Sizes for the Lock Structure in a Cluster Environment*.

Performance measurements of Adabas Cluster Services in a test environment may yield inconclusive results if these recommendations are not followed.

Prerequisite Software AG Software

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

- Adabas Requirements

- Adabas Online System (AOS) Requirements

- Entire Net-Work Requirements

- Router (SVC) Requirements and Support

Adabas Requirements

Adabas Cluster Services version 8.2 SP3 requires Adabas version 8.2 SP3, with appropriate Adabas 8.2 SP3 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 Cluster Services. The complete Adabas zaps may not be supplied with your Adabas Cluster Services product.

The appropriate version of Adabas must be installed and operational on your systems before you install Adabas Cluster Services.

- Use the ADADEF utility to define a new Adabas database.

- Use the ADACNV utility to convert an existing database from an earlier version.

For more information, refer to your *Adabas Utilities Manual* documentation.

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 8.2 SP3 and Adabas 8.2 SP3, the other nuclei in the cluster must also run with Adabas Cluster Services 8.2 SP3 and Adabas 8.2 SP3; 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	8.2 SP3	8.2 SP3	8.2 SP3
	8.2 SP2	8.2 SP2	8.2 SP*x*
	8.1 SP3	8.1 SP*x*	8.2 SP*x*
		8.1 SP*x*	8.1 SP*x*

Adabas Online System (AOS) Requirements

If you install Adabas Online System (AOS), either the demo version delivered with Adabas 8.2 SP3 or the version 8.2 SP3 selectable unit is required.

Entire Net-Work Requirements

Entire Net-Work for mainframes is required for communication between users and non-local Adabas Cluster Services nuclei. The essential Entire Net-Work components, including the XCF line driver, are part of the Adabas Cluster Services package.

Adabas Cluster Services version 8.2 SP3 requires Entire Net-Work version 6.2 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 6.2.

Entire Net-Work must be installed on each operating system image in the parallel sysplex where either Adabas cluster nuclei or users are located. Each system with Entire Net-Work installed becomes a *node* in the network. Each node's adjacent links to other nodes are defined by name and driver type.

All nodes in your network must either be running Entire Net-Work 6.2 SP2 or must have zaps WM621028 (for Entire Net-Work version 6.2 SP1 installations) or WM612033 (for Entire Net-Work version 6.1 SP3 installations) applied. Either 6.2 SP2 must be installed or these zaps must be applied to all nodes that will connect together, regardless of the operating system or whether Adabas Cluster Services exists on the node. If a node that does not meet these requirements attempts to connect to a node that does meet the requirements, message NETT029I will be issued and the connection will fail. If a node that does not meet these requirements attempts to connect via IUCV to a node that does meet the requirements, one of the nodes will get message NET0151I and the connection will fail.

In addition, you should also be sure to apply any corequisite zaps. For Adabas Cluster Services the following corequisite zaps are required to support the Entire Net-Work WM621028 and WM612033 zaps:

- In Adabas 8.2 SP2 environments, apply zaps AN822075 and AN822121.

- In Adabas 8.1 SP4 environments, apply zaps AN814126, AN814157, and AN814177.

- In Adabas 8.1 SP3 environments, apply zaps AN813290, AN813319, and AN813336.

Router (SVC) Requirements and Support

Adabas Cluster Services requires a compatible version of the Adabas router (ADASVC), which contains the Adabas Cluster 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 8.2 SP3 supports clusters running Adabas Cluster Services 8.2 SP2 or SP3 as well as clusters running Adabas Cluster Services 8.1. In addition, please note that there are no intermediate releases of Adabas Cluster Services between Version 8.1 SP3 and 8.2 SP2.

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