Adabas Caching Facility

Glossary

Version 8.5.1

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ADABAS & NATURAL

This document applies to Adabas Caching Facility Version 8.5.1 and all subsequent releases.

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

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Glossary

A

Adabas Buffer Efficiency

Calculated by the nucleus, Adabas buffer efficiency is the number of requested reads divided by the number of actual reads.

Adabas Caching can be activitated if the Adabas buffer efficiency drops below a certain setting using the `CDEMAND` parameter.

ADACSH

Adabas Caching is implemented by the ADACSH module. The ADARUN parameter `CACHE=YES` is used to indicate that the ADACSH module is to be loaded during Adabas session initialization. RABN ranges or files may be predefined using ADACSH session parameters or dynamically added or modified using the ADACSH operator commands.

For more information, see the ADACSH Module.

C

Cache Space

Cache space, as used within Adabas Caching, is a *logical* amount of memory available for caching a specific type of Adabas RABN in a specific type of memory or cache.

Cache spaces can be defined in extended memory, data spaces, hiperspaces, virtual 64 storage and virtual 64 storage backed by large pages. Once defined, cache areas are allocated dynamically as RABNs move to and from the cache areas and to and from the Adabas buffer pool.

For more information, see Adabas Caching Configuration.

Cache Space Area

The maximum size of the storage that may be allocated for a given cache space is determined by the `CMAXCSPS` parameter and the `CASSOMAXS` and `CDATAMAXS` parameters:

```
CMAXCSPS · CDATAMAXS

 or

CMAXCSPS · CASSOMAXS
```

When space is required for a RABN range or file, ADACSH allocates an area of storage in the type of cache requested (extended memory, data space, hiperspace, or virtual 64) with a size of `CASSOMAXS` or `CDATAMAXS`, depending on the type of RABN being cached. When this space is exhausted, another area of storage is allocated until the maximum number of areas has been allocated as specified by `CMAXCSPS`.

Cache spaces for caching of Work RABNs are allocated in one block according to the Work caching parameters (`CWORKSTORAGE`, `CWORK2FAC`, `CWORK3FAC`).

Performance gains may be realized by providing a sufficient number of cache space areas (`CMAXCSPS`) to accommodate the database's working set; that is, the set of Associator and Data Storage blocks accessed during the Adabas session. This effectively reduces the physical read I/O to one EXCP per block used.

Note: In versions of Adabas Dynamic Caching prior to 7.1, a cache space area was used for a single RABN range only. A single cache space area is now used for multiple RABN ranges. For best performance, it is therefore advisable to use fewer, larger cache space areas than were used prior to version 7.1. The maximum number of cache space areas possible is currently 16.

Cache Space Number (CSN)

When specifying RABNs to be cached, CSN is the RABN Range ID that will be assigned to the new RABN range.

This was previously called the cache space number (CSN). For compatibility, the CSN terminology has been retained; however, the CSN now identifies the RABN Range ID to be used as there is no longer a direct correlation between cache spaces and RABN ranges.

For more information, see **RABN Range ID**.

Caching Level

Adabas Caching provides for caching RABNs globally by RABN range, or at the file level, caching all RABNs associated with a particular file or range of files. File-level caching and global caching for

Associator and Data Storage are mutually exclusive in that only one or the other mechanism may be used.

For more information, see Adabas Caching Configuration.

Class of Service

Files can be prioritized by assigning a class of service which determines the percentage of the maximum available cache space that a given file can use and when the file's RABN blocks will be purged from the cache.

For more information, see Adabas Caching Configuration.

E

EXCP

Execute channel program (UPAM SVC for BS2000).

Dynamic caching augments the Adabas buffer manager by reducing the number of read EXCPs to the database, thereby permitting maximum use of the available operating system facilities without monopolizing valuable virtual memory resources.

Write EXCPs are always issued to maintain the integrity of the database.

F

File-Level Caching

File-level caching refers to the process of caching RABNs based on the file with which they are associated.

For more information, see Adabas Caching Configuration.

G

Global Caching

Global caching refers to the process of caching a RABN as part of a range of RABNs. A number of different RABN ranges can be specified. They are then cached at the appropriate time when encountered in the running system.

For more information, see Adabas Caching Configuration.

R

RABN Fencing

User-specified RABNs (blocks) can be cached or "fenced" to make them readily accessible when demand arises, even though the activity against them is not sufficient to keep them in the active

buffer pool. RABN-fencing reduces the required I/O response time if the Adabas nucleus needs to reread those RABNs.

For more information, see Adabas Caching Configuration.

RABN Range ID

For many commands, it is necessary to identify the RABN range or file / file range to which the command applies.

When global caching is active, each RABN range defined is allocated a unique ID number up to and including 65,535. This number may be used to identify the RABN ranges uniquely.

When file-level caching is active, each file number is unique and is used to identify the subject of an operator request. One or more RABN ranges may be associated with a file; each is given a unique RABN Range ID within the context of that file; however, these cannot be addressed individually and operator commands may only be issued to the file or file range as a whole.

For more information, see Adabas Caching Configuration.

Read-Ahead Caching

When processing serial Adabas commands (for example, `Read Logical`, `Read Physical`, `Histogram`, and searches using nondescriptors) with the read-ahead caching option, a single EXCP is issued to read all the consecutive Associator and/or Data Storage blocks that reside on a single track of the disk device. The blocks are kept in cache and are immediately available when the nucleus requests the next block in a sequence. This feature may enhance performance by reducing the number of physical read I/Os for a 3380 Associator by as much as 18:1.

For more information, see the parameter `CBUFNO`.

S

Scope of Caching

Caching may be specified for Associator RABNs, Data Storage RABNs, and Work RABNs:

- For global caching, different ADARUN parameters (and operator commands) are available to specify caching for Associator RABNs (`CASSO`*xxx*) and Data Storage RABNs (`CDATA`*xxx*).
- For file-level caching, the terms of the CFILE parameter allow you to select the RABN types to cache.

RABNs for Work parts 2 and 3 are specified for caching using the CWORKSTORAGE, CWORK2FAC, and CWORK3FAC parameters for both global and file-level caching.

SYSAFC

In addition to the caching module ADACSH, the online cache-maintenance application SYSACF is available from the Adabas Online System (AOS) entry screen. Selecting the application from the AOS entry menu transfers you to the SYSACF main menu, which contains options for maintaining the Adabas caching environment.

For more information, see Adabas Caching Online Services.