**ʻ software** ᴬᴳ

# Adabas Caching Facility

## About this Documentation

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**ADABAS & NATURAL**

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# 1     About this Documentation

# 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:<br><br>Variables for which you must supply values specific to your own situation or environment.<br>New terms the first time they occur in the text.<br>References to other documentation sources. |
| `Monospace font` | Identifies:<br><br>Text you must type in.<br>Messages displayed by the system.<br>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. |
| \| | 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 (...). |

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# 2 Adabas Caching Online Services

Adabas Caching Online Services is used to define caching parameter settings and also to monitor caching operations. It can also be used to issue ADACSH operator commands.

| | |
|---|---|
| **Using ACF Online Services** | Online Services general use and navigation |
| **Global Level Caching** | Display/Maintain Global Level Caching Settings |
| **File Level Caching** | Display/Maintain File Level Caching Settings |

# 3 Using Adabas Caching Online Services

# Starting Adabas Caching Online Services

The interactive component that supports Adabas Caching is accessed through the Adabas Online System main menu.

The following screen is displayed when Adabas Caching is not present:

```
13:24:45          *****  A D A B A S  CACHING  FACILITY  *****        2004-05-11
                       - Global Cache Main Menu -                      PCH0002
                                                                       No Cache

                    Code    Function
                    ----    -------------------------------
                     D       Define RABNs to be Cached
                     M       Global Cache Maintenance
                     O       Maintain Cache Spaces
                     P       Maintain Cache Parameters
                     S       Cache Session Summary
                     ?       Help
                     .       Exit
                    ----    -------------------------------


       Code ............ _
       Cache Space No .. _____
       DataBase ........ 54     (ADANAT-DB)


MENU001: 05- Nucleus running without adacsh
Command ==>
PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8----- PF12-----
Help               Exit                                           Menu
```

Note the MENU001 message in the lower left quadrant and "No Cache" in the upper right hand quadrant of the screen. "No Cache" will be replaced by "Global Cache" or "File Level" once Adabas Caching has been activated.

To start Adabas Caching Online Services, select Caching Facility from either the demo or full version Adabas Online System main menu.

One of two menus will appear, depending on whether the ADARUN parameter CFILE has been specified:

- If CFILE has *not* been specified, the **Global Cache Main Menu** appears.
- If CFILE has been specified, the **File Level Main Menu** appears.

The memory type depends on the operating system under which Adabas is running. For more information on cache memory types, see section Caching Configuration.

## Using PF Keys

PF1 (Help) provides information about the current function, PF3 is Exit and PF12 returns to the main menu.

Other PF keys are used depending on the options activated.

# 4  Global Caching

# Global Caching Main Menu

The Global Cache Main Menu is used to select the global caching function to be executed.

```
14:43:15            *****  A D A B A S  CACHING  FACILITY  *****      2004-05-11
                       - Global Cache Main Menu -                      PCH0002
                                                                       Global Cache
                      Code    Function
                      ----    -------------------------
                       D       Define RABNs to be Cached
                       M       Global Cache Maintenance
                       O       Maintain Cache Spaces
                       P       Maintain Cache Parameters
                       S       Cache Session Summary
                       ?       Help
                       .       Exit
                      ----    -------------------------


        Code ............ _
        Cache Space No .. _____
        DataBase ........ 1955   (WIS1955)



Command ==>
PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8----- PF12-----
Help               Exit                                           Menu
```

The following function codes are available:

| Code | Description |
|------|-------------|
| D | Define a new cache space for one or more RABNs |
| M | Perform global operations on all cache spaces defined for the database |
| O | Display and modify individual cache spaces defined for the database |
| P | Display and modify current settings of ADARUN parameters |
| S | Display summary cache session statistics |

## Define RABNs to be Cached

Selecting option D from the Global Cache Main Menu displays a menu of functions for defining one or more RABNs to be cached:

```
14:57:55            *****  A D A B A S  CACHING  FACILITY  *****     2004-05-11
                           - Define RABNs to be Cached -               PCHD002
                                                                       Global Cache

                           Code     Function
                           ----     ----------------
                            A       Define Asso Cache
                            D       Define Data Cache
                            ?       Help
                            .       Exit
                           ----     ----------------


        Code .............. _
        Memory Type ....... _
        RABN Number From .. _____
        RABN Number To .... _____
        Cache Space No .... _____
        Database .......... 1955   (WIS1955)



Command ==>
PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8----- PF12-----
Help               Exit                                          Menu
```

| Field | Description |
|-------|-------------|
| Code | RABNs may be cached in Associator (option A) and/or Data Storage (option D) space. A separate operation is required for each type of caching. |
| Memory Type | The memory type can be extended memory (E), data space (D), hiperspace (H), virtual 64 backed by large pages (L), or virtual 64 (V). The choices available depend on the operating system configuration under which Adabas is running. Virtual 64 is only available for systems running z/OS version 1.2 or above on the appropriate hardware. Virtual 64 backed by large pages is only available for systems running z/OS Version 1.9 or above on the appropriate hardware. |
| RABN Number From...To | Specifying the start RABN (RABN Number From...) and the end RABN (RABN Number To...) defines a RABN range to be cached in the defined cache space. If only one RABN is to be cached, it is not necessary to specify an ending RABN number. |
| Cache Space No | A cache space number (CSN) is a unique number called the RABN Range ID that will be assigned to the new RABN range. Valid values are 0 through 65535. If the number specified is already in use, the new RABN range definition is ignored and an error message is displayed on both DDPRINT and the operator console. If no number is provided or zero is specified, a CSN allocated by the nucleus will be returned. |

| Field | Description |
|---|---|
| | **Note:** Cache Space Number (CSN) is a term retained for compatibility with earlier versions of Adabas Caching. 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. |
| | The settings for the cache spaces being defined correspond to those specified by the ADARUN parameters `CASSODSP`, `CASSOEXT`, `CASSOHSP`, `CASSOV64`; `CDATADSP`, `CDATAEXT`, `CDATAHSP`, and `CDATAV64`. If a cache space size greater than `CASSOMAXS` or `CDATAMAXS` is calculated based on the RABN range specified, you have the opportunity to change the relevant parameter value before the cache space is defined. |
| | The corresponding direct commands are |
| | **DEFINE CACHE** |
| | and |
| | **ADD CACHE** |

## Global Cache Maintenance

Selecting option M from the Global Cache Main Menu displays a menu of functions for maintaining cache spaces:

```
15:13:08          *****  A D A B A S   CACHING   FACILITY   *****       2004-05-11
                         - Global Cache Maintenance -                    PCHM002
                                                                         Global Cache

                         Code      Function
                         ----      ------------
                          D        Delete Cache
                          M        Modify Cache
                          E        Enable Cache
                          S        Disable Cache
                          ?        Help
                          .        Exit
                         ----      ------------


          Code ............
          Cache Space No .. ALL
          Database ........ 1955   (WIS1955)




Command ==>
PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8----- PF12------
Help               Exit                                           Menu
```

From this screen, global operations can be performed on *all* cache spaces defined for the database. The allowed functions are

| | |
|---|---|
| D | Delete all cache spaces. Once deleted, spaces must be redefined using Main Menu function D or by restarting the Adabas nucleus with the relevant ADARUN parameters. |
| M | Move all cache spaces to the memory type (E for extended; D for data space; H for hiperspace; L for virtual 64 backed by large pages; V for virtual 64) you specify on the Memory Type window that appears. |
| S | Disable all cache spaces. |
| E | Start cache operation for all cache spaces. |

The corresponding direct command is

**MODIFY CACHE**

These same functions can be performed on individual cache spaces using the Maintain Cache Spaces function (menu option O).

# Maintain Cache Spaces

Selecting option O from the Global Cache Main Menu displays a list of cache spaces currently allocated for the database:

```
15:16:05            *****   A D A B A S  CACHING  FACILITY  *****      2004-05-11
DBID 1955                    - Maintain Cache Spaces -                  PCHS002
                                                                       Global Cache
Sel No   Mem. Cach RABN Range            Last Activity     Stat Error Status
         Type Type From      To
-- ----- ---- ---- ------------------- ---------------- ---- ----------------
      1 EXT  ASSO 281       801         2001-09-13 10:43 ALLO
      2 EXT  DATA 1         630         2001-09-13 10:42 ALLO




      Select DI(Display) EN(Enable) DS(Disable) DE(Delete) MO(Modify)


PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8----- PF12-----
Help                Exit      Refresh                             Menu
```

📄 **Note:** If you specify the cache space number (CSN) on the Global Cache Main Menu along with function code O, the Cache Statistics screen for that CSN is displayed (`DI`) directly.

For each RABN range listed on the Maintain Cache Spaces screen, you can display and modify caching parameters by entering one of the following commands in the Select column:

| Cmd | Action |
|-----|--------|
| MO | Move the selected cache space to the memory type (E for extended; D for data space; H for hiperspace; L for virtual 64 backed by large pages; V for virtual 64) you specify on the Memory Type window that appears. |
| DE | Delete the selected cache space. Once deleted, the space must be redefined using the Main Menu function D or the relevant ADARUN parameters. |
| DI | Display the detailed cache space statistics. The information provided is the same as that resulting from the `CSTAT` operator command. |
| DS | Disable the selected cache space. |
| EN | Start caching operation for the selected cache space. |

The other columns on the Maintain Cache Spaces display contain the following information:

| Column | Description |
|---|---|
| No. | Cache space number (CSN). This is actually a unique RABN Range ID as there is no longer a direct correlation between cache spaces and RABN ranges. |
| Memory Type | Caching type for each cache space: extended storage (EXT), data spaces (DS), hiperspaces (HS), virtual 64 backed by large pages (L64) or virtual 64 storage (V64). |
| Cache Type | Database component being cached in the cache space: Associator (ASSO), Data Storage (DATA), Work part 2 (WRK2), or Work part 3 (WRK3). |
| RABN Range | The starting (From...) and ending (To...) RABNs of the RABN range being cached in the cache space. |
| Last Activity | The date and time the cache space was last accessed. |
| Status | The current status of the cache space: disabled (DISA); unallocated (UNAL); or ALLC (allocated). |
| Error Status | If an error condition has occurred, the cause of the error will be displayed in this field. |

**Cache Statistics**

Entering `DI` in the Select column on the Maintain Cache Spaces screen or selecting option O and specifying a cache number on the Global Cache Main Menu displays the Cache Statistics screen for an individual cache space:

```
15:23:54          *****  A D A B A S  CACHING  FACILITY  *****      2004-05-11
DBID 1955                    - Cache Statistics -                    PCHS002
                                                                     Global Cache

Cache Space No ......    2
  Memory Type ....... EXT
  Cache Component ... DATA
  RABN-range ........ 1 - 630
  Last Activity ..... 2001-09-13  10:42:51
  Cache Status ...... ALLOCATED
  Cache Writes ......       6322
  Max. Cache used ...     236180          Elapsed Time per Cache Read Request
  Cache Size ........    1515520              Max. ...     0.013168
  Cache Efficiency ..       99.0 %            Min. ...     0.000002
  Cache Reads .......       6273             Avg. ...     0.000013
  Read EXCPS ........         62
  Total Reads .......       6335          EXCP Time <in microseconds>
  RABN's in Cache ...         49             Max. ...     0.007237
  RABN's/Cache Space.        314             Min. ...     0.003476
  RABN Index Size ...    2536 (bytes)        Avg. ...     0.003923



  Press ENTER to continue
```

The information displayed on this screen is the same as that displayed by the CSTAT operator command.

📄 **Note:** Values for `Max. Cache used`, `Cache Size`, `RABNs in Cache`, and `RABNs/Cache Space` represent bytes, but may be marked with a K (1 kilobyte=1024 bytes), M (1 megabyte=1,048,576 bytes), or G (1 gigabyte=1,073,741,824 bytes) indicator when the size of the value requires it.

## Maintain Cache Parameters

Selecting option P from the Global Cache Main Menu displays the current Adabas Caching (ADARUN) parameter values and allows you to change them:

```
15:28:46          *****  A D A B A S  CACHING  FACILITY  *****        2004-05-11
DBID 1955                  - Maintain Cache Parameters -              PCHS002

 Display Cache Space Stats. YES_                              (CDISPSTAT)
 Minimum Buff. Efficiency . _____0                       (CDEMAND)
 Elapsed Time (GETMAIN)  .. _____900 sec                   (CRETRY)
 Time of Inactivity ....... _____7200 sec                   (CCTIMEOUT)
 Max. No. Permitted   .....          5                       (CMAXCSPS)

 Max. ASSO Cache Size ..... ____303104 _                     (CASSOMAXS)
 Max. DATA Cache Size ..... ____303104 _                     (CDATAMAXS)
 WORK Memory Type ......... EXT                              (CWORKSTORAGE)
 Percent WORK2 RABNs ......   0 %                            (CWORK2FAC)
 Percent WORK3 RABNS ......   0 %                            (CWORK3FAC)

 Read-ahead Caching
   Number of Buffers ......   0                               (CBUFNO)
   Command Types Excluded . _____                         (CEXCLUDE)
             Included . P/L/H/F    PHYS/LOGI/HIST/FIND


PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8----- PF12-----
Help               Exit                                            Menu
```

📄 **Note:** Values for `Max. ASSO Cache Size` and `Max. DATA Cache Size` represent bytes, but may be marked with a K (1 kilobyte=1024 bytes), M (1 megabyte=1,048,576 bytes), or G (1 gigabyte=1,073,741,824 bytes) indicator when the size of the value requires it.

For more information about these parameters, see the section *Adabas Caching Parameters*.

## Global Cache Session Summary

Selecting option S from the Global Cache Main Menu displays a summary of information for the Adabas Caching session including cache statistics, read-ahead statistics, and allocation statistics for active and inactive cache spaces. This information is the same as that displayed when the CSUM command is issued.

```
15:31:08          *****  A D A B A S  CACHING  FACILITY  *****      2011-02-04
DBID 1955                    Cache Session Summary                  PCHS002
                                                                    Global Cache
 Cache Allocation Summary                                           Page 1
   Current Adabas Buffer Efficiency .......       278.7
   Projected NON-CACHE Buffer Efficiency ..        11.3
   Number of Active RABN ranges ...........           0
   Number of RABN ranges defined ..........           2


                             --- ASSO ---       --- DATA ---       --- WORK ---
 Cache Statistics
   Cache writes .......           127               6322                  0
   Read EXCPS .........            17                 62                  0
   Cache reads ........           118               6273                  0
   Total reads ........           135               6335                  0
   Efficiency .........          87.4               99.0                0.0

 Read Ahead Statistics
   RABN's read ........             0                  0
   EXCPS ..............             0                  0
   Ave. blks/EXCP .....           0.0                0.0             next page
```

```
Page 2

Cache Size Summary

                        --- ASSO ---       --- DATA ---       --- WORK ---
   Max Cache Size .....      1,480 K            1,480 K              0 K
   EXT Allocated ......        296 K              296 K              0 K
   EXT Highest ........        296 K              296 K
   DSP Allocated ......          0 K                0 K              0 K
   DSP Highest ........          0 K                0 K
   HSP Allocated ......          0 K                0 K              0 K
   HSP Highest ........          0 K                0 K
   V64 Allocated ......          0                  0                0 K
   V64 Highest ........          0                  0
   L64 Allocated                 0                  0                0 K
   L64 Highest                   0                  0

   Allocation Statistics marked as K, M, or G.
```

Help screens are available by pressing PF1 from each page of the Cache Session Summary report.

# 5   **File Level Caching**

# File-Level Caching Main Menu

If the ADARUN `CFILE` parameter has been specified, the File Level Main Menu appears when you select Caching Facility from the main menu:

```
13:59:12         *****  A D A B A S  CACHING  FACILITY  *****      2004-05-11
                        - File Level Main Menu -                   PCF0002
                                                                   File Level


                   Code    Function
                   ----    -------------------------
                    D      Define File Cache
                    F      Files with Caching
                    M      Maintain File Cache
                    O      Maintain Cache Spaces
                    P      Maintain Cache Parameters
                    S      Cache Session Summary
                    ?      Help
                    .      Exit
                   ----    -------------------------
        Code .......... _
        DataBase ...... 1955   (WIS1955)




Command ==>
PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8----- PF12-----
Help               Exit                                           Menu
```

The following functions are available:

| Code | Description |
|------|-------------|
| D | Define a new cache space for one or more files |
| F | Display detailed cache space statistics for a file |
| M | Enable, disable, or delete caching for one or more files |
| O | Enable, disable, or delete caching for the Work dataset |
| P | Display and modify current settings of ADARUN parameters |
| S | Display summary cache session statistics |

**Notes:**

1. Although it is possible to define different cache spaces for the Associator and Data Storage of a single file using a separate ADARUN `CFILE` parameter for each, it is not possible to do so using Adabas Online System functions or operator commands. To define both Associator and

Data Storage caching for a file using Adabas Online System functions or operator commands, you must use the BOTH option that uses the same caching parameters for both.

2. Once file level caching has been defined for a file using the ADARUN `CFILE` parameter, Adabas Online System functions, or operator commands, it is not possible to change the caching parameters without first deleting the defined cache space and then adding a new cache space with the different parameters. For example, if you have Data Storage caching defined for a file and you want to add Associator caching, you must first delete the Data Storage cache space and redefine caching for the file using the BOTH option.

## Define File Cache

Selecting option D from the File Level Main Menu displays a menu of functions used to define a new cache space for one or more files:

```
13:32:45          *****  A D A B A S  CACHING  FACILITY  *****      2004-05-11
                         - Define File Cache -                      PCFD002
                                                                    File Level

                      Code    Function
                      ----    -------------------------
                       A      Define Asso Cache
                       B      Define Asso and Data Cache
                       D      Define Data Cache
                       ?      Help
                       .      Exit
                      ----    -------------------------


     Code .............. _
     Memory Type ....... _
     File Number ....... 0____ - _____
     Class of Service .. _
     Database .......... 1955   (WIS1955)



Command ==>
PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8----- PF12-----
Help               Exit                                           Menu
```

| Field | Description |
|-------|-------------|
| Code | One or more files may be defined for Associator (option A), Data Storage (option D), or both (option B). No RABN ranges need to be specified: RABNs are added automatically. The file number may be any file within the database maximum files value. |
| Memory Type | The memory type may be extended (E), data space (D), hiperspace (H), virtual 64 backed by large pages (L), or virtual 64 (V), depending on the operating system environment. |
| File Number | The file or file range for which caching is to be defined. |

| Field | Description |
|---|---|
| Class of Service | The class of service. Possible values are: |
| | ■ 1: cache up to 100% of the file |
| | ■ 2: cache up to 75% of the file |
| | ■ 3: cache up to 50% of the file |
| | ■ 4: cache up to 25% of the file |
| | ■ 5: cache up to 10% of the file |

# Files With Caching

Selecting option F from the File Level Main Menu displays a list of files that use caching:

```
13:37:48          *****  A D A B A S  CACHING  FACILITY  *****        2004-05-11
DBID 1955                      - Files with Caching -                  PCFF002
                                                                       File Level
Sel   File   File Name                  Cache Type   State
---   -----  ------------------------   ----------   --------------
        0  Unassigned RABNs            Asso/Data    Not accessed
        1  EMPLOYEES                   Asso/Data    Active
        2  VEHICLES                    Asso/Data    Active
           3 - 5 not loaded
        6  EXPANDED                    Asso/Data    Not accessed
        7  EXPANDED                    Asso/Data    Not accessed
           8 - 9 not loaded
       10  TRIGGER-FILE                Asso/Data    Not accessed
           11 - 18 not loaded
       19  CHECKPOINT                  Asso/Data    Active
           20 - 25 not loaded


 Specify 'DI' (Display), EN (Enable) DE (Delete) or DS (Disable) for a file

Command ==>
PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8----- PF12-----
Help     Repos     Exit      Refr      --                +        Menu
```

Entering DI in the Sel column for a file displays detailed cache space statistics for that file.

The information displayed on the resulting Statistics screen is the same as that provided by the CFSTAT command.

```
13:41:59          *****  A D A B A S  CACHING  FACILITY  *****          2004-05-11
DBID 1955                        - Statistics -                          PCFF002
                                                                         File Level

File 1    EMPLOYEES
  Memory type ....... DSP
  Cache component ... Data  Class 1 (100%)
  RABN range ........ DS Blks       271 - 320
  Last activity ..... 2001-09-13  09:24:06
  Cache status ...... ALLOCATED
  Cache writes ......      12579
  Max. Cache used ...     231360          Elapsed time per Cache read request
  Cache Size ........    5118840              Max. ...     0.143685
  Cache efficiency ..       99.6 %           Min. ...     0.000002
  Cache reads .......      12547              Avg. ...     0.000029
  Read EXCPS ........         49
  Total reads .......      12596          EXCP Time (in microseconds)
  RABN's in Cache ...         32              Max. ...     0.049367
  RABN's/Cache Space.       1060              Min. ...     0.003509
  RABN Index Size ...        216 (bytes)      Avg. ...     0.009183


PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8----- PF12-----
Help               Exit                                    +       Menu
```

Each file may have several screens for each of the following:

| AS | Unassigned Associator |
|----|----|
| AC | Address Converter |
| A2 | Secondary ISNs |
| NI | Normal Index |
| UI | Upper Index |
| DS | Data Storage |

The example screen shown here provides information for one DS extent of file number 1.

## Maintain File Cache

Selecting option M from the File Level Main Menu displays a menu of functions used to enable, disable, or delete caching for one or more files:

```
13:43:56           *****  A D A B A S  CACHING  FACILITY  *****        2004-05-11
                        - Maintain File Cache -                          PCFM002
                                                                         File Level

                        Code     Function
                        ----     -------------
                         D       Delete Cache
                         E       Enable Cache
                         S       Disable Cache
                         ?       Help
                         .       Exit
                        ----     -------------


            Code ......... _
            File Number .. 0____ - _____
            Database ..... 1955   (WIS1955)




Command ==>
PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8----- PF12------
Help               Exit                                            Menu
```

This following functions are available:

| | |
|---|---|
| D | Delete all cache spaces for a particular file or range of files |
| E | Enable all cache spaces for a particular file or range of files |
| S | Disable all cache spaces for a particular file or range of files |

## Maintain Cache Spaces

Selecting option O from the File Level Main Menu displays the Work cache spaces:

```
13:45:34              *****  A D A B A S  CACHING  FACILITY  *****       2004-05-11
DBID 1955                      - Maintain Cache Spaces -                  PCHS002
                                                                         File Level
Sel No   Mem. Cach RABN Range            Last Activity    Stat Error Status
         Type Type From      To
-- ----- ---- ---- ------------------- ---------------- ---- ---------------
   64001 EXT  WRK2 202       211                           UNAL
   64002 EXT  WRK3 222       2392                          UNAL














     Select DI(Display) EN(Enable) DS(Disable) DE(Delete) MO(Modify)



PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8----- PF12-----
Help               Exit      Refresh                               Menu
```

For each RABN range listed on the Maintain Cache Spaces screen, you can display caching parameters, modify the memory type, and maintain the cache space by entering one of the following commands in the Select column:

| | |
|----|----|
| MO | Move the selected cache space to the memory type (E for extended; D for data space; H for hiperspace; L for virtual 64 backed by large pages; V for virtual 64) you specify on the Memory Type window that appears. |
| DE | Delete the selected cache space. Once deleted, the space must be redefined using the relevant ADARUN parameters. |
| DI | Display the detailed cache space statistics. The information provided is the same as that resulting from the CSTAT operator command. |
| DS | Disable the selected cache space. |
| EN | Enable the selected cache space. |

The other columns on the Maintain Cache Spaces display contain the following information:

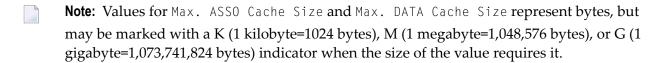| Column | Description |
|----|----|
| No. | Cache space number (CSN). This is actually a unique RABN Range ID as there is no longer a direct correlation between cache spaces and RABN ranges. |
| Memory Type | Caching location for each cache space: extended storage (EXT), data spaces (DS), hiperspaces (HS), virtual 64 backed by large pages (L64), or virtual 64 storage (V64). |
| Cache Type | Database component being cached in the cache space: Work part 2 (WRK2), or Work part 3 (WRK3). |

| Column | Description |
|---|---|
| RABN Range | The starting (From...) and ending (To...) RABNs of the RABN range being cached in the cache space. |
| Last Activity | The date and time the cache space was last accessed. |
| Status | The current status of the cache space: disabled (DISA); unallocated (UNAL); or ALLC (allocated). |
| Error Status | If an error condition has occurred, the cause of the error will be displayed in this field. |

**Work Cache Space Statistics**

Entering `DI` in the Select column on the Maintain Cache Spaces screen displays the Cache Statistics screen for an individual Work cache space:

```
13:47:03          *****  A D A B A S  CACHING  FACILITY  *****      2004-05-11
DBID 1955                   - Cache Statistics -                      PCHS002
                                                                    File Level

Cache Space No ......    1
  Memory Type ....... EXT
  Cache Component ... WRK2
  RABN-range ........ 202 - 211
  Last Activity .....
  Cache Status ...... UNALLOCATED
  Cache Writes ......          0
  Max. Cache used ...          0          Elapsed Time per Cache Read Request
  Cache Size ........      57344              Max. ...    0.000000
  Cache Efficiency ..        0.0 %           Min. ...    0.000000
  Cache Reads .......          0             Avg. ...    0.000000
  Read EXCPS ........          0
  Total Reads .......          0          EXCP Time <in microseconds>
  RABN's in Cache ...          0             Max. ...    0.000000
  RABN's/Cache Space.         10             Min. ...    0.000000
  RABN Index Size ...         56 (bytes)     Avg. ...    0.000000



  Press ENTER to continue
```

The information displayed on this screen is the same as that displayed by the `CSTAT` operator command.

> **Note:** Values for `Max. ASSO Cache Size` and `Max. DATA Cache Size` represent bytes, but may be marked with a K (1 kilobyte=1024 bytes), M (1 megabyte=1,048,576 bytes), or G (1 gigabyte=1,073,741,824 bytes) indicator when the size of the value requires it.

## Maintain Cache Parameters

Selecting option P from the File Level Main Menu displays the current setting of the Adabas Caching (ADARUN) parameters and allows you to change them:

```
14:00:14          *****  A D A B A S  CACHING  FACILITY  *****        2004-05-11
DBID 1955                  - Maintain Cache Parameters -           PCFP002

 Display Cache Space Stats. YES_                              (CDISPSTAT)
 Minimum Buff. Efficiency . _____0                        (CDEMAND)
 Elapsed Time (GETMAIN)  .. _____900 sec                    (CRETRY)
 Time of Inactivity ....... _____7200 sec                    (CCTIMEOUT)
 Max. No. Permitted   .....          5                        (CMAXCSPS)

 Max. ASSO Cache Size ..... ___1024000 _                      (CASSOMAXS)
 Max. DATA Cache Size ..... ___1024000 _                      (CDATAMAXS)
 WORK Memory Type ......... EXT                               (CWORKSTORAGE)
 Percent WORK2 RABNs ......  50 %                             (CWORK2FAC)
 Percent WORK3 RABNS ......  50 %                             (CWORK3FAC)

 Read-ahead Caching
   Number of Buffers ......   0                               (CBUFNO)
   Command Types Excluded . _____                          (CEXCLUDE)
             Included . P/L/H/F    PHYS/LOGI/HIST/FIND


PF1----- PF2------ PF3------ PF4------ PF6----- PF7----- PF8----- PF12-----
Help                Exit                                           Menu
```

> **Note:** Values for Max. ASSO Cache Size and Max. DATA Cache Size represent bytes, but may be marked with a K (1 kilobyte=1024 bytes), M (1 megabyte=1,048,576 bytes), or G (1 gigabyte=1,073,741,824 bytes) indicator when the size of the value requires it. In the example screen, the value 1,024,000 may also be designated as 1000 K.

For more information about these parameters, see the section Adabas Caching Parameters.

## Cache Session Summary

Selecting option S from the File Level Main Menu displays a summary of information for the Adabas Caching session including cache statistics, read-ahead statistics, and allocation statistics for active and inactive cache spaces. This information is the same as that displayed when the CSUM command is issued.

```
14:19:37           *****  A D A B A S  CACHING  FACILITY  *****        2004-05-11
DBID 1955                     - Cache Session Summary -                 PCF0002
                                                                       File Level
 Cache Allocation Summary                                              Page 1
   Current Adabas Buffer Efficiency .......         473.2
   Estimated NON-CACHE Buffer Efficiency ..          10.6
   Number of Active Cache Spaces ..........            10
   Number of Cache Spaces defined .........            15


                            --- ASSO ---        --- DATA ---        --- WORK ---
 Cache Statistics
   Cache writes .......            214              12596                   0
   Read EXCPS .........             17                 62                   0
   Cache reads ........            203              12548                   0
   Total reads ........            220              12610                   0
   Efficiency .........           92.2               99.5                 0.0

 Read Ahead Statistics
   RABN's read ........              0                  0
   EXCPS ..............              0                  0
   Ave. blks/EXCP .....            0.0                0.0             next page >>
```

```
Page 2

Cache Size Summary

                            --- ASSO ---        --- DATA ---        --- WORK ---
   Max Cache Size .....        5,000 K            5,000 K            5,884 K
   EXT Allocated ......            0 K                0 K                0 K
   EXT Highest ........            0 K                0 K
   DSP Allocated ......        1,000 K            1,000 K                0 K
   DSP Highest ........        1,000 K            1,000 K
   HSP Allocated ......            0 K                0 K                0 K
   HSP Highest ........            0 K                0 K
   V64 Allocated ......            0                  0                  0 K
   V64 Highest ........            0                  0
   L64 Allocated                   0                  0                  0 K
   L64 Highest                     0                  0

   Allocation Statistics marked as K, M, or G.
```

Help screens are available by pressing PF1 from each page of the Cache Session Summary report.