Changes to Adabas Online System

This section describes changes to Adabas Online System version 7.4 that apply to the Adabas cluster environment.

The chapter covers the following topics:

- Display Cluster Members

- Nucleus File Status

- Nucleus Status Flags

- Cluster Usage

- Maintain the User Table

Display Cluster Members

From the Session Monitoring menu, a new function *Display cluster members* (option A) produces the following screen:

```
 16:21:45            *****  A D A B A S   BASIC   SERVICES  *****        2002-07-19
  DBID 105                     -  Display Cluster Members  -              PACA002

  Total number of nuclei in the cluster: 4

  I Sel I Nuc ID I System ID I Jobname  I Status   I  Available Services      I
  ---------------------------------------------------------------------------------
  I  _  I 1      I DAEMVS    I ADANUC01 I Active   I  All                     I
  I  _  I 2      I DAEMVS    I ADANUC02 I Inactive I  Lock                    I
  I  _  I 3      I DDZMVS    I ADANUC03 I Active   I  All                     I
  I  _  I 4      I DDZMVS    I ADANUC04 I Active   I  All                     I
  I     I        I          I          I          I                          I
  I     I        I          I          I          I                          I
  I     I        I          I          I          I                          I
  I     I        I          I          I          I                          I
  I     I        I          I          I          I                          I
  I     I        I          I          I          I                          I
  I     I        I          I          I          I                          I
  I     I        I          I          I          I                          I
  I     I        I          I          I          I                          I

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

The screen includes a list of nuclei participating in the cluster and information about the current status of each nucleus.
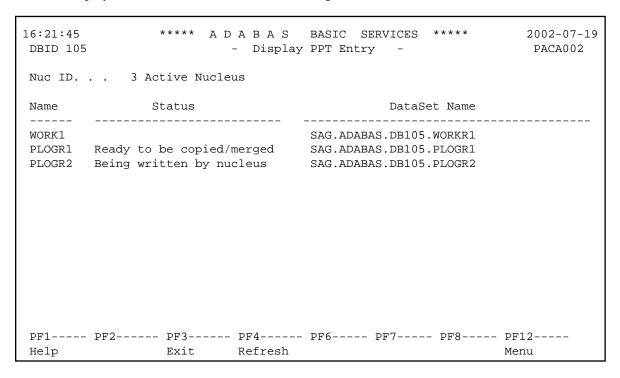
▶ **To select a nucleus for additional processing**

- Type "S" in the Sel column opposite that nucleus.

▶ **To display additional information about a nucleus**

- Type "D" in the Sel column opposite that nucleus.

For an Adabas cluster nucleus that has a nonzero nucleus ID, its entry in the parallel participant table (PPT) is displayed in a screen similar to the following:

```
16:21:45              *****  A D A B A S   BASIC  SERVICES  *****          2002-07-19
 DBID 105                     -  Display PPT Entry   -                      PACA002

 Nuc ID. . .    3 Active Nucleus

 Name              Status                          DataSet Name
 ------    -------------------------   ----------------------------------------
 WORK1                                 SAG.ADABAS.DB105.WORKR1
 PLOGR1    Ready to be copied/merged   SAG.ADABAS.DB105.PLOGR1
 PLOGR2    Being written by nucleus    SAG.ADABAS.DB105.PLOGR2






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

Nucleus File Status

From the Resource Utilization menu, the *Nucleus file status* (option N) has been added and is the equivalent of the DNFV operator command.

```
16:03:17             ***** A D A B A S  BASIC  SERVICES *****            2002-05-29
DBID  1955                    - Nucleus File Status -                    PACUN02
NucID 1021

          Locking
      File   NucID  Access count   Update count   State
      -----  -----  ------------   ------------   ---------------------
      24                      0              0    Access
      25                      0              0    Access, Update

















 Last page
PF1----- PF2----- PF3----- PF4----- PF7----- PF8----- PF9------- PF12-----
Help     Repos    Exit     Refresh   -        +                 Menu
```

In an Adabas cluster environment, the file may be locked for exclusive use by another cluster nucleus. If this is the case and the file is in the nucleus file status table, the Locking NucID column for the file shows the ID of the nucleus that has exclusive control.

The Access count / Update count fields display the number of access or update users, respectively, that refer to the specified file in their user queue elements (UQEs). These users either have specified the file in an OP command with R-option or are using the file in an as yet incomplete transaction.

A State field indicates when the file is used for access only or for access and update. The State field indicates to what extent a nucleus can use a file on its own. If the requested use exceeds the given state, the nucleus must first communicate with the other nuclei in the cluster in order to upgrade the state.

Nucleus Status Flags

From the Resource Utilization menu, a second screen has been added to the *System status* (option S), which displays I/O counts for the ASSO, DATA, WORK, and PLOG datasets; remote and local call distribution; and other current session status information.

```
18:50:16              ***** A D A B A S  BASIC  SERVICES *****          2002-05-30
DBID 1955                       -  System Status  -                     PACUS02
NucID: 1022
                    Physical
            Reads            Writes              Call Distribution
          ------------------------     --------------------------------------
  ASSO              370          67    Remote Logical .............          0
  DATA                3          18    Remote Physical ............          0
  WORK                2         104    Local  Logical .............        860
  PLOG                          67    Local  Physical ............          0

  Logical Reads ........        349    Logical Reads (binary) .....   0000015D
  Buffer Efficiency ....        0.9    No. of HQEs active .........          0
                                       No. of UQEs in User Queue ..          2
  Format Translations ..         51    No. of CQEs waiting in CQ ..          0
  Format Overwrites ....          0
                                       Total intern. Autorestarts .          0
  Throw Backs for ISN ..          0    No. of PLOG switches .......          0
  Throw Backs for Space.          0    No. of Bufferflushes .......         18
                                                     page 1 of 2

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

Press PF8 to display an additional screen that indicates if one or more of the following are in progress:

- Online database save running;

- ADAEND in progress;

- Online file save running;

- READONLY/UTIONLY transition;

- READONLY status;

- Update processing suspended;

- ET-sync in progress;

- UTIONLY status; and

- Exclusive-DB-control utility running.

Otherwise, "Adabas operation normal" is displayed.

```
16:47:41              ***** A D A B A S  BASIC  SERVICES *****          2002-05-29
DBID 1955                      -  System Status  -                      PACUS02
NucID: 1021


                                  Nucleus Status Flags
                        ----------------------------------
                        Adabas operation normal








                                                          page 2 of 2



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

Cluster Usage

From the Resource Utilization menu, *Cluster usage* (option X) displays nucleus cluster statistics that are equivalent of those displayed using the DXCACHE, DXLOCK, and DXFILE operator commands.

The equivalent direct command is

DISPLAY CLUSTERSTATUS

```
16:10:31              ***** A D A B A S  BASIC  SERVICES *****          2002-05-29
                              -  Cluster Usage  -                       PACUX02

                      Code      Service
                      ----      ---------------
                       C        Cache statistics
                       F        File statistics
                       L        Lock statistics
                       ?        Help
                       .        Exit
                      ----      ---------------
             Code ......... _
             File Number .. 0
             Database ID .. 1955   (WIS1955)              NucID .. 1021






Command ==>
PF1----- PF2----- PF3------ PF4------ PF6----- PF10---- PF11----- PF12-----
Help             Exit                           Fuse     Flist    Menu
```

Cache Statistics

Choosing *cache statistics* (option C) from the Cluster Usage menu displays the following menu:

```
16:14:23            ***** A D A B A S  BASIC  SERVICES *****          2002-05-29
                          - Cache Statistics -                        PACUX12

                  Code   Service
                  ----   ----------------------
                   K     Cast-out / Directory
                   P     Publishing requests
                   X     Individual cache blocks
                   .     Exit
                   ?     Help
                  ----   ----------------------

        Code .........
        Database ID .. 1955   (WIS1955)               NucID .. 1021




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

Cast-out / Directory

Choosing *cast-out / directory* (option K) from the Cache Statistics menu display the following:

```
16:14:23            ***** A D A B A S  BASIC  SERVICES *****          2002-05-29
DBID  1955                - Cast-out / Directory -                    PACUX12
NucID 1021

        Cast-out Directory Reads          Directory Reads
        --------------------------        --------------------------
        Total .......      28             Total .......      5
           Sync .....       1                Sync .....      1
           Async ....      27                Async ....      4

        Unlock Cast-out Calls
        --------------------------
        Total .......      28
           Sync .....       1
           Async ....      27




PF1----- PF2----- PF3----- PF4----- PF7----- PF8----- PF9-------  PF12-----
Help                Exit    Refresh                    Detail     Menu
```

Counters have a multiplier column with the following values:

Value	The total shown is in...
blank	(factor of 1)
K	kilo (factor of 1,000)
M	mega (factor of 1,000,000)
G	giga (factor of 1,000,000,000)

If a number has a multiplier shown, it has been divided by the multiplier, showing the significant digits to 9 places with no decimal point.

Press PF9 to see the entire value. This value is the exact count up to 20 digits in length.

Publishing Requests

Choosing *publishing requests* (option P) from the Cache Statistics menu display the following:

```
16:26:21              ***** A D A B A S  BASIC  SERVICES *****           2002-05-29
DBID  1955                  - Publishing Requests -                      PACUX12
NucID 1021
                      Publishing Request Category
                      --------------------------------
                      Update sync .......         34

                      BT or CL or ET ....        162

                      Redo threshold ....          2

                      Full bufferpool ...          0

                      All blocks ........         84

                      Specific RABN .....          0

                      File DS blocks ....          4



PF1----- PF2----- PF3----- PF4----- PF7----- PF8----- PF9------- PF12-----
Help               Exit    Refresh                     Detail    Menu
```

All Cache Blocks

Choosing *all cache blocks* (option X) from the Cache Statistics menu display the following:

```
16:27:05            ***** A D A B A S  BASIC  SERVICES *****          2002-05-29
DBID  1955                   - All Cache Blocks -                     PACUX12
NucID 1021
  Reads                                    Writes
  -------------------------------          ----------------------------------
  Total ............      167            Total ..............      38,176
     Sync ..........       24               Sync ............      15,148
     Async .........      143               Async ...........      23,028

     In cache ......       49               Written .........      38,176
     Not in cache ..      118               Not written .....           0
     Struc. full ...        0               Struc. full .....           0

  Cast-out Reads                           Other
  -------------------------------          ----------------------------------
  Total ............      212            Validates ..........     187,677
     Sync ..........      212                Invalid .........          43
     Async .........        0            Deletes ............           0
                                            Timeouts ........           0
                                         Redo processes .....           0

PF1----- PF2----- PF3----- PF4----- PF7----- PF8----- PF9------- PF12-----
Help     Repos    Exit     Refresh  PrevBlk  NxtBlk   Detail     Menu
```

Use PF7 and PF8 to scroll through the cache blocks; use PF2 to reposition.

Statistics are displayed for the following:

- All cache blocks

- Address converter (AC) cache blocks

- Data Storage (DS) cache blocks

- Data Storage space table (DSST) cache blocks

- File control block (FCB) cache blocks

- Normal index (NI) cache blocks

- Upper index (UI) cache blocks

Press PF9 from the above screen to display the following detail screen:

```
16:27:05            ***** A D A B A S  BASIC  SERVICES *****          2002-05-29
DBID  1955                  - All Cache Blocks -                      PACUX12
NucID 1021
Reads                                       Writes
------------------------------------ ------------------------------------
Total ......             167 Total .......                   38,176
  Sync .....              24   Sync ......                   15,148
  Async ....             143   Async .....                   23,028

  In cache..              49   Written ...                   38,176
  Not in ...             118   Not writ ..                        0
  Stru.full.               0   Stru.full .                        0

Cast-out Reads                              Other
------------------------------------ ------------------------------------
Total ......             212 Validates ...                 187,677
  Sync .....             212   Invalid ...                       43
  Async ....               0 Deletes .....                        0
                               Timeouts ..                        0
                               Redo procs ..                      0


                            Press Enter to continue
```

File Statistics

Choosing *file statistics* (option F) from the Cluster Usage menu for file 25 displays the following menu:

```
16:37:02            ***** A D A B A S  BASIC  SERVICES *****          2002-05-29
DBID  1955                  - File 25 Statistics -                    PACUX22
NucID 1021
  Reads                                     Writes
  -----------------------------         --------------------------------
  Total ............      67           Total ..............    20,157
     Sync ..........       0              Sync ............     7,583
     Async .........      67              Async ..........    12,574

     In cache ......       0              Written .........    20,157
     Not in cache ..      67              Not written .....         0
     Struc. full ...       0              Struc. full .....         0

  Cast-out Reads                            Other
  -----------------------------         --------------------------------
  Total ...........      78           Validates ..........    79,248
     Sync ..........      78              Invalid ........         0
     Async .........       0           Deletes ............         0
                                          Timeouts ........         0
                                       Redo processes .....         0

PF1----- PF2----- PF3----- PF4----- PF7----- PF8----- PF9------- PF12-----
Help     Repos    Exit     Refresh                     Detail     Menu
```

Lock Statistics

Choosing *lock statistics* (option L) from the Cluster Usage menu displays the following menu:

```
 16:38:16            ***** A D A B A S  BASIC  SERVICES *****           2002-05-29
                          - Lock Statistics -                           PACUX32

 Code    Service                        Code    Service
 ----    --------------------------     ----    -------------------------------
   A     Buffer flush lock                I     Global update command sync lock
   B     Checkpoint lock                  J     Hold ISN lock
   C     DSF lock                         K     New-Data-RABN lock
   D     ETID lock                        L     Online save lock
   E     File-lock-table lock             M     Parameter lock
   F     FST lock                         N     Recovery lock
   G     GCB lock                         O     RLOG lock
   H     Global ET sync lock              P     Security lock
   .     Exit                             Q     Spats lock
   ?     Help                             R     Unique descriptor lock
 ----    --------------------------     ----    -------------------------------


        Code ........ _
        Database ID .. 1955   (WIS1955)              NucID .. 1021



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

Each of the options on the Lock Statistics menu displays statistics for a particular lock. For each lock, the screen displays obtain and release information about the various types of that lock that are currently in use by a cluster nucleus:

- The system may obtain locks conditionally or unconditionally, synchronously or asynchronously. A conditional request for a lock may be granted or rejected.

- Releases may be performed synchronously or asynchronously.

Hold ISN Lock

Choosing *hold ISN lock* (option J) from the Lock Statistics menu displays the following:

```
16:38:16              ***** A D A B A S  BASIC  SERVICES *****              2002-05-29
DBID  1955                      - Hold ISN Lock -                           PACUX32
NucID 1021

     Obtains                                    Releases
     ----------------------------               ----------------------------
     Conditional ....        16,017             Issued .......        16,017
        Granted .....        16,017                Sync ......        15,971
        Rejected ....             0                Async .....            46
     Unconditional ..             0

     Sync ...........           158
     Async ..........        15,859







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

Use PF7 and PF8 to scroll through the locks; use PF2 to reposition.

Maintain the User Table

Note:
This option is available in Adabas nucleus cluster environments only.

A new function has been added to the Session Opercoms menu to support the CLUFREEUSER command.
When option V (maintain user table) is selected, the following screen is displayed:

```
 16:59:29              ***** A D A B A S  BASIC  SERVICES *****              2002-05-29
                            - User Table Maintenance -                       PACIV02

                         Code    Service
                         ----    ------------------------
                          C      Begin CLUFREEUSER process
                          ?      Help
                          .      Exit
                         ----    ------------------------
            Code ......... _
            TNA .......... 0_____
            UID ......... _____
            Force ........ _
            Global ....... _

            Database ID .. 1955  (WIS1955)            NucID .. 1022




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

The CLUFREEUSER command is only valid in cluster environments. It can be issued against the local nucleus only or, with the Global option, against all active and inactive nuclei in the cluster.

The command is used to delete leftover user table elements (UTEs) in common storage that are no longer associated with user queue elements (UQEs) in a nucleus where

TNA	is a decimal number specifying the timeout value in seconds. UTEs that are not used during the time specified may be deleted if other conditions are fulfilled. If TNA is not specified, UTEs may be deleted without regard to their recent use.
UID	is a character string or hexadecimal byte string as follows:
	ccccccc where the argument is 1-8 letters, digits, or embedded '-' signs without surrounding apostrophes. 'ccccccc' where the argument is 1-8 characters with surrounding apostrophes. X'xxxxxxxxxxxxxxxx' where the argument is an even number of 2-16 hexadecimal digits enclosed by X' '.
	A character string must be enclosed in apostrophes if it contains characters other than letter, digits, or embedded '-' signs. If a specified character string is less than 8 characters long, it is implicitly padded with blanks. If a specified hexadecimal string is shorter than 16 hexadecimal digits, it is implicitly padded with binary zeros. If the last 8 bytes of a user's 28-byte communication ID match a specific user ID or user ID prefix, that user's UTE may be deleted if other conditions are fulfilled. If UID not specified, UTEs may be deleted regardless of their user IDs.
FORCE	Delete leftover UTEs even if the users are due a response code 9, subcode 20. If FORCE is not specified, such UTEs are not deleted. Before using the FORCE parameter, ensure that the users owning the UTEs to be deleted will not expect any of their transactions to remain open. Specify FORCE on this screen by marking the Force field with any character.
GLOBAL	Delete leftover UTEs throughout the Adabas cluster if they are no longer associated with UQEs and are eligible according to the other specified parameters. Additionally and subject to the other rules, delete leftover UTEs if their assigned nuclei have terminated since their last use. If GLOBAL is not specified, only UTEs assigned to the local nucleus and used since the nucleus start are eligible for deletion. Specify GLOBAL on this screen by marking the Global field with any character.