# CA IDMS™ Buffer Tuning

Ken Jonswold
CA Technologies

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## Abstract

- This session gives you an overview of database and journal buffers and how they work, as well as how to tune your buffers for performance. You will learn how to size your database and journal buffer pools for performance and how to tune buffers to improve zIIP usage.

## Agenda

- Defining a Database Buffer
- Changing a Database Buffer
- Defining a Journal Buffer
- The difference between Database and Journal buffers
- How buffers work
- Recovery
- zIIP processing




## Defining a Database Buffer

```
                OCF 18.5 IDMS  NO ERRORS      DICT=SYSTEM      1/14 TECHDC80


     CREATE
     BUFFER R170DMCL.DEFAULT_BUFFER
*+       CREATED 2007-12-21-13.51.17.687062
*+       LAST UPDATED 2011-04-29-13.56.58.949543
         PAGE SIZE 4276 CHARACTERS
         LOCAL MODE BUFFER PAGES 50
             OPSYS STORAGE
         CENTRAL VERSION MODE BUFFER
             INITIAL PAGES 400
             MAXIMUM PAGES 800
                 OPSYS STORAGE
         ;
```

## DCMT Display Buffer DEFAULT_BUFFER

```
      D B DEFAULT_BUFFER
--- Data Buffer --  Size     In-use        Max     Getstg Prfetch-Min   Prefetch
DEFAULT_BUFFER      4276        400        800      OPSYS         500 Not-Allowd
  Synonym Table       User-Defined     System-Calculated       Total-Space Used
                               800                   2048                     8k
  Allocation      Initial   Addit'l  Num-Alloc  Size-Init  Size-Add'l  Tot-Space
                      400       400          1     1.8meg           0     1.8meg
  Storage               Stg-Pools  Getmain'd Above-16mb  Below-16mb      Total
                               13k     1.8meg     1.8meg           0     1.8meg
```




## DCMT Display Buffer DEFAULT_BUFFER LOC

```
      D B DEFAULT_BUFFER LOC
--- Data Buffer --  Size     In-use        Max     Getstg Prfetch-Min   Prefetch
DEFAULT_BUFFER      4276        400        800      OPSYS         500 Not-Allowd
  Synonym Table       User-Defined     System-Calculated       Total-Space Used
                               800                   2048                     8k
  Allocation      Initial   Addit'l  Num-Alloc  Size-Init  Size-Add'l  Tot-Space
                      400       400          1     1.8meg           0     1.8meg
  Storage               Stg-Pools  Getmain'd Above-16mb  Below-16mb      Total
                               13k     1.8meg     1.8meg           0     1.8meg
DEFAULT_BUFFER     is located at ... 3A70C9C0
     The BCR       is located at ... 3DEBB988
     The BPC       is located at ... 3B49D000    it's length is ... 000020D0
     The Bit List  is located at ... 3DEBBB08    it's length is ... 00000D58
     The SPC       is located at ... 3DEBC888    it's length is ... 00002500
     The BPCX      is located at ... 3B4B7000    it's length is ... 00019100
     The BMAH      is located at ... 3B89C000    it's length is ... 001A2620
```

## DCMT Vary Buffer DEFAULT_BUFFER MAX 100000

```
     V B DEFAULT_BUFFER MAX 100000
--- Data Buffer --  Size    In-use        Max     Getstg Prfetch-Min   Prefetch
DEFAULT_BUFFER      4276       400        800      OPSYS         500 Not-Allowd
****  changed to..                     100000
  Synonym Table       User-Defined     System-Calculated       Total-Space Used
                               800                  2048                   8k
  Allocation     Initial   Addit'l  Num-Alloc  Size-Init  Size-Add'l  Tot-Space
                     400       400          1     1.8meg           0     1.8meg
  Storage              Stg-Pools  Getmain'd Above-16mb  Below-16mb      Total
                              13k     1.8meg     1.8meg           0     1.8meg
```




## DCMT Vary Buffer DEFAULT_BUFFER INI 20000

```
     V B DEFAULT_BUFFER INI 20000
--- Data Buffer --  Size    In-use        Max     Getstg Prfetch-Min   Prefetch
DEFAULT_BUFFER      4276       400        800      OPSYS         500 Not-Allowd
****  changed to..                     100000
  Synonym Table       User-Defined     System-Calculated       Total-Space Used
                               800                  2048                   8k
  Allocation     Initial   Addit'l  Num-Alloc  Size-Init  Size-Add'l  Tot-Space
                     400       400          1     1.8meg           0     1.8meg
****  changed to.. 20000
  Storage              Stg-Pools  Getmain'd Above-16mb  Below-16mb      Total
                              13k     1.8meg     1.8meg           0     1.8meg
```

## DCMT Vary Buffer DEFAULT_BUFFER ADD 10000

```
      V B DEFAULT_BUFFER ADD 10000
--- Data Buffer --  Size    In-use       Max     Getstg Prfetch-Min   Prefetch
DEFAULT_BUFFER      4276       400       800      OPSYS         500 Not-Allowd
****  changed to..                    100000
  Synonym Table       User-Defined     System-Calculated       Total-Space Used
                               800                  2048                    8k
  Allocation     Initial   Addit'l  Num-Alloc  Size-Init  Size-Add'l  Tot-Space
                     400       400          1     1.8meg           0     1.8meg
****  changed to.. 20000     10000
  Storage               Stg-Pools  Getmain'd Above-16mb  Below-16mb      Total
                              13k     1.8meg     1.8meg           0     1.8meg
```




## DCMT Vary Buffer DEFAULT_BUFFER CLOSE

```
      V B DEFAULT_BUFFER CLOSE
--- Data Buffer --  Size    In-use       Max     Getstg Prfetch-Min   Prefetch
DEFAULT_BUFFER      4276  Not Open    100000      OPSYS
  Synonym Table       User-Defined     System-Calculated       Total-Space Used
                               800                     0
  Allocation     Initial   Addit'l  Num-Alloc  Size-Init  Size-Add'l  Tot-Space
                   20000     10000
```

## DCMT Vary Buffer DEFAULT_BUFFER OPEN

```
      V B DEFAULT_BUFFER OPEN
--- Data Buffer --  Size     In-use        Max      Getstg Prfetch-Min    Prefetch
DEFAULT_BUFFER      4276      20000     100000       OPSYS         500 Not-Allowd
  Synonym Table       User-Defined     System-Calculated       Total-Space Used
                                800             262144                1.0meg
  Allocation      Initial   Addit'l  Num-Alloc  Size-Init  Size-Add'l  Tot-Space
                    20000     10000          1    90.8meg           0    90.8meg
  Storage               Stg-Pools  Getmain'd Above-16mb  Below-16mb      Total
                                9k    92.3meg    92.3meg           0    92.3meg
```




## DCMT Display Buffer DEFAULT_BUFFER LOC

```
      D B DEFAULT_BUFFER LOC
--- Data Buffer --  Size     In-use        Max      Getstg Prfetch-Min    Prefetch
DEFAULT_BUFFER      4276      20000     100000       OPSYS         500 Not-Allowd
  Synonym Table       User-Defined     System-Calculated       Total-Space Used
                                800             262144                1.0meg
  Allocation      Initial   Addit'l  Num-Alloc  Size-Init  Size-Add'l  Tot-Space
                    20000     10000          1    90.8meg           0    90.8meg
  Storage               Stg-Pools  Getmain'd Above-16mb  Below-16mb      Total
                                9k    92.3meg    92.3meg           0    92.3meg
DEFAULT_BUFFER     is located at ... 3A70C9C0
     The BCR       is located at ... 3DE5B988
     The BPC       is located at ... 3B49D000    it's length is ... 001000D0
     The Bit List  is located at ... 3B59E000    it's length is ... 00067DB8
     The SPC       is located at ... 3DEB2D08    it's length is ... 00002500
     The BPCX      is located at ... 3B896000    it's length is ... 004E2100
     The BMAH      is located at ... 3F546000    it's length is ... 051B5FE0
```

## DCMT Vary Buffer DEFAULT_BUFFER 40000

```
 DCMT V_B DEFAULT_BUFFER 40000
--- Data Buffer --  Size     In-use        Max      Getstg Prfetch-Min    Prefetch
DEFAULT_BUFFER       4276      40000     100000       OPSYS         500 Not-Allowd
  Synonym Table       User-Defined     System-Calculated       Total-Space Used
                               800                262144                 1.0meg
  Allocation      Initial   Addit'l  Num-Alloc  Size-Init  Size-Add'l  Tot-Space
                    20000     10000          3    90.8meg     85.7meg   176.5meg
  Storage                Stg-Pools  Getmain'd Above-16mb  Below-16mb      Total
                                 9k   183.1meg   183.1meg           0   183.1meg
```




## DCMT Display Buffer DEFAULT_BUFFER LOC

```
      D B DEFAULT_BUFFER LOC
--- Data Buffer --  Size     In-use        Max      Getstg Prfetch-Min    Prefetch
DEFAULT_BUFFER       4276      40000     100000       OPSYS         500 Not-Allowd
  Synonym Table       User-Defined     System-Calculated       Total-Space Used
                               800                262144                 1.0meg
  Allocation      Initial   Addit'l  Num-Alloc  Size-Init  Size-Add'l  Tot-Space
                    20000     10000          3    90.8meg     85.7meg   176.5meg
  Storage                Stg-Pools  Getmain'd Above-16mb  Below-16mb      Total
                                 9k   183.1meg   183.1meg           0   183.1meg
DEFAULT_BUFFER     is located at ... 3A70C9C0
     The BCR       is located at ... 3DE5B988
     The BPC       is located at ... 3B49D000    it's length is ... 001000D0
     The Bit List  is located at ... 3B59E000    it's length is ... 00067DB8
     The SPC       is located at ... 3DEB2D08    it's length is ... 00002500
     The BPCX      is located at ... 3B896000    it's length is ... 004E2100
     The BMAH      is located at ... 3F546000    it's length is ... 051B5FE0
     The BPCX      is located at ... 3BD79000    it's length is ... 00271100
     The BMAH      is located at ... 446FC000    it's length is ... 028DB020
     The BPCX      is located at ... 3BFEB000    it's length is ... 00271100
     The BMAH      is located at ... 46FD8000    it's length is ... 028DB020
```

## DCMT Vary Buffer DEFAULT_BUFFER 45000

```
      V B DEFAULT_BUFFER 45000
--- Data Buffer --  Size     In-use        Max     Getstg Prfetch-Min   Prefetch
DEFAULT_BUFFER      4276      45000     100000      OPSYS         500 Not-Allowd
  Synonym Table       User-Defined     System-Calculated       Total-Space Used
                                800             262144               1.0meg
  Allocation     Initial   Addit'l  Num-Alloc  Size-Init  Size-Add'l  Tot-Space
                   20000     10000          4    90.8meg    107.1meg   197.9meg
  Storage              Stg-Pools  Getmain'd Above-16mb  Below-16mb      Total
                              9k   207.1meg   207.1meg           0   207.1meg
```




## DCMT Display Buffer DEFAULT_BUFFER LOC

```
      D B DEFAULT_BUFFER LOC
--- Data Buffer --  Size     In-use        Max     Getstg Prfetch-Min   Prefetch
DEFAULT_BUFFER      4276      45000     100000      OPSYS         500 Not-Allowd
  Synonym Table       User-Defined     System-Calculated       Total-Space Used
                                800             262144               1.0meg
  Allocation     Initial   Addit'l  Num-Alloc  Size-Init  Size-Add'l  Tot-Space
                   20000     10000          4    90.8meg    107.1meg   197.9meg
  Storage              Stg-Pools  Getmain'd Above-16mb  Below-16mb      Total
                              9k   207.1meg   207.1meg           0   207.1meg
DEFAULT_BUFFER     is located at ... 3A70C9C0
     The BCR       is located at ... 3DE5B988
     The BPC       is located at ... 3B49D000    it's length is ... 001000D0
     The Bit List  is located at ... 3B59E000    it's length is ... 00067DB8
     The SPC       is located at ... 3DEB2D08    it's length is ... 00002500
     The BPCX      is located at ... 3B896000    it's length is ... 004E2100
     The BMAH      is located at ... 3F546000    it's length is ... 051B5FE0
     The BPCX      is located at ... 3BD79000    it's length is ... 00271100
     The BMAH      is located at ... 446FC000    it's length is ... 028DB020
     The BPCX      is located at ... 3BFEB000    it's length is ... 00271100
     The BMAH      is located at ... 46FD8000    it's length is ... 028DB020
     The BPCX      is located at ... 3C25D000    it's length is ... 00271100
     The BMAH      is located at ... 498B4000    it's length is ... 0146D840
```

## DCMT Vary Buffer DEFAULT_BUFFER 41000

```
      V B DEFAULT_BUFFER 41000
--- Data Buffer --  Size    In-use        Max     Getstg Prfetch-Min   Prefetch
DEFAULT_BUFFER      4276     41000     100000      OPSYS         500 Not-Allowd
  Synonym Table       User-Defined     System-Calculated       Total-Space Used
                                800                262144                1.0meg
  Allocation     Initial   Addit'l  Num-Alloc  Size-Init  Size-Add'l  Tot-Space
                   20000     10000          4    90.8meg    107.1meg   197.9meg
  Storage               Stg-Pools  Getmain'd Above-16mb  Below-16mb      Total
                                9k   207.1meg   207.1meg           0   207.1meg
```




## DCMT Display Buffer DEFAULT_BUFFER LOC

```
      D B DEFAULT_BUFFER LOC
--- Data Buffer --  Size    In-use        Max     Getstg Prfetch-Min   Prefetch
DEFAULT_BUFFER      4276     41000     100000      OPSYS         500 Not-Allowd
  Synonym Table       User-Defined     System-Calculated       Total-Space Used
                                800                262144                1.0meg
  Allocation     Initial   Addit'l  Num-Alloc  Size-Init  Size-Add'l  Tot-Space
                   20000     10000          4    90.8meg    107.1meg   197.9meg
  Storage               Stg-Pools  Getmain'd Above-16mb  Below-16mb      Total
                                9k   207.1meg   207.1meg           0   207.1meg
DEFAULT_BUFFER     is located at ... 3A70C9C0
     The BCR       is located at ... 3DE5B988
     The BPC       is located at ... 3B49D000    it's length is ... 001000D0
     The Bit List  is located at ... 3B59E000    it's length is ... 00067DB8
     The SPC       is located at ... 3DEB2D08    it's length is ... 00002500
     The BPCX      is located at ... 3B896000    it's length is ... 004E2100
     The BMAH      is located at ... 3F546000    it's length is ... 051B5FE0
     The BPCX      is located at ... 3BD79000    it's length is ... 00271100
     The BMAH      is located at ... 446FC000    it's length is ... 028DB020
     The BPCX      is located at ... 3BFEB000    it's length is ... 00271100
     The BMAH      is located at ... 46FD8000    it's length is ... 028DB020
     The BPCX      is located at ... 3C25D000    it's length is ... 00271100
     The BMAH      is located at ... 498B4000    it's length is ... 0146D840
```

## DCMT Vary Buffer DEFAULT_BUFFER 46000

```
      D B DEFAULT_BUFFER LOC
--- Data Buffer --  Size     In-use        Max     Getstg Prfetch-Min   Prefetch
DEFAULT_BUFFER      4276      46000     100000      OPSYS         500 Not-Allowd
  Synonym Table       User-Defined      System-Calculated      Total-Space Used
                               800             262144                 1.0meg
  Allocation     Initial   Addit'l  Num-Alloc  Size-Init  Size-Add'l  Tot-Space
                   20000     10000          5    90.8meg    111.4meg   202.2meg
  Storage               Stg-Pools  Getmain'd Above-16mb  Below-16mb      Total
                                9k   211.3meg   211.3meg           0   211.3meg
DEFAULT_BUFFER     is located at ... 3A70C9C0
     The BCR       is located at ... 3DE5B988
     The BPC       is located at ... 3B49D000    it's length is ... 001000D0
     The Bit List  is located at ... 3B59E000    it's length is ... 00067DB8
     The SPC       is located at ... 3DEB2D08    it's length is ... 00002500
     The BPCX      is located at ... 3B896000    it's length is ... 004E2100
     The BMAH      is located at ... 3F546000    it's length is ... 051B5FE0
     The BPCX      is located at ... 3BD79000    it's length is ... 00271100
     The BMAH      is located at ... 446FC000    it's length is ... 028DB020
     The BPCX      is located at ... 3BFEB000    it's length is ... 00271100
     The BMAH      is located at ... 46FD8000    it's length is ... 028DB020
     The BPCX      is located at ... 3C25D000    it's length is ... 00271100
     The BMAH      is located at ... 498B4000    it's length is ... 0146D840
     The BMAH      is located at ... 4AD22000    it's length is ... 00415EC0
```




## Defining a Journal Buffer

```
                    OCF 18.5 IDMS  NO ERRORS      DICT=SYSTEM       1/8 TECHDC80

 -
      CREATE
      JOURNAL BUFFER R170DMCL.JNL_BUFFER
 *+       CREATED 2007-12-21-13.51.17.690080
          PAGE SIZE 2004 CHARACTERS
          BUFFER PAGES 100
          ;
```

## DCMT Display BUFFER JNL_BUFFER

```
      D B JNL_BUFFER
- Journal Buffer -  Size  # In-Use      Waits         DB        Ckpt
JNL_BUFFER          2004       100          0          0           1
                             # of Recoveries      I/O's   in Buffer
                                           0          0           0
                Waits on Prior IO   Forced IO: Deadlock       Split
                                0                     0           0
```

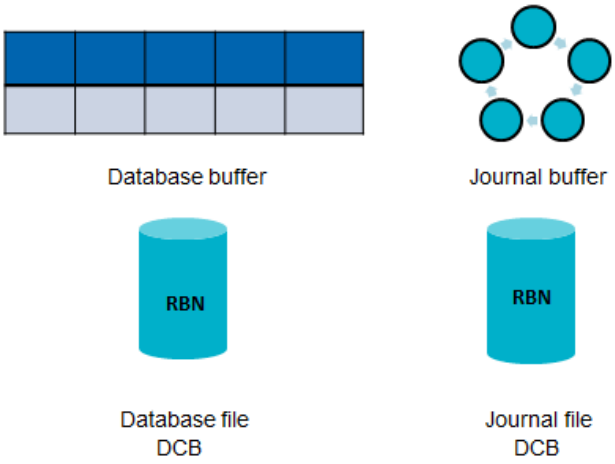



## DCMT Display BUFFER

```
      D B
--- Data Buffer --  Size    In-use        Max     Getstg Prfetch-Min   Prefetch
SESA_BUFFER         4276       500        500      OPSYS         500 Not-Allowd
LSR_BUFFER_4096     4096  Vsam LSR          0      OPSYS
NSR_CPF             1024  Vsam NSR          0      OPSYS
DEFAULT_BUFFER      4276     46000     100000      OPSYS         500 Not-Allowd
LOG_BUFFER          4276         5          5      OPSYS         500 Not-Allowd
LSR_BUFFER         28672  Vsam LSR          0      OPSYS
NSR_BUFFER         28672  Vsam NSR          0      OPSYS

- Journal Buffer -  Size  # In-Use      Waits         DB        Ckpt
JNL_BUFFER          2004       100          0          0           1
                             # of Recoveries      I/O's   in Buffer
                                           0          0           0
                Waits on Prior IO   Forced IO: Deadlock       Split
                                0                     0           0
```

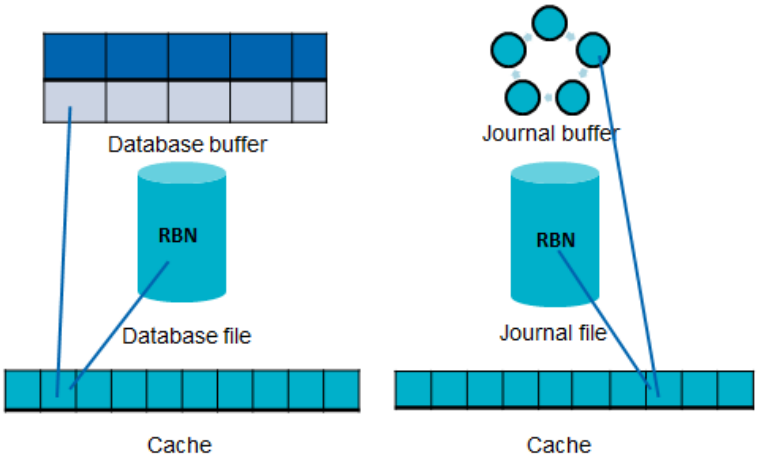
## Database and Journal files and buffers



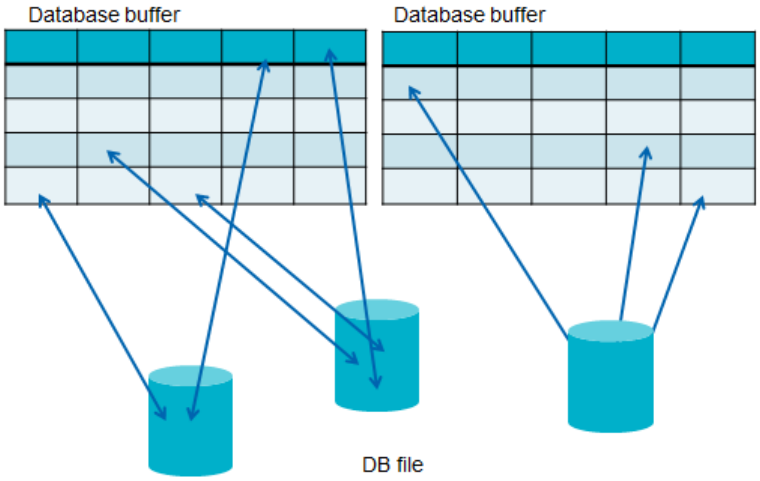




## Database and Journal files and buffers



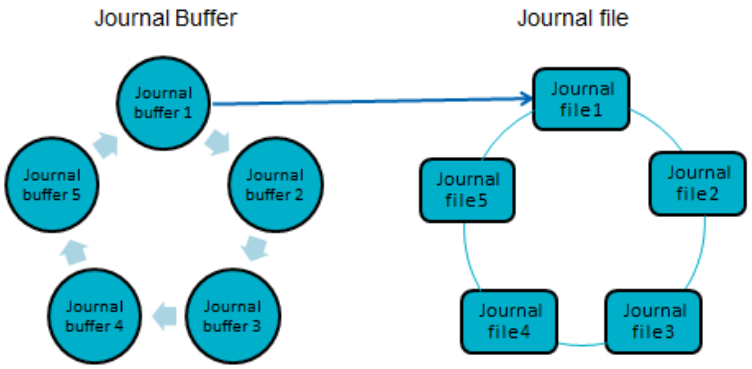
## Database files and buffers



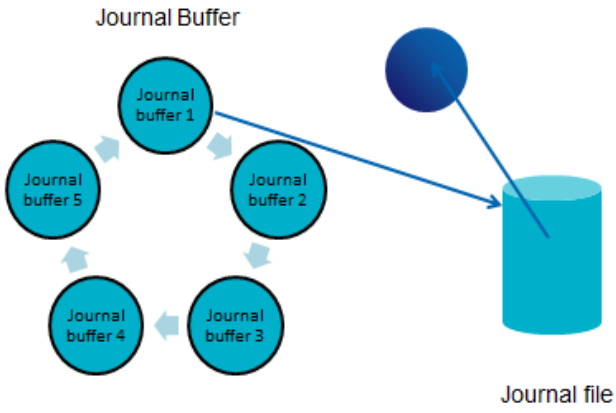




## Journal file and buffers



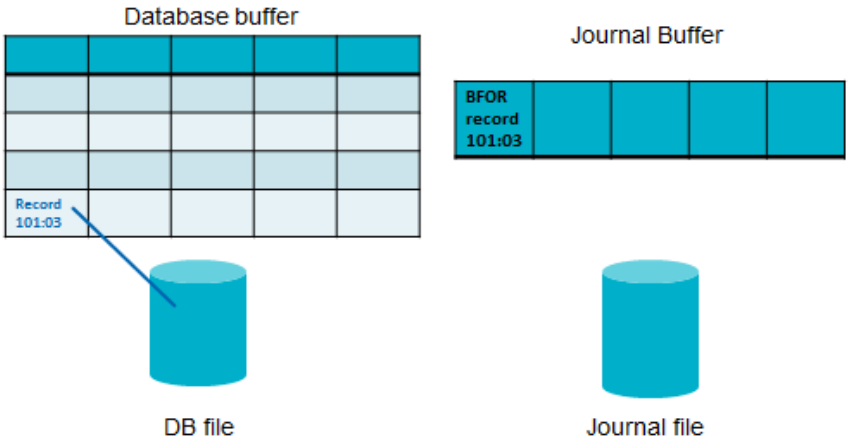
## Journal file and buffers



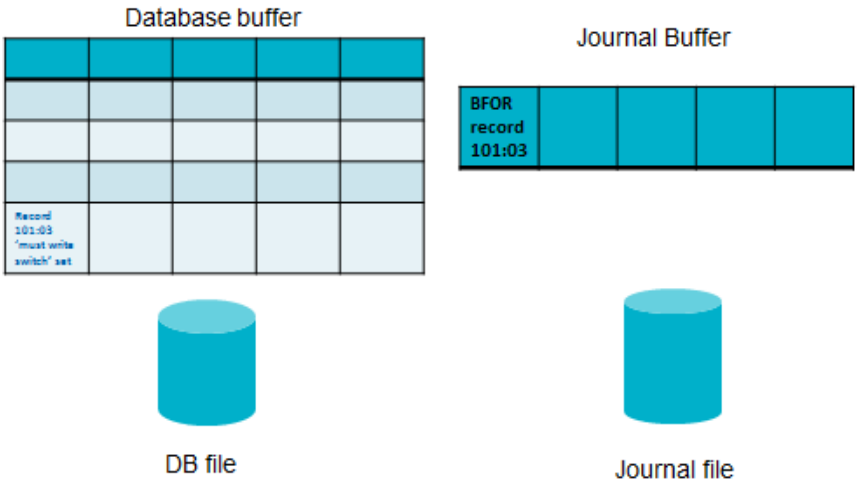




## Database Read into buffer



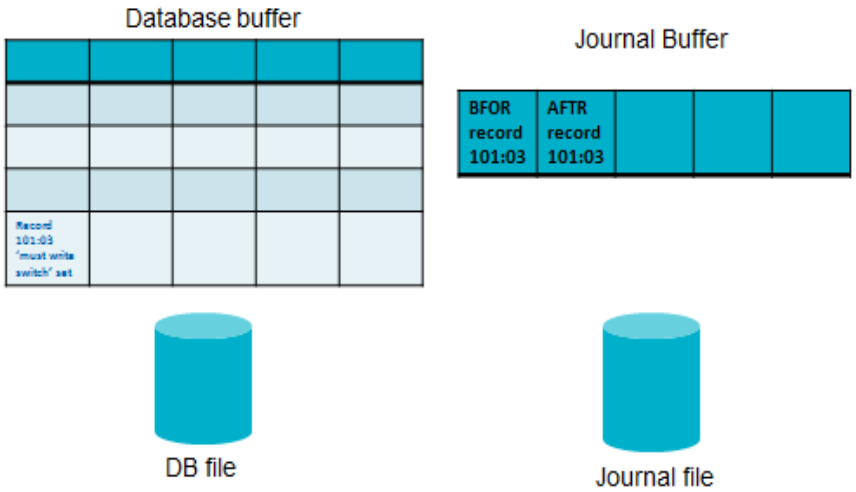
## Database Update in buffer



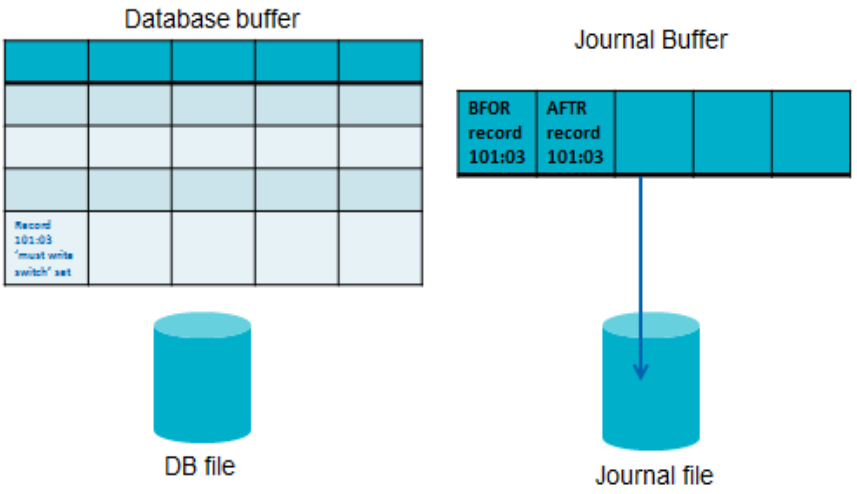




## After image is built in Journal buffer



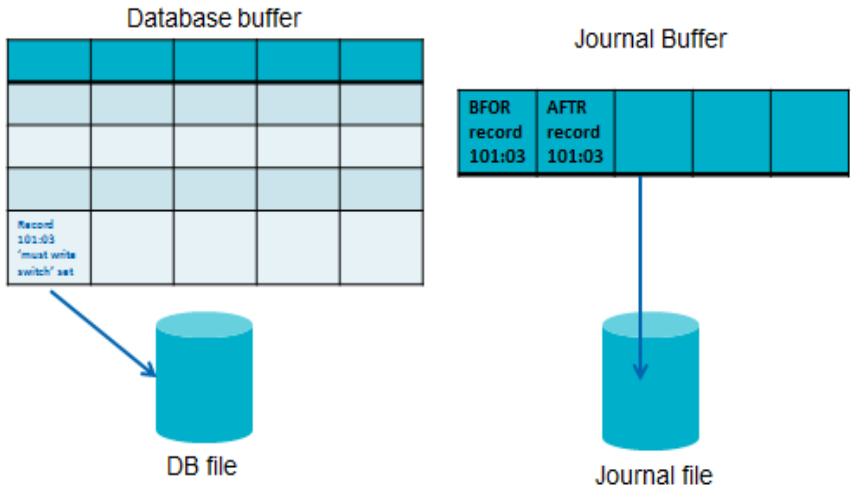
## Write to Journal



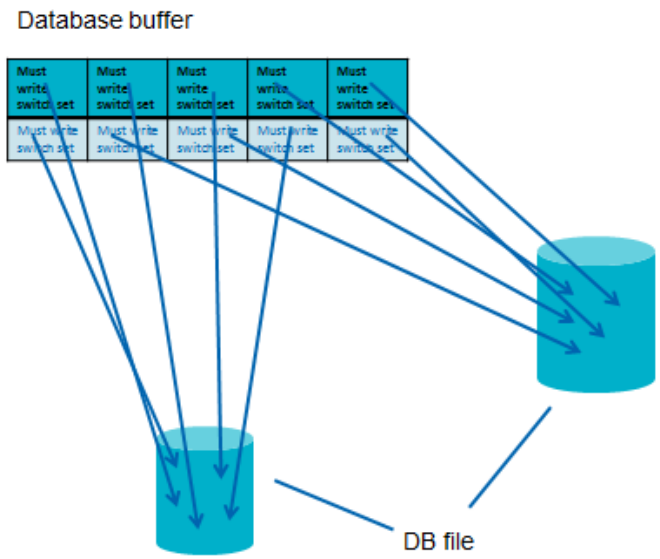




## Write to Database



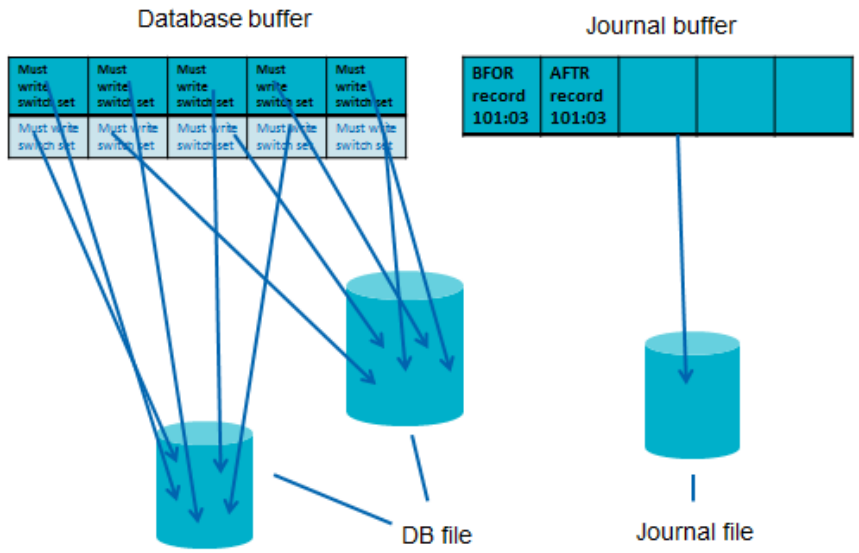
## Database update, all buffers have ‘must write switch’ set



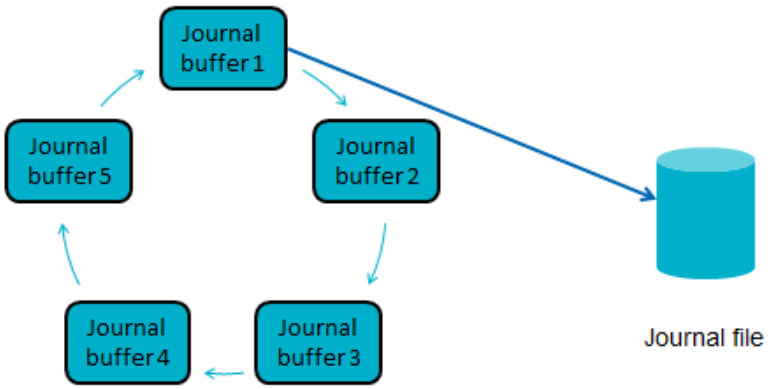




## Database update, write journal first



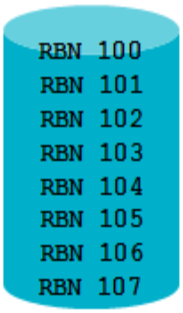
## Journal buffer and I/O







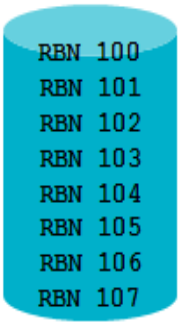
## Journal I/O




Journal file

Transaction 5000, start I/O – RBN 100
Transaction 5010, start I/O – RBN 101
Transaction 5020, start I/O – RBN 102
Transaction 5030, start I/O – RBN 103
Transaction 5040, start I/O – RBN 104
Transaction 5050, start I/O – RBN 105
Transaction 5060, start I/O – RBN 106
Transaction 5070, start I/O – RBN 107

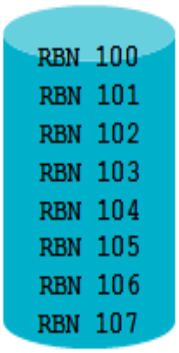
## Journal I/O




Transaction 5000, waiting on I/O – RBN 100
Transaction 5010, waiting on I/O – RBN 101
Transaction 5020, I/O finished – RBN 102
Transaction 5030, I/O finished – RBN 103
Transaction 5040, waiting on I/O – RBN 104
Transaction 5050, I/O finished – RBN 105
Transaction 5060, waiting on I/O – RBN 106
Transaction 5070, waiting on I/O – RBN 107

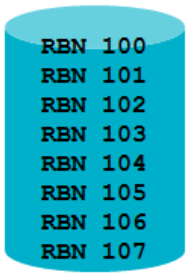



## Journal I/O




Transaction 5000, waiting on I/O – RBN 100 – JBEE - 1
Transaction 5010, waiting on I/O – RBN 101
Transaction 5020, I/O finished, wait on JBEE - 1
Transaction 5030, I/O finished, wait on JBEE - 1
Transaction 5040, waiting on I/O – RBN 104 – JBEE - 2
Transaction 5050, I/O finished, wait on JBEE - 2
Transaction 5060, waiting on I/O – RBN 106
Transaction 5070, waiting on I/O – RBN 107

## DCMT Display Buffer



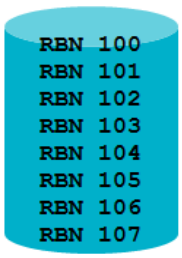

Transaction 5000, waiting on I/O – RBN 100 – JBEE - 1
Transaction 5010, waiting on I/O – RBN 101
Transaction 5020, I/O finished, wait on JBEE - 1
Transaction 5030, I/O finished, wait on JBEE - 1
Transaction 5040, waiting on I/O – RBN 104 – JBEE - 2
Transaction 5050, I/O finished, wait on JBEE - 2
Transaction 5060, waiting on I/O – RBN 106
Transaction 5070, waiting on I/O – RBN 107

This shows up on a DCMT Display Buffer, or DCMT Display Buffer journal-buffer as:

Waits on prior I/O
3



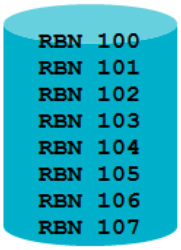

## Journal I/O error on RBN 100




Transaction 5000, waiting on I/O – RBN 100 – JBEE - 1
Transaction 5010, waiting on I/O – RBN 101
Transaction 5020, I/O finished, wait on JBEE - 1
Transaction 5030, I/O finished, wait on JBEE - 1
Transaction 5040, waiting on I/O – RBN 104 – JBEE - 2
Transaction 5050, I/O finished, wait on JBEE - 2
Transaction 5060, waiting on I/O – RBN 106
Transaction 5070, waiting on I/O – RBN 107

- Stop Journaling
- Set High RBN to 99
- Swap to the next journal
- CA IDMS takes journal buffers for RBN 100 – 107 and writes to the new journal
- Restart journaling

## Journal I/O error on RBN 100

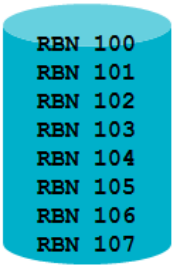



Transaction 5000, waiting on I/O – RBN 100 – JBEE - 1
Transaction 5010, waiting on I/O – RBN 101
Transaction 5020, I/O finished, wait on JBEE - 1
Transaction 5030, I/O finished, wait on JBEE - 1
Transaction 5040, waiting on I/O – RBN 104 – JBEE - 2
Transaction 5050, I/O finished, wait on JBEE - 2
Transaction 5060, waiting on I/O – RBN 106
Transaction 5070, waiting on I/O – RBN 107

- When recovery, either automatic recovery or warmstart, or the Archive Journal reads the old journal, it will stop at RBN 99
- They will not read RBN 100
- Even though RBN 102, 103 and 105 were successfully written to the old journal, the high RBN of 99 will stop CA IDMS from accessing RBNs 102, 103 and 105




## DCMT Display Buffer

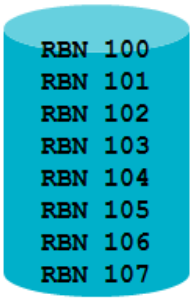



Transaction 5000, waiting on I/O – RBN 100 – JBEE - 1
Transaction 5010, waiting on I/O – RBN 101
Transaction 5020, I/O finished, wait on JBEE - 1
Transaction 5030, I/O finished, wait on JBEE - 1
Transaction 5040, waiting on I/O – RBN 104 – JBEE - 2
Transaction 5050, I/O finished, wait on JBEE - 2
Transaction 5060, waiting on I/O – RBN 106
Transaction 5070, waiting on I/O – RBN 107

This shows up on a DCMT Display Buffer, or DCMT Display Buffer journal-buffer as

Waits
0

## DCMT Display Buffer




Transaction 5000, waiting on I/O – RBN 100
Transaction 5010, waiting on I/O – RBN 101
Transaction 5020, waiting on I/O – RBN 102
Transaction 5030, waiting on I/O – RBN 103
Transaction 5040, waiting on I/O – RBN 104
Transaction 5050, waiting on I/O – RBN 105
Transaction 5060, waiting on I/O – RBN 106
Transaction 5070, waiting on I/O – RBN 107

If you have 8 journal buffers, and all are waiting for I/O, the 9th transaction will wait for a journal buffer.

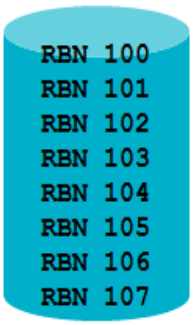
This shows up on a DCMT Display Buffer, or DCMT Display Buffer journal-buffer as

Waits

1



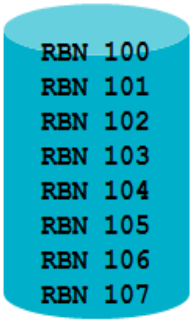

## Journal buffer and I/O




Transaction 5000, waiting on I/O – RBN 100
Transaction 5010, waiting on I/O – RBN 101
Transaction 5020, waiting on I/O – RBN 102
Transaction 5030, waiting on I/O – RBN 103
Transaction 5040, waiting on I/O – RBN 104
Transaction 5050, waiting on I/O – RBN 105
Transaction 5060, waiting on I/O – RBN 106
Transaction 5070, waiting on I/O – RBN 107

- If the Wait count is anything but '0', then add buffers to the journal buffer
- An additional 1 or 2 make a tremendous difference

## Journal I/O

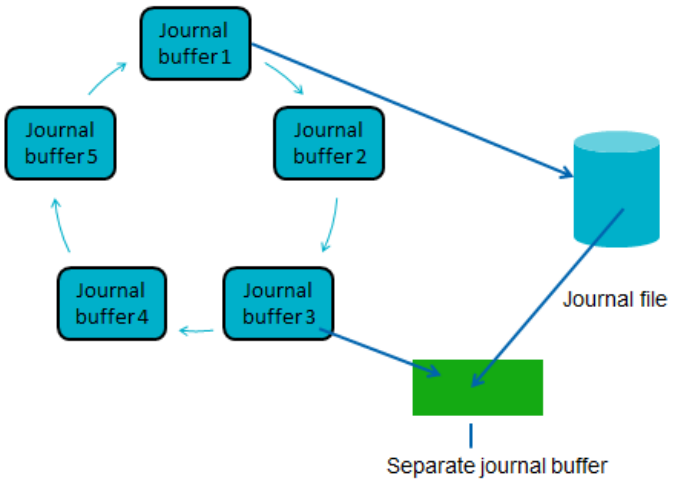



Transaction 5000, waiting on I/O – RBN 100
Transaction 5010, waiting on I/O – RBN 101
Transaction 5020, waiting on I/O – RBN 102
Transaction 5030, waiting on I/O – RBN 103
Transaction 5040, waiting on I/O – RBN 104
Transaction 5050, waiting on I/O – RBN 105
Transaction 5060, waiting on I/O – RBN 106
Transaction 5070, waiting on I/O – RBN 107

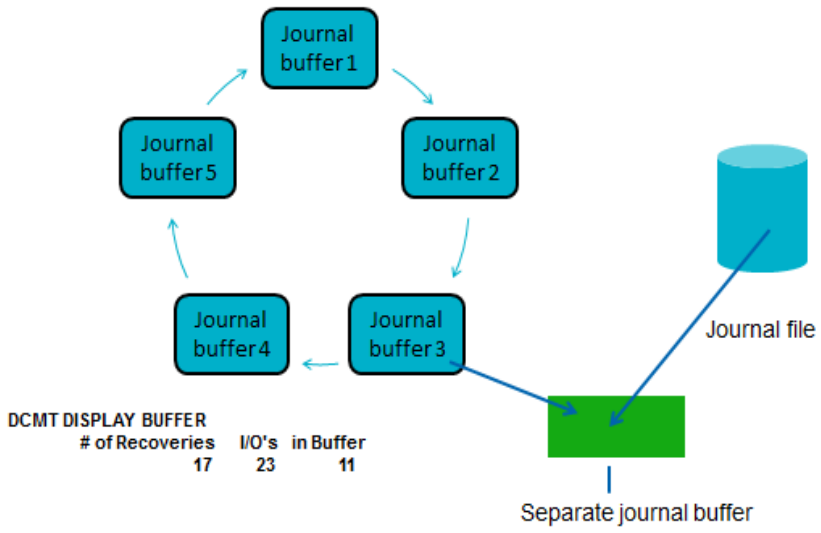
- If Waits on Prior I/O is high, then the bottleneck is most likely the journal itself
- The I/O is taking too long - adding buffers to the Journal Buffer will NOT help the situation
- Talk to the system's group, and see if the I/O speed to the journal can be improved




## Journal buffer pool - recovery



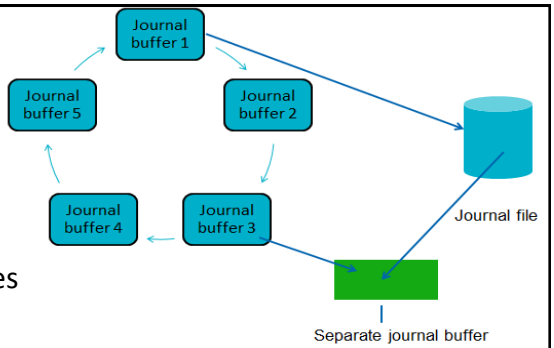
## DCMT Display Buffer







## Journal Buffer Pool Recovery




- Recovery will look in the journal buffers first, to see if the journal images are still in the buffers
- If there are more journal images that are not in the buffers, CA IDMS will read the journal backwards
- Most DASD is Cached at the device level
  - Cache works like a buffer pool however, it is built to work in a forward direction, not backwards like recovery
  - Warmstart will read the journal backwards
  - Make sure applications issue commits, so warmstart does not have to read many blocks backwards

## zIIP processing

- All I/O is done in TCB mode
- All user mode CPU runs in TCB mode
- When not issuing I/O or SVCs, CA IDMS runs in SRB mode, or zIIP mode
- By reducing I/O, you will increase zIIP utilization
- Increase Database Buffers where possible




## Summary

- Increase Database buffers to reduce I/O
- Increase Journal buffers to help recovery
- Reducing I/O will help zIIP processing

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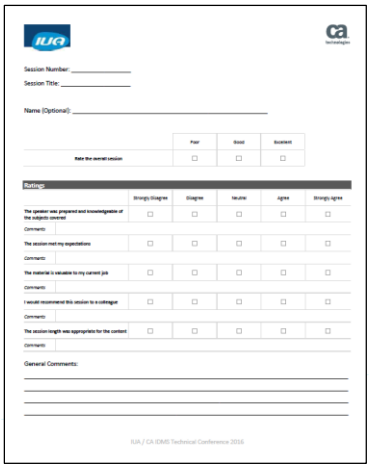

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