CA Database Management for Db2 for z/OS 20.0 (Db2 Tools) Customer Community Update

TEAM PRODUCT OWNERS
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Agenda

- Post Install:

  - Post-install support for DRDA remote binds

- Sysview for Db2:

  - Enhanced Support zHyperlink
  - Insert Algorithm 2 and RID List Field Support
  - Support for Cancelling Inactive Threads
  - Support for IDAA V7- Replication
  - Support for Cross Invalidation
  - Support for new Resource Limit Facility codes
  - RID list reports enhanced
  - Documentation improvement for Calculated Fields
  - Zowe Conformance

- MTC-DBM:

  - SQLCODES
  - Export to CSV

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Please Ask Questions…

Post Install

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Post-Install support for DRDA remote binds

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DRDA remote binds

- Newly added support for remote binds on DRDA compatible non z/OS subsystems (such as Db2 LUW, Oracle)

- Based on customer request for Fast Unload

- Does not affect previous functionality, builds on existing implementation for z/OS systems

- Currently only Fast Unload product is utilizing this feature but the infrastructure is open for all products (SO14381, SO14382, SO14383)

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DRDA remote binds

```
INSEDSE5 ----------------- Edit Parmlib Member SETUP --------- Row 1 to 2 of 2
Command ===> _____ Scroll => CSR

PF keys.......: PF1 for Help                              Member..: SETUP00
                PF3/END to Return to the previous panel   SSID....: Q10B
                PF7/UP  to Scroll Up, PF8/DOWN to Scroll Down
Line commands: D,I,R  to Delete, Insert or Replicate an entry
Commands.....: CANCEL   to Exit without saving changes

  Location          Location Subsystem ID Location Type
- ----------------  -------------------- --------------------
_ LUW1PTIB                               DRDA
_ D12APTIB                D12A           ZOS
*********************************** Bottom of data ********************************
```

Modification of the current panel for remote locations.

Non z/OS location specified as DRDA.

Previously defined locations are shown as "ZOS"

No changes needed if you do not exploit the new functionality

Internally the two locations are treated differently but are inputted in the common table form

Subsystem ID is needed only for SSID running on z/OS

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DRDA remote binds

```
INSEDS4A ---------------- Edit Parmlib Member SETUP ----------------------
Command ===> _____

PF keys......: ENTER    to Continue, PF1 for Help       Member..: SETUP00
               PF3/END  to Return to the previous panel  SSID....: Q10B
Commands.....: CANCEL   to Exit without saving changes

  Type the information in the fields below.
  If QMF is not installed, leave these fields blank.

DRDA Remote Binds.......> YES        (YES or NO)
QMF Plan Name (Opt.)....>
QMF Version (Opt.)......>
QMF Prefix (Opt.).......>
DECP Module Name (Opt.).>            (DB2 10 NFM or later)
XML Column Default Value>
```

Follows the DRDA Remote Binds option

If DRDA Remote Binds option is set to NO, then no remote binds are done when running bind job

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DRDA remote binds

```
INSMBIND ------------- Bind Product Packages and Plans --------------------
Option ===> _____

   Now Processing DB2 Subsystem Q10B

   Local and Remote Bind Options

      0   - Bind ALL product packages and plans
            (Must be performed for base installs)

      1   - Bind only product packages for maintenance
            (Bind only affected packages from changed DBRMs)

   Local Bind Options (Override PARMLIB Remote Bind Setting)

      2   - Bind all product plans only
            (For a subsystem where packages were previously bound)

      3   - Bind only product packages for maintenance
            (For a subsystem needing package maintenance)

   Use the same values for all DB2 subsystems?...> Y    (Y,N)
```

Works the same way as regular bind

DRDA bind statements are bound together with the rest

Current solution allows for any other products to make use of the DRDA binds infrastructure in the future

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DRDA remote binds

```
*****************************************************************
DSN
* DRDA REMOTE PACKAGE BINDS STATEMENTS FOR
DSN
*       NON ZOS LOCATION: LUW1PTIB
DSN
*****************************************************************
DSN
*****************************************************************
DSN
* BIND PACKAGE STATEMENTS FOR PRODUCT:
DSN
*       PFU - Fast Unload
DSN
*****************************************************************
DSN
 BIND PACKAGE(LUW1PTIB.DGL1PLAN_PUT_PFU)          MEMBER(UTAFUSF9)
```

Statements are marked for better orientation in the BIND output

Formatting of bind statements has been unified

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Any Questions…

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Sysview for Db2

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Enhanced Support for zHyperlink

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With zHyperlink Reduce the Transaction Latency!

Delivered — Dataset I/O statistics (IFCID 199)

- New fields containing zHyperlink I/O delay information are now supported

Delivered — Log write I/O with zHyperlink

- Eligible to use zHyperlink and successfully used Hyperlink
- Eligible to use zHyperlink but did not use zHyperlink

New — Report zHyperlink Utilization

- It is possible to monitor zHyperlink and make assessment with new values
- Analysis can be done : System Level
-                      Buffer Pools Level
-                      Thread Level

New — Read I/O zHyperlink Use

- Reports for a single Read I/O operation if data was found in the DASD subsystem cache (Cache hit) or not
- Reports for a single Read I/O operation if zHyperlink was used or not

Demo follows..

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zHyperLink BP statistics – QBST

- **Disk Cache Hits** The number of synchronous read I/O's that resulted in **Disk Cache hits.**
- **Cache Hit Ratio** The **percentage** of synchronous reads found in the disk cache.
  If the cache hit ratio is **below 80** then zHyperLink benefits would be limited.
- **zHyperLink Reads** The number of synchronous read I/O operations **which used zHyperLink.**
- **zHL Utilization** The **percentage** of synchronous reads that were **successful with zHyperLink**.

Updated Reports →

- Real time Report
  - SYSSTATS/A   System Snapshot
  - BUFRDWRS   Buffer Pool Read/Write Activity
- History Reports
  - HSBRDWR   Buffer Pool Read/Write History
  - HSUBRDWR   Buffer Pool Read/Write History Summary
  - HSSNAP   System Overview History
  - HSUSNAP   System Overview History Summary
- Batch Reports
  - BTSTASM2   Summary of Db2 Database Address Space Statistics
  - BTSTATR1   Buffer Pool Statistics

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zHyperLink BP Statistics – Real Time: System Statistics


```
Menu   Print   Tools   Help      CA SYSVIEW for DB2   DBN1 CA11      05/13/20 08:05:56
                                     20.0              DBN1ENDV1                 VANNA04
_    1 SnapShot   2 Buffer Pool   3 EDM Pool   4 Logs   5 Acct Sum   6 More...

R/SYSSTATS           System Snapshot - Accumulate
                                                                          Accum
EXCEPTIONS Crit Warn  Info     BUFFERS              EDM POOL
  Subsystem    1    0     1     Warnings      3485   DBD Lds      8     % Rqsts      1.0
  Database     0    0     0     Act Pools        9   CT  Lds     11     % Rqsts      5.7
  Applicatn    0    0     0     % Act Pgs      0.1   PT  Lds     15     % Rqsts      6.4
            Pct   Max  StIn     Getpages     41768   Dyn Ins    19     % Rqsts     12.8
LIMITS Current Max HWM   HWM    Sync Rds     28323
  Users      6    0    7     6  Cache Hit    100.0   LOCKING
  TSO        0    0    2     0  zHL Utilz     98.2   Suspend    11    LOGGING
  Batch      6    0    7     6  Read Eff       1.5   Escalate    0    Dlyd Wrts      0
  DDF Actv   1    0    1     1  Buf Updts     1531   Timeout     0    Arch Read      0
  DDF Inac   1    0    2     1  Pg Writes     1240   Deadlock    0    Min/Chkpt   1792
  Dataset       94    0        94  Write I/O   751                    Warnings       0

SQL                     ADDRESS  SPACES          THREADS          Active      Actv+Cmplt
  Dynamic        156    DB2 Pct CPU   0.0         Count               6             195
  Ins+Upd+Dlt      0    DB2 WSS (K)      151764   Commits             6             339
  Open+Select    317    DB2 Up Time  29:52:50     Aborts              0              22
  Accelerator      0                              DB2 CPU             1
                                                  Indoubt             0
STORED PROCEDURES             POOL FAILURES
  SQL CALLs        0             RID           0
  Failures         0             EDM           0

MISCELLANEOUS                                    DATA SHARING
  DDF ACTIVE    Rel 12.1.500                      Group   ........
  RLF INACTIVE  SRC !DBN1                         Member  ........
```

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zHyperLink BP Statistics – Real Time: BP Read/Write Activity

zHyperLink BP Statistics – Updated History Reports


```
  Menu  Print  Tools  Help      CA SYSVIEW for DB2   DBN1 CA11      05/13/20 08:40:05
                                      20.0            DBN1ENDV1                VANNA04
  _    1 Overview     2 Buffers   3 EDM Pool  4 Locks  5 Acct Sum  6 More...  7 Excpts

  R/HSSNAP           System Overview History

  From 05/12/20 10:46:00 To 05/13/20 08:04:00
  EXCEPTIONS Crit Warn Info
   Subsystem      1    0     1

  ADDRESS SPACE CPU          BUFFERS              EDM PO             
   DBAS          11.87  Warnings         3078     DBD L              
   SSAS          23.77  Act Pools           9     CT   L             
   IRLM          29.53  %NStl Pgs         0.1     PT   L             
   DIST           1.72  Getpages        29078     Dyn Ins      1     % Rqsts   1.2
                        Sync Rds        24565
  THREADS               Cache Hit        100.0    DATA SHARING       STORED PROCS
   Created       114    zHL Utilz         98.4    Group  ........    CALLs        0
   Terminated    211    Read Eff          1.2     Member ........    Fails        0
   Aborts          8    Buf Updts         976
   Commits       203    Pg Writes         854
                        Write I/O         539     LOCKING            LOGGING
  SQL                                             Suspend      7     Dlyd Wrts    0
   Dynamic        92    POOL FAILURES            Escalate     0     Arch Read    0
   In+Up+Dl        0    RID                0      Timeout      0     Min/Ckpt  ****
   Open+Sel      212    EDM                0      Deadlock     0     Warnings     0
   Accel           0
```

- ✓ System Overview History
- ✓ BP Read/Write History
- ✓ System Overview History Summary
- ✓ Buffer Pool Read/Write History Summary

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zHyperLink BP Statistics – Updated Batch Reports

✓ Db2 Address Space Statistics (BTSTASM2)
✓ Buffer Pool Statistics (BTSTATR1)

zHyperLink Thread BP Statistics

zHyperLink Reads The number of synchronous read I/O operations which used zHyperLink.
Disk Cache Hits The number of synchronous read I/Os that **resulted in Disk Cache Hits**.
zHL CPU (or) zHyperLink CPU The amount of CPU time used for successful zHyperLink reads.

- zHyperLink I/O is synchronous with respect to the CPU, thus CPU time accumulates from the beginning of the I/O until it completes

Updated Reports →

- Real Time: THRDRESP   **Thread** Response Time
                          THRDBUFD   **Thread** Buffer Detail
- History: HTBUFRS   **Thread** Buffer Pool History
                          HTPKGBP   **Package** History BP Detail
                          HTRESP   **Response Time** History
- History Summary: HTUBUFR   Buffer Utilization **Thread** summary
                          HTURESP   **Thread Response time** summary

- Batch: BTACTSML Detailed Summary of **Accounting** Information Report
                          BTACTTRL Detailed Trace of **Accounting** Information Report

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zHyperLink Thread BP Statistics – Updated Real Time Reports

```
R/THRDRESP          Thread Response Time
SORT N/A
Auth ID RKLGO01          Plan DSNESPCS      Corr ID RKLGO01
            Times in HH:MM:SS.TTTT              % App   % DB2      1   3   5   7   9
Elapsed Time App                6.3290   Evnts   Elpsd   Elpsd   .0...0...0...0...0..
  TCB Time Appl                 0.2782   N/A     4.4
 Total DB2 Elapsed              0.1655   N/A     2.6
  Appl DB2 Elapsed              0.1655   60020            100
  Total DB2 CPU                 0.1492   N/A             90.2
   TCB Time DB2                 0.1492   N/A             90.2
    zHyperLink CPU              0.0095   N/A              5.8
  Other DB2 Time                0.0162   N/A              9.8
```

```
R/THRDBUFD          Thread Buffer Detail
SORT N/A
Auth ID RKLGO01          Plan DSNESPCS      Corr ID RKLGO01
BUFFER POOL BP8
READ I/O                        WRITE I/O                       PREFETCH        Requests
 Getpage Requests      311      Buffer Updates         0        Sequential         45
 Synchronous Reads     308      Synchronous Writes     0        List               0
 Disk Cache Hits       308                                      Dynamic            0
 zHyperLink Reads      308      FAILS
 Asynch Pages Reads      0      Conditional Getpage    0        TIMES
 Read Efficiency       1.0                                       zHL CPU        0.0095
 Hit Ratio             0.9
```

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zHyperLink Thread BP Statistics – Updated History Reports

- ✓ Thread Buffer Pools History(HTBUFRS)
- ✓ Response Time History (HTRESP)
- ✓ Package History BP Detail(HTPKGBP)
- ✓

```
R/HTBUFRS          Thread Buffer Pool History

Plan     DSNESPCS     Corr ID RKLGO01          Connect T
Date     05/13/20     Started 06:54:23         RecType
BUFFER POOL BP8
READ I/O                         WRITE I/O
  Getpage Requests     311         Buffer Updates          0    Sequential       45
  Synchronous Reads    308         Synchronous Writes      0    List              0
  Disk Cache Hits      308                                      Dynamic           0
  zHyperLink Reads     308         FAILS
  Asynch Pages Reads     0         Conditional Getpage     0    TIMES
  Read Efficiency      1.0                                        zHL CPU       0.0095
  Hit Ratio            0.9
```

```
R/HTRESP           Response Time History

Plan     DSNESPCS     Corr ID RKLGO01          Connect TSO          Auth ID RKLGO01
Date     05/13/20     Started 06:54:23         RecType
              Times in HH:MM:SS.TTTT           % App  % DB2    1    3    5    7    9
Elapsed Time App       1:55.4065     Evnts    Elpsd  Elpsd    .0...0...0...0...0..
 CPU Time Appl            0.2784     N/A       0.2
  TCB Time Appl           0.2784     N/A       0.2
 Total DB2 Elapsed        0.1657     N/A       0.1
  Appl DB2 Elapsed        0.1657   60024              100
  Total DB2 CPU           0.1494     N/A              90.2
   TCB Time DB2           0.1494     N/A              90.2
   zHyperLink CPU         0.0095     N/A               5.8
  Wait DB2 Service        0.0000       1               0.0
   Update Commit          0.0000       1               0.0
  Other DB2 Time          0.0162     N/A               9.8
```

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zHyperLink Thread BP Statistics – Updated Batch Reports

✓ Detailed Summary of Accounting Information Report (BTACTSML)
✓ Detailed Trace of Accounting Information Report (BTACTTRL)

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Analysing zHyperlink use for a specific I/O

Disk Cache Hit: Indicates whether the I/O resulted in a disk subsystem cache hit or not

- **ZHL-YES**—READ request with SYNCIO used zHyperLink
- **ZHL-NO**—READ request with SYNCIO did not use zHyperLink
- **ASYNCIO**—READ request without SYNCIO

→ Online and Batch Reports are Updated (RECTRACE & BTRECTRC)

```
R/RECTRACE         Detail Trace of DB2 Activity              Row 2498-2539/8181

Rtrn Lk Lck Lock   Req/Ret Lock Req Lock
Code Dr Ste Type    Token     Type    Scope
---- -- --- ---- -------- -------- ------
          Request: A      Reason Code: 000000  Claim Class: C
          Database: DSNDB06   Pageset: DSNAUH01  1st Pg: 0000000F - A  RD-Type: R   TS-Type:  N
                             Partition: 0       Read SyncIO NO
     0   Database: DSNDB06   Pageset: DSNAUH01  1st Pg: 0000000F - A  RD-Type: R    Pages-RD: 1
                             Partition: 0       Read SyncIO: NO  - ASYNCIO   Disk Cache Hit: NO
          Database: DSNDB06   Pageset: SYSUSER   1st Pg: 00000027 - A  RD-Type: R   TS-Type:  N
                             Partition: 0       Read SyncIO NO
     0   Database: DSNDB06   Pageset: SYSUSER   1st Pg: 00000027 - A  RD-Type: R    Pages-RD: 1
                             Partition: 0       Read SyncIO: NO  - ASYNCIO   Disk Cache Hit: NO
```

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Insert Algorithm 2 and RID List Fields Support

Insert Algorithm 2 and RID List Fields Support

- New Fields related to insert algorithm 2 (IAG2) pipe use are added to Online – History and Batch reports, Also made available as IQL fields

- The number of:
  - IAG2 pipes **allocated** since the last Db2 restart. **DMFI-PIPES-ALLOC (QISTINPA)**
  - IAG2 pipes **disabled** since the last Db2 restart. **DMFI-PIPES-DISABLE (QISTINPD)**
  - IAG2 pipes **re-enablement** was **attempted** since the last Db2 restart. **IAG2-PIPE-ATTEMPTED-RNBL (QISTINPR)**
  - IAG2 pipes **re-enablement** was **successful** since the last Db2 restart. **IAG2-PIPE-SUCCESSFUL-RNBL (QISTINPE)**
  - The number of times basic insert algorithm (IAG1) is used. **IAG1-USED (QXRWSINSRTDALG1)**
  - The number of times fast insert algorithm (IAG2) is used. **IAG2-USED (QXRWSINSRTDALG2)**
  - The number of times RID list processing is not used or terminated for the whole query. **MIAP-NOT-USED (QXRFMIAP)**
  - The number of execution history lost. **QXSTEHLST**
  - The number of host variable recording lost in execution history**. QXSTHVLST**

Insert Algorithm 2 and RID List Fields Support

- **Reports Updated:**
- Parallelism / Miscellaneous / IAG2 **(PRLMISC)**
- Parallelism / Misc / IAG2 History **(HSTPRLMS)**
- Parallelism / Misc / IAG2 History Summary **(HSUPRLMS)**
- Statistics Data Trace **(BTSTATR1)**
- Summary of DB2 database address space statistics **(BTSTASM2)**
- Parallelism / Miscellaneous / IAG **(PRLMISC)**
- Parallelism / Misc / IAG History **(HSTPRLMS)**
- Parallelism / Misc / IAG History Summary **(HSUPRLMS)**
- List Prefetch / RID Pool **(SYSLPRF)**
- List Prefetch / RID Pool History **(HSLPRF)**
- List Prefetch / RID Pool History Summary **(HSULPRF)**
- List Prefetch / RID Pool **(THRDLPRF)**
- List Prefetch / RID Pool History **(HTLSTPRF)**
- List Prefetch / RID Pool Hist Sum **(HTULPRF)**
- Parallelism / Misc / IAG / Workfile **(THRDPRMS)**
- Parallelism / Misc / IAG / Wkfile History **(HTHDPRMS)**
- Parallelism / Misc / IAG / Wfile Hist Sum **(HTUDPRMS)**
- Thread SQL Counts **(SQLCOUNT)**

Insert Algorithm 2 and RID List Fields Support

```
Menu   Print   Tools   Help       CA SYSVIEW for DB2   D12A CA31      07/20/20 02:00:53
                                     20.0               D12AENDK3                SNOOL01


R/PRLMISC          Parallelism / Miscellaneous / IAG
                                                                    Accum
PARALLELISM                                MISCELLANEOUS
   Parallel Groups Executed        0          Max LOB Storage (MB)              0
   Groups Executed as Planned      0          Max XML Storage Used (MB)         0
   Max Degree of Parallel IO       0          Array Expansions                  0
   Est Degree of Parallel IO       0          Sparse Index Disabled             0
   Plan Degree of Parallel IO      0          Sparse Index Built Workfile       0
   Groups w/ Reduced Degree        0
   Groups Red Deg - Sys Stres      0       INSERT ALGORITHM
   Groups Failed - Cursor          0          IAG2 Pipes
   Groups Failed - ESA Sort        0             Allocated                      0
   Groups Failed - Storage/BP      0             Disabled                       0
   Groups Failed - Autonom Pr      0             Re-enable Attempted            0
   Groups Failed - Sys Stress      0             Re-enable Successful           0
   Groups Failed - Optimalize      0          IAG1 (Basic) Used          5929157
   Grps exec 1 DB2: COORD=NO       0          IAG2 (Fast)  Used                0
   Grps exec 1 DB2: ISO=RR/RS      0
   Number Intended Groups          0
   Members Bypassed BP Short       0
   Access Path Redone: Config      0
   Access Path Redone: BP          0
   Grps exec 1 DB2: DclTmpTbl      0
```

New fields:

- "Re-enable Attempted" - Indicates the number of times insert algorithm 2 (IAG2) pipes re-enablement was attempted.
- "Re-enable Successful" - Indicates the number of times insert algorithm 2 (IAG2) pipes re-enablement was successful.
- "IAG1 (Basic) Used" - Indicates the number of times basic insert algorithm (IAG1) is used.
- "IAG2 (Fast) Used" - Indicates the number of times fast insert algorithm (IAG2) is used.

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Insert Algorithm 2 and RID List Fields Support


```
Menu    Print    Tools    Help      CA SYSVIEW for DB2    D12A CA31    07/20/20 02:19:12
                                         20.0                D12AENDK3                  SNOOL01

                                                                            FOCUS OFF
R/THRDPRMS         Parallelism / Misc / IAG / Workfile
SORT N/A
Auth ID SNOOL01          Plan IDB2993S      Corr ID INSU312A

PARALLELISM                                       MISCELLANEOUS
    Parallel Groups Executed           0              Max LOB Storage  (MB)           0
    Groups Executed as Planned         0              Max XML Storage Used (MB)       0
    Max Degree of Parallel IO          0              Array Expansions                0
    Est Degree of Parallel IO          0              Sparse Index Disabled           0
    Plan Degree of Parallel IO         0              Sparse Index Built Workfile     0
    Groups w/ Reduced Degree           0
    Groups Red Deg - Sys Stres         0          INSERT ALGORITHM
    Groups Failed - Cursor             0              IAG1 (Basic) Used               0
    Groups Failed - ESA Sort           0              IAG2 (Fast) Used                0
    Groups Failed - Storage/BP         0
    Groups Failed - Autonom Pr         0          WORKFILE
    Groups Failed - Sys Stress         0              Current Blocks Inuse            0
    Groups Failed - Optimalize         0              Blocks Used HWM                 0
    Grps exec 1 DB2: COORD=NO          0
    Grps exec 1 DB2: ISO=RR/RS         0
    Number Intended Groups             0
    Members Bypassed BP Short          0
    Access Path Redone: Config         0
    Access Path Redone: BP             0
    Grps exec 1 DB2: DclTmpTbl         0
    Parallel Suspend Count             0
    Parallel Suspend Time            0.0
```

New field:
- "IAG1 (Basic) Used" - Indicates the number of times basic insert algorithm (IAG1) is used.
- "IAG2 (Fast) Used" - Indicates the number of times fast insert algorithm (IAG2) is used.

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Insert Algorithm 2 and RID List Fields Support

✓ Knowing if RID access is successful or not is vital for me as it impacts performance of the queries significantly.

```
 Menu   Print   Tools   Help    CA SYSVIEW for DB2   D12A CA31    07/20/20 01:53:53
                                   20.0              D12AENDK3              SNOOL01


 R/SYSLPRF       List Prefetch / RID Pool - Accum
                                                                    Accum
 RID POOL                          %MAXRBLK    LIST PREFETCH
    RID Pool Current Blks       0     0.0      RID List Used                     87
    HWM RID Pool Blocks         3     0.0        Data Manager Not Called          5
    StIn HWM RID Blocks         0     0.0      Not Used - Whole Query             9
    RID Blks in Wrkfl Stg       0              Failed - No Storage                0
    HWM RID Blks in Wrkfl       0              Failed - RID Limit                 9
    RID Failed RDS Limit        4              Only 1 Block Fetched              48
    RID Failed DM Limit         0
    RID Failed No Storage       0
    RID Failed Processes        0
    RID Overflow - Stg          0
    RID Overflow - Limit        0
    RID Interrupt - Stg         0
    RID Interrupt - Limit       0
    RID Multi-Index Skipd       0
```

- "Not Used - Whole Query" - Indicates the number of times RID list processing is not used or terminated for the whole query.

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Detailed Summary Of Accounting Information - Grouped By AUTH, PLAN, CORR (BTACTSML)

LOCKING SUMMARY	AVG	TOTALS	LISTS PREFETCH	TOTALS	QUERY PARALLELISM	AVG	TOTALS	DATA CAPTURE	AVG	TOTALS
TIMEOUTS	0.0	0	RID LIST USED	603	GROUPS EXECUTED	0.0	0	IFI CALLS	0.0	0
DEADLOCKS	0.0	0	DM NOT CALLED	0	PLANNED DEGREE	0.0	0	LOG RECORDS CAPTURED	0.0	0
PAGE LOCKS HELD	0.4	3	NOT USED - WHOLE QRY	3	MAXIMUM DEGREE	0.0	0	LOG RECORDS READ	0.0	0
ESCALATION			FAILED - STORAGE	0	MAX EST DEGREE	0.0	0	DATA ROWS READ	0.0	0
SHR	0.0	0	FAILED - RID LIMIT	3	MAX PLAN DEGREE	0.0	0	LOG RCDS RETURNED	0.0	0
EXC	0.0	0	ONLY 1 BLOCK FETCHED	606	REDUCED DEGREE	0.0	0	DATA DESCRIPTORS READ	0.0	0
SUSPENSIONS	0.0	1			GROUPS RED DEG	0.0	0	TABLES RETURNED	0.0	0
LOCK	0.0	0	RID POOL	TOTALS	FAILED - CURSOR	0.0	0	DESCRIBES	0.0	0
LATCH	0.0	1			FAILED - NO ESA	0.0	0			
OTHER	0.0	0	RID OVERFLOW - STG	0	FAILED - NO BUFFR	0.0	0	DYNAMIC PREPARE	AVG	TOTALS
REQUESTS			RID OVERFLOW - LIMIT	0	FAILED - AUTON PR	0.0	0			
LOCK	101.6	6601	RID INTERRUPT - STG	0	FAILED - SYS STRS	0.0	0	STMT FOUND IN CACHE	0.1	5
UNLOCK	43.4	2821	RID INTERRUPT - LMT	0	FAILED - OPTIMAL	0.0	0	STMT NOT FOUND IN CACHE	0.1	4
QUERY	0.0	0	RID MULTI-INDEX SKIP	0	ONE DB2 COORD=NO	0.0	0	IMPLICIT PREPARE PERF.	0.0	0
CHANGE	0.2	14			ONE DB2 ISO=RR/RS	0.0	0	PREPARE AVOIDED	0.0	0
OTHER	0.0	0	DIRECT ROW ACCESS	TOTALS	INTENDED GROUPS	0.0	0	STMTS DISCARDED MAXKEEPD	0.0	0
					MEM BYP BP SHORT	0.0	0	STMTS PURGED DEP. OBJECT	0.0	0
DRAIN/CLAIM	AVG	TOTALS	SUCCESSFUL	0	ACC REDONE-CONFIG	0.0	0	PREP RESTRICTED INDX PEND	0.0	0
			REVERTED TO INDEX	0	ACC REDONE-BP	0.0	0	CONCENT. LIT. STMTS PARS	0.0	0
DRAIN REQUEST	0.0	0	REVERTED TO TS SCAN	0	1 DB2 DCL TMP TBL	0.0	0	CONCENT. LIT. REPLACED	0.0	0
DRAIN FAILED	0.0	0			PARALLEL SUSPENDS	0.0	0	CONCENT. LIT. REUSE FAIL	0.0	0
CLAIM REQUEST	129.3	8403	WORKFILE	MAX	PARAL SUSPND TIME		0.0	CONCENT. LIT. STMTS FND	0.0	0
CLAIM FAILED	0.0	0						STABILIZED PREP	0.0	0
			BLOCKS USED HWM	512	INSERT ALGORITHM	AVG	TOTALS			
					IAG1 (BASIC) USED	4.4	286			
					IAG2 (FAST) USED	0.0	0			

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Support for Canceling Inactive Threads

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Token ID Support during Thread Cancelation

✓ **It allows to cancel Inactive Threads**
✓ If a token is present it is passed to Thread Terminator to cancel the thread
   Otherwise the ACE is passed.

Token ID Support during Thread Cancelation

✓ The TOKEN parameter is also added to exception definitions.

✓ Existing exceptions are not influenced, but when creating new ones the TOKEN may be added.

```
                     Exception Actions Part 2


Specify actions to take when exception occurs.  Then press Enter.

   Issue following PTT command starting at level . . . . N (I, W, C or N)
     Part 1 . . . CANCEL PLAN=&PLANNAM CONN=&CONNNAM AUTH=&AUTHIDX
     Part 2 . . . CORR=&CORRELATION TOKEN=&TTOKNXX
     For individual hist. . N    For hist. summary . N    For real-time . N

   Issue OPS/MVS API Event starting at level . . . . . . N (I, W, C or N)
     For individual hist. . N    For hist. summary . N    For real-time . N

   Send SNMP trap/email to destination group _____ starting at level N
     Number of times exception will occur before sending 1
     For individual hist. . N    For hist. summary . N    For real-time . N
```

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Support for IDAA V7 - Replication

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Support for IDAA V7 - Replication

```
_   1 SnapShot   2 Buffer Pool   3 EDM Pool   4 Logs   5 Acct Sum   6 More...

R/SYSSTATS        System Snapshot - Accumulate
                                                              Accum
EXCEPTIONS Crit Warn Info    BUFFERS            EDM POOL
 Subsystem    5    3    3     Warnings     4540  DBD Lds   124   % Rqsts   0.0
 Database     0    0    0     Act Pools       7  CT  Lds    33   % Rqsts   4.7
 Applicatn    0    0    0     % Act Pgs     0.5  PT  Lds   114   % Rqsts   0.0
             Pct  Max StIn   Getpages    14671K  Dyn Ins   130   % Rqsts   3.5
LIMITS Current Max  HWM  HWM  Sync Rds     74400
 Users      16    2   23   16 Read Eff     197.2  LOCKING
 TSO         0    0   13    0 Buf Updts   551700   Suspend  7538K  LOGGING
 Batch      16    2   23   16 Pg Writes     2368   Escalate     0  Dlyd Wrts     0
 DDF Actv    0    0    3    0 Write I/O      747   Timeout      1  Arch Read   34K
 DDF Inac    0    0    7    0                      Deadlock     0  Min/Chkpt   183
 Dataset   237    1       237                                      Warnings      0

SQL                     ADDRESS SPACES        THREADS        Active    Actv+Cmplt
 Dynamic       3670     DB2 Pct CPU   0.4      Count            16          3617
 Ins+Upd+Dlt   5086     DB2 WSS (K)    553356  Commits      316515        378300
 Open+Select 467235     DB2 Up Time  55:06:10  Aborts            1        182384
 Accelerator    315                            DB2 CPU   15:15:52
                                               Indoubt           0

STORED PROCEDURES            POOL FAILURES
 SQL CALLs      217           RID              0
 Failures         0           EDM              0

MISCELLANEOUS                               DATA SHARING
 DDF ACTIVE      Rel 12.1.500                Group  DSNDTGP
 RLF INACTIVE    SRC !DT32                   Member DT32

ACCELERATORS( 1 )
 % Avg CPU Usage    0.01  % Max Disk Usage    1.32
 % Avg CPU SSID    67.26  % Max Disk SSID     1.22   Cur Queued Requests       0
 % Max Worker CPU  21.33  % Avg BP HitRatio  99.99   Avg Sort Overflows        0
 % Max Coord. CPU  21.33                             SQLs Failed SSID         96
```

This enhancement adds support for fields introduced in DB2 Accelerator v6+.

Two new important metrics depicting the efficiency of the Accelerator – buffer pool hit ratio and number of sort overflows are added on the main SYSSTATS report

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Support for IDAA V7 - Replication

```
R/SYSACDTL        Accelerator Detail - Accum              Row 1-42/50
                                                          Accum
Server Name DTGP75
Product ID  AQT07051          Accelerator Started        06/04/20 19:16:18
Accel State ONLINE            Accelerator Last State Changed 06/04/20 19:16:28
Replication STARTED           Replication Last State Changed 06/21/20 02:29:06

                         Overall Accelerator Statistics
Configuration                 CPU Utilization    ---This SSID--- ------All------
Processors              8     Query Execution          9.930000       10.390000
Worker Nodes            1     Data Maintenance        53.750000       53.840000
Worker Avg CPU (%)  19.33     Data Replication     1:22.804000     2:46.673000
Coord. Avg CPU (%)  19.33

Disk Utilization              Data Replication to Accelerator Tables
Total Space (MB)    134997    Log Records Read         1313723         1428462
 Database Data        1958    Log Records Used         1310832         1425568
  for this SSID       1824    Bytes Processed         86499889        94546045
 Temporary Data          0    Rows Inserted                 16              16
 Log Data             2699    Rows Updated                   0               0
Total Space Used (%)  3.45    Rows Deleted                   6               6
                              Latency Time       5:26:46.000000
Storage Utilization           Velocity                0.004111
User Storage (MB)    82080
SQL Stmnts   (MB)    76638    Query Requests
BP Hit Ratio (%)     99.99    Currently Active               0               0
Sort Overflows           0    Maximum Active                14              14
                              Succeeded                    220             221
Query Queue                    With WAITFORDATA             135             135
Curr Length              0    Failed                       128             128
Average Wait        0.0000     With WAITFORDATA              96              96
Maximum Wait        0.0000
Curr Length SSID         0

                         Accelerator Statistics for this SSID
                                      -----Total----- --Avg/Connect--
Connects to Accel        4    TCP/IP CPU Time         0.004104        0.001026
Requests to Accel        8    TCP/IP Elapsed       1:28.228627       22.057156
 Timeouts                0    Accel Elapsed        1:28.088570       22.022142
 Failures                0    Accel CPU               0.001476        0.000369
Network Inbound          0    Accel Wait Time      1:28.038742       22.009685
(KB/s) Outbound          0
```

The Accelerator detailed statistics report has a new versioned layout which will be displayed in case the version is 6+

14 new fields are added:
- BP Hit Ratio and Sort Overflows substitute Data Slices
- Replication velocity is given in log seconds per second
- WAITFORDATA is the delay protocol that allows the queries to wait for replication to end.
- SSID query queue is the length of the accelerator queue for SSID
- More detailed configuration parameters and also Network usage.

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Support for IDAA V7 - Replication

New fields from IFCIDs 3,316,401 were introduced.

These fields introduce support for **replication wait time and replication timeout counts** on the following levels:

- Thread level
- Static SQL statements
- Dynamic SQL statements

Updated Reports →

✓ Thread Accelerator Services THRDACCL

✓ Selected Dynamic SQL Statement in Cache DYNSQLTX,

✓ Dynamic SQL Stats - Current Hist Interval

✓ Dynamic SQL Stats - Current Hist Interval DYNSQLCI,

And Also STASQLTX, STASQLCD, HTACCEL,HTUACCEL, HSUDYNSD, HSDYNSQD, HSUSTASD, HSSTASQD,BTACTSML, BTACTTRL, BTDSQSML, BTDSQTRL, BTSSQTRL, BTSSQSML)

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IDAA7 – Thread level


```
R/THRDACCL        Thread Accelerator Services
SORT N/A
Auth ID DANAL04            Plan DSNESPCS      Corr ID DANAL04

Eligible times
Elapsed          0.000000        CP              0.000000      zIIP           0.000000

Server Name DTGP75
Product ID  AQT07051
                    Total    Avg/Con    Times            -----Total-----  --Average/Connect--
Connects              1                 TCP/IP CPU           0.001109            0.001109
Requests              2       2.0       TCP/IP Elapsed     1:02.670592          1:02.670592
 Timeouts             0       0.0       Accel Elapsed      1:02.622841          1:02.622841
 Failures             0       0.0       Accel CPU            0.000000            0.000000
Repl Timeouts         1       1.0       Accel Wait         1:02.622844          1:02.622844
                                        Repl Wait          1:02.606300          1:02.606300

Statements                              Rows
INSERT                0       0.0       Inserted                    0                 0.0
DELETE                0       0.0       Deleted                     0                 0.0
UPDATE                0       0.0       Updated                     0                 0.0
OPEN                  1       1.0       Returned                    0                 0.0
COMMIT                0       0.0
ROLLBACK              0       0.0       Data Stream     Sent Received      Sent   Received
CREATE                0       0.0       Bytes           2559      816    2559.0      816.0
DROP                  0       0.0       Messages          11       11      11.0       11.0
                                        Blocks             0        0       0.0        0.0
                                        Rows               0        0       0.0        0.0
```

IDAA7 - Static SQLs

```
R/STASQLCD        Selected Static SQL Statement Detail        Row 3-44/44
SORT N/A
Con Token    D83ED7F84D1869C8 Collection ID DANTIDAA

                                   RID list occurrences    Limit Storage
Executed          1 times       Failed                    0       0
Time inserted 07/20/20 06:47:20 Paged out                 0       0
Stats updated 07/20/20 06:47:20 Interrupted               0       0
                                Retrieval skipped  0
Expansion reason         None
Accelerator eligibility No

                   Total    Avg/Exec %Elp                  Total    Avg/Exec
Elapsed time       0.000    0.00000  N/A   Getpages          0       0.0
CPU time           0.000    0.00000  0.0   Rows examined     0       0.0
Sync I/O time      0.000    0.00000  0.0   Rows processd     0       0.0
Other read         0.000    0.00000  0.0   Sorts             0       0.0
Other write        0.000    0.00000  0.0   Index scans       0       0.0
Lock suspend       0.000    0.00000  0.0   Tblspce scans     0       0.0
Exec unit sw       0.000    0.00000  0.0   Sync reads        0       0.0
Latch request      0.000    0.00000  0.0   Sync writes       0       0.0
Page latch         0.000    0.00000  0.0   Parallel grps     0       0.0
Drain lock         0.000    0.00000  0.0    Estimated degree N/A     0.0
Drain claims       0.000    0.00000  0.0    Plan degree      N/A     0.0
Log writer         0.000    0.00000  0.0    Active Degree    N/A     0.0
Global lock        0.000    0.00000  0.0
Child L-lock       0.000    0.00000  0.0
Other L-Lock       0.000    0.00000  0.0
P/P P-Lock         0.000    0.00000  0.0
Page P-Lock        0.000    0.00000  0.0
Other P-Lock       0.000    0.00000  0.0
Wait Pipe          0.000    0.00000  0.0
Parallel sync      0.000    0.00000  0.0


Executed          1 times in accelerator DTGP75
                   Total    Avg/Exec %Elp                  Total    Avg/Exec
Queue wait         0.012    0.01256  N/A   Rows returned     20      20.0
Elapsed time       0.019    0.01926  N/A   Bytes returned    300     300.0
 Wait 1st row      0.015    0.01588  82.4
  Replication      0.000    0.00000  0.0   Repl timeouts     0       0.0
 Wait DB2          0.003    0.00338  17.6
Execution          0.003    0.00369  19.2
 CPU time          0.000    0.00066  3.4
```

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IDAA7 - Dynamic SQLs

```
R/DYNSQLTX        Selected Dynamic SQL Statement in Cache         Row 24-65/65
SORT N/A
CPU time               0.000          0.000   0.0   Rows examined       0        0.0
Sync I/O time          0.000          0.000   0.0   Rows processd       0        0.0
Other read             0.000          0.000   0.0   Sorts               0        0.0
Other write            0.000          0.000   0.0   Index scans         0        0.0
Lock suspend           0.000          0.000   0.0   Tblspce scans       0        0.0
Exec unit sw           0.000          0.000   0.0   Sync reads          0        0.0
Latch request          0.000          0.000   0.0   Sync writes         0        0.0
Page latch             0.000          0.000   0.0   Parallel grps       0        0.0
Drain lock             0.000          0.000   0.0    Estimated degree  N/A       0.0
Drain claims           0.000          0.000   0.0    Plan degree       N/A       0.0
Log writer             0.000          0.000   0.0    Active degree     N/A       0.0
Global lock            0.000          0.000   0.0
Child L-lock           0.000          0.000   0.0
Other L-Lock           0.000          0.000   0.0
P/P P-Lock             0.000          0.000   0.0
Page P-Lock            0.000          0.000   0.0
Other P-Lock           0.000          0.000   0.0
Wait Pipe              0.000          0.000   0.0
Parallel sync          0.000          0.000   0.0

60 bytes SQL stmt: SELECT COUNT(EMP.LASTNAME)

Executed        1 times in accelerator DTGP75
                   Total        Avg/Exec %Elp                   Total    Avg/Exec
Queue wait      1:02.622       1:02.622  N/A   Rows returned       0        0.0
Elapsed time    1:02.622       1:02.622  N/A   Bytes returned      0        0.0
 Wait 1st row   1:02.622       1:02.622  100
  Replication   1:02.606       1:02.606  100   Repl timeouts       1        1.0
 Wait DB2       0.000          0.000     0.0
Execution       0.000          0.000     0.0
 CPU time       0.000          0.000     0.0
```

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Support for Cross Invalidation

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Support for Cross Invalidation

(003) ACCT - Group Buffer Pool Statistics

IXLAXISN-SUSPENDS-XI The number of suspensions of coupling facility asynchronous cross-invalidation service sync-up calls while waiting for asynchronous cross-invalidation to finish.

(1002) CURR-STATS2 - Group Buffer Pool Statistics

IXLCACHE-REQS-XI—The number of coupling facility cache requests with asynchronous cross-invalidation (XI).

IXLAXISN-SVCS-CALLS—The number of coupling facility asynchronous cross-invalidation service sync-up calls to determine whether all outstanding cross-invalidation (XI) notifications have been delivered.

IXLAXISN-SUSPENDS-XI—The number of suspensions of coupling facility asynchronous cross-invalidation service sync-up calls that occurred while waiting for asynchronous cross-invalidation to finish.

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Support for Cross Invalidation - Updated (003) ACCT Reports

Thread Group Buffer Pool Report:

```
R/THRDGBP          Thread Group Buffer Pool
SORT N/A
Auth ID DANAL04        Plan DSNESPCS      Corr ID DANAL04
GROUP BUFFER POOL GBP0
   READS                                          OTHER
      Hit Ratio  0.000                               Unregister page        1
                      Buf Inv   Pg Gone    Total     Explicit X-Inv         0
      Data Returned      0         0         0        Pri IXLCACHE Rq        0
      Data Not Returned                               XI SyncUp Waits        0
       X-DB2 R/W         0         0         0     SECONDARY
       No X-DB2 R/W     N/A        0         0        Wrt Check Susp         0
      Tot Not Returned   0         0         0        IXLCACHE Req           0
      GetPgs GBP Dep Pgs N/A      N/A        3
   WRITES      Chgd Pgs  Cln Pgs   Total         PAGE P-LOCK
      Sync          0         0        0            Space Map Lk Rq         0
      Wrt/Reg Multi Pgs    0                         Data Page Lk Rq         0
      Wrt/Reg One Page     0                         Indx Leaf Lk Rq         0
                                                     Unlock Requests         0
                                                     Spc Map Lk Susp         0
                                                     Data Pg Lk Susp         0
                                                     Indx Lf Lk Susp         0
```

Other Updated Reports:
- Thread Group buffer pool History Summary
- H.Probe Accounting summary for Plan
- Probe Thread Summary
- H Probe Thread Accounting Summary
- BTACTSML Detailed Summary of Accounting Information Report
- BTACTTRL Detailed Trace of Accounting Information Report

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Support for Cross Invalidation - Updated (1002) CURR-STATS2 Reports

Subsystem Group Buffer Pool Statistics Report:

```
R/SYSGBUFD          Group BP Detail This DB2 - Accum
                                                              Accum
GROUP BUFFER POOL GBP0
    READS               Buf Inv    Pg Gone    Async     Total   STORAGE FAILURES
      Data Returned         286        995      N/A      1281     Writes          0
      Data Not Returned   39032     147793      N/A    186825
      Hit Ratio   0.007                                          CASTOUT
                                                                   Class       1148
      Storage Stats       48330   Changed Pages         34        Grp BP         0
      Directory Info          0   Castout Class       2536        Pages      60701
      Castout Stats         485
      Castout Multi Pgs    8119   Castout One Page    1045        OTHER
                                                                   Checkpts       0
    WRITES         Chgd Pgs   Cln Pgs     Total   Write/Reg        Del Pset     142
      Sync           117529         0    117529     Req Mult   11999  CrossInv      0
      Async            1046         0      1046     MultiPgs   99746  IXLCACHE Req 9501
      Total          118575         0    118575     Req 1 Pg   18829  WrAround      0

    P-LK LOCK   Spacemap      Data IndxLeaf                    ASYNC XIs
      Requests       52912      5862    21817                    IXLCACHE Req    33
      Suspends           1         1        5                    SyncUP Calls    20
      Negotiate          1         0        0                    SyncUP Waits     0
      Unlock Requests       81092

    ALLOCATIONS        Current StIn HWM  RECLAIMS
      Directory entries     4896     4896  Directory entry              811907K
      Data entry             978      978  Directory entry with XI      837919K
      Data ents changed       12 ********  Data entry                  33130952
      Size in 4K pages      2304     2304
```

Other Updated Reports:
- Group Buffer Pool History Detail
- Group Buffer Pool History Summary Detail
- Batch Summary of DB2 Database Address Space Statistics Report
- Batch Statistics Data Trace Report

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Support for new Resource Limit Facility codes

Support for new Db2 12 Resource Limit Facility codes

- About 40 new codes showing limit is defined based on which parameters:

    - Specific/Any **Auth ID-** Specific/Any **Collection ID** - Specific/Any **Package** - from Local/Any **Location.**

    - Specific/Any **Application name**, Specific/Any **User ID**, Specific/Any **Workstation**, Specific/Any **IP address.**

- And Also:

    - **INSTALL ZPARM USED FOR LIMIT -** Limit is specified by Zparm

    - **INFINITE - USER HAS SYSADM/SYSOPR AUTHORITY -** Infinite limit - User has super SYSADM/SYSOPR authority.

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Support for new Db2 12 Resource Limit Facility codes

New Reports Thread Resource Limit Facility
"5" Active Threads → "Select Thread" → "6" More → "12" Resource Limit Facility

```
Menu   Print   Tools   Help      CA SYSVIEW for DB2   D12A CA31      05/04/20 06:20:23
                                      20.0            D12AENDK3                SNOOL01

                                                                           FOCUS OFF
R/THRDRLF          Thread Resource Limit Facility
SORT N/A
Auth ID SNOOL01          Plan DISTSERV      Corr ID db2jcc_appli


Resource Limit Table Name         DSNRLST01
ASU Limit                          47470K    % of
CPU Limit                          866.327   Limit
Current/Last CPU Resource Used      6.617     0.7
Maximum CPU Resource Used           0.004     0.0
How ASU value was determined      SPEC AUTH ANY COL ANY PKG ANY LOCN
Resource Limit Code                12
```

✓ Also Thread Resource Limit Facility History request (HTHRLF)

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Support for new Db2 12 Resource Limit Facility codes

Detailed Summary Of Accounting Information (BTACTTRL)

```
REQUEST: BTACTTRL                                                    DB2 SYS: D12A
FIRST RECORD   04/30/20 12:26:22

                        DETAILED TRACE OF ACCOUNTING INFORMATION

SQL DML       TOTAL   SQL DCL       TOTAL   SQL DDL       CREATE  DROP   ALTER   RESOURCE LIMIT FACILITY
---------     -----   ---------     -----   ---------     ------  ----   -----   -----------------------
SELECT          0     LOCK TABLE      0     TABLE           0      0       0     LIMIT TABLE: DSNRLST01
INSERT          0     GRANT           0     INDEX           0      0       0     SRVCE UNITS:  47470K
UPDATE          0     REVOKE          0     TABLESPACE      0      0       0     CPU SECONDS: 866.327
DELETE          0     SET SQLID       0     STO GROUP       0      0       0     MAX CPU SEC:   0.004
MERGE           0     SET H VAR       0     DATABASE        0      0       0     LIMIT CODE :      12
TRUNCATE        0     SET DEGREE      0     SYNONYM         0      0             SPEC AUTH ANY COL ANY PKG ANY LOCN
PREPARE         1     CONNECT 1       0     VIEW            0      0       0
CALLS           0     CONNECT 2       0     ALIAS           0      0
DESCRIBE        0     RELEASE         0     PACKAGE                0
DESC TBL        0     SET CONNEC      0     GBL TMP TBL     0
OPEN            1     SET RULES       0     AUX TABLE       0
CLOSE           0     ASSOC LOC       0     TRIGGER         0      0
```

- **Updated/redesigned Reports**
  - Thread Locks Real Time
  - Thread Locks History
  - Thread Locks History Summary
  - Package History Lock Detail
  - Package History RLF Summary

  - Thread RLF History Summary
  - Package History Lock Summary
  - Detailed Summary Of Accounting Information Grouped By AUTH, PLAN, CORR
  - Detailed Summary Of Accounting Information

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Documentation Improvement for Calculated Fields

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Documentation Improvement for Calculated Fields

(003) DB2 Accounting Record

CA SYSVIEW® PERFORMANCE MANAGEMENT OPTION FOR DB2 20

Version 20.0 ▼   English ▼   Search this product 🔍

IBM DB2 Field Name: Calculated value

- **DECL-CPU-DB2-TOTAL**
  The total amount of CPU time used while in Db2 (accounting class 2). This time includes Db2 CPU time used by stored procedures, user-defined functions, and triggers. This time also includes zIIP CPU usage from both locally executed SQL and stored procedures and user-defined functions executed in a WLM or stored procedure address space.
  IBM DB2 Field Names: Calculated value

- **DECL-CP-DB2-TOTAL**
  The total amount of CPU time used on CP processors while in Db2.
  IBM DB2 Field Names: Calculated value

- **DECL-ZIIP-TIME-DB2**
  The total amount of CPU time used on specialty engines (zIIP) while in Db2. The zIIP CPU time is normalized.
  IBM DB2 Field Names: Calculated value

- **DECL-WAIT-DB2-IO**
  The total amount of thread elapsed time (accounting class 3) spent processing I/O requests or waiting for I/O requests performed for other threads.
  IBM DB2 Field Names: Calculated value

- **DECL-WAIT-LOCK**
  The total amount of thread elapsed time (accounting class 3) while waiting for a Db2 resource or a serializing process (latch). The value includes Db2 times such as page latch wait time, time the requester is suspended while waiting to acquire the drain lock, time waiting for claims to be released, and wait time for global lock contentions.
  IBM DB2 Field Names: Calculated value

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Documentation Improvement for Calculated Fields

(003) DB2 Accounting Record

Elapsed Time and Wait Time Fields Calculations

The following table specifies how the elapsed time and wait time fields are calculated.

IQL Field Name	IBM DB2 Field Names Calculation
TOTAL-TIME-DB2	QWACASC + QWACSPEB + QWACSPNF_ELAP + QWACUDEB + QWACUDFNF_ELAP + QWACTREE + QWACTRET
DECL-CPU-APPL	QWACEJST + QWACCLS1_ZIIP + QWACSPCP + QWACSP_CLS1SE + QWACUDCP + QWACUDF_CLS1SE
DECL-CPU-DB2-TOTAL	QWACAJST + QWACSPTT + QWACUDTT + QWACTRTT + QWACTRTE + QWACSPNF_CP + QWACUDFNF_CP + QWACCLS2_ZIIP + QWACTRTT_ZIIP + QWACSP_CLS2SE + QWACUDF_CLS2SE + QWACTRTE_SE + QWACSPNF_ZIIP + QWACUDFNF_ZIIP
DECL-CP-DB2-TOTAL	QWACAJST + QWACSPTT + QWACUDTT + QWACTRTT + QWACTRTE + QWACSPNF_CP + QWACUDFNF_CP
DECL-ZIIP-TIME-DB2	QWACCLS2_ZIIP + QWACTRTT_ZIIP + QWACSP_CLS2SE + QWACUDF_CLS2SE + QWACTRTE_SE + QWACSPNF_ZIIP + QWACUDFNF_ZIIP
DECL-WAIT-DB2-IO	QWACAWTI + QWACAWTR + QWACAWLG + QWACAWTW + QWAX_PIPE_WAIT
DECL-WAIT-LOCK	QWACAWTL + QWACAWTP + QWACAWTJ + QWACAWTK + QWACAWTM + QWACAWTN + QWACAWTO + QWACAWTQ + QWACAWLH + QWAC_PQS_WAIT + QWAXAWDR + QWAXAWCL
DECL-WAIT-LOG	QWAXALOG + QWAXAWAR

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Documentation Improvement for Calculated Fields

(369) Repeating Fields

- **DECL-WAIT-DB2-IO**
  The total amount of thread elapsed time (accounting class 3) spent processing I/O requests or waiting
  for I/O requests performed for other threads.
  IBM DB2 Field Names: Calculated value

- **DECL-WAIT-LOCK**
  The total amount of thread elapsed time (accounting class 3) w
  serializing process (latch). The value includes Db2 times such a
  requester is suspended while waiting to acquire the drain lock,
  and wait time for global lock contentions.
  IBM DB2 Field Names: Calculated value

- **DECL-WAIT-LOG**
  The total amount of thread elapsed time (accounting class 3) w
  suspended due to an -ARCHIVE LOG MODE(QUIESCE) comm
  suspend time for the individual threads, and not the time it took
  IBM DB2 Field Names: Calculated value

- **DECL-WAIT-SERVICES**
  The total amount of thread elapsed time (accounting class 3) w
  execution unit switches to Db2 services. The value includes Db
  open, close, define, extend, recall, or delete data sets; update S
  commit.
  IBM DB2 Field Name: Calculated value

Elapsed Time and Wait Time Fields Calculations

The following table specifies how the elapsed time and wait time fields are calculated.

IQL Field Name	IBM DB2 Field Names Calculation
TOTAL-TIME-DB2	QWACASC + QWACSPEB + QWACSPNF_ELAP + QWACUDEB + QWACUDFNF_ELAP + QWACTREE + QWACTRET
DECL-CPU-APPL	QWACEJST + QWACCLS1_ZIIP + QWACSPCP + QWACSP_CLS1SE + QWACUDCP + QWACUDF_CLS1SE
DECL-CPU-DB2-TOTAL	QWACAJST + QWACSPTT + QWACUDTT + QWACTRTT + QWACTRTE + QWACSPNF_CP + QWACUDFNF_CP + QWACCLS2_ZIIP + QWACTRTT_ZIIP + QWACSP_CLS2SE + QWACUDF_CLS2SE + QWACTRTE_SE + QWACSPNF_ZIIP + QWACUDFNF_ZIIP
DECL-CP-DB2-TOTAL	QWACAJST + QWACSPTT + QWACUDTT + QWACTRTT + QWACTRTE + QWACSPNF_CP + QWACUDFNF_CP
DECL-ZIIP-TIME-DB2	QWACCLS2_ZIIP + QWACTRTT_ZIIP + QWACSP_CLS2SE + QWACUDF_CLS2SE + QWACTRTE_SE + QWACSPNF_ZIIP + QWACUDFNF_ZIIP

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ZOWE Conformance

Zowe Conformant Status is earned…

https://www.openmainframeproject.org/projects/zowe/conformance

Zowe Conformant badge — OPEN MAINFRAME PROJECT — Zowe Conformant — API MEDIATION LAYER - ZOWE V1

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CA Database Management Solutions for Db2 for z/OS

CA Database Management Solutions for Db2 for z/OS (API Mediation Layer ZOWE V1)

Broadcom   Open Mainframe Project   Platinum Member

Zowe Conformant · API Mediation Layer ZOWE V1

RESTful APIs for Db2 for z/OS data access and management

License   Not Open Source

Website	techdocs.broadcom.com/content/broadcom/techdocs/us/en/ca-mainframe-s…
Crunchbase	crunchbase.com/organization/broadcom
LinkedIn	linkedin.com/company/broadcom
Twitter	@Broadcom
Headquarters	San Jose, California
Market Cap	$132.73B

Latest Tweet	this week
Headcount	10,001-1,000,000

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Any Questions…

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MTC-DBM

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SQLCODES

MTC DBM: SQLCODE Charting

Use-case: I would like to

- see SQLCODE report in UI
- Have the ability to chart
- Segregate the report by looking at only those SQLCODES that I want with just a click
- Detail report of an SQLCODE
- Ability to Export the data into a CSV form

- Delivered with PTF : **SO14491**

Live Demo

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Export to CSV

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MTC DBM: EXPORT to CSV

Use-case: I would like to

- Export all the data of a data table to a CSV format
- Perform my own charting (if data is there in my local system)

- Delivered with PTF : **SO14168**

- **Live Demo**

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MTC DBM: Export to CSV

MTC DBM: Export to CSV

Select one of these and click on Export

MTC DBM: Export to CSV

Export to CSV icon will blink (symbol of in-progress)

MTC DBM: Export to CSV

Date and Time values in quotes
(Excel cannot think of
formatting it to different format)

Any Questions…

Srinivas Adupa
srinivas.adupa@broadcom.com

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In Closing…

Update to Tech Docs 'New Features' information

- When a new feature is added to the 'New Features' section of our 'Release Notes' the title of that feature will include the PTF # that delivers the new feature.

- The 'New Features' section can be found [here](#).

- Here is a list of some of our recent new features:
  - [Support for Unload from Remote Db2 (LUW) RDBMS (SO14382)](#)
  - [SQLCODE Reporting and Chart Support (SO14491)](#)
  - [Single Sign-On Support for an API Service in the Zowe API Mediation Layer (SO14401)](#)
  - [Capture Threshold Values (CTV) of objects selected by RTOS (SO14174)](#)
  - [Post-Install Enhancement to Support Non-Db2 for z/OS Binds (SO14028)](#)

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When is the next Community Update call?

- The last Tuesday of each month

- Our next call will be Tuesday September 29th, 2020

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Mainframe Technical Exchange Digital Experience

October 13 - 15, 2020

- Join our technical experts for education sessions, product strategy & ideation
- Registration is FREE and coming soon
- More details at http://bit.ly/2020TechExchange

**AIOps and
Automation**

DevOps

**Infrastructure
Management**

Security

MTE Digital Experience – Db2 Tools Presentations

- DBM01 - CA Database Management Solutions for Db2 for z/OS Trends and Direction: DevOps, AIOps, and Data Protection

- DBM02 - Sort Out Your Db2 Utilities: Tuning Sort Packages to Optimize Workload Throughput
  CA Fast Load for Db2 for z/OS,
  CA Rapid Reorg for Db2 for z/OS

- DBM03 - Augmented Db2 Performance and Administration for New Developers Using Mainframe Team Center - Database Management for Db2 for z/OS

- DBM04 - DevOps: Automate Db2 Schema Management

- DBM05 - CA Db2 Tools and Db2 12 Continuous Delivery: What You Need to Know & CA Db2 Tools Maintenance and Configuration Hints and Tips

- DBM06 - CA Database Analyzer for Db2 for z/OS: Something Old, Something New, and Something Different

- DBM07 - What You Might or Might Not Know You Can Do With Db2 Backup and Recovery Tools: CA Log Analyzer for Db2 for z/OS & CA Fast Recover for Db2 for z/OS

- DBM08 - Archive Tables in CA SYSVIEW Performance Management Option for DB2

- DBM09 - Exploiting CA RC/Migrator for DB2 for z/OS: Tips and Tricks

- DBM10/DBM11 - CA Database Management for Db2 Customer Roundtables

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CA Db2 Tools 20.0 Validation Project

- https://validate.broadcom.com/key/DB2Tools200

- Our next meeting is Thursday Sept 3rd, 2020

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