

# RMU Show Stats

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# Abstract

The most recent versions of RMU SHOW STATISTICS include new metrics that give the DBA significantly enhanced insight into what the Rdb database is doing.

In this session we will discuss these metrics and will discuss how they can be used to manage your databases.

# Row Cache Numbers Believable

Node: BUCKS (1/1/1) Oracle Rdb V7.2-111 Perf. Monitor 30-AUG-2007 04:13:58.98  
 Rate: 3.00 Seconds Summary Cache Statistics Elapsed: 09:55:52.46  
 Page: 1 of 1 DISK\$DATABASE:[PRODUCTION\_DB]SCP\_DB\_ROOT.RDB;1 Mode: Online

```

-----
statistic..... rate.per.second..... total..... average.....
name..... max..... cur..... avg..... count..... per.trans....
latch requests          10          0          1.7          61061          3.0
  retried                0          0          0.0           1          0.0
cache searches          3165          0          1162.5         41565286         2071.1
  found in workset       2115          0          337.4         12066165          601.2
  found in cache         574          0          570.6         20402842         1016.6
  found too big          0          0          0.0           74          0.0
insert cache            1018          0          162.0         5793302          288.6
  row too big            0          0          0.0           160          0.0
  cache full             0          0          0.0           0          0.0
  collision              0          0          0.0           12          0.0
skipped dirty slot      0          0          0.0           107          0.0
skipped inuse slot      0          0          0.0           1529          0.0
hash misses             1838          0          447.2         15990532          796.7
cache unmark            0          0          0.0           1852          0.0
snapshot search         0          0          0.0           1          0.0
  snap found cache       0          0          0.0           1          0.0
  
```

- Counter size was increased from 32 to 64 bits so they do not wrap

# Snapshots in Cache

Node: BUCKS (1/1/1) Oracle Rdb V7.2-111 Perf. Monitor 30-AUG-2007 05:11:12.76  
 Rate: 3.00 Seconds Row Cache (INDEX\_1000\_CACHE) Elapsed: 10:53:06.24  
 Page: 1 of 1 DISK\$DATABASE:[PRODUCTION\_DB]SCP\_DB\_ROOT.RDB;1 Mode: Online

```
-----
statistic..... rate.per.second..... total..... average.....
name..... max..... cur..... avg..... count..... per.trans....
latch requests          0          0          0.2         9876          0.4
  retried                0          0          0.0          0          0.0
cache searches          31321         5519         706.6       27691954       1277.2
  found in workset       28572         5448         566.8       22212855       1024.5
  found in cache         2745          60          114.7       4494927        207.3
  found too big          0            0            0.0          0          0.0
insert cache            25            9           25.1       985064         45.4
  row too big            0            0            0.0          0          0.0
  cache full             0            0            0.0          0          0.0
  collision              0            0            0.0          0          0.0
skipped dirty slot      0            0            0.0          0          0.0
skipped inuse slot      0            0            0.0          0          0.0
hash misses             387            8           13.7       538074         24.8
cache unmark            0            0            0.0         1192          0.0
snapshot search         0            0            0.0          1          0.0
  snap found cache       0            0            0.0          1          0.0
```

■ Note also the counters are quadwords so will not wrap [as frequently]

# More Snapshot in Cache

Node: BUCKS (1/1/1) Oracle Rdb V7.2-111 Perf. Monitor 30-AUG-2007 05:14:07.14  
Rate: 3.00 Seconds Row Cache Status Elapsed: 10:56:00.61  
Page: 1 of 1 DISK\$DATABASE:[PRODUCTION\_DB]SCP\_DB\_ROOT.RDB;1 Mode: Online

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For Cache: INDEX\_1000\_CACHE

Statistic.Name	Stat.Value	Percent					MRES
Total slots:	4000000	100.0%	Slot Length:	1000	Hash slots:	4194304	
Slots full:	986325	24.6%	Use:	1419	24.6%		
Slots empty:	3013675	75.3%	Rsv:	768	0.0%		
Marked Slots:	507	0.0%	Hot:	0	0.0%	Cold:	507 100.0%
Clean Slots:	3999493	99.9%	Hot:	0	0.0%	Cold:	3999493 100.0%
Used Space:	986322k	24.6%	Wstd:	3k	0.0%	Free:	3013675k 75.3%
Hash Que Lengths:	Empty:3328408	1:754558	2:102860	3:7884	4+:594		
Cursor position:	993739 of 4000000 wrapped 0 times						
Cache latched:	No						
Cache is full:	No	Cache modified:	Yes	Snapshot is full:	No		
Checkpoints:	67 Last: 30-AUG-2007 05:01:55.25 Location: 1314:15644						
Cache Recovery:	1314:19560						
Snap Slots:	50000	100.0%	Ful:	3814	7.6%	Rcl:	3679 7.3%
Snap Cursor:	5555 of 50000 (slot 4005555) wrapped 0 times						

# Cache Latches

```
Node: BUCKS (1/1/1)      Oracle Rdb V7.2-111 Perf. Monitor 30-AUG-2007 05:17:01.13
Rate: 3.00 Seconds      Cache Latch Information          Elapsed: 10:58:54.60
Page: 1 of 1           DISK$DATABASE:[PRODUCTION_DB]SCP_DB_ROOT.RDB;1      Mode: Online
-----
```

```
For Cache: INDEX_1000_CACHE
```

```
Process.ID  Latch.Detail.....
```

```
<no data to show for this cache>
```

- Latch is a lightweight lock on the cache data structures
- Obtained prior to an update such as insertion of a new row
- High-velocity updates to a cache can lead to contention
  - If observed frequently place fewer objects in the cache

# Time Resolution Finer

Node: BUCKS (1/1/1) Oracle Rdb V7.2-111 Perf. Monitor 30-AUG-2007 04:17:50.21  
Rate: 3.00 Seconds Transaction Duration (Total) Elapsed: 09:59:43.69  
Page: 1 of 1 DISK\$DATABASE:[PRODUCTION\_DB]SCP\_DB\_ROOT.RDB;1 Mode: Online

```
-----  
Total transaction count:          20155  
Seconds      Tx.Count:    %   #Complete:    % #Incomplete:    %  
0-< 1:        18809   93%      18809   93%      1346    7%  
1-< 2:         386    1%      19195   95%      960    5%  
2-< 3:         285    1%      19480   96%      675    4% <- avg=2.8187 95th=2.0  
3-< 4:         156    0%      19636   97%      519    3%  
4-< 5:         121    0%      19757   98%      398    2%  
5-< 6:          32    0%      19789   98%      366    2%  
6-< 7:          41    0%      19830   98%      325    2%  
7-< 8:          15    0%      19845   98%      310    2%  
8-< 9:          10    0%      19855   98%      300    2%  
9-<10:          11    0%      19866   98%      289    2%  
10+++:         289    1%      20155 100%          0    0%
```

- The increase in time resolution is all through various reports
  - Use care before taking all digits to the right of the decimal as completely meaningful

# Sequential Scans Revealed

Node: BUCKS (1/1/1) Oracle Rdb V7.2-111 Perf. Monitor 30-AUG-2007 05:30:07.38  
 Rate: 3.00 Seconds Record Statistics Elapsed: 11:12:00.86  
 Page: 1 of 1 DISK\$DATABASE:[PRODUCTION\_DB]SCP\_DB\_ROOT.RDB;1 Mode: Online

```

-----
statistic..... rate.per.second..... total..... average.....
name..... max..... cur..... avg..... count..... per.trans....
record marked          56          0          1.1          44596          1.9
record fetched        268117        28872        6750.4        272182581        12179.8
  fragmented          60488          243          549.3          22151892          991.2
record stored          27          0          0.6          25307          1.1
  fragmented          0          0          0.0           0          0.0
pages checked          27          0          0.6          25582          1.1
  saved IO            26          0          0.5          23953          1.0
  discarded           0          0          0.0           275          0.0
record erased          0          0          0.0          2057          0.0
  fragmented          0          0          0.0           0          0.0
temp record marked     27          0          0.2          8909          0.3
  fetchd             437347        1433          916.9        36973381        1654.5
  stored              27          0          3.1          126088          5.6
  erased              27          0          0.2          8399          0.3
sequential scan          26          0          0.6          24717          1.1
  record fetched          31342          0          669.1          26980191          1207.3
  
```



# Executive Behavior Revealed

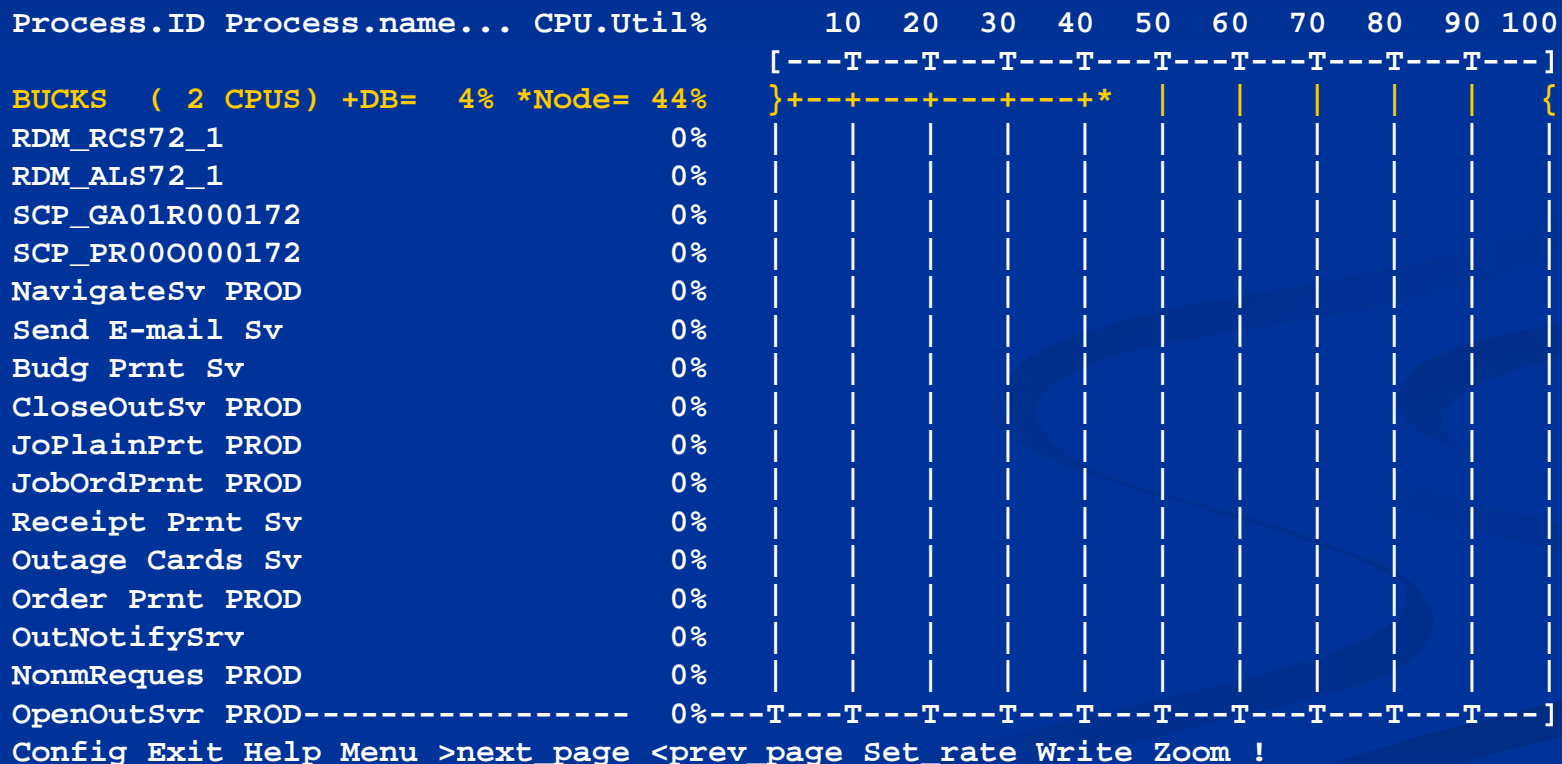
Node: BUCKS (1/1/1) Oracle Rdb V7.2-111 Perf. Monitor 30-AUG-2007 04:22:09.25  
 Rate: 3.00 Seconds Rdb Executive Statistics Elapsed: 10:03:59.54  
 Page: 1 of 1 DISK\$DATABASE:[PRODUCTION\_DB]SCP\_DB\_ROOT.RDB;1 Mode: Online

```

-----
statistic..... rate.per.second..... total..... average.....
name..... max..... cur..... avg..... count..... per.trans....
queries compiled          11          1          0.6          23985          1.1
index scans              7650         574         102.2         3705428         182.9
  index only             4409         342          16.2         589771          29.1
  index full              0           0           0.5          19618           0.9
dynamic optimizer        0           0           0.0           0           0.0
  one abandoned          0           0           0.0           0           0.0
  all abandoned          0           0           0.0           0           0.0
records sorted           809          57          84.4         3059742         151.0
  quick-sorts            809          57           1.2          44030           2.1
  sort32 sorts           6           0           0.1          4916            0.2
    workfile write IO    0           0           0.0           897            0.0
    workfile read IO    0           0           0.0           897            0.0
temp file create        0           0           0.0           20            0.0
  delete                 0           0           0.0           20            0.0
  truncate                0           0           0.0           0             0.0
  record put             15          0          15.4         559515         27.6
  
```

# Can Identify How Busy System Is

```
Node: BUCKS (1/1/1)      Oracle Rdb V7.2-111 Perf. Monitor 30-AUG-2007 04:31:23.41
Rate: 3.00 Seconds      CPU Utilization (Unsorted)           Elapsed: 10:13:16.88
Page: 1 of 3           DISK$DATABASE:[PRODUCTION_DB]SCP_DB_ROOT.RDB;1      Mode: Online
```



# More Information on Stalls

```
Node: BUCKS (1/1/1)      Oracle Rdb V7.2-111 Perf. Monitor 30-AUG-2007 04:42:55.26
Rate: 3.00 Seconds      Active User Stall Messages      Elapsed: 10:24:48.74
Page: 2 of 2           DISK$DATABASE:[PRODUCTION_DB]SCP_DB_ROOT.RDB;1      Mode: Online
```

```
-----
Process.ID  Since..... T Stall.reason.....Lock.ID.
00000588:1          writing ROOT file (RTUPB VBN 2060)
0000058A:1          waiting for TSN block 1 (EX)          0100D869
0000049A:3          waiting for routine SYS$PUT
000004AC:1          waiting for TSN block 1 (EX)          01006424
00000593:1          waiting for SEQBLK block 1 (EX)      5000DA79
0000059B:1          waiting for SEQBLK block 1 (EX)      0100DBAB
00000599:1          waiting for routine SYS$PUT
0000059A:1          waiting for SEQBLK block 1 (EX)      0100DD6B
000009A0:1 04:42:55.41 R reading pages 663:14349 to 663:14349
000004E7:1s          reading 2 AIJ file blocks from VBN 15022
000004E8:1s          reading 2 AIJ file blocks from VBN 15022
000004E9:1s          reading 2 AIJ file blocks from VBN 15022
```

- External routine waits are reported.
  - They were always there, just unreported
- Waits for SEQBLK #1 now indicates stalls starting transactions
- LogMiner activity visible

# Access to Structural Elements

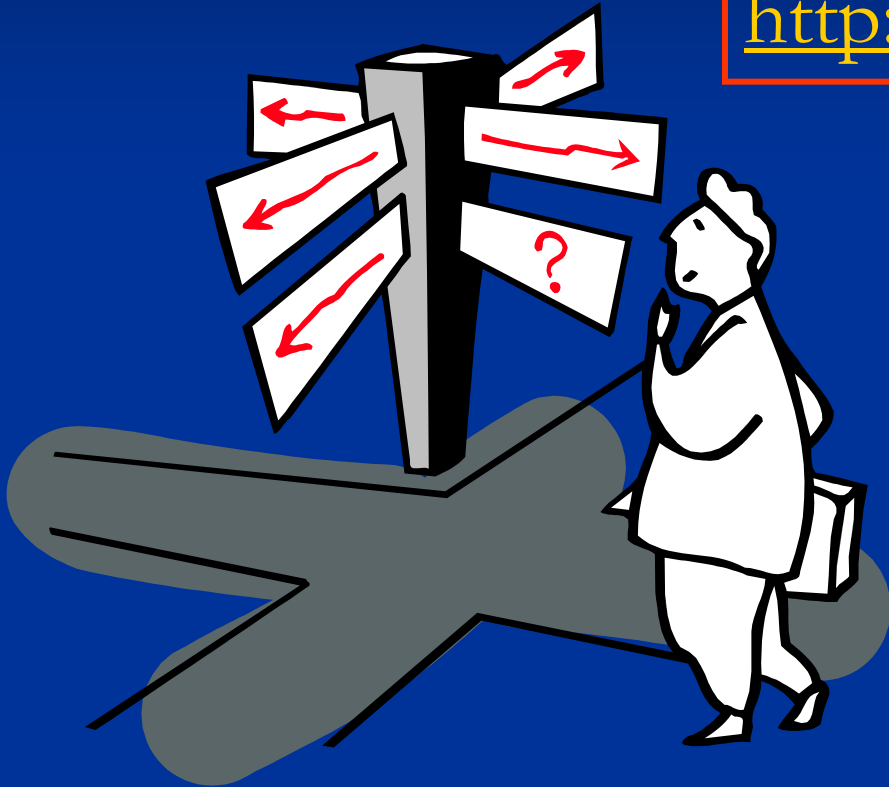
```
Node: BUCKS (1/1/1)      Oracle Rdb V7.2-111 Perf. Monitor 30-AUG-2007 04:50:41.12
Rate: 3.00 Seconds      PIO Statistics--Misc          Elapsed: 10:32:34.59
Page: 1 of 1           DISK$DATABASE:[PRODUCTION_DB]SCP_DB_ROOT.RDB;1      Mode: Online
-----
```

statistic.....	rate.per.second.....			total.....	average.....
name.....	max.....	cur.....	avg.....	count.....	per.trans....
ABM Page Fetch	106	0	2.5	98041	4.6
AIP Page Fetch	0	0	0.3	14894	0.7

- ABM s gives some insight into work during record stores and sequential scans
- AIP is a measure of work during binds to a table or index

# Questions

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