

# EuroVMS Update

Johan Michiels  
OpenVMS Forum 2019





OpenVMS Consulting

Move to VSI

System & Cluster design

Application migrations

Move to an emulator



As a product

As a service



# Introducing the Oracle Rdb Toolset

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# Luc



- Working with Rdb since 1988
- Support specialist at Digital and Oracle
- DBA Rdb at Sunair/Delight Information Systems
- DBA Rdb at Belgian Railways Infrabel

# Oracle Rdb Toolset

- A set of ready-to-use procedures for the DBA working with
  - Oracle Rdb
  - Oracle Rdb/JDBC
  - Oracle SQL/Services and OCI Services for Oracle Rdb
  - JCC Logminer Loader
- Fully documented .TXT .HTML
- Not a course
- Requires basic to medium knowledge of Oracle Rdb.



# Oracle Rdb Toolset

- Free software
- Available under the GNU General Public License
- Can be downloaded from GitHub.com
  - <https://github.com/LucAllemeersch/OpenVMS-Oracle-Rdb-Toolset>
- Is supported on best-effort basis by the author
  - Is NOT covered under a CockpitMgr support & maintenance contract
- Uses standard Rdb utilities, DCL procedures and some C code, 500+ files, 20,000+ blocks
- Bundles over 30 years of experience with Rdb



# CockpitMgr for OpenVMS

- A fully integrated software package for the OpenVMS system manager
- Includes:
  - A console manager
  - An OpenVMS system monitor
  - SNMP utilities
  - Tools for monitoring network and storage modules
  - Configuration & Change management
  - Extensive event notification capabilities
- CockpitMgr includes a Console Manager scan profile for Rdb OPCOM events. Toolset adds 33 events more.



# Oracle Rdb Toolset: Monitoring

- The Rdb Toolset contains monitoring modules with event notification towards CockpitMgr
  - The Rdb Toolset is fully integrated in CockpitMgr
  - Single output file across databases, loaders, nodes
  - Central control across clusters
- All tools can be deployed when CockpitMgr is not present.
  - Event notification by only sending e-mail.
  - Single statement dependency '\$ Poke/Agent'





# Oracle Rdb Toolset: Monitoring

- Need to know real time
  - DB 'Notify enabled'
  - RMU/Show Statistics batch per db and node: stalls, deadlocks, binary data
  - JCCLML statistics batch per loader and node: loader delays
  - Toolset failure notifications 2x
  - RDM\$BIND\_NOTIFY\_STORAGE\_AREA\_EXTEND 1
  - ALS automatic, free AIJ slots
  - RDM\$BIND\_ALS\_CREATE\_AIJ 1
- Need to know scheduled/interactive
  - Still running ok ?
  - Output as expected ?
  - Batch entries, DB/AIJ backups, live AIJ's, open DB's, statistics, processes and logfiles JDBC/SQLSRV/JCCLML ...
- Configuration and parameter file. Easy relocation.



# Oracle Rdb Toolset: Reporting

- List database objects
- Data content [history | fragmentation]
- Quick interactive check of all databases per cluster
- Example: Excessive stall times.

CPTRDB - Stall Times Greater Than One Second From Node L15S52

For Database: DISK\$DATA\_25:[CLIO\_DB]CLIO\_DB.RDB

On Node: L15S58

Since: 16-OCT-2019

Before: 17-OCT-2019

Alarm: 6

At: 17-OCT-2019 05:10:05.48

```
-----
2019-10-16|02:00:08.1270134|29FD1AD0:31 | 9|record 69:394083:1 (EX) |*Exceeded Send*
2019-10-16|11:12:21.5461234|29EE9D17:1 | 2|AIJ journal lock 0 (PW) |
2019-10-16|11:43:00.5902734|29EE9D17:1 | 11|AIJ journal lock 0 (PW) |*Exceeded Send*
2019-10-16|11:53:15.9915234|29EE9D17:1 | 4|AIJ journal lock 0 (PW) |
-----
```

Total number of stall groups: 4

Total number of stall seconds: 26

17-OCT-2019 05:10:06.23 \*Stall times exceeded CLIO\_DB L15S58 20191016\*

17-OCT-2019 05:10:06.24 \*Stall times send CLIO\_DB L15S58 20191016\*



# Oracle Rdb Toolset: Utilities “Need to Know”

- Database backup
- AIJ backup
- Live AIJ files
- Open databases
- Statistics processes, stalls and deadlocks
- Statistics binary output data
- Batch entries
- Excessive stall counts / stall times / deadlocks
- Transaction durations
- Storage areas sizes and extents
- Online snapshot truncation
- Optimizer strategies and query performance
- Active users
- Server processes logfiles
- JDBC processes, log and trace files
- Extract JDBC thin server clients
- Restart JDBC thin servers
- SQL/Services and OCI protocol services
- Bugcheckdumps
- JCC Logminer Loaders processes and logfiles
- JCC Logminer Loaders progress, checkpoints and delays



# Oracle Rdb Toolset: Utilities “List database objects”

- Storage areas
- Domains
- Tables
- Indices
- Areas id's
- Page
- Logical area
- Storage area
- Record type
- Index set
- Hash index
- Storage map
- Extract objects
- Table metadata
- RMU/Analyze, gather, store and report
- RMU/Collect
- RMU/Verify



# Oracle Rdb Toolset: Test & Demonstration Databases

- CPTRDB\_DB\_1
  - Single node, Row cache
  - Shared memory process resident
  - All fast commit, ALS automatic
  - Logminer continuous
  - Stall, deadlock, binary data statistics
  - SQL/Services and OCI protocols
  - Vertical/Horizontal partitioning
  - Placement via hashed index
  - List of byte varying
  - Encrypt / Decrypt
  - External procedures
  - JCCLML source
  - ALL\_DATATYPES table (130)



# Oracle Rdb Toolset: Test & Demonstration Databases

- CPTRDB\_DB\_2
  - JCCLML target
- JCCLML\_FILTER\_DB\_ROOT
  - JCCLML filter database
- ANA\_CPTRDB\_DB\_1
  - Store RMU/Analyze data
- CPTRDB\_MASTR\_DB and CPTRDB\_STDBY\_DB
  - Hot Standby source and target



# Oracle Rdb Toolset: Tutorials and Sample Code

- JCC Logminer Loader setup
- Database restore and recover
- Index tuning
- Index node sizes
- Prefix cardinalities
- Unload/Load
- Logical area thresholds
- Database key scope
- Vertical/Horizontal partitioning
- Placement via hashed index
- List of byte varying datatypes
- Encrypt/Decrypt
- Unload from ALL journal files
- Database lock trees
- Row cache
- Hot standby
- External procedures
- Bulk delete
- Generate SQL
- Complex logic unload
- Using Oracle Trace
- Using dynamic SQL
- Remote access over TCP/IP
- List data from a Oracle RDBMS database
- Convert from/to hex
- Miscellaneous utilities





# Rdb/VMS

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