

# JCC's LogMiner Loader

Publishing Rdb Database Changes  
to Other Resources

Cheryl P. Jalbert ♦ Thomas H. Musson  
Keith W. Hare ♦ Jeffrey S. Jalbert

JCC Consulting, Inc.

# Topics

- What use do you have for “publishing” the changes made to your Rdb databases?
- How do we do it?
- What other resources can be the targets?
- What has changed?
- How has the Loader been used?

# “Publish”

## ■ Static

- Update a target with changes that have happened in the source, since the target was last updated.
- Used to reorganize a database with minimal downtime.

## ■ Continuous

- Continuously update a target with changes made to the source.
- Used in countless ways – some of which we’ll cover.

## ■ Copy

- Create a file that can be applied as if continuous publishing is occurring.
- Used in testing.
- Used when continuous connect and updates are not possible.

# Sources and Targets

## ■ Source

- Oracle Rdb (any version that supports the LogMiner)

## ■ Target

- Oracle Rdb (any version that supports multi-statement procedures)
- Oracle (requires Oracle SQL\*net on the system running the Loader)
- SQL Server via JDBC target
- Other platforms via JDBC Class 4 drivers (Sun lists 141 platforms with a Class 4 driver. See the documentation for a full list of those tested.)
- XML (to your own API)
- File

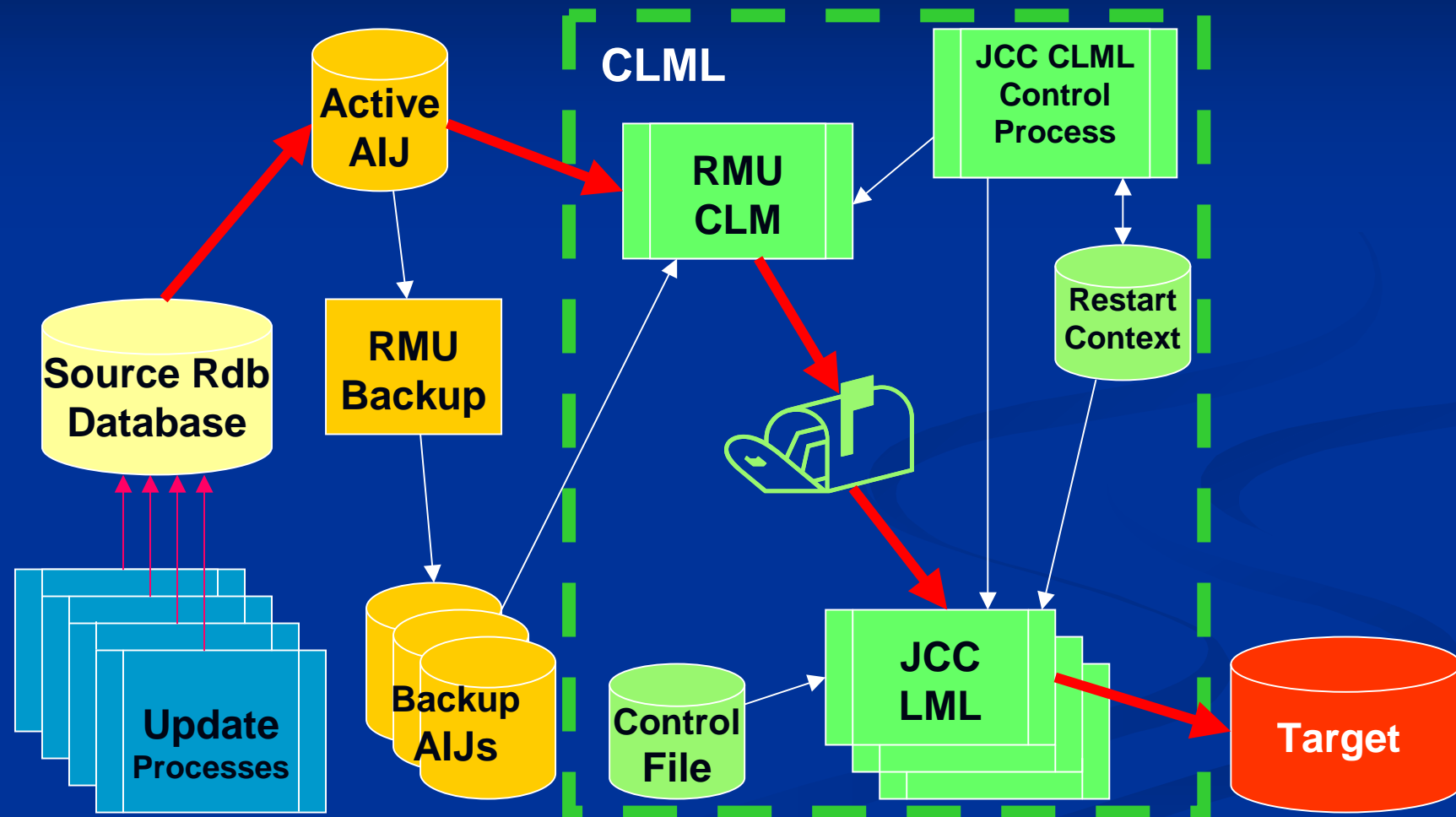
# Sources and Targets (cont.)

- The source and target can be different.
  - Format of the target can be completely different
    - Logically
    - Physically
  - Tuning of the target can be different.
    - Indices
    - Placement
    - Buffering
    - Caching
- Multiple targets for one database, table, or column are possible.
- Roll-ups of different sources are possible.
- Subsets of a database or a table are possible.

# Source to Target, Plus

- Continuous is “near realtime”
- Low impact on Mission Critical source systems
- Resilient and resistant to environmental issues
- Restartable, no data loss
- Materialized information, such as commit time, your own constant or several others
- Single or multi-threaded → fast
- Tunable
- Extensively equipped for monitoring and performance analysis
- Data transforms, Filtering, Data mapping

# Continuous LogMiner & the Loader



# Development Partnership

- The LogMiner Loader is a robust combination of cooperatively developed products.
  - Oracle Rdb LogMiner
  - JCC LogMiner Loader
- Customer questions and experiences have enhanced the product.



# Releases

- Development began in mid-2000.
- Advanced to Continuous beginning in July, 2001.
- Additional JCC LML releases – 3 or 4 per year
  - Features are added
  - Work-arounds are added for issues with companion products
  - Bugs are discovered and fixed
  - Performance enhancements or DBA support are added
- July, 2008, Version 3.2.0 released with significant enhancements to performance for JDBC targets.

# Recent Releases

- Version 3.2.3, September 2009
  - Java 6.0 support on IPF
  - Fix Alignment Faults on IPF
  - Bug Fixes
- Version 3.2.2, March, 2009
  - Enhanced thread control
- Version 3.2.1, November, 2008
  - JDBC and Tuxedo enhancements

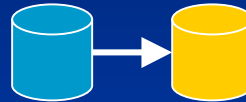
# Getting Started

- In the kit, find a variety of aids and examples.
- LML publishes source changes to targets. How do you populate the target, initially?
  - Backup and restore and other methods
  - JCC's Data Pump can be used
    - Originally developed for correction of downstream difficulties.
    - Recognized, now, as an excellent way to populate the target.
      - Fast
      - Tunable
      - Supports parent-child hierarchies
    - Bundled with LML for no additional fee.
- Constantly working on more aids to the DBA.

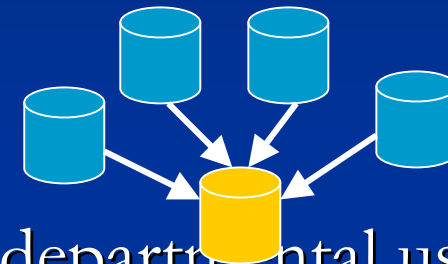
# Prime Uses

- Replication

- Complete
- Partial



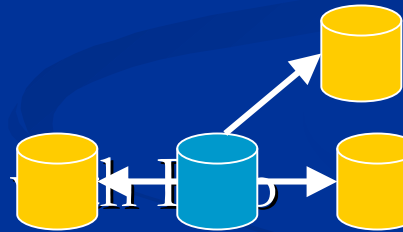
- Combine “regional” databases



- Separate segments for web access, departmental use, or performance

- Conversion

- Inclusion of tools not available



- Archival and audit

- Capture of real world scenarios for regression testing and tuning

# Popcorn Apps

- Once LML is in use, all sorts of clever ideas occur to our customers.
- There is no additional license fee for extra uses on the same source.
- We have an example today ...

# Uses Reported at Forums

- Reorganizing a seriously overworked, under-tuned database.
- Uses of the Loader at MnSCU (Minnesota State College and Universities)
  - Subset (Rdb replication and partitioning)
  - Rollup (Rdb combining databases)
  - Testing database independence (Rdb to Oracle)
- Use for the Dutch Railway by VX Company
  - Regional to rollup (Rdb replication)
  - Rollup to application for audit (Rdb to XML/API)
  - Rollup to messaging system (Rdb to Oracle)

# Uses Reported at Forums

- Integrating an Oracle-based system with Rdb database applications
  - Uses DB-links and limited custom code to provide complete integration
  - Replication and transformation
- Providing data for
  - web applications (Rdb to SQL Server via JDBC interface)
  - CRM (Rdb to XML/API)
  - ODS (Rdb to Tuxedo)
  - DR (Rdb to Rdb 4,000+ tps during the day and 360,000+ row transactions at night)
  - Reporting (Rdb to Oracle)
- “Asynchronous triggers” ...

# Futures – Possibilities

- Oracle as a source
- Configuration GUI
- Automation improvements in responding to changes in the source database metadata
- Expanded ETL (schema change) support for weaving back together enterprises with fractured information architectures
- Always examining and expanding
  - Performance improvements
  - DBA tools
  - Tested configurations



# JCC Testing

- JCC testing includes
  - Realistic data volumes
  - Random selections of options for the Loader
  - Random “failures”
  - All of the different targets and many other configuration choices
  - Automation that keeps the testing going and going until we have tested far more examples than could otherwise occur in the same time

# Testing My SQL as a Target

- Set up was easy.
- Figuring out how to do the compares took a bit longer.

# MySQL JDBC Drivers for VMS

- Download MySQL Connector/J – the official JDBC driver for MySQL
  - <http://dev.mysql.com/downloads/connector/j/5.1.html>
- Extract mysql-connector-java-5.1.8-bin.jar Copy
- FTP to VMS
  - I renamed the jar file to mysql-connector-java-5-1-8-bin.jar
- Reset the VMS file attributes as documented:
  - `$ set file/attr=(rfm:stmlf,rat:cr,lrl:0,mr:0)`  
`JCC_ROOT:[KEITH.MYSQL]mysql-connector-java-5-1-8-bin.jar`

# Java Parameters

- Increase JVM Memory and Stack in the CTL command procedure
  - `$ define JCC_LML_JAVA_COMMAND_LINE " -Xmx96m -Xss1m"`

# Configuration File

```
output~jdbc~synch~jdbc:mysql://thor:3306/personnel  
validation~Keith~password  
jdbc~driver~com.mysql.jdbc.Driver  
jdbc~connect~jdbc:mysql://thor:3306/personnel  
jdbc~classpath~/jcc_root/keith/MySQL/mysql-connector-  
java-5-1-8-bin.jar
```

# MySQL Specifics

- Usernames are case sensitive
  - If the MySQL username is 'Keith', 'keith' will not work.
- Seems to be a network inactivity timeout
- Supports batches
- May not be a benefit in multiple threads
  - Could be a side affect of the data
  - Could be due to a wimpy server
  - Further testing needed

# Regression Testing

- How to compare?
  - Java program attaches to MySQL and Rdb database
  - Copies tables from MySQL back to Rdb
  - Use SQL MINUS to find differences
- Additional testing still needed

# MySQL Versions

So far, we have tested with the following MySQL Versions

- MySQL Community Server V5.1.37 on Windows 2003
- MySQL Connector/J V5.1.8
  - V5.1.10 was just released



# Testing

- JCC's automated regression testing, of course, continues for
  - Rdb targets
  - Oracle targets
  - JDBC to SQL Server targets
  - JDBC to Rdb and Oracle targets
  - Tuxedo targets
  - XML/API targets
  - Alpha
  - Itanium

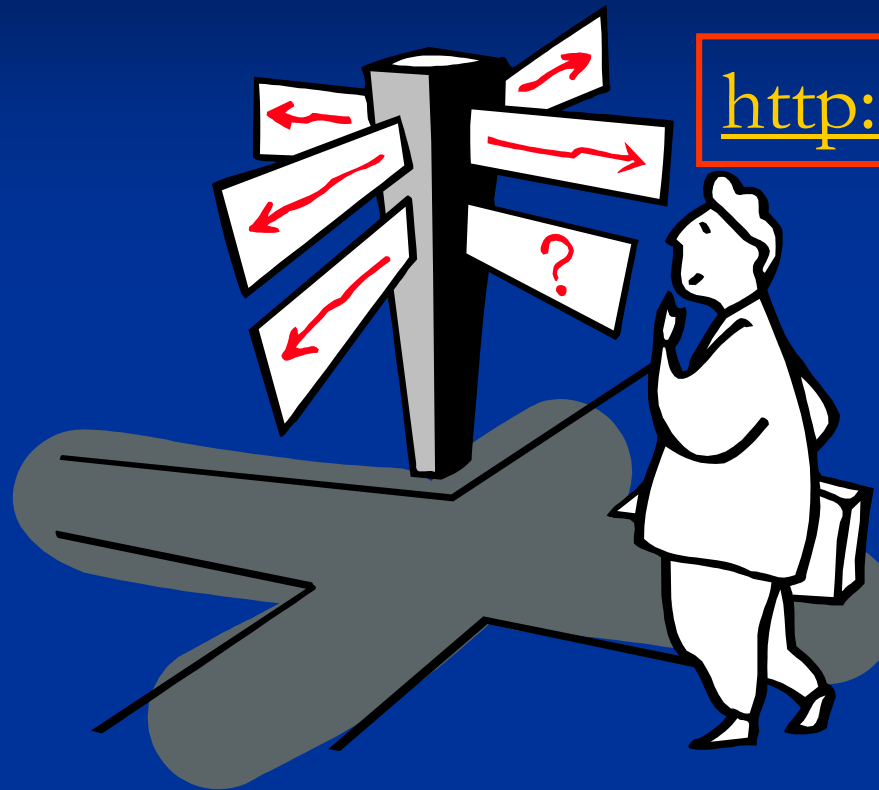
# Availability

- Kit is available at [FTP.JCC.COM](http://FTP.JCC.COM)
  - Documentation
  - Kit
- Evaluation license available on request
  - Send mail to [info@jcc.com](mailto:info@jcc.com)
- Find descriptions of the LogMiner Loader and other information at <http://www.jcc.com/LML.htm>

# Acknowledgements

- Thanks to Rdb engineering for their support and counsel
- Thanks to our Customers for sharing their experiences with the Loader

# Questions



<http://www.jcc.com/LML.htm>

Join the worldwide Rdb community. Send mail to

[OracleRdb-request@JCC.com](mailto:OracleRdb-request@JCC.com)  
with “SUBSCRIBE” in the  
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For more information send mail to [info@jcc.com](mailto:info@jcc.com)