

Liquibase(<http://www.liquibase.org/>)

Automatic database changes migration

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Why automatic migrations?

- Cut down labor spends on manual step and repetitive tasks
- Cut down dependency on database administration team for database changes (for most cases)
- Version control database changes (and maintain changes with application code)
- Code reviews on database changes

Liquibase benefits

- Free and Open source
- Supports multiple database types
 - MySQL, PostgreSQL, Oracle, SQL Server, Sybase, DB2, Apache Derby, HSQL, H2, Informix, Firebird, SQLite
- Migrations can be written in multiple forms
 - XML, JSON, YAML, SQLs – see the example
- Supports context-dependent logic – see the example

Liquibase benefits

- Cluster-safe database updates
 - Master/slave database instances
 - Multiple application instances sharing the same database
- Can be part of the application build process or embedded in application
- Generates SQL scripts for you(DBA) to review
 - *updateSQL* mode
 - Doesn't require a live database connection
- Generates rollback statements automatically for most cases

Using Liquibase in Java applications

- Java/Spring application
 - Servlet listener
 - Spring bean
- Java SpringBoot application
 - Liquibase SpringBoot intergration
- liquibase.sh, Ant task, Maven goal

Using Liquibase in non-Java applications

- JVM can be installed -
 - Bundle *liquibase-core.jar* (~ 1.9MB) together with application and execute using *liquibase.sh*
- No JVM can be installed -
 - Generate SQLs and execute them manually – database changes are maintained with application code
 - Separate Jenkins job for Liquibase migrations
- Include *liquibase.sh* in Application build Job if build with a Jenkins job

Example - using in a Spring Boot application

- In *application.yml*

```
liquibase:
```

```
  change-log: classpath:/db/db.changelog-master.xml
```

- Example -

<https://git.doit.wisc.edu/adi-ia/webhosting-customers-rest-ws>

- See full configuration [options](#) (under LIQUIBASE)

Example - liquibase.sh

- With *liquibase-core.jar* in class path

```
liquibase.sh --driver=oracle.jdbc.OracleDriver \  
             --url=jdbc:oracle:thin:@testdb:1521:test \  
             --username=bob \  
             --password=bob \  
             --changeLogFile=path/to/changelog.xml
```

- See all the supported [options](#)