Liquibase Database change tracking

START HERE

`liquibase init project`
Scaffold a project

`liquibase update`
Deploy changesets

`liquibase validate`
Check the changelog

`liquibase history`
What was deployed?

`liquibase status`
What is pending?

`liquibase tag --tag=<name>`
Mark a rollback point

`liquibase update-sql`
Preview the SQL

`liquibase rollback --tag=<name>`
Undo back to a tag

Changelog changesets in a file → `update` → **Liquibase** compares ids + checksums → `applies new` → **Database** your schema → `records in` → **DATABASECHANGELOG** what already ran

CONCEPTS

Liquibase runs changesets (id + author + file) from a changelog once, and records them in the DATABASECHANGELOG table with a checksum.

Global flags (--log-level, --defaults-file) go before the command; command flags (--url, --changelog-file) go after it.

Never edit a changeset that has already been deployed: its checksum changes and the next run fails. Add a new changeset instead.

PROJECT AND CONNECTION

`liquibase --version`
Show the installed version

`liquibase <command> --help`
Show every flag of a command

`--url=<jdbc-url>`
JDBC connection URL

`--username=<user> --password=<pw>`
Database credentials

`--changelog-file=<path>`
Root changelog (xml, yaml, json or sql)

`--defaults-file=<file>`
Read settings from another properties file

`--log-level=<level>`
Set verbosity (global flag, goes first)

CHANGELOG FORMATS

`-- liquibase formatted sql`
First line of a SQL changelog

`-- changeset <author>:<id>`
Start a changeset in a SQL changelog

`-- rollback <sql>`
Rollback statement for the changeset above

`<include file="<path>"/>`
Pull another changelog into the root file

CHANGELOG FORMATS (cont.)

`-- changeset <a>:<id> runOnChange:true`
Re-run when its SQL changes

`<tagDatabase tag="<name>"/>`
Tag the database from inside a changelog

A changeset is identified by id + author + file path. Moving or renaming the file makes Liquibase treat it as new.

UPDATE

`liquibase update`
Deploy all pending changesets

`liquibase update-sql`
Print the SQL update would run

`liquibase update-count --count=<n>`
Deploy only the next n changesets

`liquibase update-testing-rollback`
Deploy, roll back, redeploy to test rollbacks

`--context-filter=<ctx>`
Run only changesets in these contexts
Called --contexts in 4.23.0 and older.

ROLLBACK

`liquibase rollback --tag=<name>`
Roll back to a tag

`liquibase rollback-count --count=<n>`
Undo the last n changesets

`liquibase rollback-to-date --date=<date>`
Undo everything after a date

`liquibase rollback-sql --tag=<name>`
Preview the SQL of a tag rollback

`liquibase rollback-count-sql --count=<n>`
Preview the SQL of a count rollback

ROLLBACK (cont.)

Rollback does not bring back data lost to DROP, DELETE or TRUNCATE. Preview with rollback-sql first.

Roll back before fixing a broken changeset. Editing it first causes a checksum mismatch that blocks the rollback.

INSPECT AND TRACK

`liquibase status`
List changesets not yet deployed

`liquibase status --verbose`
Include file, author and id of each one

`liquibase history`
List changesets already deployed

`liquibase tag --tag=<name>`
Mark the current database state

`liquibase diff --reference-url=<url>`
Compare two databases

`liquibase diff-changelog --reference-url=<url>`
Write a changelog that closes the diff

GENERATE AND SYNC

`liquibase generate-changelog --changelog-file=<file>`
Reverse-engineer an existing database

`--schemas=<a,b>`
Limit generate or diff to some schemas

`liquibase changelog-sync`
Mark all pending changesets as run, without running

Baseline an existing database: generate-changelog, then changelog-sync, so the first update does nothing.

MAINTENANCE

`liquibase validate`
Find changelog errors before deploying

`liquibase release-locks`
Clear a lock left by a crashed run

`liquibase clear-checksums`
Reset stored checksums after an intended edit

`liquibase drop-all`
Drop every object in the target schema
Destructive. Only point it at a throwaway database.

A checksum error means a deployed changeset was edited. Revert the edit, or run clear-checksums if the change was deliberate.

CONFIGURATION

`url: <jdbc-url>`
Connection URL in liquibase.properties

`changelogFile: <path>`
Root changelog in liquibase.properties

Precedence: CLI flags beat system properties, then environment variables (LIQUIBASE_COMMAND_URL and so on), then liquibase.properties.

RECIPES

Safe deploy

```
liquibase validate
liquibase status --verbose
liquibase update-sql
liquibase tag --tag=before-release
liquibase update
```

Undo a release

```
liquibase rollback-sql --tag=before-release
liquibase rollback --tag=before-release
```

Adopt an existing database

```
liquibase generate-changelog --changelog-file=changelog.xml
liquibase changelog-sync
liquibase status
```