# Liquibase Database change tracking

## CONCEPTS

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

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

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

## CHANGELOG FORMATS (cont.)

`-- 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

`-- 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

`--context-filter=<ctx>`
Run only changesets in these contexts

## 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

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

## INSPECT AND TRACK

`liquibase status`
List changesets not yet deployed

`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

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