Flyway Database migrations

START HERE

`flyway init -projectName=<name> -databaseType=<type>`
New project

`flyway add -description=<text>`
New migration file

`flyway info`
What is applied?

`flyway migrate`
Apply pending

`flyway validate`
Detect edited scripts

`flyway repair`
Fix history table

`flyway baseline`
Adopt existing DB

`flyway clean`
Wipe schemas (dev only)

V1__init.sql files in locations → `flyway migrate` → **Target DB** your schema → `records` → **Schema history** flyway_schema_history → `checked by` → **validate** checksums + order

CONCEPTS

Never edit a migration that has been applied: its checksum is stored and validate will fail. Add a new one instead.

Versioned migrations run once in version order; repeatable ones (R__) rerun whenever their checksum changes, after all versioned ones.

Undo migrations, check -dryrun and check -drift/-changes need paid editions; clean, check -code and the rest here are in Community.

MIGRATION FILES

`V<n>__<desc>.sql`
Versioned migration (runs once)
Two underscores between version and description, e.g. V2__add_users.sql

`R__<desc>.sql`
Repeatable migration

`U<n>__<desc>.sql`
Undo migration for a version
Undo needs a paid edition

`B<n>__<desc>.sql`
Baseline migration

`flyway add -description=<text>`
Create next versioned script

`flyway add -type=undo`
Create undo script

`flyway add -version=<v> -description=<text>`
Create script with explicit version

`flyway add -timestamp -description=<text>`
Add timestamp to version

`flyway add -location=<path>`
Choose target directory

`flyway add -add.nameOnly=true -q`
Print the file name only

`${<name>}`
Placeholder inside SQL

`-locations=filesystem:<dir>`
Where to scan for scripts

PROJECT AND SETUP

`flyway init -projectName=<name> -databaseType=<type>`
Generate project and flyway.toml

`flyway init -from=flyway.conf -fromType=Conf`
Upgrade an old .conf file

`flyway list engines`
List supported databases

`flyway -v`
Print version

`flyway -environment=<env>`
Pick the target environment

`flyway -configFiles=<file>`
Use a specific config file

`flyway -url="<jdbc-url>" -user=<u> -password=<p> migrate`
Connect without a config file

`-schemas=<a>,<b>`
Schemas Flyway manages

`-workingDirectory=<dir>`
Run as if in another directory

MIGRATE AND INSPECT

`flyway migrate`
Apply all pending migrations

`flyway info`
Show applied and pending

`flyway validate`
Compare files with history

`flyway migrate -target=<version>`
Stop at a version

`flyway migrate -outOfOrder=true`
Allow lower versions after higher

`flyway migrate -baselineOnMigrate=true`
Baseline a non-empty DB on first run

`flyway migrate -validateOnMigrate=false`
Skip validation (avoid)

`flyway migrate -mixed=true`
Mix transactional and non-transactional

`flyway info -infoOfState=pending`
Filter by state

MIGRATE AND INSPECT (cont.)

`flyway info -infoSinceVersion=<v>`
From a version onwards

`flyway info -infoSinceDate="dd/MM/yyyy HH:mm"`
Applied after a date

`flyway undo`
Undo the last versioned migration

REPAIR AND RECOVER

`flyway repair`
Remove failed rows, realign checksums
Use the same locations as migrate; clean up objects a failed script left behind by hand

`flyway baseline`
Mark existing DB as migrated

`flyway baseline -baselineVersion=<v>`
Baseline at a version

`flyway clean -cleanDisabled=false`
Drop all objects in schemas
Never against production

After a failed migration run repair, fix the script, then migrate again.

Keep cleanDisabled=true outside dev and test environments.

`flyway check -code`
Review migrations with code analysis

`flyway check -dryrun`
Preview a deployment script

`flyway check -drift`
Detect out-of-band changes

`flyway check -changes`
Report pending changes

CONFIGURATION

`flyway.toml`
Project config file

`[environments.<name>] url, user, password`
Define an environment

`[flyway] locations = ["filesystem:sql"]`
Flyway settings in TOML

CONFIGURATION (cont.)

`FLYWAY_URL / FLYWAY_USER / FLYWAY_PASSWORD`
Env var overrides

`locations`
Folders scanned recursively

`table`
Name of the history table

`defaultSchema`
Schema holding the history table

`baselineVersion`
Version used by baseline

`sqlMigrationPrefix / sqlMigrationSeparator`
Change naming defaults

`connectRetries`
Retry connecting to the DB

`[flyway.placeholders] name = "value"`
Define placeholders

`beforeMigrate.sql / afterMigrate.sql`
Callback scripts in locations

`-X`
Debug output

`-outputType=json`
Machine-readable output

`-outputFile=<file>`
Also write output to a file

`-q`
Quiet output

RECIPES

First migration

```
flyway init -projectName=app -databaseType=PostgreSql
flyway add -description=create_users
# edit the new file in sql/
flyway info
flyway migrate
```

Adopt an existing database

```
flyway baseline -baselineVersion=1 -environment=prod
# add V2__... and later
flyway migrate -environment=prod
```

Recover from a failed script

```
flyway info
# fix leftovers by hand, fix the script
flyway repair
flyway migrate
```

CI deployment

```
flyway validate -environment=ci
flyway migrate -environment=ci -outputType=json
flyway info -infoOfState=pending
```