# Migrating from rebar2.x to rebar3.x

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# 3 =/= 2 + 1

- rebar3 is not the next iteration of rebar2 !!!

- different workflow
- different logic
- different behaviour

- treat it like migrating to a different build tool !!!

# 3 =/= 2 + 1 – Basic usage

- rebar3 only handles OTP-structured projects
- the `new` command creates a project from a template
  - 1. argument: `lib`, `app`, `release` or `plugin`
  - 2. argument: name
- dependencies are listed in the `rebar.config` file under the deps key

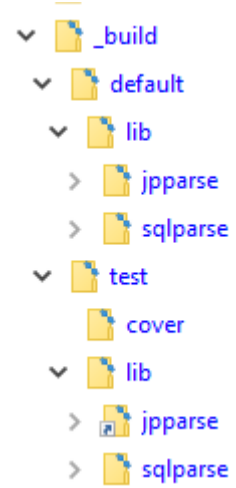
```
{deps, [{cowboy, "1.0.1"},
        {cowboy, {git, "git://github.com/ninenines/cowboy.git", {tag, "1.0.1"}}}
       ]}.
```

~~`{cowboy, ".*", {git, "git://github.com/ninenines/cowboy.git", {tag, "1.0.1"}}}`~~

- `compile` fetches dependencies and compiles all applications
  - no `rebar get-dependencies` command
  - no abbreviated commands

# 3 =/= 2 + 1 – Basic usage

- output is found in the _build directory at the root of the project
  - installing dependencies
  - building releases
  - any other output written to disk




- tests by default are expected to be found under the `test/` directory, aside from `eunit` found within individual modules

# Commands and configuration

- `clean` - removes compiled beam files from apps
  - `rebar3 clean` - only cleans the default profile
  - `rebar3 as test clean` - only cleans the test profile
  - `--all` – can be added to clear dependencies' beams
- `compile` - ensures / fetches all dependencies and compiles the needed dependencies and the project's apps `.app.src` and `.erl` files
  - `{erl_opts, …}` / `{erl_first_files, …}` / `{xrl_opts, …}` / `{yrl_opts, …}`
- `cover` - coverage analysis on modules called by CT or Eunit
  - `{cover_enabled, …}` / `{cover_excl_mods, …}`
- `ct` - runs common tests located under the `test/` directory
  - `{ct_cover, …}` / `{ct_use_short_names, …}` / `{ct_verbose, …}`
- `deps` - lists source and package dependencies
- `dialyzer` - builds the PLT and carries out success typing analysis
  - `{dialyzer_plt_location, …}` / `{dialyzer_warnings, …}`

# Commands and configuration

- `edocs` - generates documentation using doc
- `eunit` - runs eunit tests on project apps
  - `{eunit_opts, …`
- `new` - creates new projects from templates
- `tree` - prints a tree of dependencies
- `upgrade` - upgrades dependencies (and lock file)
- `version` - prints version for rebar3 and current Erlang
- `xref` - runs cross reference analysis
  - `{xref_checks, …`

# Installation

- create a new directory e.g. `c:\Software\rebar3`
- download the latest rebar3 from https://www.rebar3.org/
- create a script called `rebar3.cmd` in the rebar3 directory:

```
@echo off
setlocal
set rebarscript=%~f0
escript.exe "%rebarscript:.cmd=%" %*
```

- add the rebar3 directory to your `PATH` variable

# Cleaning up existing projects

- remove the following directories:

  `.rebar`

  `_rel`

  `ebin`

  `deps`

- `.gitignore`: remove these entries and add new `_build`
- `rebar.config`: remove the entries `sub_dirs` and `lib_dirs`
- review the `.app.src` files
  - applications you depend on are listed in the `applications` tuple
  - no circular dependencies
  - the following fields are mentioned (releases):

    `applications, description, env, registered, vsn`

# Cleaning up existing projects

- handles releases and OTP applications only
- dependencies should only be OTP applications
- one of the following directory structures:

```
src/*.{erl,app.src}
```

  - or

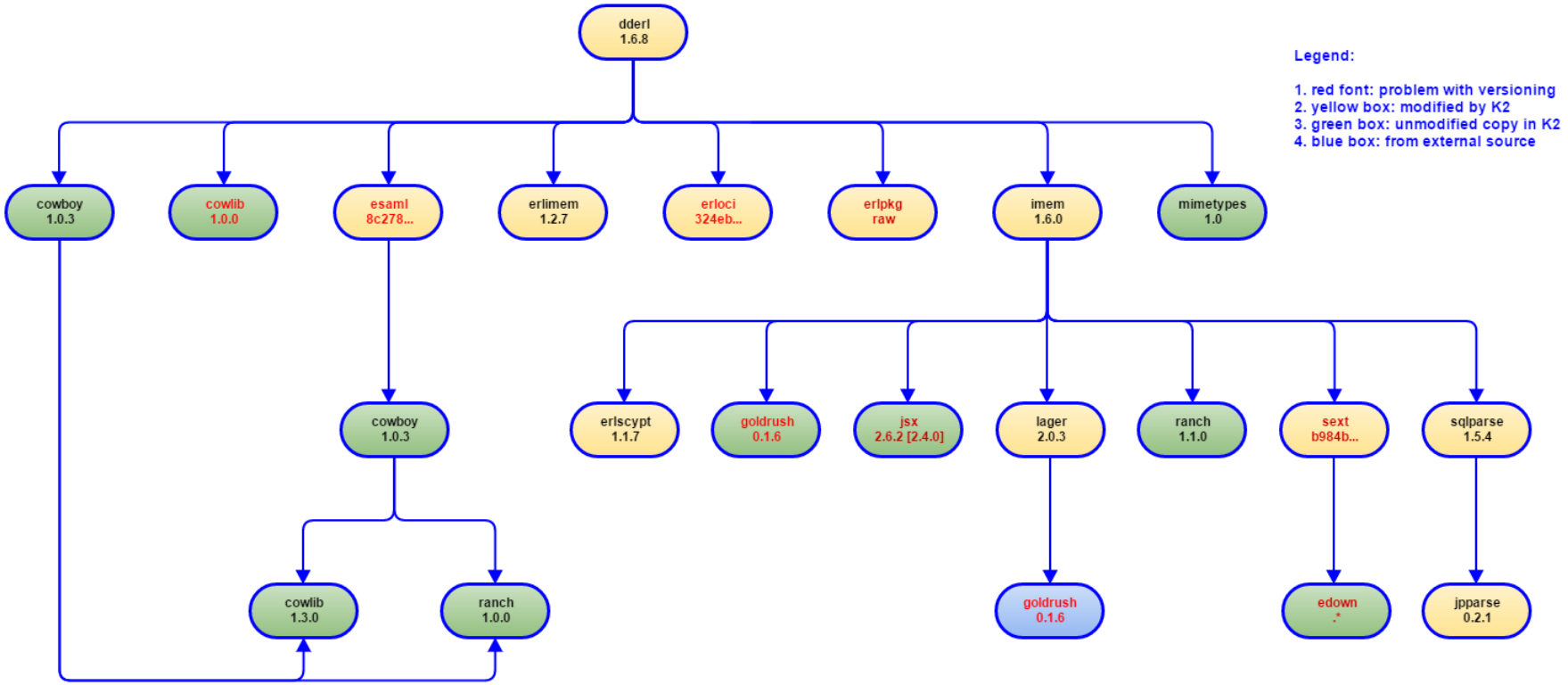
```
apps/app1/src/*.{erl,app.src}
apps/app2/src/*.{erl,app.src}
apps/app3/src/*.{erl,app.src}
```

  - or

```
lib/app1/src/*.{erl,app.src}
lib/app2/src/*.{erl,app.src}
lib/app3/src/*.{erl,app.src}
```

- no `get-dependencies` command
  - no longer re-compiles dependencies once it has done so before
  - no longer checks or enforces dependencies – instead uses a ‘nearest to the root’ dependency algorithm
  - mostly applicable in rebar.config: `{deps_error_on_conflict, true}`

# First steps for K2



# First steps for K2

- Project sqlparse - `.gitignore`

```
_build
erl_crash.dump
rebar.lock
rebar3.crashdump
src/*.dot
src/sql_lex.erl
src/sqlparse.erl
test/*.beam
```

# First steps for K2

- Project sqlparse – `rebar.config`

```
{cover_enabled, true}.
{cover_excl_mods, [sql_lex, sqlparse]}.

{ct_cover, true}.
{ct_verbose, true}.

{deps, [{jpparse, {git, "https://github.com/K2InformaticsGmbH/jpparse.git",
{tag, "0.2.1"}}}]}.
{deps_error_on_conflict, true}.

{dialyzer_plt_location, local}.
{dialyzer_warnings, [error_handling,
    overspecs,
    race_conditions,
    specdiffs,
    underspecs,
    unknown,
    unmatched_returns
]}.
…
```

# First steps for K2

- Project sqlparse – `rebar.config`

```
…
{eunit_opts, [
    {skip_deps, true},
    verbose
]}.

{xrl_opts, [dfa_graph, verbose]}.

{yrl_opts, [verbose]}.
```

# First steps for K2

- Project sqlparse – `sqlparse.app.src`

```
{application, sqlparse,
    [
        {applications, [
            kernel,
            stdlib,
            jpparse
        ]},
        {description, "A LALR SQL parser and compiler"},
        {modules, [sqlparse]},
        {vsn, "1.5.4"}
    ]}.
```

# First steps for K2

- Project sqlparse – `sqlparse.app.src`
- `{mod, {CallbackMod, Args}}`

  Defines a callback module for the application, using the application behaviour. This tells OTP that when starting your application, it should call CallbackMod:start(normal, Args). This function's return value will be used when OTP will call CallbackMod:stop(StartReturn) when stopping your application. People will tend to name *CallbackMod*after their application.

- `{modules, [ModuleList]}`

  Contains a list of all the modules that your application introduces to the system. A module always belongs to at most one application and can not be present in two applications' app files at once. This list lets the system and tools look at dependencies of your application, making sure everything is where it needs to be and that you have no conflicts with other applications already loaded in the system. If you're using a standard OTP structure and are using a build tool like *rebar3*, this is handled for you.

# First steps for K2

- Project sqlparse – `.travis.yml`

```
install:
  - wget https://s3.amazonaws.com/rebar3/rebar3 && chmod +x rebar3
language: erlang
otp_release:
  - 18.3
  - 18.2.1
  - 18.2
  - 18.1
  - 18.0
script:
  - ./rebar3 compile
  - ./rebar3 eunit
```

# References

- Website
  https://www.rebar3.org/

- Github
  https://github.com/erlang/rebar3