~~Producing a complete Linux system~~ Setting up a Yocto build with a single command (and configuration file)

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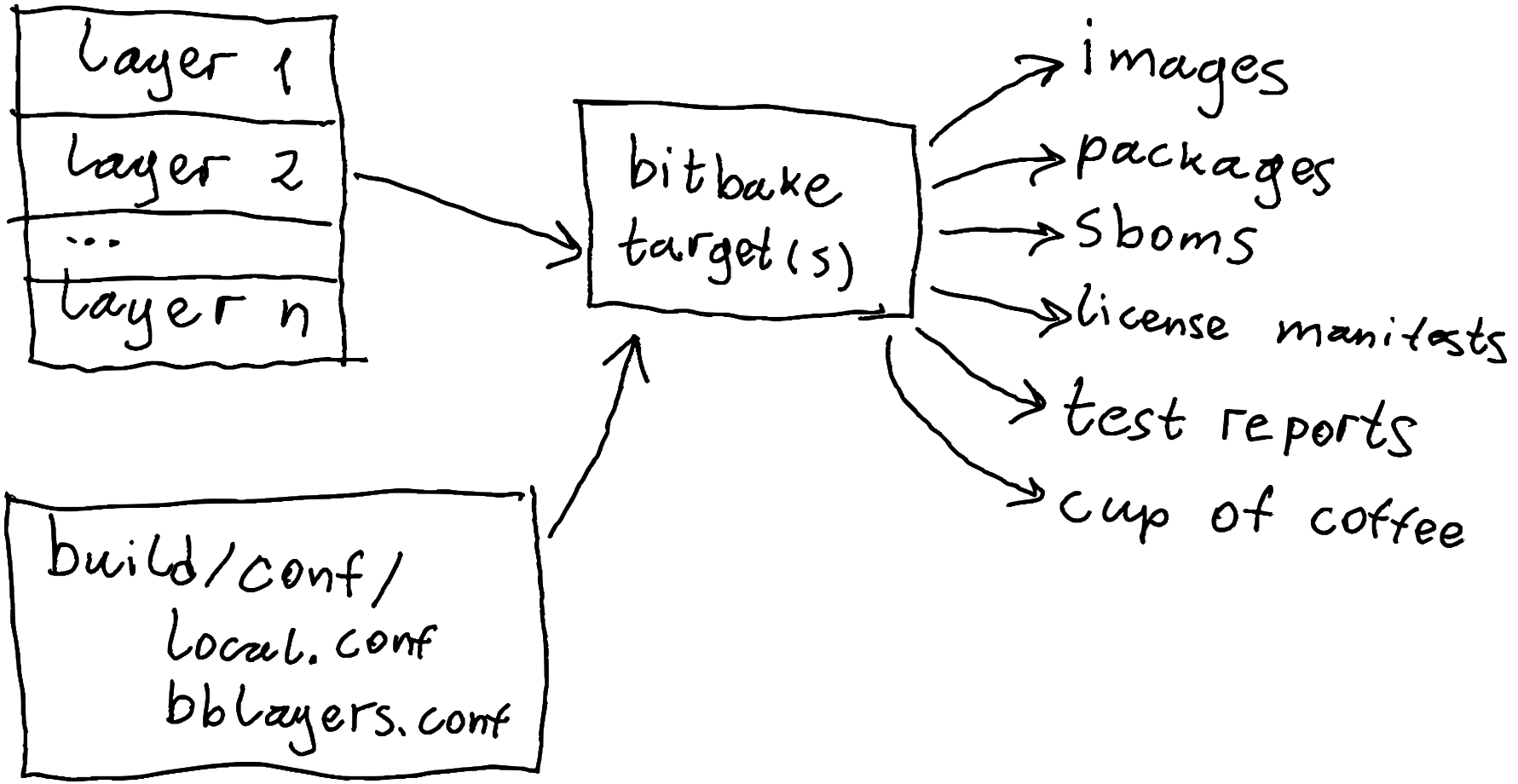
All of Yocto on one diagram



Demo!

$ git clone -b master-next https://git.openembedded.org/bitbake

(backup plan: $ git clone https://github.com/kanavin/bitbake)

$ bitbake/bin/bitbake-setup init

$. /home/alex/bitbake-builds/yocto-master-.../build/init-build-env

$ bitbake core-image-minimal

(when this completes, there will be a complete Linux system image produced from sstate!)

(if bitbake complains about missing websockets, use $ bitbake-setup install-buildtools)

$ bitbake/bin/bitbake-setup status

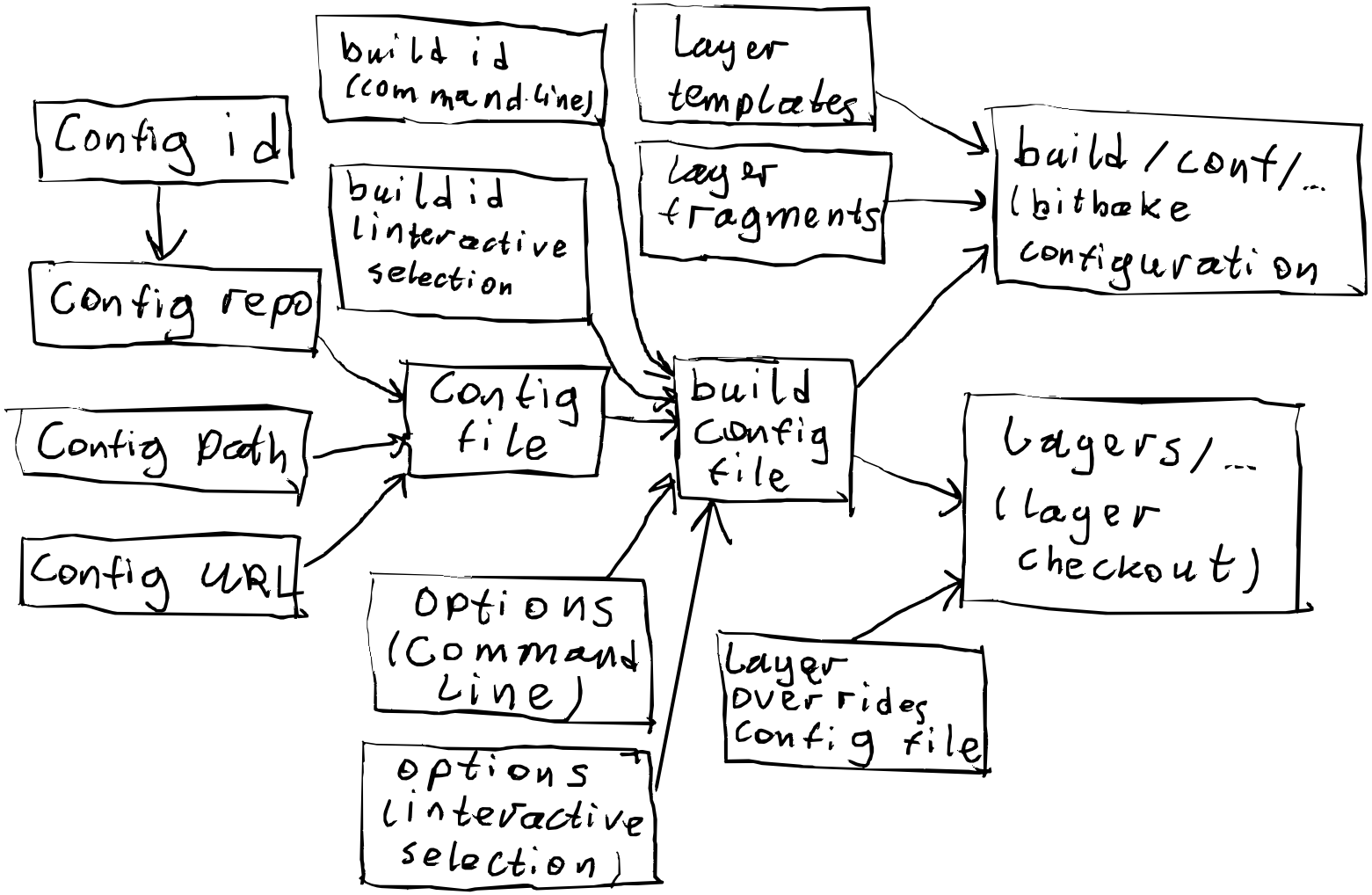
$ bitbake/bin/bitbake-setup update

Bitbake-setup (Prototype! Subject to change!)

https://github.com/kanavin/bitbake

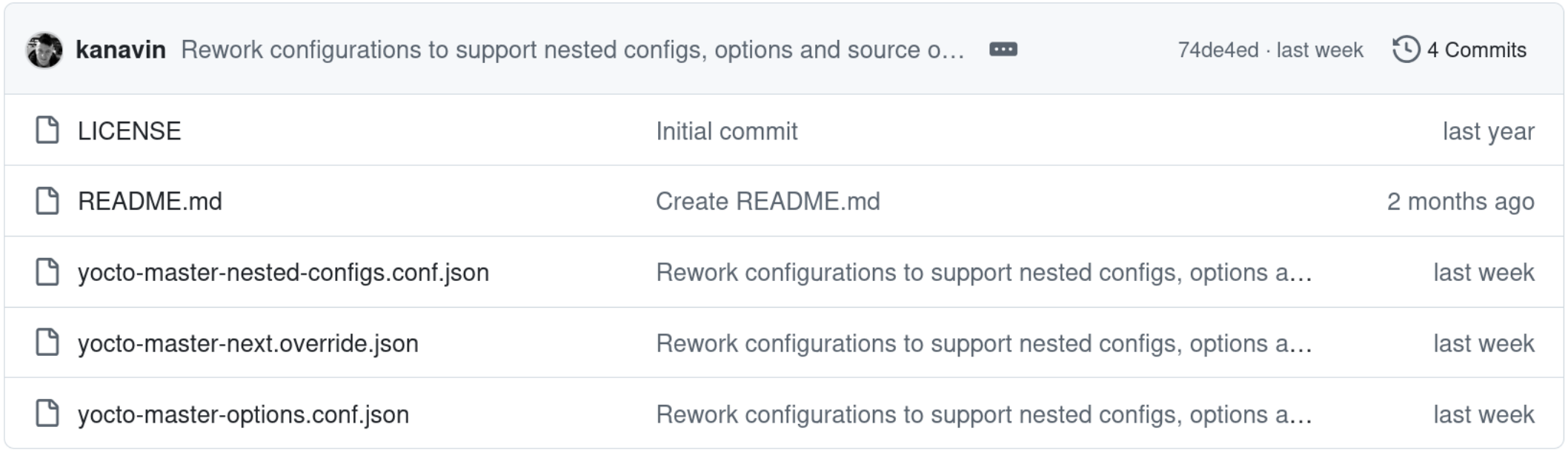
- List
  - Lists available configurations
- Init
  - Initializes a yocto build using a specified configuration
- Status
  - Checks if the configuration has been updated upstream
- Update
  - Updates a previously initialized configuration

How bitbake-setup works



Configuration repository (also a prototype!)

https://github.com/kanavin/bitbake-setup-configurations



Configuration fragments (brand new feature in walnascar (spring 2025) release)

$ cat meta/conf/fragments/yocto/sstate-mirror-cdn.conf

… (let’s see in actual layer)

$ bitbake-config-build –help

…

list-fragments List available configuration fragments

enable-fragment Enable a fragment in the local build configuration

disable-fragment Disable a fragment in the local build configuration

„enable-fragment“ writes to conf/auto.conf:

OE_FRAGMENTS += "core/yocto/sstate-mirror-cdn distro/poky machine/qemux86-64"

Built-in configuration fragments (brander and newer feature: only in master as of August 2025)

Writing out a fragment file for any possible machine would be madness, so

meta/conf/bitbake.conf defines:

OE_FRAGMENTS_BUILTIN ?= "machine:MACHINE distro:DISTRO"

and then „machine/xxx“ would become MACHINE = "xxx" for any value of xxx

The Plan

- Bitbake-setup moves from master-next into master
- Support for site-specific settings (number of threads, where to put downloads and sstate, etc.)
- Support for build targets definitions in configurations (I had it prototyped, but decided to take it out as it wasn't flexible enough and needed a re-think)
- With the last item in place, we will have:

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Thanks for your attention

Any questions ?