

Introduction to CI

Just the first steps

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Motivation

Why We Need a CI?

Consistency, Reproducibility

- Local environment independence

Do I know all dependencies when I build locally?

- Reproducibility

Can you still build after OS update? After another package is installed?

- Process documentation

Do have documentation how to build? Do you keep it up-to-date?

Do you need all build dependencies at runtime?

- Testability

Do you regularly test your software? Can others do it as well?

Why We Need a CI?

Consistency, Reproducibility

The **CI** gives a common framework
to get stuff done with a
**predictable and
reproducible result.**

What We Want to Achieve?

Our steps

Build

- Select target platform(s)
 - X86_64, ARM, ...
 - RHEL9, Ubuntu, ...
- Identify dependencies
 - Libraries, Header files, ...
- Install build tools
 - GCC, Python, ...
- Specify build steps

Test

- Runtime environment
 - Extra tools, experiment software, ...

Publish

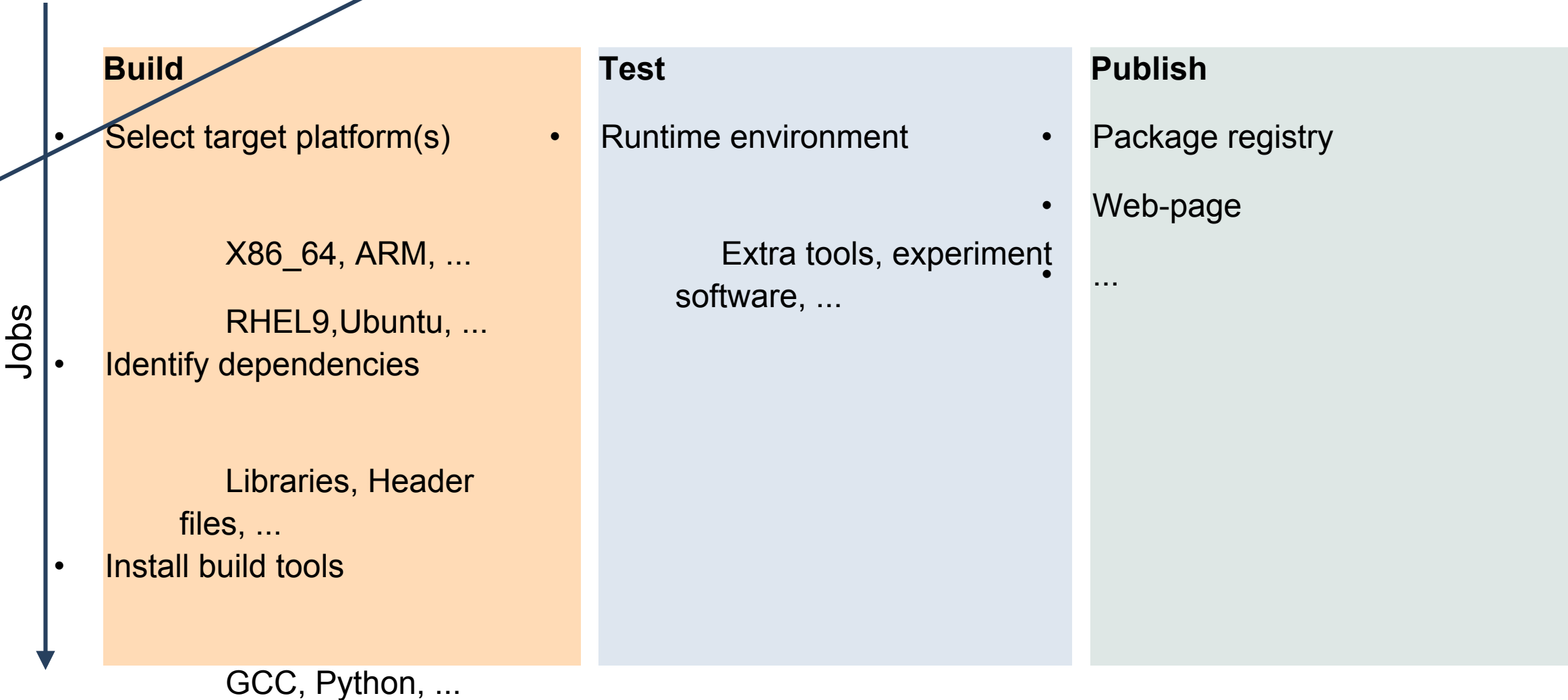
- Package registry
- Web-page
- ...

Gitlab-CI

Gitlab-CI on One Slide

All you need to know :)

Stages



Gitlab-CI on One Slide

All you need to know :)

- Jobs defines an action at a particular stage

All jobs run a script action

Jobs are executed by *runners*

- A job belongs to a single stage

Stage defines when job should run

- Stages might consist out of multiple jobs

All jobs in a stage must succeed to before
next stage can start

- Stages run sequentially
- Jobs in a single stage run parallel
- Jobs can pass artifacts to each other

- [DESY](#) | Introduction to Gitlab-CI |
Jobs can depend on each other

- One or more stages build a *pipeline*

- *Pipeline* triggered by:

Event: push, merge, ...

Scheduler

Manually

- Default stages:

build

test

deploy

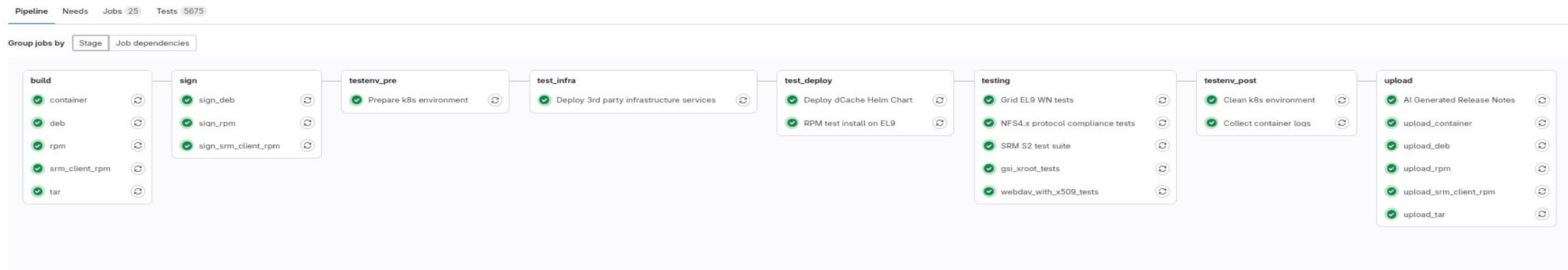
Pipeline Examples

One size fits all

Simple pipeline



Advanced pipeline



Hands-on

More Info

- Tutorial
- <https://gitlab.desy.de/fh-sustainability-forum/sustainable-coding-tutorial/gitlab-ci-tutorial>
- Gitlab-CI official documentation

<https://docs.gitlab.com/ee/ci/yaml/>

Thank you

Contact

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