

The background image shows a construction site. In the upper half, a yellow crane is lifting a large, light-colored pipe into a trench. The lower half shows a close-up of a trench with a large green and white pipe being installed. To the left, there is a blue valve on a rusty pipe. The ground is sandy and uneven.

Continuous Integration Migrating to Gitlab Pipelines

Patrick Favre-Bulle
 patrickfav

Issues with Jenkins

- Non-Deterministic Builds
- Git Integration: Test every commit
- Plugin Hell
- Build Logic/Config in UI
- awful UX

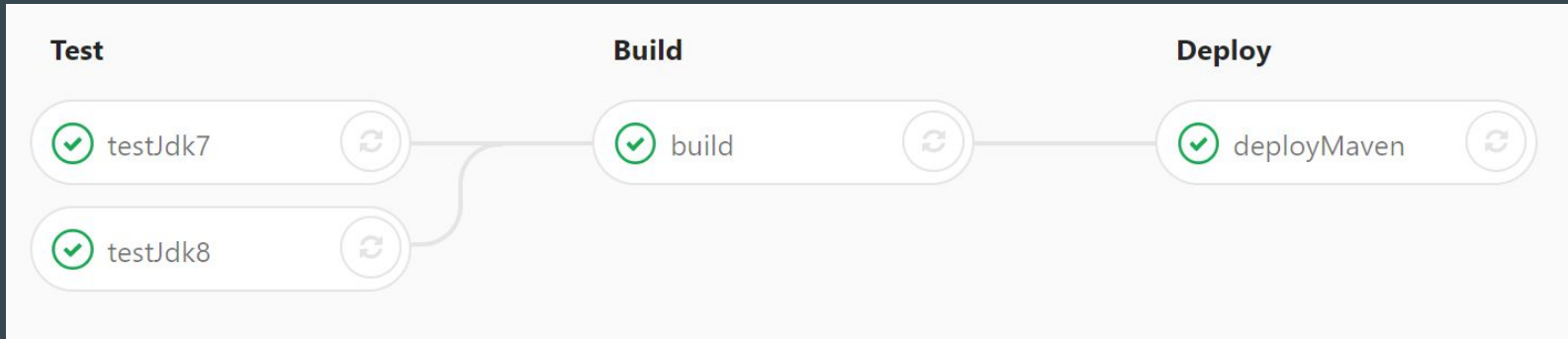
* Full Disclaimer: Plugins have fixes for most of the issues

An aerial photograph of a surfer crashing into the ocean. The surfer is in the lower right quadrant, wearing a colorful wetsuit and riding a surfboard. The water is a deep blue, and the sky is a pale, overcast grey. A semi-transparent dark grey horizontal band runs across the middle of the image, containing the text "Crash Course" in white. The overall scene is dynamic and captures a moment of high action in a natural setting.

Crash Course

Gitlab CI  Docker

Pipelines



Yaml Config

image: openjdk-7

stages:

- test
- build
- deploy

testJdk8:

image: openjdk-8

stage: test

script: mvn test

build:

stage: build

script: mvn package

artifacts:

path:

- target/*.jar

Config: Git Rules

buildRelease:

stage: **build**

script: #smth release

only:

- **master**
- **/^release-.+\$/**

buildDebug:

stage: **build**

script: #smth debug

except:

- **tags** # 'branches' also possible
- **/^demo-.+\$/**

A Word on Git Integration

- Automatically Builds/Tests
 - every branch
 - every tag
 - merge requests

Gitlab CI Pipelines UI

Status	Pipeline	Commit	Stages	Duration	Time	Actions
passed	#3664 by [user] latest	p feat [redacted] - o a [redacted] [redacted]	✓ ✓ ✓	00:11:27	about 7 hours ago	▶ ⌵ ⬇ ⌵
passed	#3652 by [user] latest	p feat [redacted] - o 6 [redacted] [redacted]	✓ ✓	00:15:18	about 8 hours ago	⬇ ⌵
passed	#3651 by [user] latest	p feat [redacted] - o 6 [redacted] [redacted] s...	✓ ✓	00:14:19	about 9 hours ago	⬇ ⌵
passed	#3615 by [user] latest	p feat [redacted] ... - o [redacted] [redacted] n...	✓ ✓	00:20:42	about 13 hours ago	⬇ ⌵
passed	#3614 by [user]	p feat [redacted] ... - o a [redacted] [redacted] p...	✓ ✓	00:10:00	about 14 hours ago	⬇ ⌵
failed	#3613 by [user]	p feat [redacted] ... - o 6 [redacted] [redacted]	✗ ⏪	00:02:41	about 14 hours ago	↻

Noteable Features

- Manual Triggered Jobs
- CD with Environments
- Rules for failures
- Schedulers (new in 9.2)

Be warned

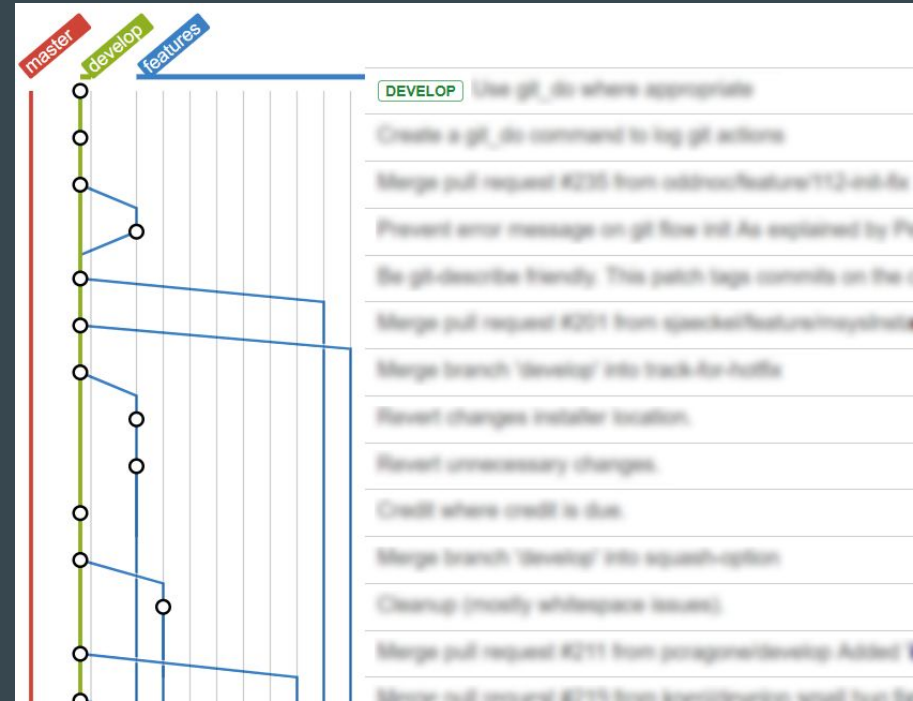
- Commit Trail & Error
- Community Edition vs Enterprise Edition
- Frequent Gitlab Releases
- No Test Report UI

A large flock of birds, likely terns, is captured in flight over a body of water. The birds are scattered across the frame, with some in sharp focus and others blurred. In the background, a range of mountains is visible under a clear sky. A semi-transparent dark grey horizontal band is overlaid across the middle of the image, containing the word "Migration" in white text.

Migration

Our Project: Android Application

- 4 Feature Tracks
- Staging + Release Track
- Various Demo Tracks
- 12 Brandings x 7 Build Types
- Post Processors



Jenkins

S	W	Name ↓	Last Success	Last Failure	Last Duration	
		Android Beta	4 days 7 hr - #728-beta	7 days 23 hr - #726-beta	1 hr 3 min	
		Android Beta	5 days 1 hr - #2101-dev	N/A	6 min 38 sec	
		Android Dem	10 mo - #32	N/A	13 min	
		Android Dem	1 mo 28 days - #8	N/A	21 min	
		Android Dem	1 mo 3 days - #13	N/A	1 hr 56 min	
		Android Dem	1 yr 2 mo - #26	N/A	22 min	
		Android Dem	10 mo - #3	10 mo - #2	17 min	
		Android Dem	6 mo 26 days - #6	6 mo 27 days - #3	6 min 9 sec	
		Android Dem	10 mo - #16	N/A	4 min 22 sec	
		Android Deprecated (debug brandings)	9 mo 0 days - #251	N/A	54 min	
		Android Deprecated (release brandings)	1 yr 2 mo - #460	N/A	2 hr 20 min	
		Android Deprecated (release)	1 yr 3 mo - #490	N/A	41 min	
		Android Featur	9 mo 0 days - #78	N/A	7 min 19 sec	
		Android Featur	20 hr - #406-hce	N/A	17 min	
		Android Featur	1 day 22 hr - #1314-loy2	2 days 0 hr - #1311-loy2	10 min	
		Android Featur	19 days - #315	N/A	4 min 41 sec	
		Android Releas	11 days - #601	N/A	3 hr 46 min	
		Android Releas	5 mo 21 days - #1	N/A	3 hr 1 min	
		Android Releas	6 mo 18 days - #16	N/A	6 min 27 sec	
		Android Test	4 mo 28 days - #10	4 mo 29 days - #3	10 min	
		Android Test	N/A	N/A	N/A	
		Android Test	2 mo 7 days - #6	N/A	19 min	

Jenkins Build Times

- Release Builds: 3-4h
- Beta Builds: 1-2h
- Alpha Builds: 15-20 min

Step 1: Gitlab CI Runner

- Shared Docker Runner
 - Use custom images OR
 - Docker Hub
- Shell Runner

Step 2: Define Pipeline

- Stages

- ~~Test~~ → ~~Build Debug~~ → ~~Build Release~~ → ~~Post Process~~ → ~~Deploy~~

- Build → Post Process → Deploy

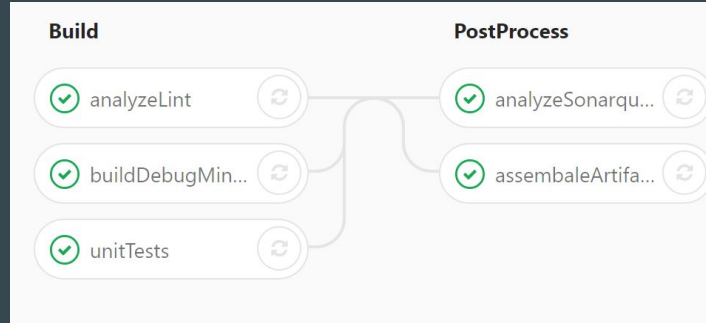
- Jobs

- Prefer Parallism

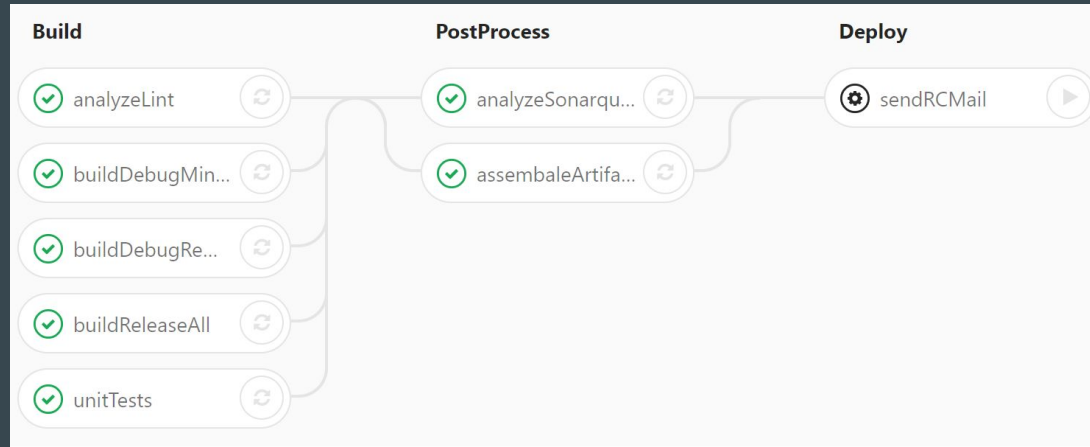
- Prefer Small Jobs

Step 3: Define Git Build Rules

- **Alpha:** during development
→ Fast!

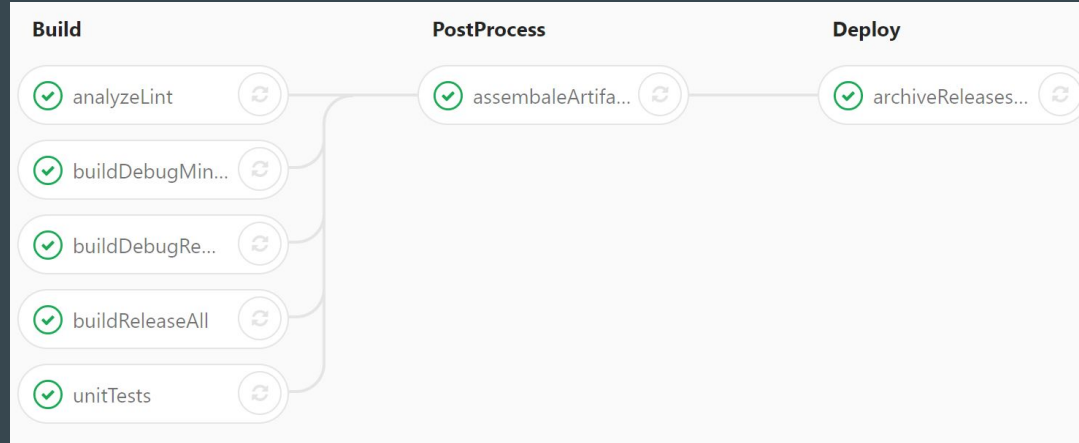


- **Beta & RC:** release QA
→ Slow



Step 3: Define Git Integration cont.

- **Release:**
(aka Tag)
→ Slow



- Additional Rules for e.g. Demo Branches, Sprint Tags, etc.

Step 4: Move Plugin Logic

- Credentials
 - *Global Gradle Config* → Env Vars from Docker
- APK Signature
 - *Local Files* → Use Gitlab CI Secrets
- Promotion Jobs
 - *Artifactory Deploy* → CLI Tool
 - *RC Mail* → Groovy Script

Gitlab Migration Results

- Release Builds: 1.5h
- Beta Builds: 1.5h
- Alpha Builds: 10-20 min

→ **with more work done**

→ **with partial results**

→ **merge updates config**

"Should I switch?"

The background features a complex, abstract pattern of light blue and white lines and shapes, resembling a circuit board or a mechanical gear system, set against a dark teal gradient. A semi-transparent dark grey horizontal band is centered across the image, serving as a backdrop for the text.

Thank you

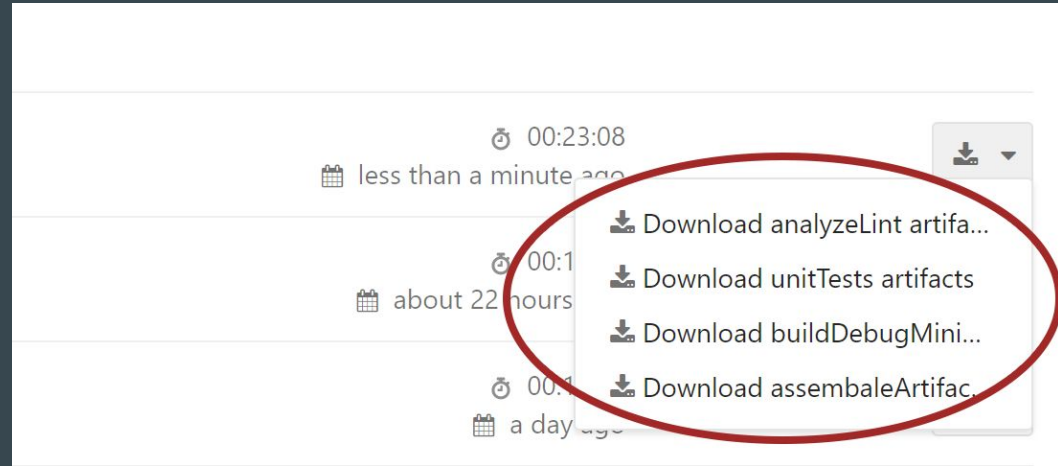
Questions & Discussion



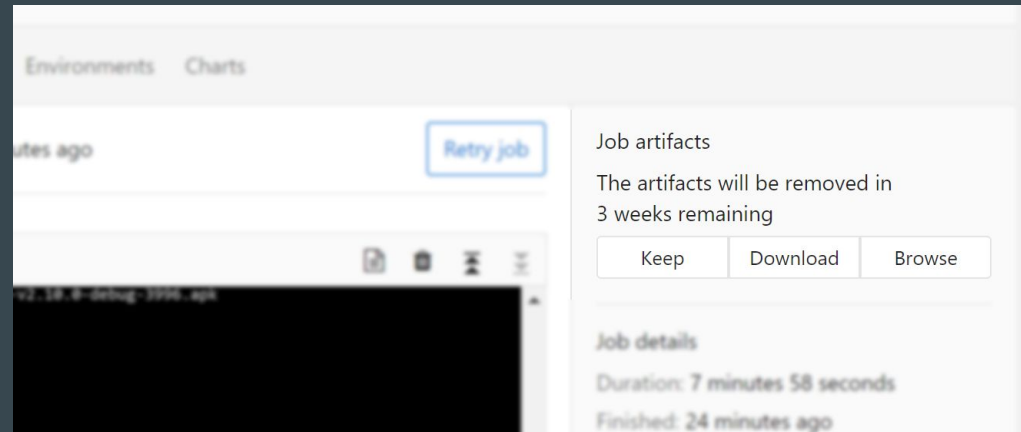
Bits & Pieces

Handling Artifacts

- Every job has own artifacts
→ *artifact chaining*



- File retention considerations



Optimize Build with Caching

- Keep files between builds on Runner
- only best effort guarantee
- per job caching config possible

cache:

key: "\$CI_COMMIT_REF_NAME" #optional - per branch caching

paths:

- \$GRADLE_USER_HOME/caches/

Handling Secrets

- Secret Environmental Variables
- May leak in Log
- Workaround for Files: Base64

Add a variable

Key

Value

Protected

This variable will be passed only to pipelines running on protected branches and tags [?](#)

[Add new variable](#)

Your variables (4)

Key	Value	Protected
RELEASE_KEY_ALIAS	*****	No
RELEASE_KEY_PW	*****	No
RELEASE_KEYSTORE_BASE64	*****	No
RELEASE_KEYSTORE_PW	*****	No

Optimizing Yaml Config

Anchor Feature in Yaml + Hidden Keys = Template

```
.betaRunnerTemplate: &betaRunnerDefinition
```

```
tags:
```

```
- docker-beta
```

```
unitTests:
```

```
<<: *betaRunnerDefinition
```

```
stage: tests
```

```
script: #smth tests
```