

Software Development in modern days: DevOps methodology

Continuous Integration/Continuous Delivery/Continuous Deployment:
Now the practice

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The INCD project
22153-01/SAICT/2016
is co-funded by:



The “Code” - **you can “Code” almost anything**, not only SW, but also services, platforms, infrastructures, even documents (examples will be given later).

- ❖ Manage and track changes with a “**Version Control System**” (VCS):
 - Examples: **git** and **github** or **gitlab**
 - Hosted in repositories, public or private.
- ❖ To install, configure and run “services” and “platforms”, you can use:
 - **Docker** images
 - **Dockerfile** and/or **Docker-compose** files
 - **Ansible**
 - Manage sets of docker containers with: **docker-swarm** or kubernetes (**k8s** from now on).
- ❖ Instantiate Virtual Machines (VMs):
 - **Infrastructure as Code (IaC)**: describe in a file how many VMs, which operating system, which networks, amount of storage and additional storage volumes, amount of RAM
 - Example: **Terraform**



Tools and services: Git - VCS



Git - Version Control System

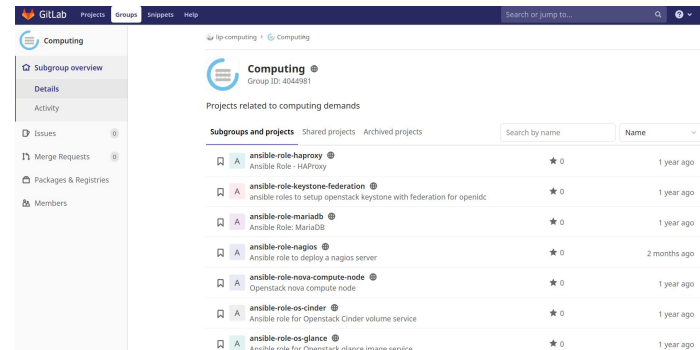
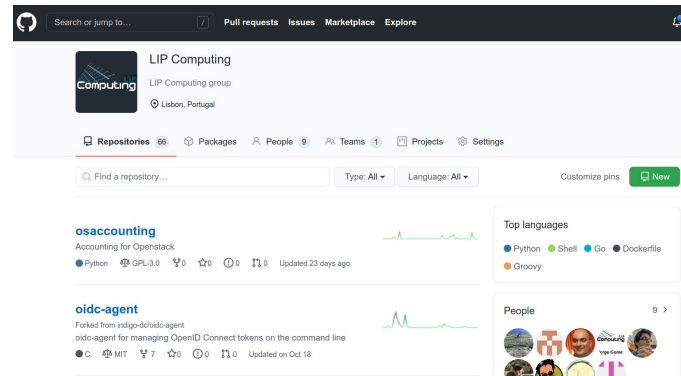


Managing and tracking changes to your SW source code

Github or Gitlab



Public repository services with Git as underlying management of files



Tools and services: Github - Issue tracker

Issue tracker: track and follow issues, SW problems and bugs, new features, even users questions

indigo-dc / **udocker**
Unwatch 35
Unstar 765
Fork 86

Code
Issues 48
Pull requests 8
Actions
Projects
Wiki
Security
Insights
Settings

Filters
is:issue is:open
Labels 11
Milestones 1
New issue

<input type="checkbox"/>	48 Open ✓ 107 Closed	Author ▾	Label ▾	Projects ▾	Milestones ▾	Assignee ▾	Sort ▾
<input type="checkbox"/>	Error using udocker with no executre permission on /tmp #284 opened 24 days ago by gervasek						1
<input type="checkbox"/>	How to execute udocker detached? #283 opened on Oct 17 by sonuyos						
<input type="checkbox"/>	Unable to run container after upgrade RHEL 7.7 -> 7.8 #282 opened on Sep 8 by anthosz						
<input type="checkbox"/>	/opt incorrect for udocker in udocker #280 opened on Aug 30 by amcpherson						
<input type="checkbox"/>	Is it Possible to Mount FUSE Filesystems inside of Udocker Containers? #278 opened on Aug 2 by zicklag						
<input type="checkbox"/>	[devel3] in method _search_repositories in UdockerCLI, var repo_list is a list not dict bug devel3						

Tools and services: Github - Commit



After “git commit”

```
indigo-dc jorge-lip committed on Jan 8 Verified 2 parents d82d4a2 + 96

Showing 2 changed files with 33 additions and 12 deletions.

26 doc/installation_manual.md

@@ -47,48 +47,54 @@ From the *development* branch for the latest additions and fixes:
47 47     ./udocker install
48 48     ```
49 49
50 - To get a specific released version of udocker such as *v1.1.4*:
50 + To get a specific released version of udocker such as v1.1.4:
51 51
52 52     ```
53 53     curl https://raw.githubusercontent.com/indigo-dc/udocker/v1.1.4/udocker.py > udocker
54 54     chmod u+rx ./udocker
55 55     ./udocker install
56 56     ```
57 57
58 - ### 2.2. INSTALL FROM REPOSITORIES
58 + ### 2.2. INSTALL FROM UDOCKERTOOLS TARBALL
59 59
60 - This installation method uses the udocker tarball that contains statically compiled
60 + This installation method uses the udockertools tarball that contains statically compiled
61 61     binaries and is built to be used across different hosts and OS distributions. Please
62 62     check the repositories for the latest release.
63 63
```



Tools and services: Github - Commits are signed



You can “sign” your commits - with your GPG key

Commits on Jul 24, 2020

add unit tests cli, umain



mariojmdavid committed on Jul 24 ✓

Verified



73703c8



Commits on Jul 17, 2020

tests for dockerioapi



mariojmdavid committed on Jul 17 ✓

add tests dockerioapi, fix type list



mariojmdavid committed on Jul 17 ✓



This commit was signed with a
verified signature.



mariojmdavid
Mario David

GPG key ID: 91261C90DF016C75

[Learn about signing commits](#)

1ddf



511f



Tools and services: Github - Trigger CI tests

The “git commit” **triggers CI tests**

solve runc bugs [#271](#) [#272](#) [#273](#)



mariojmdavid committed on Jun 8 ✓

add several unit tests



mariojmdavid committed on Jun 8 ✓

All checks have passed

1 successful check



continuous-integration/jenkins/branch — This com...

[Details](#)

Verified

Verified



Tools and services: Github - Pull Request (PR)



Code Review: discussion and approval of 1 or more commits

Merged

issue #21, add section metadata for software, added reference #33
orviz merged 3 commits into `indigo-dc:release/v3.0` from `mariojmdavid:release/v3.0` on Jan 3

mariojmdavid commented on Nov 14, 2019

Member

...

IMPORTANT: This project requires an associated issue before creating the pull request.

- Be sure to review our [contribution guidelines](#)
- Check if your contribution is already addressed in the list of [open issues](#). If not, please [create the issue](#) before opening the pull request

Description of the contribution

add section metadata for software, added reference with motivation

Related Issue/s

resolves #21

issue #21, add section metadata for software, added reference

Verified

3148558

👁

mariojmdavid requested review from orviz and caifti on Nov 14, 2019

orviz requested changes on Dec 12, 2019

View changes

content/06.quality_criteria.md

Outdated

... -78,6 +78,15 @@ programming language being used.

78 78 4. Code style compliance testing MUST be automated and MUST be triggered for

79 79 each candidate change in the source code.

80 80

81 + ## Code metadata

82 + Metadata for the software component, is a way to facilitate the citation of

orviz on Dec 12, 2019

Member

...

Reviewers

orviz

caifti

Assignees

No one—assign yourself

Labels

None yet

Projects

None yet

Milestone

No milestone

Linked Issues

Successfully merging this pull request may close these issues.

None yet

Notifications

Customize

Unsubscribe

You're receiving notifications because you're watching this repository.

2 participants

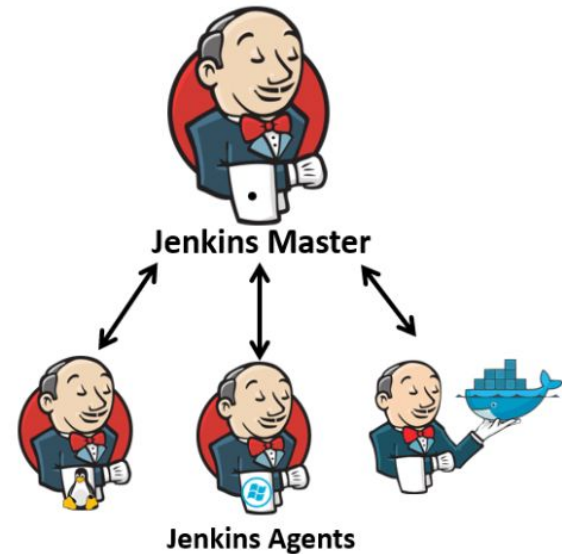
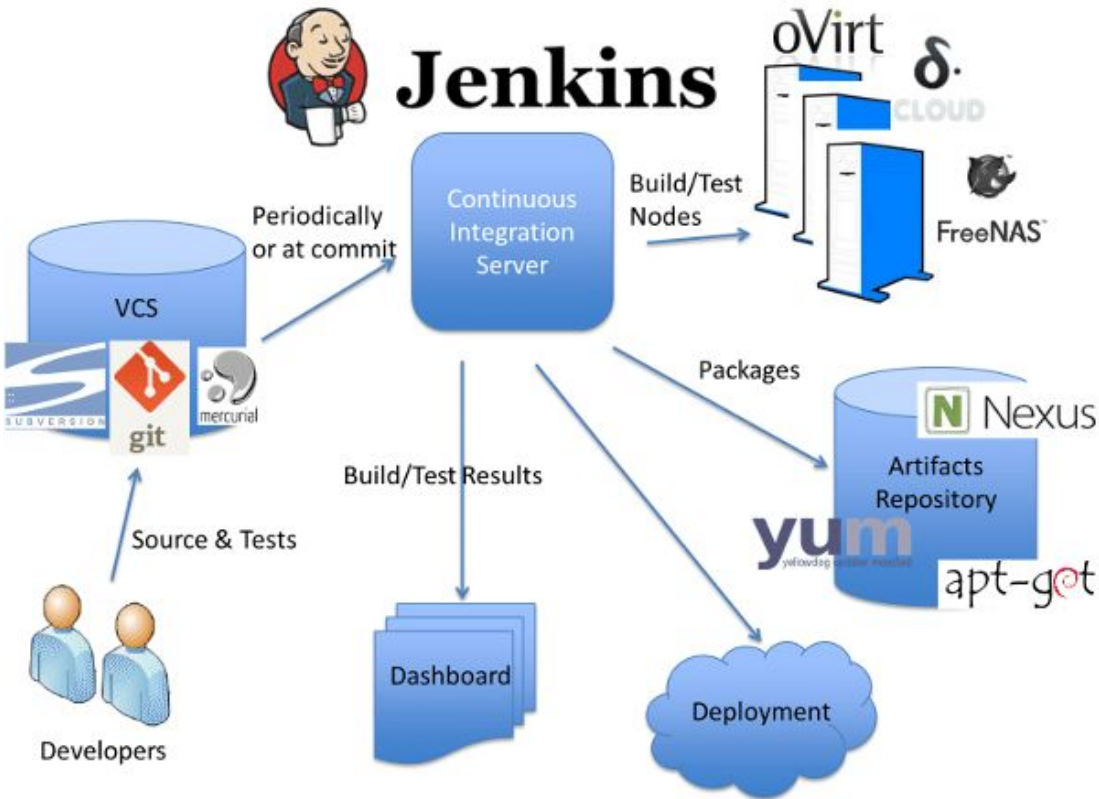
Request changes

Examples:

- ❖ SW source code (python): <https://github.com/indigo-dc/udocker>
- ❖ Document: <https://github.com/indigo-dc/sqa-baseline>
- ❖ Dockerfile and docker-compose: <https://github.com/nginx-proxy/nginx-proxy>
- ❖ Ansible: <https://gitlab.com/lip-computing/computing/ansible-role-nagios>

Tools and services: Jenkins CI/CD

Jenkins - Automation service for CI/CD: <https://jenkins.indigo-datacloud.eu/job/Pipeline-as-code/>



Tools and services: Jenkins pipeline



Jenkins - pipeline

Branch: master 7m 32s Changes by noreply
Commit: 3a3cce7 10 months ago Push event to branch master



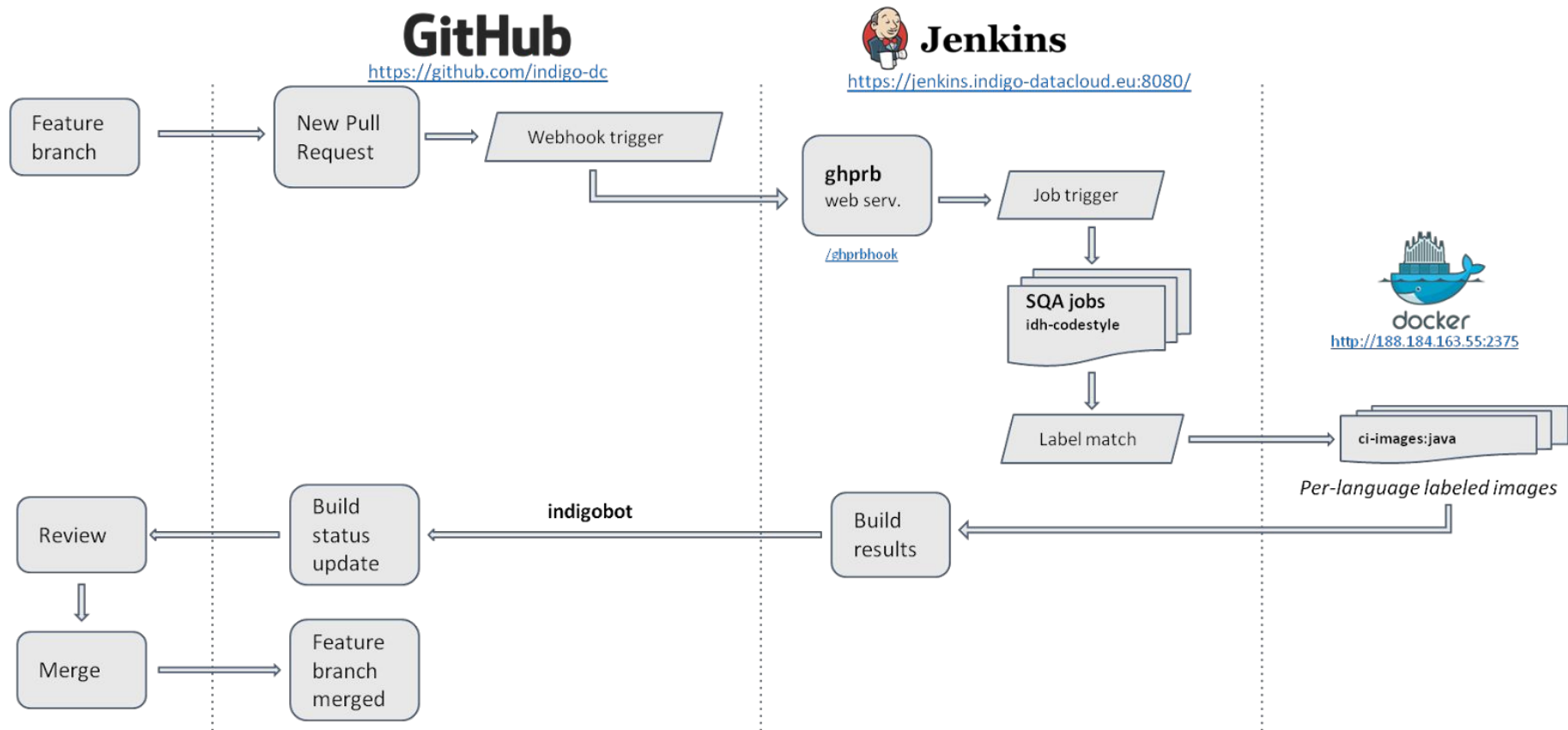
Code fetching - 4s



✓ Check out from version control

22s

```
1 using credential indigobot-github
2 Cloning the remote Git repository
3 Cloning with configured refspecs honoured and without tags
4 Cloning repository https://github.com/indigo-dc/udocker.git
5 > git init /tmp/workspace/Pipeline-as-code_udocker_master # timeout=10
6 Fetching upstream changes from https://github.com/indigo-dc/udocker.git
7 > git --version # timeout=10
8 using GIT_ASKPASS to set credentials indigobot-github
9 > git fetch --no-tags --progress -- https://github.com/indigo-dc/udocker.git +refs/heads/master:refs/remotes/origin/master
10 Fetching without tags
11 > git config remote.origin.url https://github.com/indigo-dc/udocker.git # timeout=10
12 > git config --add remote.origin.fetch +refs/heads/master:refs/remotes/origin/master # timeout=10
13 > git config remote.origin.url https://github.com/indigo-dc/udocker.git # timeout=10
14 Fetching upstream changes from https://github.com/indigo-dc/udocker.git
15 using GIT_ASKPASS to set credentials indigobot-github
16 > git fetch --no-tags --progress -- https://github.com/indigo-dc/udocker.git +refs/heads/master:refs/remotes/origin/master
17 Checking out Revision 3a3cce7124b0d420cecc938bfc7676324ed9f017 (master)
18 Commit message: "Update README.md"
19 > git config core.sparsecheckout # timeout=10
20 > git checkout -f 3a3cce7124b0d420cecc938bfc7676324ed9f017
21 > git rev-list --no-walk 975f3c660bfb90ced77548470bfeda4070e52a7 # timeout=10
```



In the framework of a EU project: [EOSC-Synergy](https://sqaaas.eosc-synergy.eu/#/auth/select-option) -
<https://sqaaas.eosc-synergy.eu/#/auth/select-option>

Software Quality Assurance as a Service



Pipeline as a Service

Custom CI/CD pipelines based according to the quality criteria from the Software as a Service.



Online Quality Assessment

Evaluates the level of compliance of a source code repository or running service according to the quality criteria from the Software & Service baseline.



Unless otherwise indicated, all materials created by the EOSC-synergy

[Terms of Service](#)


[News & Events](#)



Software Quality Assurance as a Service



Compose a
Jenkins pipeline
for SQA

 SQaaS

Software Quality Assurance as a Service

Log Out

1. GENERAL OPTIONS

2. SQA CRITERIA

3. ACTIONS

[< BACK](#)

Select SQA Criteria

PIPELINE NAME

worsica_pipeline

Choose a criteria...

Choose a criteria...

qc_style

qc_coverage

qc_functional

qc_security

qc_doc

/myrepo-testin

stylecheck

+ ADD

Add Comands

COMMAND

npm install

+ ADD

+ ADD CRITERIA

Compose a Jenkins pipeline for SQA -
The result:

<https://github.com/WORSICA/worsica-cic/blob/development/.sqa/config.yml>

```
...
sqa_criteria:
  qc_functional: #functional/unitary + coverage
  repos:
    worsica_processing:
      container: processing
      tox:
        testenv:
          - worsica-processing-unittest
        tox_file: '/usr/local/worsica_web_products/tox.ini'
    worsica_intermediate:
      container: intermediate
      tox:
        testenv:
          - worsica-intermediate-functional
        tox_file: '/usr/local/worsica_web_intermediate/tox.ini'
    worsica_frontend:
      container: frontend
      tox:
        testenv:
          - worsica-portal-functional
        tox_file: '/usr/local/worsica_web/tox.ini'
...
```

Further information and sources

- ❖ Software Development methodologies:
 - <https://www.outsource2india.com/software/mobile-applications/project-methodologies.asp>
 - <https://xcelacore.com/how-software-development-has-changed-in-the-past-decade/>
- ❖ Software Quality Assurance: <https://github.com/indigo-dc/sqa-baseline>
- ❖ Service Quality Assurance: <https://github.com/EOSC-synergy/service-qa-baseline>