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Docker Registry

A central place to store Docker images.

Catherine Cruz - DevOps Community

Terminology

- **Dockerfile**: A text document that contains all the commands you would normally execute manually in order to build a Docker image.
- **Layer**: A modification to the image, represented by an instruction in the Dockerfile. Layers are applied in sequence to the base image.
- **Image**: Ordered collection of root filesystem changes and corresponding execution parameters for use within a container runtime. An image does not have state and it never changes.
- **Container**: Self-contained environment built using one or more images. A container is a runtime instance of a docker image.
- ***Registry**: A hosted service containing repositories of images. It works basically like a git repository, allowing you to push and pull images.*

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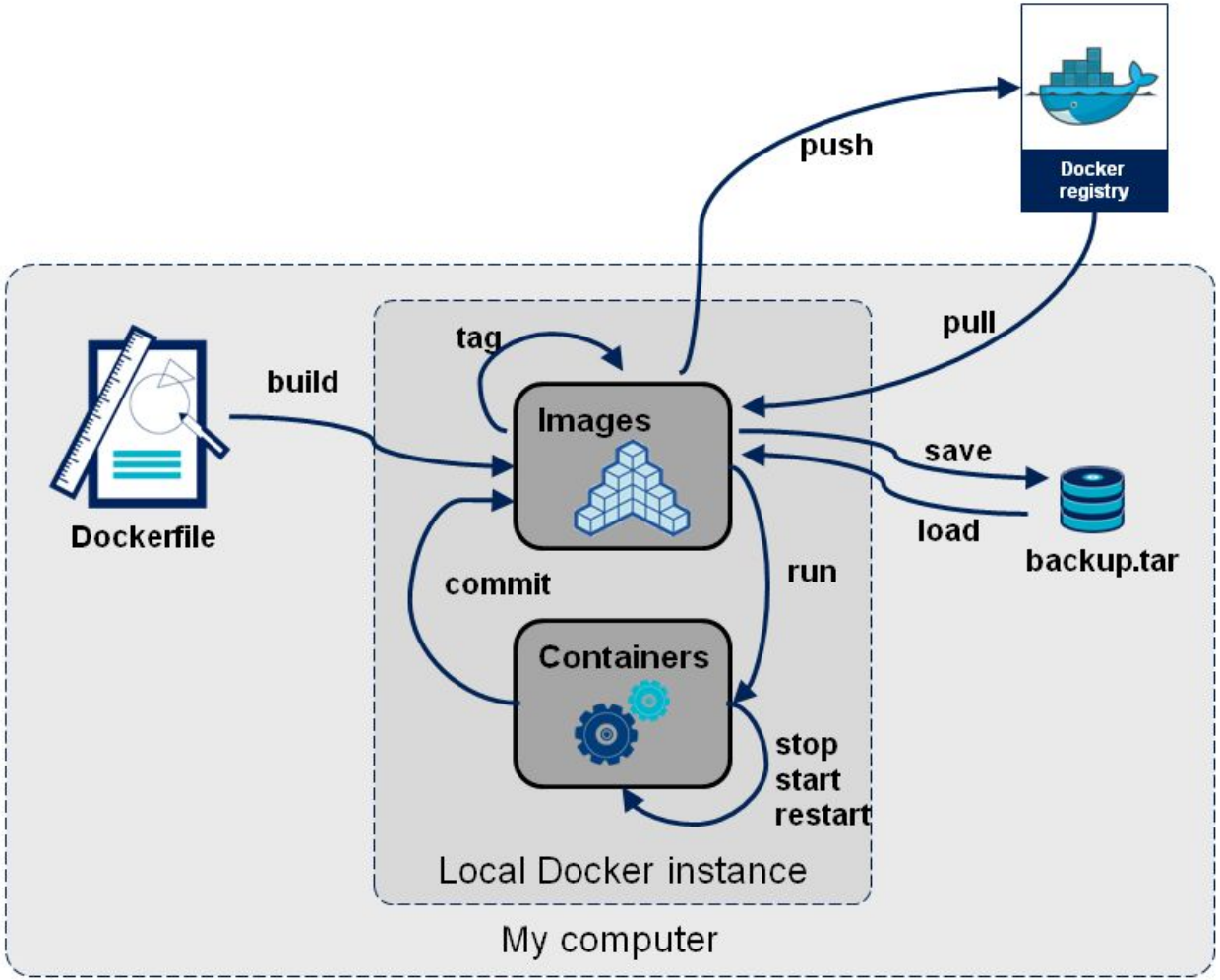
Docker Stages



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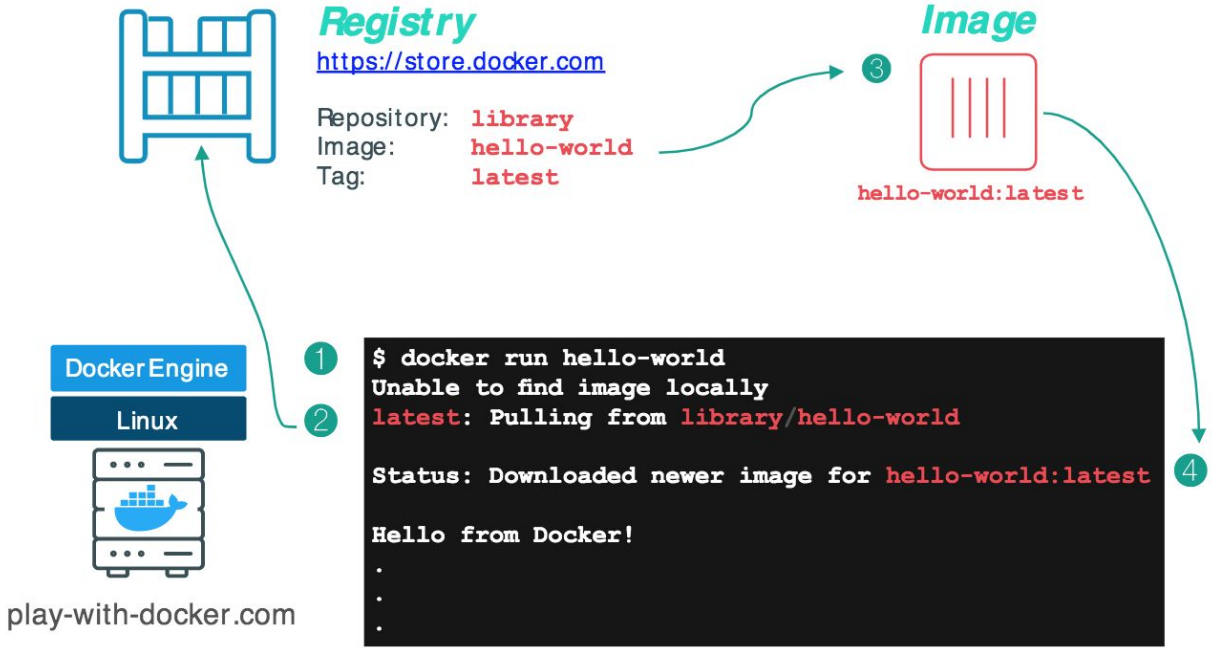
Hello-world

https://www.katacoda.com/courses/docker/deploying-first-container

```
$ docker container run hello-world
```



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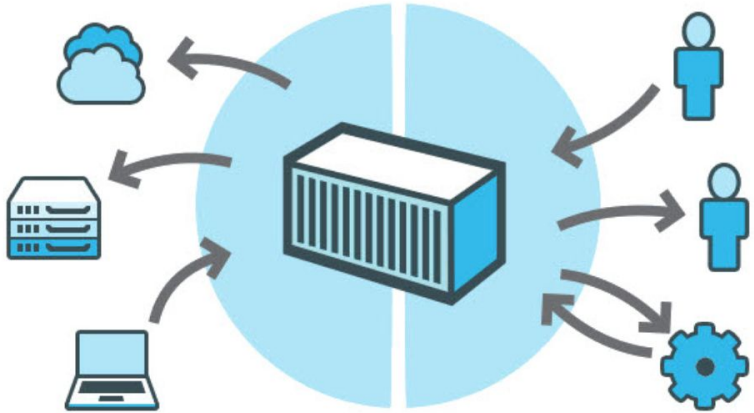
DockerHub

https://hub.docker.com/

The world's largest repository of container images with an array of content sources.

Users get access to free public repositories for storing and sharing images or can choose private repos. Also, able to link GitHub and BitBucket repositories.



Docker Engine
A portable, lightweight application runtime and packaging tool.

Docker Hub
A cloud service for sharing applications and automating workflows.

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Docker Search

```
$ docker search java
```

https://hub.docker.com/search?q=java&type=image

OFFICIAL IMAGE

java

Updated 33 minutes ago

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VERIFIED PUBLISHER

Oracle Java 8 SE (Server JRE) DOCKER CERTIFIED

By Oracle • Updated 20 days ago

Oracle Java 8 SE (Server JRE)

Container | Docker Certified | Linux | x86-64 | Programming Languages

OFFICIAL IMAGE

node

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Node.js is a JavaScript-based platform for server-side and networking applications.

Container | Linux | PowerPC 64 LE | 386 | ARM 64 | ARM | x86-64 | IBM Z | Application Infrastructure

Workshop

https://github.com/twogg-git/docker-registry-workshop

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Why we need a Registry?

- Imagine a workflow where you push a commit that triggers a build on your CI provider which in turn pushes a new image into your registry.
- Your registry can then fire off a webhook and trigger a deployment.
- All without a human having to step and manually do anything.
- Registries make a fully automated workflow like this much easier.

As the previous example demonstrates, you will likely want to have a private registry for storing your proprietary images.

A public registry such as the one on Docker Hub is hugely helpful for publicly available and open-source images. However, for your company's private images, a private registry is what you need.

The question then is: hosted or self-hosted?

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Hosted Options

Quay.io

Quay is a hosted Docker registry from CoreOS that sells itself as having “powerful build triggers,” “advanced team permissions,” and “secure storage.” Probably one of the more enterprise-friendly options out there, offering fine-grained permissions.

AWS EC2 Container Registry (ECR)

Amazon’s ECR is a relatively new option that makes a lot of sense if you are making heavy use of other AWS offerings such as their Elastic Container Service. It can be used like any other Docker registry, but you’ll likely get the most benefit out of it within the AWS ecosystem. As with most other AWS products, ECR offers very fine-grained permissions and access control.

Google Container Registry

Google’s Container Registry is much like Amazon’s ECR in that it can be used as a generic Docker registry. You’ll likely get the most benefit if you are already using Google Cloud Platform.

Free Options

TreeScale
https://treescale.com/
Private repositories: Unlimited - Public repositories: Unlimited
TreeScale offers both unlimited private and public repositories. The only limits are 500 Pull actions/month and 50 GB Registry space. Unfortunately, the user interface is sometimes a bit buggy when it comes to updating the statistics and data, but all functions works correctly when using the repository.

Canister
https://www.canister.io/
Private repositories: 20 - Public repositories: N/A
Canister is a great choice if you only need a few private repository. The interface works great and gives a good user experience.

GitLab
https://www.gitlab.com
Private repositories: Unlimited -Public repositories: N/A
GitLab allows you to solve your CI/CD with them and there among the docker repository "problem". The only negative aspect of the site is that it's not dedicated for docker repositories which forces you to create an entire new project when you might only want a repository.

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Links & References

Docker Documentation

https://docs.docker.com/

Docker Official Playground

https://training.play-with-docker.com

Interactive Learning and Training Platform

https://www.katacoda.com/

An Overview of Docker Registries

https://dzone.com/articles/an-overview-of-docker-registries

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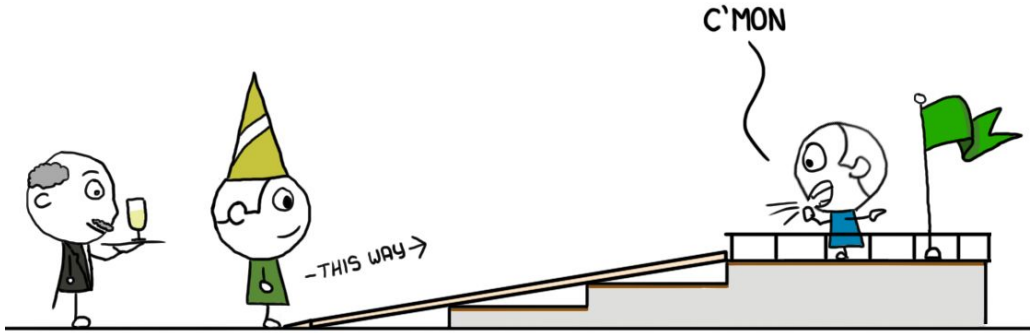
Docker Registry

Catherin Cruz

www.surveymonkey.com/r/asistenciamedellin



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