

Section 7 - Container Images - Docker Hub Registry

3 Docker images - Local Cache

Image layers (1)

- We can see the image layers from the output of the `docker pull` command
- When we use `docker pull`, we can see from the output of the command that the image is not a single big blob of data.

```
# docker pull mysql
Using default tag: latest
latest: Pulling from library/mysql
27833a3ba0a5: Already exists
864c283b3c4b: Already exists
5479aaef3d30: Already exists
9667974ee097: Pull complete
4ebb5e7ad6ac: Downloading [=====>      ] 17.14MB/88.99MB
021bd5074e22: Downloading [=====>      ] 33.14MB/69.99MB
cce70737c123: Waiting
544ff12e028f: Waiting
```

Image layers (2)

```
# docker pull mysql
Using default tag: latest
latest: Pulling from library/mysql
27833a3ba0a5: Already exists
864c283b3c4b: Already exists
5479aaef3d30: Already exists
9667974ee097: Pull complete
4ebb5e7ad6ac: Downloading [=====> ] 17.14MB/88.99MB
021bd5074e22: Downloading [=====> ] 33.14MB/69.99MB
cce70737c123: Waiting
544ff12e028f: Waiting
```

- The image is composed from smaller pieces of data => layers.
- Some of the layer "Already exists" on the local cache => No need to download this part
- The images are designed using the union file system which concept is to make layers for a set of changes

docker image history (1)

- Use the `docker image history` command to show the build history of an image.
- Show layers of changes made on the image.

```
# docker image history nginx
IMAGE          CREATED          CREATED BY                                      CMD
27a188018e18   9 days ago      /bin/sh -c #(nop) CMD ["nginx" "-g" "daemon
<missing>      9 days ago      /bin/sh -c #(nop) STOPSIGNAL SIGTERM
<missing>      9 days ago      /bin/sh -c #(nop) EXPOSE 80
<missing>      9 days ago      /bin/sh -c ln -sf /dev/stdout /var/log/engi
<missing>      9 days ago      /bin/sh -c set -x && apt-get update && a
<missing>      9 days ago      /bin/sh -c #(nop) ENV NJS_VERSION=1.15.12
<missing>      9 days ago      /bin/sh -c #(nop) ENV NGINX_VERSION=1.15.
<missing>      4 weeks ago     /bin/sh -c #(nop) LABEL maintainer=NGINX
<missing>      4 weeks ago     /bin/sh -c #(nop) CMD ["bash"]
<missing>      4 weeks ago     /bin/sh -c #(nop) ADD file:4fc310c0cb879c8
```

docker image history (2)

- Every set of changes on the image file system is another layer.
- Some layers may not change in terms of the file size => metadata (e.g EXPOSE 80)
- Every layer has a unique SHA number that identify the changes made.

docker image inspect (1)

- Use the `docker image inspect` command to display detailed information of an image.
- Information included: ImageId, RepoTags, ExposePorts, Environment variables, CMD , Architecture, GraphDriver, etc...

docker image inspect (2)

```
# docker image inspect nginx
[
  {
    "Id": "sha256:27a188018e1847b312022b02146bb7ac3da54e96fab838b7db9f...",
    "RepoTags": [
      "nginx:1.15",
      "nginx:1.15.12",
      "nginx:latest"
    ],
    ...
    "GraphDriver": { ... "Name": "overlay2" },
    ...
    "RootFS": {
      "Type": "layers",
      "Layers": [
        "sha256:5dacd731af1b0386ead06c8b1feff9f65d9e0bdfec032d2cd0...",
        "sha256:912ed487215b213aaad80bedb31484cab0b060de73d49bd1cf...",
        "sha256:fc4c9f8e7dacd81078d56e811c55ce1920688a91748bfbb2b9...",
        ...
      ]
    },
    ...
  }
]
```