SPRING FRAMEWORK GURU

Docker Images

About Docker Images

What is a Docker Image?

- An Image defines a Docker Container.

  - Similar in concept to a snapshot of a VM.

  - Or a class vs an instance of the class.

- Images are immutable.

  - Once built, the files making up an image do not change.

Image Layers

- Images are built in layers.

- Each layer is an immutable file, but is a collection of files and directories.

- Layers receive an ID, calculated via a SHA 256 hash of the layer contents.

  - Thus, if the layer contents change, the SHA 256 hash changes also.

```
    },
    "RootFS": {
        "Type": "layers",
        "Layers": [
            "sha256:a2ae92ffcd29f7ededa0320f4a4fd709a723beae9a4e681696874932db7aee2c",
            "sha256:019432d9cc3b83eaa169411e24c7be15421dc2ddda0f8505ef9280f15e919574",
            "sha256:640efe6eb73c226da1d9ca1a29777f61b86e2d1f80d93d62ac10deb720cee349",
            "sha256:510c9b374922b8809e1041db4c0f65ac74b10189bfa84c54f8b78f6062721107",
            "sha256:ebc799af5d1c260b1982de51522e2648df2bdd5ce80e67cb673b4723acc11079",
            "sha256:14aeb2cce825abeb7f79a9593ab364ba798b053480a94f0ec875165dc9d49dd7",
            "sha256:05cf5507e065f1342fe6fb6e309c760e96ec2f8c33c643fe50dc15f034c49fa3",
            "sha256:7ec5d77f0d3b747ec279d92e17398be3815cb54ad0d59d1acea365d7c7408000",
            "sha256:03b22923539dde013282a8715cd3fab7f862f08aaaf4ab8b04237e4506a77fd8"
        ]
    }
}
]
MacBook-Pro:~ jt$ docker image inspect mongo
```

Image Ids

- Image Ids are a SHA 256 hash derived from the layers.

  - Thus if the layers of the image changes, the SHA 256 hash changes

- The Image ID listed by docker commands (ie 'docker images') is the first 12 characters of the hash.

Image Ids

Image Tag Names

- The hash values of images are referred to by 'tag' names.

  - This concept is very confusing at first.

```
MacBook-Pro:~ jt$ docker images -q --no-trunc
sha256:0dffc7177b06346bcffa76fe056b7a1bab91c4c8c6005dda4e55815482ce08bd
sha256:eb05a0f245ead9608f59b33eb95bfefb771fcd8f5aeb04c734c15ff872ae3020
sha256:78cdcf394b4eab49b6d64e3e97f303d452019cf2991f801865f26c062a398623
sha256:594dc21de8de7cdae01ecbd4d8a4dedead73756984896a00fce13cbc8c24f38e
sha256:1e56646c94495f1a0213259b194ed88d7a66d1b2f18b75eb0f4475f06156fc76
sha256:c54a2cc56cbb2f04003c1cd4507e118af7c0d340fe7e2720f70976c4b75237dc
sha256:03b4557ad7b98859ac39aee048ce400a664de81cfa625fd7dfa94e61ac7c1947
MacBook-Pro:~ jt$ docker images
REPOSITORY                              TAG        IMAGE ID
mongo                                   latest     0dffc7177b06
postgres                                latest     eb05a0f245ea
mysql                                   latest     78cdcf394b4e
mysql                                   <none>     594dc21de8de
docker.bintray.io/jfrog/artifactory-oss latest     1e56646c9449
hello-world                             latest     c54a2cc56cbb
kitematic/hello-world-nginx             latest     03b4557ad7b9
MacBook-Pro:~ jt$
```

Image Tag Names

- The format of the full tag name is: [REGISTRYHOST/] [USERNAME/]NAME[:TAG]

- For Registry Host 'registry.hub.docker.com' is inferred

- For ':TAG' - 'latest' is default, and inferred.

- Full tag example: registry.hub.docker.com/mongo:latest

```
REPOSITORY                              TAG
mongo                                   latest
postgres                                latest
```

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