

Systems Advanced Docker Containers

dockerhub & container
images



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Docker-Hub

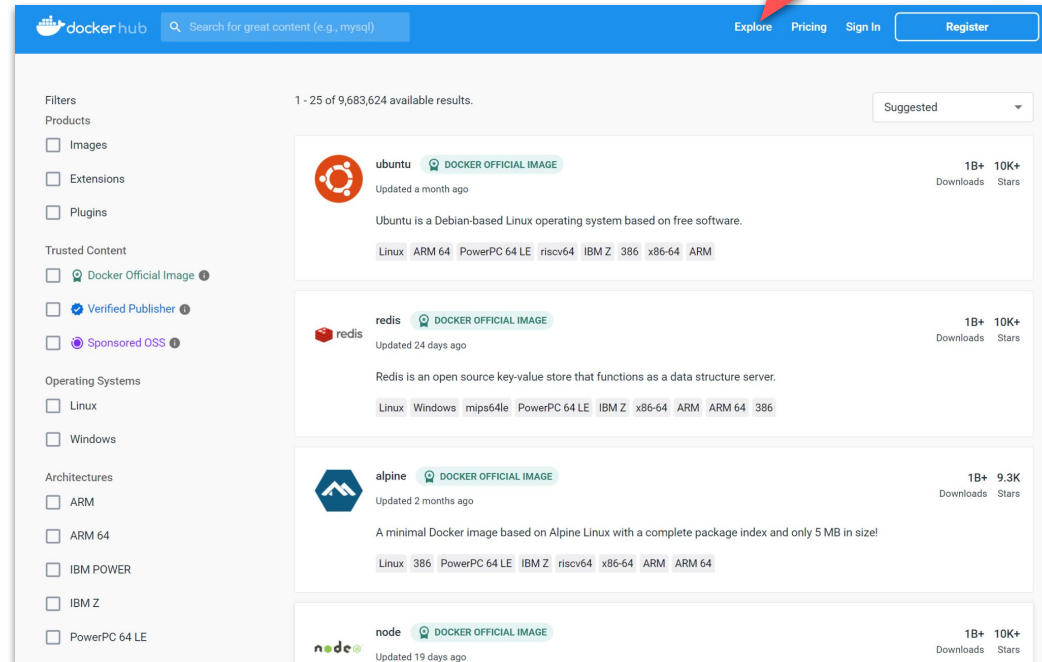
De Docker-Images worden gedownload van Docker-Hub

We kunnen Docker-Hub bekijken via een web-browser

- Surf naar: <https://hub.docker.com/>
- Klik bovenaan op "Explore"

We kunnen Docker-Hub ook doorzoeken vanuit de terminal

- `docker search ubuntu`



Een bepaalde Image-versie

We kunnen via Docker-Hub een bepaalde versie gaan opzoeken

We kunnen op Docker-Hub ook kijken naar bepaalde image-versies

- Surf naar: <https://hub.docker.com/>
- Klik rechtsboven op "Explore"
- Zoek naar ubuntu
- Klik op ubuntu
- We zien bv versie 18.04

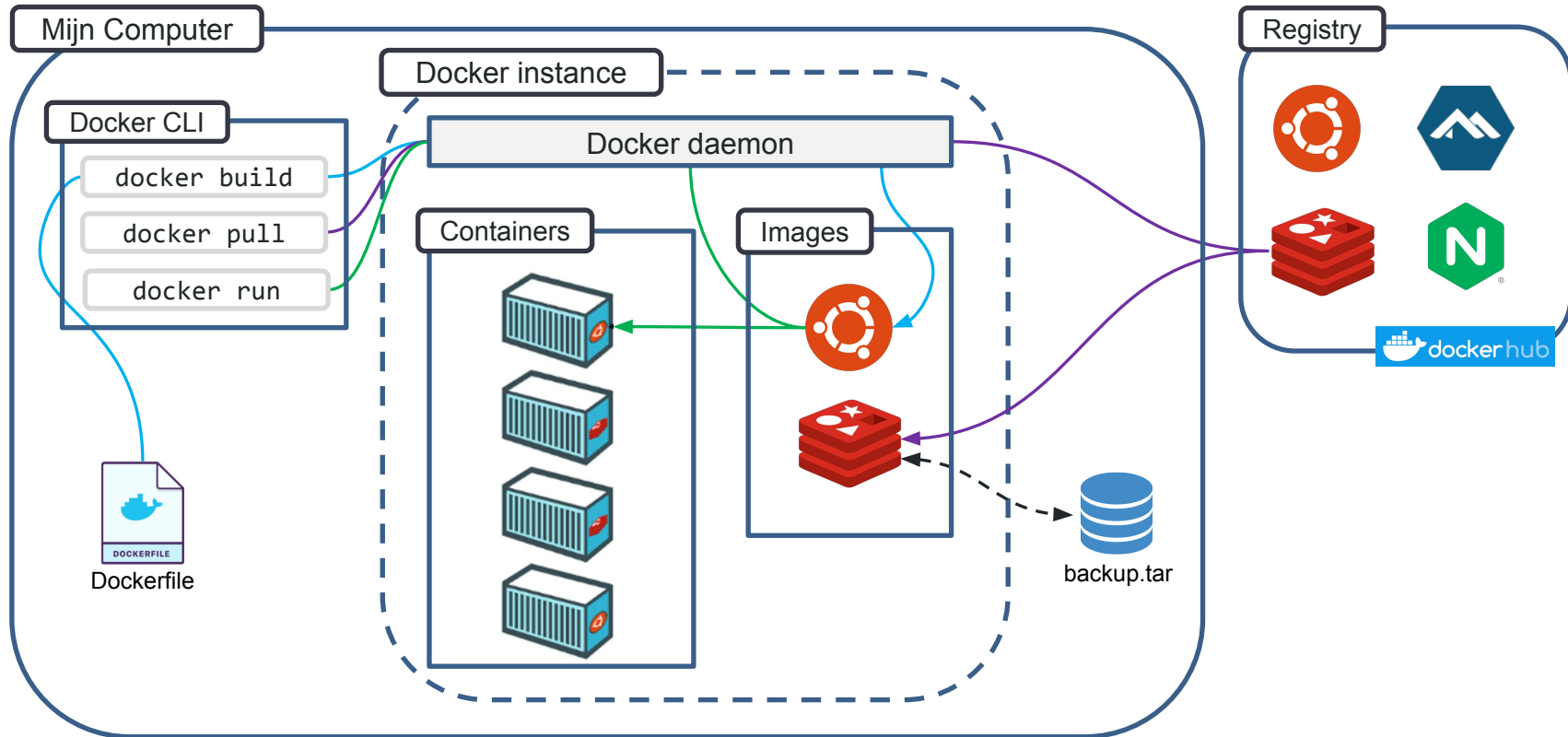
The "latest" tag points to the "latest LTS"

The "rolling" tag points to the latest release (regardless of LTS status)

We kunnen deze Docker-Image downloaden (zie latere slide)

The screenshot shows the Docker Hub interface for the 'ubuntu' image. At the top, there's a blue header with the Docker Hub logo, a search bar containing 'ubuntu', and links for 'Explore', 'Pricing', 'Sign In', and 'Register'. Below the header, there's a breadcrumb trail: 'Explore > Official Images > ubuntu'. The main content area features the Ubuntu logo, the text 'ubuntu DOCKER OFFICIAL IMAGE', and statistics: '1B+' and '10K+'. A button 'docker pull ubuntu' is visible. Below this, there's a 'Tags' section with a 'Quick reference' box containing information about the image's maintenance and where to get help. The 'Supported tags and respective Dockerfile links' section lists various tags: '18.04', 'bionic-20221019', 'bionic', '20.04', 'focal-20221019', 'focal', '22.04', 'jammy-20221020', 'jammy', 'latest', and '22.10', 'kinetic-20221024', 'kinetic', 'rolling'. A red arrow points to the 'latest' tag. On the right side, there's a 'Recent Tags' section listing tags like 'latest', 'xenial-20210804', 'xenial', 'trusty-20191217', 'trusty', 'rolling', 'kinetic-20221024', 'kinetic', 'jammy-20221020', and 'jammy'. Below that, there's an 'About Official Images' section explaining that these are curated sets of Docker open source and drop-in solution repositories. Finally, there's a 'Why Official Images?' section stating that these images have clear documentation, promote best practices, and are designed for the most common use cases.

Docker Hub is een image registry



Een bepaalde Image-versie downloaden

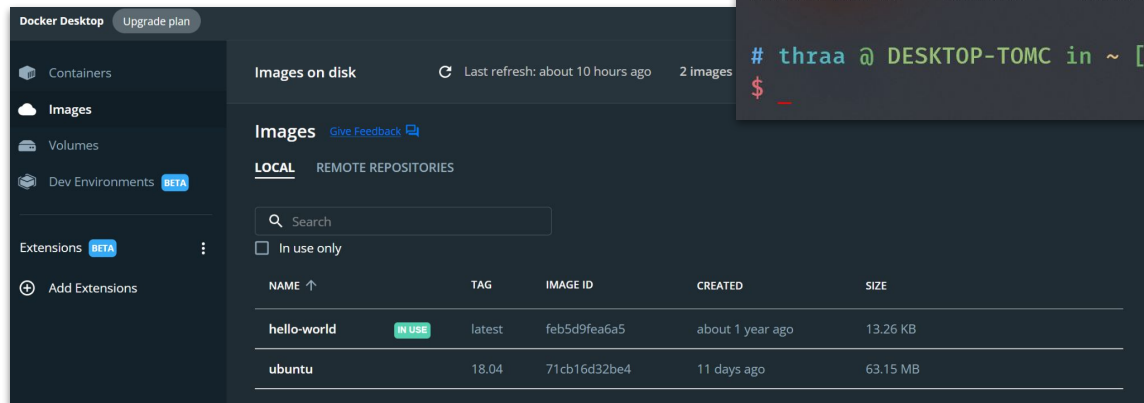
We kunnen de docker image voor Ubuntu 18.04 downloaden.

Downloaden doen we met docker pull

`docker pull ubuntu:18.04`

We kunnen de docker images die we lokaal hebben ook bekijken met

`docker image ls` OF `docker images`



```
# thraa @ DESKTOP-TOMC in ~ [11:00:43]
$ docker pull ubuntu:18.04
18.04: Pulling from library/ubuntu
e706e0a9f423: Pull complete
Digest: sha256:40b84b75884ff39e4cac4bf62cb9678227b1fbf9dbe3f67ef2a6b073aa4bb529
Status: Downloaded newer image for ubuntu:18.04
docker.io/library/ubuntu:18.04

# thraa @ DESKTOP-TOMC in ~ [11:00:58]
$ docker image ls
REPOSITORY      TAG         IMAGE ID      CREATED        SIZE
ubuntu          18.04       71cb16d32be4  11 days ago    63.1MB
hello-world     latest     feb5d9fea6a5  12 months ago  13.3kB

# thraa @ DESKTOP-TOMC in ~ [11:02:45]
$ _
```

Een bepaalde Image-versie downloaden

Indien we geen versie meegeven, downloaden we de "latest" version (voor Ubuntu is dat de laatste LTS-versie).

Downloaden doen we met docker pull

```
docker pull ubuntu
```

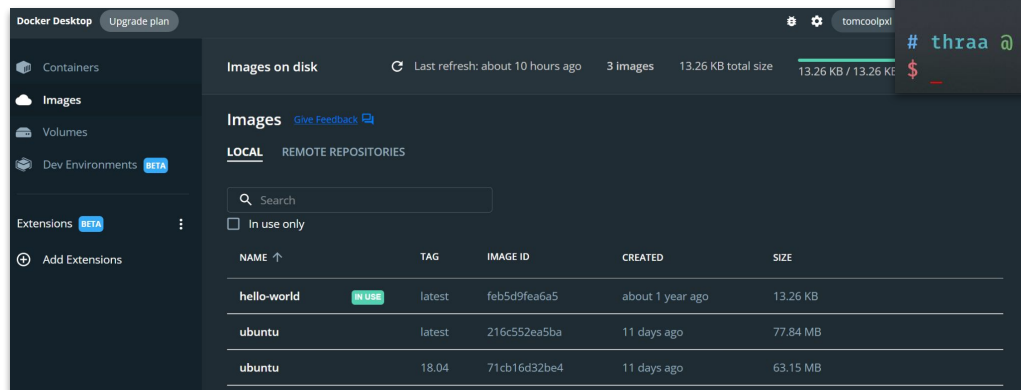
We kunnen de docker images die we lokaal hebben ook bekijken met

```
docker image ls OF docker images
```

```
# thraa @ DESKTOP-TOMC in ~ [11:05:21]
$ docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
cf92e523b49e: Pull complete
Digest: sha256:35fb073f9e56eb84041b0745cb714eff0f7b225ea9e024f703cab56aaa5c7720
Status: Downloaded newer image for ubuntu:latest
docker.io/library/ubuntu:latest

# thraa @ DESKTOP-TOMC in ~ [11:05:31]
$ docker image ls
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
ubuntu        latest    216c552ea5ba   11 days ago    77.8MB
ubuntu        18.04     71cb16d32be4   11 days ago    63.1MB
hello-world    latest    feb5d9fea6a5   12 months ago  13.3kB

# thraa @ DESKTOP-TOMC in ~ [11:05:36]
$
```



Een container starten zonder local image

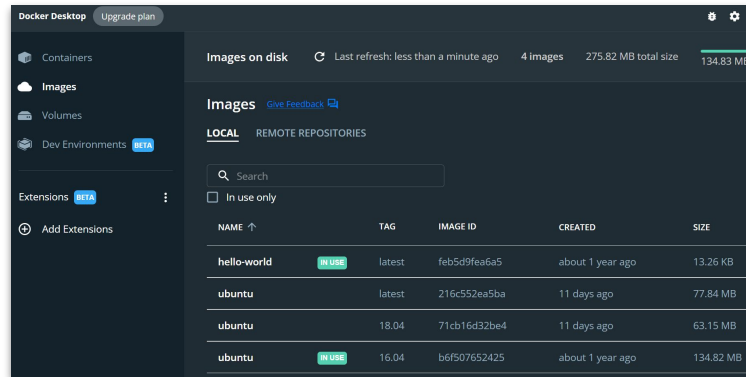
Een image wordt automatisch gedownload door onmiddellijk een container te specificeren.

We kunnen een container starten zonder eerst de bijhorende image te downloaden

```
docker run ubuntu:16.04
```

```
# thraa @ DESKTOP-TOMC in ~ [11:07:49]
$ docker run ubuntu:16.04
Unable to find image 'ubuntu:16.04' locally
16.04: Pulling from library/ubuntu
58690f9b18fc: Pull complete
b51569e7c507: Pull complete
da8ef40b9eca: Pull complete
fb15d46c38dc: Pull complete
Digest: sha256:91bd29a464fdabfcf44e29e1f2a5f213c6dfa750b6290e40dd6998ac79da3c41
Status: Downloaded newer image for ubuntu:16.04
```

```
# thraa @ DESKTOP-TOMC in ~ [11:08:00]
$
```



NAME	TAG	IMAGE ID	CREATED	SIZE
hello-world	latest	feb5d9fea6a5	about 1 year ago	13.26 KB
ubuntu	latest	216c552ea5ba	11 days ago	77.84 MB
ubuntu	18.04	71cb16d32be4	11 days ago	63.15 MB
ubuntu	16.04	b6f507652425	about 1 year ago	134.82 MB

Een bepaalde Image verwijderen

We kunnen een docker image lokaal verwijderen.

Verwijderen doen we met **docker image rm ubuntu:18.04** OF **docker rmi ubuntu:18.04**

```
# thraa @ DESKTOP-TOMC in ~ [11:11:25]
$ docker image ls
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
ubuntu        latest    216c552ea5ba   11 days ago    77.8MB
ubuntu        18.04     71cb16d32be4   11 days ago    63.1MB
hello-world    latest    feb5d9fea6a5   12 months ago  13.3kB
ubuntu        16.04     b6f507652425   13 months ago  135MB

# thraa @ DESKTOP-TOMC in ~ [11:11:28]
$ docker image rm ubuntu:18.04
Untagged: ubuntu:18.04
Untagged: ubuntu@sha256:40b84b75884ff39e4cac4bf62cb9678227b1fbf9dbe3f67ef2a6b073aa4bb529
Deleted: sha256:71cb16d32be4a95065b4fa1c8841a6f4c0098de7be0a90e14519098412d48356
Deleted: sha256:b9b23e6545749dab77233e9c3ce2237e6705cbd30de01e11f529b0e49c155cd5

# thraa @ DESKTOP-TOMC in ~ [11:11:39]
$ docker image ls
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
ubuntu        latest    216c552ea5ba   11 days ago    77.8MB
hello-world    latest    feb5d9fea6a5   12 months ago  13.3kB
ubuntu        16.04     b6f507652425   13 months ago  135MB

# thraa @ DESKTOP-TOMC in ~ [11:11:43]
$
```


Een bepaalde Image verwijderen

We kunnen alle lokale docker images verwijderen die geen geassocieerde (gestarte of gestopte) container hebben.

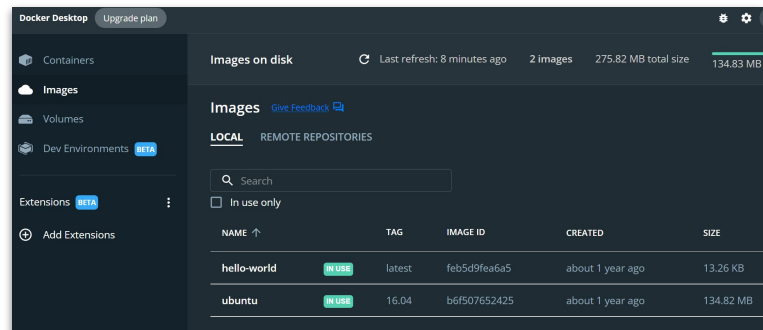
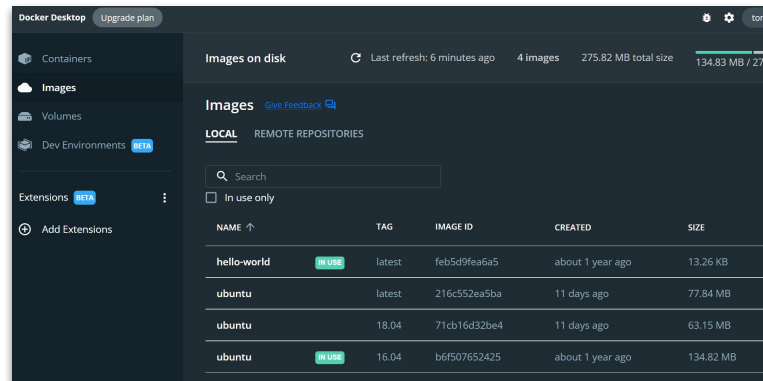
```
docker image prune --all
```

```
# thraa @ DESKTOP-TOMC in ~ [11:14:28]
$ docker image ls
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
ubuntu        latest    216c552ea5ba   11 days ago    77.8MB
ubuntu        18.04    71cb16d32be4   11 days ago    63.1MB
hello-world    latest    feb5d9fea6a5   12 months ago  13.3kB
ubuntu        16.04    b6f507652425   13 months ago  135MB

# thraa @ DESKTOP-TOMC in ~ [11:15:50]
$ docker image prune --all --force
Deleted Images:
untagged: ubuntu:latest
untagged: ubuntu@sha256:35fb073f9e56eb84041b0745cb714eff0f7b225ea9e024f703cab56aaa5c7720
deleted: sha256:216c552ea5ba7b0e3f6e33624e129981c39996021403518019d19b8843c27cbc
deleted: sha256:17f623af01e277c5ffe6779af8164907de02d9af7a0e161662fc735dd64f117b
untagged: ubuntu:18.04
untagged: ubuntu@sha256:40b84b75884ff39e4cac4bf62cb9678227b1fbf9dbe3f67ef2a6b073aa4bb529
deleted: sha256:71cb16d32be4a95065b4fa1c8841a6f4c0098de7be0a90e14519098412d48356
deleted: sha256:b9b23e6545749dab77233e9c3ce2237e6705cbd30de01e11f529b0e49c155cd5

Total reclaimed space: 141MB

# thraa @ DESKTOP-TOMC in ~ [11:16:05]
$
```



Images kopiëren tussen hosts

We kunnen een image opslaan op een host, overkopiëren naar een andere host, om die daar dan in te laden.

We slaan op de eerste host de image op in een tarfile:

```
docker save --output ubuntu.tar ubuntu:16.04
```

Vervolgens brengen we de tarfile over naar een andere host (scp, ftp, ...):

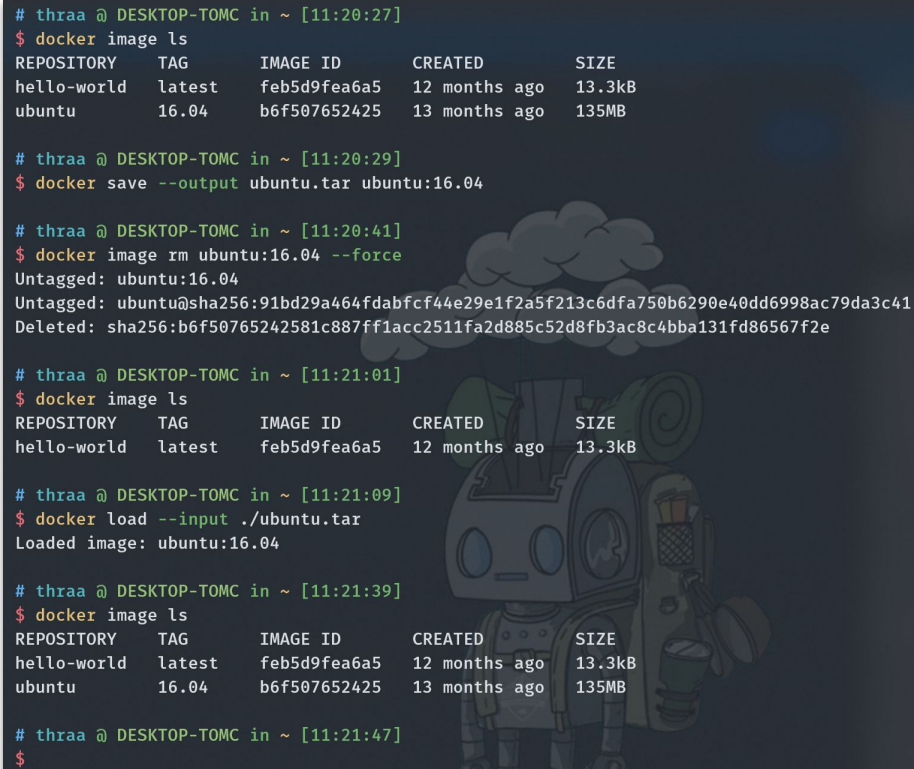
```
scp ./ubuntu.tar  
<username>@<ip_address>:<file_location>
```

In ons voorbeeld gaan we om te testen de image gewoon lokaal verwijderen.

```
docker image rm ubuntu:16.04 --force
```

Op onze host kunnen we de image in de tarfile dan importeren.

```
docker load --input ./ubuntu.tar
```



```
# thraa @ DESKTOP-TOMC in ~ [11:20:27]
$ docker image ls
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
hello-world   latest    feb5d9fea6a5   12 months ago  13.3kB
ubuntu        16.04     b6f507652425   13 months ago  135MB

# thraa @ DESKTOP-TOMC in ~ [11:20:29]
$ docker save --output ubuntu.tar ubuntu:16.04

# thraa @ DESKTOP-TOMC in ~ [11:20:41]
$ docker image rm ubuntu:16.04 --force
Untagged: ubuntu:16.04
Untagged: ubuntu@sha256:91bd29a464fdabfcf44e29e1f2a5f213c6dfa750b6290e40dd6998ac79da3c41
Deleted: sha256:b6f50765242581c887ff1acc2511fa2d885c52d8fb3ac8c4bba131fd86567f2e

# thraa @ DESKTOP-TOMC in ~ [11:21:01]
$ docker image ls
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
hello-world   latest    feb5d9fea6a5   12 months ago  13.3kB

# thraa @ DESKTOP-TOMC in ~ [11:21:09]
$ docker load --input ./ubuntu.tar
Loaded image: ubuntu:16.04

# thraa @ DESKTOP-TOMC in ~ [11:21:39]
$ docker image ls
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
hello-world   latest    feb5d9fea6a5   12 months ago  13.3kB
ubuntu        16.04     b6f507652425   13 months ago  135MB

# thraa @ DESKTOP-TOMC in ~ [11:21:47]
$ _
```

A cartoon illustration of a robot with a cloud-like head is positioned on the right side of the terminal window.

Oefening: Werken met images

Download een Docker image van GDrive en importeer deze

Docker Image

- Download het bestand "[ubcounter_image.tar](#)"
- **scp** dit bestand naar je Docker VM

Docker

- importeer dit bestand naar een docker image
- run een container gebaseerd op deze image
- gebruik hierbij de opties **-it**
- dan kan je de container nog afsluiten met [CTRL]+[C]

