VESPA Workshop 2021 "Dachs on Docker"

Carlos Brandt
Jacobs University Bremen

Roadmap

- ❏ Docker install check
  - ❏ Docker-compose install check

- Simple run of dachs on docker
  - Test empty run
  - Test import/publish
  - Test data access
- Share data with container
  - Mount host' directory into container

- ❖ Simplify command-line with docker-compose

Check Docker

The simplest way to check if Docker is installed and running is by trying it:

- Simply running `docker`, for example, should output docker's help message.
- The same should happen with `docker-compose`.

If the system complains about

- "Unknown command": you don't have it installed
  - Install Docker
- "Daemon down": you have it installed, but Docker daemon is not running
  - Start docker using your system/applications interface;
    If on Linux: use the command-line to "service start docker"

Simple run -- get image

First, let's guarantee we have the published `dachs:latest` (docker) image
in our local machine:

```
(host)$ docker pull gavodachs/dachs:latest
```

➢ Use of `latest` in `dachs:latest` is optional, as `latest` is used if not specified.

Simple run -- start (1)

Run the container:

```
(host)$ docker run -it --name vespa21 -p 8080:8080 gavodachs/dachs
```

- `-it` will make it Interactively through a Terminal
- `--name` give it a name for easier reference
- `-p "host":"container"` bind hosts "host" port to container's "container"

Simple run -- start (2)

Start services -- postgres and dachs -- in the container:

```
(dckr)$ service postgresql start

(dckr)$ dachs serve debug
```

- Go to http://localhost:8080 (in your browser) to see Dachs frontpage

Simple run -- imp/pub (1)

Open another terminal to connect to the same container:

```
(host)$ docker exec -it vespa21 bash
```

This will land you on a Bash/terminal inside the container.

Simple run -- imp/pub (2)

Download DaCHS (*arihip*) example data/resource*:

```
(dckr)$ cd /var/gavo/inputs
(dckr)$ mkdir -p arihip/data
(dckr)$ cd arihip && curl -O http://svn.ari.uni-heidelberg.de/svn/gavo/hdinputs/arihip/q.rd
(dckr)$ cd data   && curl -O http://dc.g-vo.org/arihip/q/cone/static/data.txt.gz
```

*: https://dachs-doc.readthedocs.io/tutorial.html#quick-start-with-dachs

Simple run -- imp/pub (3)

Import a sample (for quick test):

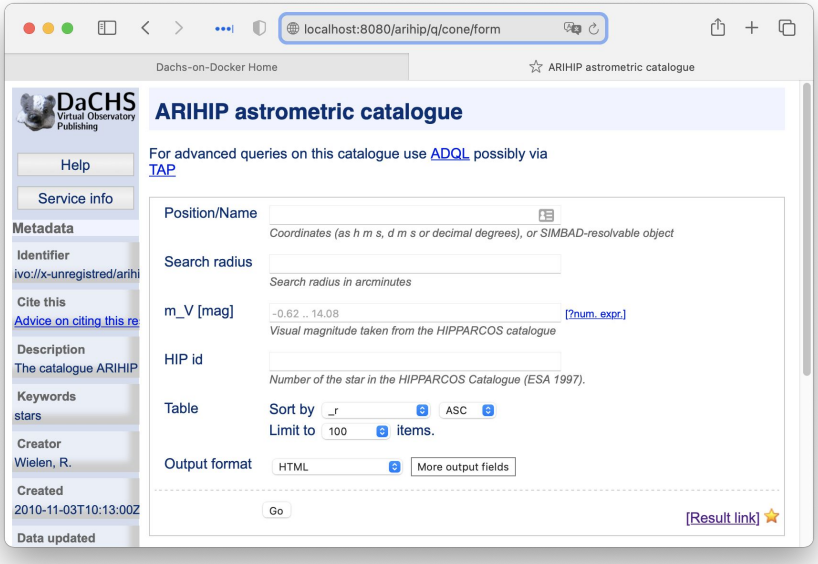
```
(dckr)$ cd /var/gavo/inputs

(dckr)$ dachs imp -M 1000 arihip/q.rd
```

➢ If you want to import all the data, remove "-M 1000" from your command.

Simple run -- data access (1)

Now we go to http://localhost:8080/arihip/q/cone/form to see the `arihip` service web interface:

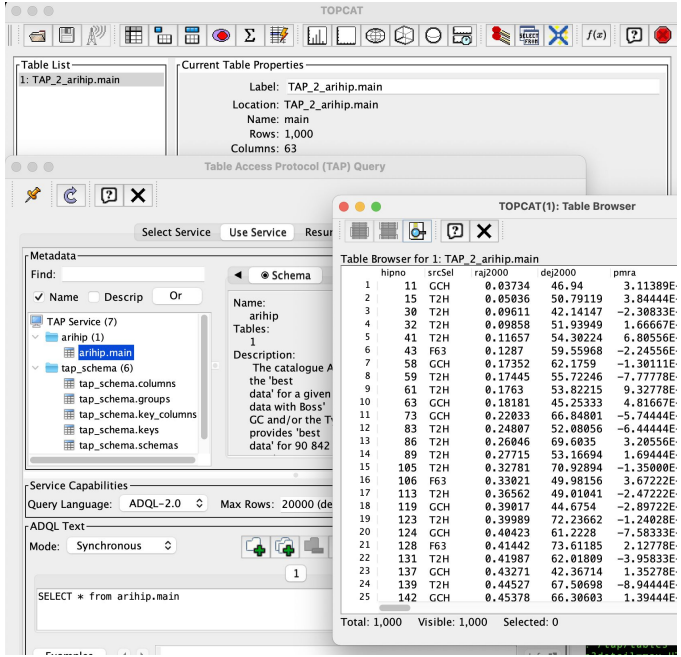


Simple run -- data access (2)

We can now go one step further and test the access through some VO-compiant tool; Topcat* for instance:

- Open Topcat > VO > TAP
- Set URL to `http://localhost:8080/tap`
- (SQL) select data from `arihip.main` table:
  - `SELECT * FROM arihip.main`
  - `Run Query` button
- You should now see "arihip.main" result in Topcat

*: http://www.star.bris.ac.uk/~mbt/topcat/



Share (host/container) data

As it is usually the case, we have data/resources in our host system we want to import/publish on Dachs inside the container. We can share directories with containers by bind/mounting so-called *volumes when we run the container*:

```
(host)$ docker run -it --name vespa21 -p 8080:8080 \
        -v /path/to/data/resourceX:/var/gavo/inputs/resourceX \
        gavodachs/dachs
```

➢ The whole serve/import workflow stays the same, but you're using the data from "resourceX" you have in your host system. If you modify anything *inside* "resourceX" it will be seen on both sides (host/container)!

Simplify container start/stop (1)

Docker containers start/stop can be simplified through the use of docker-compose.

For that, we need a `docker-compose.yml` file. You can find an example at:

- github.com/gavodachs/dachs-docker/dockerfiles/docker-compose.yml

```
version: '3'
services:
 dachs:
     container_name: vespa2021
     image: gavodachs/dachs:latest
     tty: true
     network_mode: 'bridge'
     ports:
       - 8080:8080
     volumes:
       - "/path/to/my/dachs/data/resources:/var/gavo/inputs"
```

Simplify container start/stop (2)

We can then start up our container:

```
(host)$ docker-compose up
```

Connect to the container:

```
(host)$ docker exec -it vespa2021 bash
```

Do all the same.