Install python package in docker file

Asked 6 years, 3 months ago Modified 1 year, 1 month ago Viewed 259k times

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In my docker file, I want to install med2image python package (https://github.com/FNNDSC/med2image). I use the following code:

```
FROM ubuntu:16.04
RUN apt-get update && apt-get install -y --no-install-recommends \
    python3.5 \
    python3-pip \
    && \
apt-get clean && \
rm -rf /var/lib/apt/lists/*
RUN pip install nibabel pydicom matplotlib pillow
RUN pip install med2image
```

But I get the following error when I want to build the image:

```
Downloading
https://files.pythonhosted.org/packages/6f/e5/948b023c7feb72adf7dfb26d90a13c838737
1.1.2.tar.gz
Complete output from command python setup.py egg_info:
Sorry, only Python 3.5+ is supported.

----------------------------------------
Command "python setup.py egg_info" failed with error code 1 in  /tmp/pip-
install-FnNb_S/med2image/
The command '/bin/sh -c pip install med2image' returned a non-zero code: 1
```

What should I do?!

python docker dockerfile

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edited Aug 1, 2023 at 2:46
user
1,242 ●1 ●13 ●31

asked May 14, 2018 at 15:09
Mehdi
1,266 ●1 ●18 ●28

1 Try adding the following to set python3 as default askubuntu.com/questions/320996/… (in particular the `update-alternatives` way) – Oleg Sklyar May 14, 2018 at 15:33

2 I would suggest to use that base image instead (`FROM python:3` aka `FROM python:3.6.5`) – ErikMD May 14, 2018 at 21:06

4 Answers

Sorted by: Highest score (default)

89

Recommended base image

As suggested in my comment, you could write a Dockerfile that looks like:

```
FROM python:3

RUN pip install --no-cache-dir --upgrade pip && \
    pip install --no-cache-dir nibabel pydicom matplotlib pillow med2image
    # Note: we had to merge the two "pip install" package lists here, otherwise
    # the last "pip install" command in the OP may break dependency resolution…

CMD ["cat", "/etc/os-release"]
```

And the command example above could confirm at runtime (`docker build --pull -t test . && docker run --rm -it test`) that this image is based on the GNU/Linux distribution "Debian stable".

Generic `Dockerfile` template

Finally to give a comprehensive answer, note that a good practice regarding Python dependencies consists in specifying them *in a declarative way* in a dedicated text file (in alphabetical order, to ease review and update) so that for your example, you may want to write the following file:

> `requirements.txt`

```
matplotlib
med2image
nibabel
pillow
pydicom
```

> and use the following generic `Dockerfile`

```
FROM python:3

WORKDIR /usr/src/app

COPY requirements.txt ./

RUN pip install --no-cache-dir --upgrade pip \
  && pip install --no-cache-dir -r requirements.txt

COPY . .
```

```
CMD ["python", "./your-daemon-or-script.py"]
```

To be more precise, this is the approach suggested in the documentation of the Docker official image `python`, §. *How to use this image*

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edited Sep 7, 2022 at 14:25

answered May 14, 2018 at 21:14
ErikMD
14.5k ● 3 ● 38 ● 73

When `RUN python -m pip install --upgrade pip` is used, then does it re-use the same layer or does it create new layer (so effectively use upgrade)? – variable May 14, 2020 at 11:15

1 (maybe `python -m pip install --upgrade pip` is unneeded, but) I confirm that the 2 commands concatenated with a `&&` (`RUN pip install --upgrade pip && pip install --no-cache-dir -r requirements.txt`) do create a single layer. See also the SO question Purpose of specifying several UNIX commands in a single RUN instruction in Dockerfile – ErikMD May 14, 2020 at 11:33

prefere a single `pip install` command or you might break dependency resolution – Gaetan Sep 6, 2022 at 9:17

@Gaetan I guess you talk about the `RUN` command, but can you be more specific? which exact command would you recommend? – ErikMD Sep 6, 2022 at 11:27

BTW AFAICT, `pip` and dependency resolution is not very robust: (independently of this Docker context) I often stumbled on a `pip install` command that went through successfully, unlike a subsequent `pip check` … – ErikMD Sep 6, 2022 at 11:28

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Some of the other answers/comments are suggesting to change your base image but if you want to keep your ubuntu 16.04 you can also simply specify your version of pip/python to use `pip3` or `pip3.5` like shown below.

```
FROM ubuntu:16.04

RUN apt-get update && apt-get install -y --no-install-recommends \
    python3.5 \
    python3-pip \
    && \
    apt-get clean && \
    rm -rf /var/lib/apt/lists/*

RUN pip3 install nibabel pydicom matplotlib pillow
RUN pip3 install med2image
```

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edited Sep 10, 2019 at 14:11
Tummala Dhanvi
3,310 ● 2 ● 22 ● 38

answered May 14, 2018 at 21:20
mgc
5,393 ● 1 ● 27 ● 38

1 Is it possible to make the image smaller? – Jinyu Wu Jan 23, 2020 at 22:56

5

Try pip3

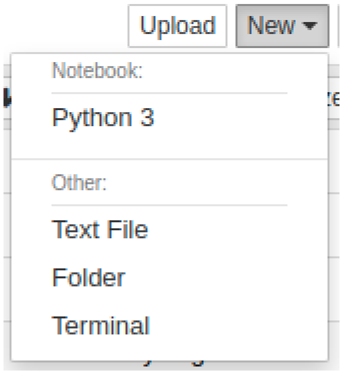
```
RUN pip3 install nibabel pydicom matplotlib pillow
RUN pip3 install med2image
```

Share Improve this answer Follow edited May 15, 2018 at 17:06 answered May 14, 2018 at 21:19

d g
1,604 ● 14 ● 13

2

If you have Jupyter Notebook in your docker container, you can install any python package by running a new Terminal in Jupyter by clicking the button shown here:



and running: `pip install <package-name>`

The package stays in the docker container even after you exit the container.

Share Improve this answer Follow edited Feb 14, 2021 at 10:44 answered Feb 8, 2021 at 18:12

Sayyor Y
1,240 ● 3 ● 15 ● 30