P1: What do you know about Docker Images Tags and what is the difference between them?

Ubuntu Recent Tags:

1)Devel

It's is used for :

A) Testing and Debugging

Docker images with a "devel" tag may include tags and configuration helpful for testing and debugging code.

B) Development Environment:

The "devel" tag might be used to create docker images tailored for development environments.
These images could include additional development tools, libraries and dependencies that are not present in standard production images.

2)Jammy

It's is used for :

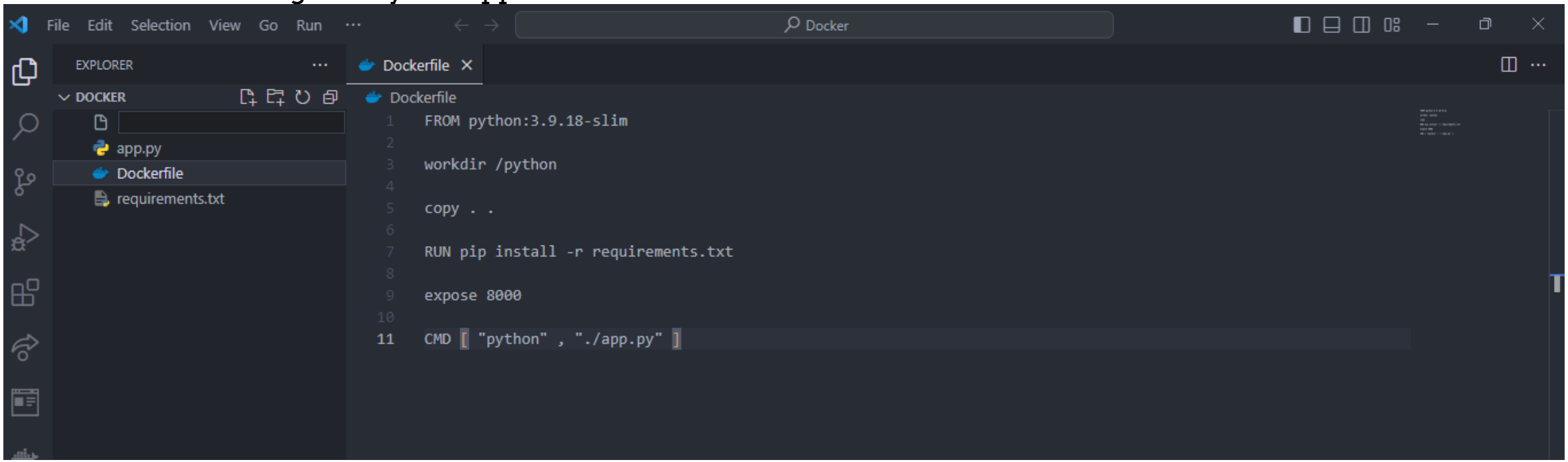
A)Source Documentation

If you obtained information about the "jammy" tag from a specific source or documentation, refer to that source for details on its purpose and usage.

B)Online Search

Conduct an online search using using terms like "Jammy" to see if there are any relevant discussion , documentation or announcements related to this specific tag.

P2: Create docker image for Python app



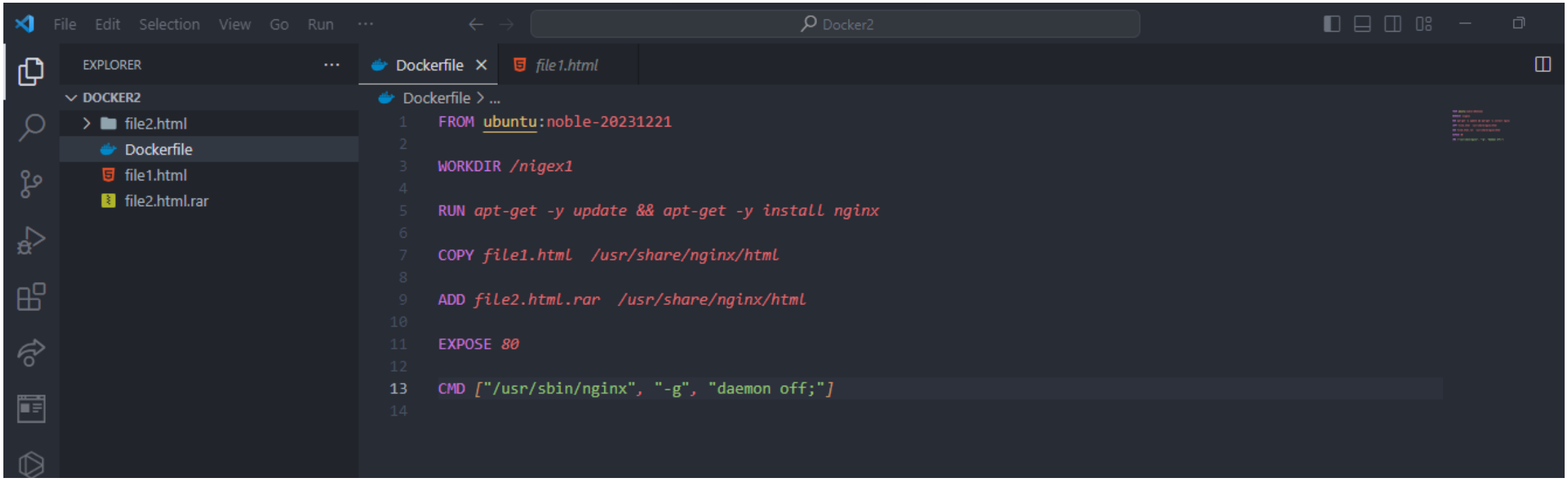
```
PS D:\Docker> docker build -t python:1.0 .
[+] Building 6.9s (9/9) FINISHED                                                                                docker:default
 => [internal] load build definition from Dockerfile                                                                     0.1s
 => => transferring dockerfile: 180B                                                                                     0.0s
 => [internal] load .dockerignore                                                                                        0.0s
 => => transferring context: 2B                                                                                          0.0s
 => [internal] load metadata for docker.io/library/python:3.9.18-slim                                                    0.0s
 => [1/4] FROM docker.io/library/python:3.9.18-slim                                                                      0.1s
 => [internal] load build context                                                                                        0.0s
 => => transferring context: 621B                                                                                        0.0s
 => [2/4] WORKDIR /python                                                                                                0.0s
 => [3/4] COPY . .                                                                                                       0.0s
 => [4/4] RUN pip install -r requirements.txt                                                                            6.5s
 => exporting to image                                                                                                   0.2s
 => => exporting layers                                                                                                  0.2s
 => => writing image sha256:3f6ee804a065edd8ece3c4852e4becd1ea50d687555ea28b2d5ad7d87ed7762e                             0.0s
 => => naming to docker.io/library/python:1.0                                                                            0.0s

View build details: docker-desktop://dashboard/build/default/default/qvpmq8v8g88jav762x82cy5qf

What's Next?
  View a summary of image vulnerabilities and recommendations → docker scout quickview
```

```
PS D:\Docker> docker image ls -a
REPOSITORY   TAG          IMAGE ID       CREATED         SIZE
python       1.0          3f6ee804a065   7 minutes ago   140MB
mynginx      latest       802f9c43f5d2   18 hours ago    187MB
mysql        latest       73246731c4b0   2 weeks ago     619MB
ubuntu       latest       174c8c134b2a   3 weeks ago     77.9MB
nginx        latest       d453dd892d93   2 months ago    187MB
python       3.9.18-slim  4fd8d6bf114c   2 months ago    126MB
PS D:\Docker>
```

P3: Create your own nginx docker image "NEVER USE FROM nginx"



```
PS D:\Docker2> docker build -t nginx:1.1 .
[+] Building 28.1s (10/10) FINISHED
 => [internal] load build definition from Dockerfile
 => => transferring dockerfile: 287B
 => [internal] load .dockerignore
 => => transferring context: 2B
 => [internal] load metadata for docker.io/library/ubuntu:noble-20231221
 => [internal] load build context
 => => transferring context: 62B
 => [1/5] FROM docker.io/library/ubuntu:noble-20231221@sha256:38d380071057443ebb6d65566c03a98eaec411e84e04e5e16cff49b1d6fdc9a0
 => CACHED [2/5] WORKDIR /nigex1
 => [3/5] RUN apt-get -y update && apt-get -y install nginx
 => [4/5] COPY file1.html  /usr/share/nginx/html
 => [5/5] ADD file2.html.rar  /usr/share/nginx/html
 => exporting to image
 => => exporting layers
 => => writing image sha256:e02593c6e074418c582d917fe491384c87fe717181045ccfd1a43b275bdcd515
 => => naming to docker.io/library/nginx:1.1

View build details: docker-desktop://dashboard/build/default/default/zend0unmoqeimx6ny29ug2o3n

What's Next?
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```

```
See 'docker run --help'.
PS D:\Docker2> docker run -d -p 80:80 --name nginx1 nginx:1.1
311def0e5fbf751739ae45bb19b873e572ead7325b0f04db32b094f847a17d6c
PS D:\Docker2>
```

```
PS D:\Docker2> docker image ls -a
REPOSITORY   TAG           IMAGE ID       CREATED          SIZE
nginx        1.1           e02593c6e074   5 minutes ago    121MB
```

P4: Create your bridge network, two containers from ubuntu image with different names and try to ping each other using NAME.

```
PS C:\Users\DELL> docker network create myNetwork2
3bd98eac9f5c24072f1eef1f920143a151df47d7d0ac71d1d4a025b397d6dd44
PS C:\Users\DELL> docker network connect myNetwork2 Cont1
```

```
PS C:\Users\DELL> docker network connect myNetwork2 container1
PS C:\Users\DELL> docker network connect myNetwork2 container2
```

```
PS C:\Users\DELL> docker network inspect myNetwork2
[
    {
        "Name": "myNetwork2",
        "Id": "3bd98eac9f5c24072f1eef1f920143a151df47d7d0ac71d1d4a025b397d6dd44",
        "Created": "2024-01-03T14:30:41.574398474Z",
        "Scope": "local",
        "Driver": "bridge",
        "EnableIPv6": false,
        "IPAM": {
            "Driver": "default",
            "Options": {},
            "Config": [
                {
                    "Subnet": "172.19.0.0/16",
                    "Gateway": "172.19.0.1"
                }
            ]
        },
        "Internal": false,
        "Attachable": false,
        "Ingress": false,
        "ConfigFrom": {
            "Network": ""
        },
        "ConfigOnly": false,
        "Containers": {
            "215e67c13a8b76b07d817eefa5b3e10fea123b0b2dd54981d4f1e781a69ee598": {
                "Name": "container1",
                "EndpointID": "24fd4e9f5492f2329597291055a4bf000b99b72b6c83c236c2f88f6bfd3c9afd",
                "MacAddress": "02:42:ac:13:00:02",
                "IPv4Address": "172.19.0.2/16",
```

```
PS C:\Users\DELL>  docker exec -ti container1 apt-get update
Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy InRelease [270 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Get:5 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [1572 kB]
Get:6 http://archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [266 kB]
Get:7 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1326 kB]
Get:8 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [44.0 kB]
Get:9 http://archive.ubuntu.com/ubuntu jammy/main amd64 Packages [1792 kB]
Get:10 http://archive.ubuntu.com/ubuntu jammy/restricted amd64 Packages [164 kB]
Get:11 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [1046 kB]
Get:12 http://archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [17.5 MB]
Get:13 http://archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [1602 kB]
Get:14 http://archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [49.8 kB]
Get:15 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1599 kB]
Get:16 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1305 kB]
Get:17 http://archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [28.1 kB]
Get:18 http://archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [50.4 kB]
Fetched 28.9 MB in 33s (879 kB/s)
Reading package lists... Done
```

```
PS C:\Users\DELL>  docker exec -ti container1 apt-get install -y iputils-ping
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libcap2-bin libpam-cap
The following NEW packages will be installed:
  iputils-ping libcap2-bin libpam-cap
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded.
Need to get 76.8 kB of archives.
After this operation, 280 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 libcap2-bin amd64 1:2.44-1ubuntu0.22.04.1 [26.0 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy/main amd64 iputils-ping amd64 3:20211215-1 [42.9 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 libpam-cap amd64 1:2.44-1ubuntu0.22.04.1 [7928 B]
Fetched 76.8 kB in 3s (26.1 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package libcap2-bin.
(Reading database ... 4393 files and directories currently installed.)
Preparing to unpack .../libcap2-bin_1%3a2.44-1ubuntu0.22.04.1_amd64.deb ...
Unpacking libcap2-bin (1:2.44-1ubuntu0.22.04.1) ...
Selecting previously unselected package iputils-ping.
Preparing to unpack .../iputils-ping_3%3a20211215-1_amd64.deb ...
Unpacking iputils-ping (3:20211215-1) ...
Selecting previously unselected package libpam-cap:amd64.
Preparing to unpack .../libpam-cap_1%3a2.44-1ubuntu0.22.04.1_amd64.deb ...
Unpacking libpam-cap:amd64 (1:2.44-1ubuntu0.22.04.1) ...
Setting up libcap2-bin (1:2.44-1ubuntu0.22.04.1) ...
Setting up libpam-cap:amd64 (1:2.44-1ubuntu0.22.04.1) ...
debconf: unable to initialize frontend: Dialog
debconf: (No usable dialog-like program is installed, so the dialog based frontend cannot be used. at /usr/share/perl5/Debconf/FrontEnd/Dialog.pm li
ne 78.)
debconf: falling back to frontend: Readline
debconf: unable to initialize frontend: Readline
```

```
PS C:\Users\DELL> docker exec -ti container1 ping container2
PING container2 (172.19.0.3) 56(84) bytes of data.
64 bytes from container2.myNetwork2 (172.19.0.3): icmp_seq=1 ttl=64 time=0.225 ms
64 bytes from container2.myNetwork2 (172.19.0.3): icmp_seq=2 ttl=64 time=0.054 ms
64 bytes from container2.myNetwork2 (172.19.0.3): icmp_seq=3 ttl=64 time=0.176 ms
64 bytes from container2.myNetwork2 (172.19.0.3): icmp_seq=4 ttl=64 time=0.075 ms
64 bytes from container2.myNetwork2 (172.19.0.3): icmp_seq=5 ttl=64 time=0.072 ms
^C
--- container2 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4085ms
rtt min/avg/max/mdev = 0.054/0.120/0.225/0.067 ms
PS C:\Users\DELL>  docker exec -ti container apt-get update
Error response from daemon: No such container: container
PS C:\Users\DELL>  docker exec -ti container2 apt-get update
Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy InRelease [270 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Get:5 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [1572 kB]
Get:6 http://archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [266 kB]
Get:7 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [44.0 kB]
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Get:11 http://archive.ubuntu.com/ubuntu jammy/restricted amd64 Packages [164 kB]
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Reading package lists... Done
```

```
PS C:\Users\DELL>  docker exec -ti container2 apt-get install -y iputils-ping
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libcap2-bin libpam-cap
The following NEW packages will be installed:
  iputils-ping libcap2-bin libpam-cap
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded.
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After this operation, 280 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 libcap2-bin amd64 1:2.44-1ubuntu0.22.04.1 [26.0 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy/main amd64 iputils-ping amd64 3:20211215-1 [42.9 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 libpam-cap amd64 1:2.44-1ubuntu0.22.04.1 [7928 B]
Fetched 76.8 kB in 1s (128 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package libcap2-bin.
(Reading database ... 4393 files and directories currently installed.)
Preparing to unpack .../libcap2-bin_1%3a2.44-1ubuntu0.22.04.1_amd64.deb ...
Unpacking libcap2-bin (1:2.44-1ubuntu0.22.04.1) ...
Selecting previously unselected package iputils-ping.
Preparing to unpack .../iputils-ping_3%3a20211215-1_amd64.deb ...
Unpacking iputils-ping (3:20211215-1) ...
Selecting previously unselected package libpam-cap:amd64.
Preparing to unpack .../libpam-cap_1%3a2.44-1ubuntu0.22.04.1_amd64.deb ...
Unpacking libpam-cap:amd64 (1:2.44-1ubuntu0.22.04.1) ...
Setting up libcap2-bin (1:2.44-1ubuntu0.22.04.1) ...
Setting up libpam-cap:amd64 (1:2.44-1ubuntu0.22.04.1) ...
debconf: unable to initialize frontend: Dialog
debconf: (No usable dialog-like program is installed, so the dialog based frontend cannot be used. at /usr/share/perl5/Debconf/FrontEnd/Dialog.pm li
ne 78.)
debconf: falling back to frontend: Readline
debconf: unable to initialize frontend: Readline
debconf: (Can't locate Term/ReadLine.pm in @INC (you may need to install the Term::ReadLine module) (@INC contains: /etc/perl /usr/local/lib/x86_64-
```

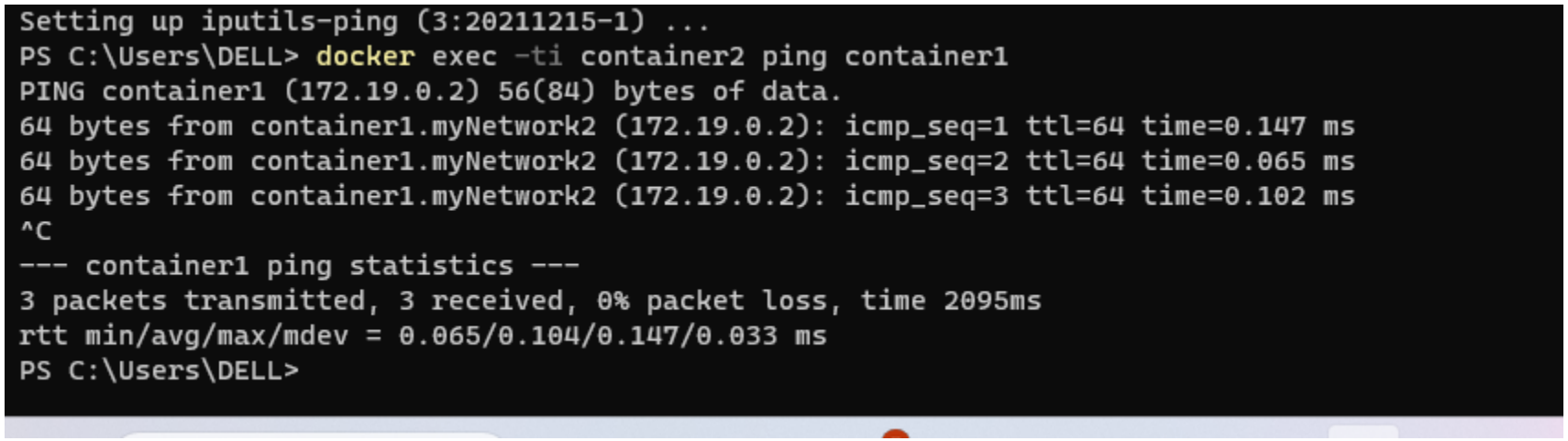
Setting up iputils-ping (3:20211215-1) ...
PS C:\Users\DELL> docker exec -ti container2 ping container1
PING container1 (172.19.0.2) 56(84) bytes of data.
64 bytes from container1.myNetwork2 (172.19.0.2): icmp_seq=1 ttl=64 time=0.147 ms
64 bytes from container1.myNetwork2 (172.19.0.2): icmp_seq=2 ttl=64 time=0.065 ms
64 bytes from container1.myNetwork2 (172.19.0.2): icmp_seq=3 ttl=64 time=0.102 ms
^C
--- container1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2095ms
rtt min/avg/max/mdev = 0.065/0.104/0.147/0.033 ms
PS C:\Users\DELL>