

# Dockers 101 – Series 4 of N – Using docker-setting up a redis container

PUBLISHED ON April 2, 2018 April 3, 2018 by Mohd Naeem

## ◦ Requirement:

- Lets imagine that as a DevOps, you have been asked to create a container to run redis, and try different docker commands to run redis in foreground, background, with specific port binding, with dynamic port binding, persisting data and logs from container to a volume on host

## ◦ Strategy:

- search the name of image on docker hub
- run the redis container in background as its a database and will take time to setup
- run redis in background
- run redis with specific port
- run redis with dynamic port
- run redis with volume persistence

## ◦ Solution:

- Login to your Host machine(in my case a CentOS 7 machine)
- Make a directory “TicTacToe” and go to the directory – **mkdir myredis && cd myredis**
- How to

- search for an image – **docker search <image-name>**

- e.g. **docker search redis**

```
[root@mnaeemsiddiqui3 user]# mkdir myredis && cd myredis
[root@mnaeemsiddiqui3 myredis]#
[root@mnaeemsiddiqui3 myredis]# docker search redis
```

NAME	DESCRIPTION	STARS	OFFICIAL	AUTOMATED
redis	Redis is an open source key-value store that...	4955	[OK]	
bitnami/redis	Bitnami Redis Docker Image	71		[OK]
sameersbn/redis		64		[OK]
tenstartups/redis-commander		32		[OK]
hyprriot/rpi-redis	Raspberry Pi compatible redis image	30		
kubeguide/redis-master	redis-master with "Hello World!"	19		
kubeguide/guestbook-redis-slave	Guestbook redis slave	16		
webhippie/redis	Docker images for redis	8		[OK]
arm32v7/redis	Redis is an open source key-value store that...	5		
rtoma/logspout-redis-logstash	Logspout including Redis adapter for sending...	5		
oliver006/redis_exporter	Prometheus Exporter for Redis Metrics. Supp...	3		
frodenas/redis	A Docker Image for Redis	2		[OK]
centos/redis-32-centos7	Redis in-memory data structure store, used a...	2		
rediscommander/redis-commander	Alpine image for redis-commander - Redis man...	2		[OK]
dynomitedb/redis	Redis backend for DynomiteDB.	2		[OK]
tomesar/redis-arm	Redis for ARM!	2		[OK]
google/guestbook-python-redis	A simple guestbook example written in Python...	1		
tiredofit/redis	Redis Server w/ Zabbix monitoring and S6 Ove...	1		[OK]
kilsoo75/redis-master	This image is for the redis master of SK Clo...	1		
vidazoo/marathon-redis-autoscale	autoscale worker tasks based on redis size	1		[OK]
brendangiblat/docker-logspout-redis	Docker Logspout container with Logspout-Redi...	0		[OK]
anchorfree/redis	redis cache server for logging	0		
sstarcher/fluents-redis-aws	https://github.com/sstarcher/docker-fluent-r...	0		[OK]
iadvize/redis		0		
ajmath/fluentsd-redis	Use fluentd logs to send docker logs to redi...	0		[OK]

```
[root@mnaeemsiddiqui3 myredis]#
```

- run an image

- in interactive mode – **docker run -it <image-name>**

- **docker run -it redis**

- switch “-it” is for interactive mode

- in background mode – **docker run -d <image-name>**

- **docker run -d redis**

- switch “-d” is for background mode

- check if container is running – **docker container ls** or **docker ps -a**

```
[root@mnaeemsiddiqui3 myredis]# docker run -d redis
Unable to find image 'redis:latest' locally
latest: Pulling from library/redis
b0568b191983: Already exists
6637dc5b29fe: Pull complete
7b4314315f15: Pull complete
2fd86759b5ff: Pull complete
0f04862b5a3b: Pull complete
2db0056aa977: Pull complete
Digest: sha256:6b9f935e89af002225c0dcdad1fd74245b4cc1e3e91222f7e4769c236cf80d4
Status: Downloaded newer image for redis:latest
a15268c9c0bed704c9cd128c70e54f31a76dc06afa457a9e919ea61bbb9b0e74
[root@mnaeemsiddiqui3 myredis]# ps -a
  PID TTY          TIME CMD
 1808 pts/0    00:00:00 sudo
 1812 pts/0    00:00:00 su
 1813 pts/0    00:00:00 bash
 2144 pts/0    00:00:00 ps
[root@mnaeemsiddiqui3 myredis]# docker container ls -a
CONTAINER ID        IMAGE               NAMES                  COMMAND                  CREATED             STATUS
PORTS              NAMES
a15268c9c0be        redis              "docker-entrypoint.s..." 45 seconds ago       Up 42 seconds
```

- check logs of a container – **docker logs <container-id>**
  - **docker logs a15268c9c0be # show full log**
  - **docker logs –tail 10 a15268c9c0be # show last 10 lines**
  - **docker logs -f a15268c9c0be # show continuous logs as it generates**
- To stop a container – **docker container stop a15268c9c0be**
- To start a container – **docker container start a15268c9c0be**
- To kill a container – **docker container kill a15268c9c0be**
- 

```
[root@mnaeemsiddiqui3 myredis]# docker container ls
CONTAINER ID        IMAGE               COMMAND                  CREATED             STATUS             PORTS              NAMES
a15268c9c0be        redis              "docker-entrypoint.s..." 8 minutes ago       Up 8 minutes       6379/tcp            objective_
thompson
e231437d3ac1        wordpress:latest    "docker-entrypoint.s..." 21 hours ago        Up 17 minutes      0.0.0.0:8000->80/tcp mywordpress
s_wordpress_1
50b64f85536d        mysql:5.7           "docker-entrypoint.s..." 21 hours ago        Up 17 minutes      3306/tcp            mywordpress
s_db_1
[root@mnaeemsiddiqui3 myredis]# docker logs a15268c9c0be
1:C 03 Apr 00:46:05.203 # o000o000o00o Redis is starting o000o000o00o
1:C 03 Apr 00:46:05.203 # Redis version=4.0.9, bits=64, commit=00000000, modified=0, pid=1, just started
1:C 03 Apr 00:46:05.203 # Warning: no config file specified, using the default config. In order to specify a config file use redis-server
/path/to/redis.conf
1:M 03 Apr 00:46:05.226 * Running mode=standalone, port=6379.
1:M 03 Apr 00:46:05.226 # WARNING: The TCP backlog setting of 511 cannot be enforced because /proc/sys/net/core/somaxconn is set to the lo
wer value of 128.
1:M 03 Apr 00:46:05.226 # Server initialized
1:M 03 Apr 00:46:05.226 # WARNING overcommit_memory is set to 0! Background save may fail under low memory condition. To fix this issue ad
d 'vm.overcommit_memory = 1' to /etc/sysctl.conf and then reboot or run the command 'sysctl vm.overcommit_memory=1' for this to take effec
t.
1:M 03 Apr 00:46:05.227 # WARNING you have Transparent Huge Pages (THP) support enabled in your kernel. This will create latency and memor
y usage issues with Redis. To fix this issue run the command 'echo never > /sys/kernel/mm/transparent_hugepage/enabled' as root, and add i
t to your /etc/rc.local in order to retain the setting after a reboot. Redis must be restarted after THP is disabled.
1:M 03 Apr 00:46:05.227 * Ready to accept connections
[root@mnaeemsiddiqui3 myredis]#
```

- to execute redis with a specific port with host container port forwarding( not a good practice because we are hard setting the port)
  - **docker run -d –name redisHostStaticPort -p 6379:6379 redis:latest**
- to execute redis with a dynamic host port with host container port forwarding( not a good practice because we are hard setting the port)
  - **docker run -d –name redisHostDynamicPort001 -p 6380 redis:latest**
  - But now you don't know which host port was assigned
  - so use command – **docker port redisHostDynamicPort001 6380**
    - the host port assigned was 32770
  - Now you can run another instance too
    - **docker run -d –name redisHostDynamicPort002 -p 6381 redis:latest**
    - **docker port redisHostDynamicPort002 6381**
      - now another port was assigned 32551
  - Now you can see that you are running two instances of redis. See snapshot below.

```
[root@mnaeemsiddiqui3 myredis]# docker run -d --name redisDynamicPort001 -p 6380 redis:latest
dc78e654f668019237070b905f5eb62eb229f541fa6282c229190017dc7d0b1f
[root@mnaeemsiddiqui3 myredis]# docker port redisDynamicPort001 6380
0.0.0.0:32770
[root@mnaeemsiddiqui3 myredis]#
[root@mnaeemsiddiqui3 myredis]# docker run -d --name redisDynamicPort002 -p 6381 redis:latest
4db9d724f4a51cf7a083a2f40e2326615f8e97136b9c0a75b6d3be6e00e43f9b
[root@mnaeemsiddiqui3 myredis]# docker port redisDynamicPort002 6381
0.0.0.0:32771
[root@mnaeemsiddiqui3 myredis]#
```

- 
- Now to persist the data each time the redis restart we have to define the volumes
  - volumes help you persist the data from container to the host
  - we can use switch **-v <host-dir>:<container-dir>**
  - e.g. **docker run -d --name redisHostDynamicPort003 -p 6389 -v "\$PWD/data":/data redis:latest**
  - \$PWD is to get present working directory
  - \$PWD/data means the data folder in current directory of host
  - /data means the /data folder of redis container where logs will be stored
  - **-v "\$PWD/data":/data** means defining an attaching a volume forwarding from container folder /data to the host folder data

```
[root@mnaeemsiddiqui3 myredis]# docker run -d --name redisHostDynamicPort003 -p 6389 -v "$PWD/data":/data redis:latest
ae2953eaf99e5be285fecf0ee1171bf2e5e57887f264f3f87cf983193453a9a9
[root@mnaeemsiddiqui3 myredis]# docker port redisDynamicPort003 6389
Error: No such container: redisDynamicPort003
[root@mnaeemsiddiqui3 myredis]# docker port redisHostDynamicPort003 6389
0.0.0.0:32772
[root@mnaeemsiddiqui3 myredis]# ls ~/data
ls: cannot access /root/data: No such file or directory
[root@mnaeemsiddiqui3 myredis]# ls data
data
[root@mnaeemsiddiqui3 myredis]#
```

- 
- check or inspect a container
  - it provides the meta data about the container
  - **docker inspect <containerid-or-name>**
  - e.g. **docker inspect redis**
  - **docker inspect --format "{{RepoTags}}" redis** # searches lines in the inspect JSON



