

Docker learnings

Learnings from using Docker after 3 years of usage

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This talk is not about Kubernetes or Docker Swarm

- You shouldn't run your container as root
 - Create user in Dockerfile
 - Take care about **uid**, map to an existing uid on the host if needed

- Give only the privileges you really need

- [Docker documentation](#)

`docker run -d --cap-drop CHOWN alpine`

- Using **tmpfs** for sensitive data which shouldn't be saved outside of the container

```
--tmpfs /tmp/${CONTAINER_NAME}:uid=1000,gid=1000
```

- Use multistage builds
- Use build cache (copy package.json and yarn.lock in an extra step before yarn install)
- Remove dev node_modules before copy

Maintaining - Cleanup up your Docker with prune

- Remove dangling images with **docker image prune**
- Remove stopped containers with **docker container prune**
- Same for network and volume or all in once with **docker system prune**
- Autoremove a container after it's stopped with **docker -rm...**

Keep an eye on your logfiles

How to grep the logs

```
docker logs {container} | grep {term}
```

This might will not work as expected

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This might will not work as expected

```
docker logs {container} 2>&1 | grep {term} | less
```

The reason why it's not working in the way you would expect is, that docker is not logging always to stdout. Instead it's logging the stderr. So you have to redirect stderr to stdout before your can pipe it to grep.

Take care about the size of your Docker log files

- When using JSON File logging driver (which is the default)
 - Using `/etc/docker/daemon.json`

```
{  
  "log-driver": "json-file",  
  "log-opts": {  
    "max-size": "10m",  
    "max-file": "3"  
  }  
}
```

- Or using commandline option

```
docker run --rm -it --log-opt max-size=10m alpine
```

- See also

To delete all log files, you can use the following command

```
find /var/lib/docker/containers/  
-type f -name "*.log" -delete
```

More tips - Using a UI in the browser
or terminal

Use portainer locally without a password

```
alias portainer="docker run --rm -d  
-p 9000:9000  
--name=portainer  
-v /var/run/docker.sock:/var/run/docker.sock  
portainer/portainer --no-auth"
```

Hint: call it in an anonymus browser session

Use sen as terminal ui to inspect the layers of your images

```
alias sen="docker run --rm --name=sen  
-v /var/run/docker.sock:/run/docker.sock  
-ti -e TERM tomastomecek/sen"
```

```
scratch  
→ fa5be2806d4c /bin/sh -c #(nop) MAINTAINER The CentOS Project <cloud-ops@centos.org>  
↳ 2bf4902415e3 /bin/sh -c #(nop) ADD file:c0989f72baa665000706f3a870a88fb4075ac62b77d79b148f7  
↳ 86bcb57631bd /bin/sh -c #(nop) LABEL name=CentOS Base Image vendor=CentOS license=GPLv2 l  
↳ c8a648134623 /bin/sh -c #(nop) CMD ["/bin/bash"]  
↳ 979d3e7d4dc7 /bin/sh -c #(nop) MAINTAINER Pavel Raiskup <praiskup@redhat.com>  
↳ d41e6e6bdfd8 /bin/sh -c #(nop) ENV container=docker  
↳ 235218c0d071 /bin/sh -c #(nop) LABEL INSTALL=docker run -t -i --rm --privileged :  
↳ 3f8341e3ed1b /bin/sh -c yum -y install postgresql-server && yum -y reinsta  
↳ 51ce5a01237d /bin/sh -c #(nop) ADD dir:1543912f127caa2263603d5f3ff11fdddddfe4  
↳ 1efd5268689e /bin/sh -c systemctl disable getty.service console-getty.serv  
↳ 9efdb56ef4ec /bin/sh -c #(nop) VOLUME [/var/lib/pgsql/data]  
↳ 9100f952927c /bin/sh -c #(nop) EXPOSE 5432/tcp  
↳ 578145a76f11 /bin/sh -c #(nop) USER [postgres]  
↳ 55c64acbaef1 /bin/sh -c #(nop) ENTRYPOINT &{["/usr/bin/container-e  
↳ 9e6c06b57ed7 docker.io/praiskup/postgresql:latest /bin/sh -c #(nop)  
→ 6888fc827a3f /bin/sh -c #(nop) MAINTAINER Patrick Uiterwijk <puiterwijk@gmail.com>  
↳ 9bdb5101e5fc docker.io/fedora:23 /bin/sh -c #(nop) ADD file:bc5e5cddd4c4d1cac6f05788cf50  
→ 95612a3264fc  
↳ c23bf6e72b30 docker.io/rhel7/rsyslog:latest  
↳ ba3ffbc337ab docker.io/rhel7/sadcc:latest  
#0 [MJ Listing #1 LT
```

Use ctop for monitoring your local containers

- github ctop

cTop - 10:04:15 AEDT 20 containers						
NAME	CID	CPU	MEM	NET RX/TX		
ultimate_jennifer	9eb1e9a6cb91	45%	136M / 2G	1K / 2K		
luminous_lady	cf754eb3aa09	42%	134M / 2G	2K / 1K		
top_notch	7b5fd634a980	36%	164M / 2G	2K / 2K		
neat_roulette	0677c5437698	20%	59M / 2G	667B / 698B		
exquisite_jackpot	72372078a320	16%	65M / 2G	786B / 780B		
ace_void	292db4fa7c5c	15%	59M / 2G	753B / 706B		
neat_multiple	5fbe5928be03	13%	51M / 2G	1020B / 800B		
peachy_sakura	70bd0664ff8c	12%	53M / 2G	710B / 749B		
legendary_korath	23a40fbbalcb	11%	58M / 2G	792B / 854B		
astounding_nikita	93de62c2b03f	-	-	-		
cats_pajamas	ec19826bd862	-	-	-		
fantabulous_titane...	8e23ebb7e05f	-	-	-		
grand_bebop	c3a231ea8f49	-	-	-		
impressive_sentine...	e154df51f8e6	-	-	-		

You won't need to be sudo always

To prevent to make all Docker related operations with the root user, add yourself to the Docker group

```
sudo usermod -a -G docker $(whoami)
```

Thank you!