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Sistem Terdistribusi A

Compile Docker Dasar

## 1. Melihat Docker Image

```
Terminal
runc:
  Version:      1.1.13
  GitCommit:    v1.1.13-0-g58aa920
docker-init:
  Version:      0.19.0
  GitCommit:    de40ad0
PS C:\Users\alpia> docker image ls
REPOSITORY          TAG          IMAGE ID      CREATED        SIZE
getting-started     latest      c45e3d174ab7  43 minutes ago 471MB
started             latest      6b68fdcedde2  About an hour ago 471MB
docker/getting-started latest      3e4394f6b72f  21 months ago 47MB
PS C:\Users\alpia>
```

## 2. Download Docker Image

```
PS C:\Users\alpia> docker image pull redis:latest
latest: Pulling from library/redis
302e3ee49805: Pull complete
5d0249d9189d: Pull complete
4825c5e95815: Pull complete
b0ce50685fa2: Pull complete
455886c7d31b: Pull complete
96377887d476: Pull complete
4f4fb700ef54: Pull complete
5fac73c23c9b: Pull complete
Digest: sha256:6725a7dc7a44a6486b9d0a5172b10ccaf0c2ea600df87c0b93450d0e7769297f
Status: Downloaded newer image for redis:latest
docker.io/library/redis:latest
PS C:\Users\alpia>
```

### 3. Menghapus Docker Image

```
PS C:\Users\alpia> docker image ls
REPOSITORY          TAG         IMAGE ID      CREATED        SIZE
getting-started     latest     c45e3d174ab7  About an hour ago  471MB
started             latest     6b68fdcedde2  2 hours ago    471MB
redis               latest     7e49ed81b42b  2 months ago   117MB
docker/getting-started latest     3e4394f6b72f  21 months ago   47MB
PS C:\Users\alpia> docker image rm started:latest
Untagged: started:latest
Deleted: sha256:6b68fdcedde2f0b3391acd707b9cd33deac34e93922bb4d8a0c390cf87a716c1
PS C:\Users\alpia> docker image ls
REPOSITORY          TAG         IMAGE ID      CREATED        SIZE
getting-started     latest     c45e3d174ab7  About an hour ago  471MB
redis               latest     7e49ed81b42b  2 months ago   117MB
docker/getting-started latest     3e4394f6b72f  21 months ago   47MB
PS C:\Users\alpia>
```

### 4. Melihat Container

```
PS C:\Users\alpia> docker container ls -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS              PORTS          NAMES
c73007f24857   getting-started "docker-entrypoint.s..." About an hour ago Exited (0) About an hour ago          lucid_newton
172891513ded   docker/getting-started "/docker-entrypoint..." 2 hours ago    Exited (0) 2 hours ago          xenodochial_shaw
PS C:\Users\alpia> docker container ls
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS          NAMES
PS C:\Users\alpia>
```

### 5. Membuat Container

```
PS C:\Users\alpia> docker container create --name contohredis redis:latest
f05d661f3873bf774f8ae89fd8de92007d032e0ff8ce5a41e918d3efe5c99667
PS C:\Users\alpia> docker container ls -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS              PORTS          NAMES
f05d661f3873   redis:latest   "docker-entrypoint.s..." 20 seconds ago Created             contohredis
c73007f24857   getting-started "docker-entrypoint.s..." About an hour ago Exited (0) About an hour ago          lucid_newton
172891513ded   docker/getting-started "/docker-entrypoint..." 2 hours ago    Exited (0) 2 hours ago          xenodochial_shaw
PS C:\Users\alpia>
```

### 6. Menjalankan Container

```
Terminal
PS C:\Users\alpia> docker container start contohredis
contohredis
PS C:\Users\alpia> docker container ls
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS              PORTS          NAMES
f05d661f3873   redis:latest   "docker-entrypoint.s..." 3 minutes ago  Up 6 seconds       6379/tcp      contohredis
PS C:\Users\alpia>
```

## 7. Menghentikan Container

```
PS C:\Users\alpia> docker container stop contohredis  
contohredis
```

```
PS C:\Users\alpia> docker container ls -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
f05d661f3873	redis:latest	"docker-entrypoint.s..."	7 minutes ago	Exited (0) 25 seconds ago		contohredis
c73007f24857	getting-started	"docker-entrypoint.s..."	2 hours ago	Exited (0) About an hour ago		lucid_newton
172891513ded	docker/getting-started	"/docker-entrypoint..."	3 hours ago	Exited (0) 2 hours ago		xenodochial_shaw

```
PS C:\Users\alpia>
```

## 8. Menghapus Container

```
PS C:\Users\alpia> docker container rm contohredis  
contohredis
```

```
PS C:\Users\alpia> docker container ls -a
```

```
CONTAINER ID    IMAGE           COMMAND                  CREATED        STATUS              PORTS          NAMES
c73007f24857    getting-started "docker-entrypoint.s..." 2 hours ago    Exited (0) 2 hours ago                lucid_newton
172891513ded    docker/getting-started "/docker-entrypoint..." 3 hours ago    Exited (0) 2 hours ago                xenodochial_shaw
PS C:\Users\alpia>
```

## 9. Melihat Container Log

```
d43ac915a44fb2fc269d1d47664b1890423e5b1aaeee75f9b031b5be9e5a6388
PS C:\Users\alpia> docker container start contohredis  
contohredis
PS C:\Users\alpia> docker container logs contohredis
1:C 29 Sep 2024 03:42:06.113 * o000o000o000o Redis is starting o000o000o000o
1:C 29 Sep 2024 03:42:06.113 * Redis version=7.4.0, bits=64, commit=00000000, modified=0, pid=1, just started
1:C 29 Sep 2024 03:42:06.113 # 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 29 Sep 2024 03:42:06.114 * monotonic clock: POSIX clock_gettime
1:M 29 Sep 2024 03:42:06.115 * Running mode=standalone, port=6379.
1:M 29 Sep 2024 03:42:06.116 * Server initialized
1:M 29 Sep 2024 03:42:06.116 * Ready to accept connections tcp
PS C:\Users\alpia>
```

## 10. Masuk ke Container (Container Exec)

```
PS C:\Users\alpia> docker container exec -i -t contohredis /bin/bash
root@d43ac915a44f:/data# redis cli
bash: redis: command not found
root@d43ac915a44f:/data# redis-cli
127.0.0.1:6379> set hello "World"
OK
127.0.0.1:6379> get hello
"World"
127.0.0.1:6379>
```

## 11. Melakukan Port Forwarding

```
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest
PS C:\Users\alpia> docker container create --name contohnhngx --publish 8080:80 nginx:latest
31448286430d276fb1921a740a444718347545b447477e6cd152844b65b92856
PS C:\Users\alpia> docker container start contohnhngx
contohnhngx
PS C:\Users\alpia> docker container ls
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
31448286430d   nginx:latest  "/docker-entrypoint.s..." About a minute ago Up 35 seconds  0.0.0.0:8080->80/tcp               contohnhngx
d43ac915a44f   redis:latest  "docker-entrypoint.s..." 26 minutes ago Up 25 minutes  6379/tcp                           contohredis
PS C:\Users\alpia>
```

## 12. Menambah Environment Variable

```
Digest: sha256:a3d0dec40b95df592c7e7eef603019ba03b164998c3b394739e0dd4cd45d490d
Status: Downloaded newer image for mongo:latest
docker.io/library/mongo:latest
PS C:\Users\alpia> docker container create --name contohmongo --publish 27017:27017 --env MONGO_INITDB_ROOT_USERNAME=alptan --env MONGO_INITDB_ROOT_PASSWORD=alptan mongo:latest
9e3d403dc3b9a4dc25fb93aea16bab67132219a3a4b4ae8d3b254f22da6a5756
PS C:\Users\alpia> docker container ls -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
9e3d403dc3b9   mongo:latest  "docker-entrypoint.s..." 23 seconds ago Created                               contohmongo
31448286430d   nginx:latest  "/docker-entrypoint.s..." 23 minutes ago Up 23 minutes  0.0.0.0:8080->80/tcp               contohnhngx
d43ac915a44f   redis:latest  "docker-entrypoint.s..." 48 minutes ago Up 48 minutes  6379/tcp                           contohredis
PS C:\Users\alpia>
```

## 13. Container Stats

Terminal							
CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
9e3d403dc3b9	contohmongo	1.15%	191.3MiB / 7.439GiB	2.51%	746B / 0B	0B / 0B	43
31448286430d	contohnhngx	0.00%	10.14MiB / 7.439GiB	0.13%	3.01kB / 2.42kB	0B / 0B	13
d43ac915a44f	contohredis	0.51%	8.137MiB / 7.439GiB	0.11%	1.13kB / 0B	0B / 0B	6

## 14. Menambah Resource Limit

```
PS C:\Users\alpia> docker container create --name smallngx --publish 8081:80 --memory 100m --cpus 0.5 nginx:latest
fd8c611c0502de5a6549cdfdf497f9378ed37b46332211ca211bbd8add8f8a65d
PS C:\Users\alpia> docker container start smallngx
smallngx
PS C:\Users\alpia> docker container ls
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS                               NAMES
fd8c611c0502   nginx:latest  "/docker-entrypoint.s..." 39 seconds ago Up 18 seconds  0.0.0.0:8081->80/tcp               smallngx
9e3d403dc3b9   mongo:latest  "docker-entrypoint.s..." 14 minutes ago Up 8 minutes  0.0.0.0:27017->27017/tcp           contohmongo
31448286430d   nginx:latest  "/docker-entrypoint.s..." 37 minutes ago Up 36 minutes  0.0.0.0:8080->80/tcp               contohnhngx
d43ac915a44f   redis:latest  "docker-entrypoint.s..." About an hour ago Up About an hour  6379/tcp                           contohredis
PS C:\Users\alpia>
```

## 15. Container Stats 2

Terminal							
CONTAINER ID	NAME	CPU %	MEM USAGE / LIMIT	MEM %	NET I/O	BLOCK I/O	PIDS
fd8c611c0502	smallngx	0.00%	11.04MiB / 100MiB	11.04%	746B / 0B	0B / 0B	13
9e3d403dc3b9	contohmongo	0.74%	106MiB / 7.439GiB	1.39%	2.88kB / 990B	0B / 0B	43
31448286430d	contohnhngx	0.00%	10.23MiB / 7.439GiB	0.13%	4.64kB / 3.33kB	0B / 0B	13
d43ac915a44f	contohredis	0.44%	8.492MiB / 7.439GiB	0.11%	1.32kB / 0B	0B / 0B	6

## 16. Melakukan Mounting

```
PS C:\Users\alpia> docker container create --name mongodata --mount "type=bind,source=C:\Users\alpia\,destination=/data/db" --publish 27018:27017 --env MONGO_INITDB_ROOT_USERNAME=alpian --env MONGO_INITDB_ROOT_PASSWORD=alpian mongo:latest 41304e51871ad357e4c54e73aa564177fe50f9058b8338707666fca1a78ca74a1
```

```
PS C:\Users\alpia> docker container start mongodata
```

```
mongodata
```

```
PS C:\Users\alpia> docker container ls
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
41304e51871a	mongo:latest	"docker-entrypoint.s..."	About a minute ago	Up 8 seconds	0.0.0.0:27018->27017/tcp	mongodata
fd8c611c0502	nginx:latest	"/docker-entrypoint..."	17 minutes ago	Up 17 minutes	0.0.0.0:8081->80/tcp	smallnginx
9e3d403dc3b9	mongo:latest	"docker-entrypoint.s..."	31 minutes ago	Up 25 minutes	0.0.0.0:27017->27017/tcp	contohmongo
31448286430d	nginx:latest	"docker-entrypoint..."	54 minutes ago	Up 53 minutes	0.0.0.0:8080->80/tcp	contohnginx
d43ac915a44f	redis:latest	"docker-entrypoint.s..."	About an hour ago	Up About an hour	6379/tcp	contohredis

```
PS C:\Users\alpia>
```

## 17. Melihat Volume

```
PS C:\Users\alpia> docker volume ls
```

DRIVER	VOLUME NAME
local	00daeb51d626bde381a492f82b27e4ddbfbbae60368460082ed8c032cdbe500ea
local	6ee8c93b01b4656b76632a80abbbcc1111146a957b56b8f91fa8bcb200fab1a
local	696e405ce85e2f49a2793c5ab9c43b3d4d7523c716e91198c9f65f7690294c0b
local	859594885fb12797e5041eba6882fe2315dffc7907257e2aad3950d988eb2e6c
local	c9c3f93cffc992465354c91e393ab37f1efaffd650b7dc9c4d35ddc28d68c4f8

```
PS C:\Users\alpia>
```

## 18. Membuat Volume

```
PS C:\Users\alpia> docker volume create mongovolume
```

```
mongovolume
```

```
PS C:\Users\alpia> docker volume ls
```

DRIVER	VOLUME NAME
local	00daeb51d626bde381a492f82b27e4ddbfbbae60368460082ed8c032cdbe500ea
local	6ee8c93b01b4656b76632a80abbbcc1111146a957b56b8f91fa8bcb200fab1a
local	696e405ce85e2f49a2793c5ab9c43b3d4d7523c716e91198c9f65f7690294c0b
local	859594885fb12797e5041eba6882fe2315dffc7907257e2aad3950d988eb2e6c
local	c9c3f93cffc992465354c91e393ab37f1efaffd650b7dc9c4d35ddc28d68c4f8
local	mongovolume

```
PS C:\Users\alpia>
```

## 19. Menghapus Volume

```
PS C:\Users\alpia> docker volume rm mongovolume
```

```
mongovolume
```

```
PS C:\Users\alpia> docker volume ls
```

DRIVER	VOLUME NAME
local	00daeb51d626bde381a492f82b27e4ddbfbbae60368460082ed8c032cdbe500ea
local	6ee8c93b01b4656b76632a80abbbcc1111146a957b56b8f91fa8bcb200fab1a
local	696e405ce85e2f49a2793c5ab9c43b3d4d7523c716e91198c9f65f7690294c0b
local	859594885fb12797e5041eba6882fe2315dffc7907257e2aad3950d988eb2e6c
local	c9c3f93cffc992465354c91e393ab37f1efaffd650b7dc9c4d35ddc28d68c4f8

```
PS C:\Users\alpia>
```

## 20. Container Volume

```
PS C:\Users\alpia> docker container create --name mongovolume --publish 27019:27017 --mount "type=volume,source=mongodata,destination=/data/db"
RNAME=alpia --env MONGO_INITDB_ROOT_PASSWORD=alpia mongo:latest
257c9f9761ec3c19e7a45136f088003bc279679101aa794ce373199163284178
PS C:\Users\alpia> docker container ls -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
257c9f9761ec   mongo:latest   "docker-entrypoint.s..." About a minute ago Created                               mongovolume
41304e51871a   mongo:latest   "docker-entrypoint.s..." 54 minutes ago Up 53 minutes 0.0.0.0:27018->27017/tcp            mongodata
fd8c611c0502   nginx:latest   "/docker-entrypoint..." About an hour ago Up About an hour 0.0.0.0:8081->80/tcp                smallnginx
9e3d403dc3b9   mongo:latest   "docker-entrypoint.s..." About an hour ago Up About an hour 0.0.0.0:27017->27017/tcp            contohmongo
31448286430d   nginx:latest   "/docker-entrypoint..." 2 hours ago    Up 2 hours    0.0.0.0:8080->80/tcp                contohnginx
d43ac915a44f   redis:latest   "docker-entrypoint.s..." 2 hours ago    Up 2 hours    6379/tcp                           contohredis
PS C:\Users\alpia> docker container start mongovolume
mongovolume
PS C:\Users\alpia>
```

## 21. Membuat Backup Container

```
PS C:\Users\alpia> docker container create --name nginxbackup --mount "type=bind,source=C:\Users\alpia\backup,destination=/backup" --mount "type=volume,source=mongodata,destination=/data" nginx:latest
1ec2f40a7dc5918a174520461dfad7fcf862ac5a1cfffdf2c20dd4a6098ec4caf
PS C:\Users\alpia> docker container start nginxbackup
nginxbackup
PS C:\Users\alpia> docker container exec -i -t nginxbackup /bin/bash
```

```
total 0
root@1ec2f40a7dc5:/backup# tar cvf /backup/backup.tar.gz /data
tar: Removing leading '/' from member names
/data/
/data/WiredTiger.wt
/data/WiredTiger
/data/collection-2-3799556669395963948.wt
/data/collection-7-3799556669395963948.wt
/data/index-6-3799556669395963948.wt
/data/index-8-3799556669395963948.wt
/data/diagnostic.data/
/data/diagnostic.data/metrics.2024-09-29T05-55-20Z-00000
/data/diagnostic.data/metrics.2024-09-29T05-55-28Z-00000
```

## 22. Backup Dengan Container Run

```
PS C:\Users\alpia> docker container run --rm --name ubuntubackup --mount "type=bind,source=C:\Users\alpia\backup,destination=/backup" --mount "type=volume,source=mongodata,destination=/data" ubuntu:latest tar cvf /backup/backup-lagi.tar.gz /data
tar: Removing leading '/' from member names
/data/
/data/WiredTiger.wt
/data/WiredTiger
/data/collection-2-3799556669395963948.wt
/data/collection-7-3799556669395963948.wt
/data/index-6-3799556669395963948.wt
/data/index-8-3799556669395963948.wt
/data/diagnostic.data/
/data/diagnostic.data/metrics.2024-09-29T05-55-20Z-00000
/data/diagnostic.data/metrics.2024-09-29T07-05-20Z-00000
/data/diagnostic.data/metrics.2024-09-29T05-55-28Z-00000
/data/collection-4-3799556669395963948.wt
```

## 23. Restore Backup

```
PS C:\Users\alpia> docker volume create mongodatabackup
mongodatabackup
PS C:\Users\alpia> docker container run --rm --name ubuntu --mount "type=bind,source=C:\Users\alpia\backup,destination=/backup" --mount "type=volume,source=mongodatabackup,destination=/data" ubuntu:latest bash -c "cd /data && tar xvf /backup/backup.tar.gz --strip1"
tar: unrecognized option '--strip1'
Try 'tar --help' or 'tar --usage' for more information.
PS C:\Users\alpia> docker container run --rm --name ubuntu --mount "type=bind,source=C:\Users\alpia\backup,destination=/backup" --mount "type=volume,source=mongodatabackup,destination=/data" ubuntu:latest bash -c "cd /data && tar xvf /backup/backup.tar.gz --strip 1"
data/WiredTiger.wt
data/WiredTiger
data/collection-2-3799556669395963948.wt
data/collection-7-3799556669395963948.wt
data/index-6-3799556669395963948.wt
data/index-8-3799556669395963948.wt
```

## 24. Melihat Network

```
PS C:\Users\alpia> docker network ls
NETWORK ID          NAME                DRIVER              SCOPE
d38d2601e753        bridge             bridge             local
f638bb146d23        host               host               local
2983ba2b15fd        none              null               local
PS C:\Users\alpia>
```

## 25. Membuat Network

```
PS C:\Users\alpia> docker network create --driver bridge contohnetwork
a89d7dfbc4da8c4aa8ad624bd754c2d837f462485c5c14b475377f8328b6b764
PS C:\Users\alpia> docker network ls
NETWORK ID          NAME                DRIVER              SCOPE
d38d2601e753        bridge             bridge             local
a89d7dfbc4da        contohnetwork      bridge             local
f638bb146d23        host               host               local
2983ba2b15fd        none              null               local
PS C:\Users\alpia>
```

## 26. Menghapus Network

```
PS C:\Users\alpia> docker network rm contohnetwork
contohnetwork
PS C:\Users\alpia> docker network ls
NETWORK ID          NAME                DRIVER              SCOPE
d38d2601e753        bridge             bridge             local
f638bb146d23        host               host               local
2983ba2b15fd        none              null               local
PS C:\Users\alpia>
```

## 27. Membuat Container Dengan Network

```
PS C:\Users\alpia> docker container create --name mongodbexpress --network mongonetwork --publish 8081:8081 --env ME_CONFIG_MONGODB_URL="mongodb://alpia:alpia@mongodb:27017/" mongo-express:latest
95384dbfa5c2ea4cd6bc6af7640de5740f1ac5ce55baa7adc5cd3f0cfec7c61c
PS C:\Users\alpia> docker container start mongob
Error response from daemon: No such container: mongob
Error: failed to start containers: mongob
PS C:\Users\alpia> docker container start mongodb
mongodb
PS C:\Users\alpia> docker container start mongodbexpress
mongodbexpress
PS C:\Users\alpia>
```

## 28. Menghapus Container dari Network

```
PS C:\Users\alpia> docker network disconnect mongonetwork mongodb
PS C:\Users\alpia>
```

## 29. Menambahkan Container ke Network

### Terminal

```
PS C:\Users\alpia> docker network connect mongonetwork mongodb
PS C:\Users\alpia> █
```



## 30. Menggunakan Inspect

```
PS C:\Users\alpia> docker image inspect redis:latest
[
  {
    "Id": "sha256:7e49ed81b42baf75651be228e537c5495ab66cf1633f89a3703fdfe5d2df779a",
    "RepoTags": [
      "redis:latest"
    ],
    "RepoDigests": [
      "redis@sha256:6725a7dc7a44a6486b9d0a5172b10ccaf0c2ea600df87c0b93450d0e7769297f"
    ],
    "Parent": "",
    "Comment": "buildkit.dockerfile.v0",
    "Created": "2024-07-29T07:59:06Z",
    "DockerVersion": "",
    "Author": "",
    "Config": {
      "Hostname": "",
      "Domainname": "",
      "User": "",
      "AttachStdin": false,
      "AttachStdout": false,
      "AttachStderr": false,
      "ExposedPorts": {
        "6379/tcp": {}
      }
    }
  }
]
```

## 31. Menggunakan Prune

```
PS C:\Users\alpia> docker image prune
WARNING! This will remove all dangling images.
Are you sure you want to continue? [y/N] y
Total reclaimed space: 0B
PS C:\Users\alpia> docker network prune
WARNING! This will remove all custom networks not used by at least one container.
Are you sure you want to continue? [y/N] y
PS C:\Users\alpia> docker volume prune
WARNING! This will remove anonymous local volumes not used by at least one container.
Are you sure you want to continue? [y/N] y
Deleted Volumes:
696e405ce85e2f49a2793c5ab9c43b3d4d7523c716e91198c9f65f7690294c0b

Total reclaimed space: 88B
PS C:\Users\alpia> █
```