

```
[node1] (local) root@192.168.0.67 ~
```

```
$ docker network
```

```
Usage:  docker network COMMAND
```

```
Manage networks
```

```
Commands:
```

connect	Connect a container to a network
create	Create a network
disconnect	Disconnect a container from a network
inspect	Display detailed information on one or more networks
ls	List networks
prune	Remove all unused networks
rm	Remove one or more networks

```
[node1] (local) root@192.168.0.67 ~
```

```
$ docker network ls
```

NETWORK ID	NAME	DRIVER	SCOPE
6c4f900b3b77	bridge	bridge	local
5fab5611c9c8	host	host	local
09f85f1a9d00	none	null	local

```
[node1] (local) root@192.168.0.67 ~
```

```
$ docker network inspect bridge
```

```
[
  {
    "Name": "bridge",
    "Id": "6c4f900b3b7768925b9e886f11cc7a14925495f756fa0f2eb85e5d43178059f0",
    "Created": "2018-12-03T18:27:47.792965747z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": null,
      "Config": [
        {
          "Subnet": "172.17.0.0/16"
```

```
[node1] (local) root@192.168.0.67 ~
```

```
$ docker info
```

```
Containers: 0
```

```
  Running: 0
```

```
  Paused: 0
```

```
  Stopped: 0
```

```
Images: 0
```

```
Server Version: 18.06.1-ce
```

```
Storage Driver: overlay2
```

```
  Backing Filesystem: xfs
```

```
  Supports d_type: true
```

```
  Native Overlay Diff: true
```

```
Logging Driver: json-file
```

```
Cgroup Driver: cgroupfs
```

```
Plugins:
```

```
  Volume: local
```

```
$ apk update
```

```
fetch http://dl-cdn.alpinelinux.org/alpine/v3.8/main/x86_64/APKINDEX.tar.gz
```

```
fetch http://dl-cdn.alpinelinux.org/alpine/v3.8/community/x86_64/APKINDEX.tar.gz
```

```
v3.8.1-115-ge3ed6b4e31 [http://dl-cdn.alpinelinux.org/alpine/v3.8/main]
```

```
v3.8.1-112-g45bdd0edfb [http://dl-cdn.alpinelinux.org/alpine/v3.8/community]
```

```
OK: 9555 distinct packages available
```

```
[node1] (local) root@192.168.0.67 ~
```

```
$ apk add bridge
```

```
(1/1) Installing bridge (1.5-r3)
```

```
OK: 302 MiB in 111 packages
```

```
[node1] (local) root@192.168.0.67 ~
```

```
$ brctl show
```

bridge name	bridge id	STP enabled	interfaces
docker0	8000.02420fd7b017	no	

```
[node1] (local) root@192.168.0.67 ~
```

```
[node1] (local) root@192.168.0.67 ~
```

```
$ ip a
```

```
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN qlen 1
```

```
  link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
```

```
  inet 127.0.0.1/8 scope host lo
```

```
    valid_lft forever preferred_lft forever
```

```
2: docker0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN
```

```
  link/ether 02:42:0f:d7:b0:17 brd ff:ff:ff:ff:ff:ff
```

```
  inet 172.17.0.1/16 brd 172.17.255.255 scope global docker0
```

```
    valid_lft forever preferred_lft forever
```

```
1474: eth1@if1475: <BROADCAST,MULTICAST,UP,LOWER_UP,M-DOWN> mtu 1500 qdisc noqueue state UP
```

```
  link/ether 02:42:ac:12:00:0c brd ff:ff:ff:ff:ff:ff
```

```
  inet 172.18.0.12/16 scope global eth1
```

```
    valid_lft forever preferred_lft forever
```

```
1476: eth0@if1477: <BROADCAST,MULTICAST,UP,LOWER_UP,M-DOWN> mtu 1500 qdisc noqueue state UP
```

```
[node1] (local) root@192.168.0.67 ~
$ docker run -dt ubuntu sleep infinity
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
32802c0cfa4d: Pull complete
da1315cffa03: Pull complete
fa83472a3562: Pull complete
f85999a86bef: Pull complete
Digest: sha256:6d0e0c26489e33f5a6f0020edface2727db9489744ecc9b4f50c7fa671f23c49
Status: Downloaded newer image for ubuntu:latest
a79dfe40077f1d41918a7af2c47c921978a96a78baf6a08ac278764f71100c08
```

```
$ docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
a79dfe40077f	ubuntu	"sleep infinity"	16 seconds ago	Up 15 seconds		youthful_bhaskara

```
[node1] (local) root@192.168.0.67 ~
$ brctl show
```

bridge name	bridge id	STP enabled	interfaces
docker0	8000.02420fd7b017	no	vethc3faf8b

```
$ docker network inspect bridge
```

```
[
  {
    "Name": "bridge",
    "Id": "6c4f900b3b7768925b9e886f11cc7a14925495f756fa0f2eb85e5d43178059f0",
    "Created": "2018-12-03T18:27:47.792965747Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": null,
      "Config": [
        {
          "Subnet": "172.17.0.0/16"
        }
      ]
    }
  }
]
```

```
[node1] (local) root@192.168.0.67 ~
$ docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
a79dfe40077f	ubuntu	"sleep infinity"	About a minute ago	Up About a minute		youthful_bhaskara

```
[node1] (local) root@192.168.0.67 ~
$ ping -c5 www.github.com
PING www.github.com (192.30.253.112): 56 data bytes
64 bytes from 192.30.253.112: seq=0 ttl=50 time=1.465 ms
64 bytes from 192.30.253.112: seq=1 ttl=50 time=1.478 ms
64 bytes from 192.30.253.112: seq=2 ttl=50 time=1.747 ms
64 bytes from 192.30.253.112: seq=3 ttl=50 time=1.639 ms
64 bytes from 192.30.253.112: seq=4 ttl=50 time=1.559 ms

--- www.github.com ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 1.465/1.577/1.747 ms
```

```
[node1] (local) root@192.168.0.67 ~
$ docker run --name web1 -d -p 8080:80 nginx
Unable to find image 'nginx:latest' locally
latest: Pulling from library/nginx
a5a6f2f73cd8: Pull complete
1ba02017c4b2: Pull complete
83b176c904de: Pull complete
Digest: sha256:5d32f60db294b5deb55d078cd4feb410ad88e6fe77500c87d3970eca97f54dba
Status: Downloaded newer image for nginx:latest
bcc6a0b7c77d00e2752ecce726c9a9d84c00b66605476c7e1f821ad476958528
[node1] (local) root@192.168.0.67 ~
$ docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
bcc6a0b7c77d	nginx	"nginx -g 'daemon of..."	3 seconds ago	Up 2 seconds	0.0.0.0:8080->80/tcp	web1
79dfe40077f	ubuntu	"sleep infinity"	6 minutes ago	Up 6 minutes		youthful_bhaskara

```
[node1] (local) root@192.168.0.67 ~
$ curl 127.0.0.1:8080
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
  body {
    width: 35em;
    margin: 0 auto;
```

```
[node1] (local) root@192.168.0.18 ~
$ docker swarm init --advertise-addr $(hostname -i)
Swarm initialized: current node (6r3x4m44d8yttl7776983a0ho) is now a manager.

To add a worker to this swarm, run the following command:

    docker swarm join --token SWMTKN-1-30unzet68txlgaawazlx79yfrlv6faaofcino8r53bxv886h2n-b4cyp0s1sh0p5xpws0wxbsvvt 192.168.0.18:2377

To add a manager to this swarm, run 'docker swarm join-token manager' and follow the instructions.
```

```
[node2] (local) root@192.168.0.17 ~
$ docker swarm join --token SWMTKN-1-30unzet68txlgaawazlx79yfrlv6faaofcino8r53bxv886h2n-b4cyp0s1sh0p5xpws0wxbsvvt 192.168.0.18:2377
This node joined a swarm as a worker.
```

```
[node1] (local) root@192.168.0.18 ~
$ docker node ls
```

ID	HOSTNAME	STATUS	AVAILABILITY	MANAGER STATUS	ENGINE VERSION
6r3x4m44d8yttl7776983a0ho *	node1	Ready	Active	Leader	18.06.1-ce
lys10e3tg90mb9vfc9f1yhbr	node2	Ready	Active		18.06.1-ce

```
[node1] (local) root@192.168.0.18 ~  
$ docker network create -d overlay overnet  
goo2u0qn8t6gmob4tf7d9pqau
```

```
[node1] (local) root@192.168.0.18 ~  
$ docker network ls  
NETWORK ID          NAME                DRIVER             SCOPE  
e6a7df69b1ec        bridge             bridge             local  
4eb79db6e948        docker_gwbridge    bridge             local  
da3b6233c46f        host              host              local  
uvfyj0d6pmow        ingress           overlay           swarm  
91bf196ffff6        none              null              local  
goo2u0qn8t6g        overnet           overlay           swarm
```

```
[node2] (local) root@192.168.0.17 ~  
$ docker network ls  
NETWORK ID          NAME                DRIVER             SCOPE  
31a20cd4856d        bridge             bridge             local  
ba5071053665        docker_gwbridge    bridge             local  
686c6157c917        host              host              local  
uvfyj0d6pmow        ingress           overlay           swarm  
c37611beb4ad        none              null              local
```

```
[node1] (local) root@192.168.0.18 ~  
$ docker network inspect overnet  
[  
  {  
    "Name": "overnet",  
    "Id": "goo2u0qn8t6gmob4tf7d9pqau",  
    "Created": "2018-12-03T21:04:32.263937043Z",  
    "Scope": "swarm",  
    "Driver": "overlay",  
    "EnableIPv6": false,  
    "IPAM": {  
      "Driver": "default",  
      "Options": null,  

```

```
[node1] (local) root@192.168.0.18 ~
$ docker service create --name myservice \
> --network overnet \
> --replicas 2 \
> ubuntu sleep infinity
w48de8kgtwl9kcg4dhvcus4s
overall progress: 2 out of 2 tasks
1/2: running  [=====>]
2/2: running  [=====>]
verify: Service converged
```

```
[node1] (local) root@192.168.0.18 ~
$ docker service ls
```

ID	NAME	MODE	REPLICAS	IMAGE	PORTS
w48de8kgtwl9	myservice	replicated	2/2	ubuntu:latest	

```
[node1] (local) root@192.168.0.18 ~
$ docker service ps myservice
```

ID	PORTS	NAME	IMAGE	NODE	DESIRED STATE	CURRENT STATE	ERROR
y9235wmxtel0		myservice.1	ubuntu:latest	node1	Running	Running 50 seconds ago	
zqjiu440x10n		myservice.2	ubuntu:latest	node2	Running	Running 50 seconds ago	

```
[node2] (local) root@192.168.0.17 ~
$ docker network ls
```

NETWORK ID	NAME	DRIVER	SCOPE
31a20cd4856d	bridge	bridge	local
ba5071053665	docker_gwbridge	bridge	local
686c6157c917	host	host	local
uvfyj0d6pmow	ingress	overlay	swarm
c37611beb4ad	none	null	local
goo2u0qn8t6g	overnet	overlay	swarm

```
[node2] (local) root@192.168.0.17 ~
$ docker network inspect overnet
[
  {
    "Name": "overnet",
    "Id": "goo2u0qn8t6gmob4tf7d9pqau",
    "Created": "2018-12-03T21:06:13.407936507Z",
    "Scope": "swarm",
    "Driver": "overlay",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
```

```
$ docker network inspect overnet
[
  {
    "Name": "overnet",
    "Id": "goo2u0qn8t6gmob4tf7d9pqau",
    "Created": "2018-12-03T21:06:13.408152305Z",
    "Scope": "swarm",
    "Driver": "overlay",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
```

```
[node1] (local) root@192.168.0.18 ~
$ docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
f694eff97590       ubuntu:latest      "sleep infinity"    2 minutes ago       Up 2 minutes                myservice.1.y923
mxtei0po5j0bi2rlhs1
```

```
[node1] (local) root@192.168.0.18 ~
$ ping -c5 10.0.0.3
PING 10.0.0.3 (10.0.0.3): 56 data bytes

--- 10.0.0.3 ping statistics ---
5 packets transmitted, 0 packets received, 100% packet loss
```

```
[node1] (local) root@192.168.0.18 ~
$ docker service inspect myservice
[
  {
    "ID": "w48de8kgtwl9kcg4dhvcus4s",
    "Version": {
      "Index": 21
    },
    "CreatedAt": "2018-12-03T21:06:13.248182373Z",
    "UpdatedAt": "2018-12-03T21:06:13.250049156Z",
    "Spec": {
      "Name": "myservice",
      "Labels": {},
      "TaskTemplate": {
        "ContainerSpec": {
```

```
[node1] (local) root@192.168.0.18 ~
$ docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
f694eff97590       ubuntu:latest      "sleep infinity"    7 minutes ago       Up 7 minutes                myservice.1.y9
mxtei0po5j0bi2rlhs1
```

```
[node1] (local) root@192.168.0.18 ~
$ docker swarm leave --force
Node left the swarm.
```

```
[node2] (local) root@192.168.0.17 ~  
$ docker swarm leave --force  
Node left the swarm.
```