

Step1: Factory Reset

Reset to factory default

If the unit has been installed prior, we should reset it back to default before installing ThingsPro Edge. The commands listed below is for `armhf` and UC-8100A series gateway

```
mx-set-def
```

Note: Make sure to have a console cable connected to the device or login via ssh

Remove docker folder

```
rm -rf /overlayfs/docker /overlayfs/working/docker
```

Note: This will wipe out all the data on the device!

Step2: Install Docker for Debain9/Stretch

<https://docs.docker.com/engine/install/debian/>

Installation methods

You can install Docker Engine in different ways, depending on your needs:

- Most users [set up Docker's repositories](#) and install from them, for ease of installation and upgrade tasks. This is the recommended approach, except for Raspbian.
- Some users download the DEB package and [install it manually](#) and manage upgrades completely manually. This is useful in situations such as installing Docker on air-gapped systems with no access to the internet.
- In testing and development environments, some users choose to use automated [convenience scripts](#) to install Docker. This is currently the only approach for Raspbian.

Make sure you select the right architecture

[x86_64 / amd64](#)

[armhf](#)

[arm64](#)

```
$ sudo add-apt-repository \
"deb [arch=armhf] https://download.docker.com/linux/debian \
$(lsb_release -cs) \
stable"
```

Step3: Verify that Docker Engine is installed correctly by running the hello-world image.

Verify that Docker Engine is installed correctly by running the hello-world image.

```
$ sudo docker run hello-world
```

This command downloads a test image and runs it in a container. When the container runs, it prints an informational message and exits.

Verify that Docker Engine is installed correctly by running the hello-world image.

```
moxa@moxa:~$ sudo docker run hello-world
[sudo] password for moxa:
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
4ee5c797bcd7: Pull complete
Digest: sha256:7f0a9f93b4aa3022c3a4c147a449bf11e0941a1fd0bf4a8e6c9408b2600777c5
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (arm32v7)
 3. The Docker daemon created a new container from that image which runs the
    executable that produces the output you are currently reading.
 4. The Docker daemon streamed that output to the Docker client, which sent it
    to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/get-started/
```

Step4: Change Docker Storage Driver

<http://docs.docker.oeynet.com/engine/userguide/storagedriver/selectadriver/#docker-ce>

The default storage driver is vfs.

```
moxa@moxa:~$ sudo docker info
[sudo] password for moxa:
Client:
  Debug Mode: false

Server:
  Containers: 0
  Running: 0
  Paused: 0
  Stopped: 0
  Images: 0
  Server Version: 19.03.12
  Storage Driver: vfs
  Logging Driver: json-file
  Cgroup Driver: cgroupfs
```

vfs is not recommended:

The vfs storage driver is intended for testing purposes, and for situations where no copy-on-write filesystem can be used. Performance of this storage driver is poor, and is not generally recommended for production use.

Overlay2 is the newest one.

The overlay2 driver can be supported from Linux kernel 4.0 onwards. Moxa UC-8112A has Linux kernel 4.4.0.

```
root@Moxa:~# hostnamectl
  Static hostname: Moxa
    Icon name: computer
    Machine ID: a9ef07d28f424900bde31aa7152e76b5
      Boot ID: 21ab8fe4f0614323b13aa4bd5880d9cb
  Operating System: Debian GNU/Linux 9 (stretch)
            Kernel: Linux 4.4.0-cip-uc8100a-me
      Architecture: arm
root@Moxa:~#
```

Overwrite the /etc/docker/daemon.json file (Note: if not exists create a new one)

```
{"graph":"/overlayfs/docker","iptables":false,"debug":true}
{"graph":"/overlayfs/docker","iptables":true,"debug":true}
```

Stop/start docker again

sudo systemctl stop docker

sudo systemctl start docker

```
root@Moxa:~# docker info
Client:
  Debug Mode: false

Server:
  Containers: 0
    Running: 0
    Paused: 0
    Stopped: 0
  Images: 0
  Server Version: 19.03.12
  Storage Driver: overlay2
```

If you are running into a daemon that fails to start; always make sure to check the logs as they may provide the information you need to resolve your situation.

journalctl -u docker.service

```
root@Moxa:~# docker info
Client:
  Debug Mode: false

Server:
  Containers: 0
    Running: 0
    Paused: 0
    Stopped: 0
  Images: 0
  Server Version: 19.03.12
  Storage Driver: overlay2
    Backing Filesystem: extfs
    Supports d_type: true
    Native Overlay Diff: true
  Logging Driver: json-file
  Cgroup Driver: cgroupfs
  Plugins:
    Volume: local
    Network: bridge host ipvlan macvlan null overlay
    Log: awslogs fluentd gcplogs gelf journald json-file local logentries splunk syslog
  Swarm: inactive
  Runtimes: runc
  Default Runtime: runc
  Init Binary: docker-init
  containerd version: 7ad184331fa3e55e52b890ea95e65ba581ae3429
  runc version: dc9208a3303feef5b3839f4323d9beb36df0a9dd
  init version: fec3683
  Security Options:
    seccomp
      Profile: default
  Kernel Version: 4.4.0-cip-uc8100a-me
  Operating System: Debian GNU/Linux 9 (stretch)
  OSType: linux
  Architecture: armv7l
  CPUs: 1
  Total Memory: 1007MiB
  Name: Moxa
  ID: 3CHT:Z5UV:PD7B:BMFC:NGNX:Q7AP:ZKNP:EDM3:MS23:DQVH:SFGL:IFX6
  Docker Root Dir: /overlayfs/docker
```