

Lab Notes for RIV MOOC

SDN with ONOS

ONOS and mininet are the most stable solution for testing SDN in the Lab VM.

- Installing ONOS via docker is straightforward

```
sudo apt-get update
sudo apt-get install apt-transport-https ca-certificates gnupg-
agent software-properties-common
wget https://download.docker.com/linux/ubuntu/gpg
apt-key add gpg
sudo apt-key fingerprint 0EBFCD88
sudo add-apt-repository "deb [arch=amd64]
https://download.docker.com/linux/ubuntu \
$(lsb_release -cs) \
stable"
apt update
sudo apt-get install docker-ce docker-ce-cli containerd.io
docker pull onosproject/onos
```

- Start mininet (use OpenFlow10 for compatibility with ovectl commands)

```
sudo mn --topo tree,2 --mac --switch ovsk,protocols=OpenFlow13 --controller
remote,ip=172.17.0.2
```

- Start ONOS as specified in <https://wiki.onosproject.org/display/ONOS/Single+Instance+Docker+deployment> and make sure to activate the following apps:

```
* 8 org.onosproject.drivers 2.4.0.SNAPSHOT Default Drivers
* 26 org.onosproject.optical-model 2.4.0.SNAPSHOT Optical Network
Model
* 27 org.onosproject.openflow-base 2.4.0.SNAPSHOT OpenFlow Base
Provider
* 57 org.onosproject.netcfgghostprovider 2.4.0.SNAPSHOT Network Config
Host Provider
* 60 org.onosproject.lldpprovider 2.4.0.SNAPSHOT LLDP Link Provider
* 61 org.onosproject.hostprovider 2.4.0.SNAPSHOT Host Location
Provider
* 75 org.onosproject.openflow 2.4.0.SNAPSHOT OpenFlow Provider
Suite
* 107 org.onosproject.gui2 2.4.0.SNAPSHOT ONOS GUI2
* 136 org.onosproject.proxyarp 2.4.0.SNAPSHOT Proxy ARP/NDP
* 158 org.onosproject.fwd 2.4.0.SNAPSHOT Reactive
Forwarding
```

- For example use: (password karaf)

```
docker run -t -d -p 8181:8181 -p 8101:8101 -p 5005:5005 -p 830:830 --name
onos onosproject/onos
docker exec -it onos /bin/bash
apt update
apt install openssh-server
ssh -p 8101 -o StrictHostKeyChecking=no karaf@localhost
```

- Check the GUI (login: onos, password: rocks) at <http://172.17.0.2:8181/onos/ui/#/topo2>
- Activate reactive forwarding:

```
app activate org.onosproject.fwd
```

- Or play with intents <https://wiki.onosproject.org/display/ONOS/Basic+ONOS+Tutorial>:

```
add-host-intent 00:00:00:00:00:01/None 00:00:00:00:00:04/None
```



- Explore openflow or openvswitch
- Study intents and reactive routing
- Interconnect with iBGP speaker (sdn-ip)
- Explore VPLS or VxLAN

Routing with FRR

From:

<http://wiki.lahoud.fr/> - **wikiroute**

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