

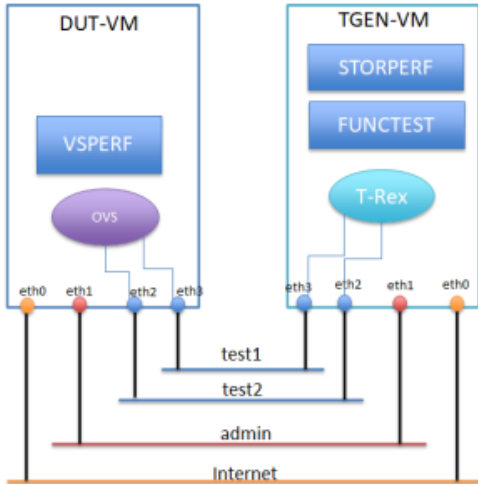
Tutorial: IEEE International Conference on Networks of the Future 2020

Introduction

If you are attending the NoF Tutorial session session ([IEEE NoF tutorial](#)), kindly complete the tasks in pre-requisites, **before the hands-on**.

Prerequisites

Environment.



System / Software	Source / Image / command /	Comments
Virtualization /Hypervisor	Oracle Virtualbox	To run VMs.
Virtual Machine	Download-link	For running Test and DUTs
Create 2 VMs	Step-1	DUT and TGEN
Exchange of SSH-Keys between VMs	Step-2	
Install New Version of T-Rex	Step-3	
Install Test Automation Tools	Step-4	

The Installation and configuration details are provided below. Please complete the below Steps 1, 2 3 and 4.

Step-1: Creating VMs.

- VM1 (DUT) : This is just a standard VM-from-ISO installation procedure. You will find many step-by-step description Ex: <https://itsfoss.com/install-linux-in-virtualbox> on this, including Videos (Ex: <https://www.youtube.com/watch?v=QbmRXJJKsvs>) .
 - Please ensure that number of interfaces are 4 and configured according to the table above.
- VM2 (TGEN): Same as above - or you can just clone it!.
 - Please ensure that number of interfaces are 4 and configured according to the table above.

Network	Network/Adapter Type (Virtualbox)	Interfaces on DUT	Interfaces on TGen	Comments
test1	Internal	eth3	eth3	Inter-VM ONLY
test2	Internal	eth2,	eth2,	Inter-VM ONLY
admin	Bridged	eth1	eth1	Communicate with VMs from Host.

Internet	NAT	eth0	eth0	For Internet Access
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The names of the interfaces maybe different - for example on Ubuntu it may be enp0s2/3/4...

Step-2: Exchange SSH Keys

To ensure smoother access, ensure DUT-VM can ssh to TGEN-VM without password-probe, copy the SSH public keys. The step to follow:

1. If no identity is created yet (ex: if you don't find id_rsa.pub in ~/.ssh folder) Run ssh-keygen. It will generate the necessary identify.
2. Use ssh-copy-id command. ssh-copy-id username_of_tgen_vm@ipaddress_of_tgen_vm

Step-3: Install New Version of T-Rex.

(a) INSTALL-TRex

```
sudo apt -y install zlib1g-dev build-essential python python3-distutils
git clone https://github.com/cisco-system-traffic-generator/trex-core.git
cd trex-core/
cd linux_dpdk
./b configure
./b build
cd ..
sudo cp scripts/cfg/simple_cfg.yaml /etc/trex_cfg.yaml
```

(b) Find PCIs

```
lspci | grep Eth
00:03.0 Ethernet controller: Intel Corporation 82540EM Gigabit Ethernet Controller (rev 02)
00:08.0 Ethernet controller: Intel Corporation 82540EM Gigabit Ethernet Controller (rev 02)
00:09.0 Ethernet controller: Intel Corporation 82540EM Gigabit Ethernet Controller (rev 02)
```

(ref)

Step-4: Download and Install Test Automation Tools.

(a) Installing VSPERF on DUT-VM

Instructions to install and configure (including tuning) VSPERF can be found [here](#)

You may have to configure hugepages before running the install script - by running following commands:

1. mkdir -p /mnt/huge
2. mount -t hugetlbfs nodev /mnt/huge
3. echo "vm.nr_hugepages=64" >> /etc/sysctl.conf

(b) Download functest and x-testing on TGEN-VM

1. sudo apt install python-virtualenv [docker.io](#) git
2. virtualenv xtesting
3. . xtesting/bin/activate
4. pip install ansible
5. ansible-galaxy install collivier.xtesting
6. git clone https://gerrit.[opnfv.org](#)/gerrit/functest-xtesting functest-xtesting-src

(c) Download Storperf on TGEN_VM

1. [Profiling without OpenStack](#)

(d) Other Tools

1. docker on TGen-VM
 - a. sudo apt -y install docker docker-compose
 - b. sudo usermod -aG docker \$USER

Handson-Sessions

Handson-Session-1: Installations check / Resolve Issues / Try Storperf

Handson-Session-2: Try Vspferf

Handson-Session-3: X-Testing