sdnopenflow

Friday, 1 May 2015

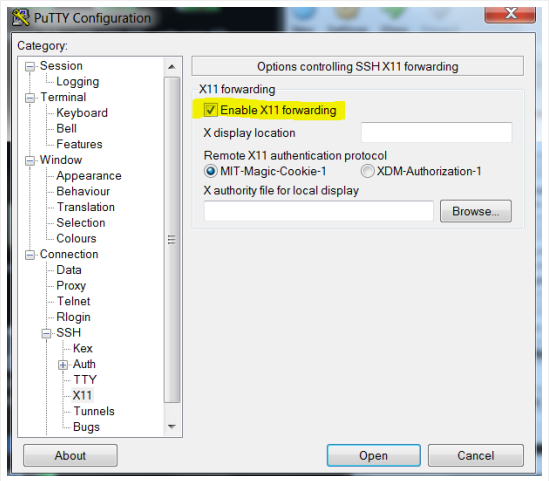
Using D-ITG Traffic Generator in Mininet

1. Login into Mininet VM.
2. $ **sudo apt-get install unzip**
3. $ **sudo apt-get install g++**
4. $ **wget** http://traffic.comics.unina.it/software/ITG/codice/D-ITG-2.8.1-r1023-src.zip
5. $ **unzip** D-ITG-2.8.1-r1023-src.zip
6. $ **cd** D-ITG-2.8.1-r1023/src
7. $ **make**

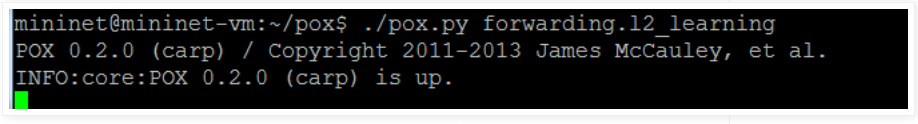
Once done, the binaries will be copied into the "**D-ITG-2.8.1-r2058M/bin**" directory.

Demo Tutorial:

1. Download and install **Xming X Server for Windows** (http://sourceforge.net/projects/xming/).
2. Login into Mininet VM via PuTTY with **X11 forwarding** option selected.



3. Login into Mininet (this session is for controller setup).
4. $ **cd ~/pox**
5. $ **./pox.py forwarding.l2_learning**



6. Now run these commands into the first PuTTY session.
7. $ **cd ~**
8. $ **sudo mn --controller=remote,ip=127.0.0.1,port=6633**

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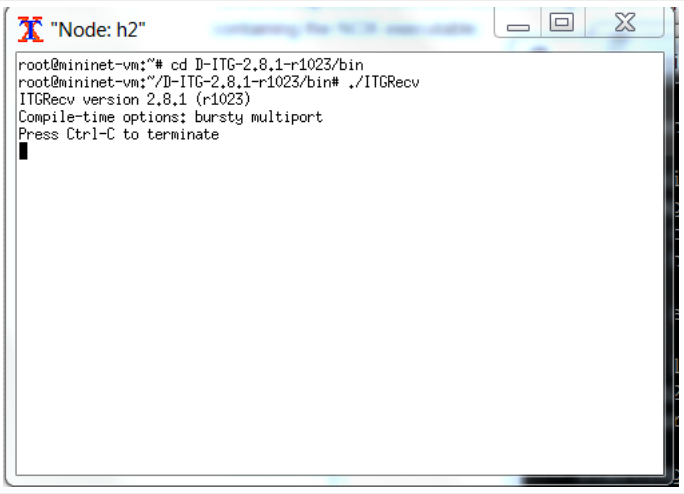
```
mininet@mininet-vm:~$ sudo mn --controller=remote,ip=127.0.0.1,port=6633
*** Creating network
*** Adding controller
*** Adding hosts:
h1 h2
*** Adding switches:
s1
*** Adding links:
(h1, s1) (h2, s1)
*** Configuring hosts
h1 h2
*** Starting controller
c0
*** Starting 1 switches
s1 ...
*** Starting CLI:
mininet>
```

9. **$ xterm h1**
10. **$ xterm h2**

```
mininet> xterm h1
mininet> xterm h2
mininet>
```

11. Now in the xterm window of h2, run these commands.
12. $ **cd** D-ITG-2.8.1-r1023/bin
13. $ **./ITGRecv**



14. Now in the xterm of h1, run these commands.
15. $ **cd** D-ITG-2.8.1-r1023/bin
16. $ **./ITGSend -T UDP -a 10.0.0.2 -c 100 -C 10 -t 15000 -l sender.log -x receiver.log**

```
root@mininet-vm:~/D-ITG-2.8.1-r1023/bin# ./ITGSend -T UDP -a 10.0.0.2 -c 100 -C 10 -t 15000 -l sender.log -x receiver.log
ITGSend version 2.8.1 (r1023)
Compile-time options: bursty multiport
Started sending packets of flow ID: 1
Finished sending packets of flow ID: 1

root@mininet-vm:~/D-ITG-2.8.1-r1023/bin#
```

17. Now to analyze the logs, run these command.
18. Run this in the xterm of h1.
19. $ **./ITGDec sender.log**

20.

```
root@mininet-vm:~/D-ITG-2.8.1-r1023/bin# ./ITGDec sender.log
ITGDec version 2.8.1 (r1023)
Compile-time options: bursty multiport
|------------------------------------------------------------
Flow number: 1
From 10.0.0.1:51646
To    10.0.0.2:8999
------------------------------------------------------------
Total time                =     14.910479 s
Total packets             =           149
Minimum delay             =      0.000000 s
Maximum delay             =      0.000000 s
Average delay             =      0.000000 s
Average jitter            =      0.000000 s
Delay standard deviation  =      0.000000 s
Bytes received            =         14900
Average bitrate           =      7.994378 Kbit/s
Average packet rate       =      9.992972 pkt/s
Packets dropped           =             0 (0.00 %)
Average loss-burst size   =      0.000000 pkt
------------------------------------------------------------


------------------------------------------------------------
****************  TOTAL RESULTS   ******************
------------------------------------------------------------
Number of flows           =             1
Total time                =     14.910479 s
Total packets             =           149
Minimum delay             =      0.000000 s
Maximum delay             =      0.000000 s
Average delay             =      0.000000 s
Average jitter            =      0.000000 s
Delay standard deviation  =      0.000000 s
Bytes received            =         14900
Average bitrate           =      7.994378 Kbit/s
Average packet rate       =      9.992972 pkt/s
Packets dropped           =             0 (0.00 %)
Average loss-burst size   =             0 pkt
Error lines               =             0
------------------------------------------------------------
root@mininet-vm:~/D-ITG-2.8.1-r1023/bin#
```

21. Similarly run this on h2.

22. $ **./ITGDec receiver.log**

```
Finish with CTRL-C!
root@mininet-vm:~/D-ITG-2.8.1-r1023/bin# ./ITGDec receiver.log
ITGDec version 2.8.1 (r1023)
Compile-time options: bursty multiport
|------------------------------------------------------------
Flow number: 1
From 10.0.0.1:51646
To    10.0.0.2:8999
------------------------------------------------------------
Total time                =     14.899338 s
Total packets             =           149
Minimum delay             =      0.000466 s
Maximum delay             =      0.035800 s
Average delay             =      0.000939 s
Average jitter            =      0.000740 s
Delay standard deviation  =      0.003097 s
Bytes received            =         14900
Average bitrate           =      8.000355 Kbit/s
Average packet rate       =     10.000444 pkt/s
Packets dropped           =             0 (0.00 %)
Average loss-burst size   =      0.000000 pkt
------------------------------------------------------------


------------------------------------------------------------
****************  TOTAL RESULTS   ******************
------------------------------------------------------------
Number of flows           =             1
Total time                =     14.899338 s
Total packets             =           149
Minimum delay             =      0.000466 s
Maximum delay             =      0.035800 s
Average delay             =      0.000939 s
Average jitter            =      0.000740 s
Delay standard deviation  =      0.003097 s
Bytes received            =         14900
Average bitrate           =      8.000355 Kbit/s
Average packet rate       =     10.000444 pkt/s
Packets dropped           =             0 (0.00 %)
Average loss-burst size   =             0 pkt
Error lines               =             0
------------------------------------------------------------
root@mininet-vm:~/D-ITG-2.8.1-r1023/bin#
```

References:

1. mininet.org/walkthrough/
2. traffic.comics.unina.it/software/ITG/manual/

Posted by Unknown at 05:59

9 comments:

Unknown 16 February 2016 at 19:32

thanks man..you have been a great help

Reply

Unknown 7 June 2016 at 03:09

Hi
When I use DITG I always get low bit rate even when the link rate is 1Gb, I get bit rate in kb why?

Reply

charlos john 9 September 2017 at 12:02

Great job for publishing such a beneficial web site. Your web log isn't only useful but it is additionally really creative too. Website traffic

Reply

Sunny Khan 23 November 2017 at 12:24

Some truly wonderful work on behalf of the owner of this internet site , perfectly great articles . guest posting

Reply

Unknown 15 March 2018 at 06:41

i want to use multiple hosts and servers but how to do for example im using 4 servers and 50 hosts how to measure delay?

Reply

Unknown 23 March 2018 at 06:15

error "connection timed out" occurs while sending traffic. please help

Reply

Unknown 13 May 2019 at 00:37

I am much impressed by your work! Keep it up :)

Reply

Unknown 6 June 2020 at 09:04

Can I simulate a network traffic with D-ITG? What I mean is I have a Network of Fattree topology. Can I generate some "random" traffic in it?

Reply

raginiiacono 3 March 2022 at 15:51

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