CEG5101 Modern Computer Networking
Graduate Assistant: Mr. Binghui Wu and Ms. Divya D Kulkarni,
Lecturer: Assoc. Prof. Mohan Gurusamy
ECE Department, CDE., National University of Singapore

COMMAND LINE HELP SHEET

1. Linux Basic Help

$pwd	To check the current open directory
$cd XX	cd stands for "change directory" and is used to open XX folder or directory path. Ex: cd Home – to open the home folder or cd /Home/Desktop – to open the desktop folder located at the given path Here, "/" is used to indicate immediate subdirectory
$ cd ..	To change the directory one level up in the open path OR come out of the current folder
$ cd ~	To go to parent directory
$ls	List contents/files of the current directory
$ifconfig	List IP configuration of the device
$mkdir NAME	Create a folder named as "NAME". Here mkdir stands for make directory
$ls > NAME.txt $touch NAME.txt $cat > NAME.txt	Different ways of creating a text file named "NAME"
$mv NAME.txt NAME_new.txt	Rename file named "NAME" to "NAME_new"
$mv NAME.txt /Desktop/Anum	Move file "NAME" to the given directory path
$nano NAME.txt	Open text file and edit over the CLI
$sudo XX	Lets you perform task XX with administrative permission
$clear	To clean the terminal screen

* Red-colored text is the editable name of device or parameter

2. Mininet Basic Help

Starting mininet topology

$sudo mn --topo=NAME_topology,X	To start a topology, with NAME_Topology = write topology types, as an example, single, tree, linear etc X = write number of devices Ex: sudo mn --topo=single,2
$sudo mn --topo=NAME_topology,X --link tc,bw=XX,delay=YYms	To start a topoplogy with given link quality. Here XX= value of nbandwidth and YY is the value of delay. Ex: sudo mn --topo=single,2 --link tc,bw=10,delay10ms
$sudo mn --topo=NAME_topology,X --switch=Name_SwitchType --controller=NAME_controller,ip=ADD,port=PID	To start a topoplogy with given switch type and controller type. Here Name_SwitchType=name types of switch you want to start, Name_controller=name type of controller you want to start, ADD=IP address, and PID=port ID. Ex: sudo mn --topo=single,2 --switch=ovs --controller=remote,ip=127.0.0.1,port=6633

Basic commands in mininet

mininet>help	mininet commands help
mininet>nodes	Display active nodes
mininet>net	Display links/port connections between all devices
mininet>links	Display active links
mininet>h1 ping h2	Check connectivity by sending ping from h1 to h2
mininet>h1 ifconfig	Display the IP configuration of host
mininet>h1 ps	Display process on h1
mininet>h1 xterm	Open host terminal window
mininet>iperf	Display TCP throughput
mininet>iperfudp	Display UDP throughput
mininet>link h1 s1 down	Disable the link between h1 and s1
mininet>link h1 s1 up	Enable the link between h1 and s1
mininet>exit	Exit mininet

* For Mininet documentation help, type “sudo mn -h” at home directory location
* For Mininet cleanup, type the command “sudo mn -c”

* Red-colored text is the editable name of device or parameter

3. OVS Basic Help

$sudo ovs-vsctl list-br	List active OVS device
$sudo ovs-vsctl -V	Show installed version of OVS
$sudo ovs-vsctl show	Show OVS basic information about ports and OVS version
$sudo ovs-vsctl list interface s1-eth1	List details of OVS switch interface named s1-eth1
$sudo ovs-vsctl list port	List details of all ports of OVS switch
$sudo ovs-ofctl dump-flows s1	Show flow table of OVS switch s1
$sudo ovs-ofctl add-flow s1 action=normal	Add flow to the flow table of switch s1 with a normal action type
$sudo ovs-ofctl add-flow s1 ip,nw_dst=ADD,action=output:XX	Add flow to the flow table with given details of destination IP address and forwarding port number. Here ADD is IP address and XX is the port number. Ex: $sudo ovs-ofctl add-flow s1 ip,nw_dst=10.0.0.1,action=output:2
$sudo ovs-ofctl add-flow s1 arp,action=normal	Add flow to the flow table of switch s1 for enabling address resolution protocol (arp)

4. Internet Help

https://ubuntu.com/tutorials/command-line-for-beginners#2-a-brief-history-lesson
http://mininet.org/walkthrough/
http://www.openvswitch.org//support/dist-docs/ovs-ofctl.8.txt

* Red-colored text is the editable name of device or parameter