

Activities Terminal Tue 16:33 EEC5745: Security and IPsec - Mozilla Firefox

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EECS745: Links to Group W... EEC5745: Links to Group W... EEC5745: Security and IPsec

https://moodle.its.ku.edu/mod/resource/view.php?id=335

EECS 745 Implementation of Networks

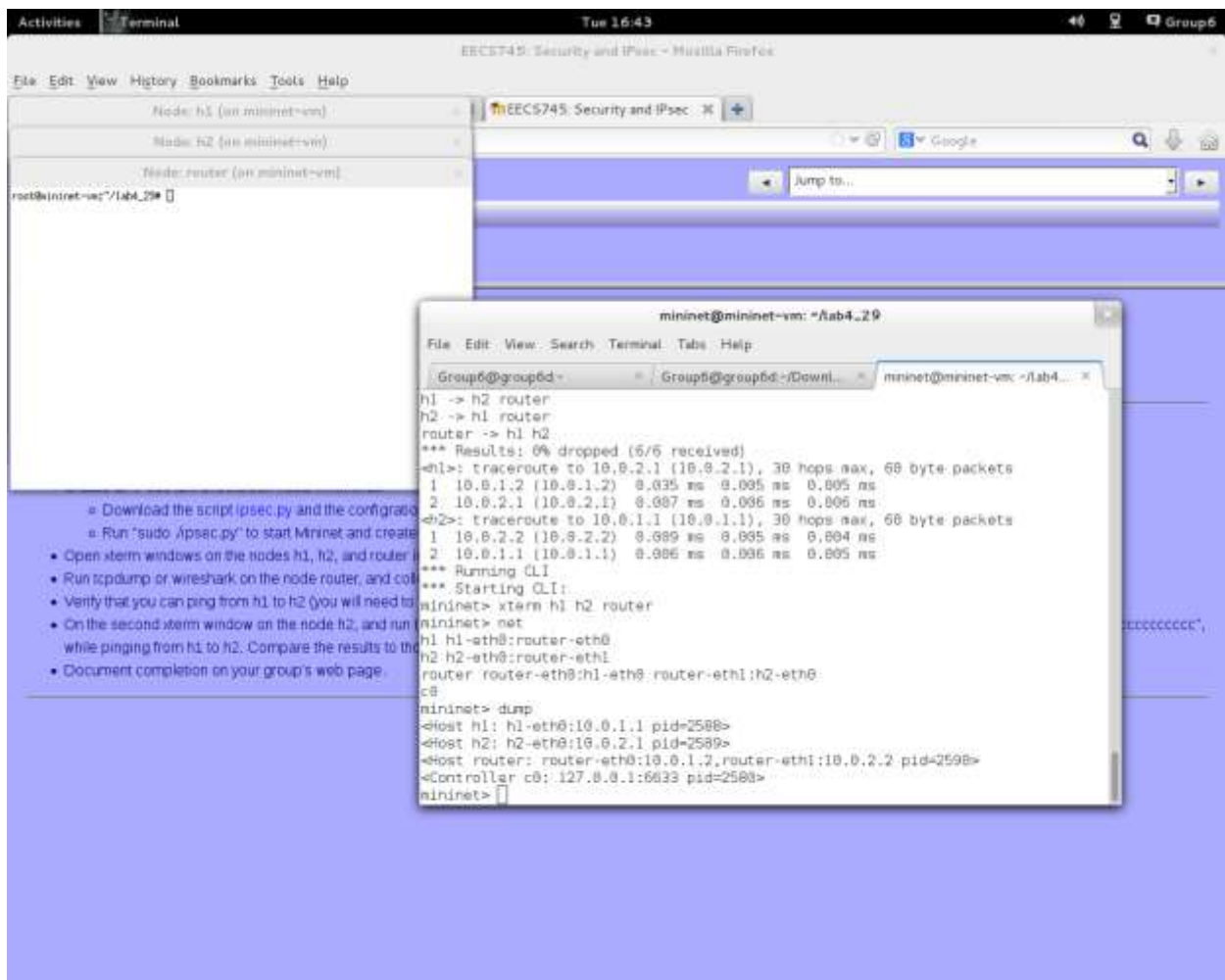
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- Install the ipsec-tools package on your Mininet virtual machine.
- Create an IPsec tunnel between hosts in Mininet.
 - Download the script `ipsec.py` and the configuration files.
 - Run `sudo ./ipsec.py` to start Mininet and create the IPsec tunnel.
- Open xterm windows on the nodes h1, h2, and router.
- Run `tcpdump` or `wireshark` on the node router, and capture traffic.
- Verify that you can ping from h1 to h2 (you will need to run `h1> ping -c 1 10.0.2.2`).
- On the second xterm window on the node h2, and run `h2> ping -c 1 10.0.2.1` while ping from h1 to h2. Compare the results to the first ping.
- Document completion on your group's web page.

```

mininet@mininet-vm: ~/lab4_29
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Group6@group6d ~$ mininet@mininet-vm -/lab4_29
Group6@group6d:~/Dawn...
*** Ping: testing ping reachability
h1 -> h2 router
h2 -> h1 router
router -> h1 h2
*** Results: 0% dropped (5/5 received)
<h1>: traceroute to 10.0.2.1 (10.0.2.1), 30 hops max, 60 byte packets
 1 10.0.1.2 (10.0.1.2)  0.014 ms  0.005 ms  0.004 ms
 2 10.0.2.1 (10.0.2.1)  0.008 ms  0.006 ms  0.005 ms
<h2>: traceroute to 10.0.1.1 (10.0.1.1), 30 hops max, 60 byte packets
 1 10.0.2.2 (10.0.2.2)  0.010 ms  0.005 ms  0.004 ms
 2 10.0.1.1 (10.0.1.1)  0.007 ms  0.006 ms  0.006 ms
*** Running CLI
*** Starting CLI:
mininet> dump
<Host h1: h1-eth0:10.0.1.1 pid=1692>
<Host h2: h2-eth0:10.0.2.1 pid=1693>
<Host router: router-eth0:10.0.1.2,router-eth1:10.0.2.2 pid=1694>
<Controller c0: 127.0.0.1:6533 pid=1684>
mininet> net
h1 h1-eth0:router-eth0
h2 h2-eth0:router-eth1
router router-eth0:h1-eth0 router-eth1:h2-eth0
c0
mininet>

```



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Node: h1 (on mininet-vn)

```
root@mininet-uc71ab4.29# ifconfig
h1-eth0: Link encap:Ethernet HWaddr fa:5c:3d:be:7d:29
  inet addr:10.0.1.1 Bcast:10.0.1.255 Mask:255.255.255.0
  inet6 addr: fe80::f8b1:10ff:fe7c:7634 ScopeLink
  UP 300000000 RUNNING MTU:1500 Metric:1
  RX packets:41 errors:0 dropped:0 overruns:0 frame:0
  TX packets:41 errors:0 dropped:0 overruns:0 carrier:0
  collisions:0 txqueuelen:1000
  RX bytes:3536 (3.5 KB) TX bytes:3454 (3.4 KB)
```

lo: Link encap:Local Loopback
 inet addr:127.0.0.1 Mask:255.0.0.0
 inet6 addr: ::1/128 ScopeHost
 UP 1000000000 RUNNING MTU:65536 Metric:1
 RX packets:381 errors:0 dropped:0 overruns:0 frame:0
 TX packets:381 errors:0 dropped:0 overruns:0 carrier:0
 collisions:0 txqueuelen:0
 RX bytes:79048 (79.0 KB) TX bytes:79048 (79.0 KB)

root@mininet-uc71ab4.29# ping

Node: router (on mininet-vn)

```
topdown: verbose output suppressed, use -v or --v for full protocol decode
listening on router-eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
0 packets captured
0 packets received by filter
0 packets dropped by kernel
root@mininet-uc71ab4.29# show
0K-Message: failed to load module "pk-gtk-module"
0K-Message: failed to load module "conberra-gtk-module"
root@mininet-uc71ab4.29# topdown
topdown: verbose output suppressed, use -v or --v for full protocol decode
listening on router-eth0, link-type EN10MB (Ethernet), capture size 65535 bytes
21:48:45.877227 HRP, Request who-has 10.0.1.1 tell 10.0.1.2, length 28
21:48:45.877238 HRP, Reply 10.0.1.1 to-at fa:5c:3d:be:7d:29 (out Unknown), length 28
21:48:45.877239 IP 10.0.2.1 > 10.0.1.1: ##seq=0x00000500,seq=0:1: ESP(seq=0:00
000301,seq=0:1), length 88
21:48:45.877271 IP 10.0.1.1 > 10.0.2.1: ##seq=0x00000200,seq=0:1: ESP(seq=0:00
000201,seq=0:1), length 88
21:48:45.878634 IP 10.0.2.1 > 10.0.1.1: ##seq=0x00000500,seq=0:2: ESP(seq=0:00
000301,seq=0:2), length 88
21:48:45.878675 IP 10.0.1.1 > 10.0.2.1: ##seq=0x00000200,seq=0:2: ESP(seq=0:00
000201,seq=0:2), length 88
21:48:50.877621 IP 10.0.2.1 > 10.0.1.1: ##seq=0x00000200,seq=0:3: ESP(seq=0:00
000301,seq=0:3), length 88
21:48:50.877657 IP 10.0.1.1 > 10.0.2.1: ##seq=0x00000200,seq=0:3: ESP(seq=0:00
000201,seq=0:3), length 88
21:48:51.878621 IP 10.0.2.1 > 10.0.1.1: ##seq=0x00000500,seq=0:4: ESP(seq=0:00
000301,seq=0:4), length 88
21:48:51.878656 IP 10.0.1.1 > 10.0.2.1: ##seq=0x00000200,seq=0:4: ESP(seq=0:00
000201,seq=0:4), length 88
21:48:53.896738 HRP, Request who-has 10.0.1.2 tell 10.0.1.1, length 28
21:48:53.896765 HRP, Reply 10.0.1.2 to-at 0e:52:03:44:75:c4 (out Unknown), length 28
```

Node: h2 (on mininet-vn)

```
TX packets:41 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:3536 (3.5 KB) TX bytes:3454 (3.4 KB)
```

lo: Link encap:Local Loopback
 inet addr:127.0.0.1 Mask:255.0.0.0
 inet6 addr: ::1/128 ScopeHost
 UP 1000000000 RUNNING MTU:65536 Metric:1
 RX packets:354 errors:0 dropped:0 overruns:0 frame:0
 TX packets:354 errors:0 dropped:0 overruns:0 carrier:0
 collisions:0 txqueuelen:0
 RX bytes:15336 (15.3 KB) TX bytes:15336 (15.3 KB)

root@mininet-uc71ab4.29# ping 10.0.1.1

```
PING 10.0.1.1 (10.0.1.1) 64(84) bytes of data:
64 bytes from 10.0.1.1: icmp_seq=1 ttl=63 time=0.105 ms
64 bytes from 10.0.1.1: icmp_seq=2 ttl=63 time=0.105 ms
64 bytes from 10.0.1.1: icmp_seq=3 ttl=63 time=0.085 ms
64 bytes from 10.0.1.1: icmp_seq=4 ttl=63 time=0.075 ms
^C
--- 10.0.1.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 2999ms
rtt min/avg/max/mdev = 0.075/0.091/0.105/0.015 ms
root@mininet-uc71ab4.29#
```

