

Network Operations – Solutions

Lab 1: Network Trouble-shooting

```
$ ifconfig
eth0 Link encap:Ethernet HWaddr 38:60:77:bd:3b:28
inet addr:192.168.1.5 Bcast:192.168.1.255 Mask:255.255.255.0
inet6 addr: fe80::3a60:77ff:febd:3b28/64 Scope:Link
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:120696 errors:0 dropped:0 overruns:0 frame:0
TX packets:64331 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:69517665 (69.5 MB) TX bytes:6677759 (6.6 MB)
Interrupt:20 Memory:fe500000-fe520000
lo Link encap:Local Loopback
inet addr:127.0.0.1 Mask:255.0.0.0
inet6 addr: ::1/128 Scope:Host
UP LOOPBACK RUNNING MTU:16436 Metric:1
RX packets:4540 errors:0 dropped:0 overruns:0 frame:0
TX packets:4540 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:0
RX bytes:554929 (554.9 KB) TX bytes:554929 (554.9 KB)
$ hostname
green-dragon.hobbiton.example.com
$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 16436 qdisc noqueue state
UNKNOWN
link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
inet 127.0.0.1/8 scope host lo
inet6 ::1/128 scope host
valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 UP qlen 1000
link/ether 38:60:77:bd:3b:28 brd ff:ff:ff:ff:ff:ff
inet 192.168.1.5/24 brd 192.168.1.255 scope global eth0
inet6 fe80::3a60:77ff:febd:3b28/64 scope link
valid_lft forever preferred_lft forever
$ ping google.com
PING google.com (173.194.33.0) 56(84) bytes of data.
64 bytes from sea09s01.net (173.194.33.0): icmp_req=1 ttl=55
time=14.4 ms
64 bytes from sea09s01.net (173.194.33.0): icmp_req=2 ttl=55
time=13.7 ms
64 bytes from sea09s01.net (173.194.33.0): icmp_req=3 ttl=55
time=12.8 ms
64 bytes from sea09s01.net (173.194.33.0): icmp_req=4 ttl=55
time=13.6 ms
^C
--- google.com ping statistics ---
```

```
4 packets transmitted, 4 received, 0% packet loss, time 3003ms
rtt min/avg/max/mdev = 12.822/13.685/14.471/0.596 ms
```

```
$ host google.com
```

```
google.com has address 173.194.33.37
google.com has address 173.194.33.32
google.com has address 173.194.33.41
google.com has address 173.194.33.36
google.com has address 173.194.33.34
google.com has address 173.194.33.40
google.com has address 173.194.33.33
google.com has address 173.194.33.38
google.com has address 173.194.33.35
google.com has address 173.194.33.46
google.com has address 173.194.33.39
google.com has IPv6 address 2607:f8b0:400a:801::1009
google.com mail is handled by 10 aspmx.l.google.com.
google.com mail is handled by 50 alt4.aspmx.l.google.com.
google.com mail is handled by 20 alt1.aspmx.l.google.com.
google.com mail is handled by 30 alt2.aspmx.l.google.com.
google.com mail is handled by 40 alt3.aspmx.l.google.com
```

```
$ dig google.com
```

```
; <<>> DiG 9.8.1-P1 <<>> google.com
;; global options: +cmd
;; Got answer:
;; HEADER opcode: QUERY, status: NOERROR, id: 27906
;; flags: qr rd ra; QUERY: 1, ANSWER: 1
;; QUESTION SECTION:
;google.com. IN A
;; ANSWER SECTION:
google.com. IN A 173.194.33.40
google.com. IN A 173.194.33.33
google.com. IN A 173.194.33.38
google.com. IN A 173.194.33.35
google.com. IN A 173.194.33.46
google.com. IN A 173.194.33.39
google.com. IN A 173.194.33.37
google.com. IN A 173.194.33.32
google.com. IN A 173.194.33.41
google.com. IN A 173.194.33.36
google.com. IN A 173.194.33.34
;; Query time: 11 msec
;; SERVER: 127.0.1.1#53(127.0.1.1)
;; WHEN: Sat Mar 23 12:00:48 2013
;; MSG SIZE rcvd: 204
```

```
$ traceroute google.com
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```
traceroute to google.com, 30 hops max, 60 byte
1 192.168.1.1 (192.168.1.1) 0.671 ms 0.665 ms 0.955
2 73.90.50.1 (73.90.50.1) 15.531 ms 15.541 ms 15.537
3 te-0-0-0-3-ur10.comcast.net (68.85.151.177) 15.833 ms
15.836 ms 17.628 ms
4 ae-3-0-ar03.comcast.net (68.85.243.165) 23.272 ms
18.643 ms 22.473 ms
5 pos-1-14-.comcast.net (68.86.90.201) 29.300 ms
31.708 ms
6 be-17-pe03.comcast.net (68.86.83.14) 30.747 ms
15.075 ms 15.994 ms
7 as15169.comcast.net (173.167.56.18) 154.452 ms
154.790 ms 155.968 ms
```

```
8 66.249.94.214 (66.249.94.214) 154.148 ms 154.162 ms
154.157 ms
9 209.85.253.26 (209.85.253.26) 154.731 ms 154.735 ms
155.907 ms
10 sea09s02.1e100.net (173.194.33.32) 155.205 ms
155.585 ms 155.201 ms
$ ip route show
default via 192.168.1.1 dev eth0 proto static
169.254.0.0/16 dev eth0 scope link metric 1000
192.168.1.0/24 dev eth0 proto kernel scope link
src 192.168.1.5 metric 1
$
```

Lab 2: Non-graphical browsers

There really isn't any solution for this Lab and nothing to really show. Please follow the script in Exercise #2 and get practice using a non-graphical browser. Someday you will need to do this and will appreciate the practice you had.
