

# Exercise: Measuring RTT with Ping

## We'll cover the following ^

- Round-trip-time
- Pinging Google
- Dissecting The Output

## Round-trip-time #

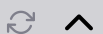
Just to recap the last lesson, the **Round Trip Time** of a connection is the amount of time it takes to send a packet and receive its acknowledgment.

The `ping` command can be used to measure the round-trip-time to send and receive packets from a remote host. We're just pinging google from here because the location of the server that actually runs these commands from our website may change over time. However, if you try this locally, chose a remote destination which is far from your current location, e.g., a small web server in a distant country.

Checkout [ping's manpage](#) for more details!

## Pinging Google #

Terminal



Click to Connect...

## Dissecting The Output #

```
PING google.com (172.217.212.102) 56(84) bytes of data:
64 bytes from 172.217.212.102: icmp_seq=1 ttl=53 time=1.15 ms
64 bytes from 172.217.212.102: icmp_seq=2 ttl=53 time=0.694 ms
64 bytes from 172.217.212.102: icmp_seq=3 ttl=53 time=0.617 ms
64 bytes from 172.217.212.102: icmp_seq=4 ttl=53 time=0.649 ms
64 bytes from 172.217.212.102: icmp_seq=5 ttl=53 time=0.598 ms
64 bytes from 172.217.212.102: icmp_seq=6 ttl=53 time=0.719 ms
64 bytes from 172.217.212.102: icmp_seq=7 ttl=53 time=0.695 ms
64 bytes from 172.217.212.102: icmp_seq=8 ttl=53 time=0.653 ms
64 bytes from 172.217.212.102: icmp_seq=9 ttl=53 time=0.629 ms
64 bytes from 172.217.212.102: icmp_seq=10 ttl=53 time=0.647 ms
64 bytes from 172.217.212.102: icmp_seq=11 ttl=53 time=0.634 ms
64 bytes from 172.217.212.102: icmp_seq=12 ttl=53 time=0.610 ms
64 bytes from 172.217.212.102: icmp_seq=13 ttl=53 time=0.683 ms
64 bytes from 172.217.212.102: icmp_seq=14 ttl=53 time=0.613 ms
64 bytes from 172.217.212.102: icmp_seq=15 ttl=53 time=0.636 ms
64 bytes from 172.217.212.102: icmp_seq=16 ttl=53 time=0.634 ms
64 bytes from 172.217.212.102: icmp_seq=17 ttl=53 time=0.644 ms
64 bytes from 172.217.212.102: icmp_seq=18 ttl=53 time=0.632 ms
64 bytes from 172.217.212.102: icmp_seq=19 ttl=53 time=0.708 ms
64 bytes from 172.217.212.102: icmp_seq=20 ttl=53 time=0.656 ms
64 bytes from 172.217.212.102: icmp_seq=21 ttl=53 time=0.620 ms
```

Note that the **Time To Live (TTL)** is the number of routers a packet can hop. So a ttl of 53 means it can jump 53 more ‘hops’ before being discarded. Each router or intermediary forwarding device decreases the TTL by one. This was a rather simplified definition of the term. We will study it in detail in the next chapter.

Now that we know some quirks and alterations added to optimize TCP over time, let’s get into TCP congestion control algorithms!