

Exercícios 1 a 4.

Para os exercícios 1 a 4 fiz o seguinte no CMD

```
C:\Users\User>ping -n 10 ualg.pt

Pinging ualg.pt [193.136.224.33] with 32 bytes of data:
Reply from 193.136.224.33: bytes=32 time=84ms TTL=55
Reply from 193.136.224.33: bytes=32 time=29ms TTL=55
Reply from 193.136.224.33: bytes=32 time=28ms TTL=55
Reply from 193.136.224.33: bytes=32 time=31ms TTL=55
Reply from 193.136.224.33: bytes=32 time=33ms TTL=55
Reply from 193.136.224.33: bytes=32 time=29ms TTL=55
Reply from 193.136.224.33: bytes=32 time=28ms TTL=55
Reply from 193.136.224.33: bytes=32 time=33ms TTL=55
Reply from 193.136.224.33: bytes=32 time=27ms TTL=55
Reply from 193.136.224.33: bytes=32 time=28ms TTL=55

Ping statistics for 193.136.224.33:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 27ms, Maximum = 84ms, Average = 35ms
```

1.

O IP de origem (host) é 192.168.1.13

O de destino é 193.136.224.33

No.	Time	Source	Destination	Protocol	Length	Info
702	15:16:50,604260	192.168.1.13	193.136.224.33	ICMP	74	Echo (ping) request id=0x0001, seq=1/256, ttl=128 (reply in 704)
704	15:16:50,688288	193.136.224.33	192.168.1.13	ICMP	74	Echo (ping) reply id=0x0001, seq=1/256, ttl=55 (request in 702)
708	15:16:51,627244	192.168.1.13	193.136.224.33	ICMP	74	Echo (ping) request id=0x0001, seq=2/512, ttl=128 (reply in 709)
709	15:16:51,657024	193.136.224.33	192.168.1.13	ICMP	74	Echo (ping) reply id=0x0001, seq=2/512, ttl=55 (request in 708)
793	15:16:52,644131	192.168.1.13	193.136.224.33	ICMP	74	Echo (ping) request id=0x0001, seq=3/768, ttl=128 (reply in 794)
794	15:16:52,672405	193.136.224.33	192.168.1.13	ICMP	74	Echo (ping) reply id=0x0001, seq=3/768, ttl=55 (request in 793)
795	15:16:53,660988	192.168.1.13	193.136.224.33	ICMP	74	Echo (ping) request id=0x0001, seq=4/1024, ttl=128 (reply in 798)
798	15:16:53,691948	193.136.224.33	192.168.1.13	ICMP	74	Echo (ping) reply id=0x0001, seq=4/1024, ttl=55 (request in 795)
807	15:16:54,670900	192.168.1.13	193.136.224.33	ICMP	74	Echo (ping) request id=0x0001, seq=5/1280, ttl=128 (reply in 808)
808	15:16:54,704139	193.136.224.33	192.168.1.13	ICMP	74	Echo (ping) reply id=0x0001, seq=5/1280, ttl=55 (request in 807)
813	15:16:55,684829	192.168.1.13	193.136.224.33	ICMP	74	Echo (ping) request id=0x0001, seq=6/1536, ttl=128 (reply in 814)
814	15:16:55,714293	193.136.224.33	192.168.1.13	ICMP	74	Echo (ping) reply id=0x0001, seq=6/1536, ttl=55 (request in 813)
816	15:16:56,705052	192.168.1.13	193.136.224.33	ICMP	74	Echo (ping) request id=0x0001, seq=7/1792, ttl=128 (reply in 817)
817	15:16:56,733589	193.136.224.33	192.168.1.13	ICMP	74	Echo (ping) reply id=0x0001, seq=7/1792, ttl=55 (request in 816)
820	15:16:57,710542	192.168.1.13	193.136.224.33	ICMP	74	Echo (ping) request id=0x0001, seq=8/2048, ttl=128 (reply in 821)
821	15:16:57,743825	193.136.224.33	192.168.1.13	ICMP	74	Echo (ping) reply id=0x0001, seq=8/2048, ttl=55 (request in 820)
823	15:16:58,722993	192.168.1.13	193.136.224.33	ICMP	74	Echo (ping) request id=0x0001, seq=9/2304, ttl=128 (reply in 824)
824	15:16:58,750033	193.136.224.33	192.168.1.13	ICMP	74	Echo (ping) reply id=0x0001, seq=9/2304, ttl=55 (request in 823)
828	15:16:59,742891	192.168.1.13	193.136.224.33	ICMP	74	Echo (ping) request id=0x0001, seq=10/2560, ttl=128 (reply in 829)
829	15:16:59,771562	193.136.224.33	192.168.1.13	ICMP	74	Echo (ping) reply id=0x0001, seq=10/2560, ttl=55 (request in 828)

2.

O ICMP (internet control message protocol) não possui número de porta de origem e de destino porque este protocolo serve para comunicar informações da camada de rede entre hosts e routers, logo, não é protocolo de transporte como o TCP e o UDP então não possui números de portas de destino nem de origem. O ICMP para identificar a mensagem que está a ser recebida utiliza uma combinação tipo/código.

3.

O tipo do ICMP é o 8 e número do código é 0. O ICMP conta com campos como checksum, identifier, sequence number, e data fields. O checksum, o identifier e o sequence number têm 2 bytes cada um.

```
▼ Internet Control Message Protocol
  Type: 8 (Echo (ping) request)
  Code: 0
  Checksum: 0x4d5a [correct]
  [Checksum Status: Good]
  Identifier (BE): 1 (0x0001)
  Identifier (LE): 256 (0x0100)
  Sequence Number (BE): 1 (0x0001)
  Sequence Number (LE): 256 (0x0100)
  [Response frame: 704]
  ▶ Data (32 bytes)
```

4.

O tipo do ICMP é o tipo 0 e o número do código é o 0. O ICMP conta com campos como checksum, identifier, sequence number, e data fields. O checksum, o identifier e o sequence number têm 2 bytes cada um tal como no request.

```
▼ Internet Control Message Protocol
  Type: 0 (Echo (ping) reply)
  Code: 0
  Checksum: 0x555a [correct]
  [Checksum Status: Good]
  Identifier (BE): 1 (0x0001)
  Identifier (LE): 256 (0x0100)
  Sequence Number (BE): 1 (0x0001)
  Sequence Number (LE): 256 (0x0100)
  [Request frame: 702]
  [Response time: 84,028 ms]
  ▼ Data (32 bytes)
    Data: 61626364656666768696a6b6c6d6e6f70717273747576776162636465666676869
    [Length: 32]
```

Exercícios 5 a 10.

Para os seguintes exercícios fiz isto no cmd.

```
C:\Users\User>tracert ualg.pt

Tracing route to ualg.pt [193.136.224.33]
over a maximum of 30 hops:

  1    6 ms    5 ms    2 ms  192.168.1.1
  2   33 ms   12 ms   17 ms  10.17.127.254
  3   33 ms   15 ms   14 ms  10.137.227.81
  4   42 ms   18 ms   18 ms  10.255.48.82
  5   33 ms   24 ms   18 ms  Router3.Lisboa.fccn.pt [193.136.251.1]
  6   26 ms   19 ms   19 ms  Router30.Lisboa.fccn.pt [194.210.6.102]
  7   38 ms   19 ms   18 ms  Router13.Evora.fccn.pt [194.210.6.121]
  8    *      *      *      Request timed out.
  9    *      *      *      Request timed out.
 10  40 ms   29 ms   22 ms  www.ualg.pt [193.136.224.33]

Trace complete.
```

5.

O IP da posta de origem é 192.168.1.13

O IP da porta de destino é 193.136.224.33

Time	Time	Source	Destination	Protocol	Length	Time
13	15:37:04	209271	192.168.1.13	193.136.224.33	ICMP	106 Echo (ping) request id=0x0001, seq=11/2816, ttl=1 (no response found!)
14	15:37:04	215163	192.168.1.1	192.168.1.13	ICMP	134 Time-to-live exceeded (Time to live exceeded in transit)
15	15:37:04	216091	192.168.1.13	193.136.224.33	ICMP	106 Echo (ping) request id=0x0001, seq=12/3072, ttl=1 (no response found!)
16	15:37:04	221394	192.168.1.1	192.168.1.13	ICMP	134 Time-to-live exceeded (Time to live exceeded in transit)
17	15:37:04	222089	192.168.1.13	193.136.224.33	ICMP	106 Echo (ping) request id=0x0001, seq=13/3328, ttl=1 (no response found!)
18	15:37:04	224906	192.168.1.1	192.168.1.13	ICMP	134 Time-to-live exceeded (Time to live exceeded in transit)
19	15:37:04	225887	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
20	15:37:04	226868	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
21	15:37:04	227849	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
22	15:37:04	228830	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
23	15:37:04	229811	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
24	15:37:04	230792	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
25	15:37:04	231773	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
26	15:37:04	232754	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
27	15:37:04	233735	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
28	15:37:04	234716	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
29	15:37:04	235697	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
30	15:37:04	236678	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
31	15:37:04	237659	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
32	15:37:04	238640	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
33	15:37:04	239621	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
34	15:37:04	240602	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
35	15:37:04	241583	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
36	15:37:04	242564	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
37	15:37:04	243545	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
38	15:37:04	244526	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
39	15:37:04	245507	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
40	15:37:04	246488	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
41	15:37:04	247469	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
42	15:37:04	248450	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
43	15:37:04	249431	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
44	15:37:04	250412	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
45	15:37:04	251393	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
46	15:37:04	252374	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
47	15:37:04	253355	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
48	15:37:04	254336	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
49	15:37:04	255317	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
50	15:37:04	256298	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
51	15:37:04	257279	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
52	15:37:04	258260	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
53	15:37:04	259241	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
54	15:37:04	260222	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
55	15:37:04	261203	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
56	15:37:04	262184	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
57	15:37:04	263165	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
58	15:37:04	264146	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
59	15:37:04	265127	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
60	15:37:04	266108	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
61	15:37:04	267089	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
62	15:37:04	268070	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
63	15:37:04	269051	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
64	15:37:04	270032	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
65	15:37:04	271013	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
66	15:37:04	271994	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
67	15:37:04	272975	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
68	15:37:04	273956	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
69	15:37:04	274937	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
70	15:37:04	275918	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
71	15:37:04	276899	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
72	15:37:04	277880	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
73	15:37:04	278861	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
74	15:37:04	279842	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
75	15:37:04	280823	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
76	15:37:04	281804	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
77	15:37:04	282785	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
78	15:37:04	283766	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
79	15:37:04	284747	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
80	15:37:04	285728	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
81	15:37:04	286709	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
82	15:37:04	287690	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
83	15:37:04	288671	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
84	15:37:04	289652	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
85	15:37:04	290633	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
86	15:37:04	291614	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
87	15:37:04	292595	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
88	15:37:04	293576	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
89	15:37:04	294557	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
90	15:37:04	295538	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
91	15:37:04	296519	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
92	15:37:04	297500	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
93	15:37:04	298481	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
94	15:37:04	299462	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
95	15:37:04	300443	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
96	15:37:04	301424	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
97	15:37:04	302405	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
98	15:37:04	303386	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
99	15:37:04	304367	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
100	15:37:04	305348	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
101	15:37:04	306329	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
102	15:37:04	307310	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
103	15:37:04	308291	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
104	15:37:04	309272	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
105	15:37:04	310253	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
106	15:37:04	311234	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
107	15:37:04	312215	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
108	15:37:04	313196	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
109	15:37:04	314177	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)
110	15:37:04	315158	192.168.1.1	192.168.1.13	ICMP	120 Destination unreachable (Port unreachable)

6.

Não, o número de protocolo IP não seria 01 se o ICMP usasse pacotes UDP como em Unix/Linux. O número de protocolo deveria ser 0x11 se o ICMP usasse pacotes UDP.

7.

Tem os mesmos campos do ICMP ping request da primeira parte deste lab.

8.

O pacote de erro ICMP não é o mesmo que os pacotes de ICMP ping request. O pacote de erro contém o cabeçalho IP e os primeiros 8 bytes do pacote ICMP original ao qual o erro de refere.

9.

Os 3 últimos pacotes ICMP são do tipo 0 (echo reply) e os de erro são do tipo 11 (TTL expirado) Eles são diferentes porque os datagramas chegaram ao host de destino antes do TTL expirar.

```
→ 886 15:38:07,972817 192.168.1.13 193.136.224.33 ICMP 106 Echo (ping) request id=0x0001, seq=38/9728, ttl=10 (r
← 889 15:38:08,013143 193.136.224.33 192.168.1.13 ICMP 106 Echo (ping) reply id=0x0001, seq=38/9728, ttl=55 (r
890 15:38:08,014718 192.168.1.13 193.136.224.33 ICMP 106 Echo (ping) request id=0x0001, seq=39/9984, ttl=10 (r
891 15:38:08,043834 193.136.224.33 192.168.1.13 ICMP 106 Echo (ping) reply id=0x0001, seq=39/9984, ttl=55 (r
892 15:38:08,045688 192.168.1.13 193.136.224.33 ICMP 106 Echo (ping) request id=0x0001, seq=40/10240, ttl=10 (i
893 15:38:08,067609 193.136.224.33 192.168.1.13 ICMP 106 Echo (ping) reply id=0x0001, seq=40/10240, ttl=55 (i

Frame 889: 106 bytes on wire (848 bits), 106 bytes captured (848 bits) on interface \Device\NPF_{C73F9624-6EA4-48F7-84A2-92694EAC7D9A}
Ethernet II, Src: AskeyCompute_1b:8b:74 (78:29:ed:1b:8b:74), Dst: AzureWaveTec_1b:ad:5f (14:d4:24:1b:ad:5f)
Internet Protocol Version 4, Src: 193.136.224.33, Dst: 192.168.1.13
Internet Control Message Protocol
  Type: 0 (Echo (ping) reply)
  Code: 0
  Checksum: 0xffd8 [correct]
  [Checksum Status: Good]
  Identifier (BE): 1 (0x0001)
  Identifier (LE): 256 (0x0100)
  Sequence Number (BE): 38 (0x0026)
  Sequence Number (LE): 9728 (0x2600)
  [Request frame: 886]
  [Response time: 40,326 ms]
Data (64 bytes)

368 15:37:38,494771 194.210.6.121 192.168.1.13 ICMP 110 Time-to-live exceeded (Time to live exceeded in transit)
369 15:37:38,495407 192.168.1.13 193.136.224.33 ICMP 106 Echo (ping) request id=0x0001, seq=30/7680, ttl=7 (no response found!)
370 15:37:38,515009 194.210.6.121 192.168.1.13 ICMP 110 Time-to-live exceeded (Time to live exceeded in transit)
371 15:37:38,515714 192.168.1.13 193.136.224.33 ICMP 106 Echo (ping) request id=0x0001, seq=31/7936, ttl=7 (no response found!)
372 15:37:38,533655 194.210.6.121 192.168.1.13 ICMP 110 Time-to-live exceeded (Time to live exceeded in transit)
379 15:37:44,093340 192.168.1.13 193.136.224.33 ICMP 106 Echo (ping) request id=0x0001, seq=32/8192, ttl=8 (no response found!)
709 15:37:47,982744 192.168.1.13 193.136.224.33 ICMP 106 Echo (ping) request id=0x0001, seq=33/8448, ttl=8 (no response found!)
778 15:37:51,973140 192.168.1.13 193.136.224.33 ICMP 106 Echo (ping) request id=0x0001, seq=34/8704, ttl=8 (no response found!)
797 15:37:55,980663 192.168.1.13 193.136.224.33 ICMP 106 Echo (ping) request id=0x0001, seq=35/8960, ttl=9 (no response found!)

Frame 368: 110 bytes on wire (880 bits), 110 bytes captured (880 bits) on interface \Device\NPF_{C73F9624-6EA4-48F7-84A2-92694EAC7D9A}
Ethernet II, Src: AskeyCompute_1b:8b:74 (78:29:ed:1b:8b:74), Dst: AzureWaveTec_1b:ad:5f (14:d4:24:1b:ad:5f)
Internet Protocol Version 4, Src: 194.210.6.121, Dst: 192.168.1.13
Internet Control Message Protocol
  Type: 11 (Time-to-live exceeded)
  Code: 0 (Time to live exceeded in transit)
  Checksum: 0xf4ee [correct]
  [Checksum Status: Good]
  Unused: 00
  Length: 17
  [Length of original datagram: 68]
  Unused: 0000
Internet Protocol Version 4, Src: 192.168.1.13, Dst: 193.136.224.33
Internet Control Message Protocol
  Type: 8 (Echo (ping) request)
  Code: 0
  Checksum: 0xf7e1 [unverified] [in ICMP error packet]
  [Checksum Status: Unverified]
  Identifier (RF): 1 (0x0001)
```

10.

Apresentam todos mais ou menos os mesmos tempos, isto no caso que eu fiz para a ualg.pt. Já na figura 4, existe uma ligação que demora mais que outras que de new york para pastourelle.

```
C:\Users\User>tracert ualg.pt

Tracing route to ualg.pt [193.136.224.33]
over a maximum of 30 hops:

  1      6 ms      5 ms      2 ms  192.168.1.1
  2     33 ms     12 ms     17 ms  10.17.127.254
  3     33 ms     15 ms     14 ms  10.137.227.81
  4     42 ms     18 ms     18 ms  10.255.48.82
  5     33 ms     24 ms     18 ms  Router3.Lisboa.fccn.pt [193.136.251.1]
  6     26 ms     19 ms     19 ms  Router30.Lisboa.fccn.pt [194.210.6.102]
  7     38 ms     19 ms     18 ms  Router13.Evora.fccn.pt [194.210.6.121]
  8      *        *        *    Request timed out.
  9      *        *        *    Request timed out.
 10     40 ms     29 ms     22 ms  www.ualg.pt [193.136.224.33]

Trace complete.
```