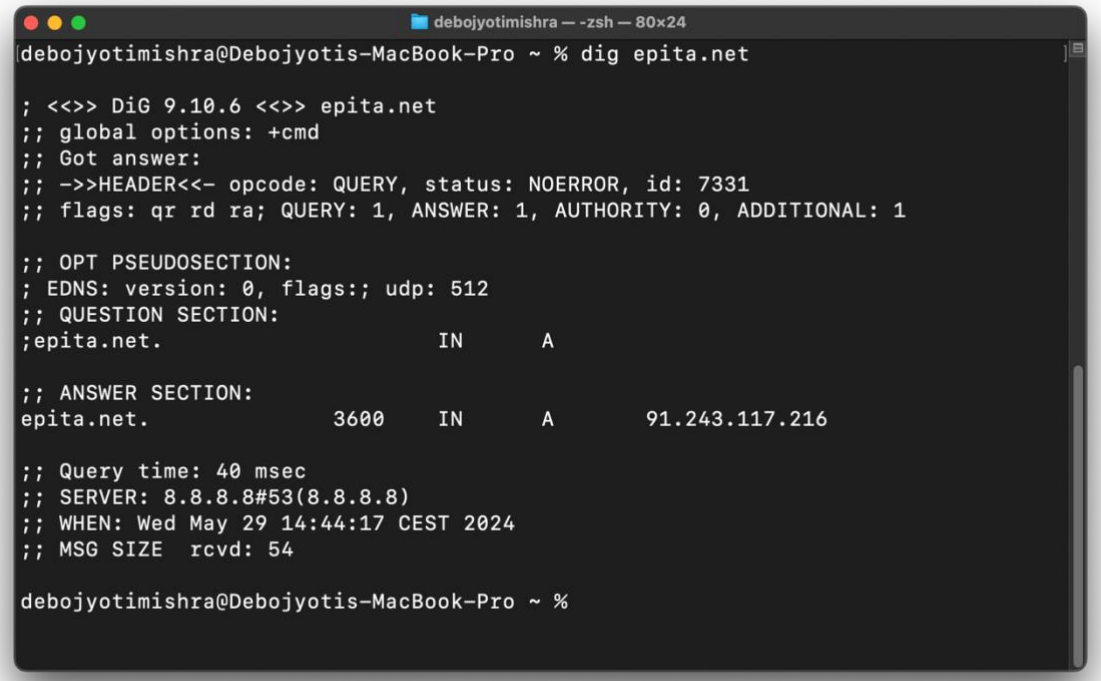
Exercise 15 (a)

DIG



// Sources:
// https://www.hostinger.fr/tutoriels/comment-utiliser-la-commande-dig-sous-linux
// https://www.ibm.com/docs/en/aix/7.2?topic=d-dig-command

The dig command shows DNS lookups and the answers returned from the queried name servers.

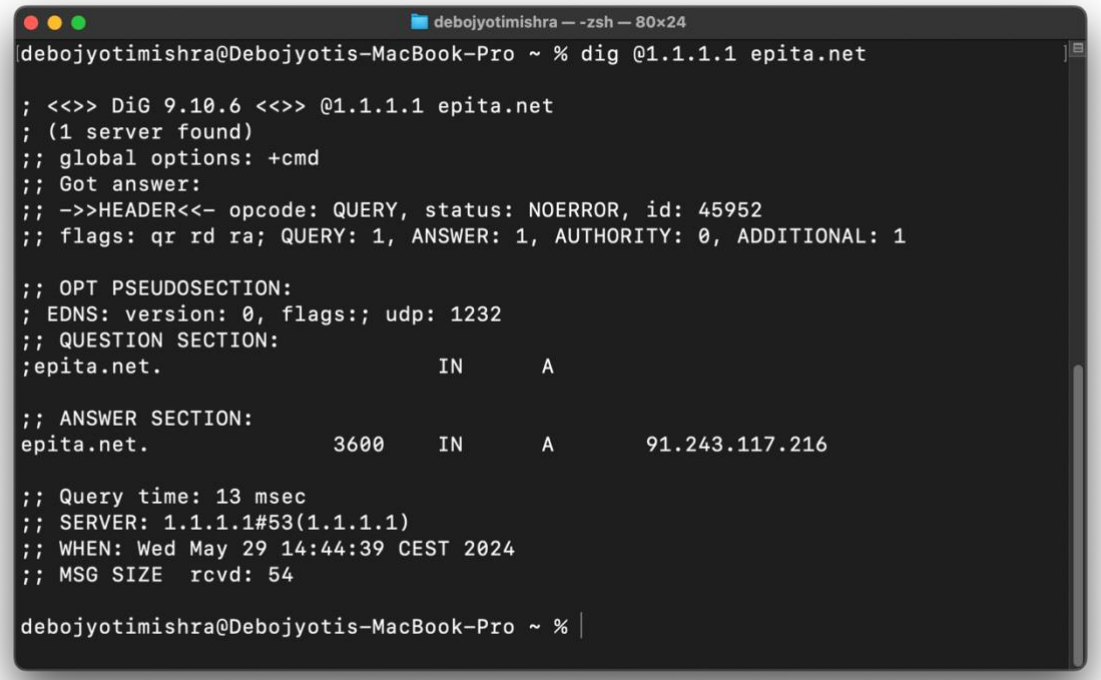
We can see some informations in the header:

- Opcode: type of the command (in this case is QUERY)
- Status: NOERROR (meaning that there is no error in the querying process)
- ID: 43349
- Answer 1: Only 1 answer is returned

Besides, further informations is provided:

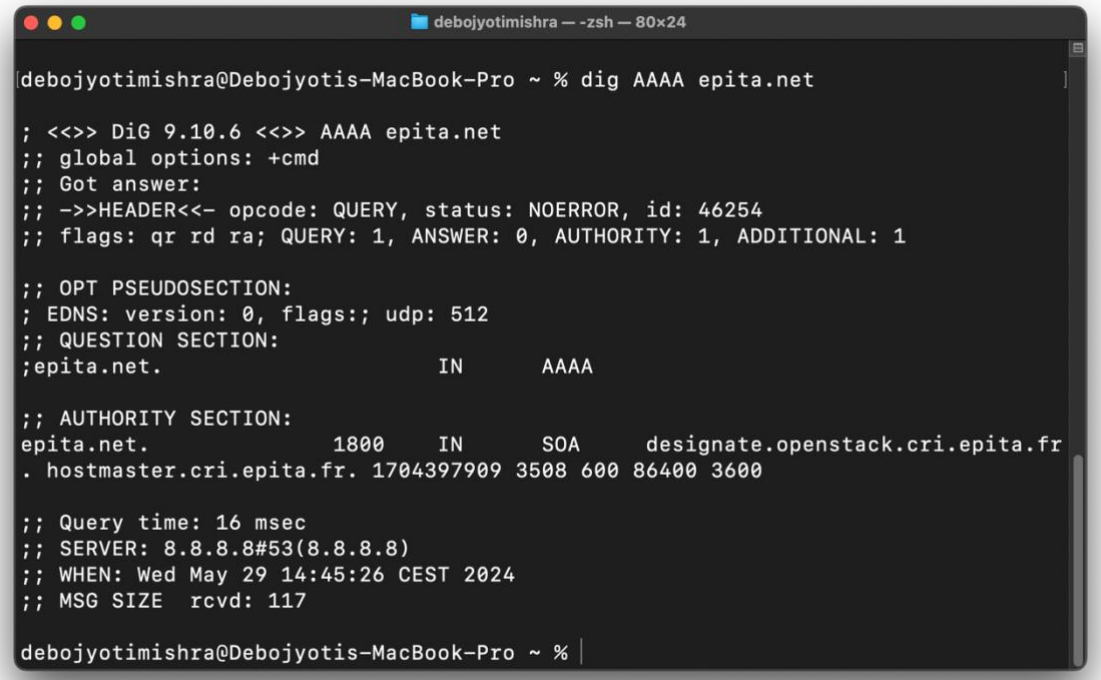
- Question section: show list of queried domain (epita.net) and type of command (A)
- Answer section: show ip address of the queried domain (91.243.117.216)

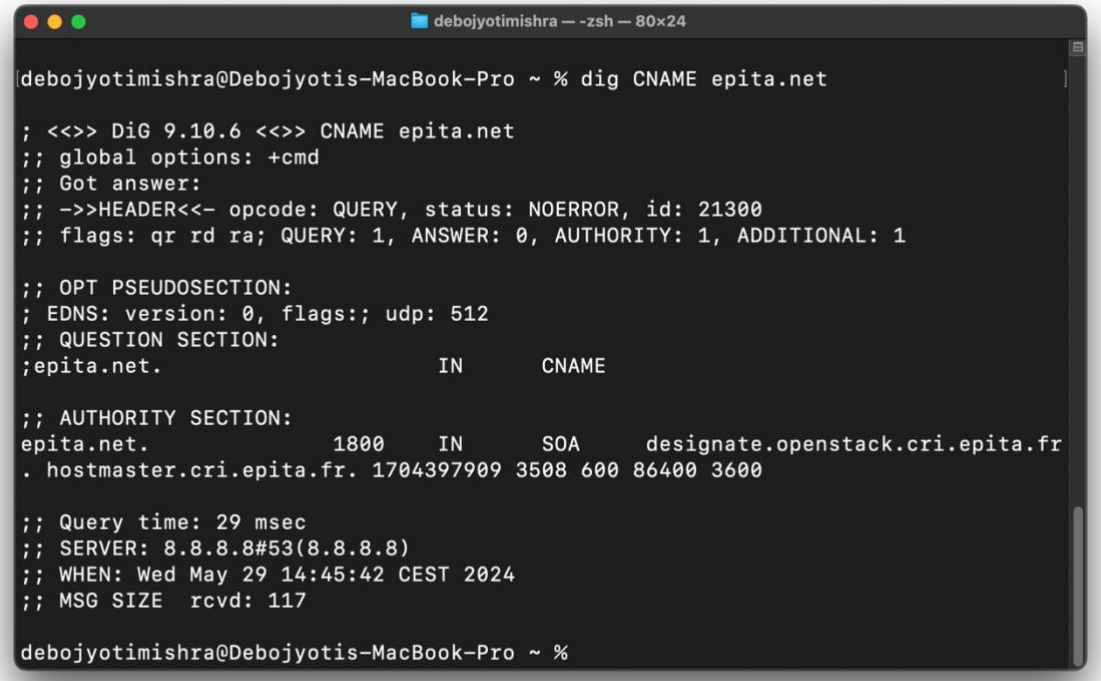
Query time, server, date time and size is also provided



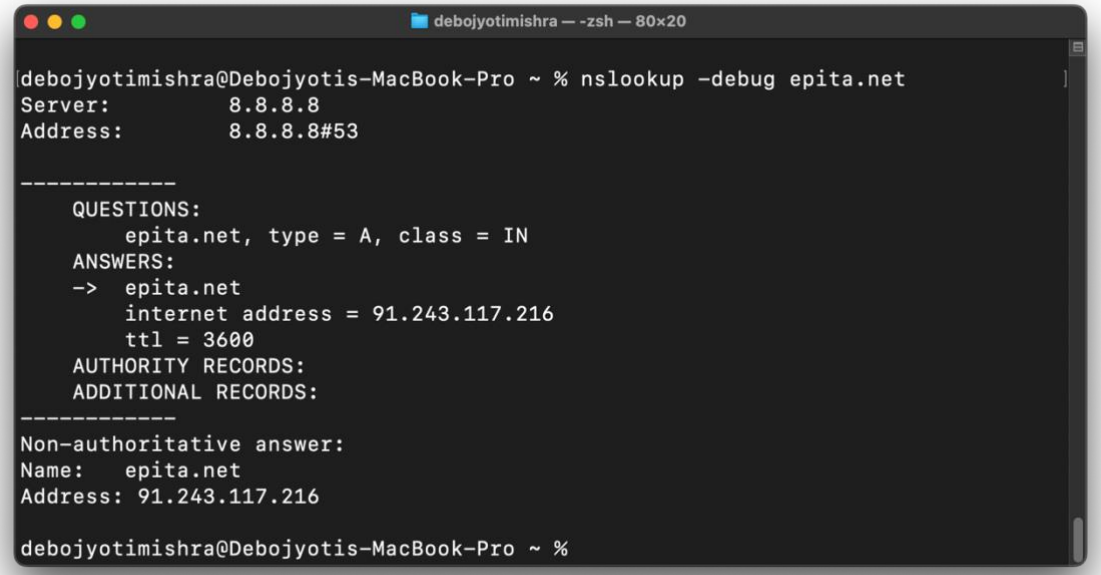
Dig @1.1.1.1 epita.net command queries the domain name at IP 1.1.1.1.

- (1 server found): We are a quering a domain name at a specific IP address so it shows the number of server found (in this case 1)


debojyotimishra — -zsh — 80×24
debojyotimishra@Debojyotis-MacBook-Pro ~ % dig AAAA epita.net
; <<>> DiG 9.10.6 <<>> AAAA epita.net
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 46254
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; QUESTION SECTION:
;epita.net. IN AAAA
;; AUTHORITY SECTION:
epita.net. 1800 IN SOA designate.openstack.cri.epita.fr
. hostmaster.cri.epita.fr. 1704397909 3508 600 86400 3600
;; Query time: 16 msec
;; SERVER: 8.8.8.8#53(8.8.8.8)
;; WHEN: Wed May 29 14:45:26 CEST 2024
;; MSG SIZE rcvd: 117
debojyotimishra@Debojyotis-MacBook-Pro ~ %

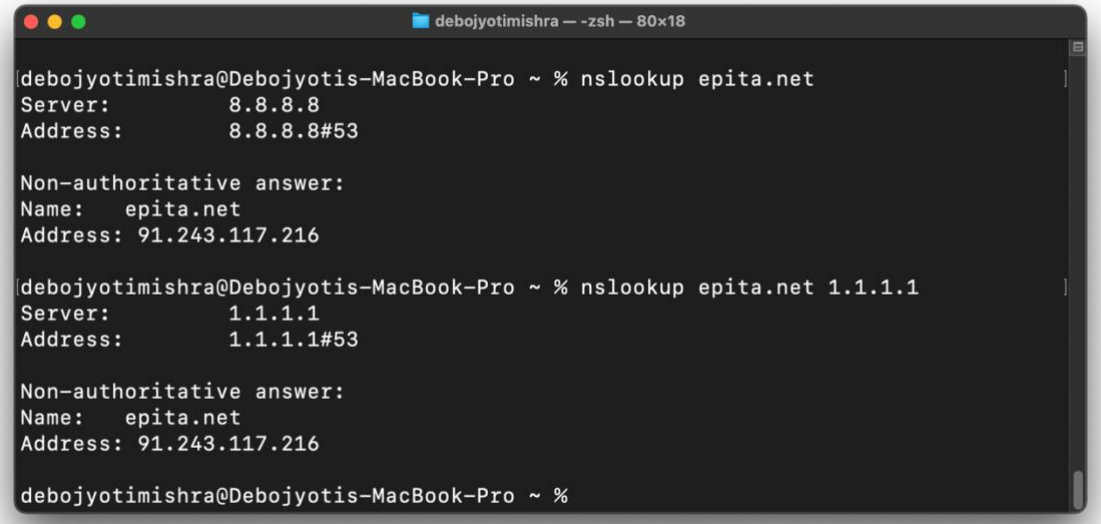

debojyotimishra — -zsh — 80×24
debojyotimishra@Debojyotis-MacBook-Pro ~ % dig CNAME epita.net
; <<>> DiG 9.10.6 <<>> CNAME epita.net
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 21300
;; flags: qr rd ra; QUERY: 1, ANSWER: 0, AUTHORITY: 1, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 512
;; QUESTION SECTION:
;epita.net. IN CNAME
;; AUTHORITY SECTION:
epita.net. 1800 IN SOA designate.openstack.cri.epita.fr
. hostmaster.cri.epita.fr. 1704397909 3508 600 86400 3600
;; Query time: 29 msec
;; SERVER: 8.8.8.8#53(8.8.8.8)
;; WHEN: Wed May 29 14:45:42 CEST 2024
;; MSG SIZE rcvd: 117
debojyotimishra@Debojyotis-MacBook-Pro ~ %

NSLOOKUP



The Output:

- Server: 8.8.8.8 (Google DNS server)
- Address: 8.8.8.8#53 (IP address and port of the DNS server)
- Questions: Indicates the DNS query for epita.net of type A (Address record), class IN (Internet).
- Answers: Provides the resolved IP address for epita.net.
- Address: 91.243.117.216 (IP address associated with the domain)
- TTL: 3600 (Time to Live [in seconds] for the DNS record)

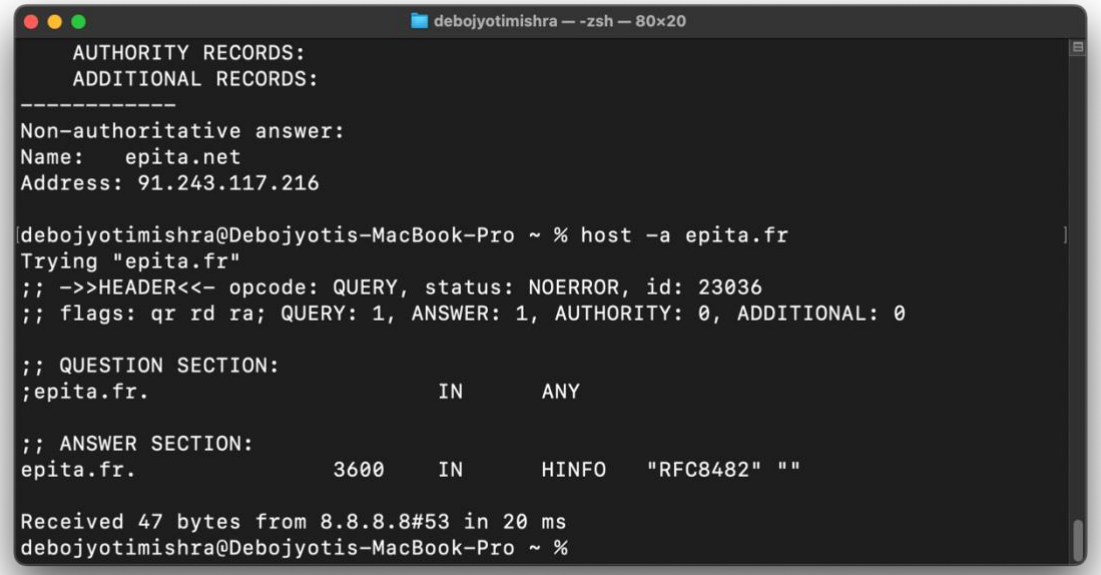


The Output:

- For 'nslookup epita.net':
  - Server: 8.8.8.8 (Google DNS server)
  - Address: 8.8.8.8#53 (IP address and port of the DNS server)
  - Non-authoritative answer: Provides the resolved IP address for epita.net.
  - Name: epita.net, gives the domain name
  - Address: 91.243.117.216 (IP Address associated with the domain)

- For 'nslookup epita.net 1.1.1.1
  - Server: 1.1.1.1 (Cloudflare's public DNS server)
  - Address: 1.1.1.1#53 (IP address and port of the DNS server)
  - Non-authoritative answer: Gives the resolved IP address for epita.net.

HOST



Header:

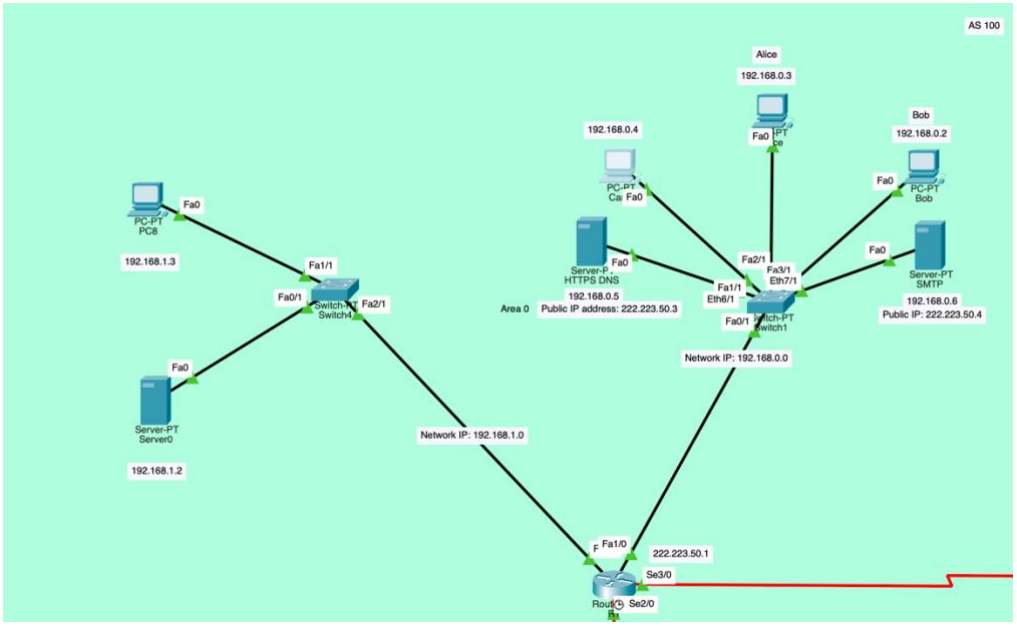
// Information Source: ChatGPT 4o

- opcode: QUERY
- status: NOERROR (indicating that the query was processed without errors)
- id: 23036 (identifier for the DNS query)
- flags: qr (query response), rd (recursion desired), ra (recursion available)
- QUERY: 1 (number of queries)
- ANSWER: 1 (number of answers)
- AUTHORITY: 0 (number of authority records)
- ADDITIONAL: 0 (number of additional records)

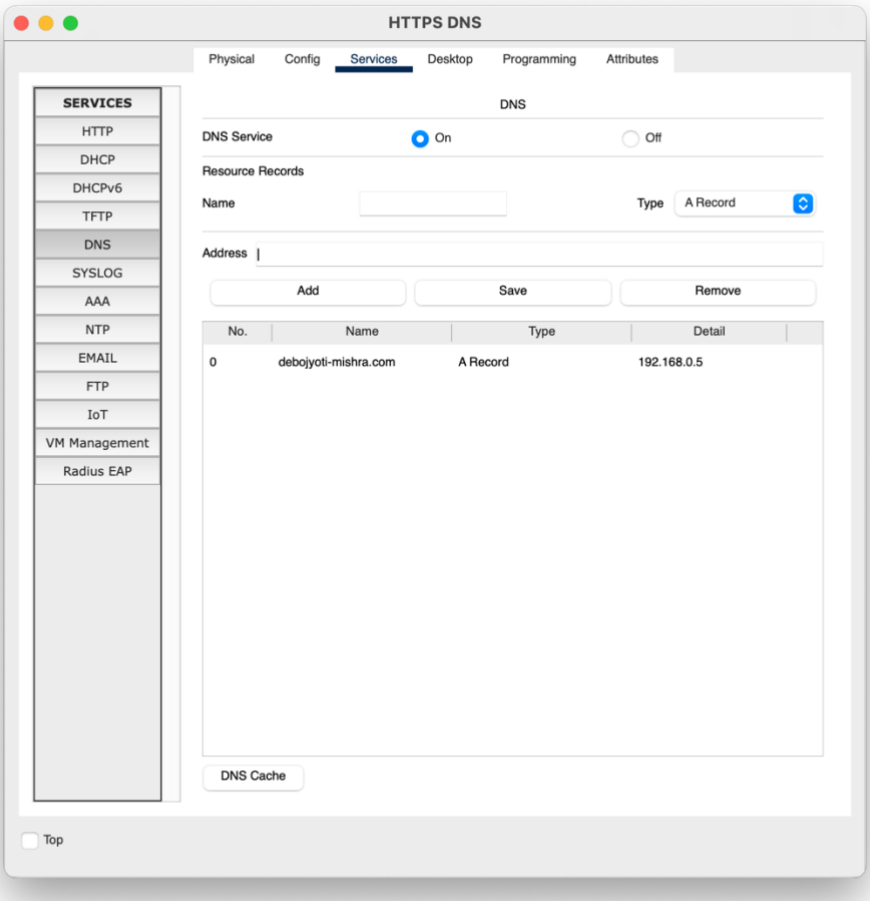
Exercise 15 (b)

1. Configuring DNS service on the HTTPS server:

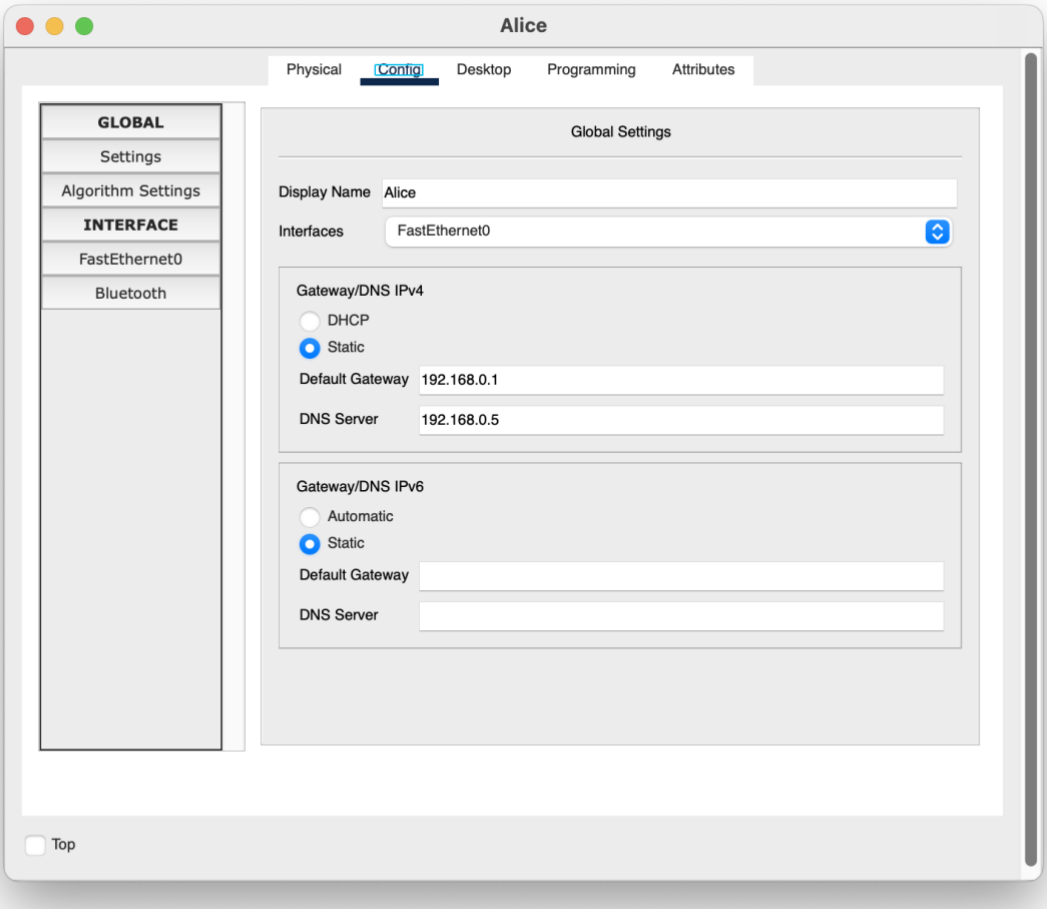
    - Setup of AS100

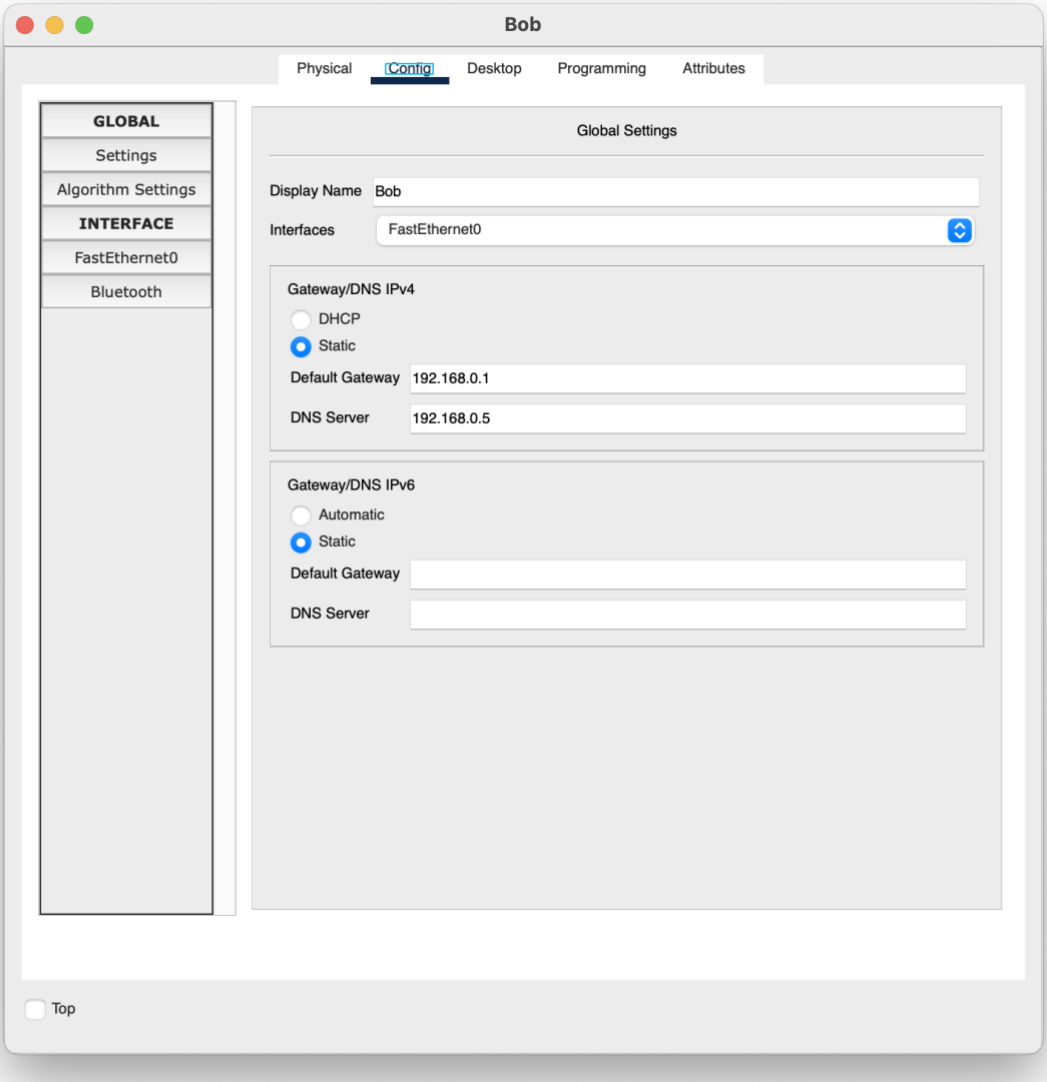


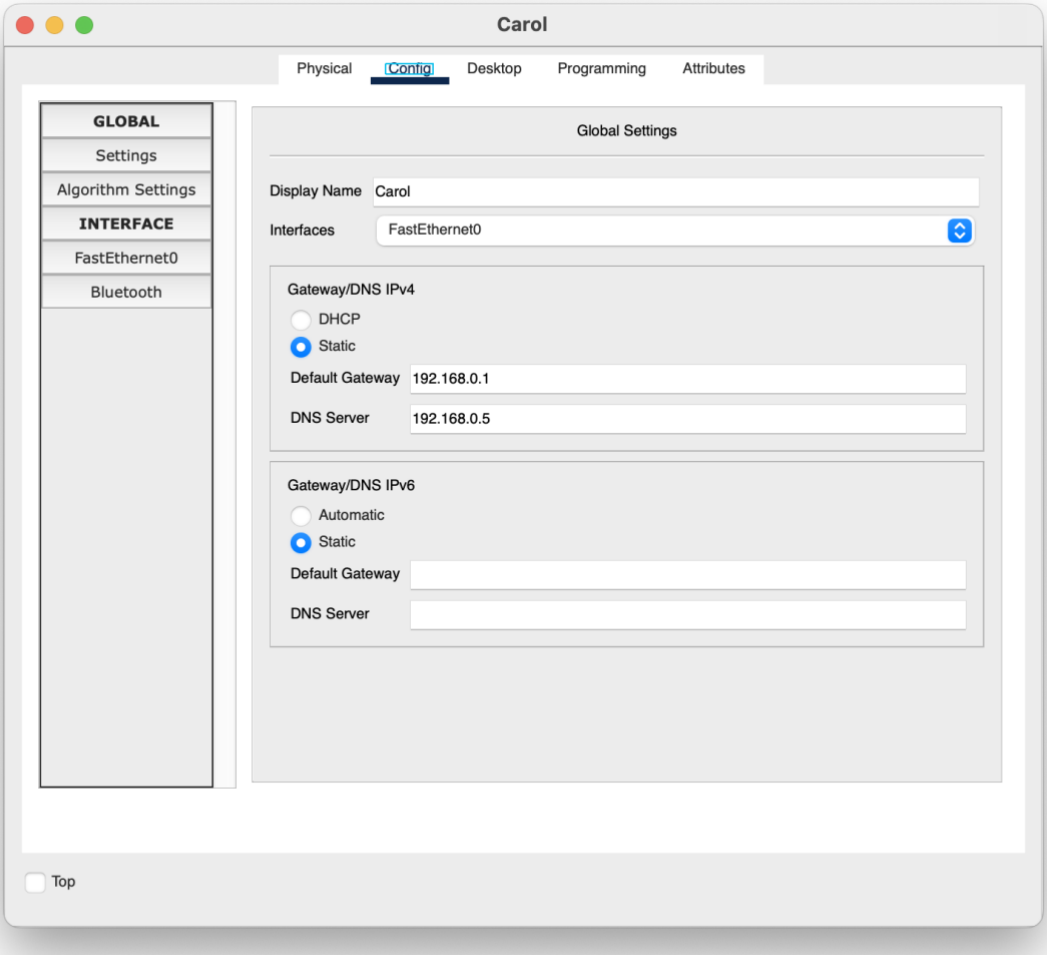
    - DNS setup on HTTPS-DNS Server



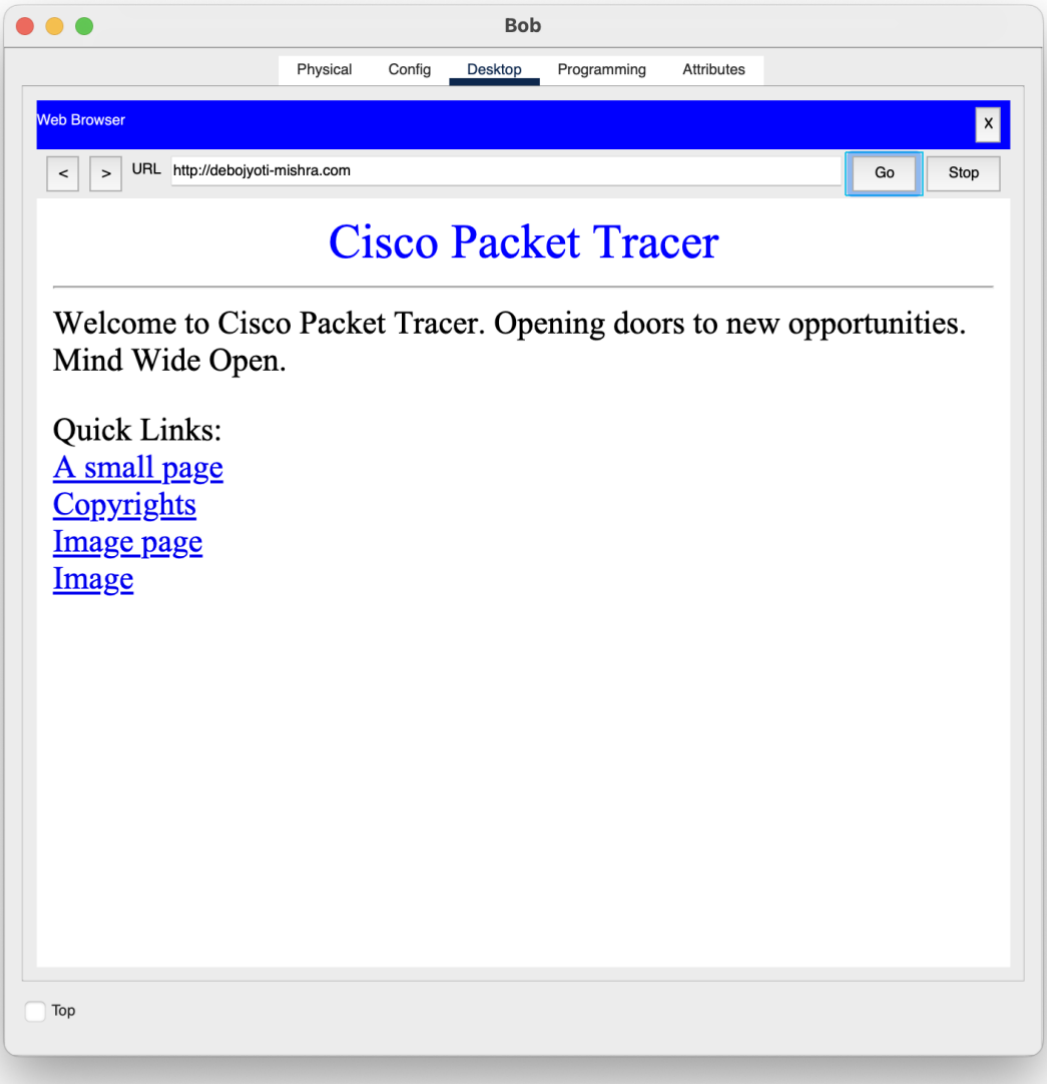
2. DNS Setup on end devices:

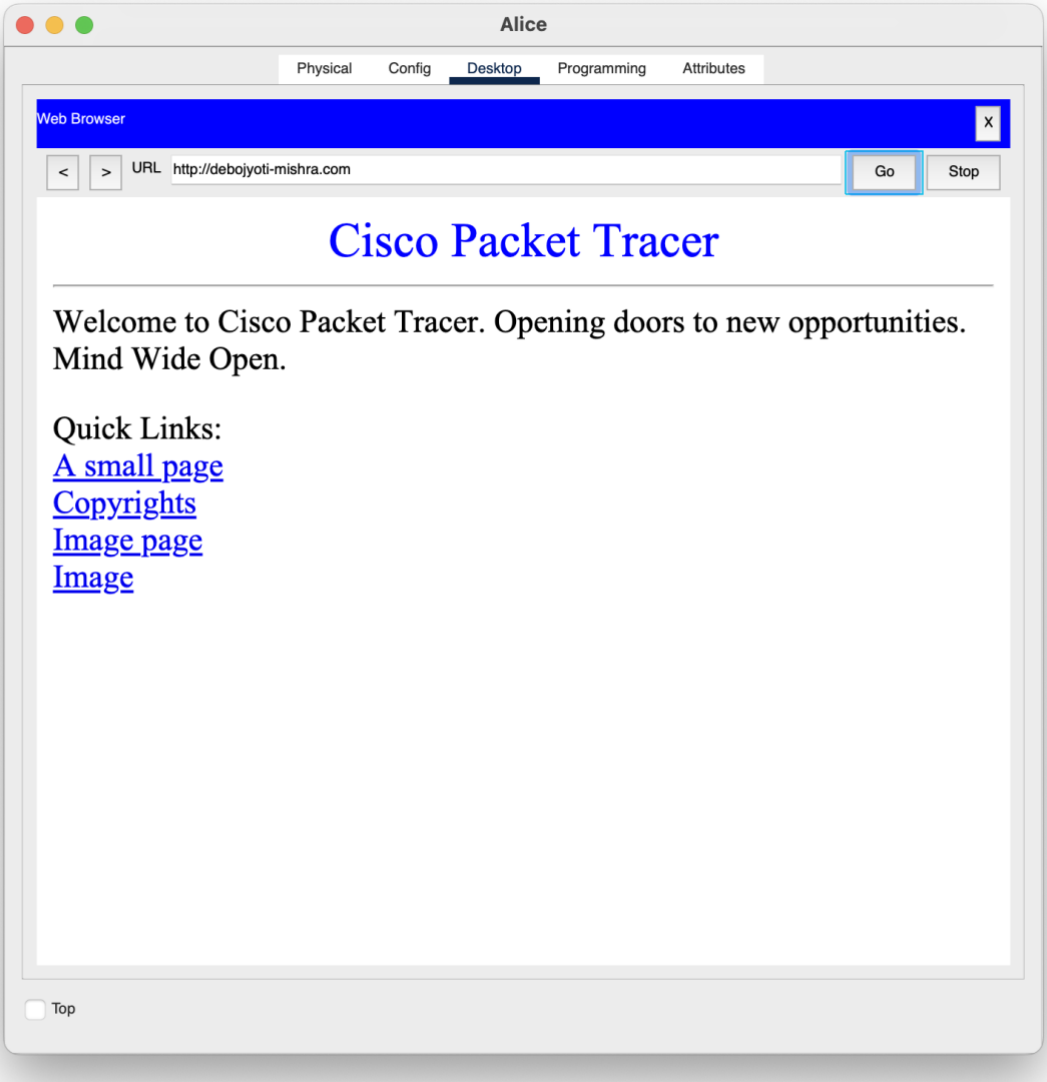



Bob
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
Global Settings
Display Name
Bob
Interfaces
FastEthernet0
Gateway/DNS IPv4
DHCP
Static
Default Gateway
192.168.0.1
DNS Server
192.168.0.5
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server
Top


Carol
Physical
Config
Desktop
Programming
Attributes
GLOBAL
Settings
Algorithm Settings
INTERFACE
FastEthernet0
Bluetooth
Global Settings
Display Name
Carol
Interfaces
FastEthernet0
Gateway/DNS IPv4
DHCP
Static
Default Gateway
192.168.0.1
DNS Server
192.168.0.5
Gateway/DNS IPv6
Automatic
Static
Default Gateway
DNS Server
Top

Testing to check if configuration worked:




Alice
Physical
Config
Desktop
Programming
Attributes
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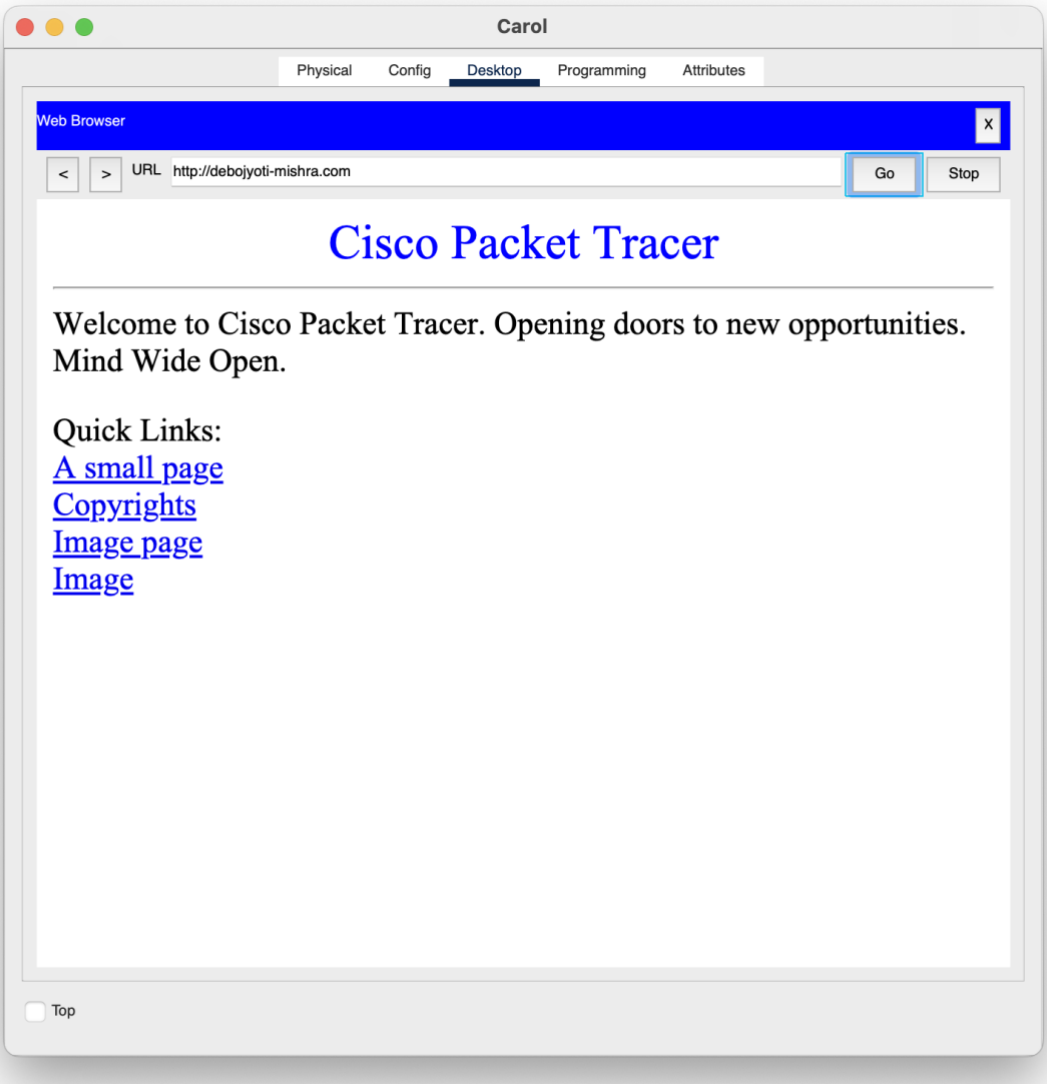
Cisco Packet Tracer
Welcome to Cisco Packet Tracer. Opening doors to new opportunities.
Mind Wide Open.
Quick Links:
A small page
Copyrights
Image page
Image
Top


Carol
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Cisco Packet Tracer
Welcome to Cisco Packet Tracer. Opening doors to new opportunities.
Mind Wide Open.
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Image
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