



## INTRO TO CYBER | PROJECTS: NET CRAFTS

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# 1. Map the Network

## 1.1. Display Device IP Address

```
C:\Users\vanho>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet0:

  Connection-specific DNS Suffix  . : localdomain
  Link-local IPv6 Address . . . . . : fe80::f4dc:1d62:c410:79ab%13
  IPv4 Address . . . . . : 192.168.220.139
  Subnet Mask . . . . . : 255.255.255.0
  Default Gateway . . . . . : 192.168.220.2

C:\Users\vanho>
```

## 1.2. Display Devices MAC Address and Vendor (display partially).

- MAC Adress

```
C:\Users\vanho>ipconfig/all

Windows IP Configuration

  Host Name . . . . . : HornVanhong
  Primary Dns Suffix . . . . . :
  Node Type . . . . . : Hybrid
  IP Routing Enabled. . . . . : No
  WINS Proxy Enabled. . . . . : No
  DNS Suffix Search List. . . . . : localdomain

Ethernet adapter Ethernet0:

  Connection-specific DNS Suffix  . : localdomain
  Description . . . . . : Intel(R) 82574L Gigabit Network Connection
  Physical Address . . . . . : 00-0C-29-21-E1-94
  DHCP Enabled. . . . . : Yes
  Autoconfiguration Enabled . . . . . : Yes
  Link-local IPv6 Address . . . . . : fe80::f4dc:1d62:c410:79ab%13(Preferred)
  IPv4 Address. . . . . : 192.168.220.139(Preferred)
  Subnet Mask . . . . . : 255.255.255.0
  Lease Obtained. . . . . : Friday, November 21, 2025 8:15:49 PM
  Lease Expires . . . . . : Friday, November 21, 2025 8:45:49 PM
  Default Gateway . . . . . : 192.168.220.2
  DHCP Server . . . . . : 192.168.220.254
  DHCPv6 IAID . . . . . : 100666409
  DHCPv6 Client DUID. . . . . : 00-01-00-01-30-B0-6E-81-00-0C-29-21-E1-94
  DNS Servers . . . . . : 192.168.220.2
  Primary WINS Server . . . . . : 192.168.220.2
  NetBIOS over Tcpip. . . . . : Enabled
```

- Vendor

VMware, Inc.

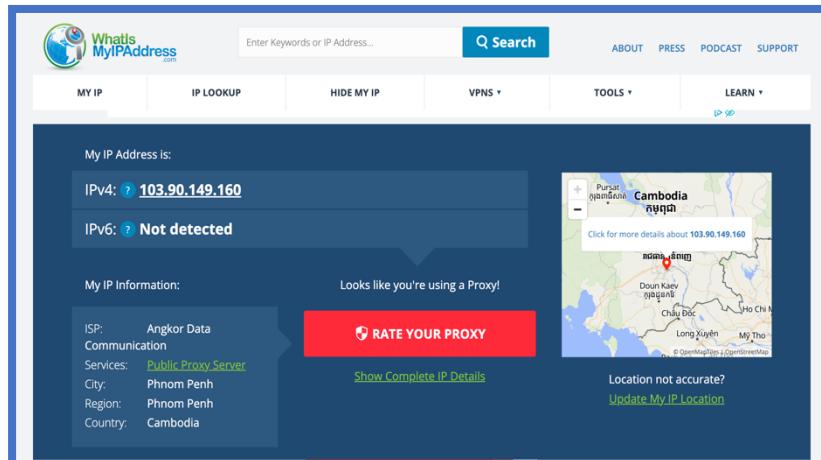
The screenshot shows the Wireshark OUI Lookup Tool interface. At the top, there is a search bar containing the MAC address "00:0C:29". Below the search bar, the results are displayed, showing "00:0C:29 VMware, Inc.". A blue support banner at the bottom encourages users to "Support Us" by donating to the Wireshark Foundation.

### 1.3. Display the Router's Internal and External IP Addresses (display partially).

- Internal IP

```
Connection-specific DNS Suffix . : localdomain
Link-local IPv6 Address . . . . . : fe80::f4dc:1d62:c410:79ab%6
IPv4 Address . . . . . : 192.168.220.139
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.220.2
```

- External IP



### 1.4. Display Device Names.

```
C:\Users\vanho>systeminfo
```

Host Name:	HORNVANHONG
OS Name:	Microsoft Windows 11 Home
OS Version:	10.0.26200 N/A Build 26200

### 1.5. Display the DNS and DHCP IP Addresses in your Network.

- DNS

```
C:\Users\vanho>ipconfig/all
```

Windows IP Configuration

Host Name . . . . . : HornVanhong  
Primary Dns Suffix . . . . . :  
Node Type . . . . . : Hybrid  
IP Routing Enabled. . . . . : No  
WINS Proxy Enabled. . . . . : No  
DNS Suffix Search List. . . . . : localdomain

Ethernet adapter Ethernet0:

```
Connection-specific DNS Suffix . : localdomain
Description . . . . . : Intel(R) B2574L Gigabit Network Connection
Physical Address . . . . . : 00-0C-29-21-E1-94
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::f4dc:1d62:c410:79ab%13(Preferred)
IPv4 Address. . . . . : 192.168.220.139(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Friday, November 21, 2025 8:15:49 PM
Lease Expires . . . . . : Friday, November 21, 2025 8:45:49 PM
Default Gateway . . . . . : 192.168.220.2
DHCP Server . . . . . : 192.168.220.254
DHCPv6 IID . . . . . : 100666409
DHCPv6 Client DUID. . . . . : 00-01-00-01-30-B0-6E-81-00-0C-29-21-E1-94
DNS Servers . . . . . : 192.168.220.2
Primary WINS Server . . . . . : 192.168.220.2
NetBIOS over Tcpip. . . . . : Enabled
```

## • DHCP

```
C:\Users\vanho>ipconfig/all
Windows IP Configuration

Host Name . . . . . : HornVanhong
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : localdomain

Ethernet adapter Ethernet0:

Connection-specific DNS Suffix . . . . . : localdomain
Description . . . . . : Intel(R) 82574L Gigabit Network Connection
Physical Address . . . . . : 00-0C-29-21-E1-94
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::f4dc:1d62:c410:79ab%13(PREFERRED)
IPv4 Address. . . . . : 192.168.220.139(PREFERRED)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Friday, November 21, 2025 8:15:49 PM
Lease Expires . . . . . : Friday, November 21, 2025 8:45:49 PM
Default Gateway . . . . . : 192.168.220.2
DHCP Server . . . . . : 192.168.220.254
DHCPv6 IAID . . . . . : 100666409
DHCPv6 Client DUID. . . . . : 00-01-00-01-30-B0-6E-81-00-0C-29-21-E1-94
DNS Servers . . . . . : 192.168.220.2
Primary WINS Server . . . . . : 192.168.220.2
NetBIOS over Tcpip. . . . . : Enabled
```

## 1.6. Display your Internet Service Provider (ISP).

The screenshot shows the 'What's My IP Address' website. At the top, it displays the user's IP address: **IPv4: 103.90.149.160** and **IPv6: Not detected**. Below this, under 'My IP Information', it shows the ISP as **Angkor Data Communication**, Services as **Public Proxy Server**, City as **Phnom Penh**, Region as **Phnom Penh**, and Country as **Cambodia**. To the right, there is a map of Southeast Asia with a red dot indicating the location of the IP address. A message says 'Click for more details about 103.90.149.160'. There is also a 'RATE YOUR PROXY' button and links for 'Show Complete IP Details' and 'Update My IP Location'.

## 1.7. Display if the Device is Connected via Ethernet or Wireless.

```
C:\Users\vanho>ipconfig/all
Windows IP Configuration

Host Name . . . . . : HornVanhong
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : localdomain

Ethernet adapter Ethernet0:

Connection-specific DNS Suffix . . . . . : localdomain
Description . . . . . : Intel(R) 82574L Gigabit Network Connection
Physical Address . . . . . : 00-0C-29-21-E1-94
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::f4dc:1d62:c410:79ab%13(PREFERRED)
IPv4 Address. . . . . : 192.168.220.139(PREFERRED)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Friday, November 21, 2025 8:15:49 PM
Lease Expires . . . . . : Friday, November 21, 2025 8:45:49 PM
Default Gateway . . . . . : 192.168.220.2
DHCP Server . . . . . : 192.168.220.254
DHCPv6 IAID . . . . . : 100666409
DHCPv6 Client DUID. . . . . : 00-01-00-01-30-B0-6E-81-00-0C-29-21-E1-94
DNS Servers . . . . . : 192.168.220.2
Primary WINS Server . . . . . : 192.168.220.2
NetBIOS over Tcpip. . . . . : Enabled
```

## 2. Collecting Information

### 2.1. Use Shodan to Check Your Public IP Address.

The screenshot shows the Shodan search interface. At the top, there are navigation links: Shodan, Maps, Images, Monitor, Developer, and More... Below the search bar, which contains the IP address 103.90.149.160, is a message: "Note: No results found". On the left, there's a sidebar with sections for "PRODUCTS" (Monitor, Search Engine, Developer API, Maps), "PRICING" (Bulk Data, Images, Snippets), and "CONTACT US" (Membership, API Subscriptions, Enterprise). On the right, there are social media links (LinkedIn, GitHub, Twitter, Facebook) and a copyright notice: "Shodan ® - All rights reserved".

### 2.2. Use WHOIS to Check Who is Registered on Your Public IP Address.

The screenshot shows the DomainTools Whois Lookup page for the IP address 103.90.149.160. The page has a header with navigation links: PROFILE, CONNECT, MONITOR, SUPPORT, Whois Lookup, and a search bar. It also features LOGIN and Sign Up buttons. A notice at the top right says: "Notice: Possible deprecation of Whois services after January 28, 2025. More Info". The main content area displays "IP Information" for the IP address. It includes a "Quick Stats" section with details like IP Location (Cambodia Phnom Penh Angkor Data Communication) and ASN (AS38235 MEKONGNET-ADC-AS-AP ANGKOR DATA COMMUNICATION, KH registered Sep 29, 2006). Below this is a table with columns for Whois Server (whois.apnic.net) and IP Address (103.90.149.160). A large text block contains the WHOIS record, which includes fields like inetnum, netname, descr, country, admin-c, tech-c, abuse-c, status, mnt-by, mnt-irt, last-modified, source, irt, address, and e-mail. To the right of the main content, there's an advertisement for "DomainTools Iris" and a "Tools" sidebar with options like Monitor Domain Properties, Reverse IP Address Lookup, and Network Tools.

## 2.3. Sniff Your Network and Identify Three (3) Used Protocols.

No.	Time	Source	Destination	Protocol	Length	Info
524	19.366092	HuaweiTechno_93:40..	6:e6:0f:0b:7b:8d	ARP	42	192.168.18.1 is at b0:c7:87:93:40:0a
1928	74.576994	7:a:d3:f4:35:a8	6:e6:0f:0b:7b:8d	ARP	42	Who has 192.168.18.29 Tell 192.168.18.25
1929	74.576995	7:a:d3:f4:35:a8	6:e6:0f:0b:7b:8d	ARP	42	Who has 192.168.18.29 Tell 192.168.18.25
1930	74.576997	6:e6:0f:0b:7b:8d	7:a:d3:f4:35:a8	ARP	42	192.168.18.29 is at b0:c7:87:93:40:0a
1931	74.576998	6:e6:0f:0b:7b:8d	7:a:d3:f4:35:a8	ARP	42	192.168.18.29 is at 6:e6:0f:0b:7b:8d
1932	74.576999	7:a:d3:f4:35:a8	6:e6:0f:0b:7b:8d	ARP	42	192.168.18.29 is at 6:e6:0f:0b:7b:8d
1933	74.576997	6:e6:0f:0b:7b:8d	7:a:d3:f4:35:a8	ARP	42	192.168.18.29 is at 6:e6:0f:0b:7b:8d
1938	74.657046	7:a:d3:f4:35:a8	Broadcast	ARP	42	Who has 192.168.18.29 Tell 192.168.18.25
1951	74.657107	6:e6:0f:0b:7b:8d	7:a:d3:f4:35:a8	ARP	42	192.168.18.29 is at 6:e6:0f:0b:7b:8d
3192	189.311755	HuaweiTechno_93:40..	6:e6:0f:0b:7b:8d	ARP	42	192.168.18.1 is at b0:c7:87:93:40:0a
4363	139.546893	6:e6:0f:0b:7b:8d	7:e0:3a:91:f1:95	ARP	42	Who has 192.168.18.87 Tell 192.168.18.29
4363	139.546895	7:e0:3a:91:f1:95	6:e6:0f:0b:7b:8d	ARP	42	192.168.18.87 is at e0:3a:91:f1:95
5010	199.302580	HuaweiTechno_93:40..	6:e6:0f:0b:7b:8d	ARP	42	192.168.18.1 is at b0:c7:87:93:40:0a
5830	280.410714	HuaweiTechno_93:40..	6:e6:0f:0b:7b:8d	ARP	42	Who has 192.168.18.29 Tell 192.168.18.25
5831	280.410881	6:e6:0f:0b:7b:8d	HuaweiTechno_93:40..	ARP	42	192.168.18.29 is at 6:e6:0f:0b:7b:8d
6780	278.669246	6:e6:0f:0b:7b:8d	7:e0:3a:91:f1:95	ARP	42	Who has 192.168.18.87 Tell 192.168.18.29
6711	278.769139	7:e0:3a:91:f1:95	6:e6:0f:0b:7b:8d	ARP	42	192.168.18.1 is at 7:e0:3a:91:f1:95
6836	289.395266	HuaweiTechno_93:40..	6:e6:0f:0b:7b:8d	ARP	42	192.168.18.1 is at b0:c7:87:93:40:0a

> Frame 524: Packet, 42 bytes on wire (336 bits), 42 bytes captured (336 bits) o  
> Ethernet II, Src: HuaweiTechno\_93:40:0a (b0:c7:87:93:40:0a), Dst: 6:e6:0f:0b:  
> Address Resolution Protocol (reply)

No.	Time	Source	Destination	Protocol	Length	Info
7421	350.672793	192.168.18.29	192.168.18.1	DNS	93	Standard query 0x8d5e HTTPS prod.roaming1.live.com.akadns.net
7422	350.672922	192.168.18.29	192.168.18.1	DNS	130	Standard query response 0x8d5e HTTPS prod.roaming1.live.com.akadns.net
7423	350.678494	192.168.18.1	192.168.18.29	DNS	295	Standard query response 0x8d5e HTTPS prod.roaming1.live.com.akadns.net CNAME asia.
7424	350.679232	192.168.18.1	192.168.18.29	DNS	334	Standard query response 0x119f A prod.roaming1.live.com.akadns.net CNAME asia.
7652	374.554226	192.168.18.29	192.168.18.1	DNS	80	Standard query 0xfa70 HTTPS cc-api-data.adobe.io
7653	374.554617	192.168.18.29	192.168.18.1	DNS	80	Standard query 0x6fcf A cc-api-data.adobe.io
7654	374.566629	192.168.18.1	192.168.18.29	DNS	339	Standard query response 0xfa70 HTTPS cc-api-data.adobe.io CNAME cc-api-data-an1.adobe.io
7655	374.566839	192.168.18.1	192.168.18.29	DNS	303	Standard query response 0x6fcf A cc-api-data.adobe.io CNAME cc-api-data-an1.adobe.io
7656	374.571028	192.168.18.1	192.168.18.29	DNS	130	Standard query response 0x8d5e HTTPS ethos508-prod-v46-856defacfbb33db1.elb.us-east-1.amazonaws.com
7657	374.574125	192.168.18.1	192.168.18.29	DNS	217	Standard query response 0x8d8f HTTPS dunamis-ethos508-prod-v46-856defacfbb33db1.elb.us-east-1.amazonaws.com
7949	393.562682	192.168.18.29	192.168.18.1	DNS	71	Standard query 0xe36e HTTPS chatgpt.com
7941	393.562856	192.168.18.29	192.168.18.1	DNS	71	Standard query 0xd3c4 A chatgpt.com
7942	393.571028	192.168.18.1	192.168.18.29	DNS	132	Standard query response 0x3e6e HTTPS chatgpt.com SOA hassan.ns.cloudflare.com
7943	393.571733	192.168.18.1	192.168.18.29	DNS	183	Standard query response 0xd3c4 A chatgpt.com A 104.18.32.47 A 172.64.155.289
7999	396.199793	192.168.18.29	192.168.18.1	DNS	74	Standard query 0x71a6 HTTPS ws.chatgpt.com
7999	396.200015	192.168.18.29	192.168.18.1	DNS	74	Standard query 0x1a9d A ws.chatgpt.com
7992	396.205853	192.168.18.1	192.168.18.29	DNS	147	Standard query response 0x71a6 HTTPS ws.chatgpt.com HTTPS
7993	396.206248	192.168.18.1	192.168.18.29	DNS	186	Standard query response 0x1a9d A ws.chatgpt.com A 172.64.148.235 A 104.18.39.21

> Frame 1926: Packet, 105 bytes on wire (840 bits), 105 bytes captured (840 bits) o  
> Ethernet II, Src: HuaweiTechno\_93:40:0a (b0:c7:87:93:40:0a), Dst: 6:e6:0f:0b:  
> Internet Protocol Version 4, Src: 192.168.18.1, Dst: 192.168.18.29  
> User Datagram Protocol, Src Port: 53, Dst Port: 62588  
> Domain Name System (response)

No.	Time	Source	Destination	Protocol	Length	Info
7421	350.672793	192.168.18.29	192.168.18.1	DNS	93	Standard query 0x8d5e HTTPS prod.roaming1.live.com.akadns.net
7422	350.672922	192.168.18.29	192.168.18.1	DNS	130	Standard query response 0x8d5e HTTPS prod.roaming1.live.com.akadns.net
7423	350.678494	192.168.18.1	192.168.18.29	DNS	295	Standard query response 0x8d5e HTTPS prod.roaming1.live.com.akadns.net CNAME asia.
7424	350.679232	192.168.18.1	192.168.18.29	DNS	334	Standard query response 0x119f A prod.roaming1.live.com.akadns.net CNAME asia.
7652	374.554226	192.168.18.29	192.168.18.1	DNS	80	Standard query 0xfa70 HTTPS cc-api-data.adobe.io
7653	374.554617	192.168.18.29	192.168.18.1	DNS	80	Standard query 0x6fcf A cc-api-data.adobe.io
7654	374.566629	192.168.18.1	192.168.18.29	DNS	339	Standard query response 0xfa70 HTTPS cc-api-data.adobe.io CNAME cc-api-data-an1.adobe.io
7655	374.566839	192.168.18.1	192.168.18.29	DNS	303	Standard query response 0x6fcf A cc-api-data.adobe.io CNAME cc-api-data-an1.adobe.io
7656	374.588680	192.168.18.1	192.168.18.29	DNS	130	Standard query response 0x8d5e HTTPS ethos508-prod-v46-856defacfbb33db1.elb.us-east-1.amazonaws.com
7657	374.574125	192.168.18.1	192.168.18.29	DNS	217	Standard query response 0x8d8f HTTPS dunamis-ethos508-prod-v46-856defacfbb33db1.elb.us-east-1.amazonaws.com
7949	393.562682	192.168.18.29	192.168.18.1	DNS	71	Standard query 0xe36e HTTPS chatgpt.com
7941	393.562856	192.168.18.29	192.168.18.1	DNS	71	Standard query 0xd3c4 A chatgpt.com
7942	393.571028	192.168.18.1	192.168.18.29	DNS	132	Standard query response 0x3e6e HTTPS chatgpt.com SOA hassan.ns.cloudflare.com
7943	393.571733	192.168.18.1	192.168.18.29	DNS	183	Standard query response 0xd3c4 A chatgpt.com A 104.18.32.47 A 172.64.155.289
7999	396.199793	192.168.18.29	192.168.18.1	DNS	74	Standard query 0x71a6 HTTPS ws.chatgpt.com
7999	396.200015	192.168.18.29	192.168.18.1	DNS	74	Standard query 0x1a9d A ws.chatgpt.com
7992	396.205853	192.168.18.1	192.168.18.29	DNS	147	Standard query response 0x71a6 HTTPS ws.chatgpt.com HTTPS
7993	396.206248	192.168.18.1	192.168.18.29	DNS	186	Standard query response 0x1a9d A ws.chatgpt.com A 172.64.148.235 A 104.18.39.21

> Frame 1926: Packet, 105 bytes on wire (840 bits), 105 bytes captured (840 bits) o  
> Ethernet II, Src: HuaweiTechno\_93:40:0a (b0:c7:87:93:40:0a), Dst: 6:e6:0f:0b:  
> Internet Protocol Version 4, Src: 192.168.18.1, Dst: 192.168.18.29  
> User Datagram Protocol, Src Port: 53, Dst Port: 62588  
> Domain Name System (response)

## 2.4. For Each Protocol Explain Its Usage.

- DHCP: Automatically assigns IP addresses and network settings to devices.
- DNS: Resolves domain names (like google.com) into IP addresses.
- ARP: Maps IP addresses to MAC addresses within the local network.

## 2.5. For Each Protocol, Find the Used Port Number.

- DHCP: UDP 67 (server), UDP 68 (client)
- DNS: UDP 53, TCP 53
- ARP: No port used (Layer 2 protocol)

### Network Diagram

