

Experiment 08

AIM:

To determine the geolocation (country, city, or approximate location) of at least 10 IP addresses using online IP geolocation tools, databases, and techniques, and to accurately identify the physical location associated with each IP.

Theory:

IP geolocation is the process of mapping an IP address to its physical location. This can provide details such as **country, city, ISP, organization, and approximate latitude/longitude**.

Applications of IP Geolocation:

1. **Geolocation Services** → Weather apps, streaming platforms, or news portals provide region-specific content.
2. **Security** → Helps detect malicious IPs or cyberattacks originating from certain regions.
3. **Content Localization** → E-commerce and media platforms adjust prices, ads, and recommendations based on IP.
4. **Fraud Prevention** → Banks and payment gateways detect anomalies when logins occur from unusual locations.
5. **Network Troubleshooting** → IT teams can identify and resolve location-specific connectivity issues.
6. **Compliance & Regulations** → Ensures services are delivered only within permitted regions.
7. **Market Research** → Companies study user geolocation data to expand their business strategically.
8. **Content Delivery Networks (CDNs)** → Direct traffic to the nearest servers, improving speed.

⚠ Note: IP geolocation is approximate and may not always be 100% accurate due to VPNs, proxies, and ISP routing. Privacy laws (like GDPR) must also be respected.

Requirements / Tools Used

1. A list of at least 10 IP addresses.

2. Online tools such as:

- o **iplocation.net**
- o **ipinfo.io**
- o **GeoLite2 (MaxMind Database)**
- o **WHOIS lookup**

3. Stable internet connection.

4. Spreadsheet/Notepad to record results.

Procedure

1. Find your current IP address

- o Visit whatismyipaddress.com or simply search “What is my IP” on Google.
- o Note down the IPv4 address displayed.

The screenshot shows the IPADDRESS.COM homepage. At the top, it displays the user's public IP address as "182.48.224.12". Below this, there is a map of Mumbai with a pin pointing to the Chhatrapati Shivaji International Airport area. On the left, there is a sidebar with various links: "CONNECTION TYPE" (Cable/DSL), "LOCATION" (Mumbai, Maharashtra, 400703, India), "CONTINENT" (Asia), "COUNTRY" (India (IN)), "STATE" (Maharashtra (MH)), and "CITY" (Mumbai). At the bottom of the page, there is a "Frequently Asked Questions (FAQ)" section.

The screenshot shows a search result for an IP address allocation. At the top, it says "IANA (Internet Assigned Numbers Authority) IPv4 Address Space Allocation for Subnet 182.0.0.0/8". Below this, it lists the "IPV4 ADDRESS SPACE PREFIX" as "182/8". It indicates that the allocation is managed by the "REGIONAL INTERNET REGISTRY (RIR)" which is "APNIC". The "ALLOCATION DATE" is listed as "August 2009". The "WHOIS SERVER" is "whois.apnic.net". The "RDAP SERVER (REGISTRATION DATA ACCESS PROTOCOL)" is "https://rdap.apnic.net/". The "STATUS" is "ALLOCATED", with a note stating "Delegated entirely to specific RIR (Regional Internet Registry) as indicated." A small black square with a white upward-pointing arrow is located in the bottom right corner of the screenshot area.

2. Record Observed Details

- Country
- City / Region
- ISP / Organization
- Latitude/Longitude (if available)

3. Verify Consistency

- Compare results from multiple sources.
- Note any differences (due to databases or ISP routing).

Conclusion

We have successfully used the geolocation (country, city, or approximate location) of each IP address (at least 10). One can use online IP geolocation tools, databases, and various techniques to gather information and accurately identify the physical location associated with each IP.