



# Vidyavardhini's College of Engineering & Technology

## Department of Artificial Intelligence and Data Science

### EXPERIMENT 06

**Aim:** Study the use of network reconnaissance tools like WHOIS, dig, traceroute, nslookup to gather information about networks and domain registrars.

#### Theory:

##### WHOIS:

Whois is a protocol and database system used for querying information about internet resources, such as domain names, IP addresses, and autonomous system numbers. It provides details about the registrant, administrative contact, and other pertinent information related to the resource.

Features:

The screenshot shows the Whois website interface. At the top, there is a navigation bar with links: Domains, Hosting, Servers, Email, Security, Whois, Deals. A search bar contains the text "Enter Domain or IP" and a "WHOIS" button. Below the navigation bar, the domain "vcet.edu.in" is displayed, along with "Updated 6 days ago". The main content area is divided into two sections: "Domain Information" and "Registrant Contact". The "Domain Information" section lists: Domain: vcet.edu.in, Registrar: ERNET India, Registered On: 2007-12-28, Expires On: 2028-12-28, Updated On: 2019-11-24, Status: OK, Name Servers: ns2.bluehost.com, ns1.bluehost.com. The "Registrant Contact" section lists: Organization: Vidyavardhinis College of Engineering & Technology, Country: IN, Email: Please contact the Registrar listed above. To the right of the domain information, there is a list of similar domains: vc-et.com, vcetes.com, vceau.com, vcetloans.com, vcets.net, vcete.net, each with a "Buy Now" button. At the bottom right, there is a red banner for ".space" domains, showing a sale price of \$1.88 (down from \$29.88) and a "BUY NOW" button.

1. Domain Name Lookup: Whois allows users to look up information about a specific domain name to find out details such as the registrar, registration date, expiration date, and contact information of the domain owner. 2. IP Address Query: Besides domain names, Whois also supports querying for information about IP addresses. Users can use Whois to find out information about the organization or individual associated with a particular IP address.

**DIG WEB INTERFACE:** The DIG Web Interface is a tool used for querying and displaying DNS (Domain Name System) information directly from a web browser. It allows users to perform DNS queries such as looking up IP addresses, finding mail servers, and checking domain records.

Features:

1. User-Friendly Interface: It provides an intuitive web-based interface, making it easy for users to input their queries and interpret the results without needing to use command-line tools or navigate complex DNS settings.



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2. Comprehensive DNS Query Support: The DIG Web Interface supports a wide range of DNS query types, including A (IPv4 address), AAAA (IPv6 address), MX (Mail Exchange), NS (Name Server), TXT (Text), and more. Users can quickly obtain various DNS-related information they need for troubleshooting or analysis purposes.

The screenshot shows the DIG Web Interface with the following fields and options:

- Hostnames or IP addresses:** vcet.edu.in
- Type:** Unspecified
- Nameservers:** Resolver: Default
- Options:**
  - ☐ Show command
  - ☐ Colorize output
  - ☐ Stats
  - ☐ Trace
  - ☐ Sort alphabetically
  - ☐ Short
  - ☐ No recursive
  - ☐ Only first nameserver
  - ☐ Compare output
  - ☐ Save to file
  - ☐ Show IP geolocation
  - ☐ DNSSEC

Buttons: Dig, Fix, Reset form

vcet.edu.in@9.9.9.10 (Default):

vcet.edu.in.	14400	IN	A	173.254.89.26
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**Traceroute:** Traceroute is a network diagnostic tool used to track the pathway (or route) taken by data packets from one computer to another over a network, such as the Internet.

Features:

1. Hop-by-Hop Analysis: Traceroute displays each router or "hop" along the network path, allowing users to identify where potential bottlenecks or issues might be occurring.
- 2.

```
C:\Users\Mokshu>tracert vcet.edu.in

Tracing route to vcet.edu.in [173.254.89.26]
over a maximum of 30 hops:

  0  1 ms    1 ms    1 ms  192.168.0.1
  1  3 ms    2 ms    2 ms  103.31.144.7
  2  *        *        *    Request timed out.
  3  2 ms    2 ms    3 ms  103.31.144.21
  4  5 ms    5 ms    5 ms  static-21.173.248.49-tataidc.co.in [49.248.173.21]
  5  6 ms    *        *    10.118.143.1
  6  4 ms    4 ms    5 ms  115.113.165.21.static-mumbai.vsnl.net.in [115.113.165.21]
  7  *        *        *    Request timed out.
  8  30 ms   30 ms   30 ms  ix-ae-4-2.tcore1.cxr-chennai.as6453.net [180.87.36.9]
  9  59 ms   58 ms   58 ms  if-be-34-2.ecore2.esin4-singapore.as6453.net [180.87.36.41]
 10  63 ms   73 ms   62 ms  180.87.108.163
 11  63 ms   *        86 ms  ae-4.r22.sngpsi07.sg.bb.gin.ntt.net [129.250.5.61]
 12  137 ms  139 ms  135 ms  ae-4.r27.osakjp02.jp.bb.gin.ntt.net [129.250.2.67]
 13  *        233 ms  *        ae-3.r24.lsanca07.us.bb.gin.ntt.net [129.250.2.176]
 14  233 ms  232 ms  232 ms  ae-0.a03.lsanca07.us.bb.gin.ntt.net [129.250.3.140]
 15  237 ms  237 ms  236 ms  ce-3-0-1.a03.lsanca07.us.ce.gin.ntt.net [168.143.228.173]
 16  237 ms  238 ms  237 ms  162-215-195-128.unifiedlayer.com [162.215.195.128]
 17  260 ms  258 ms  258 ms  162-215-195-141.unifiedlayer.com [162.215.195.141]
 18  257 ms  258 ms  258 ms  69-195-64-103.unifiedlayer.com [69.195.64.103]
 19  257 ms  258 ms  256 ms  po97.prv-leaf6a.net.unifiedlayer.com [162.144.240.11]
 20  257 ms  257 ms  257 ms  box2289.bluehost.com [173.254.89.26]
 21

Trace complete.
```

**Round-Trip Time (RTT) Measurement:** Traceroute measures the round-trip time it takes for packets to travel from the source to each router and back. This information helps in assessing network latency and identifying slow segments of the network.



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**Nslookup:** `nslookup` stands for "Name Server Lookup". It's a command-line tool used to query DNS (Domain Name System) servers to obtain DNS-related information, such as IP addresses associated with domain names or vice versa.

Features:

1. DNS Querying: `nslookup` allows users to query DNS servers for various types of DNS records, such as A (Address) records, MX (Mail Exchange) records, PTR (Pointer) records, etc. This enables users to retrieve information about domain names, IP addresses, mail servers, and more.

2. Interactive Mode: `nslookup` provides an interactive mode where users can enter commands and perform multiple DNS queries without having to exit and relaunch the tool. This mode allows for greater flexibility and efficiency when troubleshooting DNS-related issues.

**Nslookup.io**

vcet.edu.in

Find DNS records

Learning Browser extension DNS lookup API

### DNS records for **vcet.edu.in**

Cloudflare Google DNS OpenDNS Authoritative Local DNS



The Cloudflare DNS server responded with these DNS records. Cloudflare will serve these records for as long as the time to live (TTL) has not expired. After this period, Cloudflare will update its cache by querying one of the authoritative name servers.

#### A records

IPv4 address	Revalidate in
> 173.254.89.26	4h

#### AAAA records

No AAAA records found.

#### CNAME record

No CNAME record found.



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### **Conclusion:**

This experiment delved into network reconnaissance tools such as WHOIS, dig, traceroute, and nslookup, essential for gathering information about networks and domain registrars. WHOIS provides details about domain names and IP addresses, while dig offers a user-friendly web interface for querying DNS information comprehensively. Traceroute aids in analyzing network pathways and measuring round-trip times, crucial for troubleshooting network issues. Lastly, nslookup facilitates DNS querying and interactive mode functionality for efficient troubleshooting. Together, these tools empower users to gather critical network and domain information, enhancing network management and security practices.