DNS Server Configuration in Cisco Packet Tracer

# 1. Objectives

- Configure a DNS server in Cisco Packet Tracer.  
- Map a domain name to an IP address.  
- Configure client PCs to use DNS for hostname resolution.  
- Test successful resolution and connectivity using ping and web browser.

# 2. Theory of DNS

The Domain Name System (DNS) translates domain names (e.g., www.example.com) into IP addresses (e.g., 192.168.1.10). Without DNS, users would need to remember numerical IP addresses. DNS works using a client-server model where DNS servers store records mapping names to IPs and clients send queries to resolve names. In Packet Tracer, the Server device provides a basic DNS service to simulate this behavior.

# 3. Network Topology & IP Addressing

Devices required:  
- 1 × Server (DNS + Web Server)  
- 1 × Switch  
- 2 × PCs (clients)  
- Copper Straight-through cables

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| --- | --- | --- | --- | --- |
| Device | Interface | IP Address | Subnet Mask | Gateway |
| Server | Fa0 | 192.168.1.10 | 255.255.255.0 | 192.168.1.1 |
| PC1 | Fa0 | 192.168.1.2 | 255.255.255.0 | 192.168.1.1 |
| PC2 | Fa0 | 192.168.1.3 | 255.255.255.0 | 192.168.1.1 |

Network Diagram:

[PC1 192.168.1.2]---\  
 [Switch]---[Server 192.168.1.10 (DNS+HTTP)]  
[PC2 192.168.1.3]---/

# 4. Steps to Implement

Step 1: Build the topology by dragging 1 server, 1 switch, and 2 PCs.  
Step 2: Configure the Server IP (192.168.1.10/24, Gateway 192.168.1.1).  
Step 3: Go to Services → DNS, turn DNS ON, add record (www.example.com → 192.168.1.10).  
Step 4: (Optional) Enable HTTP service on the server.  
Step 5: Configure PC1 (192.168.1.2) and PC2 (192.168.1.3) with DNS server 192.168.1.10.  
Step 6: Save and check connections (green links).

# 5. Verification & Testing

1. Ping server by IP: ping 192.168.1.10 → should reply.  
2. Ping by domain name: ping www.example.com → should resolve to 192.168.1.10.  
3. Open Web Browser on PC and enter http://www.example.com → server web page should load.

# 6. Troubleshooting

|  |  |  |
| --- | --- | --- |
| Problem | Cause | Solution |
| Ping by IP works but not by name | DNS server OFF or wrong DNS IP | Turn DNS ON and set correct DNS server IP |
| Cannot ping server by IP | Wrong IP or cable disconnected | Check server IP and cable connections |
| Browser doesn’t load page | HTTP service OFF | Turn ON HTTP service on server |

# 7. Conclusion

This experiment demonstrated how to configure a DNS server in Packet Tracer. By adding a DNS record and configuring PCs to use the DNS server, clients were able to resolve domain names into IP addresses and access the web server successfully.