

# Cyber security Incident Report: Network Traffic Analysis

## Problem Statement

You have been tasked with analyzing a cyber-security incident in which customers are unable to access the website `yummyrecipesforme.com`. Your goal is to conduct a network traffic analysis using a tool like `tcpdump` to determine the root cause. Your final report should summarize the findings, explain the analysis of the data, and conclude with the most probable cause of the incident.

### Part 1: Provide a summary of the problem found in the `tcpdump` log

As part of the DNS protocol, the UDP protocol was used to contact the DNS server to retrieve the IP address for the domain name of `yummyrecipesforme.com`. The ICMP protocol was used to respond with an error message, indicating issues contacting the DNS server. The UDP message going from your browser to the DNS server is shown in the first two lines of every log event. The ICMP error response from the DNS server to your browser is displayed in the third and fourth lines of every log event with the error message, “udp port 53 unreachable.” Since port 53 is associated with DNS protocol traffic, we know this is an issue with the DNS server. Issues with performing the DNS protocol are further evident because the plus sign after the query identification number 35084 indicates flags with the UDP message and the “A?” symbol indicates flags with performing DNS protocol operations. Due to the ICMP error response message about port 53, it is highly likely that the DNS server is not responding. This assumption is further supported by the flags associated with the outgoing UDP message and domain name retrieval.

### Part 2: Explain your analysis of the data and provide at least one cause of the incident.

The incident occurred on July 28, 2025 at 1:24 p.m. Customers notified the organization that they received the message “destination port unreachable” when they attempted to visit the website `yummyrecipesforme.com`. The cyber security team providing IT services to their client organization are currently investigating the issue so customers can access the website again. In our investigation into the issue, we conducted packet sniffing tests using `tcpdump`. In the resulting log file, we found that

DNS port 53 was unreachable. The next step is to identify whether the DNS server is down or traffic to port 53 is blocked by the firewall. The DNS server might be down due to a successful Denial of Service attack or a misconfiguration.