Test Plan for SecureGate Proxy

Step 1: Setup the Test Environment

1. Ensure Python 3, net-tools, and tcpdump are installed.

2. Install required tools using:

   sudo apt update && sudo apt install python3 net-tools tcpdump -y

Step 2: Start the Proxy Server

Run the command:

   python3 http_proxy.py

Expected Output:

   [*] Proxy server listening on <Your-Management-IP>:8080

Step 3: Verify Proxy is Running

Check if proxy is listening:

   netstat -tulnp | grep 8080

Expected Output:

   tcp <Your-Management-IP>:8080 LISTEN <Process ID>

Step 4: Direct Request Without Proxy

Test direct request:

   curl -vvv http://www.example.com -o /dev/null

Expected Output:

   HTTP/1.1 200 OK

Step 5: Send HTTP Requests via Proxy

Test an allowed URL:

   curl -vvv -x <Your-Management-IP>:8080 http://www.example.com -o /dev/null

Expected Output:

   HTTP/1.0 200 OK

   VIA: 1.1 secure_gate_proxy

Step 6: Test URL Filtering (Allow/Block)

Test a blocked URL:

curl -vvv -x <Your-Management-IP>:8080 http://www.blockedwebsite.com -o /dev/null

Expected Output:

HTTP/1.1 403 Forbidden

Step 7: Capture Proxy Traffic Using tcpdump

Start packet capture:

sudo tcpdump -i enp3s0 port 8080 -n

Expected Output:

Shows packet logs when requests are made.

Step 8: Performance and Security Tests

Test multiple requests:

for i in {1..10}; do curl -x <Your-Management-IP>:8080 http://www.example.com & done

Expected Output:

Proxy should handle all requests without crashing.

Step 9: Stop the Proxy and Cleanup

Stop the proxy:

Press CTRL+C in the terminal running http_proxy.py

Expected Output:

[*] Shutting down the proxy server.