# Network Traffic Security Analysis Report

## *Overall Threat Assessment*

Threat Level: 6/10

## Executive Summary

Network Traffic Analysis Security ReportExecutive Summary

Multiple port scanning techniques detected from source IP 192.168.100.95 targeting 192.168.100.99.
Scans include **SYN, TCP connect, XMAS, NULL, FIN, and UDP scans**, indicating a reconnaissance effort.
No malicious payloads observed (0 TCP/UDP/ICMP/ARP attack packets), but scans may precede exploitation.
Risk Assessment

**Critical Risk**: Active reconnaissance (192.168.100.95 performing stealth scans to map vulnerabilities).
**High Risk**:

**XMAS/NULL/FIN scans** evade basic firewall rules by abusing TCP protocol quirks.
**UDP scan** (length ≤ 8 bytes) suggests service enumeration attempts.

**Moderate Risk**: Lack of port/protocol details in logs limits granular analysis.
Threat Observations

**Scan Patterns**:

All scans occurred within seconds (12:47:31), suggesting automated tools (e.g., Nmap).
TCP scans used varied techniques (SYN window size manipulation, flag combinations).

**Source Attribution**:

Internal IP (192.168.100.95) implies compromised host or insider threat.

**Protocol Abuse**:

**XMAS/NULL scans** exploit RFC non-compliance in systems to identify open ports.
**UDP scan** targets stateless protocols (e.g., DNS, DHCP) for service discovery.

Recommendations

**Immediate Actions**:

**Quarantine 192.168.100.95** and investigate for malware/unauthorized access.
**Update IDS/IPS rules** to flag anomalous TCP flag combinations (e.g., FIN without SYN).

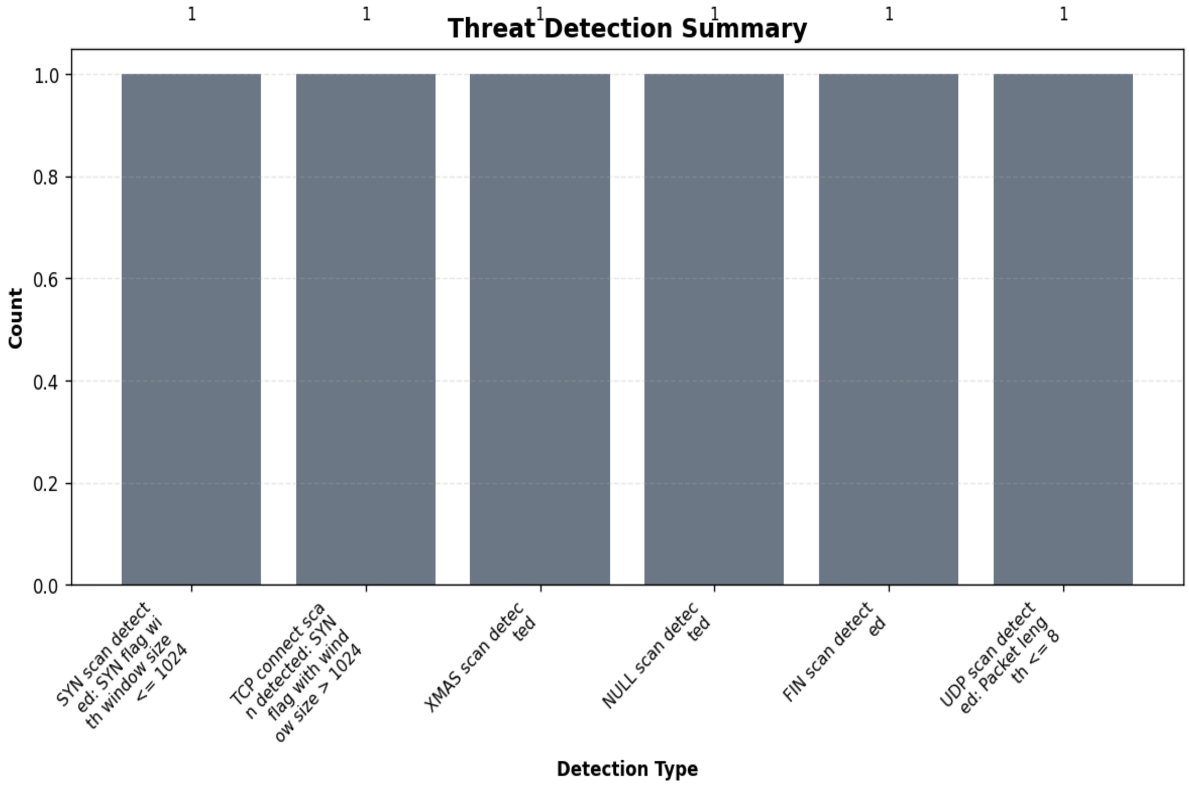
**Network Hardening**:

**Block unused ports** and restrict internal lateral movement via VLAN segmentation.
**Enable TCP stack hardening** (e.g., SYN cookies, drop NULL/XMAS packets at firewall).

**Monitoring Enhancements**:

**Log full packet headers** (ports, payload snippets) for future forensic analysis.
**Deploy endpoint detection** on 192.168.100.95 to identify scanning tools.

# Threat Detection Summary



## *Detection Details*

| Detection Type | Count |
|---|---|
| SYN scan detected: SYN flag with window size <= 1024 | 1 |
| TCP connect scan detected: SYN flag with window size > 1024 | 1 |
| XMAS scan detected | 1 |
| NULL scan detected | 1 |
| FIN scan detected | 1 |
| UDP scan detected: Packet length <= 8 | 1 |

## *Source/Destination Analysis*

| IP Address | As Source | As Destination | Total |
|---|---|---|---|
| 192.168.100.95 | 5 | 0 | 5 |
| 192.168.100.99 | 0 | 5 | 5 |

### *Event Timeline*

| Time | Packet # | Protocol | Detection |
|---|---|---|---|
| 12:47:31.388 | 199 | TCP | SYN scan detected: SYN flag wi<br/>th window size <= 1024 |
| 12:47:31.437 | 201 | TCP | TCP connect scan detected: SYN<br/> flag with window size > 1024 |
| 12:47:31.489 | 203 | TCP | XMAS scan detected |
| 12:47:31.541 | 205 | TCP | NULL scan detected |
| 12:47:31.588 | 207 | TCP | FIN scan detected |

## Appendix: Raw Traffic Analysis Data

```
{
  "detection_counts": {
    "SYN scan detected: SYN flag with window size <= 1024": 1,
    "TCP connect scan detected: SYN flag with window size > 1024": 1,
    "XMAS scan detected": 1,
    "NULL scan detected": 1,
    "FIN scan detected": 1,
    "UDP scan detected: Packet length <= 8": 1
  },
  "attack_stats": {
    "tcp_packets": 0,
    "udp_packets": 0,
    "icmp_packets": 0,
    "arp_packets": 0
  },
  "top_threats": [
    {
      "packet_number": 199,
      "timestamp": "2025-03-20T12:47:31.388726",
      "minute": "2025-03-20 12:47",
      "protocols": [
        "TCP"
      ],
      "src_ip": "192.168.100.95",
      "dst_ip": "192.168.100.99",
      "src_port": null,
      "dst_port": null,
      "detection_details": [
        "SYN scan detected: SYN flag with window size <= 1024"
      ]
    },
    {
      "packet_number": 201,
      "timestamp": "2025-03-20T12:47:31.437189",
      "minute": "2025-03-20 12:47",
      "protocols": [
        "TCP"
      ],
      "src_ip": "192.168.100.95",
      "dst_ip": "192.168.100.99",
      "src_port": null,
      "dst_port": null,
      "detection_details": [
        "TCP connect scan detected: SYN flag with window size > 1024"
      ]
    },
    {
      "packet_number": 203,
      "timestamp": "2025-03-20T12:47:31.489040",
      "minute": "2025-03-20 12:47",
      "protocols": [
        "TCP"
      ],
      "src_ip": "192.168.100.95",
      "dst_ip": "192.168.100.99",
      "src_port": null,
      "dst_port": null,
      "detection_details": [
        "XMAS scan detected"
      ]
    },
    {
      "packet_number": 205,
      "timestamp": "2025-03-20T12:47:31.541120",
      "minute": "2025-03-20 12:47",
      "protocols": [
        "TCP"
      ],
      "src_ip": "192.168.100.95",
      "dst_ip": "192.168.100.99",
      "src_port": null,
      "dst_port": null,
      "detection_details": [
        "NULL scan detected"
      ]
    },
    {
      "packet_number": 207,
      "timestamp": "2025-03-20T12:47:31.588889",
      "minute": "2025-03-20 12:47",
      "protocols": [
        "TCP"
      ],
      "src_ip": "192.168.100.95",
      "dst_ip": "192.168.100.99",
      "src_port": null,
      "dst_port": null,
      "detection_details": [
        "FIN scan detected"
      ]
    }
  ]
}
```

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*SHA-256 Hash: e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855*

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