Network Traffic Security Analysis Report

Overall Threat Assessment

Threat Level: 6/10

Executive Summary

Network Traffic Analysis Security ReportExecutive Summary

Multiple **port scanning activities** 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 phase** of a potential attack.
No malicious payloads observed in TCP/UDP/ICMP/ARP packets, but the scans suggest **probing for vulnerabilities**.
Risk Assessment

Critical Risk:

Reconnaissance activity (multiple scan types) from an internal IP (192.168.100.95), indicating a possible **compromised host or insider threat**.

High Risk:

XMAS, NULL, and FIN scans are stealthy techniques to bypass basic firewall rules.
UDP scan (packet length ≤ 8) suggests probing for open UDP services.

Threat Observations

Scanning Techniques Detected:

SYN scan (window size ≤ 1024) – Packet #199.
TCP connect scan (window size > 1024) – Packet #201.
XMAS scan (FIN/URG/PSH flags set) – Packet #203.
NULL scan (no flags set) – Packet #205.
FIN scan (only FIN flag set) – Packet #207.
UDP scan (short packets) – Indicates service enumeration.

Source IP (192.168.100.95) is internal, suggesting:

A compromised device.
Unauthorized internal scanning.

Target IP (192.168.100.99) may be a high-value asset.
Recommendations

Immediate Actions:

Isolate 192.168.100.95 for forensic investigation.

Review logs on 192.168.100.99 for signs of exploitation.

Network Hardening:

Implement strict egress filtering to block internal hosts from conducting scans.

Enable TCP anomaly detection (e.g., SYN flood protection, invalid flag combinations).

Monitoring Enhancements:

Deploy IDS/IPS rules to detect and block stealth scans (XMAS/NULL/FIN).

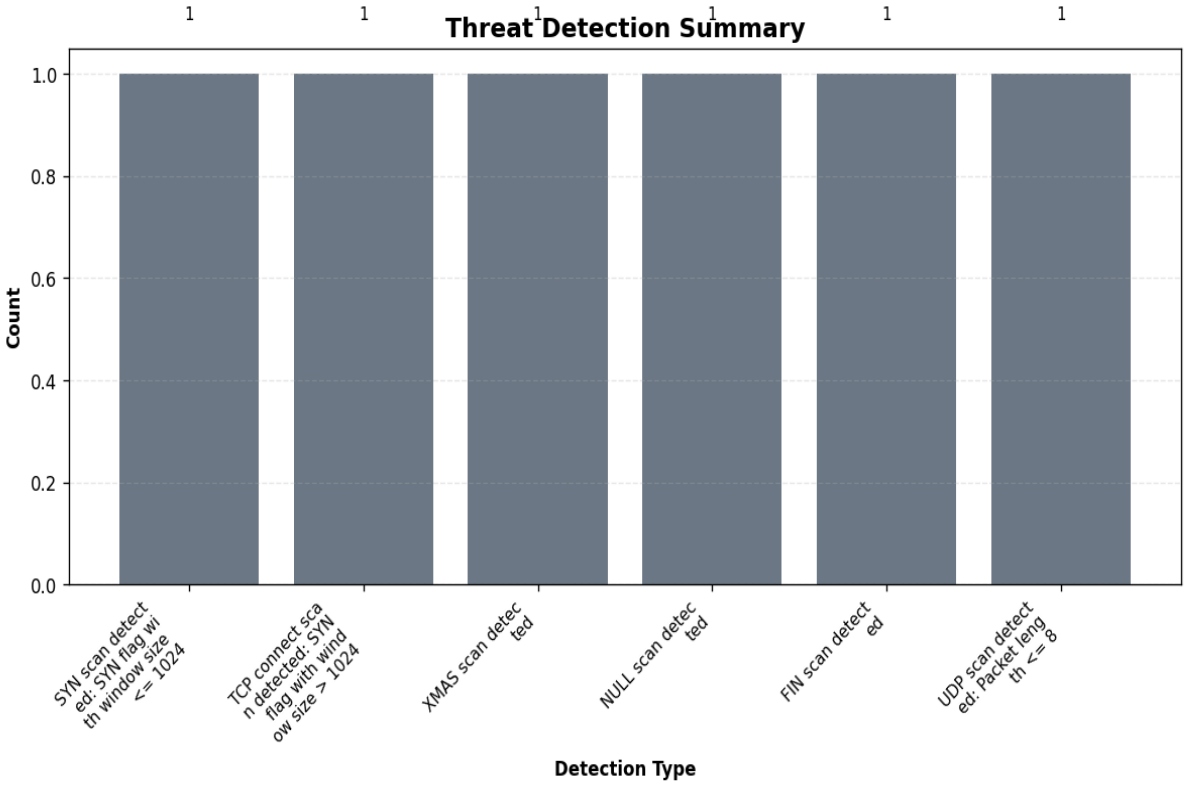
Monitor UDP traffic for unusual patterns (short packets, high frequency).

Policy Updates:

Restrict internal scanning to authorized personnel only.

Conduct a vulnerability assessment on 192.168.100.99 to patch potential entry points.

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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