Network Traffic Security Analysis Report

Overall Threat Assessment

Executive Summary

Network Traffic Analysis Security ReportExecutive Summary

Multiple port scan techniques detected from source IP 192.168.100.95 targeting 192.168.100.99.

Six distinct scan types observed within a short timeframe (SYN, TCP connect, XMAS, NULL, FIN, and UDP scans).

No malicious payloads or successful exploitation observed, but reconnaissance activity indicates **pre-attack probing**.

Risk Assessment

Critical Risk: Reconnaissance activity (**SYN/XMAS/NULL/FIN scans**) suggests an attacker is mapping network defenses.

High Risk: **TCP connect scan** (window size > 1024) indicates potential follow-up exploitation attempts.

Moderate Risk: **UDP scan** (packet length ≤ 8) could expose vulnerable UDP services.

Threat Observations

Scan Techniques Detected:

SYN scan (packet #199, window size ≤ 1024).

TCP connect scan (packet #201, window size > 1024).

XMAS scan (packet #203, flags: FIN/URG/PSH).

NULL scan (packet #205, no flags set).

FIN scan (packet #207, FIN flag only).

UDP scan (short packets, likely service discovery).

Source IP: 192.168.100.95 (internal host, suggesting **compromised device or insider threat**).

Target IP: 192.168.100.99 (internal host, possibly a critical asset).

Recommendations

Immediate Actions:

Isolate 192.168.100.95 for forensic analysis to rule out compromise.

Review firewall rules to block anomalous TCP/UDP scans (e.g., rate-limiting SYN packets).

Long-Term Mitigations:

Enable TCP stack hardening (e.g., SYN cookies, drop NULL/XMAS/FIN scans).

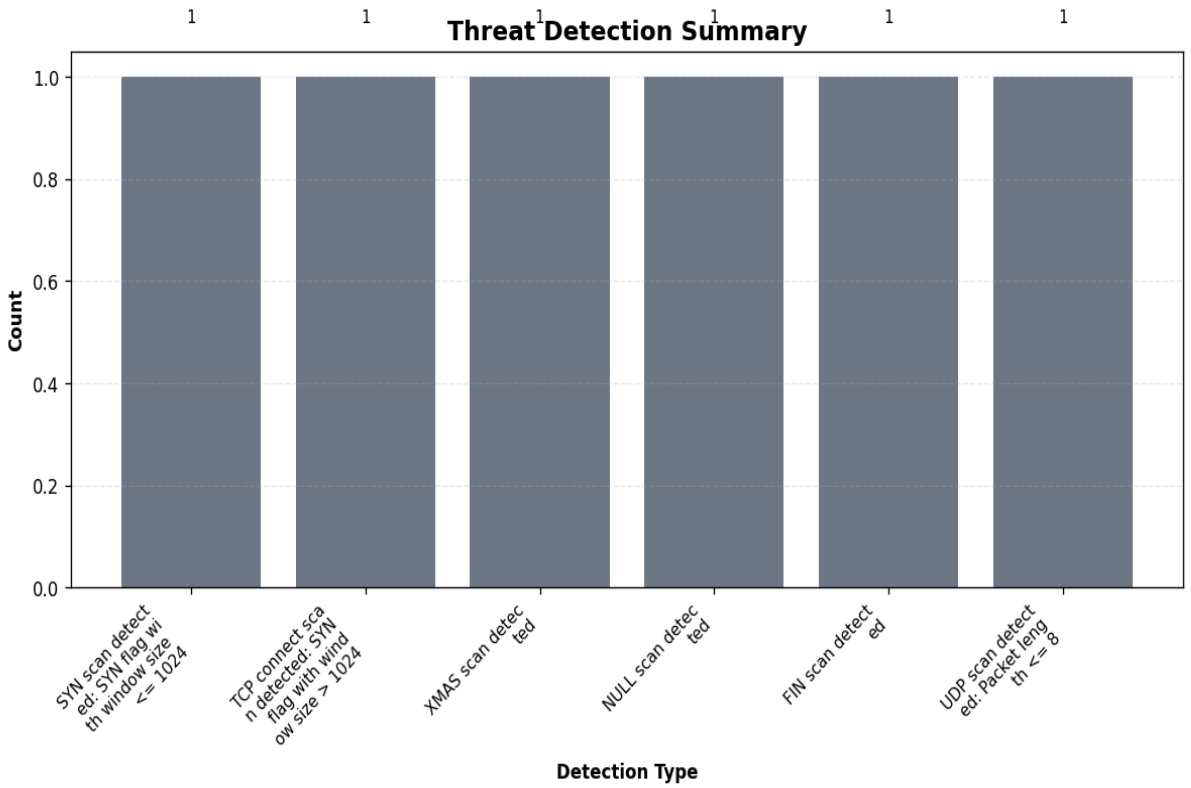
Deploy IDS/IPS with signatures for stealth scans (e.g., Snort/Suricata).

Conduct endpoint audits on 192.168.100.95 for malware or unauthorized tools.

Network Segmentation:

Restrict internal host communication to minimize lateral movement risks.

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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