Network Traffic Security Analysis Report

Overall Threat Assessment

Executive Summary

Network Traffic Analysis Security ReportExecutive Summary

Multiple network reconnaissance activities detected from source IP 192.168.100.95 targeting 192.168.100.99.
High-risk scanning techniques observed, including SYN, XMAS, NULL, FIN, and UDP scans.
No malicious payloads or successful exploitation attempts identified in the analyzed traffic.
Risk Assessment

Critical Risk:

Stealthy reconnaissance activity (XMAS, NULL, FIN scans) indicates an attacker probing for vulnerabilities while evading basic detection.
SYN scan with low window size (<= 1024) suggests an attempt to identify open ports with minimal traffic.

High Risk:

TCP Connect Scan (SYN flag with window size > 1024) may indicate a more aggressive port scan.
UDP Scan (Packet length <= 8) suggests an attempt to discover open UDP services.

Threat Observations

Scanning Techniques Detected:

SYN Scan (Low Window Size): Packet #199, likely probing for open ports stealthily.
TCP Connect Scan (High Window Size): Packet #201, indicative of a more direct scan.
XMAS Scan: Packet #203, using FIN, URG, PSH flags to bypass basic firewalls.
NULL Scan: Packet #205, sending a TCP packet with no flags to elicit responses from open ports.
FIN Scan: Packet #207, another evasion technique to identify open ports.
UDP Scan: Short-length packets (<= 8 bytes) suggest a UDP service discovery attempt.

Source of Activity:

All malicious scans originated from 192.168.100.95 targeting 192.168.100.99.
No ICMP or ARP-based attacks detected.

Recommendations

Immediate Actions:

Block 192.168.100.95 at the firewall level to prevent further reconnaissance.
Review logs for prior activity from this IP to assess potential prior compromise.

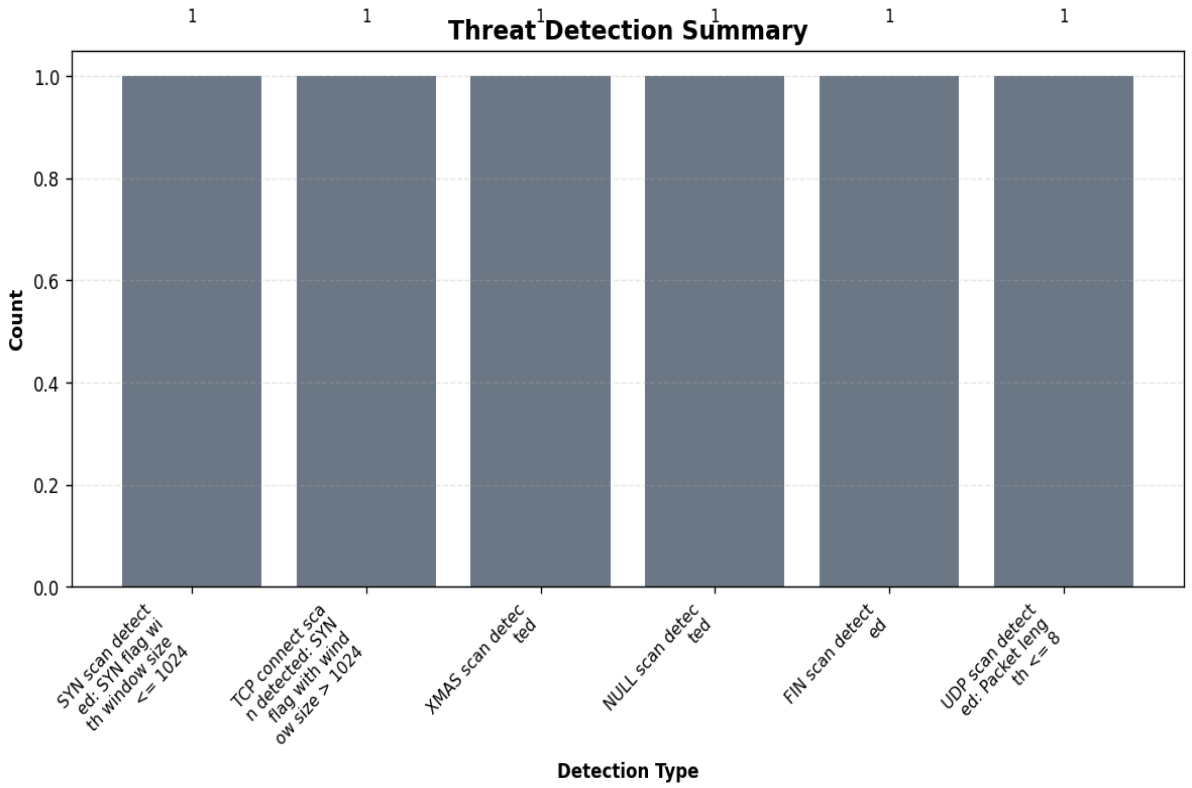
Network Hardening:

Enable TCP SYN cookies to mitigate SYN flood and scan attempts.
Filter malformed TCP packets (XMAS, NULL, FIN) at the firewall.
Restrict UDP services to only necessary ports and monitor for unusual traffic.

Detection Improvements:

Deploy an IDS/IPS with rules to flag and block advanced scanning techniques.
Implement rate limiting on suspicious TCP/UDP traffic patterns.

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 th window size <= 1024
12:47:31.437	201	TCP	TCP connect scan detected: SYN 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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