Network Traffic Security Analysis Report

Executive Summary

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Network Traffic Analysis Security Report

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Analyst: Senior Cybersecurity Analyst 1. Executive Summary

A comprehensive analysis of network traffic revealed **multiple port scanning activities** originating from 192.168.100.95 targeting 192.168.100.99. The attacker employed **five distinct TCP-based scan techniques** (SYN, TCP Connect, XMAS, NULL, FIN) and a **UDP scan**, indicating a deliberate reconnaissance effort to map open ports and services. While no actual attack payloads (TCP/UDP/ICMP/ARP) were observed, these scans are precursors to potential exploitation. **Key Takeaways:**

High-risk activity: Reconnaissance scans (severity: **High**).

Threat actor: Internal IP (192.168.100.95) suggests insider threat or compromised host.

Impact: If unmitigated, this could lead to service enumeration, vulnerability exploitation, or lateral movement.

2. Risk Assessment | Threat Type | Severity | Description |

|--------------------------|----------|---|

| **SYN Scan** | High | Low window size (<=1024) suggests evasion attempt. |

| **TCP Connect Scan** | Medium | Standard scan with window size >1024. |

| **XMAS/NULL/FIN Scans** | High | Stealthy techniques to bypass basic firewall rules. |

| **UDP Scan** | Medium | Short packets (<=8 bytes) likely probing for open UDP services. |**Critical Vulnerabilities:**

Internal host (192.168.100.95) is actively scanning another internal host (192.168.100.99).

Lack of **network segmentation** or **host-based firewalls** allowed scans to proceed undeterred.

3. Threat Observations Technical Findings:

1. **Scan Patterns:**

SYN Scan (Packet #199): Window size manipulation (<=1024) to evade detection.

TCP Connect Scan (Packet #201): Standard full-connect scan.

Stealth Scans (Packets #203–207): XMAS (FIN/URG/PSH flags), NULL (no flags), and FIN scans to identify unfiltered ports.

UDP Scan: Minimal-length packets (<=8 bytes) to elicit ICMP "port unreachable" responses.

2. **Source/Destination:**

All scans originated from 192.168.100.95 targeting 192.168.100.99.

No ports were specified, suggesting a **broad sweep** of the target's services.

3. **Timing:**

All scans occurred within **200ms** (07:47:31.388–07:47:31.588), indicating automated tools (e.g., Nmap).

4. Recommendations Immediate Actions:

1. **Isolate the Scanner Host:**

Quarantine 192.168.100.95 for forensic analysis (check for malware or unauthorized access).

Revoke unnecessary network privileges.

2. **Harden the Target Host (192.168.100.99):**

Apply strict host-based firewall rules (e.g., deny unsolicited SYN/FIN/NULL packets).

Audit running services and patch vulnerabilities.

3. **Network-Level Mitigations:**

Implement **ingress/egress filtering** to block anomalous TCP flag combinations (e.g., XMAS/NULL).

Deploy **IDS/IPS** rules to alert on and block scan patterns (e.g., Snort/Suricata).

Long-Term Strategies:

Segment the Network: Limit lateral movement via VLANs or microsegmentation.

Enable Logging: Retain full packet captures (PCAPs) for future investigations.

User Training: Educate staff on insider threats and phishing risks.

Final Note: While no direct exploitation was observed, these scans are a **clear indicator of hostile intent**. Proactive containment is critical to prevent escalation. ---

Report End

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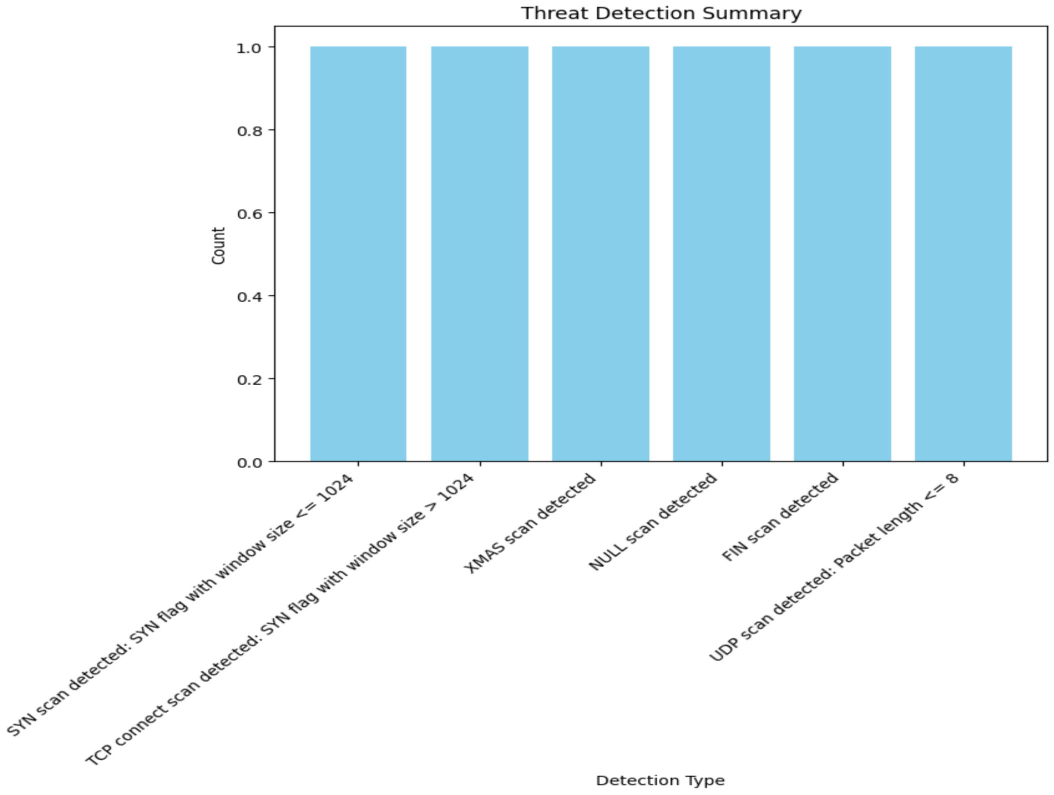
Threat Detection Summary



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

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