Network Traffic Security Analysis Report

Executive Summary

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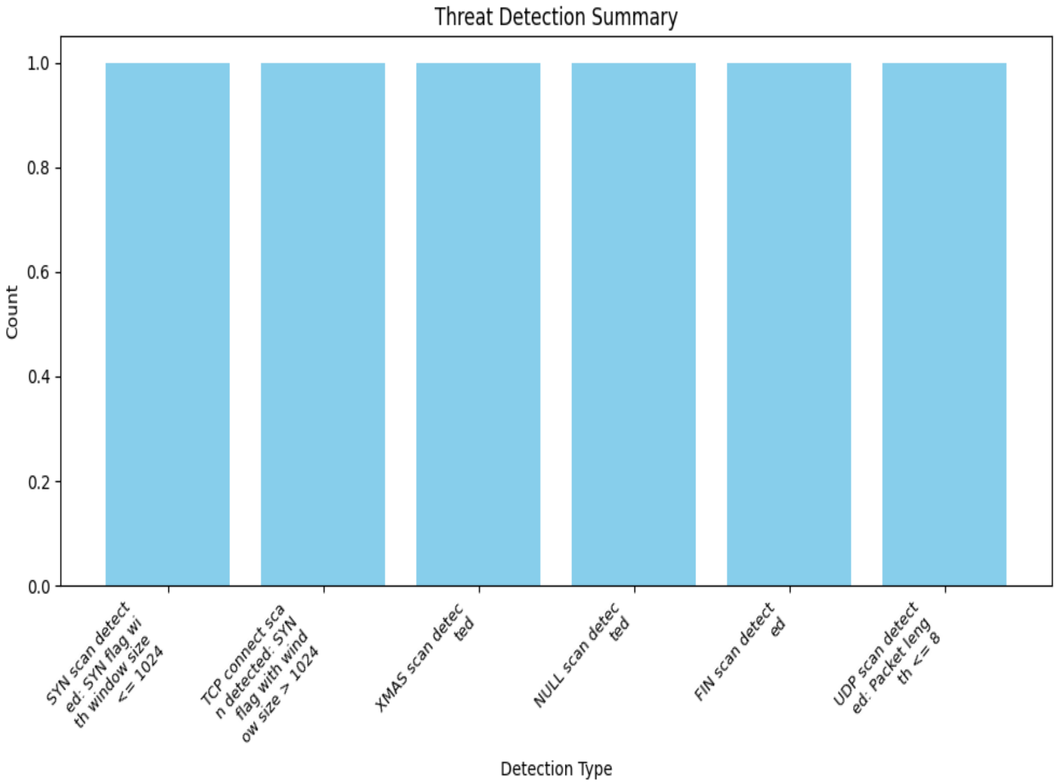
Multiple port scan techniques detected from internal IP 192.168.100.95 targeting 192.168.100.99 within a 1-minute window.
Scans include **SYN, TCP Connect, XMAS, NULL, FIN, and UDP** methods, indicating a systematic reconnaissance effort.
Zero detected attack packets (TCP/UDP/ICMP/ARP), suggesting the activity focused on network mapping rather than payload delivery.
Risk Assessment

Critical Risks:
Internal host (192.168.100.95) performing stealth scans, indicating potential lateral movement or compromised device.
High-severity XMAS/NULL/FIN scans (stealth techniques bypassing basic firewall rules).
UDP scan with minimal packet length, often used to identify vulnerable services (e.g., DNS, DHCP).
Elevated Risks:
Repeated SYN scan variants (window size anomalies) suggesting attacker experimentation.
Concentrated targeting of 192.168.100.99, potentially marking it as a high-value asset.
Threat Observations

Scan Patterns:
5 distinct TCP scan types detected in rapid succession (packets #199–207) at 2025-03-20 07:47.
SYN scan with **abnormally low window size (≤1024)** and high window size (>1024) variants.
Stealth scans (XMAS/NULL/FIN) leveraging non-standard TCP flag combinations.
Source Behavior:
Consistent use of **null source/destination ports** in TCP scans, atypical for legitimate traffic.
No observed payloads, suggesting a pure reconnaissance phase.
Protocol Distribution:
100% of top threats involved TCP (5/5 events).
Single UDP scan detected with packet length ≤8 bytes (commonly used for service discovery).
Recommendations

Immediate Actions:
Quarantine 192.168.100.95 for forensic analysis to check for compromise.
Validate firewall rules blocking **TCP flags combinations** (e.g., FIN without SYN, XMAS flags).
Network Hardening:
Implement **rate limiting** on SYN packets per source IP to disrupt scan attempts.
Deploy IDS signatures targeting **window size anomalies** (e.g., window:<=1024 AND tcp.flags.syn==1).
Asset Protection:
Restrict lateral communication to 192.168.100.99 using micro-segmentation.
Enable logging for UDP packets ≤8 bytes on critical servers.
Monitoring Enhancements:
Correlate scan events with authentication logs for 192.168.100.95.
Deploy deception technologies (e.g., honeypots) to detect follow-up exploitation attempts.

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

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": "2025-03-20T07:47:31.388726",
"minute": "2025-03-20 07:47",
"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": "2025-03-20T07:47:31.437189",
"minute": "2025-03-20 07:47",
"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": "2025-03-20T07:47:31.489040",
"minute": "2025-03-20 07:47",
"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": "2025-03-20T07:47:31.541120",
"minute": "2025-03-20 07:47",
"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": "2025-03-20T07:47:31.588889",
"minute": "2025-03-20 07:47",
"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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Filename: security_report_20250407_190649.pdf

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Generated on: 2025-04-07 19:07:56