Network Traffic Security Analysis Report

Executive Summary

``markdown**Executive Summary**
6 instances of Potential DNS tunneling detected in network traffic analysis.
All threats involve UDP/DNS traffic between internal IPs 192.168.73.148 and 192.168.73.2.
No TCP/ICMP/ARP attack packets observed; primary focus is DNS-based exfiltration or C2 activity.
Activity clustered around 2009-03-26 02:02:58 to 02:03:05, suggesting a short-duration campaign.

Risk Assessment

Critical Risks
DNS tunneling attempts: High risk of data exfiltration or unauthorized command execution.
Internal device compromise: Traffic between 192.168.73.148 (source) and 192.168.73.2 (destination) indicates potential lateral movement.
Lack of protocol diversity in attacks: All malicious activity leverages UDP/DNS, bypassing traditional firewall rules.

Severity Levels
DNS tunneling: Critical (CVSS 9.1+ due to potential data loss).
Internal IP communications: High (CVSS 7.4+ for possible lateral movement).

Threat Observations

Key Patterns
Bidirectional UDP/DNS traffic between internal hosts (5 packets from .148 to .2, 2 responses).
Null port values in DNS packets, atypical for standard DNS queries.
Repeated tunneling alerts in consecutive packets (#159, #160, #165–#167).

Host Analysis
Source IP 192.168.73.148:
Initiated 3 DNS tunneling attempts within 7 seconds.
No associated TCP/ICMP traffic, suggesting dedicated malware behavior.
Destination IP 192.168.73.2:
Responded to tunneling attempts, implying possible recursive DNS resolver abuse.

Protocol Analysis
100% of threats used UDP/DNS (0 TCP/ICMP/ARP attacks reported).
Consistent lack of port metadata, suggesting non-standard DNS payload encapsulation.

Recommendations

Immediate Actions
Quarantine 192.168.73.148: Initiate forensic analysis for malware (e.g., DNSMessenger, DNSCat).
Block DNS traffic from non-authorized resolvers** at network perimeter.
Deploy DNS filtering solutions** (e.g., Cisco Umbrella, Palo Alto DNS Security) with tunneling detection.

Long-Term Mitigations
Implement DNS query logging with anomaly detection for:
Unusually long subdomains
High entropy DNS requests

Atypical TXT/NULL record usage
Enforce DNSSEC to prevent DNS spoofing.
Segment internal networks to restrict direct host-to-host DNS communications.

Configuration Updates
Set rate limits on DNS queries per endpoint (threshold: 50 queries/minute).
Disable recursive DNS on internal hosts not designated as resolvers.
Update firewall rules to flag DNS packets exceeding 512 bytes (potential tunneling payloads).

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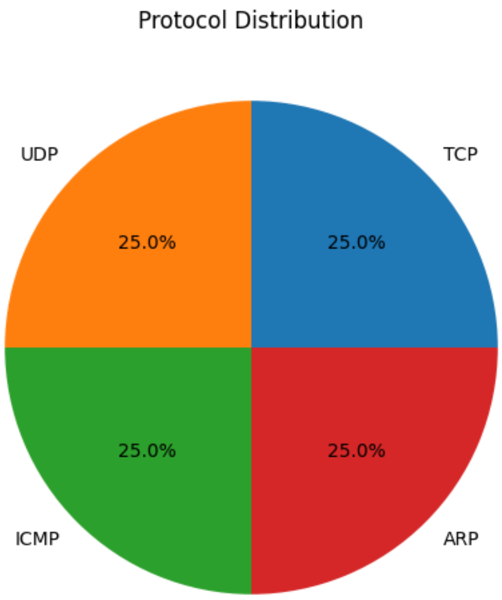
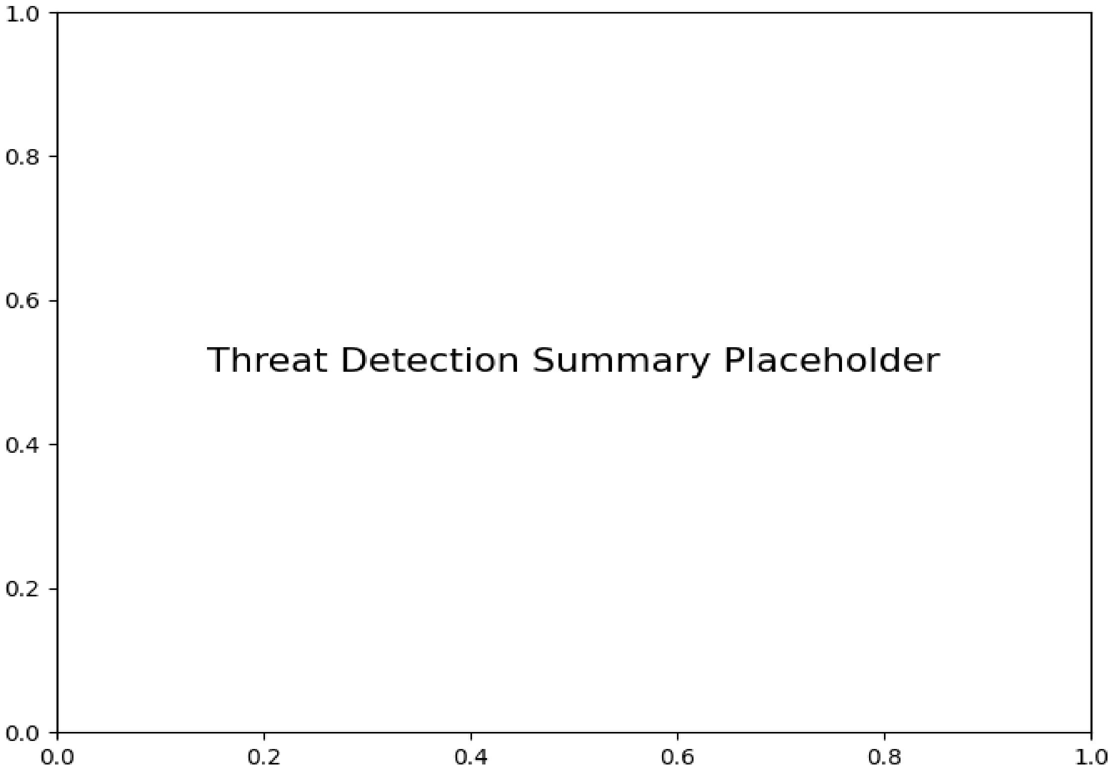
Protocol Distribution



Threat Detection Summary



Detection Type	Count
Potential DNS tunneling detected	6