

# Network Traffic Security Analysis Report

*Overall Threat Assessment*



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# Executive Summary

Network Traffic Analysis Security ReportExecutive Summary

**3 TCP connect scans** detected from internal IP 192.168.73.148 to external Google IPs (64.233.169.104, 74.125.45.100).

**6 DNS tunneling attempts** observed between 192.168.73.148 and 192.168.73.2, indicating potential data exfiltration.

No direct attack packets (TCP/UDP/ICMP/ARP) observed, but reconnaissance and covert channel activities detected.

Risk Assessment

**High Severity Risks**

**TCP SYN scans with abnormal window sizes (>1024):** Suggests **network reconnaissance** or **port scanning** from an internal host (192.168.73.148).

**DNS tunneling (entropy=3.52):** Indicates **potential data exfiltration** or **command-and-control (C2) communication** via DNS queries.

Moderate Severity Risks

Repeated UDP/DNS traffic between internal hosts (192.168.73.148 ↔ 192.168.73.2) warrants investigation for **covert channels**.

Threat Observations

TCP Connect Scans

**Source IP:** 192.168.73.148 (internal)

**Target IPs:** 64.233.169.104 (Google), 74.125.45.100 (Google)

**Technique:** SYN packets with **abnormally large window sizes (>1024)**—common in **stealth scans** to bypass basic detection.

**Timing:** Scans occurred within a **30-second window** (02:02:13 to 02:02:41), suggesting automated probing.

DNS Tunneling Indicators

**High entropy (3.52)** in DNS packets, atypical for legitimate DNS traffic.

**Bidirectional traffic** between 192.168.73.148 and 192.168.73.2, indicating possible **data exchange**.

**Length=24:** Short but suspicious payloads, often used in **DNS tunneling tools** like DNSCat2.

Recommendations

Immediate Actions

**Isolate 192.168.73.148:** Investigate for **compromise** or **malicious insider activity**.

**Block outbound DNS from unauthorized hosts:** Restrict DNS queries to approved resolvers.

**Deploy IDS/IPS rules** to flag:

**SYN scans with window size >1024.**

**High-entropy DNS packets** (threshold: entropy >3.0).

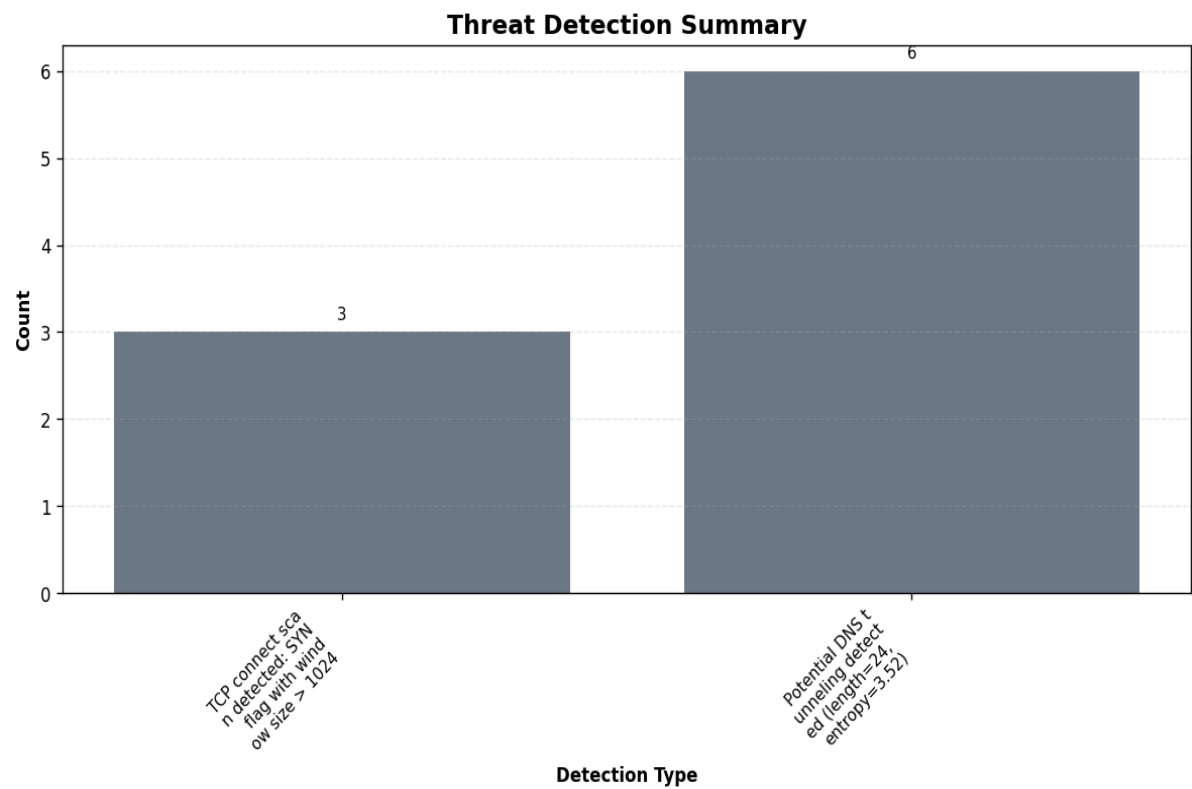
Long-Term Mitigations

**Enable DNS logging:** Monitor for **unusual query patterns** (e.g., long subdomains, TXT records).

**Conduct endpoint forensics** on 192.168.73.148 for malware (e.g., C2 beacons, tunneling tools).

**Implement network segmentation:** Limit internal host communication to reduce lateral movement risks.

# Threat Detection Summary



## Detection Details

Detection Type	Count
TCP connect scan detected: SYN flag with window size > 1024	3
Potential DNS tunneling detected (length=24, entropy=3.52)	6

## Source/Destination Analysis

IP Address	As Source	As Destination	Total
192.168.73.148	4	1	5
64.233.169.104	0	2	2
74.125.45.100	0	1	1

192.168.73.2	1	1	2
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## Event Timeline

Time	Packet #	Protocol	Detection
02:02:13.074	1	TCP	TCP connect scan detected: SYN  flag with window size > 1024
02:02:33.647	8	TCP	TCP connect scan detected: SYN  flag with window size > 1024
02:02:41.721	55	TCP	TCP connect scan detected: SYN  flag with window size > 1024
02:02:58.910	159	UDP, DNS	Potential DNS tunneling detect ed (length=24, entropy=3.52)
02:02:59.143	160	UDP, DNS	Potential DNS tunneling detect ed (length=24, entropy=3.52)

## Appendix: Raw Traffic Analysis Data

```
{
  "detection_counts": {
    "TCP connect scan detected: SYN flag with window size > 1024": 3,
    "Potential DNS tunneling detected (length=24, entropy=3.52)": 6
  },
  "attack_stats": {
    "tcp_packets": 0,
    "udp_packets": 0,
    "icmp_packets": 0,
    "arp_packets": 0
  },
  "top_threats": [
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      "timestamp": "2009-03-26T02:02:13.074226",
      "minute": "2009-03-26 02:02",
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        "TCP"
      ],
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      "dst_ip": "64.233.169.104",
      "src_port": null,
      "dst_port": null,
      "detection_details": [
        "TCP connect scan detected: SYN flag with window size > 1024"
      ]
    },
    {
      "packet_number": 8,
      "timestamp": "2009-03-26T02:02:33.647367",
      "minute": "2009-03-26 02:02",
      "protocols": [
        "TCP"
      ],
      "src_ip": "192.168.73.148",
      "dst_ip": "64.233.169.104",
      "src_port": null,
      "dst_port": null,
      "detection_details": [
        "TCP connect scan detected: SYN flag with window size > 1024"
      ]
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    {
      "packet_number": 55,
      "timestamp": "2009-03-26T02:02:41.721536",
      "minute": "2009-03-26 02:02",
      "protocols": [
        "TCP"
      ],
      "src_ip": "192.168.73.148",
      "dst_ip": "74.125.45.100",
      "src_port": null,
      "dst_port": null,
      "detection_details": [
        "TCP connect scan detected: SYN flag with window size > 1024"
      ]
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    {
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      "timestamp": "2009-03-26T02:02:58.910572",
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```
"minute": "2009-03-26 02:02",
"protocols": [
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  "DNS"
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"src_ip": "192.168.73.148",
"dst_ip": "192.168.73.2",
"src_port": null,
"dst_port": null,
"detection_details": [
  "Potential DNS tunneling detected (length=24, entropy=3.52)"
]
},
{
  "packet_number": 160,
  "timestamp": "2009-03-26T02:02:59.143110",
  "minute": "2009-03-26 02:02",
  "protocols": [
    "UDP",
    "DNS"
  ],
  "src_ip": "192.168.73.2",
  "dst_ip": "192.168.73.148",
  "src_port": null,
  "dst_port": null,
  "detection_details": [
    "Potential DNS tunneling detected (length=24, entropy=3.52)"
  ]
}
]
}
```

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