Group:	Report Number:	Report id
Essential Group	Report No. 8	8-lec-13-Detection and analysis Using IDS&IPS Suricata-6_ess

Detection and analysis PCAP File

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Date of Task Assignment :

2/7/2026

Due Date:

2/17/2026

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Scenario

You are a junior security analyst working in a Security Operations Center (SOC). Your organization operates a local network (LAN) with the following details:
LAN Segment Range: 172.17.0.0/24
Domain: bepositive.com
Active Directory Domain Controller: IP Address: 172.17.0.17
Hostname: WIN-CTL9XBQ9Y19
AD Environment Name: BEPOSITIVE
Gateway: 172.17.0.1
Broadcast Address: 172.17.0.255

During routine monitoring, security alerts were triggered after suspicious activity was observed in a captured network traffic file (PCAP). These alerts indicate potential malicious behavior inside the LAN.

Task
Write an **incident report** based on:

The malicious network activity observed in the PCAP
The alerts generated by the detection system
The incident report must include **exactly three sections**:
Executive Summary Describe **what happened**, **when it happened**, and **who was affected**
Use clear, simple, non-technical language suitable for management
Victim Details Hostname
IP address
MAC address
Windows user account name
Indicators of Compromise (IOCs) Malicious IP addresses
Domains and URLs related to the activity
SHA256 hashes **only if malware binaries can be extracted from the PCAP**

Summary

Date of Incident: September 4, 2024

Time of Incident: 13:32:31 - 14:31:52

Report Date: [Current date]

What Happened:

On September 4, 2024, between 13:32 and 14:31, I detected a critical security breach involving the compromise of user credentials and Active Directory enumeration. The affected workstation, **DESKTOP-RNV09AT** (IP: 172.17.0.99), was found to have been infected with malware, establishing persistent communications with multiple external command-and-control (C2) servers.

During the investigation, it was identified that the attacker exploited stolen credentials from **user afletcher** to perform **DRSUAPI** calls to the Domain Controller (**WIN-CTL9XBQ9Y19**, IP: 172.17.0.17). This is a significant attack technique often associated with **DCSync attacks**, enabling attackers to request replication of sensitive Active Directory data, including password hashes and Kerberos credentials. These actions pose a severe risk to the integrity of our entire domain, as the attacker could potentially forge **Golden Tickets** and gain unauthorized, persistent access to the domain.

Scope and Impact

- **Primary Victim:** Workstation **DESKTOP-RNV09AT** (IP: 172.17.0.99)
- **Compromised User: afletcher**
- **Domain Controller Impacted: WIN-CTL9XBQ9Y19** (IP: 172.17.0.17),

This attack has the potential to expose all domain credentials and allow attackers to impersonate any user, including Domain Admins, through the Golden Ticket technique. Immediate action is required to contain and investigate this compromise.

2. Victim Details

Attribute	Value	Source
Hostname	DESKTOP-RNV09AT	NBNS Registration / Kerberos Traffic
IP Address	172.17.0.99	PCAP Statistics
MAC Address	00:23:ae:50:ba:fd	Ethernet Statistics

3. Indicators of Compromise (IOCs)

Malicious External IP Addresses:

IP Address	Traffic	Risk Level	Action
46.254.34.201	782 packets / 720 kB	CRITICAL	Block at firewall
79.124.78.197	591 packets / 64 kB	CRITICAL	Block at firewall
23.45.119.144	376 packets / 189 kB	HIGH	Investigate
23.221.24.69	215 packets / 171 kB	HIGH	Investigate

Critical Internal Indicators:

IOC Type	Value	Description	Risk
Compromised Host	DESKTOP-RNV09AT	Infected workstation	CRITICAL
Compromised User	afletcher	Stolen credentials	CRITICAL
DCSync Attack	DRSUAPI Calls	AD hash extraction	CRITICAL
LDAP Enumeration	Multiple Binds	AD reconnaissance	HIGH

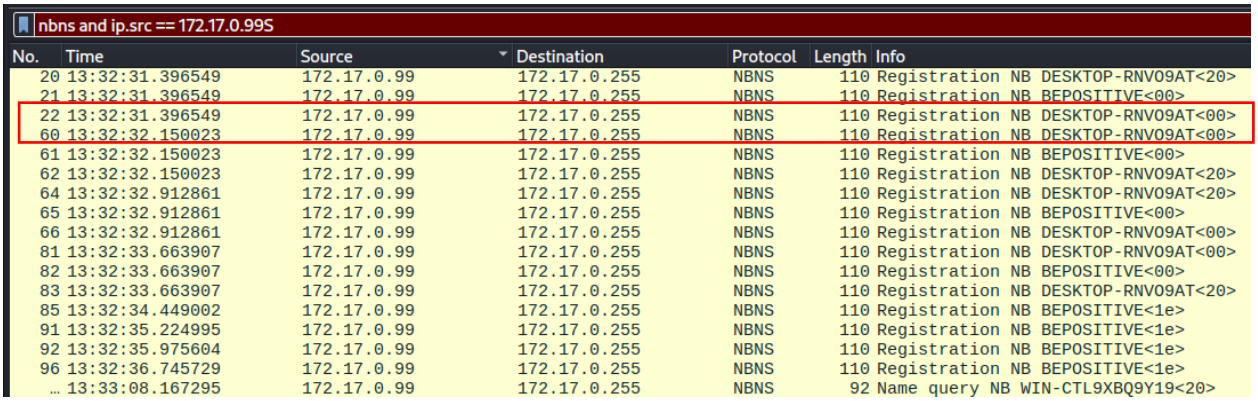


FIGURE (1) Hostname Discovery – NBNS Registration showing victim hostname DESKTOP-RNV09AT.

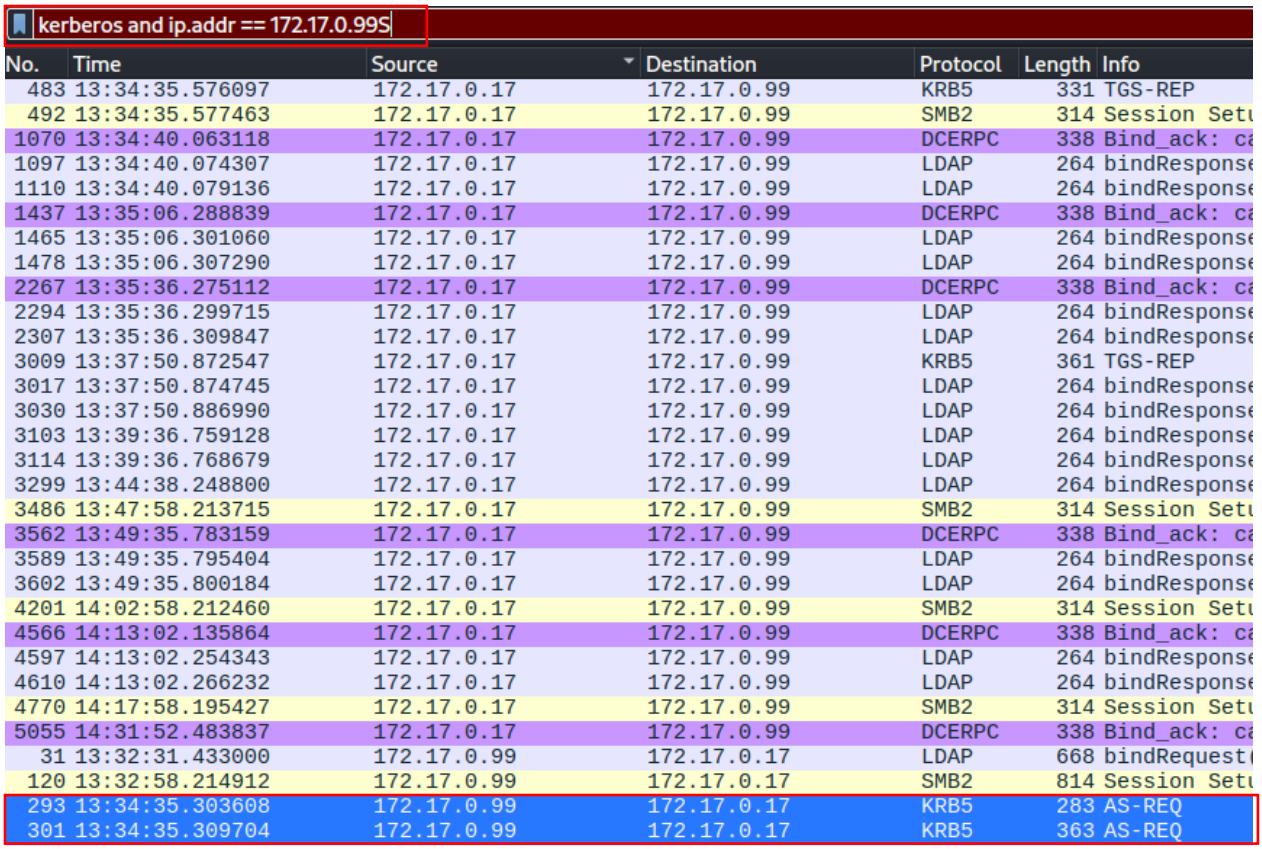


FIGURE (2) Compromised User Account – Kerberos AS-REQ showing user afletcher authenticating to the Domain Controller.

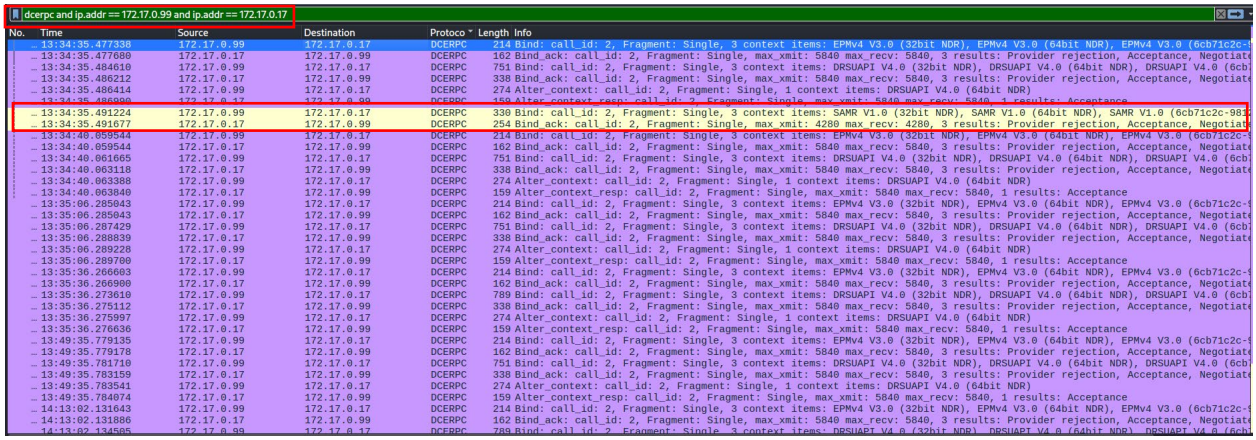
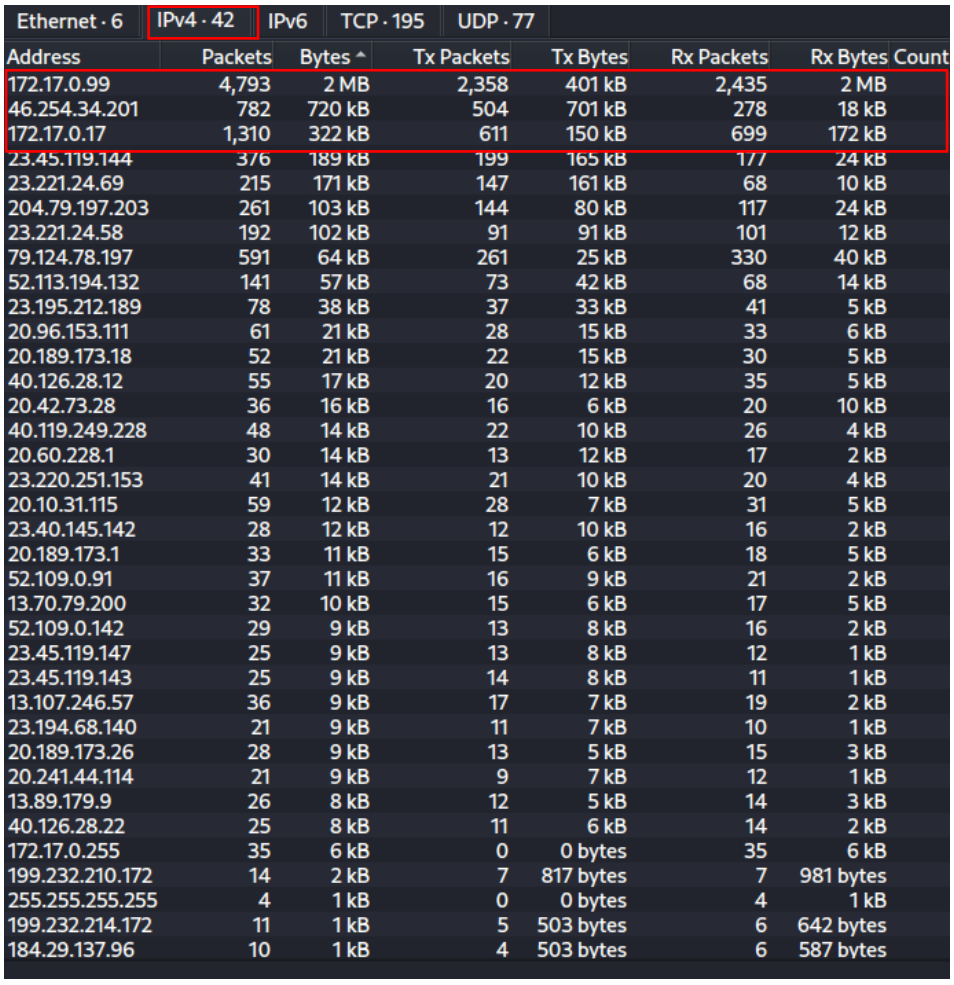


FIGURE (3) DRSUAPI DCSync Attack Evidence – DRSUAPI Bind requests showing DCSync attack in progress.



Address	Packets	Bytes	Tx Packets	Tx Bytes	Rx Packets	Rx Bytes	Count
172.17.0.99	4,793	2 MB	2,358	401 kB	2,435	2 MB	
46.254.34.201	782	720 kB	504	701 kB	278	18 kB	
172.17.0.17	1,310	322 kB	611	150 kB	699	172 kB	
23.45.119.144	376	189 kB	199	165 kB	177	24 kB	
23.221.24.69	215	171 kB	147	161 kB	68	10 kB	
204.79.197.203	261	103 kB	144	80 kB	117	24 kB	
23.221.24.58	192	102 kB	91	91 kB	101	12 kB	
79.124.78.197	591	64 kB	261	25 kB	330	40 kB	
52.113.194.132	141	57 kB	73	42 kB	68	14 kB	
23.195.212.189	78	38 kB	37	33 kB	41	5 kB	
20.96.153.111	61	21 kB	28	15 kB	33	6 kB	
20.189.173.18	52	21 kB	22	15 kB	30	5 kB	
40.126.28.12	55	17 kB	20	12 kB	35	5 kB	
20.42.73.28	36	16 kB	16	6 kB	20	10 kB	
40.119.249.228	48	14 kB	22	10 kB	26	4 kB	
20.60.228.1	30	14 kB	13	12 kB	17	2 kB	
23.220.251.153	41	14 kB	21	10 kB	20	4 kB	
20.10.31.115	59	12 kB	28	7 kB	31	5 kB	
23.40.145.142	28	12 kB	12	10 kB	16	2 kB	
20.189.173.1	33	11 kB	15	6 kB	18	5 kB	
52.109.0.91	37	11 kB	16	9 kB	21	2 kB	
13.70.79.200	32	10 kB	15	6 kB	17	5 kB	
52.109.0.142	29	9 kB	13	8 kB	16	2 kB	
23.45.119.147	25	9 kB	13	8 kB	12	1 kB	
23.45.119.143	25	9 kB	14	8 kB	11	1 kB	
13.107.246.57	36	9 kB	17	7 kB	19	2 kB	
23.194.68.140	21	9 kB	11	7 kB	10	1 kB	
20.189.173.26	28	9 kB	13	5 kB	15	3 kB	
20.241.44.114	21	9 kB	9	7 kB	12	1 kB	
13.89.179.9	26	8 kB	12	5 kB	14	3 kB	
40.126.28.22	25	8 kB	11	6 kB	14	2 kB	
172.17.0.255	35	6 kB	0	0 bytes	35	6 kB	
199.232.210.172	14	2 kB	7	817 bytes	7	981 bytes	
255.255.255.255	4	1 kB	0	0 bytes	4	1 kB	
199.232.214.172	11	1 kB	5	503 bytes	6	642 bytes	
184.29.137.96	10	1 kB	4	503 bytes	6	587 bytes	

FIGURE (4) Malicious External IP Traffic – Endpoints statistics showing suspicious external IPs: 46.254.34.201 and **79.124.78.197**.

Conclusion:

The incident described in this report reveals a significant and sophisticated attack against the BEPOSITIVE.COM domain, which involved the exploitation of a compromised user account to conduct a DCSync attack. The malware infection on DESKTOP-RNV09AT (IP: 172.17.0.99), coupled with the attacker's use of stolen afletcher credentials, allowed for Active Directory enumeration and a direct attack on our Domain Controller (WIN-CTL9XBQ9Y19).

This attack involved multiple critical techniques:

1. **DCSync Attack (via DRSUAPI calls):**
   The attacker exploited the DRSUAPI protocol to perform unauthorized directory replication. This is a well-known technique used in DCSync attacks, where an attacker impersonates a Domain Controller and requests the replication of sensitive Active Directory data, including password hashes and Kerberos credentials. By doing so, the attacker could potentially extract password hashes for all domain users, including Domain Admins, and obtain the krbtgt hash, which would allow the attacker to create Golden Tickets. These forged tickets would grant the attacker persistent access to the domain, bypassing authentication mechanisms.

2. **Kerberos Authentication Abuse (Kerberoasting):**
   In addition to the DCSync attack, the TGS-REQ flood seen in the PCAP indicates possible Kerberoasting, where the attacker targeted service accounts to extract their Kerberos ticket-granting service (TGS) tickets.

3. **LDAP Enumeration:**

   The attacker used LDAP requests to enumerate Active Directory objects and gather more information about the domain. Repeated LDAP bind requests further demonstrate the extent of the attacker's efforts to map the domain, extract user details, and search for high-value targets for lateral movement.

4. **Unusual External Communications:**

   The victim workstation communicated with external Command and Control (C2) infrastructure. Specifically, it established a connection to the IP address 46.254.34.201, showing an unusually high volume of traffic (720 kB over 782 packets) and potential C2 activity. Moreover, there was also an attempt at data exfiltration through unencrypted HTTP (port 80) with 79.124.78.197. The use of unencrypted HTTP is particularly alarming as it allows sensitive data to be transmitted in plaintext, making it susceptible to interception.