Task :-Analyze a Phishing Email sample

Steps :-

Step 1.Obtain a sample phishing mail (u may get in online)

-This is the fake phishing email that I have

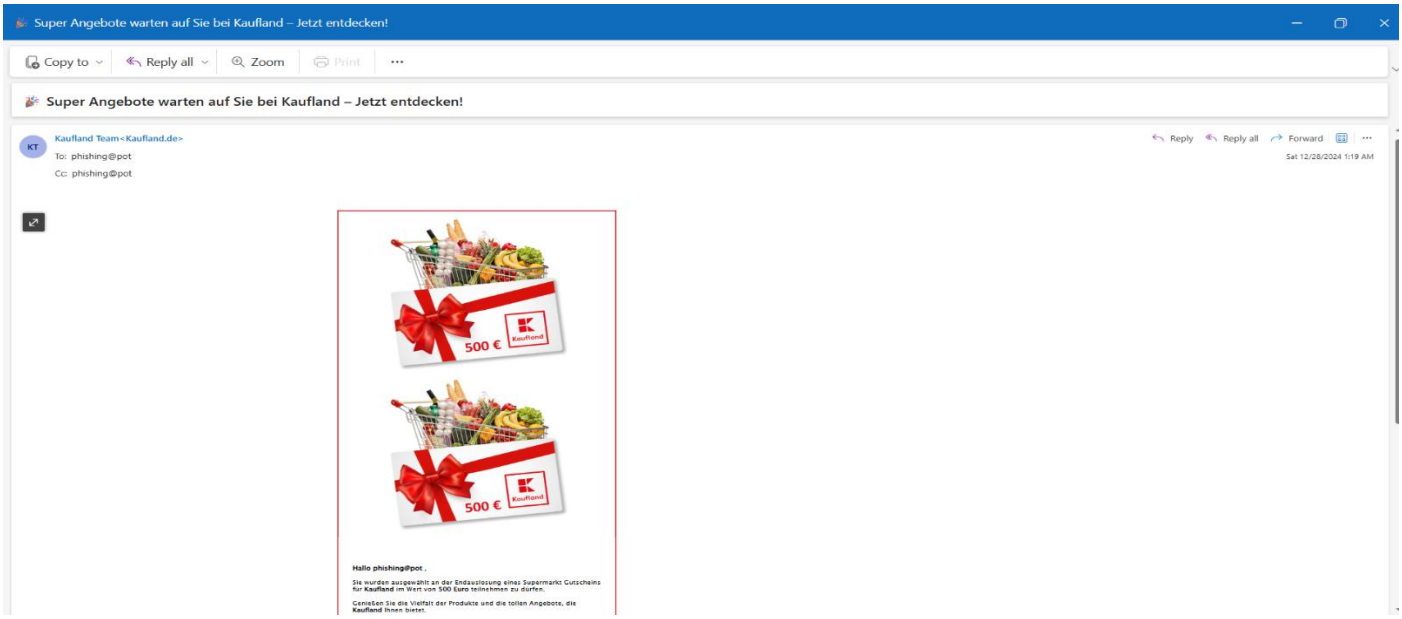


Fig 1-sample phishing mail

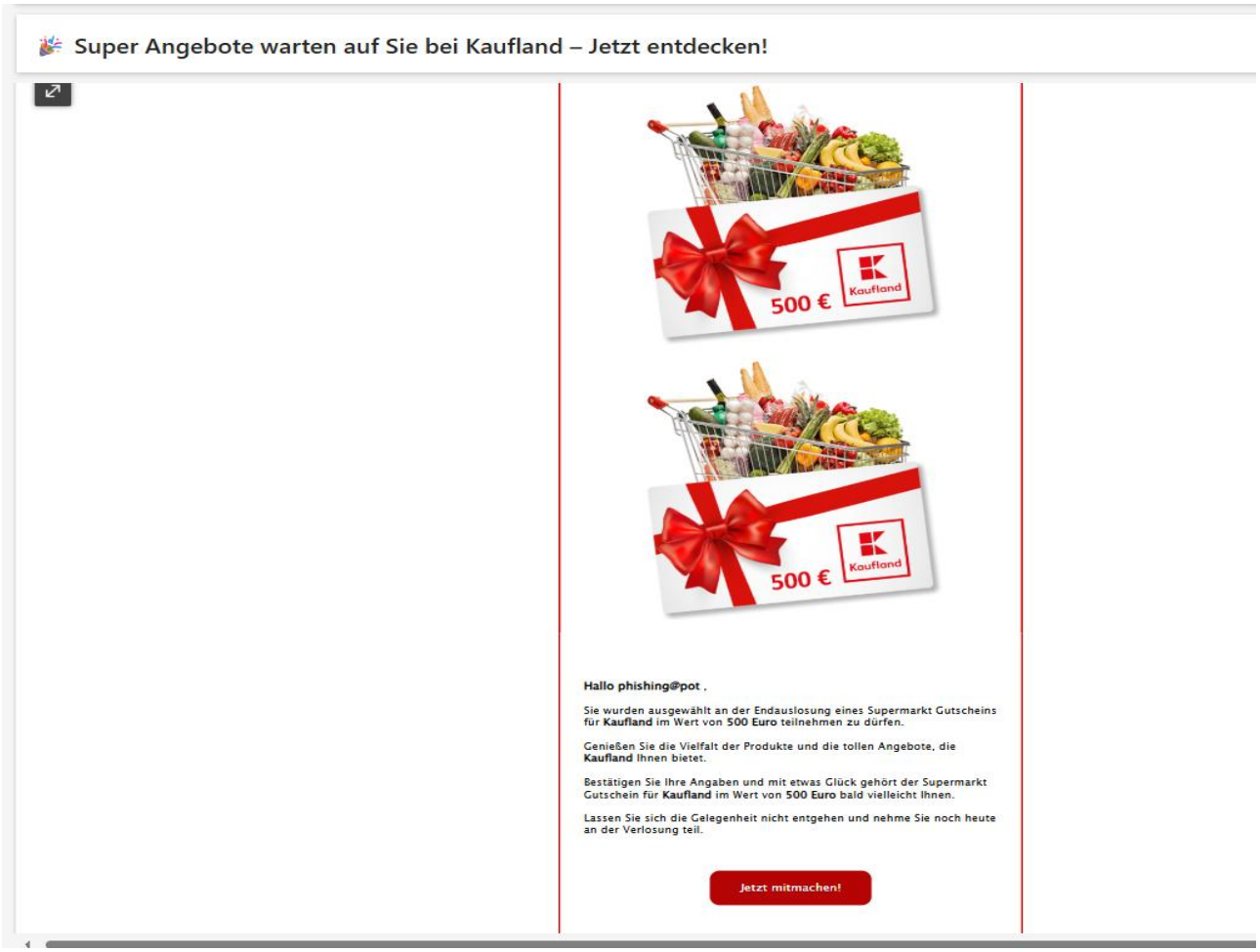


Fig 1.1

Step 2.Examine sender's email address for spoofing

Steps	What to Check	Why It Matters
1	**Visible Name vs Actual Address**	Attackers use familiar names with fake domains (e.g. Kaufland Team <fake@scam.com>)
2	**Check Domain Authenticity**	Is the domain (@something.com) a legitimate domain of the claimed sender?
3	**Look for Homoglyphs**	E.g. replacing l with I or using rn instead of m
4	**Inspect SPF/DKIM/DMARC** in the headers	These email security records confirm if the sender is authorized
5	**Review IP address of sender**	Cross-check whether it's from a trusted company server
6	**Search domain on WHOIS or VirusTotal**	To check reputation of the sending domain

-this are steps should be done to examine senders email address for spoofing

-**use EML Analyzer**

- Open it
- Just paste or drop the email that u want to check

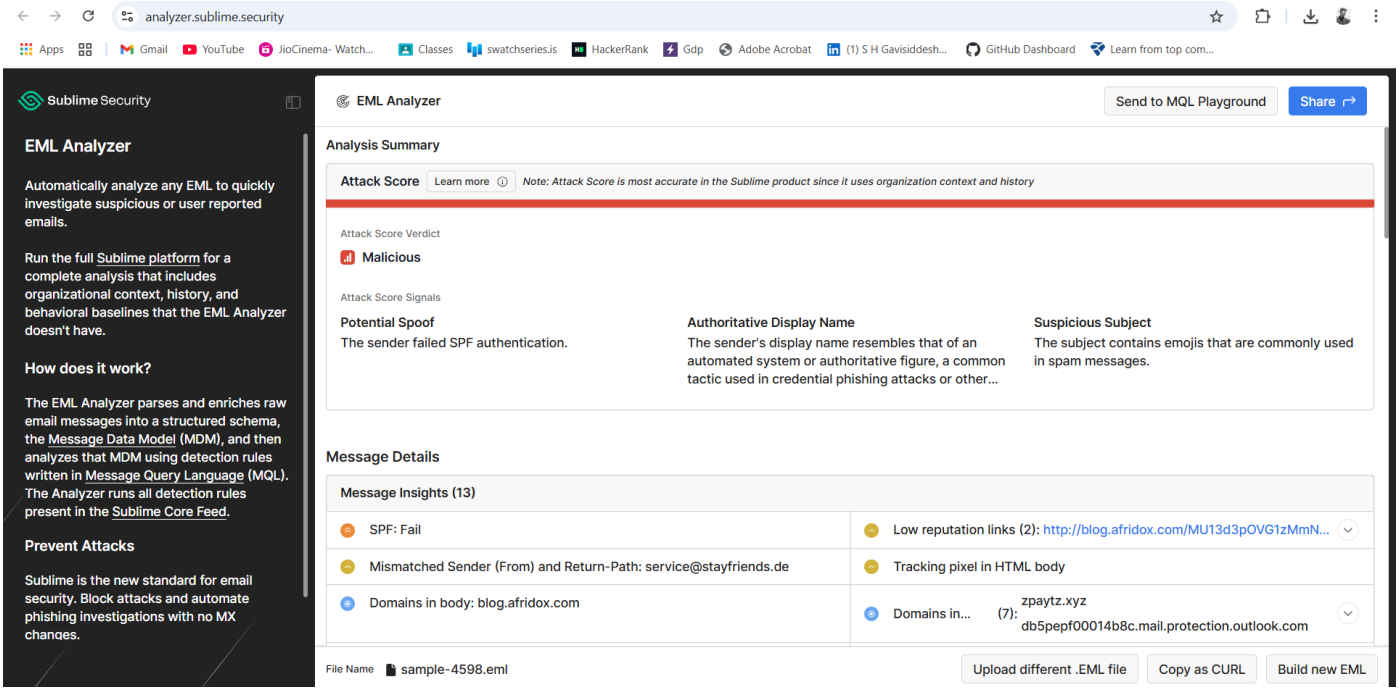


Fig 2-This EML Analyzer(when I drop my email file ,Then this was result)

-you can see the Analysis summary of it. (it is malicious file)

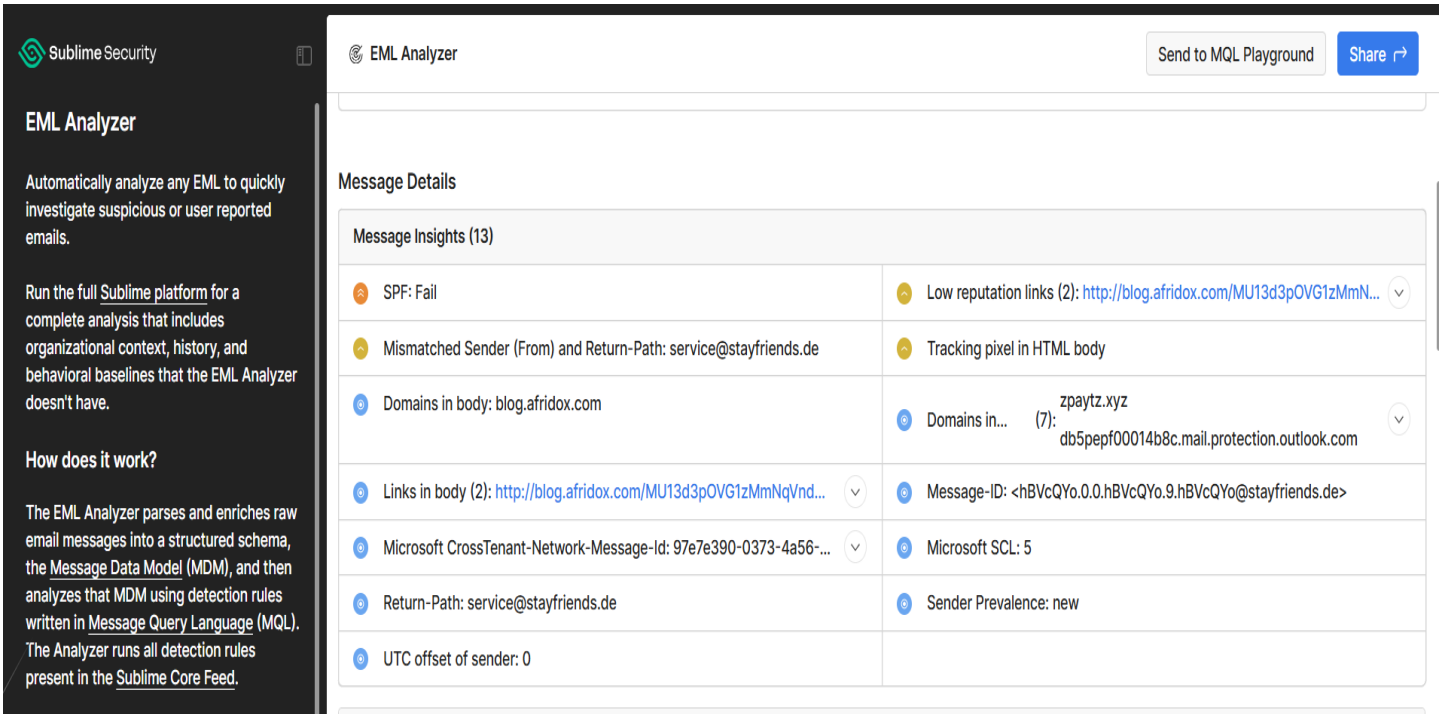


Fig 2.1-Message Details

Check	Result	Verdict
Display Name	"Kaufland Team"	✅ Looks legitimate – **but only at first glance**
Email Address	`service@stayfriends.de`	❌ NOT Kaufland's domain
Domain Mismatch	`stayfriends.de` is unrelated to Kaufland	❌ Spoofing attempt
SPF Result	`Fail`	❌ Sender IP not authorized
DKIM/DMARC	Both missing	❌ Suspicious
Sender IP	`45.143.92.114`	❌ Not from Kaufland servers
WHOIS / Reputation	IP & domain have poor reputation	❌ Bad actor likely involved

-you can check the Display name ,email address ,domain mismatch, Spf Result ,IP address etc

-you can check out Message ID (fig 2.1)

-you can get URL links (fig 2.1)

-Analyze the sender and return path (fig 2.1)

Fig 2.2-Link preview(you can see the original and effective URL)

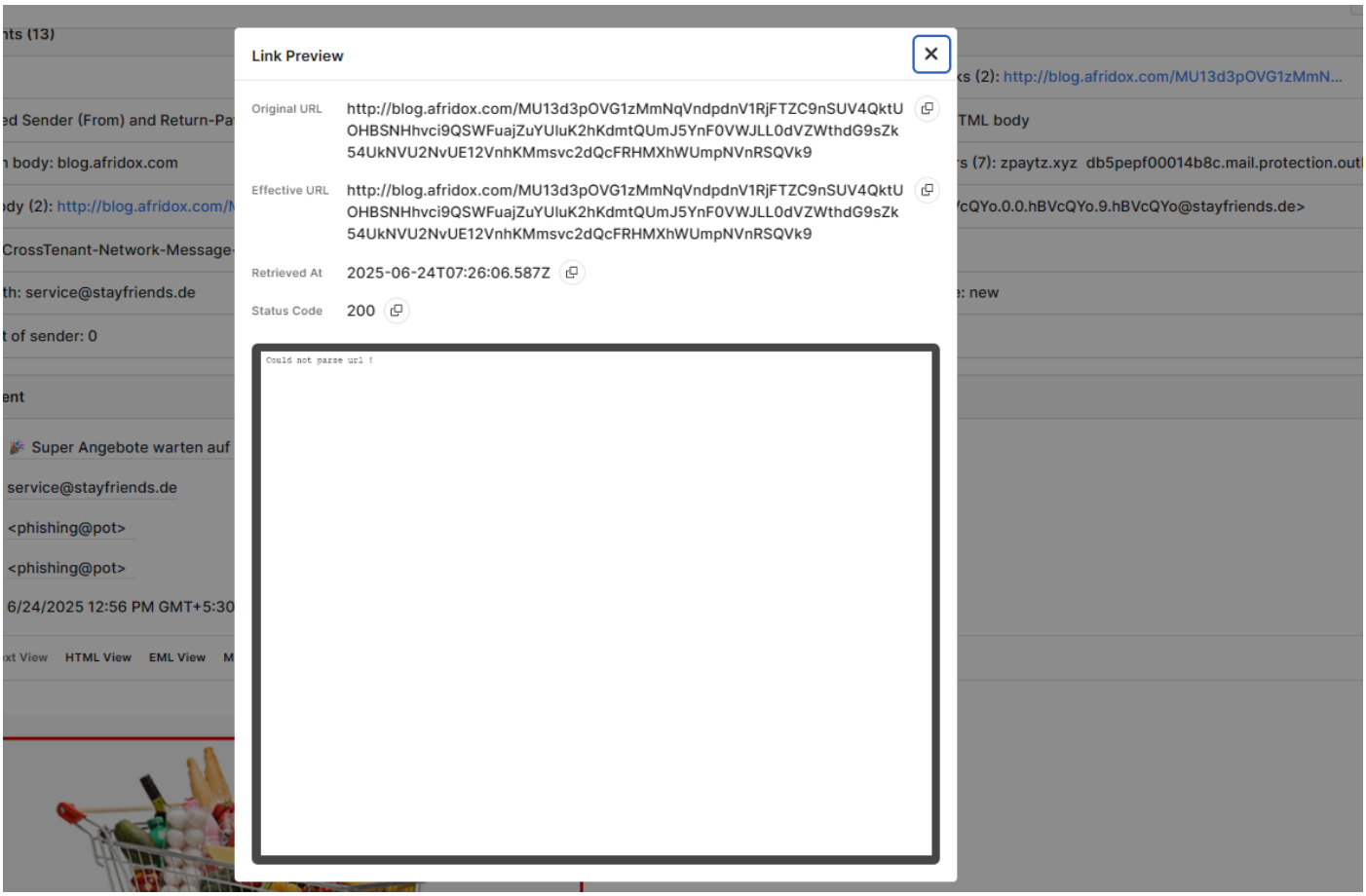


Fig 2.3-Link preview(you can see the original and effective URL)

Step 3. **Email Header Discrepancy Analysis Report**

1.**From Address vs Return-Path**

- From: Kaufland Team <service@stayfriends.de>
- Return-Path: service@stayfriends.de

Discrepancy Identified:While the display name impersonates the brand "Kaufland", the actual sending domain stayfriends.de is unrelated and unaffiliated with Kaufland. This is a clear case of brand impersonation.

Conclusion:

Spoofing attempt detected – Misleading use of branding to deceive the recipient.

2. SPF (Sender Policy Framework) Validation

- Authentication-Results:
- Spf = fail (sender IP is 45.143.92.114)
- Received-SPF: Fail – domain stayfriends.de does not designate 45.143.92.114 as a permitted sender

Discrepancy Identified: The IP address used to send this email is not listed in the SPF record of the sender's domain, causing the SPF check to fail.

Conclusion:

SPF failure – The sender is not authorized to send on behalf of stayfriends.de, indicating possible email forgery.

3. DKIM and DMARC Authentication Status

- DKIM: Not present
- DMARC: Not present

Discrepancy Identified: The email lacks both DKIM (DomainKeys Identified Mail) and DMARC (Domain-based Message Authentication, Reporting & Conformance) authentication.

Conclusion:

Authentication missing – Absence of these security mechanisms increases the likelihood of spoofing and reduces traceability.

4. Received Headers (Message Routing Path)

- Mail Path Includes:zpaytz.xyz (45.143.92.114)

- Microsoft Exchange servers (e.g., DUZPR01CA0233.eurprd01.prod.exchangelabs.com)

Discrepancy Identified: The message originates from zpaytz.xyz, a suspicious and unrelated third-party domain, before passing through Microsoft infrastructure. This domain is not associated with the claimed sender or recipient environment.

Conclusion:

Untrusted mail path – Use of a suspicious domain (zpaytz.xyz) in the initial hop is indicative of potential malicious infrastructure.

5. X-Sender-IP & Spam Confidence Level (SCL)

- X-Sender-IP: 45.143.92.114
- Spam Confidence Level (SCL): 5

Discrepancy Identified: The sender IP belongs to a known spam-associated block range. Additionally, the SCL score of 5 indicates that Microsoft's spam filter has flagged the message as suspicious.

Conclusion:

Known spam source – Message likely originated from a high-risk sender.

:-**this is another step to check the user header,open any free user header analyzer ,copy the header and see the result**

```
sql

Received: from BY5PR02MB6849.namprd02.prod.outlook.com (::1) by
 IA1PR02MB9088.namprd02.prod.outlook.com with HTTPS; Fri, 27 Dec 2024 19:50:47 +0000
Received: from DUZPR01CA0233.eurprd01.prod.exchangelabs.com (2603:10a6:10:4b4::17)
 by BY5PR02MB6849.namprd02.prod.outlook.com (2603:10b6:a03:20c::11) with Microsoft
 SMTP Server (version=TLS1_2, cipher=TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384)
 id 15.20.8293.16; Fri, 27 Dec 2024 19:50:45 +0000
Received: from DB5PEPF00014B8C.eurprd02.prod.outlook.com
 (2603:10a6:10:4b4:cafe::a0) by DUZPR01CA0233.outlook.office365.com
 (2603:10a6:10:4b4::17) with Microsoft SMTP Server (version=TLS1_3,
 cipher=TLS_AES_256_GCM_SHA384) id 15.20.8293.16 via Frontend Transport;
 Fri, 27 Dec 2024 19:50:43 +0000
Authentication-Results: spf=fail (sender IP is 45.143.92.114)
 smtp.mailfrom=stayfriends.de; dkim=none (message not signed)
 header.d=none; dmarc=none action=none header.from=stayfriends.de;
Received-SPF: Fail (protection.outlook.com: domain of stayfriends.de does not
 designate 45.143.92.114 as permitted sender) receiver=protection.outlook.com;
 client-ip=45.143.92.114; helo=zpaytz.xyz;
Received: from zpaytz.xyz (45.143.92.114) by
 DB5PEPF00014B8C.mail.protection.outlook.com (10.167.8.200) with Microsoft
 SMTP Server id 15.20.8293.12 via Frontend Transport; Fri, 27 Dec 2024 19:50:43 +0000
X-Sender-IP: 45.143.92.114
Return-Path: service@stayfriends.de
From: Kaufland Team <Kaufland.de>, Kaufland Team <service@stayfriends.de>
To: phishing@pot
Subject: 🎉 Super Angebote warten auf Sie bei Kaufland – Jetzt entdecken!
Date: Fri, 27 Dec 2024 19:49:58 +0000
Message-Id: <hBVcQYo.0.0.hBVcQYo.9.hBVcQYo@stayfriends.de>
MIME-Version: 1.0
```

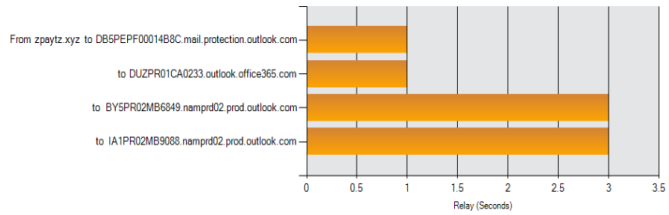
Fig 3-email header

Delivery Information

- DMARC Compliant
  - SPF Alignment
  - SPF Authenticated
  - DKIM Alignment
  - DKIM Authenticated

Relay Information

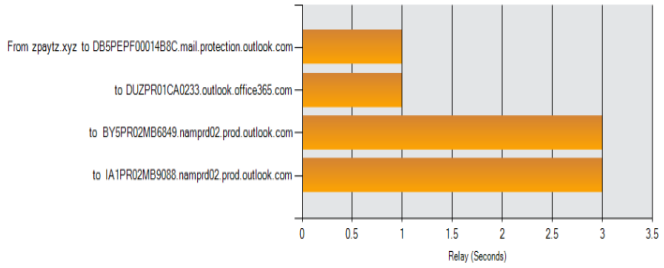
Received Delay:	4 seconds



Hop	Delay	From	By	With	Time (UTC)	Blacklist
1	*	zpaytz.xyz 45.143.92.114	DB5PEPF00014B8C.mail.protection.outlook.com 10.167.8.200	Microsoft SMTP Server	12/27/2024 7:50:43 PM	

Fig 3.1-Result of header analyzer

Delay:



Hop	Delay	From	By	With	Time (UTC)	Blacklist
1	*	zpaytz.xyz 45.143.92.114	DB5PEPF00014B8C.mail.protection.outlook.com 10.167.8.200	Microsoft SMTP Server	12/27/2024 7:50:43 PM	
2	0 seconds	DB5PEPF00014B8C.eurprd02.prod.outlook.com 2603:10a6:10:4b4:cafe::a0	DUZPR01CA0233.outlook.office365.com 2603:10a6:10:4b4::17	Microsoft SMTP Server (version=TLS1_3, cipher=TLS_AES_256_GCM_SHA384)	12/27/2024 7:50:43 PM	
3	2 seconds	DUZPR01CA0233.eurprd01.prod.exchangelabs.com 2603:10a6:10:4b4::17	BY5PR02MB6849.namprd02.prod.outlook.com 2603:10b6:a03:20c::11	Microsoft SMTP Server (version=TLS1_2, cipher=TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384)	12/27/2024 7:50:45 PM	
4	2 seconds	BY5PR02MB6849.namprd02.prod.outlook.com ::1	IA1PR02MB9088.namprd02.prod.outlook.com	HTTPS	12/27/2024 7:50:47 PM	

Fig 3.2-Result of header analyzer

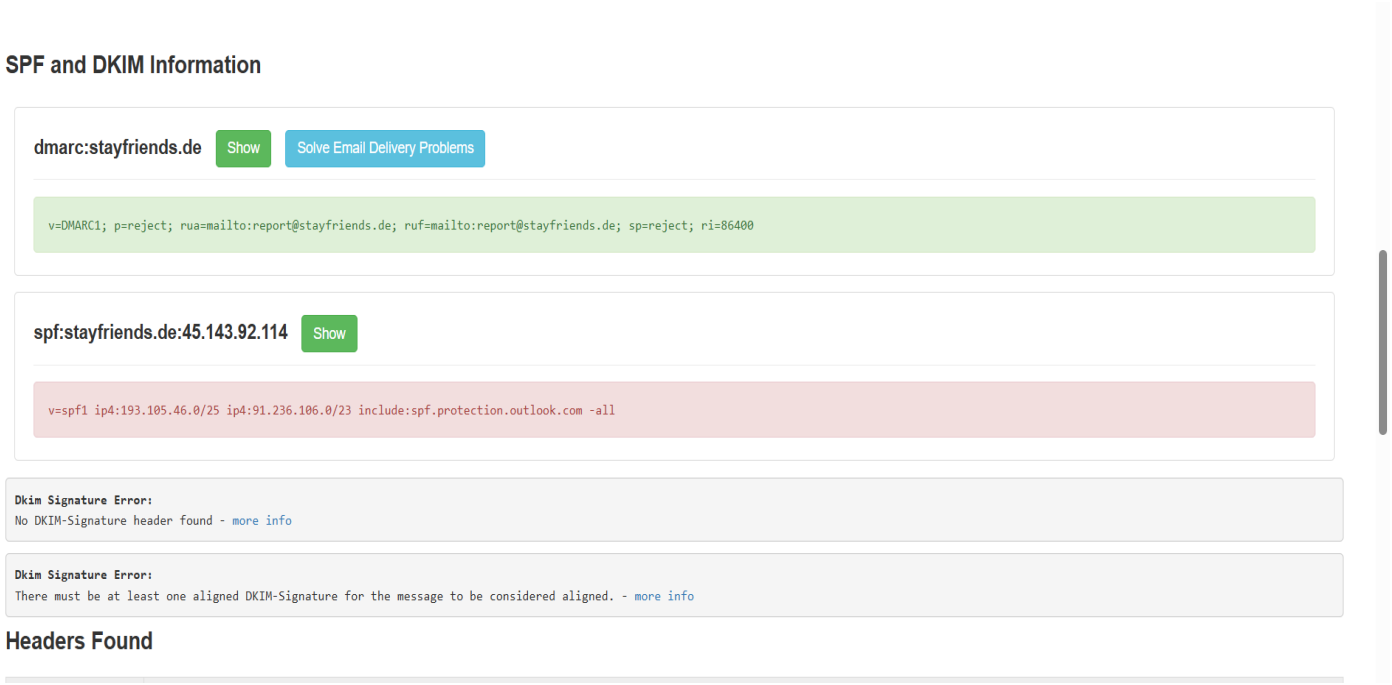


Fig 3.3-Result of header analyzer

Step 4.Identify the malicious Links and attachments

1. Primary Call-to-Action (CTA) Link

http://blog.afridox.com/MU13d3pOVG1zMmNqVndpdnV1RjFTZC9nSUV4QktUOHBSNHhvci9QSWFuajZuYUluK2hKdmtQUmJ5YnF0VWJLL0dVZWthdG9sZk54UkNVU2NvUE12VnhKMmsvc2dQcFRHMXhWUmpNVnRSQVk9

- **Displayed Purpose:** "Jetzt mitmachen!" (Join Now!)
- **Actual Domain:** blog.afridox.com
- **Analysis:** This domain is **not** affiliated with kaufland.de or any legitimate company.
- **Risk:** Likely hosts a **fake form, malware, or credential-harvesting page**.

2. Unsubscribe Link

http://blog.afridox.com/Y016MDBKTE1kdTNobkdTZ05k...

- **Displayed Purpose:** "click here to remove yourself from our emails list"
- **Actual Domain:** Still blog.afridox.com
- **Risk:** Fake unsubscribe links are commonly used for **tracking users** or delivering malware.

3. Tracking Pixel (Hidden 1px image)

<img src="http://blog.afridox.com/eTd3MDVsa3JrNVFVVTNQeDFPN2V4ekVwa21NZE1ZOHNrVkZnQ0NZN1U3L2NlS1NJNzllUzhYUXl1NjBlalp5OUpkQzdseVZMb3dKeEt2QklxWFJsSzIweFpHekNlcWtoR2JRV1o1VzhqODQ9" width="1px" height="1px">

- **Purpose:** A 1-pixel image is a **common tracking mechanism** in phishing campaigns.
- **Domain:** Again, `blog.afridox.com`
- **Risk:** Tracks if the email was opened, which validates your address for further spam or attacks.

Attachments:-

No file attachments (.pdf, .doc, .exe, .zip, etc.) were found in this email

Item	Found?	Suspicious?	Risk Level
Malicious Links	Yes (3+)	Yes (redirect to unrelated domain)	High
Attachments	No	–	Low

Step 5.Urgent or Threatening Language in the Email Body

1. "Sie wurden ausgewählt an der Endauslosung eines Supermarkt Gutscheins für Kaufland im Wert von 500 Euro teilnehmen zu dürfen."
   - *Translation:* “You have been selected to participate in the final draw for a Kaufland supermarket voucher worth 500 euros.”
   - Urgency tactic – implies exclusivity and a limited-time opportunity.
2. "Lassen Sie sich die Gelegenheit nicht entgehen und nehme Sie noch heute an der Verlosung teil."- - - *Translation:* “Don’t miss this opportunity and take part in the draw today.”
   - Clear pressure language – urging immediate action.
3. "Jetzt mitmachen!" (on a button)
   - *Translation:* “Join now!”
   - Classic call-to-action, pushing the reader to click immediately.

Step 6-verify the speeling or grammar errors

Spelling & Grammar Errors Found:

1. "nehme Sie noch heute an der Verlosung teil"

- **Error:** “**nehme Sie**”
- **Correct form:** "**nehmen Sie**"
- **Issue:** Incorrect verb conjugation (mixes informal/command tone)

2. "teilnehmen zu dürfen"

- **Error:** Awkward/incorrect phrase in context
- **Better:** “...an der Verlosung teilnehmen zu dürfen” or restructured entirely.
- **Issue:** Sounds machine-translated or poorly written

3. "Supermarkt Gutschein" (twice)

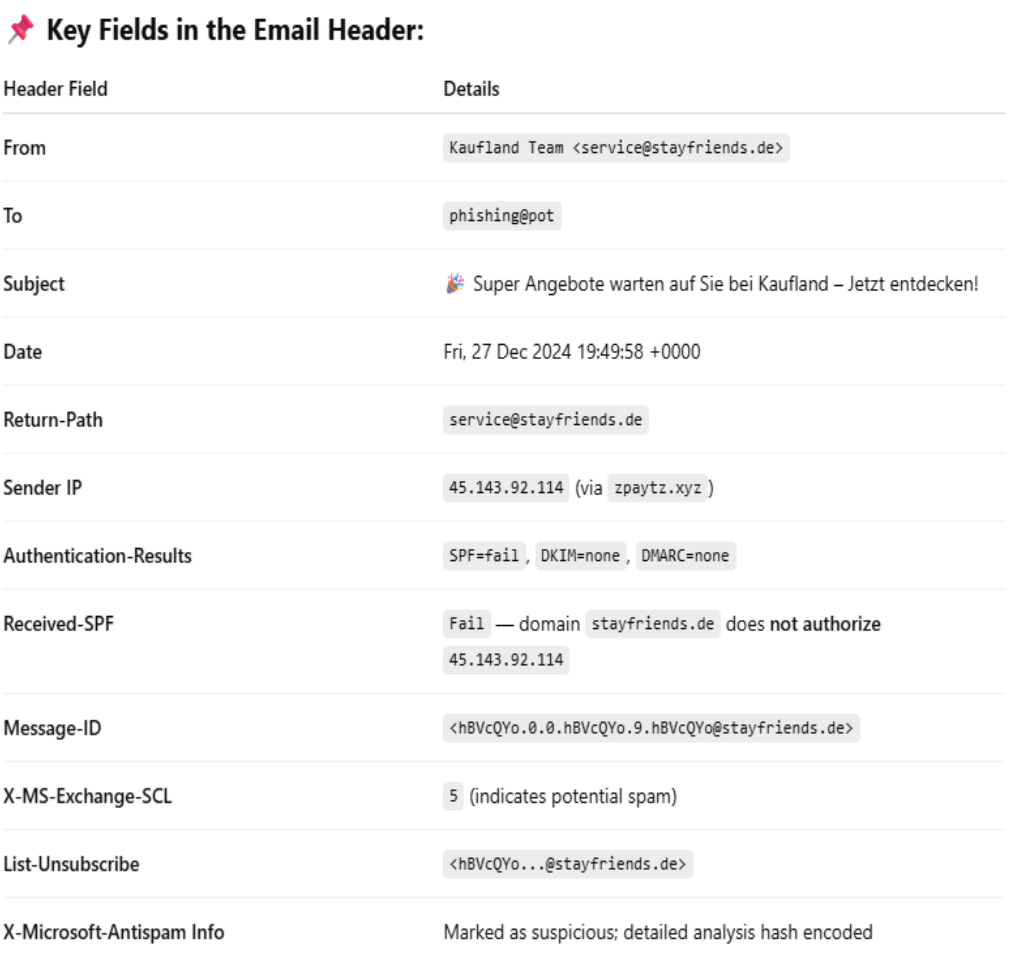
- **Error:** Should be **"Supermarktgutschein"** (compound noun in German)
- **Issue:** German grammar requires compound word for clarity

4. "Lassen Sie sich die Gelegenheit nicht entgehen und nehme Sie..."

- **Error:** Two issues:
  - "nehme Sie" → should be "nehmen Sie"
  - Verb order and flow are awkward.
- **Better phrased:**
  “Lassen Sie sich die Gelegenheit nicht entgehen und nehmen Sie noch heute teil.”

5. "click here to remove yourself..."

- **Error:** English phrase in a mostly German email
- **Issue:** Inconsistent language — suspicious for phishing



📌 **Key Fields in the Email Header:**

Header Field	Details
From	`Kaufland Team <service@stayfriends.de>`
To	`phishing@pot`
Subject	🎉 Super Angebote warten auf Sie bei Kaufland – Jetzt entdecken!
Date	Fri, 27 Dec 2024 19:49:58 +0000
Return-Path	`service@stayfriends.de`
Sender IP	`45.143.92.114` (via `zpaytz.xyz`)
Authentication-Results	`SPF=fail`, `DKIM=none`, `DMARC=none`
Received-SPF	`Fail` — domain `stayfriends.de` does **not authorize** `45.143.92.114`
Message-ID	`<hBVcQYo.0.0.hBVcQYo.9.hBVcQYo@stayfriends.de>`
X-MS-Exchange-SCL	`5` (indicates potential spam)
List-Unsubscribe	`<hBVcQYo...@stayfriends.de>`
X-Microsoft-Antispam Info	Marked as suspicious; detailed analysis hash encoded

Fig 4-Key fields in email header

Step 7-summarize phishing traits found in the email

Category	Details	Red Flag
Sender Spoofing	Email is **pretending to be from Kaufland**, but sent from service@stayfriends.de.	**Critical**
Unrelated Domain	The sender's domain stayfriends.de has **nothing to do** with Kaufland.	**Critical**
Failed Authentication	- **SPF**: FAIL (IP not authorized) - **DKIM**: None - **DMARC**: None	**Major Red Flag**
Suspicious Links	Links point to domains like: http://blog.afridox.com/... — **not a Kaufland domain**	**Critical**
Unusual Sender IP	IP address: 45.143.92.114 — known to be **used in spam/malware** (based on public threat intelligence)	warning
Urgent Language	Offers a **€500 Kaufland gift card**, says: *"Jetzt mitmachen!" (Join now!)* to create urgency	warning
Email Structure	Marketing-style HTML with CTA buttons and embedded tracking pixels	warning
Impersonation	Claims to be **Kaufland**, but neither the sender nor the domain match	**Critical**
List-Unsubscribe	Contains a fake/unusual unsubscribe header that doesn't comply with standard mailing services	warning
Spam Score (SCL)	X-MS-Exchange-Organization-SCL: 5 – flagged as potential spam/phishing by Microsoft	**High Risk**