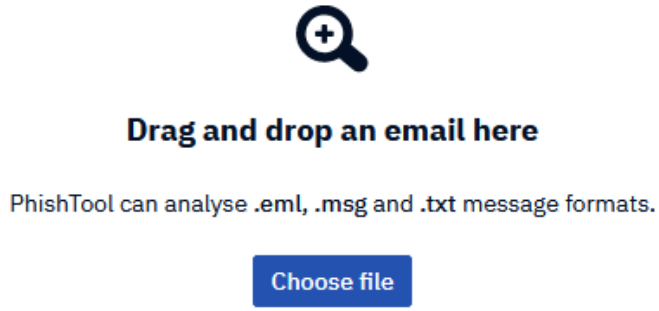
Phishing Email Analysis Report

1. Introduction

The objective of this report is to demonstrate my ability to investigate phishing emails using various tools, including PhishTool, Cisco Talos Intelligence, and VirusTotal. This exercise aims to consolidate my knowledge acquired through the TCI learning path on TryHackMe. The phishing email analysed in this report was sourced from the Threat Intelligence Tools room on TryHackMe. Please keep in mind that I am in no way experience at analysing phishing emails and therefore I'm confident my process may be flawed. Therefore, any tips on how to better perform email analysis would be greatly appreciated.

2. Overview of the Phishing Email

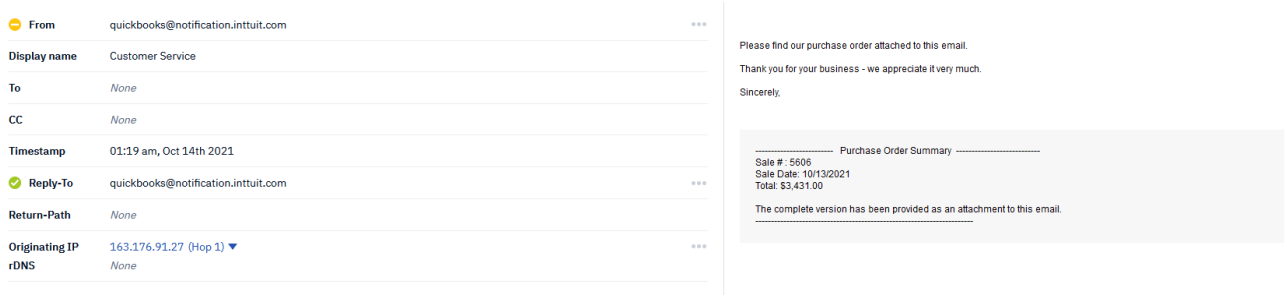
The phishing email in question claims to contain a purchase order attached as an Excel file. To analyse this email, I started off by importing it into PhishTool, which provided details insights into the email's structure and content:



3. PhishTool Analysis

PhishTool extracted critical information from the email headers, including the following:

- **From Address:** 'quickbooks@notification.inttuit.com'
- **Display Name:** Customer Service
- **Reply-To Address:** 'quickbooks@notification.inttuit.com'
- **Originating IP Address:** 163.176.91.27

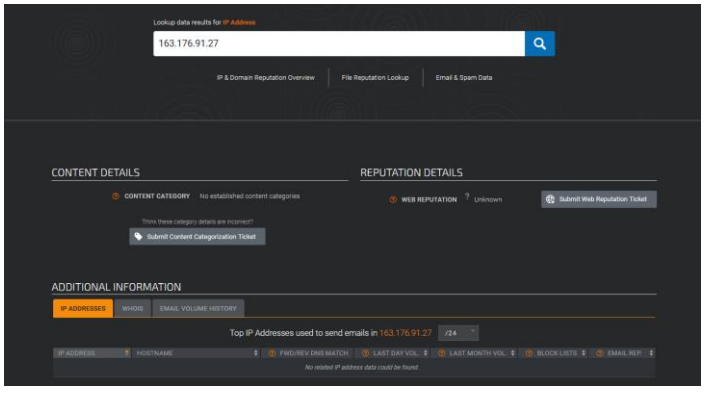


Key Observations:

- The from email address is inconsistent with the display name ‘Customer Service’.
- The Reply-To address matches the From address, which is uncommon in phishing attempts where attackers often use different Reply-To addresses to deceive recipients. It is a common tactic to provide a different Reply-to email address whilst spoofing a legitimate from email address. The reason being that a victim might reply to the phishing email believing they are replying to the email address shown in the from header.

4. IP Address Analysis

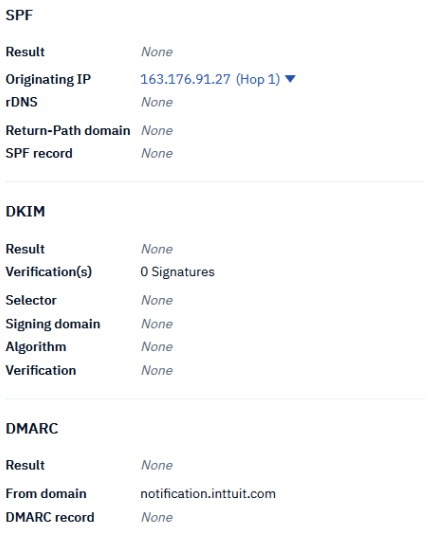
The originating IP address was further checked against Cisco Talos Intelligence and VirusTotal, revealing no reports of malicious activity:



5. Security Measures

PhishTool revealed that the email lacked essential security/authentication measures such as SPF, DKIM, and DMARC which are all briefly explained below:

- **Sender Policy Framework (SPF)** enables you to identify the mail servers that are allowed to send emails for a given domain. SPF records list all the IP addresses of all the mail servers that are allowed to send emails for a given domain. If a mail server receives an email, it can check it against the SPF record before sending it on to the recipient's inbox. Failure to use SPF records can allow threat actors to spoof your domain and carry out more effective phishing campaigns.
- **DomainKeys Identified Mail (DKIM)** enables domain owners to automatically sign emails from their domain using a digital signature. It works as follows: firstly, a DKIM record stores the domain's public key where mail servers receiving emails from the domain can check this record to obtain the public key. The private key is kept by the sender who signs the email's header with the private key. Lastly, mail servers receiving the email can verify the sender's private key (so their proof of identity) by using the public key.
- **Domain-based Message Authentication Reporting and Conformance (DMARC)** informs a receiving email server what to do once they have checked the SPF and DKIM records. For example, it can be configured to quarantine emails if SPF or DKIM fails, etc. The DMARC policies are stored in DMARC records.

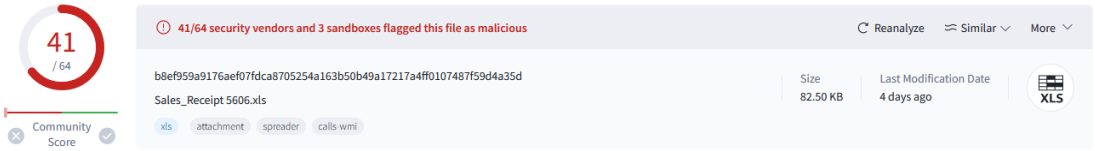


6. Attachment Analysis

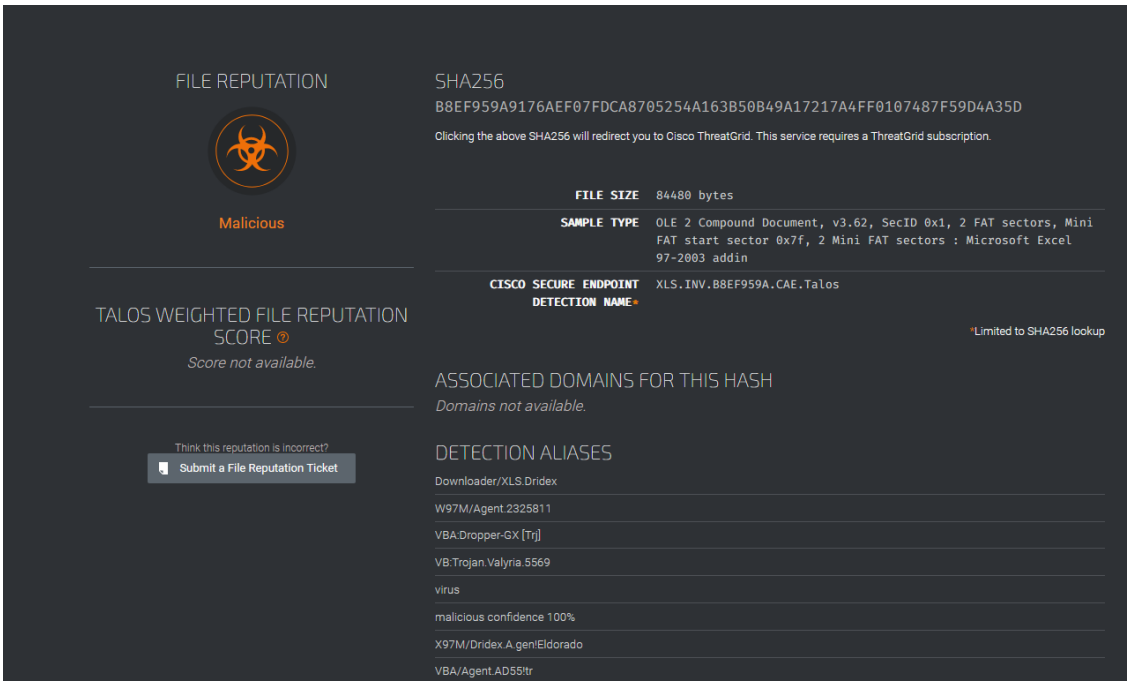
The attached Excel file was identified by PhishTool as containing macros, which is a strong indicator of potential malicious activity. The file hashes (MD5, SHA-1, and SHA-256) were used to further analyse the attachment using VirusTotal and Cisco Talos Intelligence.

File Hash Analysis

- **VirusTotal Results:** The attachment was flagged as malicious by multiple antivirus engines/vendors.



- **Talos Intelligence Results:** The file was identified as a Dridex infostealer and trojan, confirming its malicious nature.



7. Indicators of Compromise (IoCs)

- **Malicious Domain**: notifications.inttuit.com
- **File Hashes**:
  - **MD5**: e63deaea51f7cc2064ff808e11e1ad55
  - **SHA-1:** 4d58ec4c978988f16468cda2323103ae62b2baea

- **SHA-256:** b8ef959a9176aef07fdca8705254a163b50b49a17217a4ff0107487f59d4a35d

8. Conclusion

This analysis confirms that the email in question is indeed malicious, leveraging social engineering tactics to deceive recipients into downloading malware. By applying a structured analysis process using PhishTool, Cisco Talos Intelligence, and VirusTotal, we can effectively identify phishing threats. This approach can be adapted for future analyses to determine the legitimacy of new email samples.