Gmail Packet Analysis

Introduction

This report presents a detail analysis of network packets captured during the process of sending an email via Gmail's web interface. The experiment was conducted using Wireshark focusing on the details of the captured packets without applying specific filters but by searching for mail.google.com.

Overview of Captured Packet

Fig: Packet

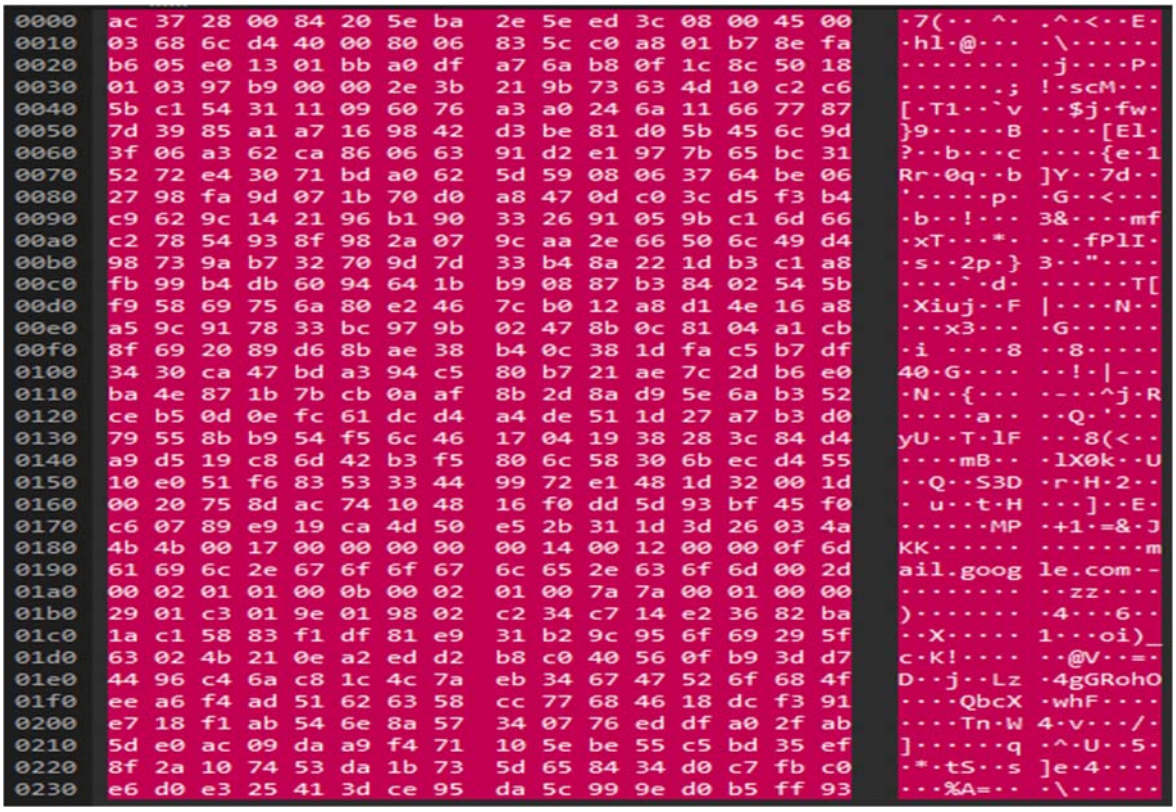

Figure 2: Frame

Overview of Captured Packet

- Frame Number: 311
- Bytes on Wire: 886 (7088 bits)
- Capture Interface: en0, id 0
- Ethernet Source: 5e:ba:2e:5e:ed:3c
- Destination: TaicangT&WEl_00:84:20(ac:37:28:00:84:20)
- Source IP: 192.168.1.183
- Destination IP: 142.250.182.5
- Protocol: TCP
- Source Port: 57363
- Destination Port: 443 (HTTPS)

Detailed IPV4 Header Analysis

The IPV4 header captured contains the below information:

Field	Value	Description
Version	4	IPv4
Header Length	20 bytes (5)	Standard IPv4 header length
Differentiated Services Field	0x00	DSCP: CS0, ECN: Not-ECT
Total Length	872	Total IP packet length
Identification	0x6cd4 (27860)	Packet identifier
Flags	0x2	Don't fragment flag set
Fragment Offset	0	No fragmentation
Time to Live	128	Maximum hop count
Protocol	TCP (6)	Transport layer protocol
Header Checksum	0x835c	Validation disabled
Source Address	192.168.1.183	Sender's IP address
Destination Address	142.250.182.5	Recipient's IP address (Google server)

TCP Header Information

Field	Value
Source Port	57363
Destination Port	443
Sequence Number	1413
Acknowledgment Number	1
Flags	PSH, ACK
window Size	66304
Urgent Pointer	0

TLS Handshake Analysis

The packet capture reveals the initiation of a TLS handshake:

- **Client Hello:** SNI (Server Name Indication): mail.google.com
- **TLS Version: TLS 1.3**
- **Cipher Suites:** [List of supported cipher suites]
- **Server Hello:** Selected Cipher Suite: [Specific cipher suite]
- **TLS Version:** TLS 1.3

Conclusion

In conclusion, this report provided a detailed analysis of captured packet while sending an email via Gmail's web interface. It highlighted the use of HTTPS for secure communication, the details of IPv4 and TCP header with explanation of their header field.