Capturing My IP Address in Wireshark

IP Address: 192.168.0.104

Question: What are the values and descriptions for each of the IPv4 header fields?

Key Header Fields for an IPv4 Packet:

1. **Version:** 4 bits
   - **Value:** 0100
   - **Description:** Specifies the IP protocol version, which is IPv4 in this case.
2. **Header Length:** 20 bytes
   - **Value:** 5
   - **Description:** Indicates the length of the IP header. A value of 5 means 5 * 4 = 20 bytes.
3. **Differentiated Services Field:**
   - **Value:** 0x00
   - **Description:** Used for Quality of Service (QoS).
     - Differentiated Services Codepoint (DSCP): CS0 (Class Selector 0)
     - Explicit Congestion Notification (ECN): Not-ECT (Not ECN-Capable Transport)
4. **Total Length:**
   - **Value:** 40 bytes
   - **Description:** The total length of the IP packet, including both header and data, in bytes.
5. **Identification:**
   - **Value:** 0x39f7 (14839)
   - **Description:** Uniquely identifies the group of fragments of a single IP datagram.
6. **Flags:**
   - **Value:** 0x2 (Don't fragment)
   - **Description:** A 3-bit field used to control or identify fragments.
     - Bit 0: Reserved; must be zero
     - Bit 1: Don't fragment (1 = Set, 0 = Not set)
     - Bit 2: More fragments (1 = More fragments, 0 = Last fragment)
7. **Fragment Offset:**
   - **Value:** 0
   - **Description:** Indicates the offset of a fragment relative to the beginning of the original unfragmented IP datagram. Zero means it is not fragmented, and it is measured in 8-byte units.
8. **Time to Live (TTL):**
   - **Value:** 128
   - **Description:** Limits the lifespan of the packet. It is decremented by each router it passes through and the packet is discarded when TTL reaches zero.
9. **Protocol:**
   - **Value:** TCP (6)

- o **Description:** Specifies the protocol used in the data portion of the IP datagram. 6 indicates TCP.
10. **Header Checksum:**
    - o **Value:** 0x777d (validation disabled)
    - o **Description:** Used for error-checking the header. If the checksum does not match, the packet is discarded.
11. **Source Address:**
    - o **Value:** 192.168.0.104
    - o **Description:** The IP address of the originating device (source host).
12. **Destination Address:**
    - o **Value:** 192.168.0.1
    - o **Description:** The IP address of the receiving device (destination host).