

Physical layer:

The physical is the basic layer in both the OSI and TCP/IP model. The user interaction comes with physical layer only. This layer covers different mediums and devices. Some of the examples are network interface cards (NICs), connectors and interfaces, and cables that facilitate the transmission of data from source to destination.

Data link layer:

This layer sets up links across the physical network, putting packets into network frames. This layer has two sub-layers: the logical link control layer and the media access control layer (MAC). MAC layer types include Ethernet and 802.11 wireless specifications.

Network layer:

This layer will handle the network traffic and addressing. Sending it in the right direction. IP is the network layer of internet.

Transport layer:

This layer manages packetization of data, then the delivery of the packets, including checking for errors in the data once it arrives. On the internet, TCP and UDP provide these services for most applications as well.

MAC address:

Mac means medium access control. It is one of the sublayers of the data link layer. Each computer has its own unique MAC address. Ethernet is an example of a protocol that works at the Media Access Control layer level.

IP address:

An Internet Protocol address (IP address) is a numerical label assigned to each device connected to a computer network that uses the Internet Protocol for communication. An IP address serves two principal functions: host or network interface identification and location addressing.

TCP port:

In TCP/IP and UDP networks, a port is an endpoint to a logical connection and the way a client program specifies a specific server program on a computer in a network. The port number identifies what type of port it is. For example, port 80 is used for HTTP traffic. Some ports have numbers that are assigned to them by the IANA, and these are called the "well-known ports".

Checksum check:

Both IP and TCP layers have checksums. The IP checksum is only the header checksum, whereas TCP does a checksum of pseudo-header, TCP segment header, and the payload. The checksum is checked by both, IP checks its header checksum and if it passes, TCP does its checksum on receiving a packet from IP layer.

Routing table:

A routing table contains the information necessary to forward a packet along the best path toward its destination. Each packet contains information about its origin and destination. When a packet is received, a network device examines the packet and matches it to the routing table entry providing the best match for its destination. The table then provides the device with instructions for sending the packet to the next hop on its route across the network.

Time to live:

The time-to-live (TTL) is the number of hops that a packet is permitted to travel before being discarded by a router. A packet is the fundamental unit of information transport in all modern computer networks, and increasingly in other communications networks as well. A router is a network layer electronic device and/or software that connects at least two networks, such as two LANs (local area networks) or WANs (wide area networks), and forwards packets between them. A hop is a trip that a packet takes from one router to another as it traverses a network on the way to its destination.