

## **Internet Protocol (IP): Generally**

Transmitting packets relies on a variety of software and firmware that is divided into layers.

The older model for layering is known as the OSI Model; it has seven (7) layers. A later model, the TCP/IP Model, contains five (5) of these layers.

For a comparison, see <http://www.snmptools.net/netbasics/layers/>

Examples of various protocols in their respective layers

Overview of flow of data across the network  
([https://en.wikipedia.org/wiki/Internet\\_protocol\\_suite#Key\\_architectural\\_principles](https://en.wikipedia.org/wiki/Internet_protocol_suite#Key_architectural_principles))

Deeper dive into the use of layers:  
[http://www.tcpipguide.com/free/t\\_IPDatagramEncapsulation.htm](http://www.tcpipguide.com/free/t_IPDatagramEncapsulation.htm)

## *Packet fragmentation*

- The maximum size of an IP packet depends on the underlying network.
- Regular Ethernet frames are limited to 1500 bytes of payload.
- This size limitation is known generically as the Maximum Transmission Unit (MTU)
- Consequently, if a host is trying to send an IP packet that is larger than the MTU, it must divide the packet into fragments.
- Using data in the IP header, the destination host can piece together the fragments back into its original form; this process is known as reassembly.
- Note that routers along the way never reassemble packets, they merely pass them along to the destination host.