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Ethernet

Ethernet protocols are used to establish connections between units in a lan environment. Each unit has physical and logical address. The physical address is called MAC (Media Access Control) and is assigned by the hardware in the unit. The MAC identifies the unit on the network. The logical address is called the IP address (Internet Protocol), and is assigned by software, most often by a server. The IP address is used to identify where the unit is.

The MAC and IP address is used in conjuncture to create frames of data that can be communicated between the units on the network. The Ethernet frame consists of a start frame followed by destination address and source address. Then it contains the length of the data packet followed by the data packet. The frame ends with a check. The Length and the Check helps the recipient verify the frame has not been corrupted during the transport.

Internet Protocol

For communication outside of the local area network files are processed in the Data Link Layer. In the Data Link Layer the file is compressed into frames. These frames consists of three different parts. The Header, Packet data and Trailer.

The Header starts with a "frame start" command which identifies itself as a frame. It also contains the address where the frame should be delivered, and which type of data the frame contains. Also embedded in the header is a checksum control part that is used to ensure the frame is transmitted completely and without errors. The Packet segment contains the data which is being transferred. The Trailer contains the same checksum control as the Header. This enables the receiver to check if the checksum in the header and trailer are the same. This minimizes the risk that the frame has lost integrity during transport.