**EtherType**

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**EtherType** is a two-[octet](https://en.wikipedia.org/wiki/Octet_(computing)) field in an [Ethernet frame](https://en.wikipedia.org/wiki/Ethernet_frame). It is used to indicate which [protocol](https://en.wikipedia.org/wiki/Communications_protocol) is [encapsulated](https://en.wikipedia.org/wiki/Encapsulation_(networking)) in the payload of the frame and is used at the receiving end by the [data link layer](https://en.wikipedia.org/wiki/Data_link_layer) to determine how the payload is processed. The same field is also used to indicate the size of some Ethernet frames.

EtherType is also used as the basis of [802.1Q VLAN tagging](https://en.wikipedia.org/wiki/802.1Q_VLAN_tagging), [encapsulating](https://en.wikipedia.org/wiki/Encapsulation_(networking)) packets from VLANs for transmission multiplexed with other VLAN traffic over an [Ethernet trunk](https://en.wikipedia.org/wiki/Ethernet_trunk).

EtherType was first defined by the [Ethernet II framing](https://en.wikipedia.org/wiki/Ethernet_II_framing) standard and later adapted for the [IEEE 802.3](https://en.wikipedia.org/wiki/IEEE_802.3) standard. EtherType values are assigned by the [IEEE Registration Authority](https://en.wikipedia.org/wiki/IEEE_Registration_Authority).



In modern implementations of Ethernet, the field within the Ethernet frame used to describe the EtherType can also be used to represent the size of the payload of the Ethernet Frame. Historically, depending on the type of Ethernet framing that was in use on an Ethernet segment, both interpretations were simultaneously valid, leading to potential ambiguity. [Ethernet II framing](https://en.wikipedia.org/wiki/Ethernet_II_framing) considered these octets to represent EtherType while the original IEEE 802.3 framing considered these octets to represent the size of the payload in bytes.

In order to allow Ethernet II and IEEE 802.3 framing to be used on the same Ethernet segment, a unifying standard, IEEE 802.3x-1997, was introduced that required that EtherType values be greater than or equal to 1536. That value was chosen because the maximum length ([MTU](https://en.wikipedia.org/wiki/Maximum_Transmission_Unit)) of the data field of an Ethernet 802.3 frame is 1500 bytes and 1536 is equivalent to the number 600 in the [hexadecimal](https://en.wikipedia.org/wiki/Hexadecimal) numeral system. Thus, values of 1500 and below for this field indicate that the field is used as the size of the payload of the Ethernet frame while values of 1536 and above indicate that the field is used to represent an EtherType. The interpretation of values 1501–1535, inclusive, is undefined.[[1]](https://en.wikipedia.org/wiki/EtherType#cite_note-1)

The end of a frame is signaled by a valid [frame check sequence](https://en.wikipedia.org/wiki/Frame_check_sequence) followed by loss of carrier or by a special symbol or sequence in the [line coding scheme](https://en.wikipedia.org/wiki/Line_code) for a particular [Ethernet physical layer](https://en.wikipedia.org/wiki/Ethernet_physical_layer), so the length of the frame does not always need to be encoded as a value in the Ethernet frame. However, as the minimum payload of an Ethernet frame is 46 bytes, a protocol that uses EtherType must include its own length field if that is necessary for the recipient of the frame to determine the length of short packets (if allowed) for that protocol.

