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TCP Message (Segment) Format

TCP Options and Option Field Values

Table 157 shows the main options currently defined for TCP.

Table 157: TCP Options

Option-Kind	*Option-Length*	*Option-Data*	Description
0	**—**	**—**	***End Of Option List:*** A single byte option that marks the end of all options included in th This only needs to be included when the end of the options doesn't coincide with the en header.
1	**—**	**—**	***No-Operation:*** A “spacer” that can be included between options to align a subsequent o 32-bit boundary if needed.
2	**4**	**Maximum Segment Size Value**	***Maximum Segment Size:*** Conveys the size of the largest segment the sender of the se wishes to receive. Used only in connection request (*SYN*) messages.
3	**3**	**Window Size Shift Bits**	***Window Scale:*** Implements the optional window scale feature, which allows devices to much larger window sizes than would be possible with the normal *Window* field. The val *Option-Data* specifies the power of two that the *Window* field should be multiplied by to window size the sender of the option is using. For example, if the value of *Option-Data* i means values in the *Window* field should be multiplied by 8, assuming both devices agr this feature. This allows very large windows to be advertised when needed on high-perf links. See the topic on data transfer for more.
4	**2**	**—**	***Selective Acknowledgment Permitted:*** Specifies that this device supports the selectiv acknowledgment (SACK) feature. This was implemented as a two-byte option with no C field, instead of a single-byte option like *End Of Option List* or *No-Operation*. This was n because it was defined after the original TCP specification, so an explicit option length h indicated for backwards compatibility.
5	**Variable**	**Blocks Of Data Selectively Acknowledged**	***Selective Acknowledgment:*** Allows devices supporting the optional selective acknowle feature to specify non-contiguous blocks of data that have been received so they are no retransmitted if intervening segments do not show up and need to be retransmitted.
14	**3**	**Alternate Checksum Algorithm**	***Alternate Checksum Request:*** Lets a device request that a checksum generation algo than the standard TCP algorithm be used for this connection. Both devices must agree t algorithm for it to be used.

Maximum Segment Size, *Window Scale*, *Selective Acknowledgement Permitted* and *Alternate Checksum Request* options above. In *Selective Acknowledgment* and *Alternate Checksum* options appear in regular data segments, when used.

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