TCP SEGMENT STRUCTURE

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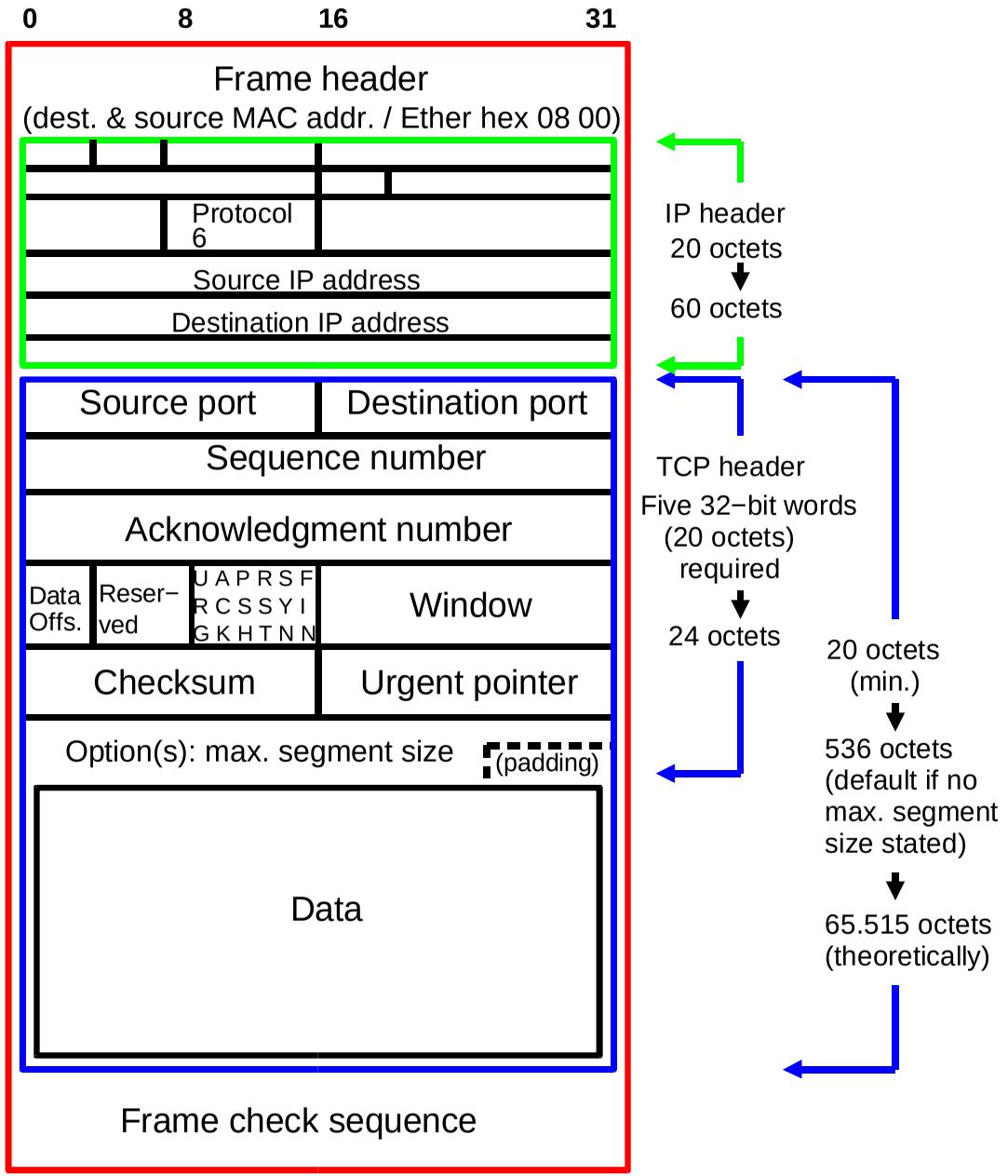
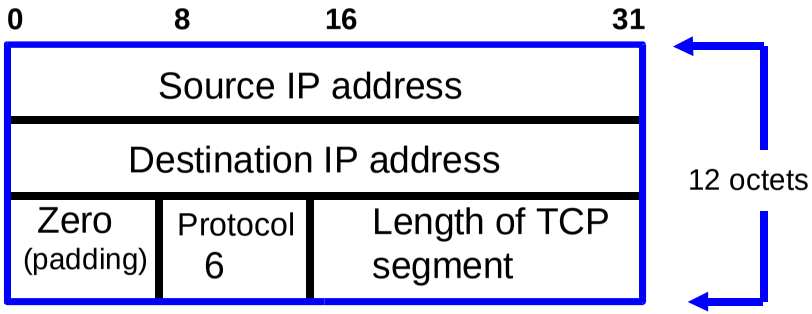
Frame with TCP Segment



TCP pseudo header



How to compute a checksum?
1. Prepend pseudo header to TCP segment
2. Store zero in the Checksum field
3. Accumulate a 16−bit one's complement of the one's complement sum of:
   − pseudo header
   − TCP header
   − (user) data
4. Store the sum in the Checksum field
5. Discard the pseudo header

LEGENDA:
− Sequence number: initial sequence number (SYN=1) or poin−ter to first octet of data of a segment (SYN=0)
− Acknowlegdment number (ACK=1): pointer to next sequence number sender expects to receive
− Reserved: 6−bit field; set to zero
− Window: number of data octets sender will accept
− Urgent pointer (URG=1): pointer to sequence number of first data octet following urgent data
− Max. segment size (SYN=1): receive segment size of sender
− The pseudo header isn't transmitted nor is it included in the Length of TCP segment or the Data Offset (indicates number of 32−bit words in TCP header) fields: it is temporarily pre−pended to the TCP header to compute a (required) Checksum
− Socket address = IP address + TCP port number.