



# Checksum Offloading

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» What is offloading?

» Is there really an error?

- Errors are masked by a calculation done on the NIC

» Checksum calculations

- Done in hardware
- Done on NIC

# Checksum Offloading

```
+ Frame 803: 54 bytes on wire (432 bits), 54 bytes captured (432 bits) on interface 0
+ Ethernet II, Src: 3c:97:0e:8f:d5:1c (3c:97:0e:8f:d5:1c), Dst: All-HSRP-routers_00 (00:00:0c:07:ac:00)
+ Internet Protocol Version 4, Src: 10.121.90.106 (10.121.90.106), Dst: 23.77.208.171 (23.77.208.171)
- Transmission Control Protocol, Src Port: 59667 (59667), Dst Port: 80 (80), Seq: 864, Ack: 285, Len: 0
  Source Port: 59667 (59667)
  Destination Port: 80 (80)
  [Stream index: 22]
  [TCP Segment Len: 0]
  Sequence number: 864      (relative sequence number)
  Acknowledgment number: 285  (relative ack number)
  Header Length: 20 bytes
+ .... 0000 0001 0000 = Flags: 0x010 (ACK)
  window size value: 255
  [calculated window size: 65280]
  [window size scaling factor: 256]
- Checksum: 0x4cf6 [incorrect, should be 0x833d (maybe caused by "TCP checksum offload"?)]
  [calculated checksum: 0x833d]
  [Good Checksum: False]
- [Bad Checksum: True]
  - [Expert Info (Error/Checksum): Bad checksum]
    [Bad checksum]
    [Severity level: Error]
    [Group: Checksum]
  Urgent pointer: 0
+ [SEQ/ACK analysis]
```

# Questions?