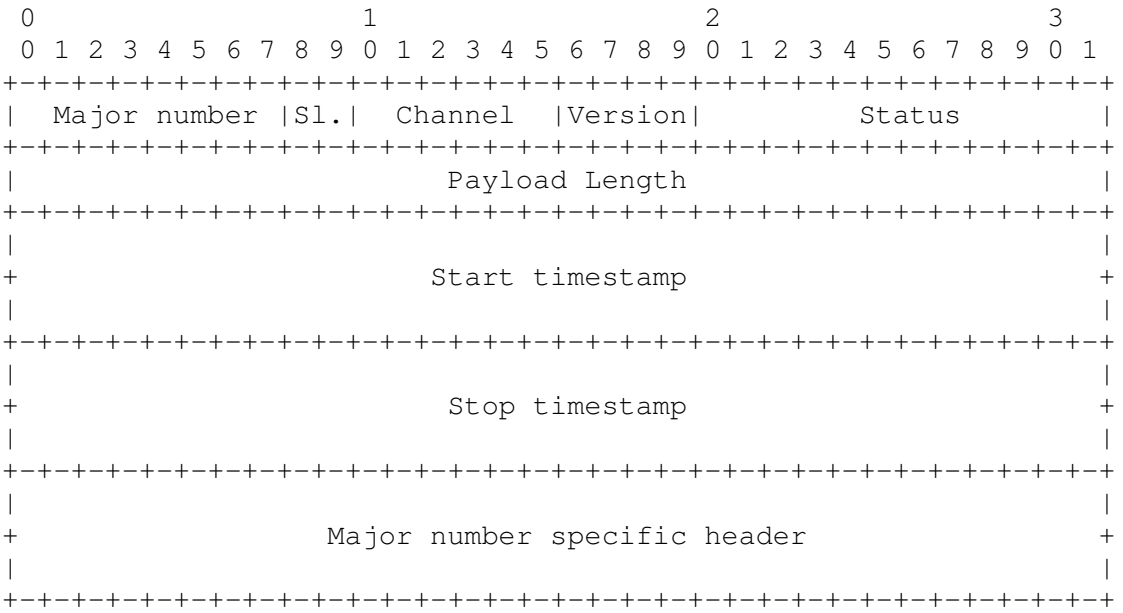
Elektrobit High Speed Capture Replay (EBHSCR) protocol

The Elektrobit High Speed Capture and Replay (EBHSCR) protocol is produced by Elektrobit hardware for interfacing high speed automotive interfaces.



- All multi-byte fields in the frame header are big endian.
- After the header comes payload of *Payload Length* bytes. Its content depends on the *Major number*.

Header-Field	**Description**
Major number	Type of the frame
Slot (Sl.)	Slot 0-3
Channel	Each slot has channels: 0-63. The Channel number shall be zero based and dense. The byte which consists of Slot and Channel is sometimes referred to as *Minor number*.

Version	Version of header format. • 0: The packet format defined in this table is used. Currently only protocol Version 0 is defined. • <>0: Everything except these four bits and the length in bytes may change with a new format. This ensures that unknown packets can be skipped if the new version is not yet supported.
Status	Flags used for status information and error reporting, specific for each *Major number*. • Unused bits are reserved for future use (default: 0). • Bit numbering: Bit 0 is least significant bit in 4th byte of EBHSCR header, Bit 11 is most significant bit of Status field in 3rd byte of EBHSCR header.
Payload Length	Number of payload bytes received until end of the frame or until an error occurred. Not including header length.
Start timestamp	• Containing the 64-bit timestamp value when received the start of the payload frame. • The timestamp is a nanoseconds counter. • The exact timestamping point is defined depending on the *Major number*.
Stop timestamp	• Containing the 64-bit timestamp value when received the end of the payload frame. • The timestamp is a nanoseconds counter. • The exact timestamping point is defined depending on the *Major number*.
Major number specific header	• Header specific for each *Major number*. • Fixed-length of 8 bytes.

The following sections describe the supported frame types and its usage of the EBHSCR protocol fields.

BroadR-Reach

Field	Content
Major number	0x50
Status	• Bit 0: If value 1 then an "Ethernet CRC Error" occurred. • Bit 1 : If value 1 then a "RMII Overflow Error" occurred. • Bit 2 : If value 1 then a "Data Overflow Error" occurred. • Bit 3 : If value 1 then a "Header Overflow Error" occurred. • Bit 4 : If value 1 then a "Symbol Error" occurred - i.e. the symbol error counter increased. A zero sized EBHSCR frame will be sent. • Bit 5 : If value 1 then a "Link down" event occurred - i.e. the link fail counter increased. A zero sized EBHSCR frame will be sent. • Bit 6 : If value 1 then a "Link up" event occurred. A zero sized EBHSCR frame will be sent.
Start timestamp	The timestamp is taken after the end of the SFD (Start of Frame Delimiter) detection, as specified in the IEEE 1588 Specification Sep-2004 (IEC 61588 First Edition).
Stop timestamp	The end timestamp is taken after the FCS of an Ethernet frame has been received.
Major number specific header	Unused (set to 0)
Payload	802.3 Ethernet frame: • The payload begins with the destination MAC and ends with the FCS of an Ethernet frame. • The payload always contains a FCS. • The payload may be handed over to Wireshark or Tcpdump Ethernet dissectors unmodified.