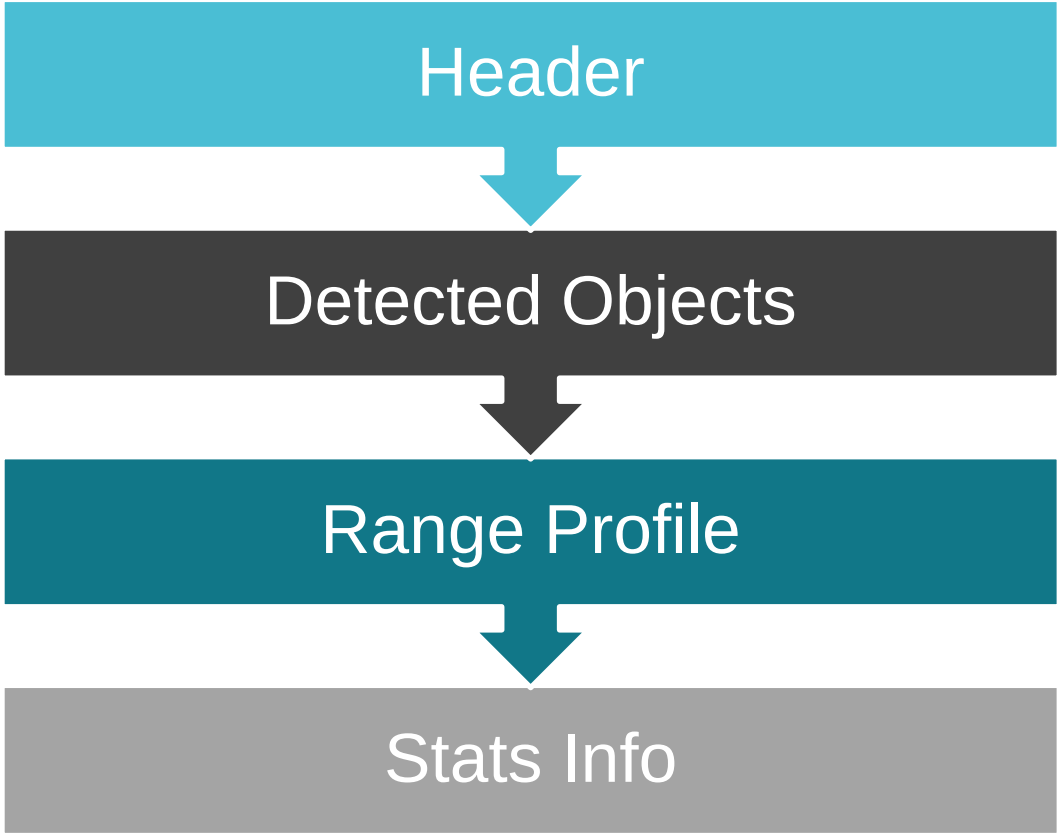
High Accuracy Lab Data Structure v0.1

xWR14xx/16xx

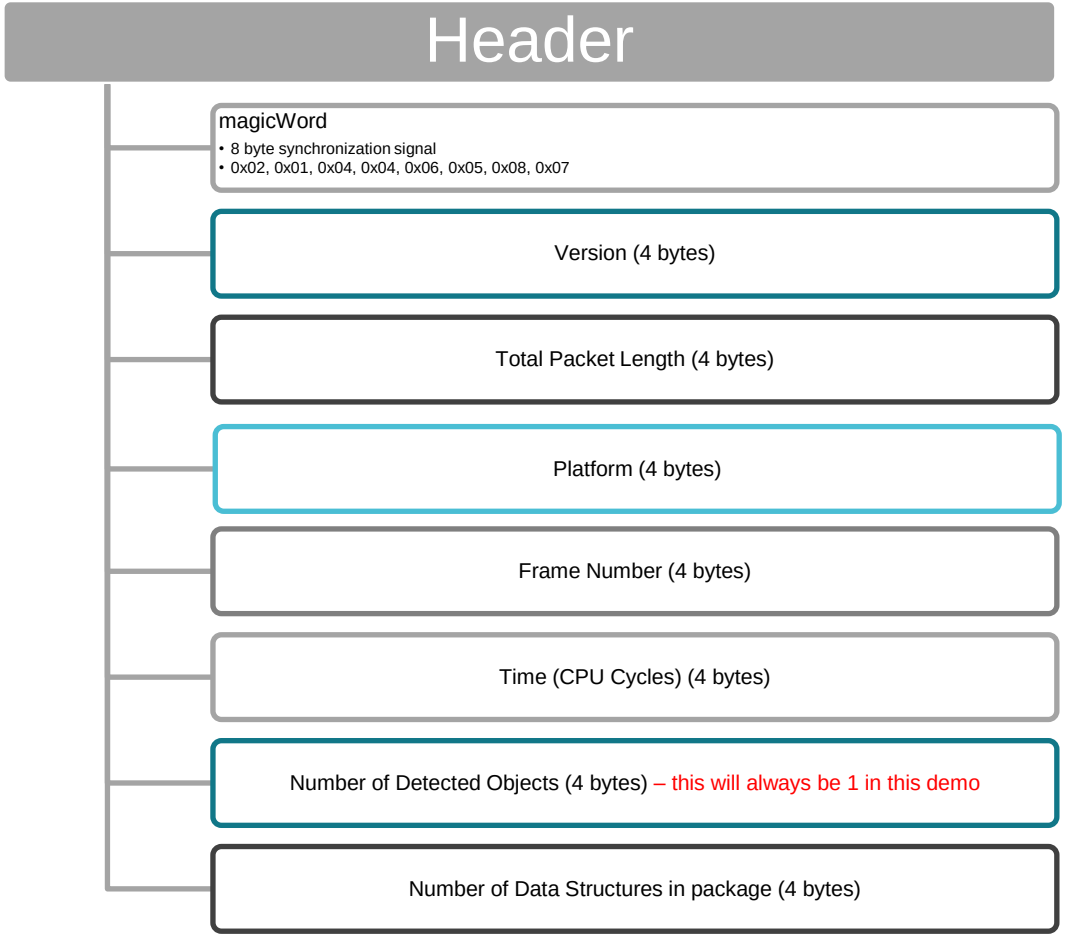
High accuracy Demo Package Structure

- Data is output through the Data UART Port
  - Baud Rate = 921600
- Data is Little Endian
  - Can be configured via CLI interface



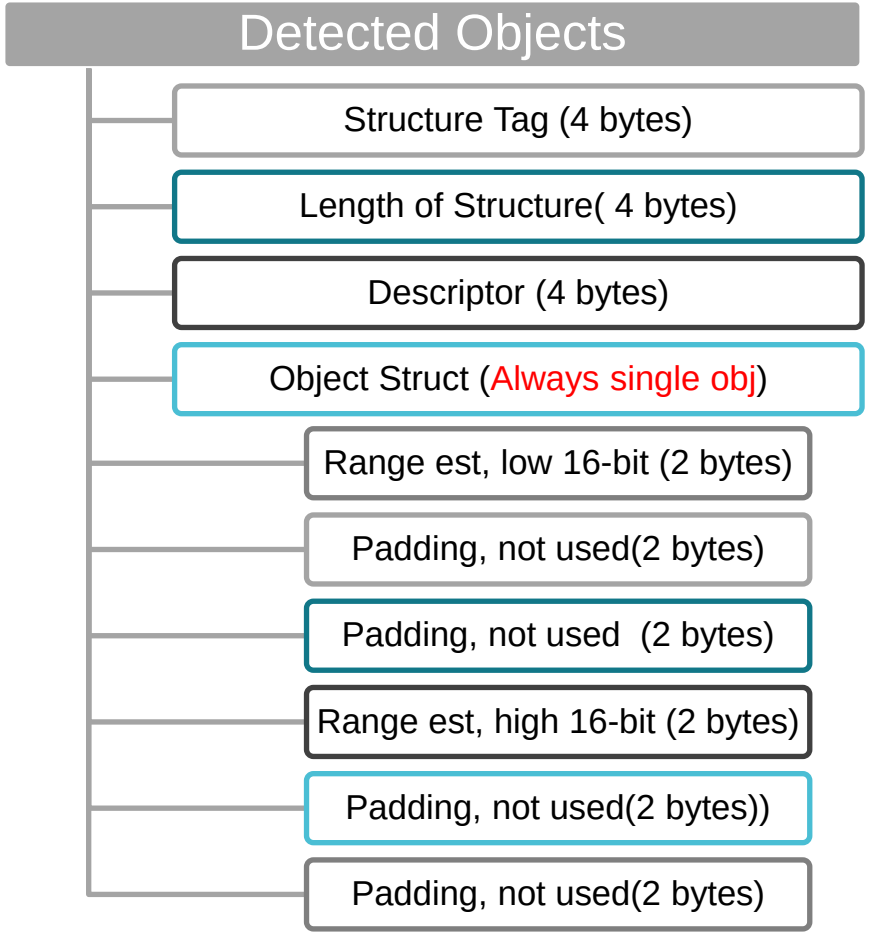
Header

- Sent at the beginning of every transmission
- Always 36 bytes
- Contains information regarding the whole data packet
- Contains the magicWord used to signal the start of a packet



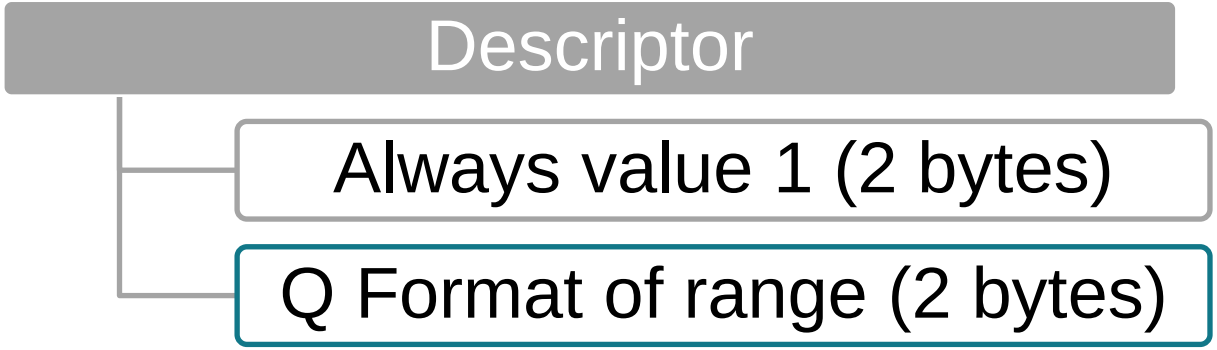
Detected Objects

- Contains range, angle, and velocity information of objects seen by the mmWave device
- Size will always be 24-bytes



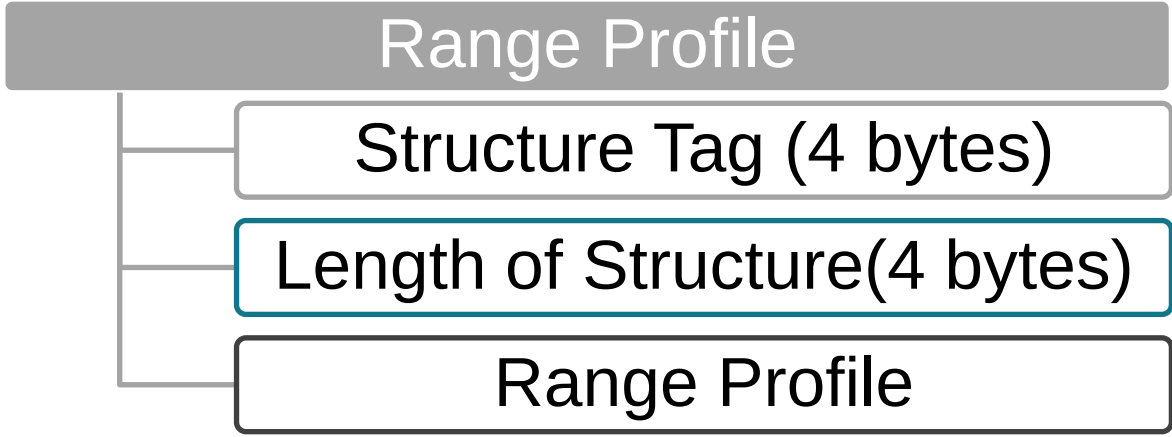
Detected Objects Descriptor

- Describes the Q format the data is in



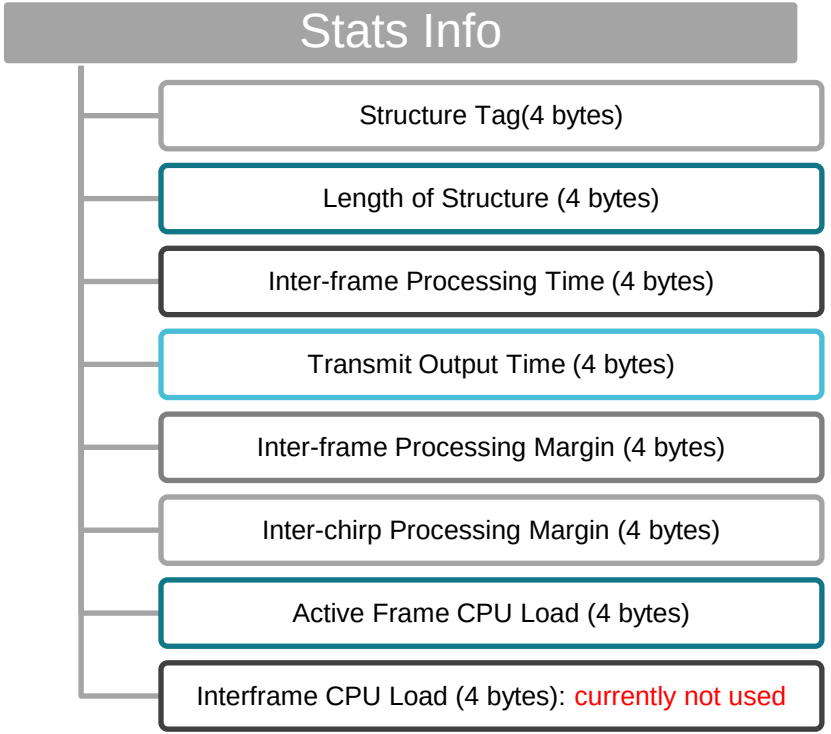
Range Profile/FFTinput

- Contains the Magnitude of Range FFTs
- Size
  - For 14xx: = #RangeBins * 2 bytes
  - For 16xx: = #RangeBins * 8 bytes
- #RangeBins = number of ADC samples rounded up to the nearest power of 2
- #ADCsamples is set in the profileCfg line of the cfg file



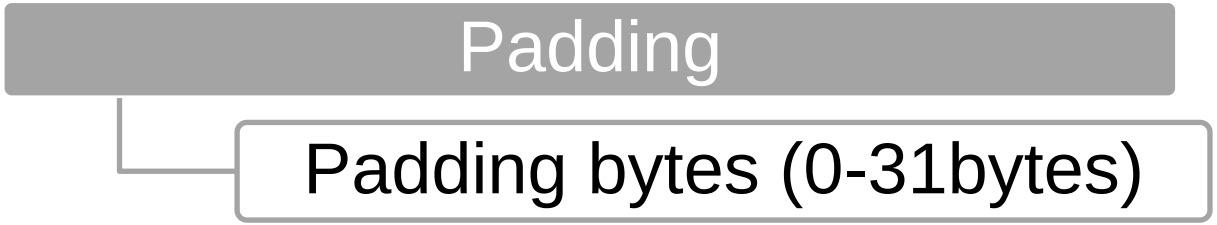
Stats Info

- Contains mmWave device performance statistical data
- Size = 32 bytes



Padding bytes

- Padding bytes are added to ensure that total packet length (including header) is a multiple of 32 bytes



	Size (Bytes)	When is it sent?	Description
Header •Magic Word •Version •Total packet length •Platform •Frame number •Time (CPU Cycles) •Number detected objects (always 1) •Number TLV's	36 (total) •8 •4 •4 •4 •4 •4 •4 •4	ALWAYS	Contains information regarding the whole data packet
Detected Objects •Tag & length •Descriptor •Payload (object array)	24 •8 •4 •12	If "detected objects" parameter is set to 1	Contains range information of objects detected by the mmWave device
Range Profile •Tag & length •Payload	8+(# of range bins*2) for 14xx •8 •# of range bins*2 8+(# of range bins*8) for 16xx •8 •# of range bins*8	If "range profile" parameter is set to 1	Contains 1D array of Log Magnitude Range FFTs
Statistics Profile •Tag & Length •Payload	32 •8 •24	If "statistics" parameter is set to 1	Contains mmWave device performance statistical data
Padding Bytes	0 – 31 bytes	If total packet length is not a multiple of 32	Bytes are added to ensure that total packet length (including header) is a multiple of 32