MAVLINK

MAVLink (Micro Air Vehicle Link) is a communication protocol for small autonomous vehicles. It is mainly used in GCS communications <-> Unmanned Vehicle.

Protocol

The sent frames are divided into 8 main fields as shown in the following diagram :

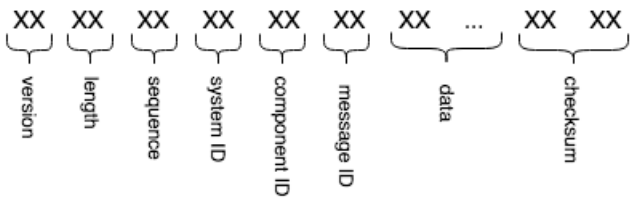

FIGURE 1 – The fields' names

For all this fields, we have a description and a range of values :

Byte Index	Content	Value	Explanation
0	Packet start sign	v1.0: 0xFE (v0.9:	Indicates the start of a new packet.
1	Payload length	0 - 255	Indicates length of the following payload.
2	Packet sequence	0 - 255	Each component counts up his send sequence. Allows to detect packet loss
3	System ID	1 - 255	ID of the SENDING system. Allows to differentiate different MAVs on the same network.
4	Component ID	0 - 255	ID of the SENDING component. Allows to differentiate different components of the same system, e.g. the IMU and the autopilot.
5	Message ID	0 - 255	ID of the message - the id defines what the payload "means" and how it should be correctly decoded.
6 to (n+6)	Data	(0 - 255) bytes	Data of the message, depends on the message id.
(n+7) to (n+8)	Checksum (low byte, high byte)	ITU X.25/SAE AS-4 hash, **excluding packet start sign, so bytes 1..(n+6)** Note: The checksum also includes MAVLINK_CRC_EXTRA (Number computed from message fields. Protects the packet from decoding a different version of the same packet but with different variables).	

FIGURE 2 – Explanation

In our case some fields will remain unchanged, thus :
- Start sign stay at "fe" because we are working on version 1 of mavlink
- System ID stay at "ff" because we simulate QGroundControl
- Component ID stay at "00" too

More the the message ID takes a value from those defined. (see sources)

Sources

- Explanation table : https ://discuss.ardupilot.org/t/mavlink-step-by-step/9629
- Message ID macro and values : https ://groups.google.com/forum/# !topic/mavlink/1zgHUM67E-A