# 0. Abstract

This document is to introduce the calibration dump scheme v2.0.4. These scheme is implemented on firmware LogAndStream v0.6.7 and on.

# 1. New calibration dump file structure

Assuming the device has an id of 36AD, the calibration dump file is named as /calibration/calib\_36AD.

The first two bytes are Total\_Length bytes. This length is the total data length except the "Total\_Length" itself. i.e. if the file is 175 bytes long, including the first two Total\_Length bytes and 173 data bytes, then there should be Total\_Length=173 in this case.

|  |  |  |  |
| --- | --- | --- | --- |
| byte | content | | |
| 0 | sys info | Total\_Length | lsb |
| 1 | msb |
| 2 | Version Info (8 bytes) | hw\_id\_lsb |
| 3 | hw\_id\_msb |
| 4 | fw\_id\_lsb |
| 5 | fw\_id\_msb |
| 6 | fw\_ver\_major\_lsb |
| 7 | fw\_ver\_major\_msb |
| 8 | fw\_ver\_minor |
| 9 | fw\_ver\_internal |
| 10 | sensor1, range1 | sensor ID (2 bytes) | lsb |
| 11 | msb |
| 12 | range |  |
| 13 | Length |  |
| 14 | Timestamp (8 bytes) | lsb |
| ... | ... |
| 21 | msb |
| 22 | calib data (21 bytes for example) | Byte 1 |
| 23 | Byte 2 |
| ... | … |
| 42 | Byte 21 |
| 43 | sensor1, range2 | sensor ID | lsb |
| 44 | msb |
| 45 | range |  |
| ... | … |  |

# 2. BT commands

#define SET\_CALIB\_DUMP\_COMMAND 0x98

#define RSP\_CALIB\_DUMP\_COMMAND 0x99

#define GET\_CALIB\_DUMP\_COMMAND 0x9A

The "Length" value can't exceed 128, which is the maximum Rx buffer length in the fw.

## 2.1. Command usage

Command to set N bytes of data:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Byte | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ... | X |
| Content | 0x98 | Length=N | Offset\_l | Offset\_h | Byte1 | Byte2 | Byte3 | ... | Byte n |

Command to get n bytes of data:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Byte | 1 | 2 | 3 | 4 |
| Content | 0x9a | Length=n | Offset\_l | Offset\_h |

Response of the "get" command:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Byte | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ... | X |
| Content | 0x99 | Length=N | Offset\_l | Offset\_h | Byte1 | Byte2 | Byte3 | ... | Byte n |

## 2.2 Command sequence

a) To set a calibration dump of n bytes, the software must start from offset 0. As stated

b) In each transmission, the "Length" shouldn't exceed 128.

c) The software should keep using the " SET\_CALIB\_DUMP\_COMMAND " command to transmit calibration dump data until all N bytes are sent to the device. Only on having received N bytes of calib\_dump data, will the fw on the device start updating the device RAM/InfoMem/file.

# 3. Default schedules

On powering up, the Shimmer schedules the InfoMem calibration info, the SD card calibration file /calibration/calib\_36AD, and the default calibration values.

On undocking, the Shimmer synchronizes the SD card calibration file and the RAM/InfoMem

The flow charts below describe the scheme.