

3 – HOW TO MONITOR SERIAL PORT TRAFFIC

3.1 Introduction

UNIFLOW-200 can have up to 8 serial ports. Serial ports can be configured as Modbus Master ports to poll data from different instruments (ultrasonic flow meters, mass flow meters, multivariable transmitters, etc.). They can also be configured as Modbus Slave port, where external devices (PLC, supervisory system) polls UNIFLOW-200 for data.

In case of any malfunction in the communication, it can be useful to check the traffic on the serial port, i. e. to see the transmitted and received messages.

This document describes how to monitor the traffic on the serial port.

3.2 Firmware compatibility

To implement and use features, procedures described in this document firmware version required:

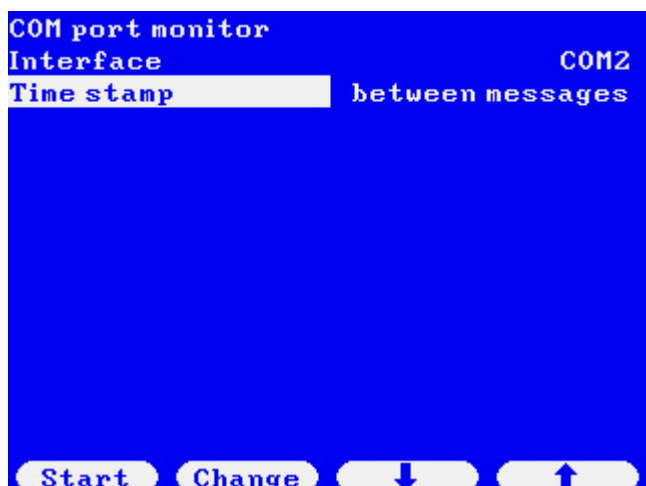
210305 or higher.

3.3 Run the COM Port monitor

Navigate to the COM port monitor page as shown on the picture below.



Ensure that only one Client is polling the serial port if the port is a Modbus Slave port. Press OK to acknowledge the warning message.



Select the serial port to be monitored by pressing Change then OK button.

Set the time stamp format. It can be:

- absolute (hh:mm:ss.ssssss format, absolute time according to the real time clock)
- relative (hh:mm:ss.ssssss format, starting of the monitoring is the zero time)
- between messages (ssss.ssssss format, elapsed time between messages)

Press the Start button.

You will see a page showing the incoming and outgoing messages.

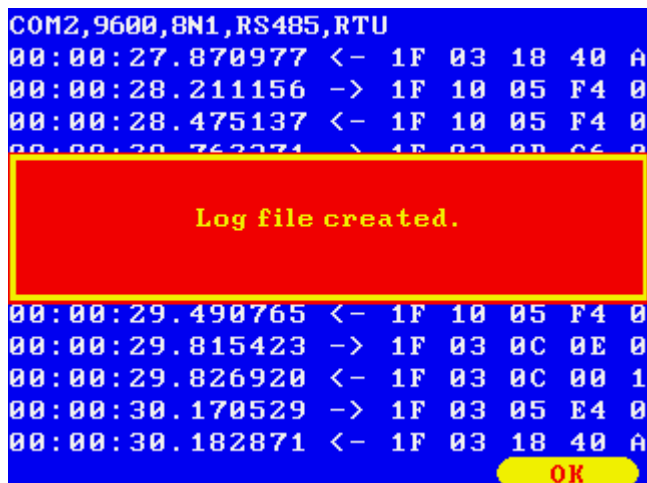
```
COM2,9600,8N1,RS485,RTU
00:00:08.703076 <- 1F 03 18 40 A
00:00:09.041916 -> 1F 10 05 F4 0
00:00:09.066941 <- 1F 10 05 F4 0
00:00:09.392912 -> 1F 03 0B C6 0
00:00:09.407219 <- 1F 03 18 00 0
00:00:09.743621 -> 1F 03 05 E4 0
00:00:09.755019 <- 1F 03 18 40 A
00:00:10.094577 -> 1F 10 05 F4 0
00:00:10.118887 <- 1F 10 05 F4 0
00:00:10.445769 -> 1F 03 0C 0E 0
00:00:10.459053 <- 1F 03 0C 00 1
00:00:10.796858 -> 1F 03 05 E4 0
00:00:10.811054 <- 1F 03 18 40 A
Stop Menu
```

Wait until the screen filled up with the messages and scrolled up 2 or 3 times then press Stop.

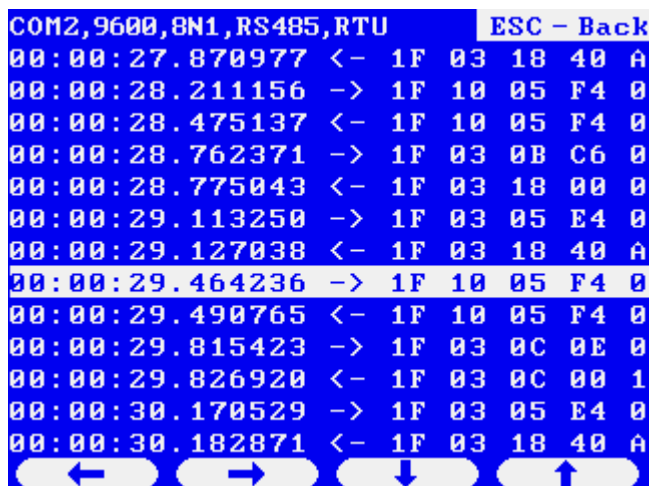
```
COM2,9600,8N1,RS485,RTU
00:00:27.870977 <- 1F 03 18 40 A
00:00:28.211156 -> 1F 10 05 F4 0
00:00:28.475137 <- 1F 10 05 F4 0
00:00:28.762371 -> 1F 03 0B C6 0
00:00:28.775043 <- 1F 03 18 00 0
00:00:29.113250 -> 1F 03 05 E4 0
00:00:29.127038 <- 1F 03 18 40 A
00:00:29.464236 -> 1F 10 05 F4 0
00:00:29.490765 <- 1F 10 05 F4 0
00:00:29.815423 -> 1F 03 0C 0E 0
00:00:29.826920 <- 1F 03 0C 00 1
00:00:30.170529 -> 1F 03 05 E4 0
00:00:30.182871 <- 1F 03 18 40 A
Start Log Scroll Menu
```

Log and Scroll buttons appear. You can save the messages to file with subsequent transferring it from Uniflow-200 to the PC.

To save messages to file press Log button. In few seconds you will see message "Saving log file", then message "Log file created" appears.



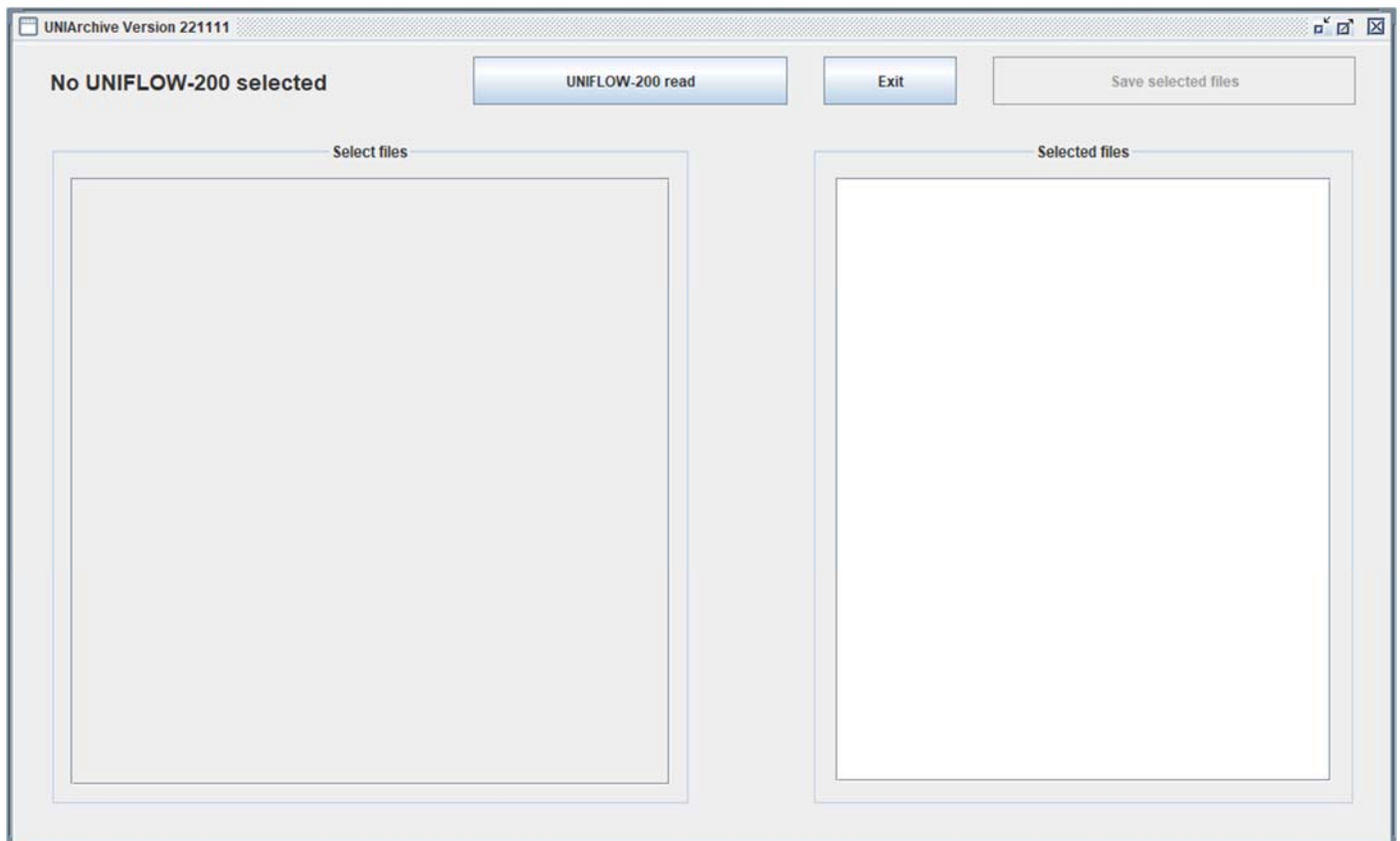
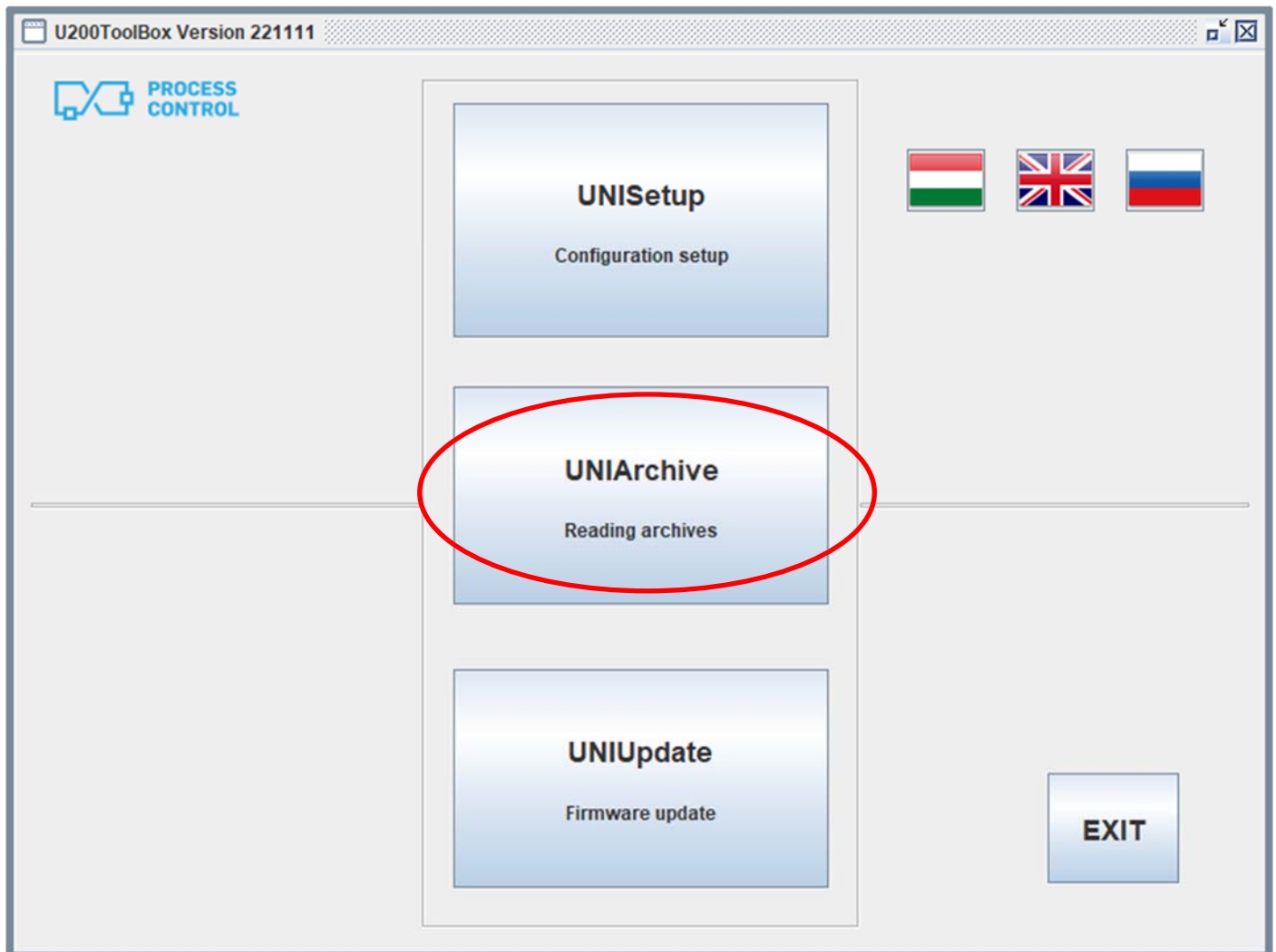
You can also check the content of the messages on the display. To be able to navigate between messages and see the full message press Scroll button.



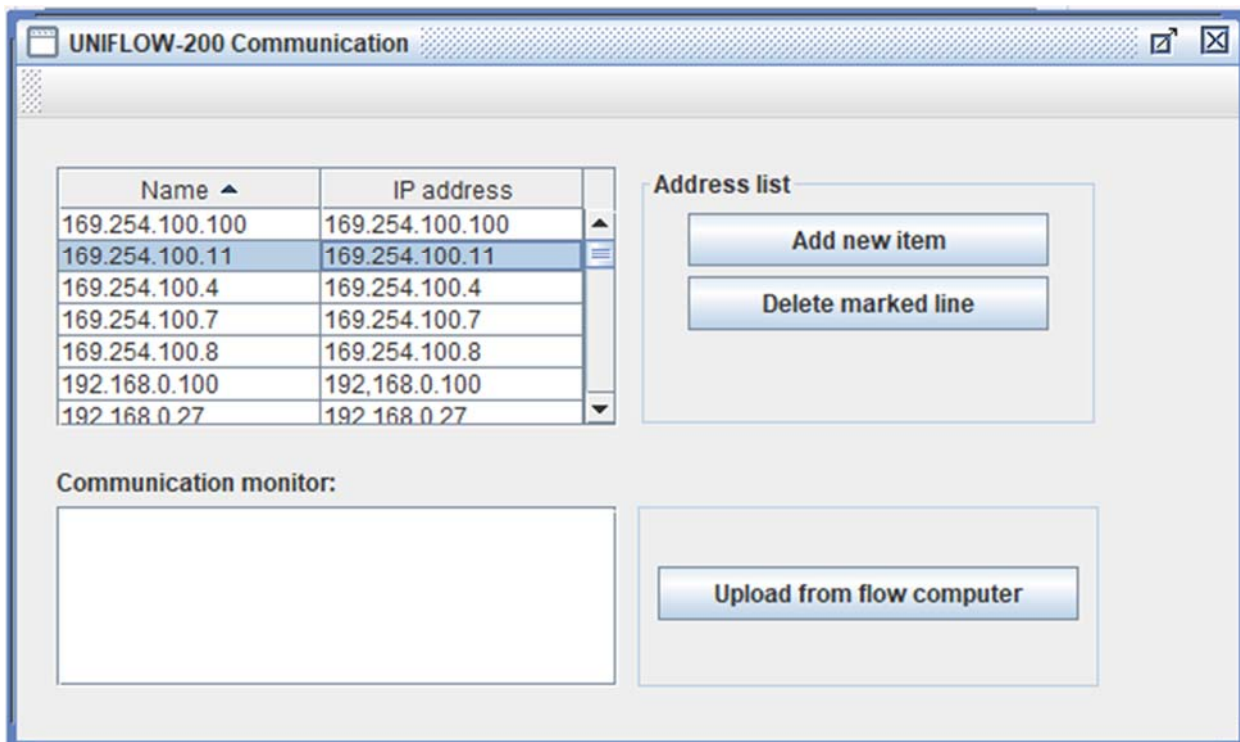
Navigate to the message you want to check with up and down arrow button and press left/right arrow button to go through the message.

3.4 Transfer the log file to PC

Start the UNIArchive program in the ToolBox software.



Press “Uniflow-200 read” button and select the flow computer IP address from the list. If the list is empty click Add new item button and enter the name and the IP address of the flow computer.

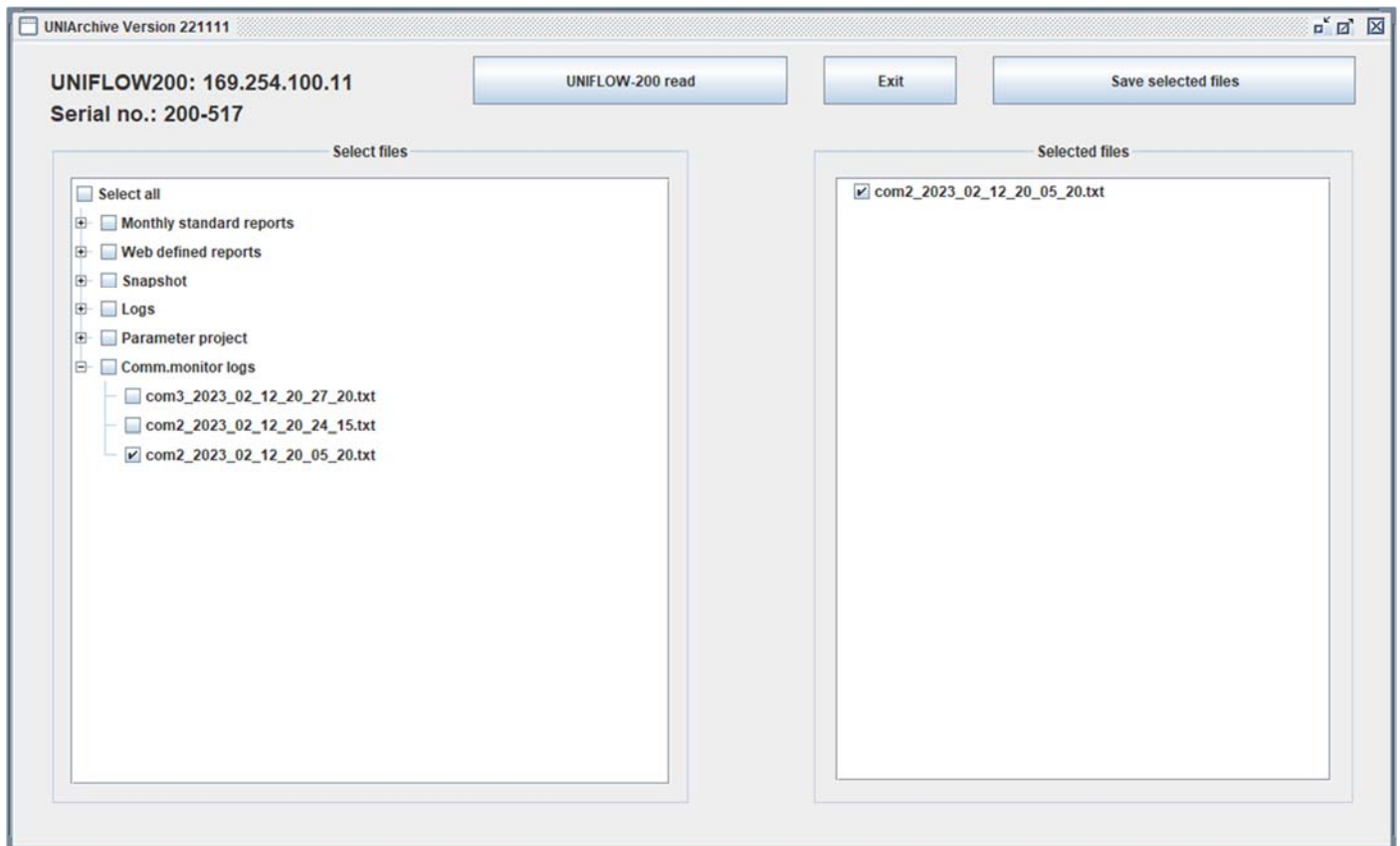


Then click “Upload from flow computer” button

Press OK button on the Upload successful message box.



On the left-hand pane of the window, you will see the archive file group names. This time we are interested in Comm. monitor logs. Click the (+) sign in front of the group name to drop down the list of files. Mark the check box in front of the file name you want to transfer, or mark the check box in front of the group name to select all the files.



You will see the selected files on the right-hand side pane.

Click the “Save selected file” button and browse the directory on the PC where the files to be saved.

3.5 Content of the log file

The log file is a simple txt file.

The naming convention of the file is: comX_yyyy_mm_dd_hh_mm_ss.txt
where X is the serial number of the serial port.

Example of the file name: com2_2023_02_12_20_05_20.txt

In the header it shows the settings.

In the body it shows the incoming and outgoing messages in hexadecimal format.

See a sample of the log file below.

```
2023/02/12 20:05:20 Port COM2
2023/02/12 20:05:20 Type: RS485
2023/02/12 20:05:20 Baud rate: 9600
2023/02/12 20:05:20 Data bits: 8
2023/02/12 20:05:20 Stop bit(s): 1
2023/02/12 20:05:20 Parity: None
2023/02/12 20:05:20 Mode: RTU
```

2023/02/12 20:05:20 Modbus address: 31

2023/02/12 20:05:20 Protocol: RMA US master

Time stamp: relative

00:00:00.951281 -> 1f 03 0b ea 00 24 65 bf

00:00:00.963822 <- 1f 03 48 41 20 00 00 41 20 00 00 41 20 00 00 41 20 00 00 41
20 00 00 41 20 00 00 42 4c 00 00 42 50 00 00 42 54 00 00 42 58 00 00 42 5c 00
00 42 60 00 00 42 64 00 00 42 68 00 00 42 6c 00 00 42 70 00 00 42 74 00 00 42
78 00 00 d6 e8

00:00:01.302498 -> 1f 03 05 e4 00 0c 06 8a

00:00:01.315126 <- 1f 03 18 40 a0 00 00 41 20 00 00 43 c8 00 00 46 fa 00 00 41
50 00 00 42 28 00 00 87 81

00:00:01.653357 -> 1f 10 05 f4 00 04 08 41 30 b2 d4 42 31 b7 a1 bb 79

00:00:01.679017 <- 1f 10 05 f4 00 04 83 4a

00:00:02.004433 -> 1f 03 04 4c 00 08 87 55

00:00:02.014970 <- 1f 03 10 00 01 e2 40 00 09 fb f1 00 00 03 15 00 00 03 db 89
24

00:00:02.355454 -> 1f 03 05 e4 00 0c 06 8a

00:00:02.367080 <- 1f 03 18 40 a0 00 00 41 20 00 00 43 c8 00 00 46 fa 00 00 41
50 00 00 42 28 00 00 87 81

00:00:02.706643 -> 1f 10 05 f4 00 04 08 41 30 ae e6 42 31 b8 a2 c5 10

00:00:02.730971 <- 1f 10 05 f4 00 04 83 4a

00:00:03.057939 -> 1f 03 0b c6 00 0c a4 68

00:00:03.072166 <- 1f 03 18 00 0d 00 0e 00 0f 00 10 00 11 00 12 00 13 00 14 00
15 00 16 00 17 00 18 b0 a3

00:00:03.409234 -> 1f 03 05 e4 00 0c 06 8a

00:00:03.423268 <- 1f 03 18 40 a0 00 00 41 20 00 00 43 c8 00 00 46 fa 00 00 41
50 00 00 42 28 00 00 87 81

00:00:03.760644 -> 1f 10 05 f4 00 04 08 41 30 b0 06 42 31 b8 07 87 03

00:00:03.787012 <- 1f 10 05 f4 00 04 83 4a

00:00:04.111567 -> 1f 03 0c 0e 00 06 a4 e5

00:00:04.125712 <- 1f 03 0c 00 16 00 21 00 2c 00 37 00 42 00 4d ab 46

00:00:04.462387 -> 1f 03 05 e4 00 0c 06 8a

00:00:04.475249 <- 1f 03 18 40 a0 00 00 41 20 00 00 43 c8 00 00 46 fa 00 00 41
50 00 00 42 28 00 00 87 81

00:00:04.813308 -> 1f 10 05 f4 00 04 08 41 30 b5 12 42 31 b9 3b b6 d4

00:00:04.839042 <- 1f 10 05 f4 00 04 83 4a

```
00:00:05.164337 -> 1f 03 0b b8 00 02 45 b4
00:00:05.174866 <- 1f 03 04 00 00 00 01 c5 f2
00:00:05.515272 -> 1f 03 05 e4 00 0c 06 8a
00:00:05.527121 <- 1f 03 18 40 a0 00 00 41 20 00 00 43 c8 00 00 46 fa 00 00 41
50 00 00 42 28 00 00 87 81
00:00:05.866303 -> 1f 10 05 f4 00 04 08 41 30 b3 64 42 31 b8 6e be d6
00:00:05.890908 <- 1f 10 05 f4 00 04 83 4a
00:00:06.217505 -> 1f 03 0b d2 00 0c e4 6c
00:00:06.231264 <- 1f 03 18 43 c8 00 00 43 c8 00 00 43 c8 00 00 43 c8 00 00 43
c8 00 00 43 c8 00 00 e6 09
00:00:06.568822 -> 1f 03 05 e4 00 0c 06 8a
00:00:06.583450 <- 1f 03 18 40 a0 00 00 41 20 00 00 43 c8 00 00 46 fa 00 00 41
50 00 00 42 28 00 00 87 81
00:00:06.920192 -> 1f 10 05 f4 00 04 08 41 30 b5 a2 42 31 b8 3a 37 5e
00:00:06.949204 <- 1f 10 05 f4 00 04 83 4a
00:00:07.272785 -> 1f 03 0b ea 00 24 65 bf
00:00:07.283697 <- 1f 03 48 41 20 00 00 41 20 00 00 41 20 00 00 41 20 00 00 41
20 00 00 41 20 00 00 42 4c 00 00 42 50 00 00 42 54 00 00 42 58 00 00 42 5c 00
00 42 60 00 00 42 64 00 00 42 68 00 00 42 6c 00 00 42 70 00 00 42 74 00 00 42
78 00 00 d6 e8
00:00:07.623696 -> 1f 03 05 e4 00 0c 06 8a
00:00:07.635263 <- 1f 03 18 40 a0 00 00 41 20 00 00 43 c8 00 00 46 fa 00 00 41
50 00 00 42 28 00 00 87 81
00:00:07.974673 -> 1f 10 05 f4 00 04 08 41 30 b2 d4 42 31 b8 3a ff 22
00:00:07.999046 <- 1f 10 05 f4 00 04 83 4a
00:00:08.328591 -> 1f 03 04 4c 00 08 87 55
00:00:08.339005 <- 1f 03 10 00 01 e2 40 00 09 fb f1 00 00 03 15 00 00 03 db 89
24
```