iqMonitor

User Manual

1 History

Data	Changes
09 September 2018	Initial version
27 September 2018	Add power recommendation
22 October 2018	Change power recommendation
v. 1.0.4.0	Control MSEQ data
02 November 2021	Add troubleshooting
v. 1.5.0.0	Add possibility to change trace folder Add possibility to write process data into file Show process data values in realtime
28 September 2023	Add Load stored trace section

Contents

2 Introduction

iqMonitor is an IO-Link communication sniffer.

It is intended to “listening” IO-Link communication and analyze master and device telegrams directly on the C/Q line. The timestamped telegrams are streamed over USB or Ethernet connection to PC. The intelligent software module of iqMonitor GUI can interpret and analyze them to represent graphically the communication and its possible problems in an easy-to-understand way.

3 Setup

3.1 Power

It is recommended to connect external power supply to IO-Link Master. iqMonitor will use IO-Link connection as power supply (the power consumption is about 80 mA for iqInterface in Monitor mode). If external power supply for master is not available, it is possible to connect external power supply to iqMonitor, but it can be distortion in communication recognition.

3.2 Serial port setting

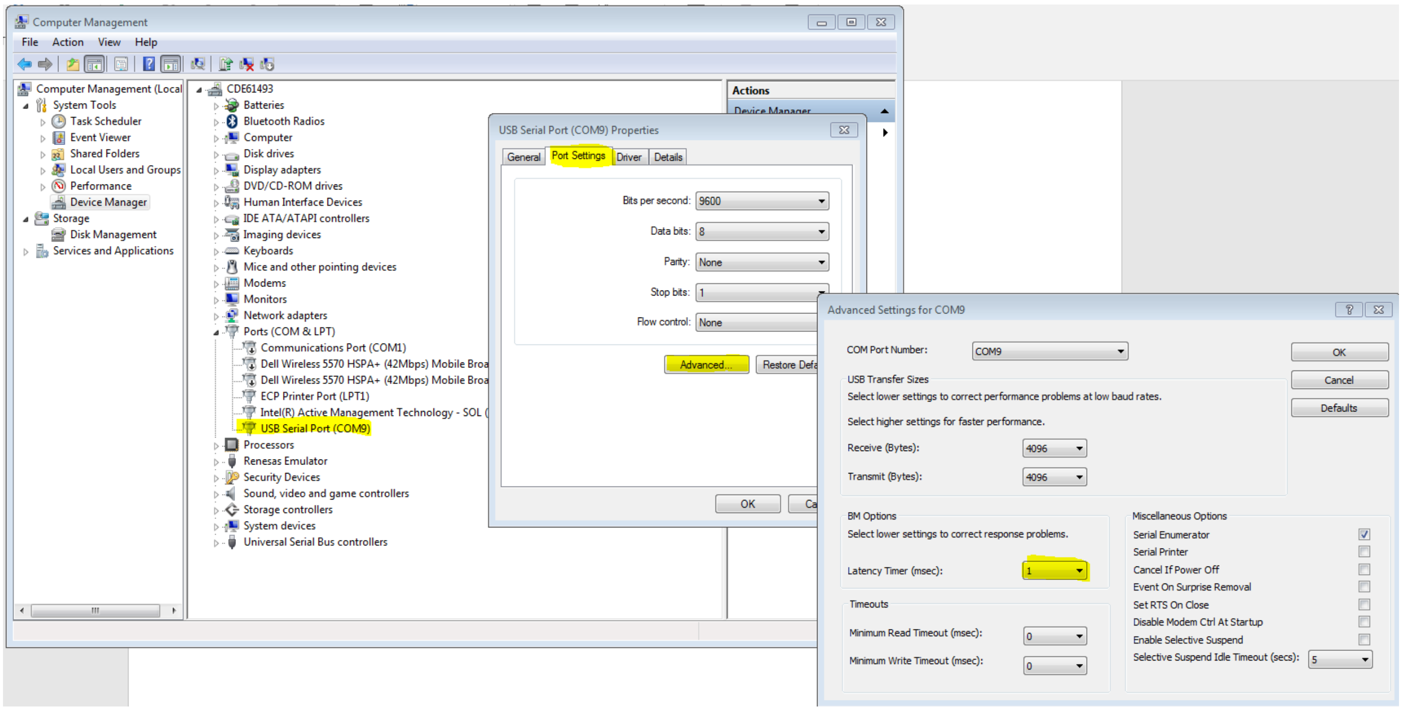
It is recommended to use Ethernet communication with iqMonitor.

If USB communication is preferable, it is needed to setup Serial port for low latency:

Open Device Manager, find serial port, connected to iqInterface – open properties

Select “Port Settings” - > “Advanced”

Set “Latency timer” to 1

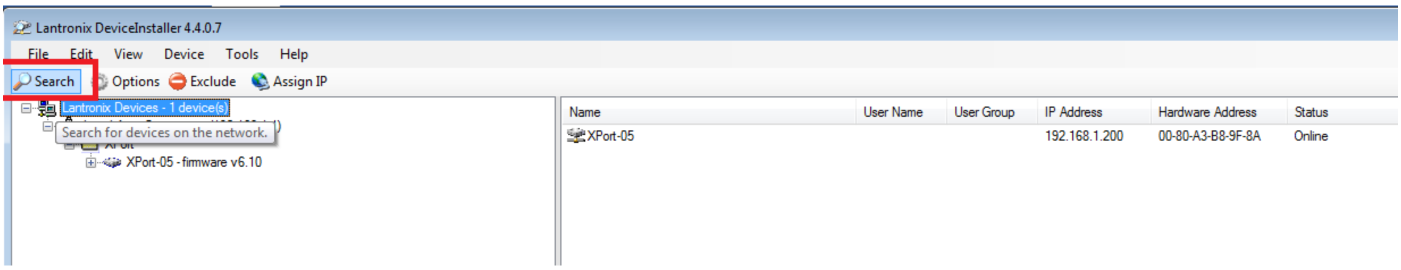


3.3 Ethernet port settings

If current ip address is unknown, it is needed to download “Device Installer” software from “lantronix” web site

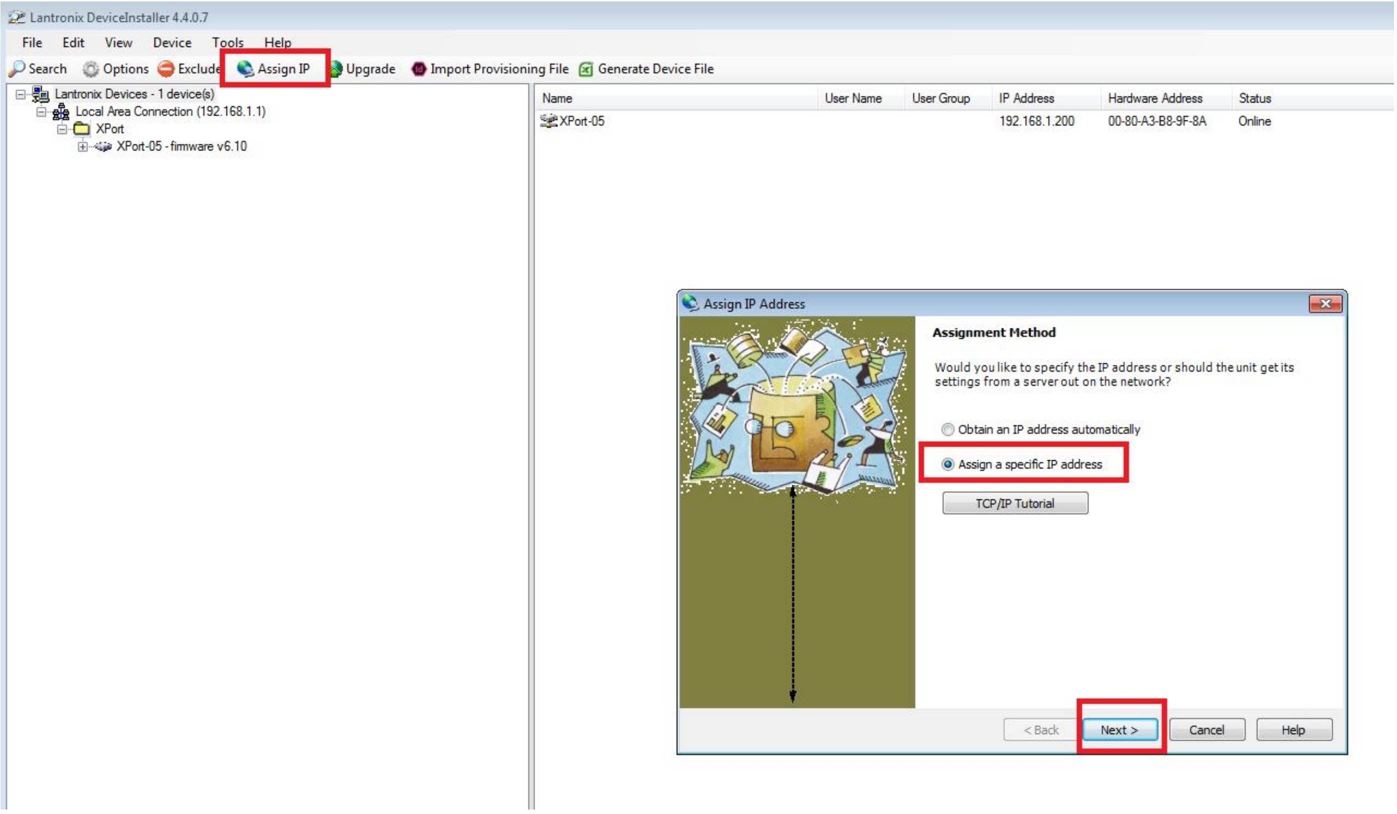
https://www.lantronix.com/products/xport/#tab-docs-downloads

After software installation – run finding device:

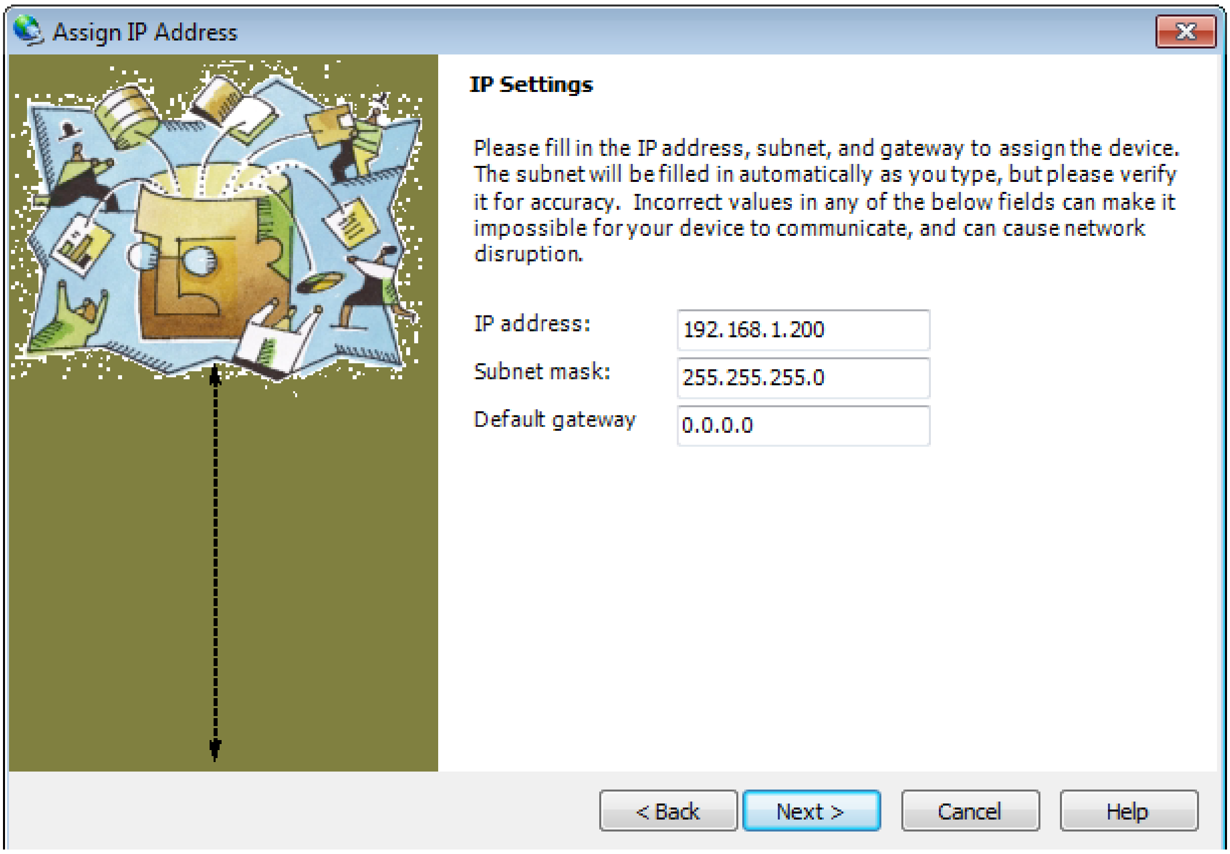


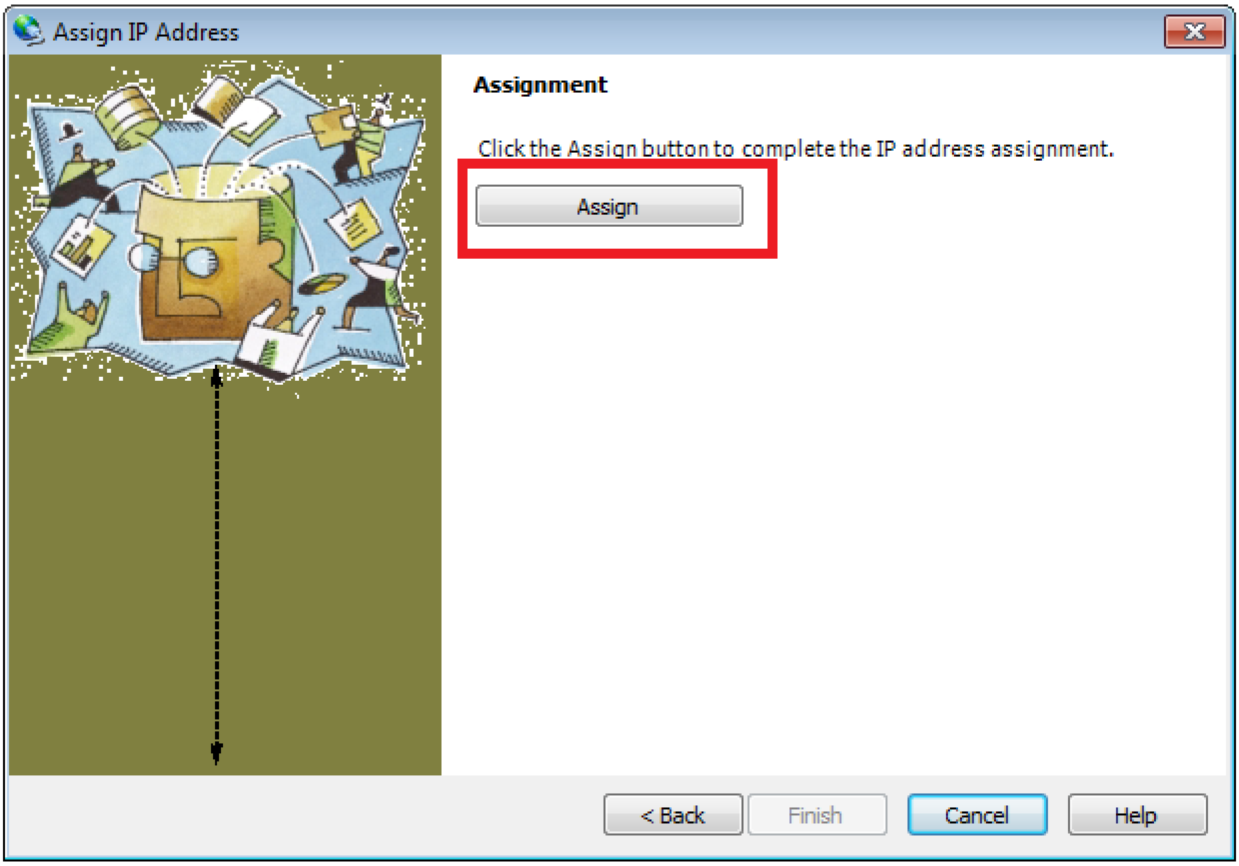
After device has been found – it is needed to setup ip address and mask the similar to setting for Network card

Select device and press “Assign IP”



Select “Assign a specific IP Address” -> Enter correct IP Address and Mask -> Assign





After assignment process has been completed, close the application and power cycle the iqInterface

3.4 Hardware setup

Connect power supply

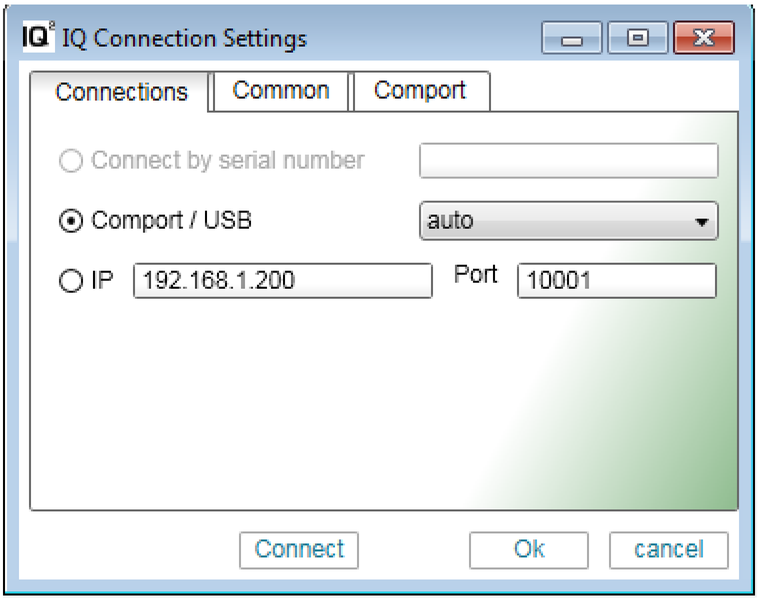
IO-Link Master should be connected to Device Connector (2) on iqInterface
IO-Link Device should be connected to Master Connector (1) on iqInterface

4 iqMonitor User Interface

Run iqMonitor application – it can be downloaded from iq2-development site: https://www.iq2-development.com/downloads.html

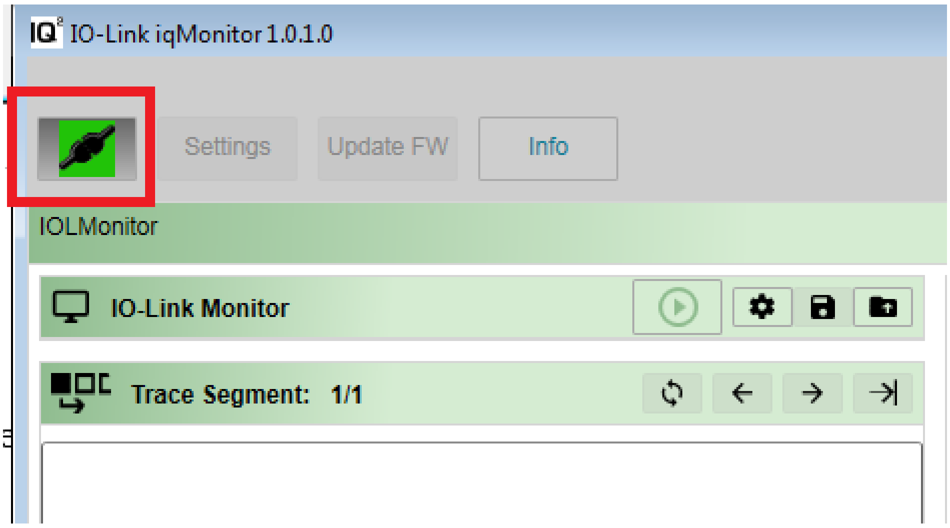
4.1 Establish a communication

Open communication setting, select appropriate connection and press connect:



Port for Ethernet communication should be: 10001

If communication has been established correctly – the setting dialog will be closed and Connect button turn into green color

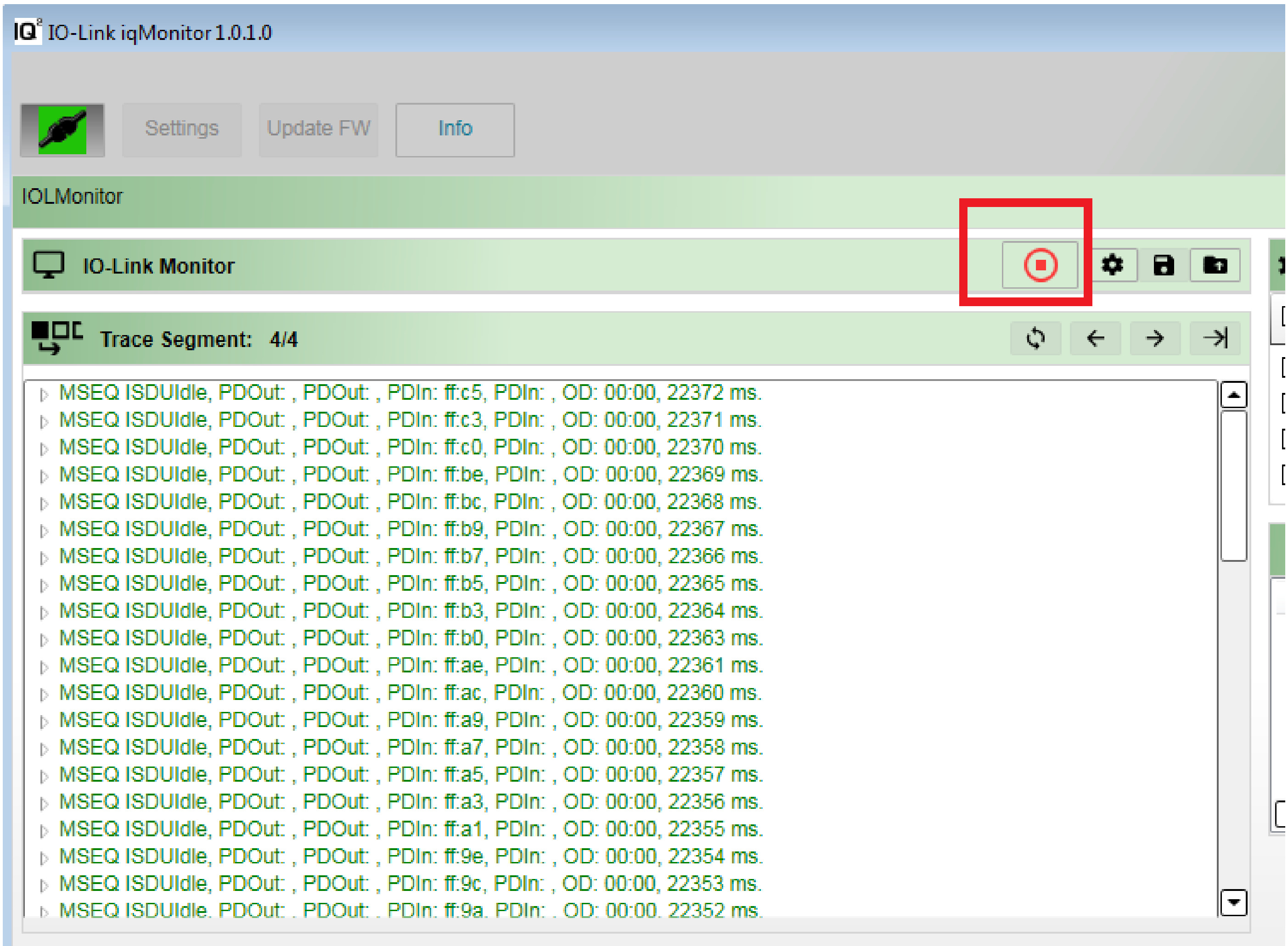


Now it is ready to start monitoring IO-Link communication

4.2 Start monitoring

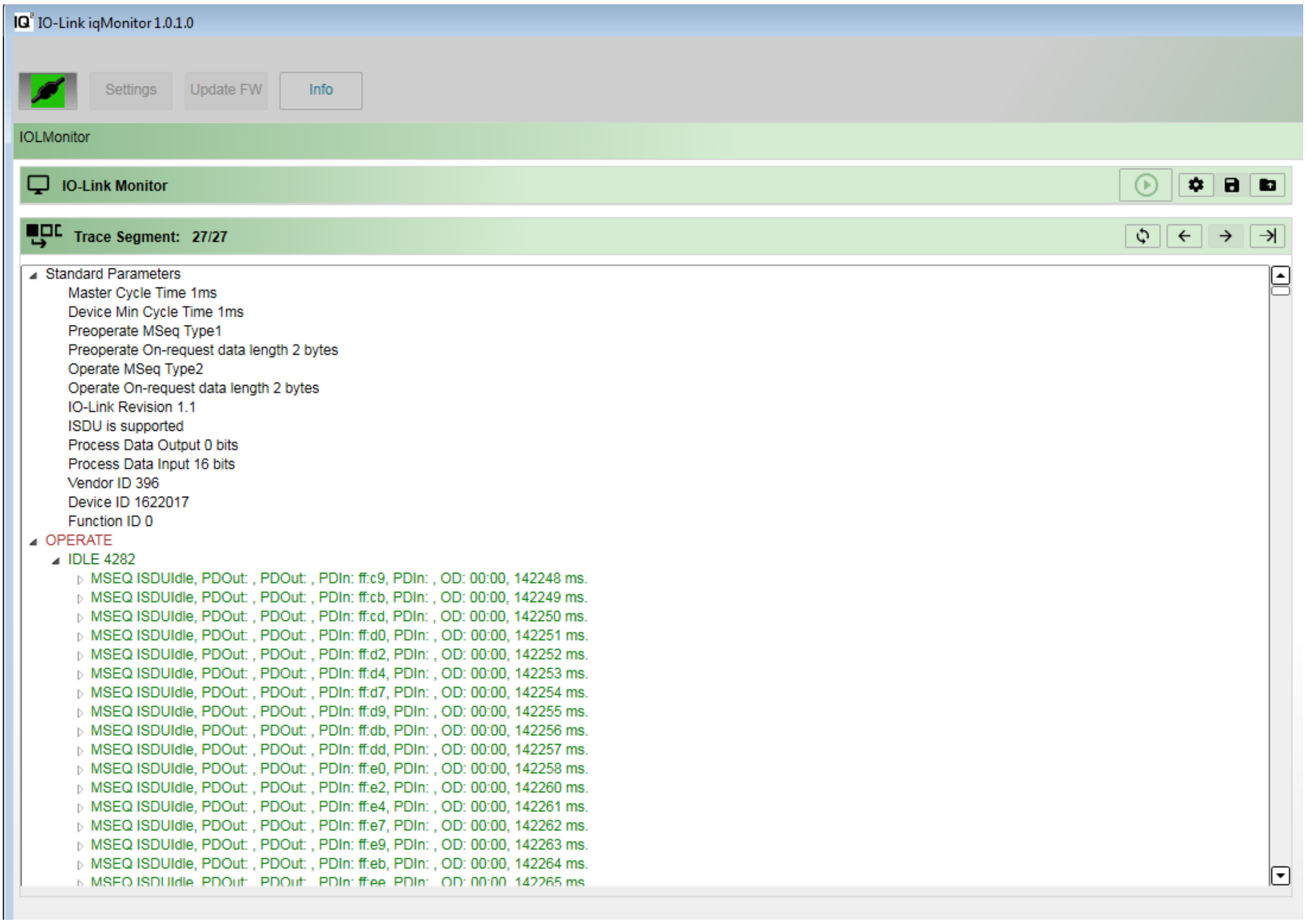
To start monitoring, just press start "Button" on "IO-Link Monitor" panel

Start button should be turned into red and status window should show raw IO-Link messages.



For analyse data monitor should be stopped (press stop button)

Catching data will be stored and parsed data will be showed on status window

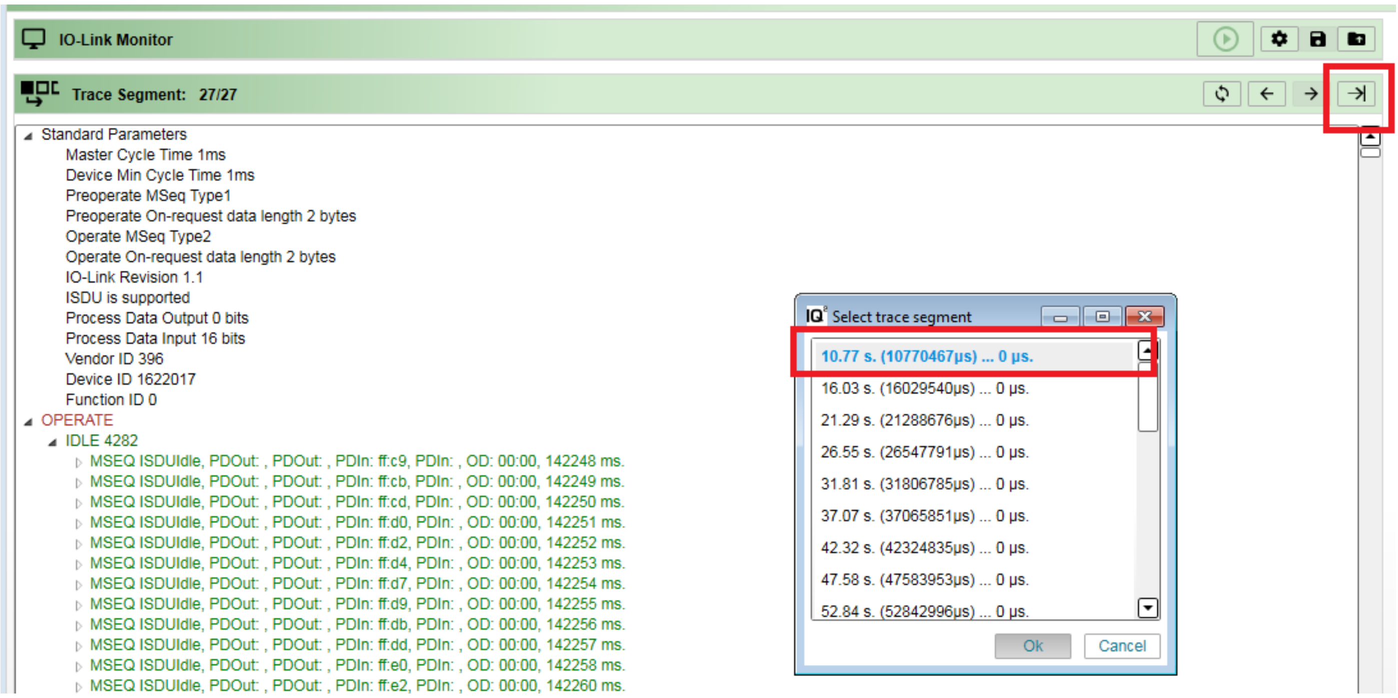


Due to a lot of data, the trace is split to segments

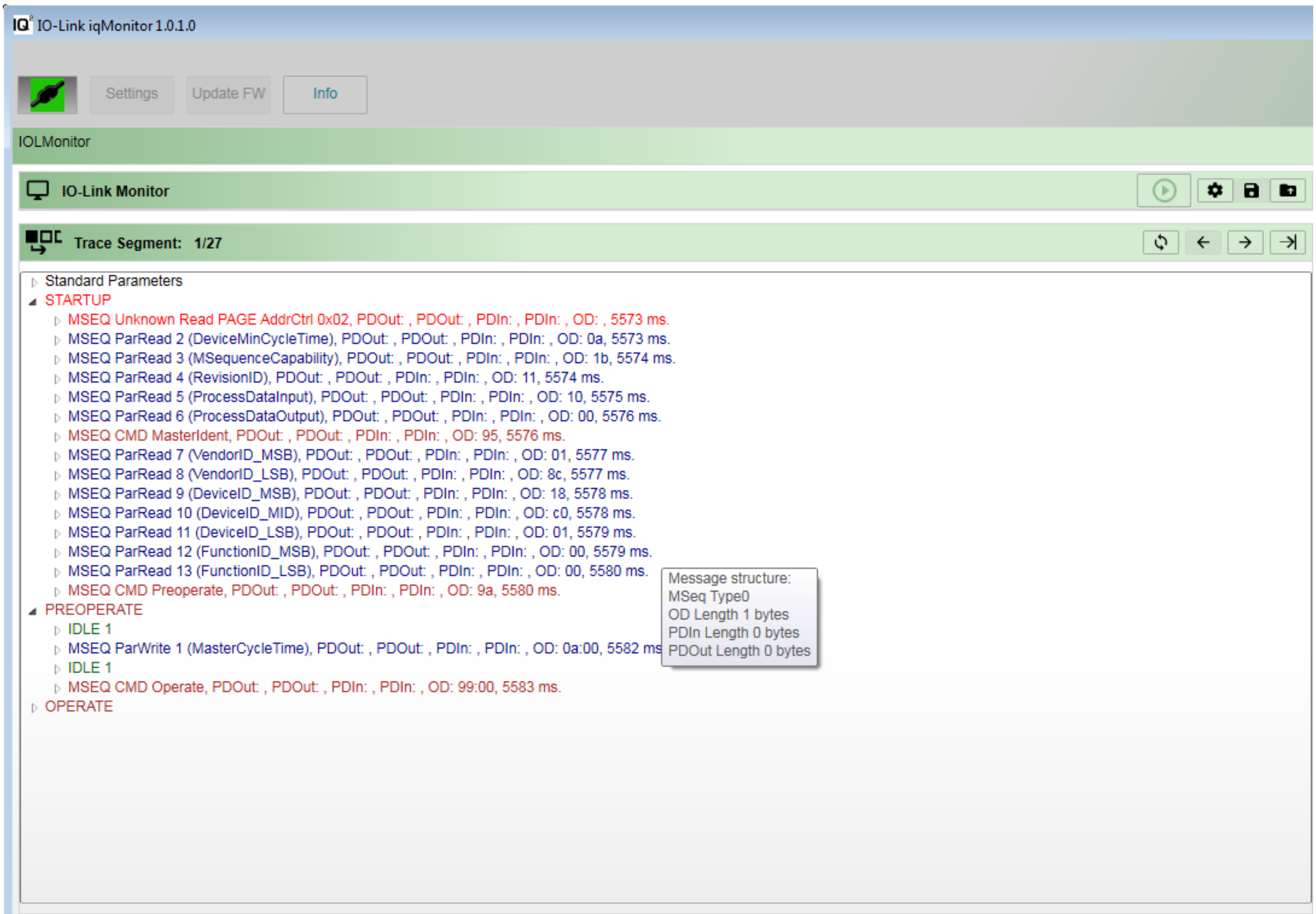
It is possible to switch between segments with controls on “Segment” panel

It is possible to switch next, previous and any segment

For example to switch to segment 0: Select button “Switch segment” and select first segment:

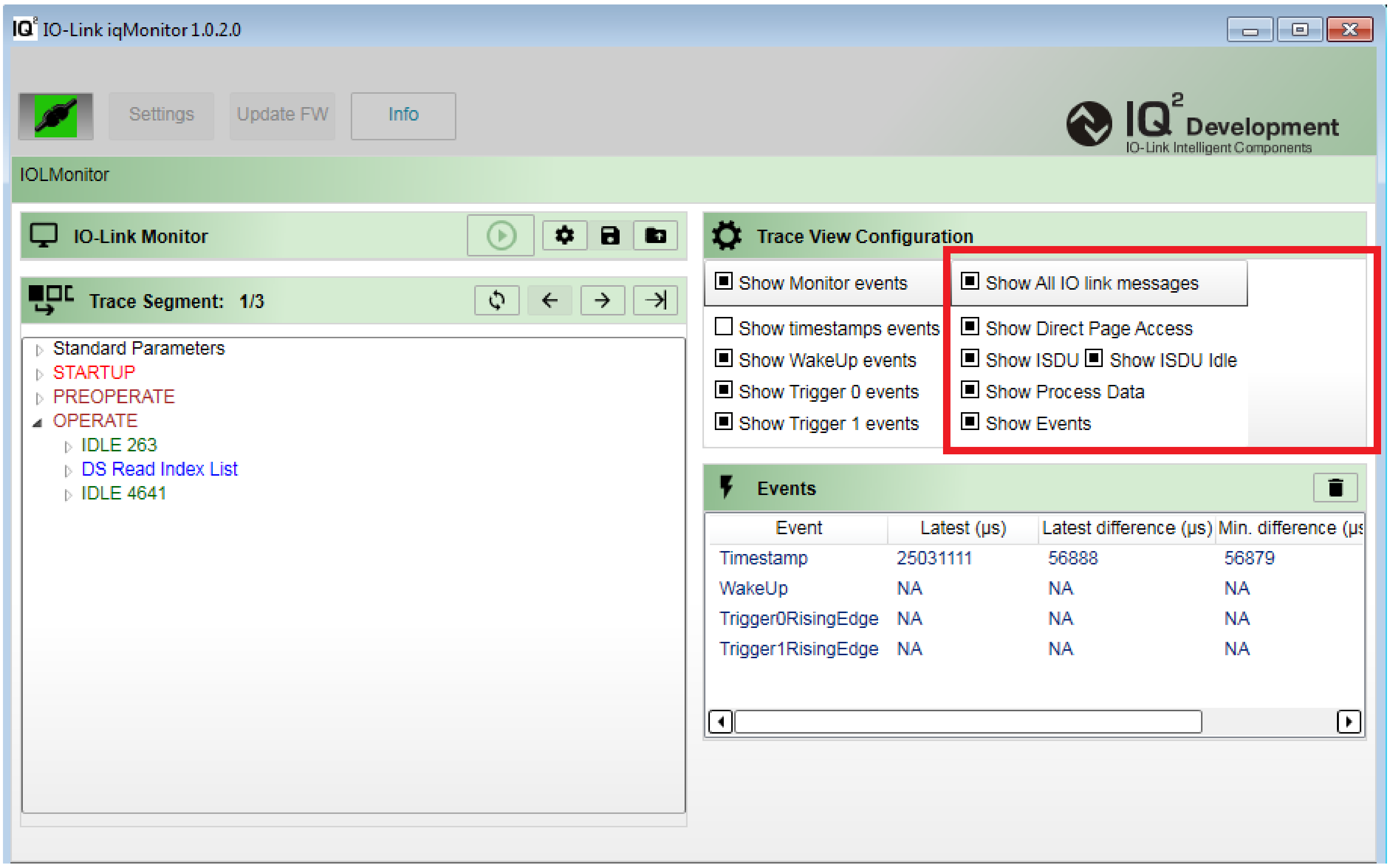


And the first segment will be seen:

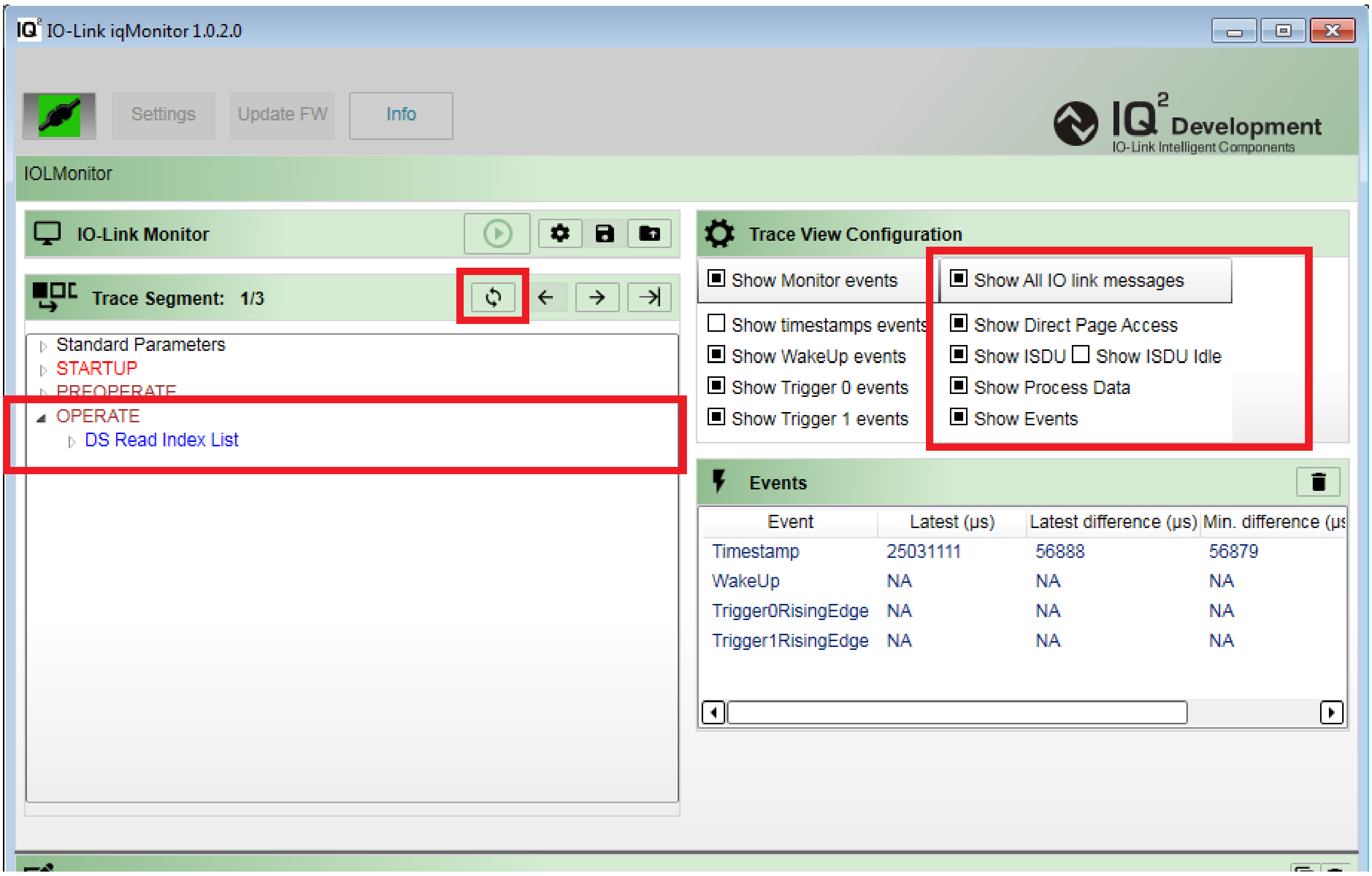


If only special messages are interested, it is possible to filter them:

Filter disable – all messages are shown:

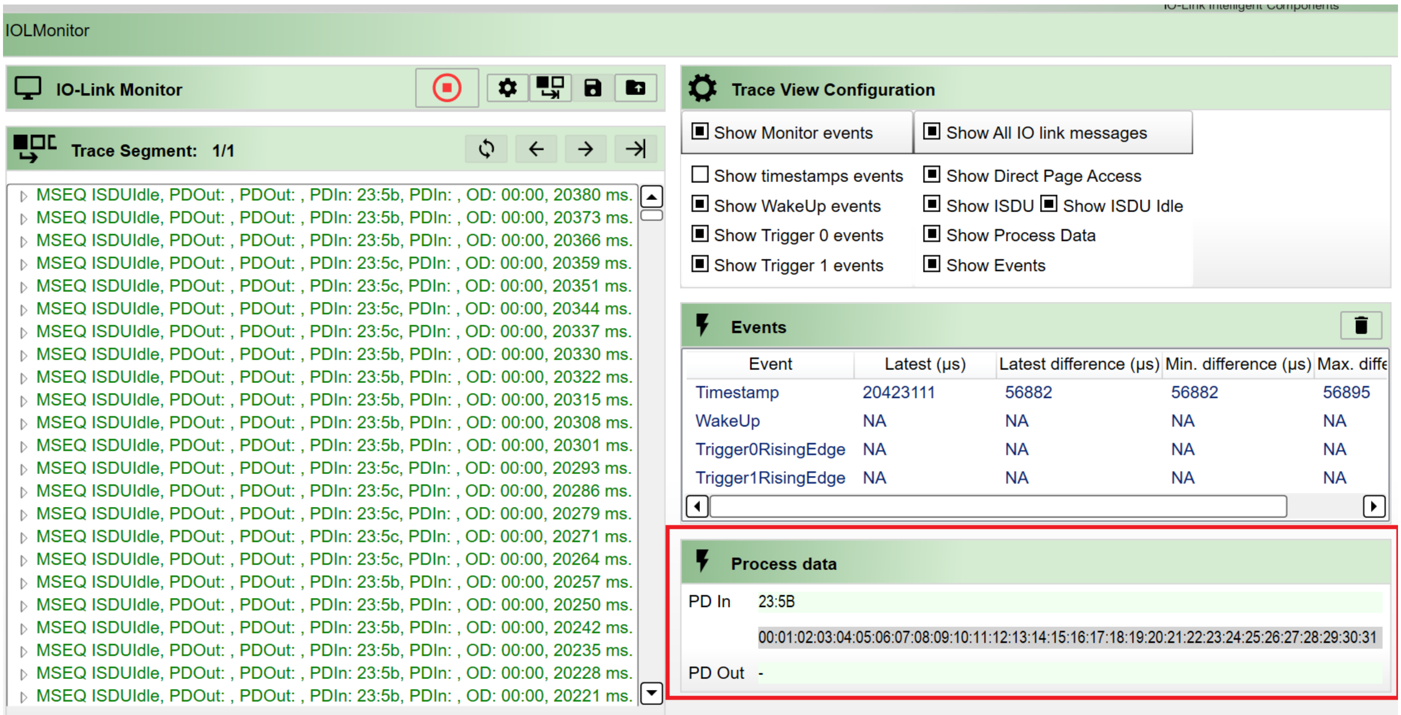


Filter enable – disable show ISDU idle messages (uncheck “Show ISDU Idle” and press Refresh button):



4.2.1 Process Data is showing in realtime

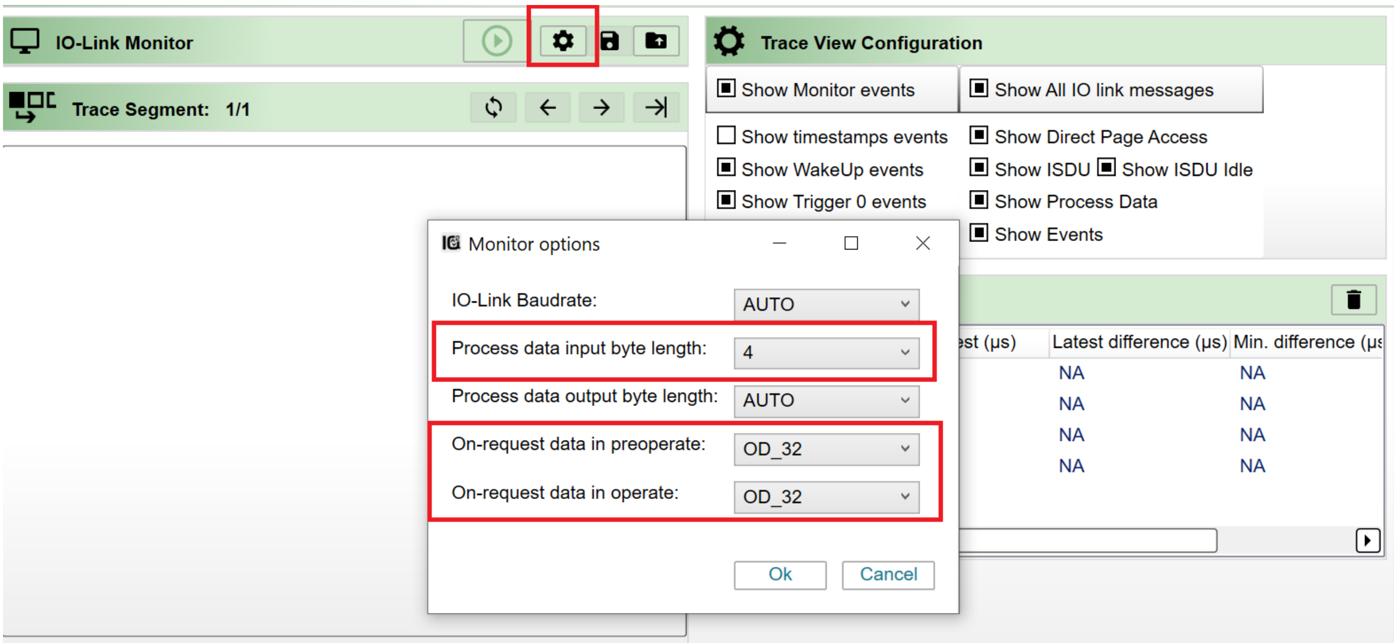
If process data is available, if will be shown additionally in separate block:



4.3 Control MSEQ data

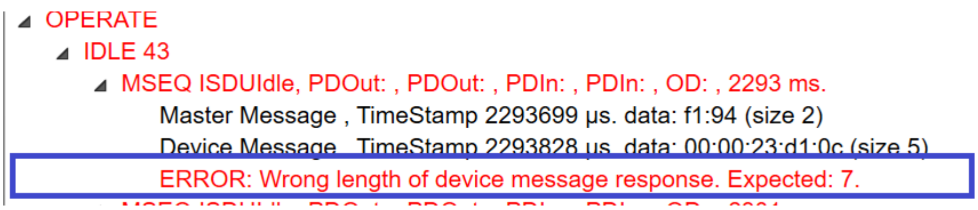
It possible to set expected MSEQ parameters to control additionally master and device request

To set additional control open monitor option and set appropriate parameters (for example: Process data In length to 4, On-request data in Operate/Preoperate to 32) and press ok

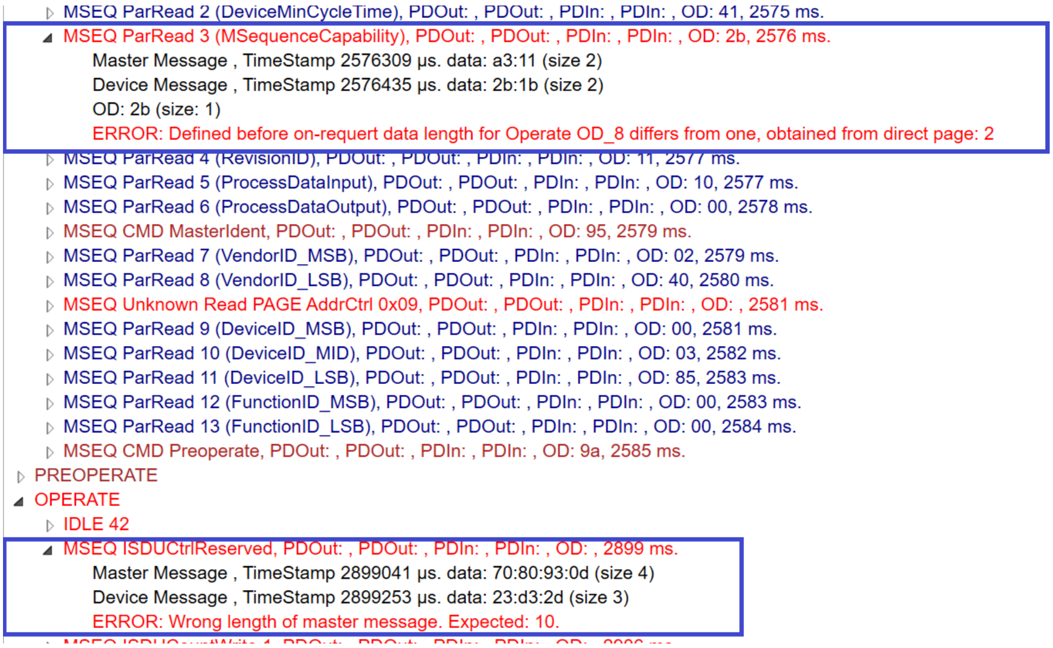


And start Monitoring, wait needed time, stop monitoring.
Application controls these parameters only after monitoring is stop and parsing is started
if Application detect mismatch between set parameters and parameters from device – this messages will be marked with red:

if process data size mismatch:



if on-request data size mismatch:

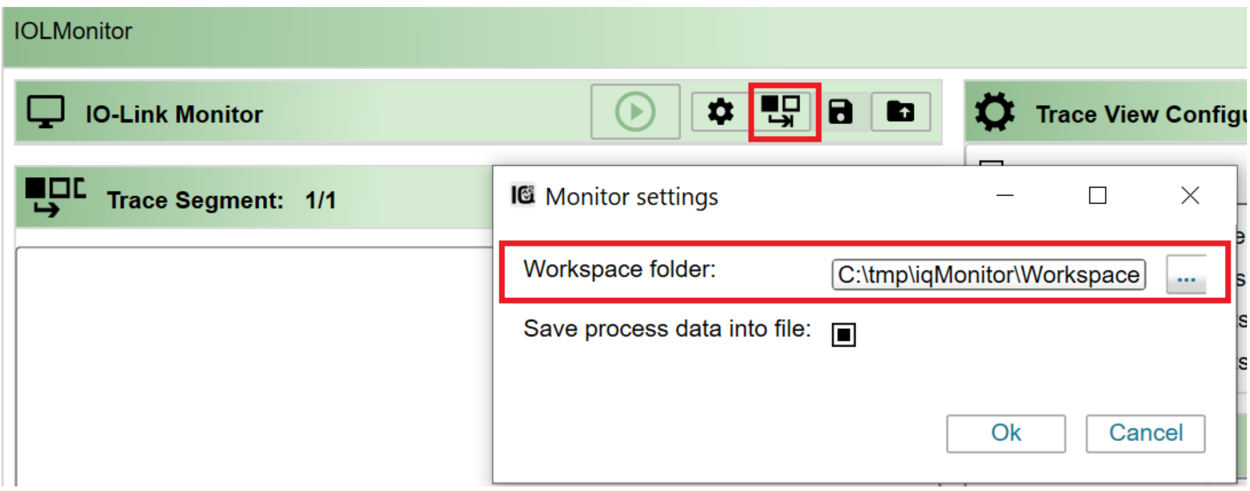


4.4 iqMonitor Tool Setting

4.4.1 Setup user trace folder

By default, trace files are written into c:\Users\[username]\AppData\Roaming\iqMonitor\Workspace\[date_time]

To change default folder to saving trace file – open iqMonitor Tool setting, select desired folder and press enter



4.4.2 Activate storing process data into text file

To activate saving process data into file – open iqMonitor Tool setting, select option “Save process data into file” and press ok.

The process data will be saved into file “process_data.log” in the same folder as trace files:

[Workspace folder]\[date_time folder]

File Format:

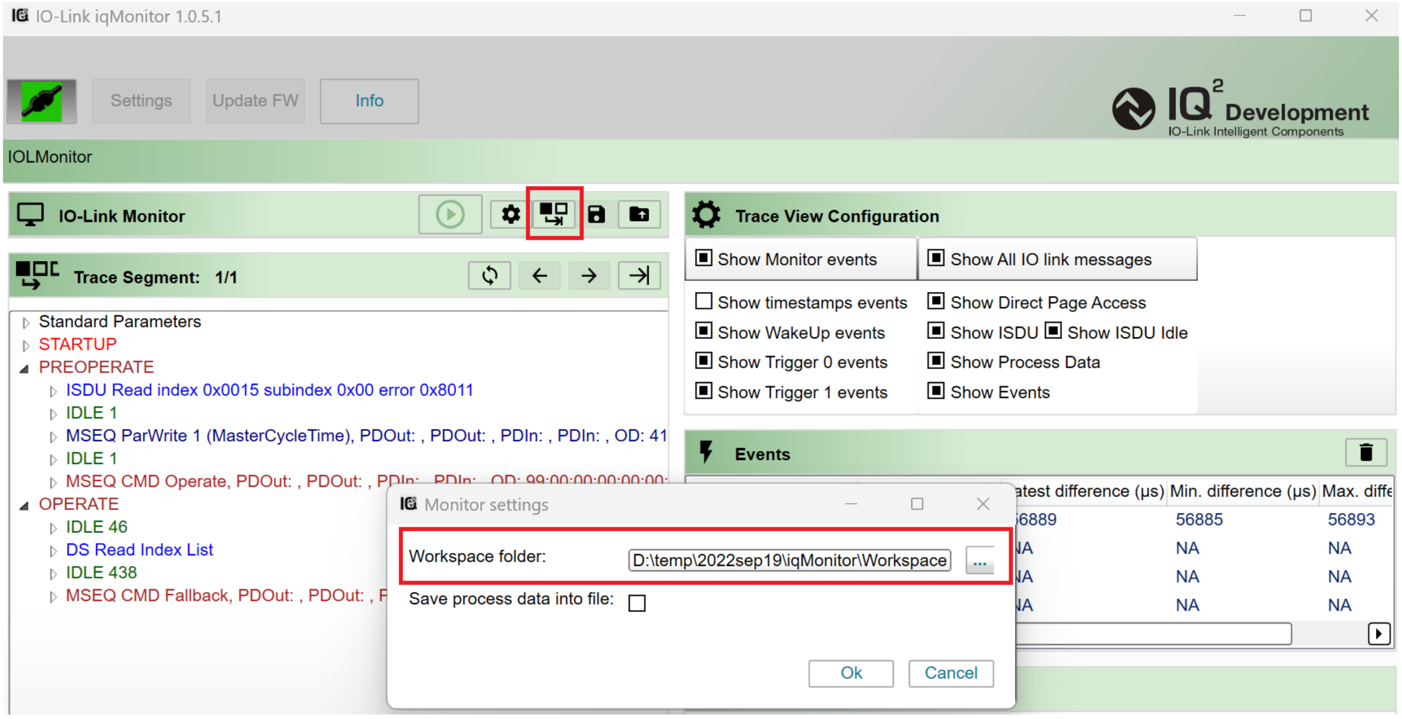
[Date/Time] | [Master message timestamp] | [Process data in] | [Process Data out] | [word “changed”, if process data has been changed]

Example:

```
11/05/2021 12:00:31 | 4160498 | 23:5E | - |
11/05/2021 12:00:31 | 4167753 | 23:5D | - | changed
11/05/2021 12:00:31 | 4175008 | 23:5D | - |
11/05/2021 12:00:31 | 4182263 | 23:5D | - |
```

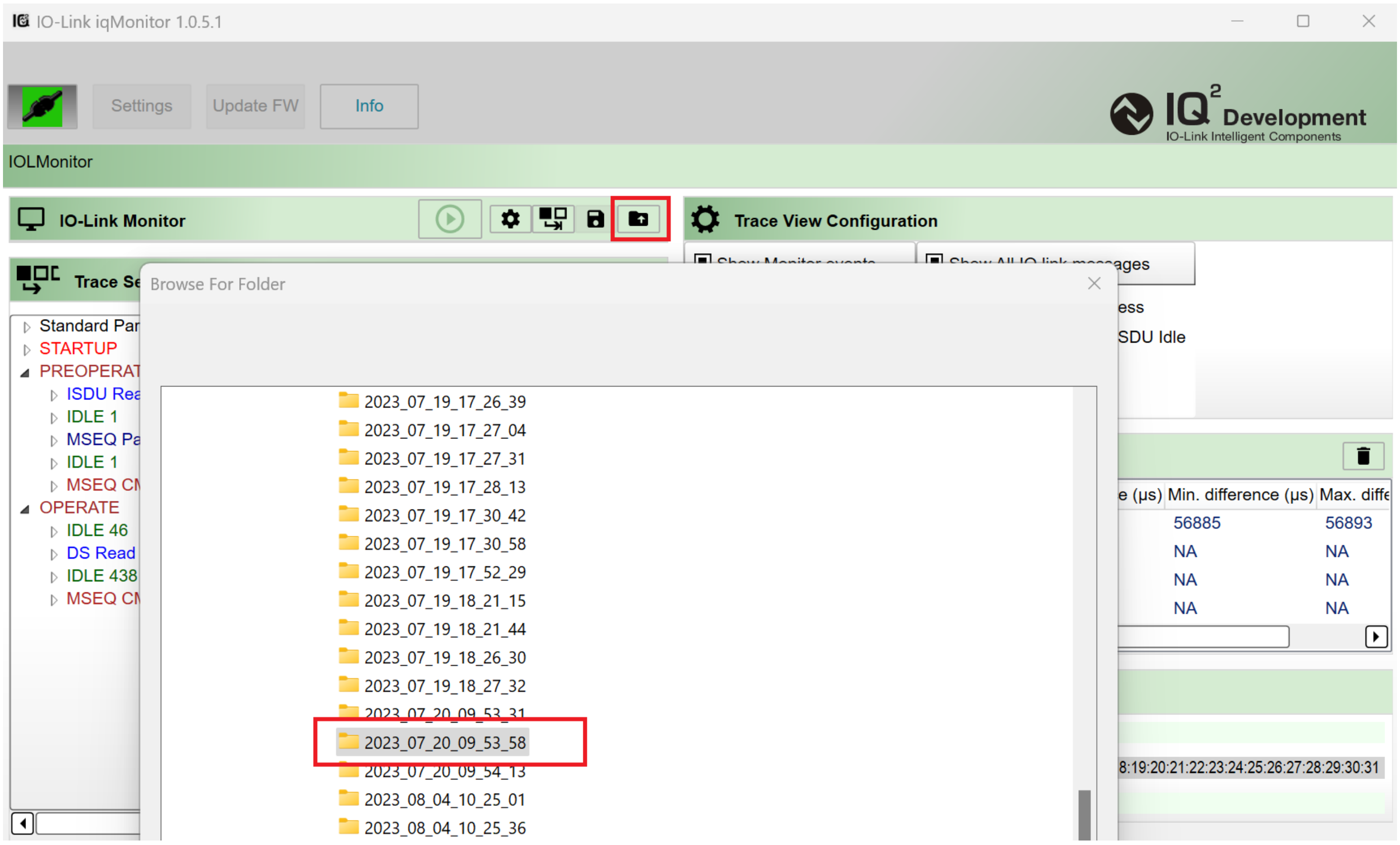
4.5 Load stored data

All traces stored in iqMonitor workspace folder:



To load previously stored traces (**Tool has to be connected to iqInterface !**):

- Click “Open Trace” button:
- Select appropriate folder



5 Troubleshooting

Issue	Solution
Process Data In/Out, On-Request Data are not detected correctly, not showed in trace	This happen, if tracing has been started in the middle of communication and automatic detection for communication option is set. To use automatic detection – it is required to run tracing before communication start. If start tracing should be run in the middle of communication – the correct communication parameters, such as Baudrate, Length of Process data and On-Request data should be set manually in Monitor Option dialog Another possibility to force autodetection during communication, send ISDU request – for example read/write some ISDU parameter (except with addresses 0 and 1).